Eurostat regional yearbook

2021 edition

FLAGSHIP PUBLICATIONS

eurostat

Eurostat regional yearbook

2021 edition

Manuscript completed in July 2021

Luxembourg: Publications Office of the European Union, 2021

Theme: General and regional statistics
Collection: Flagship publications

Print: ISBN 978-92-76-37761-0
ISSN 1830-9674
doi:10.2785/762788
Cat. No: KS-HA-21-001-EN-C

PDF: ISBN 978-92-76-37762-7
ISSN 2363-1716
doi:10.2785/894358
Cat. No: KS-HA-21-001-EN-N

Foreword

The *Eurostat regional yearbook* provides statistics on the people, economy and environment for regions across the European Union (EU). National figures alone cannot reveal the full and sometimes complex picture of what is happening within the EU's Member States. This has become even clearer during the COVID-19 pandemic that has profoundly changed the world that we live in.

While all regions in the EU have been affected, there have been marked differences in regional outcomes reflecting, among other factors, the prevalence and circulation of the virus, the age structure of populations, the level of healthcare staff and specialist equipment, economic structures and specialisations, digital infrastructures, differences in environmental conditions and different strategies implemented by national, regional or local authorities.

There has been an asymmetric impact on regions with particular economic specialisations, for example, those that normally welcome a high number of tourists, regions characterised by high levels of international or retail trade, or regions characterised by high levels of precarious employment.

The *Eurostat regional yearbook* offers a set of indicators, which are divided into three main parts: people and society, economy and business, and the environment and natural resources. The analyses presented include maps, figures and infographics, and are designed to highlight regional variations and similarities.

Although it is too soon to evaluate the full impact of the COVID-19 crisis, not least because it continues at the time of writing, the publication provides an initial set of data for 2020 on several subjects, including mortality and excess deaths, educational attainment and the transition from education to work, labour force developments, and how people made use of the internet.

For those wishing to trace the latest COVID-19 developments — as and when additional data become available — Eurostat's most up-to-date statistics showing the economic and social impacts of the crisis can be found online at: https://ec.europa.eu/eurostat/web/covid-19/overview.

The *Eurostat regional yearbook* is available online in Statistics Explained on Eurostat's website. The latest data can be downloaded from Eurostat's database, where not only fresher but also more disaggregated data may be found.

I hope that you enjoy exploring the regions of the European Union!

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 2021* provides a detailed picture relating to a broad range of statistical topics across the regions of the EU Member States, as well as the regions of the 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.

Chief editor

Mariana Kotzeva

Editors

Teodóra Brandmüller, Bianka Fohgrub and Åsa Önnerfors
(Eurostat, Unit E.4., Regional statistics and geographical information)

Production

Informa S.à r.l. — Giovanni Albertone, Simon Allen and Andrew Redpath

Map production

Jorge Calvo, Bianka Fohgrub, Michael Harrop, Åsa Önnerfors, Jørgen Rasmussen and Hannes Reuter
(Eurostat, Unit E.4., Regional statistics and geographical information)

Dissemination

Catherine Coyette and Annika Johansson
(Eurostat, Unit B.4., Dissemination and user support)

For more information/contact details

Eurostat
Bâtiment Joseph Bech
5, rue Alphonse Weicker
2721 Luxembourg
LUXEMBOURG
Internet: https://ec.europa.eu/eurostat/
E-mail: estat-user-support@ec.europa.eu

Data extraction

The data presented within this publication were extracted during March and April 2021. The manuscript was completed in July 2021.

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

Acknowledgements

We would like to thank all colleagues involved in the editorial work of each chapter:

- **Introduction:** Teodóra Brandmüller, Oliver Heiden, Åsa Önnerfors and Jane Schofield (Eurostat, Unit E.4., Regional statistics and geographical information)
- **Population:** Silvia Andueza Robustillo, Veronica Corsini, Giampaolo Lanzieri, Monica Marcu and Gabriela Senchea Badea (Eurostat, Unit F.2., Population and migration)
- **Health:** Ilze Burkevica, Ángeles Hermosa López and Christopher Jung (Eurostat, Unit F.5., Education, health and social protection); Marta Labrence and Marco Pellegrino (Eurostat, Unit F.2., Population and migration)
- **Education:** Alessandro Albano, Éric Géré and Małgorzata Stadnik (Eurostat, Unit F.5., Education, health and social protection); Elodie Cayotte and Sabine Gagel (Eurostat, Unit F.3., Labour market and lifelong learning)
- **Labour market:** Dilyan Atanasov, Sabine Gagel, Fabienne Montaigne and Hartmut Schrör (Eurostat, Unit F.3., Labour market and lifelong learning); Teodóra Brandmüller and Daniela Sciranková (Eurostat, Unit E.4., Regional statistics and geographical information)
- **Living conditions:** Emilio di Meglio and Barbara Moench (Eurostat, Unit F.4., Income and living conditions; Quality of life)
- **Digital society:** Michaela Grell, Bettina Obringer and Jadwiga Tudek (Eurostat, Unit G.4., Innovation and digitalisation)
- **Economy:** Luis Biedma, Panagiota Bisiela and Gaetana Montana (Eurostat, Unit C.2., National accounts production)
- **Business:** Bojan Horvat, Gregor Kyi, Samuli Rikama and Sarmite Visocka (Eurostat, Unit G.2., European businesses)
- **Research and development:** Alvaro Díez Soto, Stefania Panaitescu, José Alexandre Silva Paredes and Sorina Vâju (Eurostat, Unit G.4., Innovation and digitalisation)
- **Tourism:** Christophe Demunter, Krista Dimitrakopoulou and Renata Lewczuk (Eurostat, Unit G.2., European businesses)
- **Transport:** Evangelia Ford-Alexandraki, Emilia Maria Iscru and Georges Xenellis (Eurostat, Unit E.3., Transport)
- **Environment:** Ebba Barany (Eurostat, Unit E.1., Agriculture and fisheries); Arturo de la Fuente Nuño and Ekkehard Petri (Eurostat, Unit E.2., Environmental statistics and accounts; Sustainable development); Teodóra Brandmüller, Beatrice Eiselt, Aleksandra Galic, Michael Harrop, Oliver Müller, Márta Nagy-Rothengass, Åsa Önnerfors, Alessandra Palmieri and Hannes Reuter (Eurostat, Unit E.4., Regional statistics and geographical information); Marco Paviotti (Directorate-General for Environment, Unit A.3., Environmental Knowledge, Eco-Innovation & SMEs); Christophe Didion, Wim Debeuckelaere and Bavo Peeters (Directorate-General for Environment, Unit D.1., Land Use & Management); Anne Teller (Directorate-General for Environment, Unit D.2., Biodiversity); Bruno Combal and Angelika Rubin (Directorate-General for Environment, Unit D.3., Nature Protection); Barbara Bacigalupi (Directorate-General for Environment, Unit F.1., Sustainable Development Goals Green Finance and Economic Analysis); Cristiano Ballabio, Arwyn Jones, Emanuele Lugato and Panos Panagos (Joint Research Centre, Unit D.3., Land Resources); Daniela Cristiana Docan, Alberto González Ortiz, Artur Bernard Gsella, Carsten Iversen, Eva Ivits-Wasser, Roberta Pignatelli and Nihat Zal (European Environment Agency); Lewis Dijkstra and Hugo Poelman (Directorate-General for Regional and Urban Policy, Unit B.1., Policy Development and Economic analysis)
- **Agriculture:** Ebba Barany, Edward Cook, Baudewina Dijkhuis, Jose Domingo Martinez Solano, Pol Marquer and Helena Ramos (Eurostat, Unit E.1., Agriculture and fisheries)

We are also very grateful to:

- the Publications Office of the European Union, and in particular Claudia Daman and Sandrine Guillet, Unit B.2., Publications

Contents

Introduction

Eurostat, the statistical office of the European Union (EU), collects, compiles and publishes statistics for the EU and euro area, as well as national, regional and other subnational data, primarily for the Member States of the EU, but also for the EFTA and candidate countries.

The *Eurostat regional yearbook* aims to provide a taste of the wide selection of European statistics that are collected at a regional level across a broad range of subjects.

The COVID-19 pandemic has changed the EU and the wider world profoundly and is likely to have a lasting impact on a range of social, economic and environmental issues in years to come. Although vaccine programmes provide hope that countries across the globe will emerge from the crisis, considerable challenges remain. The impact of the pandemic and its associated measures within the EU is already visible in this 2021 edition of the *Eurostat regional yearbook*. Initial results for 2020 for some indicators illustrate the impact — at a regional level — for topics such as mortality, education, the labour market and use of the internet.

European statistics

SUBNATIONAL STATISTICS

EU Member States are often compared with each other in statistical presentations, but in reality it can be difficult to compare a small country such as Malta, which had 514 000 inhabitants on 1 January 2020, or Luxembourg, which had 626 000 inhabitants, with larger Member States such as Germany, the most populous EU Member State, where there were 83 million inhabitants. Furthermore, there are considerable differences between Member States as regards their territorial composition. For example, Ireland, Sweden and Finland are generally rural and sparsely-populated, whereas the Benelux Member States and Malta are characterised by much higher levels of population density. Equally, within individual Member States there can be great diversity: 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.

Therefore, analysing data at a subnational or regional level is often more meaningful as such an analysis may highlight disparities within EU Member States, for example an east-west divide in Germany or a north-south divide in Italy. Furthermore, these analyses may reveal differences in patterns of economic development. Germany and Poland have polycentric patterns of (economic) development with several, relatively large cities spread across their territory, whereas France and Romania are examples of a more monocentric pattern of development, with their 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, addressing the growing needs of policymakers, particularly within the context of cohesion and territorial developments. These changes are based on harmonising and integrating various typologies under two broad headings: those linked to regional statistics and those linked to statistics for local administrative units (LAU or municipalities). With this in mind, a process of legislative consolidation was accomplished by *Regulation (EU) 2017/2391 of the European Parliament and of the Council of 12 December 2017 as regards the territorial typologies (Tercet)*. This regulation establishes a common statistical classification of territorial units to enable the collection, compilation and dissemination of European statistics at different territorial levels.

STATISTICS ON REGIONS — THE NUTS CLASSIFICATION

At the heart of regional statistics is NUTS — the EU's classification of territorial units for statistics. This regional classification for EU Member States is based on a hierarchy of regions and subdivides each Member State into regions that are classified according to three different levels, covering NUTS levels 1, 2 and 3 from larger to smaller areas. Some EU Member States have a relatively small population and/or area and may therefore not be subdivided at some (or even all) of the different levels of the NUTS classification. For example, Estonia, Cyprus, Latvia, Luxembourg and Malta are each composed of a single NUTS level 2 region according to the 2016 version of the NUTS classification.

For non-member countries covered in this publication — 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 gentlemen's agreements between the countries concerned and Eurostat (rather than having any legislative basis).

Table 1 provides an overview of the number of regions for each of the EU Member States and non-member countries that are 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 more detailed statistics are only available for a limited selection of indicators that cover topics such as demography, economic accounts and environmental statistics.

There may also be specific cases (normally related to the limits of data availability) where particular regions are presented using a different NUTS level compared with the remainder of the regions in the same map or figure; these cases are documented in footnotes and are included to improve data coverage. Where little or no regional data exist for a particular EU Member State, use has been made of national data; these exceptions are again documented in footnotes.

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 (when a new version of the NUTS is needed). The NUTS regulation specifies that there should be a minimum period of three years stability during which time the classification should not be changed; exceptions are made when the accession (or departure) of an EU Member State occurs. Since 2003, the NUTS classification has been amended several times, partly due to regular amendments, partly due to changes in the membership of the EU and partly due to changes to the territorial boundaries of existing Member States (for example, the inclusion of data for the French region of Mayotte).

The fourth regular amendment of the NUTS classification (*Commission Regulation (EU) No 2016/2066*) was adopted in December 2016 and applies to any data transmitted to Eurostat from 1 January 2018 onwards; it is referred to as NUTS 2016. This version of NUTS is the basis for classifying regional statistics as used in the 2021 edition of the *Eurostat regional yearbook*. It should be noted that some older data presented in this publication may have been collected using a previous version of NUTS, although these statistics have been recoded to NUTS 2016. As a consequence, data are sometimes not available for a small number of regions where a simple recoding or aggregation of data from previous versions of NUTS was not possible (due to changes in boundaries). It is also important to note that while legislation relating to establishing the NUTS 2021 classification has already been adopted, this is only valid for data transmission to Eurostat from 1 January 2021 onwards; as such, it has not been used in this edition of the *Eurostat regional yearbook*, but may be adopted for the 2022 edition.

Table 1: Number of NUTS 2016 regions and statistical regions by country

	NUTS level 1	NUTS level 2	NUTS level 3
EU	92	240	1 169
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	2	21
Italy	5	21	110
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	19
Switzerland	1	7	26
Montenegro	1	1	1
North Macedonia	1	1	8
Albania	1	3	12
Serbia	2	4	25
Turkey	12	26	81

Source: Eurostat

Table 2: Population size constraints for NUTS 2016 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

The main principles of the NUTS classification

Principle 1: the NUTS regulation defines minimum and maximum population thresholds for the size of individual NUTS regions (see Table 2) to ensure a basic degree of comparability. Deviations from these thresholds are only possible when particular geographical, socioeconomic, historical, cultural or environmental circumstances exist.

Principle 2: NUTS favours administrative divisions. If available, administrative structures are used for the different NUTS levels. In those EU Member States where there is no administrative layer corresponding to a particular level of NUTS, regions are created by aggregating smaller administrative regions.

OTHER TERRITORIAL TYPOLOGIES

Previous editions of the *Eurostat regional yearbook* showed a range of other territorial typologies to extend subnational analyses to topics such as cities and commuting zones, or statistics compiled by degree of urbanisation. The latter is a classification based on three types of area, which are defined using a population grid of 1 km^2 cells in combination with population thresholds to identify cities (densely-populated areas), towns and suburbs (intermediate density areas) and rural areas (thinly-populated areas).

While statistics such as these remain highly relevant for policy debate in the EU and more generally at a global level, an editorial decision was taken when compiling this 2021 edition of the *Eurostat regional yearbook* to concentrate almost exclusively on regional statistics.

European policy background

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. Recent challenges such as the global financial and economic crisis, the impact of globalisation, security concerns from terror attacks, the refugee crisis, the departure of the United Kingdom from the EU (Brexit), or the COVID-19 pandemic provide just a few examples of the two-sided nature of delivering both EU-wide and local solutions in a coherent manner.

One of the EU's main challenges is to ensure that policy developments are scrutinised to ensure that they take account of the considerable geographical diversity within the EU. 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, while ensuring that common resources are used in a coordinated and sustainable way. This section provides an overview of some of the main EU policy developments that have a territorial impact.

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 promotes job creation, business competitiveness, economic growth and sustainable development, thereby improving the overall quality of life experienced by people in the EU.

During the period 2021-2027, a new framework for regional development and cohesion policy in the EU focuses on providing funds to the least developed regions of the EU for five key investment priorities:

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

Cohesion policy is delivered through a number of specific funds:

- The European Regional Development Fund (ERDF) aims to strengthen economic, territorial and social cohesion in the EU by correcting development imbalances between its regions. It focuses on providing funding for key policy areas such as: innovation and research; the digital agenda; support for small and medium-sized enterprises (SMEs); and the low-carbon economy.
- The Cohesion Fund aims to reduce economic and social disparities and to promote sustainable development. Funding is directed specifically at infrastructure projects to support the development of transport, energy and digital infrastructure within trans-European networks and at energy and transport projects that display clear environmental benefits in terms of energy efficiency, the use of renewable energy, developing rail transport, supporting inter-modality, or strengthening public transport.
- The European Social Fund Plus (ESF+) provides support for people, with a focus on improving employment and education opportunities across the EU, as well as the situation of the most vulnerable people (those at risk of poverty).
- The Just Transition Fund is a new financial instrument within cohesion policy. It aims to provide support to territories facing serious socioeconomic challenges arising from the transition towards climate neutrality and is designed to facilitate the implementation of a European Green Deal (which aims to make the EU climate-neutral by 2050).

Cohesion policy: how is the budget decided?

Over time there has been a fragmentation of the rules and financing governing various EU cohesion funds. This resulted in an increased burden on local authorities managing programmes and may also have deterred businesses from applying for EU funding.

For the period 2021-2027 there have been a number of changes in how cohesion policy is organised and managed. The *Common Provisions Regulation (CPR) — Regulation (EU) No 1303/2013 of 17 December 2013* provides a policy framework so that shared management funds, including EU cohesion funds, continue to fulfil the objectives of promoting convergence and supporting the least developed parts of the EU. As the main legal basis for cohesion policy, the CPR makes it possible to address emerging economic and social challenges through greater flexibility in terms of transferring resources and extended capacity. Furthermore, through the revised CPR, all cohesion funds — the ERDF, the Cohesion Fund and the ESF+ — are subject to the same rules of programming, management and monitoring.

The total budget for cohesion policy and the rules associated with its allocation are jointly decided by the Council and the European Parliament. Political agreement on the legislative package for cohesion policy for 2021-2027 was reached at the end of 2020.

Some EUR 337.7 billion (in 2018 prices) have been budgeted for the EU's cohesion policy within the multiannual financial framework 2021-2027. While discussions around a political agreement on cohesion policy were ongoing, the COVID-19 crisis rapidly changed the socioeconomic landscape. As a result, the REACT-EU (Recovery Assistance for Cohesion and the Territories of Europe) package was agreed (1). It provided an additional EUR 57.5 billion of funding for 2021 and 2022 as part of the European Recovery Instrument (also known as Next Generation EU). As such, the total cohesion budget for the period between 2021 and 2027 — covering the ERDF, Cohesion Fund, ESF+, the Just Transition Fund and REACT-EU — totals EUR 395.2 billion (in 2018 prices).

The bulk of the budget for the EU's cohesion policy is provided to regions whose development lags behind the EU average, in particular, less developed regions predominantly located in the south or the east of the EU, the Baltic Member States and several outermost regions. Funding is concentrated on these less developed regions, with the goal of reducing economic, social and territorial disparities.

For the 2021-2027 period, the allocation of funds uses a method that remains largely based on regional gross domestic product (GDP) per inhabitant. However, a set of new criteria has been added — youth unemployment, low education levels, climate change, and the reception and integration of migrants — to better reflect the challenges faced by each region.

A specific allocation method will be used to distribute the REACT-EU funds between EU Member States. This is different from the normal cohesion policy allocation method and will take into account levels of prosperity, the magnitude of economic contraction due to the COVID-19 pandemic, and the impact of the crisis on unemployment (including among young people).

(1) REACT-EU provides additional funding to extend the EU's crisis response to the COVID-19 pandemic, while contributing towards a green, digital and resilient recovery. It is designed to support job maintenance, including through short-time work schemes and support for the self-employed; support job creation and youth employment measures; health care systems; and the provision of working capital and investment support for small and medium-sized enterprises.

The NUTS classification — an objective basis for the allocation of cohesion policy funding

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

During the period 2021-2027, eligibility for cohesion funds will be based on regional GDP per inhabitant (in purchasing power standards (PPS)). NUTS level 2 regions were ranked and split into three 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; and
- more developed regions, where GDP per inhabitant was more than 100 % of the EU average.

Cohesion policy: implementation

European structural and investment funds are attributed through a process which involves EU, national, regional and local authorities, as well as social partners and organisations from civil society (representative and community groups that are independent of government or business). Each EU Member State produces a draft partnership agreement and draft operational programme, which provides information for their regional strategy and a list of proposals for programmes. Having negotiated the contents of these with the European Commission, national/regional managing authorities in each of the Member States then select, monitor and evaluate projects.

The rules for cohesion policy funding during the period 2021-2027 have been simplified and harmonised so that the same rules are applied to all of the different funds. Procedures have been adapted so that they are based upon a results-orientated approach with more transparent controls, less bureaucracy, the introduction of specific preconditions before funds can be released, and the introduction of measurable targets for better accountability. The aim is that these simplified rules and coordinated structures will allow for a greater empowerment of subnational authorities in the management of EU funds.

Cohesion policy: integrated into broader policy goals

Regional policy and funding help deliver many of the EU's overall policy objectives. Cohesion policy programming is embedded within overall economic policy coordination, in particular the European Semester, the digital transition, A European Green Deal and the promotion of the European Pillar of Social Rights. These links between cohesion policy and broader reforms have been strengthened such that the European Commission may suspend regional funding to any EU Member State which does not comply with the EU's economic rules.

OTHER POLICY AREAS THAT IMPACT ON SUBNATIONAL AREAS

While the EU's regional policy can play an important role in delivering broader policy goals in a range of socioeconomic fields such as education, the labour market, energy, research and development or the environment, other EU policy areas can, in a similar way, have an impact on regions across the EU.

Urban development policy in the EU

The various dimensions of urban life — economic, social, cultural and environmental — are closely inter-related. Successful urban developments are often based on coordinated/integrated approaches that seek to balance these dimensions through a range of policy measures such as urban renewal, increasing education opportunities, preventing crime, encouraging social inclusion or environmental protection.

At the end of May 2016, a meeting of ministers responsible for urban matters was held in Amsterdam, the Netherlands. It reached an agreement on an *Urban Agenda for the EU*, as established by the *Pact of Amsterdam*. This agreement foresees the development of 12 priority areas for partnerships between EU institutions, Member States, cities and other stakeholders. The themes include: 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.

European policymakers recognise the important role that may be played by the urban dimension of regional policy, in particular measures designed to assist the fight against poverty and social exclusion. In doing so, the urban dimension of cohesion policy will be strengthened during the period 2021 to 2027, with 6 % of the ERDF dedicated to sustainable urban development strategies, alongside a new

European Urban Initiative-post 2020 to support cities to innovate, access knowledge and understand policy. This initiative is designed to strengthen integrated and participatory approaches to sustainable urban development and aims to do so by facilitating and supporting cooperation and capacity building among urban actors, innovative actions, knowledge, policy development and communication.

Rural development policy in the EU

The EU is seeking to develop a long-term vision for rural areas, designed to help rural areas meet a wide range of economic, social and environmental challenges. This initiative — which seeks to develop a common European vision for vibrant, connected, and sustainable rural areas by 2040 — is being coordinated by the European Commission. They will gather the views of rural communities and businesses through public consultations and events for stakeholders, and use this to develop a comprehensive action plan designed to help rural communities and businesses reach their full potential.

The European Agricultural Fund for Rural Development (EAFRD) is intended to help develop farming and rural areas by providing a competitive and innovative stimulus at the same time as seeking to protect biodiversity and the natural environment. There are six priority areas, namely to promote: knowledge transfer and innovation in agriculture and forestry; the viability and competitiveness of all types of agriculture and support sustainable forest management; the organisation of the food production chain, animal welfare and risk management in farming; the restoration, preservation and enhancement of agricultural and forest ecosystems; the efficient use of natural resources and support the transition to a low-carbon economy; social inclusion, poverty reduction and economic development in rural areas.

In June 2018, the European Commission presented a set of legislative proposals for the future of the CAP beyond 2020. These proposals aim to make the common agricultural policy (CAP) more responsive to future challenges, such as climate change and generational renewal, while continuing to support EU farmers for a sustainable and competitive agricultural sector.

Following the allocation of the EU's long-term budget — the multiannual financial framework (2021-2027) — a transitional regulation ensuring continued support for agriculture, forestry and rural areas was agreed concerning funding during 2021 and 2022. This extends most of the rules that were in place during the 2014-2020 period, while also including new elements to encompass stronger green ambitions. The EAFRD remains part of the framework for European structural investment funds (ESIFs) in 2021 and 2022, but will move to be treated under the framework of the new CAP which is now expected to start in 2023.

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. It was created in 1994 and is composed of 329 members who are regional presidents, mayors or elected representatives from the 27 Member States of the EU; successive treaties have broadened its role.

During the period 2020-2025, the CoR aims to bring the EU closer to its people through three main priorities:

- bringing the EU closer to people — democracy and the future of the EU (with the goal of reinforcing democracy at all levels of government, improving the way the EU works, ensuring its policies and programmes meet the real needs of citizens);
- managing fundamental societal transformations — building resilient regional and local communities (using the UN's Sustainable Development Goals to identify solutions that ensure the EU sufficiently supports local and regional authorities in responding to future emergencies and addressing the societal transformations taking place in their communities from challenges such as global pandemics as well as climate, digital and demographic transitions);
- promoting cohesion as a fundamental value — place-based EU policies (ensuring that economic, social and territorial cohesion is fostered and respected in all EU policies that affect people and their places of living).

The #CohesionAlliance 2.0 is a coalition of people who believe that the role of EU cohesion policy should be strengthened post-2020. The alliance was created through cooperation between leading European associations of cities and regions and the European Committee of the Regions. In May 2020, a proposal was put forward for a renewed declaration in view of the upcoming decisions on the EU's multi-annual financial framework and the EU's recovery plan. A final version of the declaration was agreed and adopted on 14 July 2020.

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 provide evidence of the importance of the local and regional level for good governance. Organised by the CoR and the European Commission's Directorate-General for Regional and Urban Policy, it has become a networking platform for regional and local development — which is viewed as a key event for policy practitioners — and is the biggest EU event dedicated to regional policy. The *19th European Week of Regions and Cities* will be held in mid-October 2021 under the slogan of 'together for recovery' and will concentrate on four principal themes (that are closely aligned with the European Commission's priorities):

- the green transition — for a sustainable and green recovery;
- cohesion — from emergency to resilience;
- the digital transition — for people; and
- citizens' engagement — for an inclusive, participative and fair recovery.

European Green Deal

To overcome the existential threat of climate change, 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, and making the transition fair and inclusive for all.

Reaching these targets will require action from all regions and all sectors of the EU economy, including: investing in environmentally-friendly technologies; supporting industry to innovate; rolling out cleaner, cheaper and healthier forms of private and public transport; decarbonising the energy sector; ensuring buildings are more energy efficient; and working with international partners to improve global environmental standards.

To do so, the EU will provide financial support and technical assistance through the Just Transition Fund to help those that are most affected by the move towards the green economy. For example, assistance may be provided to regions and sectors that depend on fossil fuels or carbon-intensive processes. It will draw on sources of funding from the EU budget as well as from the European Investment Bank.

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 four key points — government, skills, infrastructure and business — that are the cornerstones of the *2030 Digital Compass: the European way for the Digital Decade* (COM(2021) 118 final). Some of the targets set for 2030 include:

- having 20 million employed ICT specialists in the EU (with convergence between women and men);
- having all households in the EU covered by a Gigabit network and all populated areas covered by 5G;
- having the EU produce at least 20 % of the world's output of cutting-edge and sustainable semiconductors;
- having 75 % of EU enterprises making use of cloud computing services, big data and artificial intelligence;
- having online provision for all key public services in the EU (those used by individuals and by enterprises);
- to provide all Europeans with access to their medical records online;
- to have 80 % of EU citizens using a digital ID solution.

The European Commission aims to strengthen the digital sovereignty of the EU and to set standards, rather than following those of others — with a focus on data, technology, and infrastructure. The goal is to achieve this through a robust joint governance structure (to identify successes and gaps) and through multi-country projects combining support from the EU's budget, national governments and the private sector.

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 three 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.

These three headings cover a set of 20 key principles. To monitor the progress being made in strengthening the social dimension of the EU, the European Commission has established a social scoreboard. The information presented is also used for economic policy coordination as part of the European Semester. In her *Political guidelines for the period 2019-2024*, the European Commission president, Ursula von der Leyen, highlighted the need to reconcile 'the social and the market in today's modern economy' and undertook to fully implement the European Pillar of Social Rights. In January 2021, she stated that 'As we overcome the pandemic, as we prepare necessary reforms and as we speed up the twin green and digital transitions, I believe it is time to also adapt the social rulebook'.

On 4 March 2021, the European Commission adopted the *European Pillar of Social Rights Action Plan* (COM(2021) 102 final) designed to turn the 20 key principles into specific actions, while also proposing three new headline targets for the EU to reach by 2030:

- at least 78 % of the population aged 20 to 64 years should be in employment by 2030;
- at least 60 % of all adults should be participating in training every year by 2030;
- a reduction of at least 15 million in the number of people at risk of poverty or social exclusion should be achieved by 2030 (compared with the situation in 2019 when there were 91 million people at risk of poverty or social exclusion).

The action plan has been designed to address both long-term transformations of the EU's labour markets and economies — as shaped by climate change, digitalisation, globalisation and demographic developments — alongside more immediate challenges resulting from the COVID-19 pandemic and its impact on jobs, education, the economy, welfare systems and social life.

Despite the European Pillar of Social Rights not making any specific reference to regional policy, policymakers have shown a growing interest in analysing information at a more detailed, subnational level. Many of the indicators in the social scoreboard may be provided by Eurostat for a range of territorial typologies — principally, by region (using the NUTS classification) or by degree of urbanisation.

Sustainable Development Goals

Sustainable development has long been part of the political agenda within the EU. However, this subject area was given fresh impetus with the adoption of the *2030 Agenda for Sustainable Development* in September 2015 by the United Nations (UN) General Assembly. At the core of the agenda, there is a set of 17 Sustainable Development Goals (SDGs), which provides a global policy framework for stimulating action until the year 2030 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 details the significance 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 regularly monitor 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.

With a broad range of challenges ahead, the EU highlighted further actions required to help secure a sustainable future in a reflection paper released by the European Commission in January 2019, *Towards a sustainable Europe by 2030*. The paper highlighted that some of the most important global challenges to be faced in the coming years include issues around social equality, solidarity and environmental protection. In her Political guidelines for the period 2019-2024, the European Commission president underlined this commitment noting that 'economic policy should go hand in hand with social rights, the EU's climate neutrality objective and a competitive industry'. With this in mind, she suggested there was a need to 'refocus the European Semester into an instrument that integrates the United Nations' Sustainable Development Goals'.

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 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.

The *Eurostat regional yearbook* contains regional statistics for the Member States of the EU, alongside data for a number of non-member countries — EFTA countries (Iceland, Liechtenstein, Norway and Switzerland) and candidate countries (Montenegro, North Macedonia, Albania, Serbia and Turkey). The United Kingdom left the EU at the start of February 2020 and, at the time of writing, negotiations concerning statistical cooperation are on-going. In the meantime, Eurostat will generally not publish information from the United Kingdom.

The geographical descriptions used to group EU Member States, for example, 'northern', 'eastern', 'southern' and 'western' are not intended as political categorisations. Instead, these references are made in relation to the geographical location of one or more EU Member States, as listed within the geography domain of Eurovoc, the European Commission's multilingual thesaurus. The northern Member States are often distinguished between the Baltic Member States (Estonia, Latvia and Lithuania) and the Nordic Member States (Denmark, Finland and Sweden).

The designations employed and the presentation of material in maps and figures do not 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.

How to interpret the maps

A majority of the maps in the *Eurostat regional yearbook* are choropleth maps (that use different colour shades to show regional differences for a particular indicator). These maps have been made using a standardised approach.

- Nearly all of these maps are composed of six colours, three blue shades (that show values that are progressively lower than the EU average) and three orange shades (that show values that are progressively higher than the EU average).
- The class boundaries in each map are computed exclusively in relation to the distribution of regional values for EU Member States (even when maps also include data for regions in non-member countries). The boundaries for the lower classes are based on the 10th and the 25th percentiles, the middle classes on the EU average, and the upper classes on the 75th and the 90th percentiles. Each of these boundaries — other than that given by the EU average — was subsequently rounded up/down to make the class boundaries easier to read. As such, the darkest shade of blue/orange in each map portrays those EU regions with approximately the lowest/highest 10 % of values.

Proportional circles and pie charts have been used in maps when presenting data in absolute values (for example, the total number of people living in a region or the gross domestic product of a region). In each of these map types, the size of each circle represents the underlying level for the main indicator, while additional information may be presented by shading circles in different colours or dividing circles into pie segments.

Non-member countries that are excluded from the spatial coverage of the *Eurostat regional yearbook* are systematically denoted in all maps using a light shade of grey. For choropleth maps, if data are not available for any regions in the EU Member States, EFTA countries or candidate countries, these are denoted using a dark shade of grey. For maps using proportional circles or pie charts, if data are not available for any regions in the Member States, EFTA countries or candidate countries, these regions are left blank (white).

Timeliness

There is a wide range of surveys and data collection exercises whose data feed into the *Eurostat regional yearbook*. As a result, there may be differences concerning the latest available reference year between the chapters as each aims to show the latest information. In general, 2020 data are available for demography (as used in the chapter on population), the labour force survey (as used in the chapters on education and the labour market) and the information society survey (as used in the chapter on the digital society). Otherwise, the most common reference period is 2019, which is generally the latest year for which information is available in most of the other chapters, for example, living conditions, the economy or tourism. Note that 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 below each of the maps and figures help users to locate the freshest data.

Metadata

Eurostat's data are published with accompanying metadata that provide background information on each source, as well as specific information (flags) for individual data cells. The flags provide information relating to the status of the data, for example, detailing whether the data are estimated, provisional or forecasted. These flags are generally not shown in this publication (in order to restrict the metadata shown under maps and figures to a minimum). Some cells may be flagged as confidential and these are simply shown as being 'not available'; as such, they cannot be distinguished from other values where data have not been provided (for whatever reason).

When compiling the maps and figures for this edition of the *Eurostat regional yearbook*, cases where the latest data were missing were identified. Given the considerable impact of the COVID-19 pandemic and its associated restrictions, two different methods were employed to try to fill these gaps for missing data.

- **Datasets where the most recent data available were for 2020**: in these cases, because there could be considerable differences between 2019 and 2020 due to COVID-19 impacts, an attempt was made to fill missing NUTS levels for a particular EU Member State with higher aggregates of NUTS or with national data (both for 2020) before making use of older regional data.
- **Datasets where the most recent data available were for 2019 or an earlier year**: in these cases, an effort was made to fill missing cells first with older regional data (at the same NUTS level) before making use of more aggregated NUTS levels or national data.

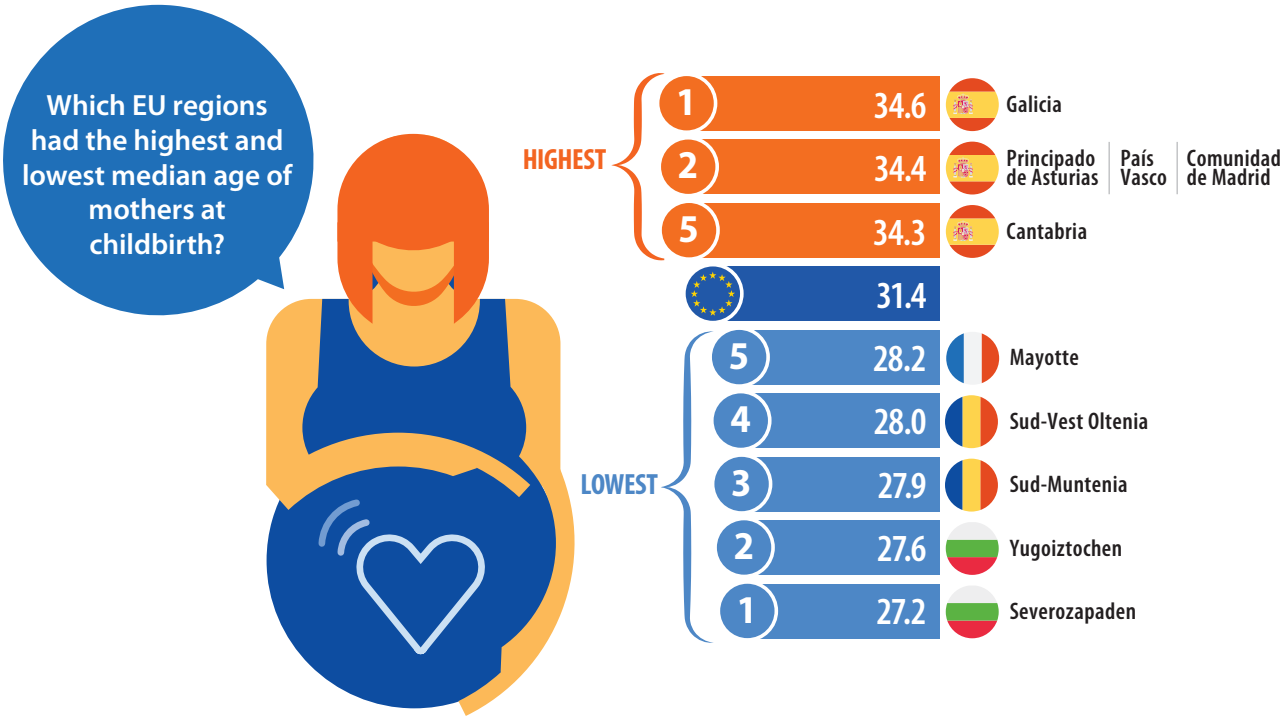
In both cases, these exceptions for different geographical levels or for different reference periods are documented in the footnotes provided. This is also the case for breaks in series and other major methodological differences.

A People and society

1. Population

Demographic developments in the European Union (EU) are far from uniform, with considerable variations both between and within individual EU Member States. 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. The increased mobility of younger generations can result in profound changes to demographic structures in particular geographic areas, with some regions thriving due to an inflow of younger more-qualified generations, whereas others lag behind. Changes such as these can result in considerable differences in demographic structures, for example resulting in:

- 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 wide range of services.



(years, 2019 data)

Source: Eurostat (online data codes: demo_r_find2 and demo_find)

Regional populations

On 1 January 2020 there were 447 million persons living in the EU; this was 873 thousand more than on 1 January 2019. Most people in the EU live in relatively densely-populated cities, towns and suburbs, while the vast majority of the EU's land area is more sparsely-populated. There are 240 NUTS level 2 regions and 1 169 NUTS level 3 regions across the EU from which a detailed typology for analysing demographic developments can be established. Note that some of the differences covered below reflect the criteria used to determine administrative boundaries that are used to delineate each region.

As of 1 January 2020, there were 51 NUTS level 2 regions in the EU that had at least 2.5 million people (as shown by the three largest circles in Map 1.1). This information relates to the 'usual resident population' (in other words, those people living in each region for at least the last 12 months). These most populous regions in the EU included the capital regions of Germany, Greece, Spain, France, Croatia, Italy, the Netherlands, Poland and Portugal. At the upper end of the distribution, there were just two regions with at least 10.0 million people, the French capital region (Île-de-France; 12.3 million) and Lombardia (10.0 million) in the north of Italy.

Regions with fewer than one million people as of 1 January 2020 (shown by the smallest circles in Map 1.1) were often rural, remote or peripheral regions. Among these, the least populous NUTS level 2 regions with less than 250 000 persons included the two Spanish Ciudades Autónomas de Ceuta y Melilla, the mountainous Italian region of Valle d'Aosta/Vallée d'Aoste, and four island regions — Ionia Nisia, Voreio Aigaio (both Greece), Região Autónoma dos Açores (Portugal) and Åland (Finland). The lowest population count (just under 30 000 persons) was in Åland.

Most capital regions are projected to see their populations grow during the next three decades

Populations change in a dynamic fashion over time, as a function of births, deaths and migratory flows; this is true for regional as well as national populations. The EU is undergoing a period of progressive ageing of its population with low fertility rates contributing to the growing share of the elderly in the total population.

This on-going process of demographic ageing has a number of socioeconomic impacts: for example, there will probably be a sizeable reduction in the number and share of working-age persons which may result in considerable challenges for public expenditure on pensions, healthcare and long-term care costs.

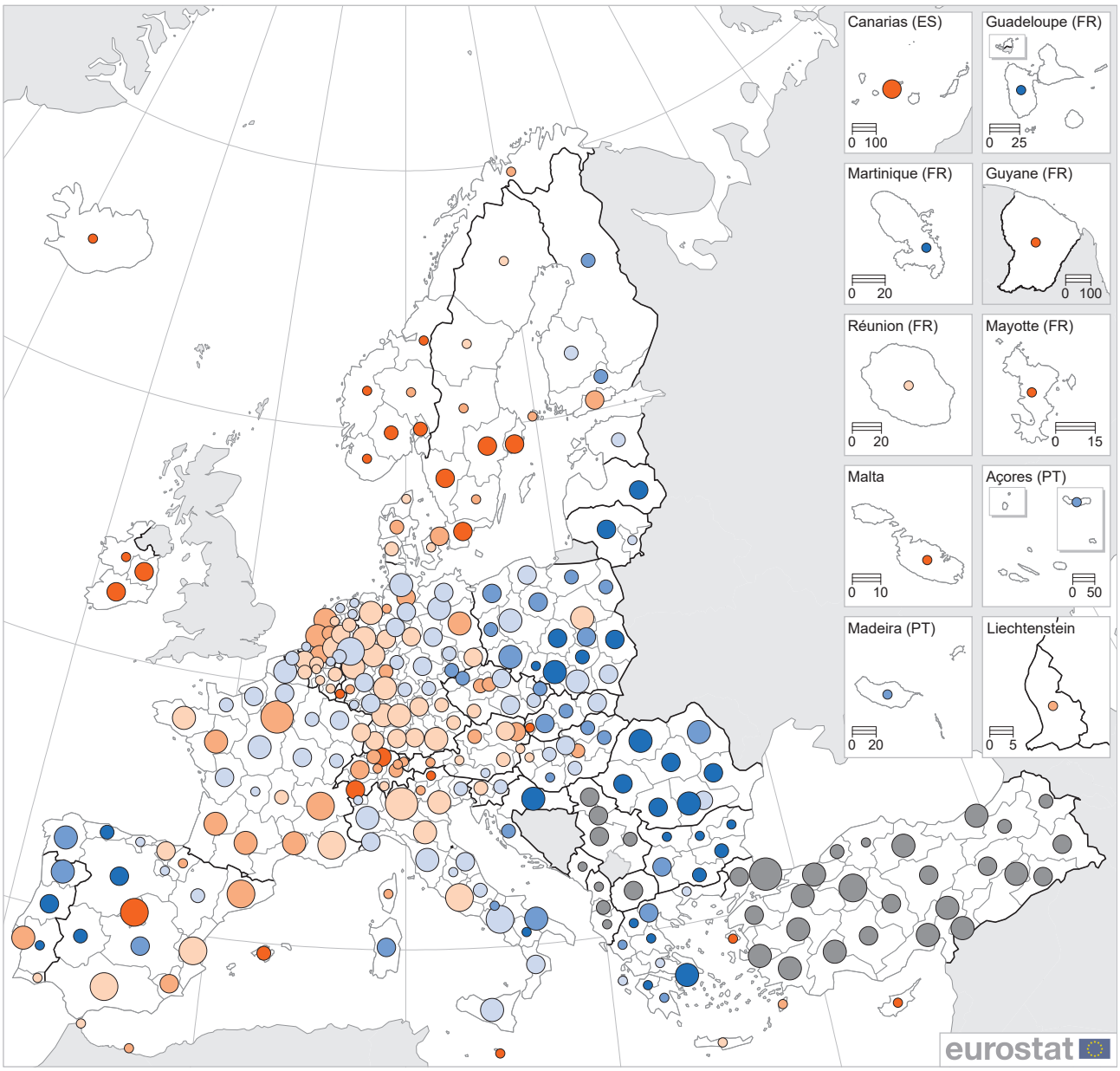
EUROPOP2019 is the latest set of population projections released by Eurostat. It provides 'what-if' scenarios that may be used to trace projected population developments (based on various assumptions that are held constant over time). According to the baseline projection, the EU's population will fall by 6.1 million persons during the next three decades (equivalent to an overall fall of 1.4 %).

Map 1.1 shows projected changes in populations for NUTS level 2 regions between 1 January 2020 and 1 January 2050. In the vast majority of EU Member States, capital regions have some of the highest positive projected rates of change, suggesting that they will (continue to) exert a considerable pull on both international and inter-regional migrants.

There are 19 regions across the EU where the population is projected to increase by at least 15.0 % during the next three decades (as shown by the darkest shade of orange in Map 1.1). Particularly high projected growth — more than 25.0 % — was observed in regions as far afield as Mayotte and Guyane (France), Voreio Aigaio (Greece), Illes Balears (Spain), Malta, Eastern and Midland (Ireland) and Stockholm (Sweden).

Regional populations are projected to increase between 1 January 2020 and 1 January 2050 across many densely-populated, predominantly urban regions of the EU. Looking in more detail at population developments within individual EU Member States, every region of Denmark, Ireland, Luxembourg, Malta and Sweden is projected to experience an increase in population numbers during the period under consideration. By contrast, population levels are projected to fall across many eastern regions of the EU and in the Baltic Member States. This pattern is particularly apparent in Bulgaria, Estonia, Croatia, Latvia, Lithuania and Romania, where every region is projected to see its population fall. A similar pattern is foreseen in Poland, Slovenia and Slovakia, as every region — except for the capital region — is projected to experience a decline in population numbers.

Map 1.1: Population on 1 January 2020 and projected population change 1 January 2020-2050
(by NUTS 2 regions)



Projected population change, 1 January 2020-2050 (%)
EU = −1.4

- < −15.0
- −15.0 - < −10.0
- −10.0 - < −1.4
- −1.4 - < 5.0
- 5.0 - < 15.0
- ≥ 15.0
- Data not available

Population on 1 January 2020 (million persons)
EU = 447.3

- < 1.00
- 1.00 - < 1.50
- 1.50 - < 2.50
- 2.50 - < 5.00
- 5.00 - < 10.00
- ≥ 10.00

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: baseline projections for 2050.

Source: Eurostat (online data codes: demo_r_pjangroup, proj_19rp3, demo_pjan and proj_19np)

Population density provides an average measure for the number of persons living per square kilometre (km^2) of land area. Most regions are characterised by a broad range of different land uses beyond residential developments (for example, agriculture, forests, factories, offices and retail space, transport infrastructure, unused and abandoned areas). Therefore, even within individual regions there can be wide-ranging differences in population density.

In 2019, the population density of the EU was 109.0 persons per km^2. In general, there were quite low levels of population density across much of the EU, although these were interspersed by pockets of more densely-populated regions. As of 1 January 2020, the 30 most populous NUTS level 3 regions accounted for 16.3 % of the EU's total population, whereas their combined share of the EU's total area was just 3.8 %.

On average, there were almost 21 000 persons living in every square kilometre of Paris …

The highest population density in the EU was recorded in the French capital region, Paris, where there were, on average, almost 21 000 persons per km^2 in 2019. As noted above, the administrative boundaries used to delineate each region can have a considerable influence on these results. For example, the French capital region is constrained by the périphérique (a Parisian ring road) and hence its area is strictly confined to the centre of Paris, in contrast to most urban regions which include both a city centre and its surrounding (less densely-populated) suburban areas. That said, population density was also very high in the three regions bordering directly onto the French capital (Hauts-de-Seine, Seine-Saint-Denis and Val-de-Marne), with much lower values for the next concentric ring of regions around the capital (Essonne, Yvelines and Seine-et-Marne).

The second highest level of population density in 2019 was recorded in the Greek capital region, Kentrikos Tomeas Athinon (10 446 persons per km^2), followed by Hauts-de-Seine, which covers some of the inner suburbs to the west of Paris (9 457 persons per km^2). The top five most densely-populated regions in the EU was completed by the Romanian and Belgian capital regions, Bucureşti (7 933 persons per km^2) and Arr. de Bruxelles-Capitale/Arr. van Brussel-Hoofdstad (7 527 persons per km^2).

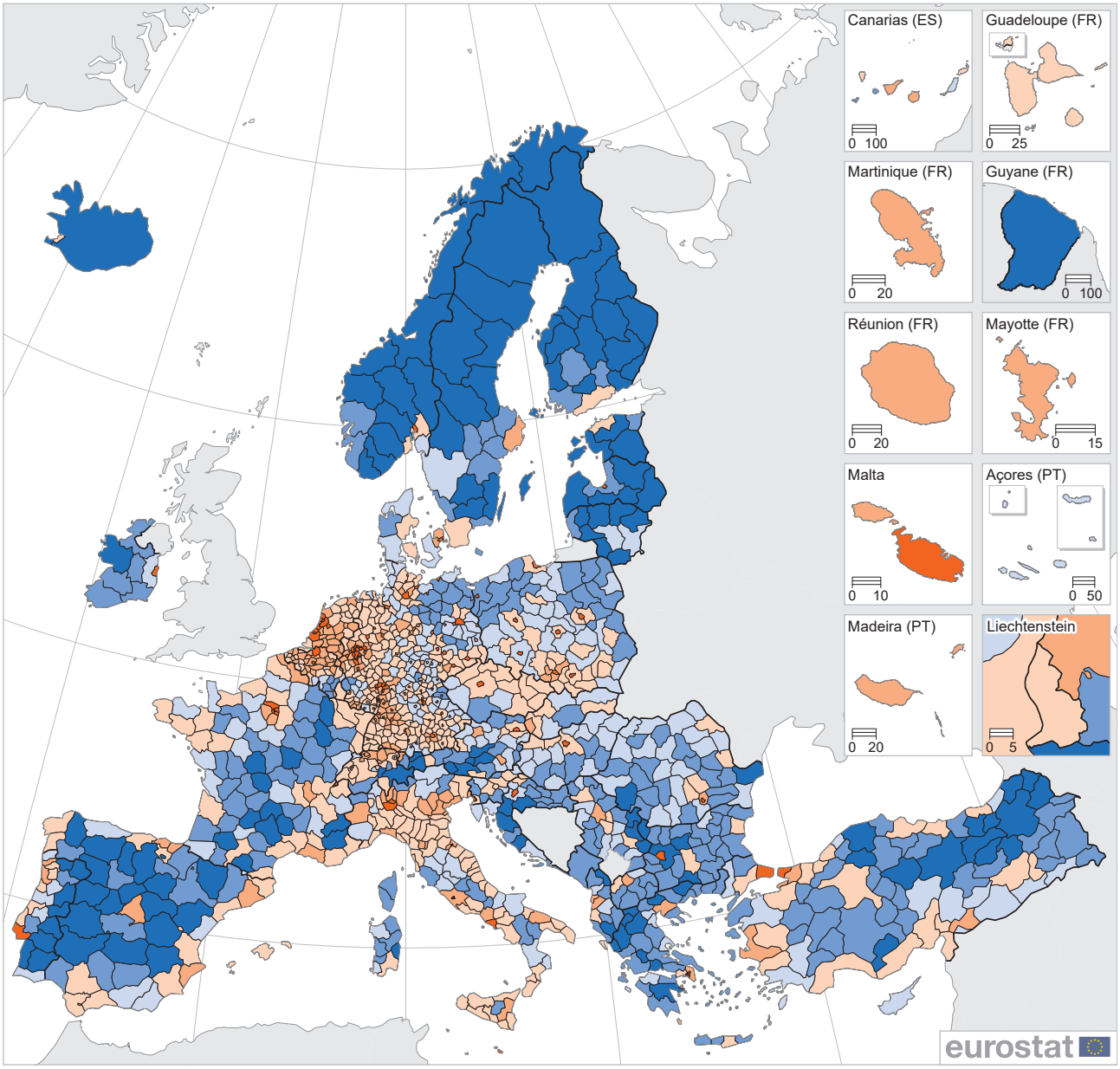
Most of the other regions with very high levels of population density were characterised as urban regions containing some of the EU's largest cities (including most of the remaining capitals) or regions that were located adjacent to these (in other words, areas of suburban sprawl around some of the EU's main cities and conurbations — for example, the Ruhrgebiet in Germany or Randstad in the Netherlands).

The lowest level of population among EU capital regions was recorded in Vilniaus apskritis (Lithuania), at 86.6 persons per km^2, which was below the average population density for the whole of the EU. Cyprus had a population density of 95.7 persons per km^2 and was the only other capital region to record a level of population density below the EU average.

… in contrast to large expanses of uninhabited areas in northern Europe

At the other end of the range there remain large expanses of the EU where relatively few people are living. Nowhere was this more apparent than in Lappi — the northernmost region of Finland — which had the lowest population density in the EU, at 1.9 persons per km^2 in 2019. The second and third lowest population densities in the EU were recorded in neighbouring Sweden, in the northernmost region of Norrbottens län and the central region of Jämtlands län.

Map 1.2: Population density, 2019
(persons per km^2, by NUTS 3 regions)



EU = 109.0

- < 35
- 35 - < 70
- 70 - < 109
- 109 - < 300
- 300 - < 1 000
- ≥ 1 000
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Source: Eurostat (online data code: demo_r_d3dens)

Population structure

As noted above, regional population projections suggest that demographic ageing will continue across the EU as a result of persistently low fertility rates and extended longevity. The social and economic consequences of this process are likely to have profound implications both nationally and regionally, for example, impacting the capacity of governments to raise tax revenue, or provide adequate pensions and healthcare services. These challenges are likely to be more intensely felt in those regions from which younger (and working-age) people relocate.

That said, the elderly have been most impacted by the COVID-19 pandemic in terms of morbidity and mortality (see Chapter 2 on health for more details). As a result, regions characterised by high shares of elderly populations are more likely to have witnessed rapid changes in their population structures during the pandemic.

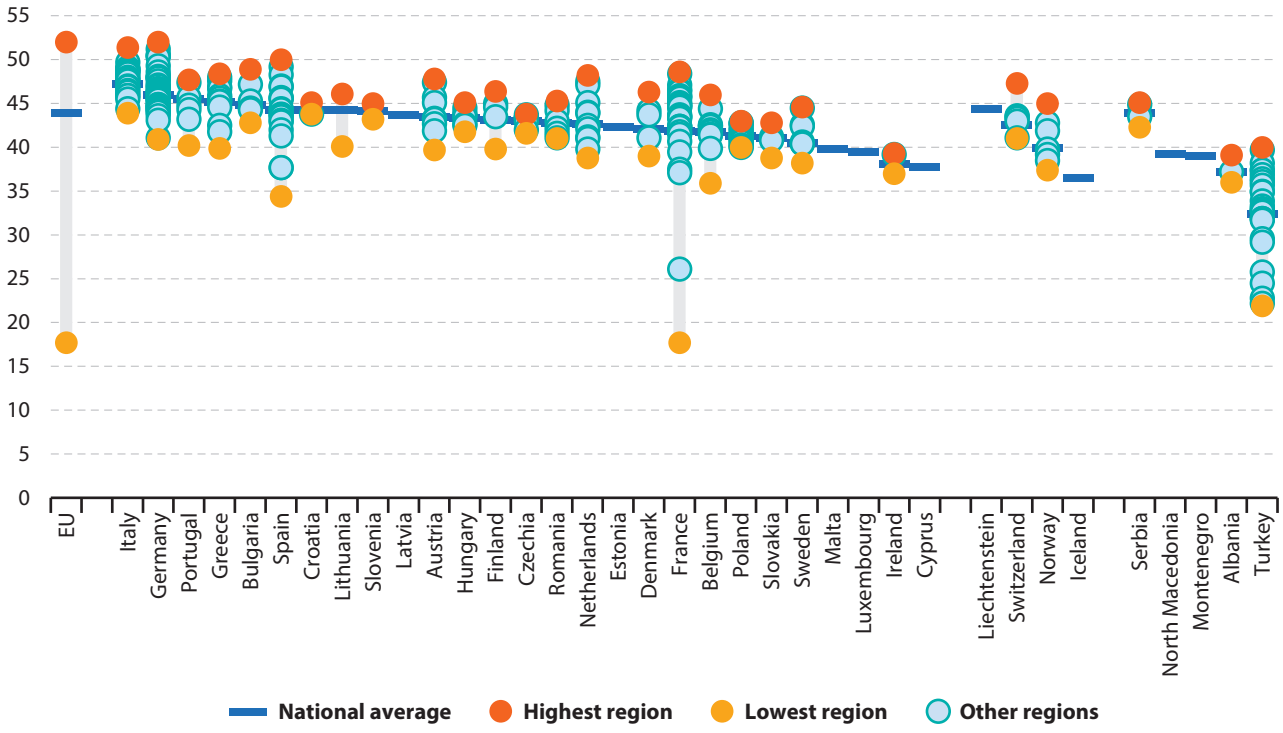
Some of the highest median ages in the EU were recorded in regions in Germany, Spain and Italy …

The median age is an indicator that may be used to analyse population ageing. It gives an idea of the pace at which the EU's population structure is changing. The median age of the EU population was 38.4 years in 2001 (the first reference year for which information is available). Over a period of 19 years, the median age in the EU increased by more than five years, to stand at 43.9 years by 2020.

In 2020, 6 out of the 10 NUTS level 2 regions in the EU with the highest median ages were situated in (predominantly eastern) Germany: Chemnitz, Sachsen-Anhalt, Brandenburg, Mecklenburg-Vorpommern, Thüringen and Saarland. These regions were often characterised by relatively low levels of disposable income and relatively high unemployment rates (when compared with other regions in Germany). It is therefore likely that their high median ages reflect, at least to some degree, younger people having moved — for example to regions with larger and more affluent cities in Germany, or further afield (for example, in neighbouring countries such as Austria) — in search of higher wages and/or better job opportunities.

The median age of the population was also relatively high in a number of Spanish and Italian regions that were characterised by relatively low fertility rates and rural depopulation (in part reflecting a range of push factors that encourage younger people to leave their region). This pattern was most evident for the neighbouring regions of Principado de Asturias and Castilla y León in north-west Spain and two northern regions of Italy — Liguria and Friuli-Venezia Giulia. In these two Italian regions, population ageing was enhanced as their coastlines provided popular retirement destinations (thereby pulling in additional old people).

Figure 1.1: Median age of population, 2020
(years, by NUTS 2 regions)



Note: ranked on the national average.

Source: Eurostat (online data codes: demo_r_pjanind2 and demo_pjanind)

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

Capital regions often exert a considerable pull on international and inter-regional migrants, as they tend to provide a wide 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 the total population in capital regions; over time, this pattern may self-propagate, insofar as populations with younger age structures are more likely to have relatively high birth rates.

In 2020, 5 out of the 10 NUTS level 2 regions in the EU with the lowest median ages were capital regions, those of Belgium, Ireland, France, Cyprus and Sweden. Among these, the lowest median age was recorded in Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (35.9 years). The other five regions with the lowest median ages were outermost regions and autonomous regions/cities. Two of these had particularly low median ages (reflecting their high fertility rates): the French régions ultrapériphériques of Mayotte (17.7 years) and Guyane (26.1 years).

There were 75 regions across the EU with old-age dependency ratios of at least 50.0 %

An alternative indicator for measuring the gradual ageing of the EU's population is the old-age dependency ratio. It is calculated as the number of elderly people (aged 65 years or more) compared with the number of working-age people (defined here as those aged 20-64 years). In 2001, the EU's old-age dependency ratio was 25.9 %. In other words, there were slightly fewer than four adults of working age for every person aged 65 years or more. The old-age dependency ratio had risen to 34.8 % by 1 January 2020 (when there were slightly fewer than three adults of working age for every person aged 65 years or more), while the ratio is projected to reach 56.7 % by 2050 (by when there will be fewer than two working-age adults for each elderly person).

As of 1 January 2020, there were 75 NUTS level 3 regions across the EU which reported an old-age dependency ratio of at least 50.0 %; in other words, regions where there were fewer than two working-age adults for each person aged 65 years or more. These 75 regions were predominantly characterised as rural, mountainous or relatively remote, where it is likely that younger people have left the region in which they grew up so they could continue their studies or look for alternative and perhaps more varied work. Some of the highest old-age dependency ratios were concentrated in (eastern) Germany, Greece, Spain, France, Italy, Portugal and Finland.

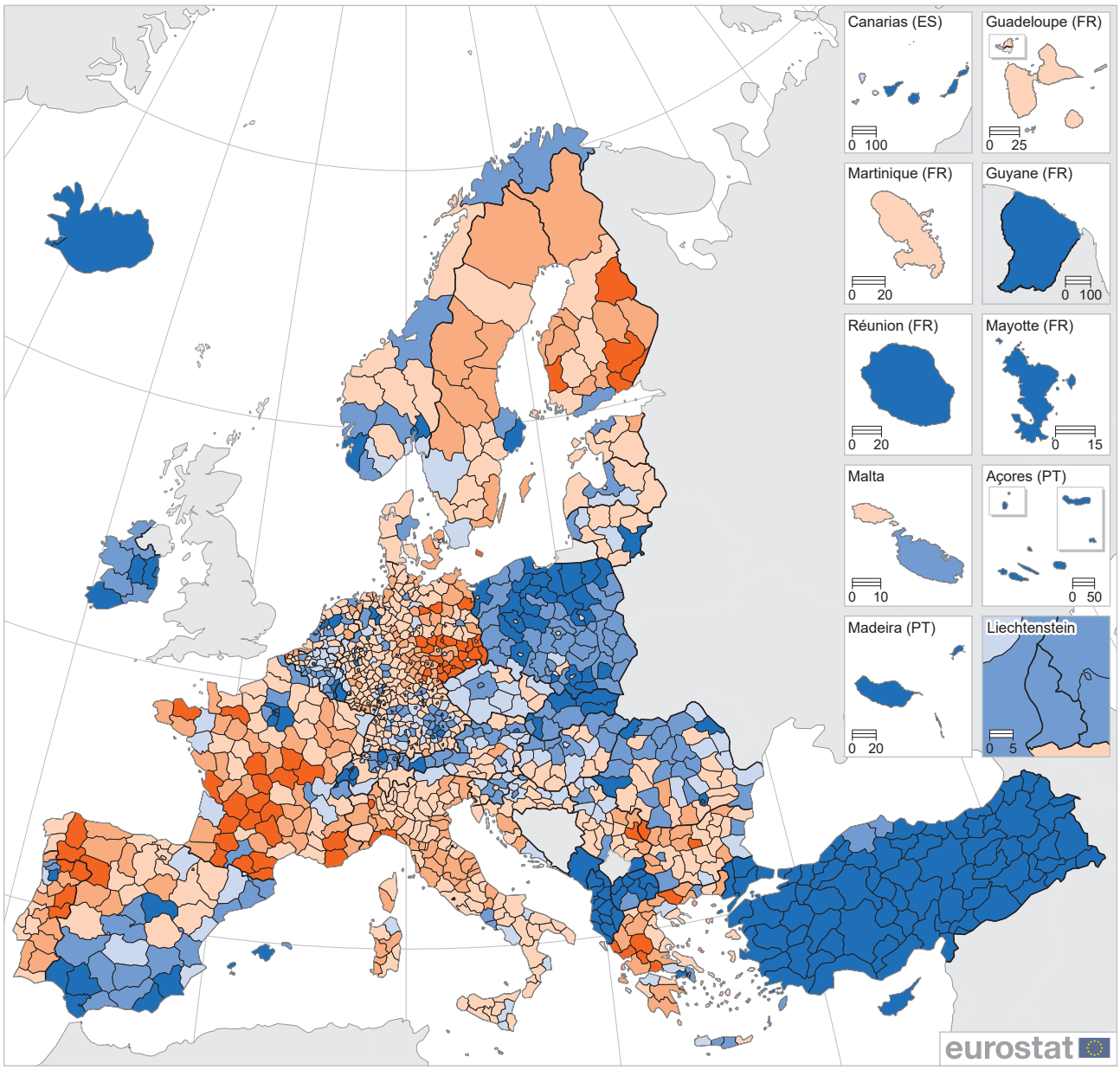
The mountainous, central Greek region of Evrytania had the highest old-age dependency ratio on 1 January 2020, at 78.3 %. It was followed by the north-western Belgian region of Arr. Veurne (64.6 %) and the German region of Suhl, Kreisfreie Stadt (61.3 %). At the other end of the scale, the lowest old-age dependency ratios in the EU were often recorded in outermost regions, for example, the French régions ultrapériphériques of Mayotte and Guyane or the Spanish region of Fuerteventura (part of Canarias).

During the next three decades, old-age dependency ratios are projected to increase in all but one region of the EU

EUROPOP2019 data can be used to provide an idea of how the EU's population structure is projected to change in the coming years. As noted above, there were 75 regions across the EU (out of a total of 1 169 NUTS level 3 regions) with an old-age dependency ratio of at least 50.0 % on 1 January 2020. Over the next three decades, old-age dependency ratios are projected to increase in all but one of these 1 169 regions ([1]) and by 1 January 2050 the projections indicate that there will be 974 regions where the old-age dependency ratio has risen to at least 50.0 %. While an ageing population has traditionally been seen as a concern — based upon the assumption that older people have to be economically supported by those of working age — this view is evolving. As people live healthier and longer lives, they may (choose or be able to) work later in life, thereby increasing economic activity at older ages.

([1]) The only exception is Harz, the westernmost region of Sachsen-Anhalt (Germany).

Map 1.3: Old-age dependency ratio, 1 January 2020
(%, people aged ≥ 65 years / people aged 20-64 years, by NUTS 3 regions)



EU = 34.8

- < 27.5
- 27.5 - < 32.5
- 32.5 - < 34.8
- 34.8 - < 42.5
- 42.5 - < 50.0
- ≥ 50.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Source: Eurostat (online data codes: demo_r_pjanind3 and demo_pjanind)

Fertility

EU regions with relatively high levels of fertility are protected, to some degree, from the impact of population ageing. One factor which may explain the relatively low levels of fertility in the EU is the 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 the gig economy); the increasing cost of raising children and of housing; and a decline in the number of traditional family units (less people getting married and more people getting divorced). In 2019, there were 4.17 million live births across the EU, while the median age of women at childbirth was 31.4 years.

The vast majority of regions in the EU had a total fertility rate that was below the natural replacement rate

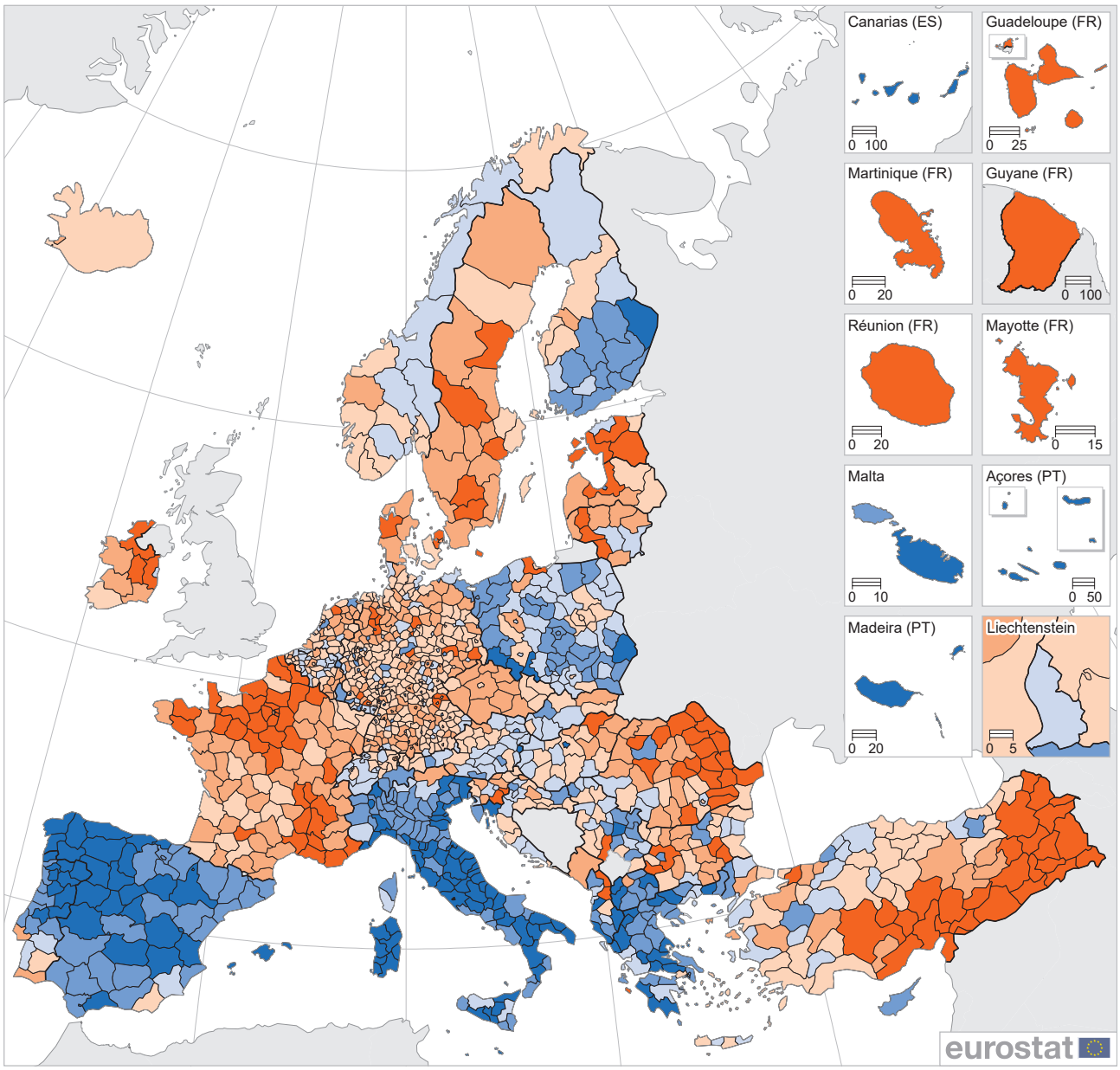
The total fertility rate is defined as the mean number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates of a given year. In 2019, the EU's total fertility rate was 1.53 live births per woman, which was considerably below the natural replacement rate — the average number of live births per woman required to keep the population size constant in the absence of migration in developed world economies — of 2.1 children per woman. The regional distribution of this indicator was somewhat skewed insofar as there were 479 NUTS level 3 regions where the total fertility rate was below the EU average (as shown by the blue shades in Map 1.4), while there were 690 regions where the rate was as high as the EU average or higher (as shown by the orange shades). Across most of the EU Member States, predominantly urban regions (which tend to have a higher proportion of young people) generally recorded higher fertility rates than predominantly rural, remote and sparsely-populated regions.

Of the 1 169 NUTS level 3 regions for which data are available, there were only 14 where the total fertility rate was at least 2.1 live births per woman. These included all of the French régions ultrapériphériques except for Martinique, three other French regions situated around the French capital — Seine-Saint-Denis, Val-d'Oise and Essonne — and five regions in Romania. The highest fertility rates were recorded in two of the EU's outermost regions, Mayotte (4.56 live births per woman) and Guyane (3.72 live births per woman). Aside from these, the highest fertility rate in the EU was recorded in the eastern Romanian region of Vaslui (2.98 live births per woman). By contrast, some of the lowest fertility rates were recorded in southern regions of the EU, principally across Greece, Spain, Italy and Portugal, where there were 16 regions that registered a total fertility rate of less than 1.00 live births per woman in 2019. The lowest fertility rate in the EU was recorded in the central Greek region of Fokida (0.63 live births per woman).

The total fertility rate is projected to rise in approximately three quarters of all regions

According to the assumptions used within EUROPOP2019, the EU's total fertility rate will gradually rise during the next three decades to stand at 1.62 by 2050 (compared with 1.53 in 2019); note that a different methodology is used for computing these projections. The latest projections indicate that this pattern of rising fertility rates between 2019 and 2050 will be repeated in approximately three quarters of the NUTS level 3 regions in the EU (905 out of 1 169). However, total fertility rates will generally rise at a modest pace: the latest assumptions reveal only 26 regions with rates increasing by at least 0.25 between 2019 and 2050. By contrast, there are just seven regions where the latest assumptions are for fertility rates to fall by at least 0.25 between 2019 and 2050.

Map 1.4: Total fertility rate, 2019
(live births per woman, by NUTS 3 regions)



EU = 1.53

- < 1.25
- 1.25 - < 1.40
- 1.40 - < 1.53
- 1.53 - < 1.70
- 1.70 - < 1.85
- ≥ 1.85
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

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

There has been a gradual increase across the EU in the age at which mothers give birth

In 2000, slightly more than one in seven live births in the EU were childbirths from women aged 35 years or more. By 2019, this share had risen to more than one in four (25.9 %). The median age of women at childbirth across the EU was 31.4 years in 2019 (see Figure 1.2), ranging from a high of 34.6 years in Galicia (north-west Spain) down to a low of 27.2 years in Severozapaden (north-west Bulgaria).

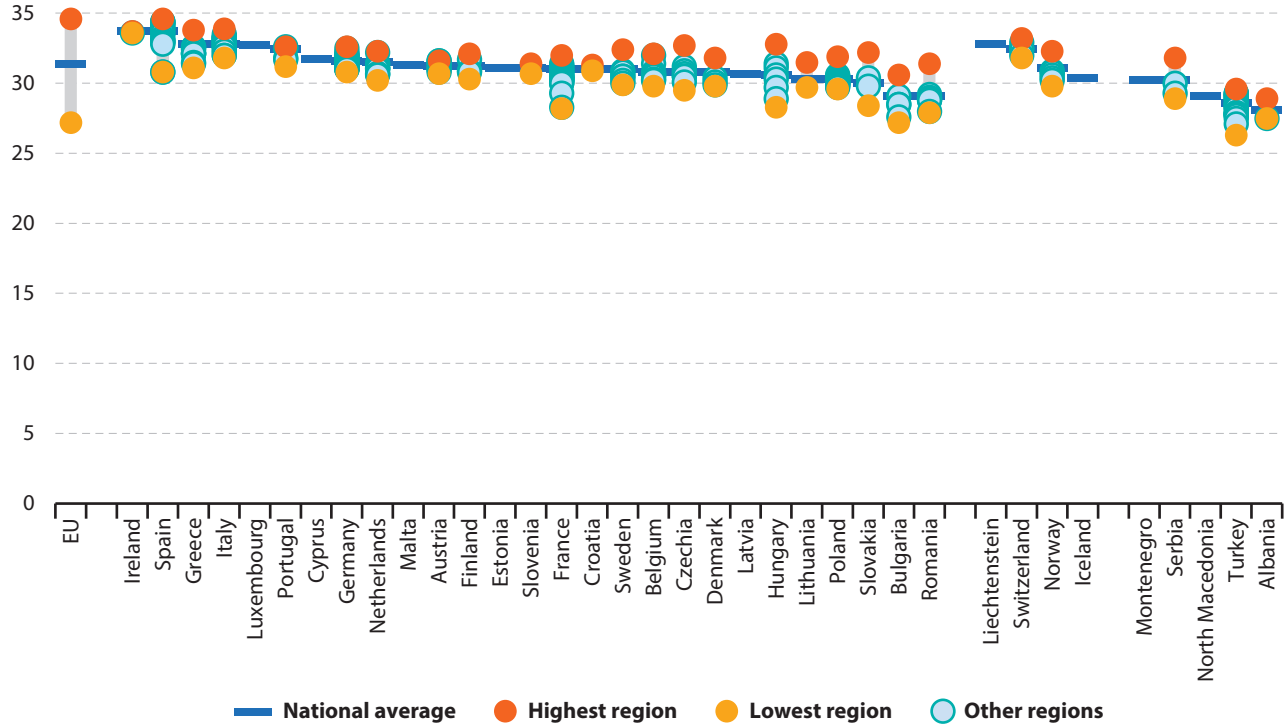
Looking in more detail within individual EU Member States, the pattern of delayed childbirth was often quite pronounced in capital regions. This was particularly the case in eastern Member States, as the median age of women at childbirth in the capital regions of Romania, Hungary and Slovakia was 2.2 to 2.3 years above their respective national average. A similar pattern, although less marked, was repeated in most of the remaining multi-regional Member States; the only exceptions were Ireland (where the latest data for the capital region and the national average were identical) and Croatia (where the national average for the median age of women at childbirth was 0.1 years higher than that for the capital region).

Life expectancy

Life expectancy at birth is the average number of years a newborn would live if subjected throughout his/her life to current mortality conditions. During the last two centuries, life expectancy in the EU rose at a relatively consistent pace (with a few exceptional periods, such as in periods of war). This increased longevity can be attributed to a range of factors including significant advances in medical treatment and care, changes in living and environmental conditions, changes in working conditions/occupations, as well as lifestyle changes. This pattern of rising life expectancy in the EU has, in recent years, shown signs of change. Indeed, there was a slight fall in life expectancy between 2014 and 2015 and no change between 2016 and 2017 (note however that these reductions may be linked to breaks in series). Provisional estimates for 2020 are available for nearly all of the EU Member States and these indicate a fall in life expectancy within the EU, related at least in part to the COVID-19 pandemic.

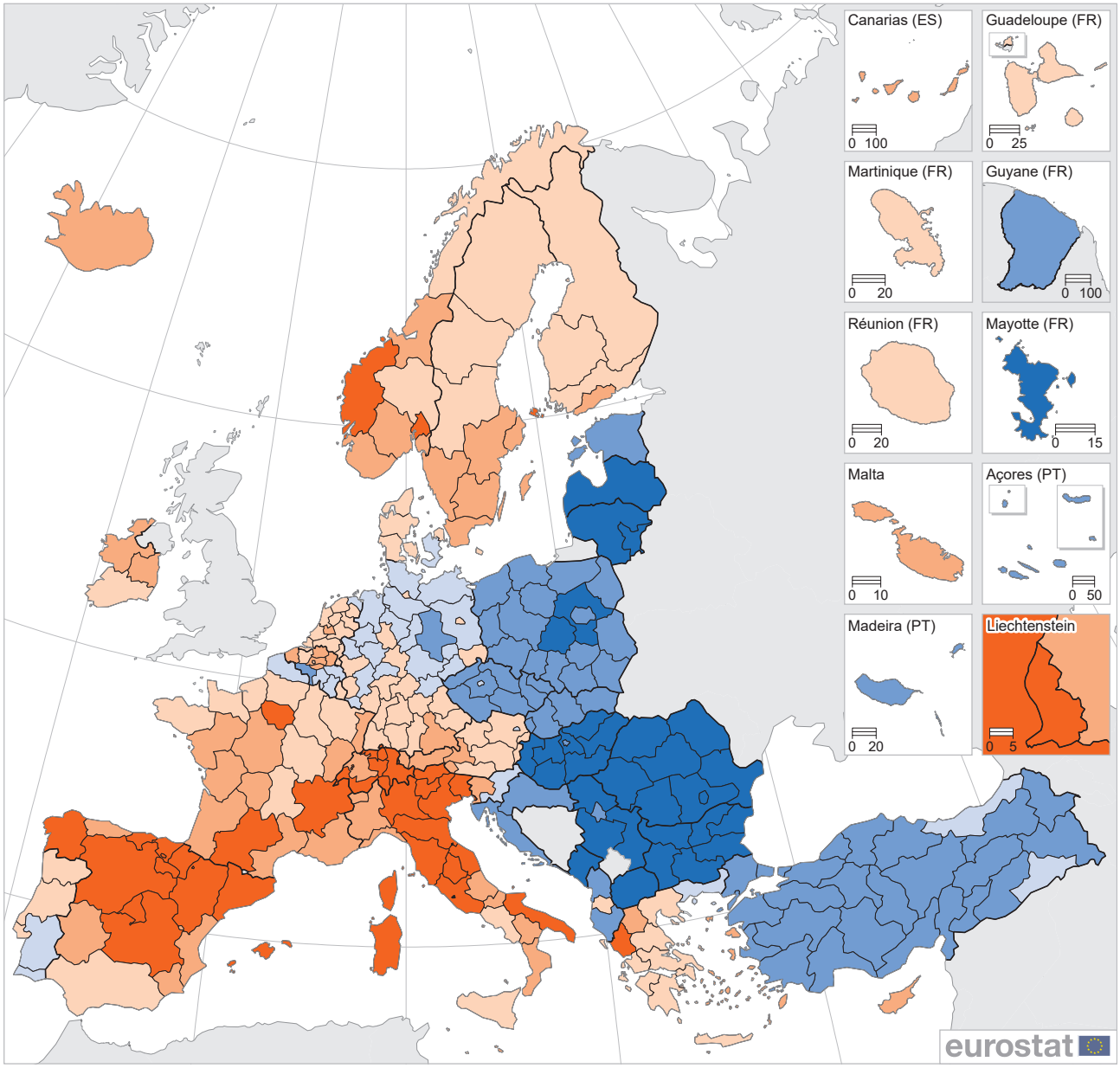
When averaged over the most recent three years for which data are available, life expectancy in the EU had increased to 81.1 years by 2017-2019. Map 1.5 shows regional life expectancy at birth for NUTS level 2 regions during the same period. The regional distribution around the EU average was somewhat skewed, insofar as there were 93 regions with life expectancy below 81.1 years, while there were 147 that

Figure 1.2: Median age of mothers at childbirth, 2019
(years, by NUTS 2 regions)



Note: ranked on the national average.
Source: Eurostat (online data codes: demo_r_find2 and demo_find)

Map 1.5: Life expectancy at birth, average for 2017-2019
(years, by NUTS 2 regions)



EU = 81.1

- < 77.0
- 77.0 - < 80.0
- 80.0 - < 81.1
- 81.1 - < 82.5
- 82.5 - < 83.5
- ≥ 83.5
- Data not available

0 200 400 600 800 km

Note: Guadeloupe (FRY1), Albania and Mardin, Batman, Şırnak, Siirt (TRC3), 2019. Guyane (FRY3): 2017. EU and all Italian regions: breaks in series, 2019.
Source: Eurostat (online data codes: demo_r_mlifexp and demo_mlexpec)

had a life expectancy of 81.1 years or more. There are a range of potential drivers that may impact on 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, temperate and relatively dry climates tend to live longer lives than those living in regions that experience more extreme weather conditions.

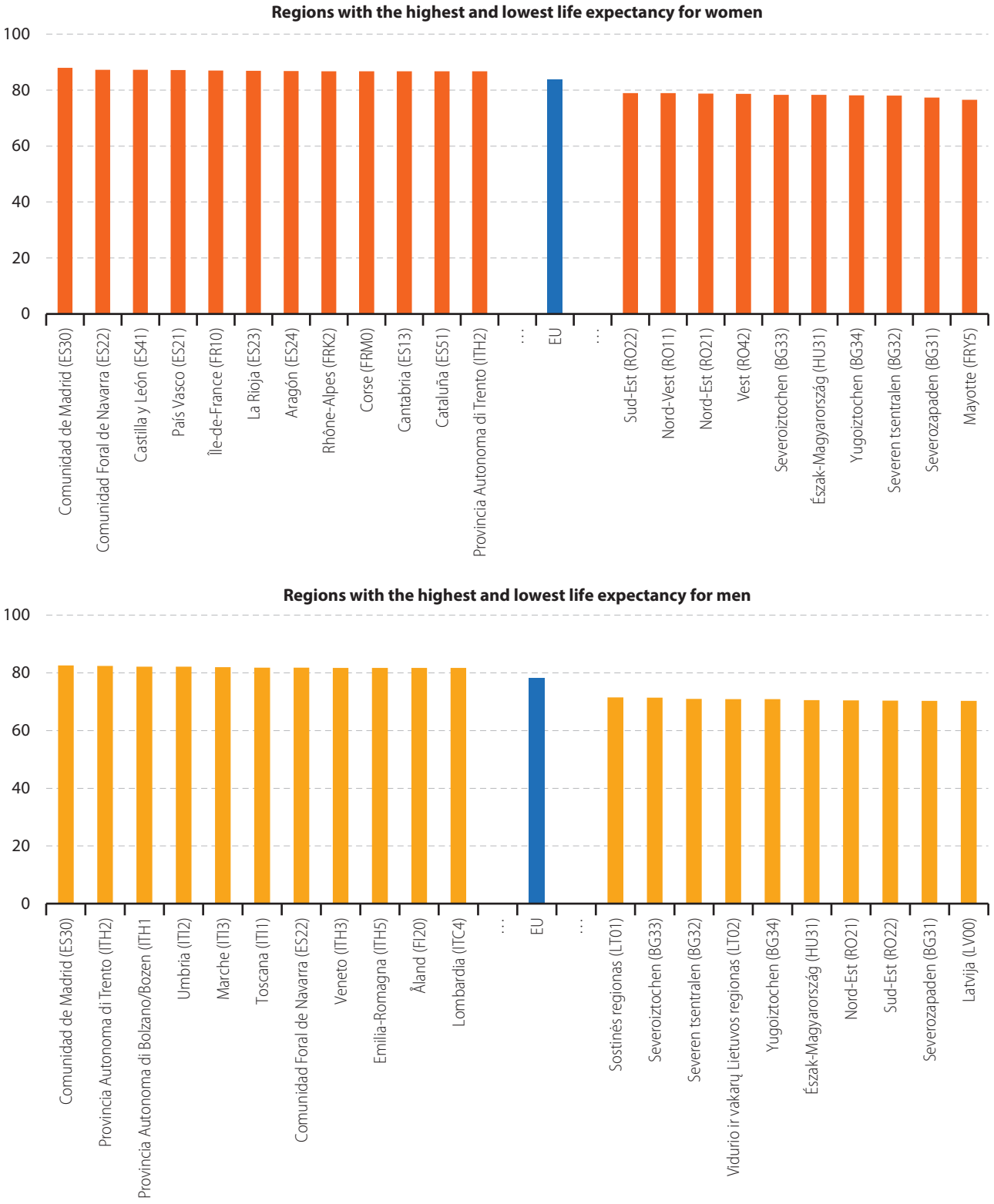
The above may explain, at least to some degree, why some of the highest regional life expectancies in 2017-2019 were concentrated in France, Spain and Italy. These three EU Member States accounted for 27 of the 29 regions in the EU that had a life expectancy at birth of at least 83.5 years (as shown by the darkest shade of orange in Map 1.5); the other two regions were Ipeiros (north-west Greece) and Åland (an autonomous island region of Finland). Severozapaden in north-west Bulgaria recorded, by some margin, the lowest level of life expectancy, at 73.6 years. This was 0.8 years lower than in the four regions with the next lowest levels of life expectancy: two more Bulgarian regions — Severen tsentralen and Yugoiztochen; Észak-Magyarország (northern Hungary); and Nord-Est (north-east Romania).

A girl born in the Spanish capital region during the period 2017-2019 could expect to live 87.9 years

By 2017-2019, life expectancy at birth in the EU stood at 83.8 years for women and 78.3 years for men. During this period, the Spanish capital region of Comunidad de Madrid had the highest level of life expectancy at birth both for women (an average of 87.9 years) and for men (82.6 years). The highest life expectancies for women were concentrated in regions of Spain, whereas the highest life expectancies for men were principally recorded in central and northern Italy.

The EU gender gap for life expectancy at birth was 5.5 years in favour of women in 2017-2019. Female life expectancy was consistently higher than male life expectancy across every region of the EU. Some of the largest gender gaps were recorded in the Baltic Member States and several Polish regions, while the difference in life expectancy between the sexes was much narrower in Dutch regions and in the French outermost region of Mayotte. Vidurio ir vakaru Lietuvos regionas — the Lithuanian capital region — had the highest gender gap for life expectancy at birth (9.8 years difference), while the lowest gap was recorded in Mayotte (1.3 years).

Figure 1.3: Life expectancy at birth by sex, average for 2017-2019
(years, by NUTS 2 regions)



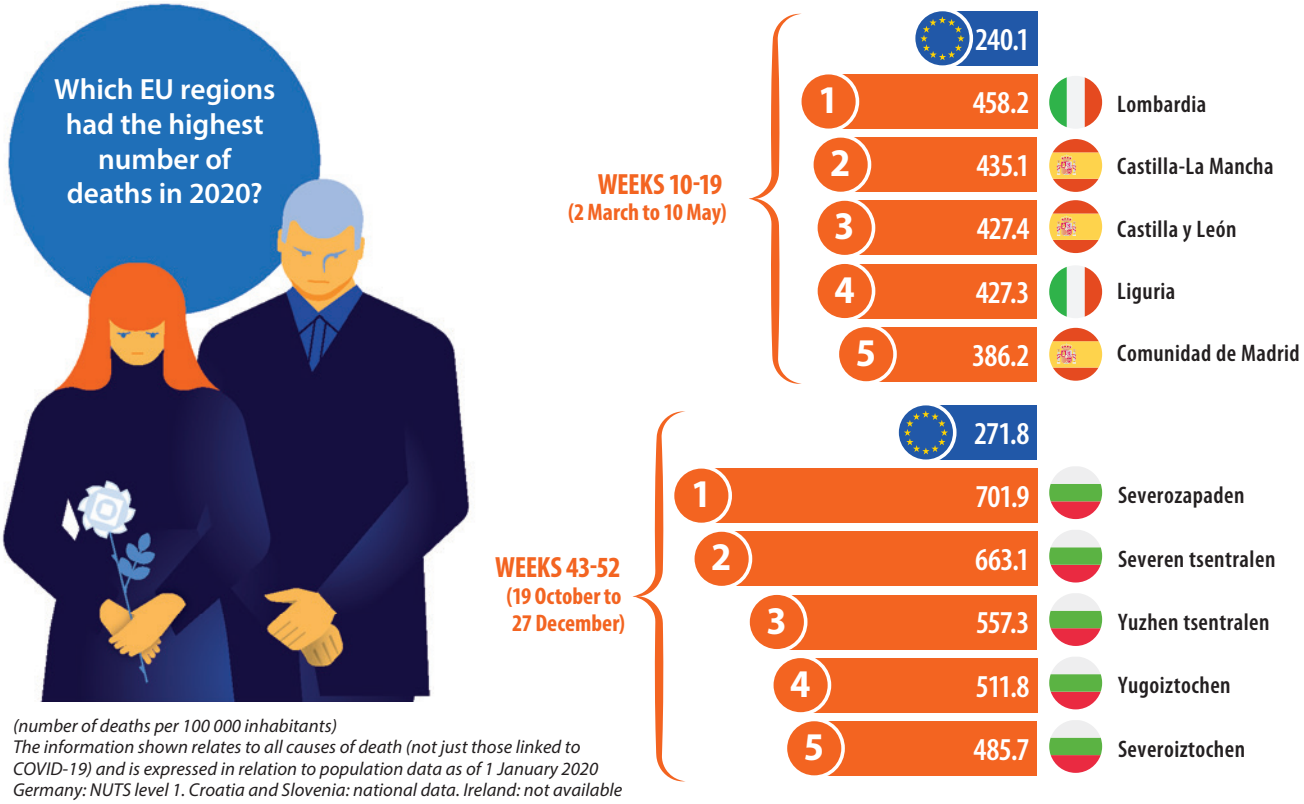
Note: the rankings may include more than 10 regions if several regions have identical values. Guadeloupe (FRY1): 2019. Guyane (FRY3): 2017. EU: breaks in series, 2017 and 2019. All Italian regions: break in series, 2019.

Source: Eurostat (online data codes: demo_r_mlifexp and demo_mlexpec)

2. Health

The COVID-19 pandemic has resulted in severe human suffering and a considerable loss of life. As governments attempted to slow the spread of the virus — closing down economic sectors and imposing restrictions on personal mobility that were unprecedented in modern times — a public health crisis was accompanied by a major socioeconomic crisis, with rising unemployment and growing inequality. At the time of writing, the COVID-19 pandemic continues to affect the European Union (EU). EU Member States have worked to: slow down the spread of the virus, reinforce/protect healthcare systems, mitigate the social and economic effects of the pandemic, support workers, businesses and fellow Member States, and put in place measures to stimulate an economic recovery. The European Commission is also participating in the COVAX facility designed to provide equitable access to affordable COVID-19 vaccines. At the time of writing (April 2021), the EU had contributed EUR 1.0 billion to this facility, which should result in millions of COVID-19 vaccines being provided to low and middle-income countries.

More generally, 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. The overall health of the EU population is closely linked to that of the planet through — among other influences — the quality of the air we breathe, the water we drink and the food we eat.



(number of deaths per 100 000 inhabitants)
The information shown relates to all causes of death (not just those linked to COVID-19) and is expressed in relation to population data as of 1 January 2020
Germany: NUTS level 1. Croatia and Slovenia: national data. Ireland: not available

Source: Eurostat (online data codes: demo_r_mwk2_ts and demo_r_pjangrp3)

Mortality

Every region of the EU has been touched by the COVID-19 pandemic; however, its impact has been unevenly spread, in both geographic and socioeconomic terms. While there have been considerable differences in terms of the timing and the impact of the pandemic between EU Member States, a regional analysis confirms widespread disparities between regions within individual Member States. Among other reasons, some of these differences may be linked to:

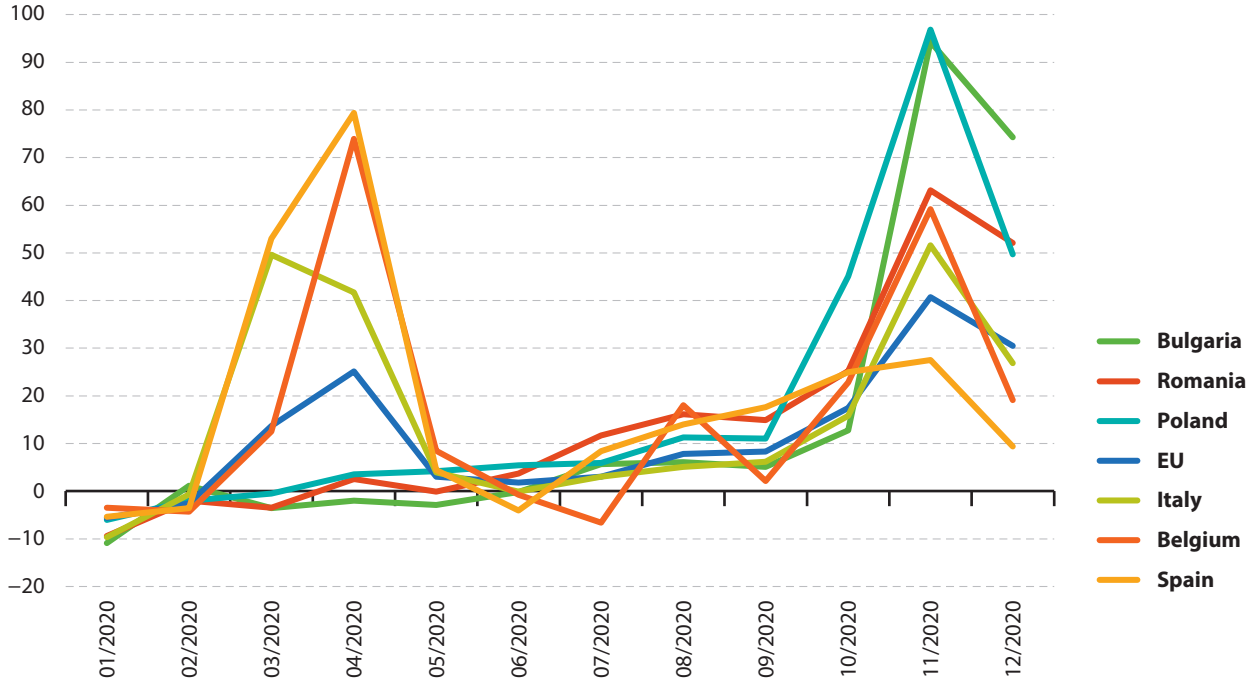
- the ability of regional health care facilities to cope with a sudden rush of cases and differential access to well-equipped hospitals;
- the health status of regional populations, such as the incidence and/or severity of pre-existing health conditions (particularly those affecting the respiratory system);
- regional population structures, for example the number and share of elderly people, the proportion of elderly persons living in care homes, the share of disadvantaged and minority ethnic groups in regional populations;
- a variety of other socioeconomic factors, such as the average number of people living alone and within extended families, or the share of people able to work from home during the pandemic;
- the timing, speed and severity of national and regional government measures that were put in place to slow the spread and mitigate the impact of the virus, coupled with public awareness, vigilance and adherence to rules/restrictions.

From a statistical perspective, the COVID-19 pandemic has also impacted on the ability of statistical authorities to collect and process data using established methods. There has also been a surge in demand for statistics that measure the impact of the pandemic, with particular interest in data covering the number of infections and mortality.

With this in mind, Eurostat set-up a new data collection exercise for weekly death statistics; these data are classified by sex, five-year age groups and NUTS level 3 regions. Excess mortality is measured as the difference between the number of deaths in a particular period (such as a week or month) compared with the average number of deaths in the same period (week or month) during a baseline period; the latter has been defined as the average for 2016-2019. Statistics on excess deaths provide information about the burden of mortality potentially related to the COVID-19 pandemic, thereby covering not only deaths that are directly attributed to the virus but also those indirectly related to it. Weekly counts of deaths are compared with historical trends to determine whether the number of deaths is significantly higher (or lower) than expected.

Figure 2.1 shows the development of excess mortality during 2020. The first wave of the COVID-19 pandemic contributed to the total number of deaths in the EU in April 2020 being 25.1 % higher when compared with the average for the baseline period. The initial stage of the pandemic saw a rapid increase in excess mortality rates in Italy, Spain and Belgium, whereas most eastern Member States of the EU were relatively untouched by this first wave of infections. After comparatively low levels of infections and deaths during the summer months, a second wave established itself across much of the EU during autumn as death rates accelerated again. A peak was recorded in November 2020 when the number of deaths in the EU was 40.7 % higher than average (during the baseline period). Excess mortality rates were particularly high towards the end of 2020 in eastern Member States, for example Bulgaria, Poland and Romania, with excess mortality significantly higher than during the first wave.

Figure 2.1: Monthly excess mortality, 2020
(% change compared with 2016-2019 average, by EU Member States)



Note: excess mortality is measured as the rate of change in the number of monthly deaths compared with the average number of deaths in the same month during the baseline period (2016-2019). The figure shows selected EU Member States where the impact of the COVID-19 pandemic was particularly widespread.

Source: Eurostat (online data code: demo_mexrt)

During the first wave of the pandemic, the average number of weekly deaths in Comunidad de Madrid was almost three times as high as the norm …

Maps 2.1 and 2.2 show the situation for the average number of weekly deaths during the first and second waves of the COVID-19 pandemic (note this analysis excludes information for Ireland). By tracking all causes of mortality, statistics on weekly deaths provide a measure for the direct and indirect impacts of the COVID-19 pandemic. This is particularly valuable when: i) COVID-19 mortality is undercounted (for example, if COVID-19 was not mentioned on the death certificate as the cause of death); or ii) when there are high numbers of deaths that are indirectly related to COVID-19 (for example deaths from other causes that may be attributed to a shortage of health care resources caused/worsened by the pandemic).

At the start of 2020, the average number of weekly deaths was generally lower than that observed in previous years (2016-2019). However, while mortality normally starts to decline in March of each year, in 2020 the number of deaths started to increase. The first cases of COVID-19 in Europe were recorded in Italy and the number of deaths was soon rising at a rapid pace in northern Italian regions, especially in Lombardia. As they witnessed scenes of hospitals struggling to cope, European governments adopted a series of unprecedented measures. These included restrictions on movement, rules on physical distancing, mandatory face covering in closed public settings, and the introduction of various elements of test, track, trace, isolate and support systems.

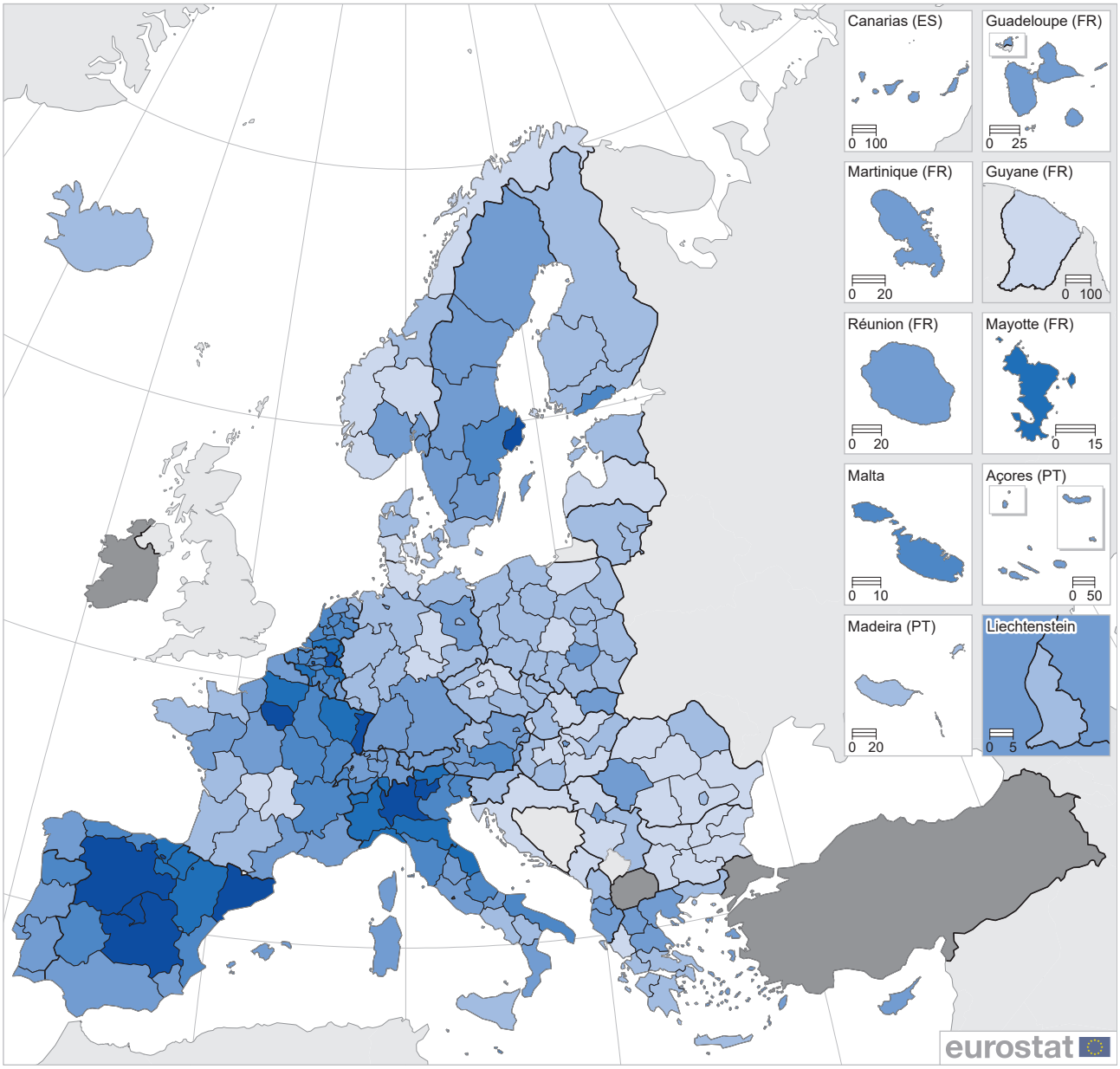
During weeks 10-19 of 2020 (in other words, from 2 March to 10 May 2020), there were, on average, a total of 106 thousand deaths every week across the EU; this was 18.7 % higher than the average recorded during the same period in 2016-2019. The initial stages of the pandemic saw the virus being largely concentrated in a small number of predominantly urban regions, many of which were characterised by relatively high numbers of international travellers. This was particularly observable in Italy and Spain: for example, in Lombardia and Comunidad de Madrid the average number of weekly deaths in weeks 10-19 of 2020 was 2.5 times (245.7 %) and 2.9 times (294.0 %) as high as the norm recorded during 2016-2019. Regional data (generally for NUTS level 2 regions) show how some areas, such as the north of Italy, central Spain, the east of France and the Paris region, saw a large increase in their average number of weekly deaths during the first wave of the pandemic. By contrast, approximately 15 % of EU regions recorded a lower than average number of weekly deaths during the first wave. These regions were predominantly located in the eastern regions of the EU and the Baltic Member States, but also included a number of rural, sparsely-populated regions in other parts of the EU where it took longer for the virus to become established.

… while during the second wave of the pandemic the average number of weekly deaths in Podkarpackie (south-east Poland) was almost twice as high as the norm

Map 2.2 shows the impact of the second wave of the pandemic during weeks 43-52 of 2020 (in other words, from 19 October to 27 December 2020). There were, on average, 120 thousand deaths each week across the EU during this period, which was one third (33.4 %) higher than the norm recorded for the same period in 2016-2019. In contrast to the first wave — when many regions were relatively unaffected by the health impacts of the virus — the second wave of the pandemic impacted almost all regions. More than three quarters of EU regions recording a higher extent of excess deaths during the second wave than during the first wave. The biggest increases in excess deaths between the first and second waves were predominantly registered in the Baltic Member States and several eastern Member States.

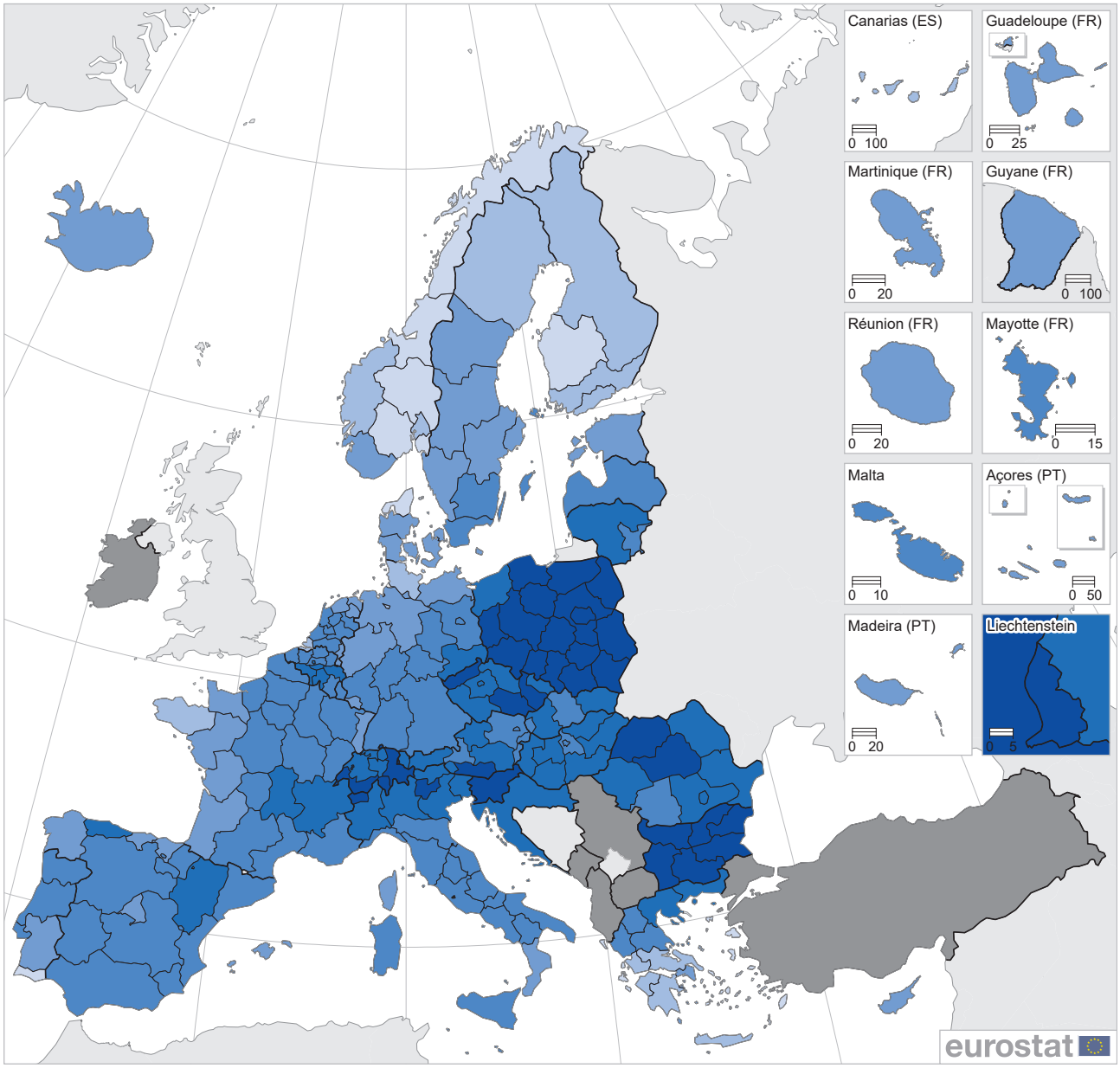
The difference between the first and second waves of the pandemic may be contrasted by looking at the number of regions where the average number of weekly deaths was at least 65.0 % above its normal level (as shown by the darkest shades in Maps 2.1 and 2.2). This count progressed from 11 regions during the first wave of the pandemic to reach 31 regions during the second wave. Although the count of regions increased, the virus became more uniformly distributed over time, with relatively small inter-regional variations within Member States and fewer highly irregular regional peaks during the second wave (possibly reflecting governments and health care services being better prepared and far more being known about the virus).

Map 2.1: Average weekly deaths, start of 2020
(2016-2019 = 100, weeks 10-19 (2 March to 10 May), by NUTS 2 regions)



Note: Germany, NUTS level 1. Croatia and Slovenia: national data. EU average: excluding Ireland.
Source: Eurostat (online data code: demo_r_mwk2_ts)

Map 2.2: Average weekly deaths, end of 2020
(2016-2019 = 100, weeks 43-52 (19 October to 27 December), by NUTS 2 regions)



Note: Germany, NUTS level 1. Croatia and Slovenia: national data. EU average: excluding Ireland.
Source: Eurostat (online data code: demo_r_mwk2_ts)

Health care personnel and health care facilities

Hospital bed numbers and/or the number of medical doctors are indicators that may be used to measure the capacity of health care system in regular times and also their resilience to pandemics such as COVID-19.

Hospital beds are defined as those 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. There were 2.40 million hospital beds in the EU in 2018, which meant that the total number of beds fell overall by 7.6 % during the most recent decade for which data are available.

In 2018, there were, on average, 537 hospital beds per 100 000 inhabitants; expressed in a different way, this equates to an average of one hospital bed for every 186 people. The falling number of hospital beds across much of the EU during the last decade may reflect, to some degree: cuts to health care spending in the aftermath of the global financial and economic crisis; medical and technological developments; changes in healthcare policies. For example, the need 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.

Map 2.3 reflects country-specific ways of organising health care and the types of service provided to patients. It confirms a relatively high density of hospital beds across much of Germany (NUTS level 1 regions), Austria and Poland, as well as several capital regions in eastern EU Member States (as shown by the darkest shade of orange). Among these, there were four regions that recorded ratios in excess of 1 000 hospital beds per 100 000 inhabitants in 2018. The predominantly rural, northern German region of Mecklenburg-Vorpommern had the highest density of hospital beds in the EU, at slightly less than 1 300 hospital beds per 100 000 inhabitants (2017 data). The other three were the northern Polish region of Zachodniopomorskie and the capital regions of Hungary (Budapest) and Romania (Bucureşti-Ilfov).

While it was commonplace in eastern EU Member States for the capital region to record the highest density of hospital beds — perhaps reflecting a concentration of resources and specialist services — this pattern was often reversed in western and northern Member States, where the highest density of hospital beds was frequently recorded in predominantly rural regions.

Aside from the outermost region of Mayotte (France), the lowest ratios of hospital beds relative to population size were recorded in the southern Danish region of Syddanmark (156 beds per 100 000 inhabitants) and the central Greek region of Sterea Ellada (158 beds per 100 000 inhabitants).

On average there were 262 inhabitants for every doctor in the EU

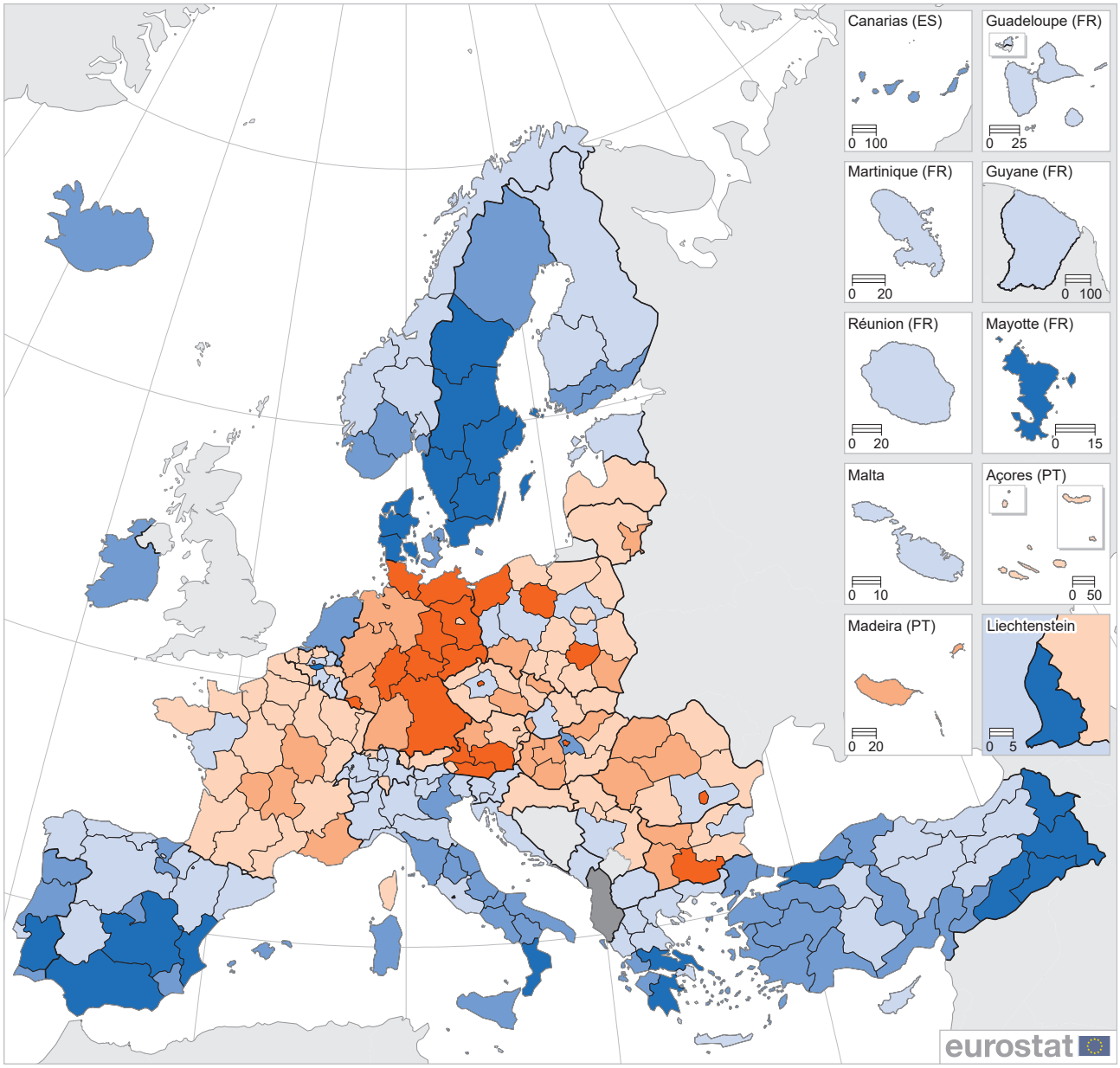
Medical doctors include generalists (such as general practitioners) as well as medical and surgical specialists. They provide services to patients as consumers of healthcare, including: giving advice, conducting medical examinations and making diagnoses; applying preventive medical methods; prescribing medication and treating diagnosed illnesses; giving specialised medical or surgical treatment.

In 2018, there were approximately 1.7 million medical doctors in the EU; this equated to an average of 382 medical doctors per 100 000 inhabitants. Map 2.4 shows the regional distribution of medical doctors, with:

- a very high number of medical doctors relative to the size of the population across several regions in Greece — note that Greek data refer to medical doctors licensed to practice, which is a broader measure than practising doctors (as reported by a majority of EU Member States);
- a very high number of medical doctors relative to population size in several capital regions — this was particularly notable for Attiki (Greece), Praha (Czechia), Wien (Austria), Bratislavský kraj (Slovakia), Área Metropolitana de Lisboa (Portugal), Bucureşti-Ilfov (Romania), Budapest (Hungary) and Berlin (Germany; 2017 data) where there were in excess of 525 doctors per 100 000 inhabitants;
- a relatively high number of medical doctors relative to population size across a wide range of other urban regions (as health care services — including those provided by physicians — are more likely to be concentrated in regions that are characterised by relatively high population density);
- a relatively low number of medical doctors relative to population size across much of Poland (2017 data), as well as several regions in each of Hungary, the Netherlands and Romania.

Leaving aside the atypical Spanish region of Ciudad Autónoma de Ceuta, the highest number of medical doctors relative to population size was recorded in the Greek capital, Attiki (792 medical doctors licensed to practice per 100 000 inhabitants). This peak value was more than 10 times as high as the lowest ratio (77 practising doctors per 100 000 inhabitants), as recorded in the outermost French region of Mayotte.

Map 2.3: Number of hospital beds, 2018
(per 100 000 inhabitants, by NUTS 2 regions)



EU = 537.3

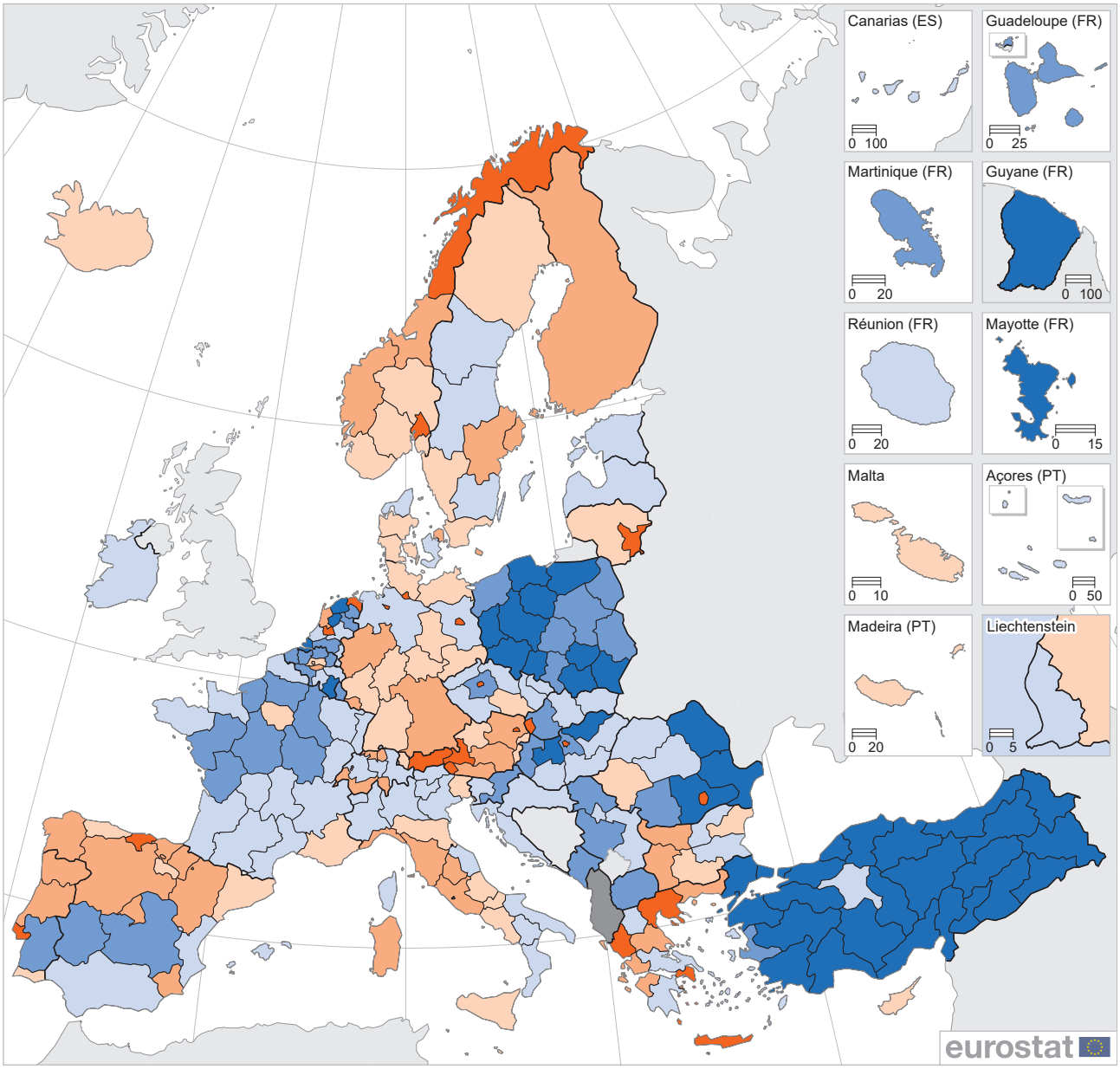
- < 250.0
- 250.0 - < 325.0
- 325.0 - < 537.3
- 537.3 - < 675.0
- 675.0 - < 800.0
- ≥ 800.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: Germany, NUTS level 1. Ireland and the Netherlands: national data. Germany and North Macedonia: 2017.
Source: Eurostat (online data code: hlth_rs_bdsrg)

Map 2.4: Medical doctors, 2018
(per 100 000 inhabitants, by NUTS 2 regions)



EU = 381.9

- < 250.0
- 250.0 - < 300.0
- 300.0 - < 381.9
- 381.9 - < 435.0
- 435.0 - < 525.0
- ≥ 525.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Eurostat gives preference to the concept of practising health care staff. Greece, Portugal and Finland: medical doctors licensed to practice. North Macedonia and Turkey: professionally active medical doctors. Germany and Makroregion Województwo Mazowieckie (PL9): NUTS level 1. Ireland and Finland: national data. Luxembourg, Poland (except Makroregion Województwo Mazowieckie), Sweden and North Macedonia: 2017. Makroregion Województwo Mazowieckie (PL9): 2016.

Source: Eurostat (online data codes: hlth_rs_prsrg and hlth_rs_prs1)

Causes of death

Health inequalities have been brought into stark contrast during the COVID-19 pandemic, with the number of deaths disproportionately high among elderly persons, those already suffering from pre-existing health conditions and disadvantaged groups within society. However, a wide range of factors determine regional mortality patterns, with deaths linked, among other issues, to: age structures, gender, access to healthcare services, living/working conditions and the surrounding environment.

Statistics on causes of death are based on two pillars: medical information from death certificates which are used as the basis for determining the cause of death and the coding of causes of death following the International Statistical Classification of Diseases and Related Health Problems (ICD). These data provide information about diseases (and other eventualities, such as suicide or accidents) that lead directly to death; they can be used to help plan health services. Statistics on causes of death are classified according to the European shortlist for causes of death (2012), which has 86 different causes.

Maps 2.5 and 2.6 show information for standardised death rates, whereby age-specific mortality rates are adjusted to reflect the structure of a standard population. This removes the influence of different age structures between regions (as elderly persons are more likely to die than younger persons, or are more likely to catch/contract a specific illness/disease) and results in a more comparable measure across space and/or over time.

Some of the most economically disadvantaged regions in the EU recorded the highest death rates

In 2016, there were 4.53 million deaths in the EU, while the standardised death rate was 999 deaths per 100 000 inhabitants. Map 2.5 shows information both for the relative number and for the main causes of death across NUTS level 1 regions. There were four regions in the EU where standardised death rates were above 1 500 deaths per 100 000 inhabitants in 2017. All four recorded relatively low living standards, with their GDP per inhabitant (in purchasing power standards (PPS)) less than two thirds of the EU average. This situation was most notable in Severna i yugoiztochna (Bulgaria), which had the highest standardised death rate in the EU (1 695 deaths per 100 000 inhabitants) and the lowest level of GDP per inhabitant (at 38 % of the EU average). The other three regions were: Yugozapadna i yuzhna tsentralna Bulgaria, Alföld És Észak (Hungary) and Macroregiunea Doi (Romania).

A similar pattern was apparent between regions within individual EU Member States. For example, the highest standardised death rates in the four largest Member States were recorded in Sachsen-Anhalt (eastern Germany), Sur (southern Spain), Nord-Pas-De-Calais-Picardie (northern France) and Isole (the islands of Italy). All four regions were relatively disadvantaged, as they recorded levels of GDP per inhabitant that were considerably lower than their respective national averages.

In 2016, more than one third of all deaths in the EU were attributed to diseases of the circulatory system

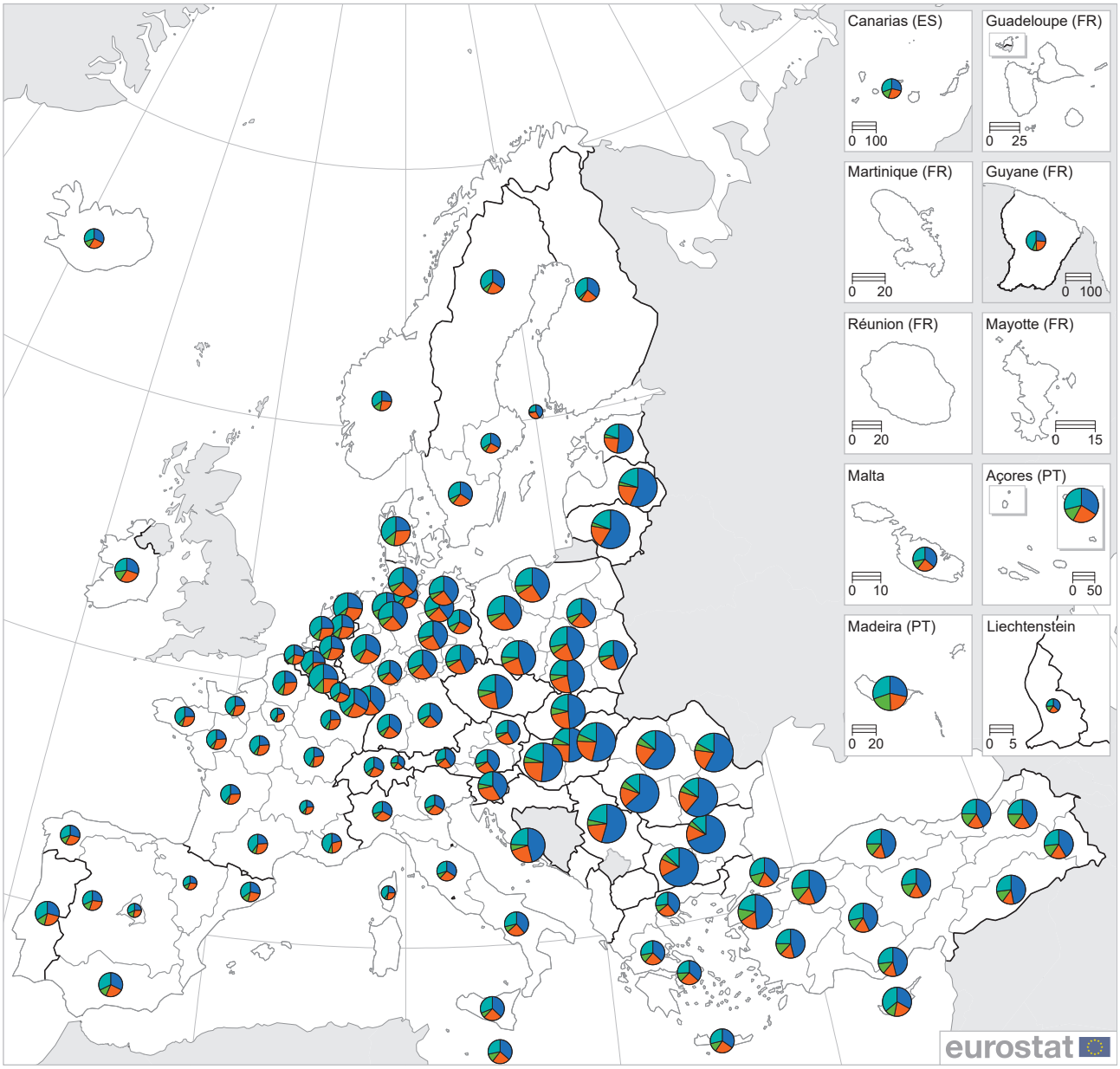
In 2016, the three principal causes of death in the EU were: diseases of the circulatory system, malignant neoplasms (hereafter referred to as cancer) and diseases of the respiratory system. Diseases of the circulatory system accounted for more than one third (37.1 %) of all deaths; a more detailed analysis is provided below. Cancer accounted for just over one quarter (25.7 %) of the total number of deaths, while the proportion of deaths resulting from diseases of the respiratory system was much lower, at 7.5 %. The remaining 29.7 % of deaths in the EU had a variety of other causes.

Map 2.5 shows the main causes of death for NUTS level 1 regions in 2017. In Severna i yugoiztochna (Bulgaria) — the region with the highest standardised death rate — 7 out of every 10 deaths (69.4 %) were attributed to diseases of the circulatory system. The 12 regions across the EU where more than half of all deaths were caused by diseases of the circulatory system included every region of Bulgaria, Hungary and Romania, as well as the three Baltic Member States.

The French capital region, Île-de-France, had the highest share of deaths attributed to cancer (30.6 %; 2016 data for all French regions). Three more French regions — Pays de la Loire, Aquitaine-Limousin-Poitou-Charentes and Centre-Val de Loire — also recorded more than 30.0 % of deaths being caused by cancer, as did Slovenia.

In 2017, the Região Autónoma da Madeira in Portugal had, by far, the highest share (20.5 %) of deaths caused by diseases of the respiratory system. The next highest shares were recorded in the Spanish capital region, Comunidad De Madrid (14.5 %) and in Ireland (14.2 %). Diseases of the respiratory system accounted for less than 10.0 % of all deaths in the more than three quarters of regions across the EU.

Map 2.5: Main causes of death, 2017
(by NUTS 1 regions)



Causes of death
(% share)

- Diseases of the circulatory system
- Cancer (malignant neoplasms)
- Diseases of the respiratory system
- Other causes of death

Standardised death rate
(per 100 000 inhabitants)
EU = 999.1

- < 800.0
- 800.0 - < 900.0
- 900.0 - < 999.1
- 999.1 - < 1 200.0
- 1 200.0 - < 1 400.0
- ≥ 1 400.0

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Serbia, national data. EU and France: 2016.
Source: Eurostat (online data code: hlth_cd_asdr2)

Focus on deaths from diseases of the circulatory system

As noted above, diseases of the circulatory system are the leading cause of death in the EU, placing a considerable burden on healthcare systems and government budgets. These diseases cover a broad group of medical problems that affect the circulatory system (the heart and blood vessels), often resulting from atherosclerosis, the abnormal build-up of plaque. The latter is made of, among other constituents, cholesterol or fatty substances. Some of the most common diseases that affect the circulatory system include ischaemic heart disease (heart attacks) and cerebrovascular diseases (strokes). Despite medical advances, there were 1.68 million deaths across the EU from diseases of the circulatory system in 2016.

On average there were 370 deaths per 100 000 inhabitants from diseases of the circulatory system in the EU

The EU's standardised death rate from diseases of the circulatory system was 370 per 100 000 inhabitants in 2016. Map 2.6 shows a clear east–west split in terms of the distribution of regional death rates, with the eastern and Baltic Member States as well as many German regions recording relatively high death rates, while the lowest death rates were principally recorded in France and Spain. The highest death rates among NUTS level 2 regions were concentrated in Bulgaria, Hungary and Romania, as well as the three Baltic Member States, as in 2017 every region (except for Budapest, the Hungarian capital region) within these six Member States recorded a death rate that was above 685 per 100 000 inhabitants (as shown by the darkest shade of orange). The standardised death rate from diseases of the circulatory system peaked at 1 223 deaths per 100 000 inhabitants in Severozapaden (north-west Bulgaria); this was more than three times as high as the EU average.

The lowest standardised death rates from diseases of the circulatory system in 2017 — less than 215 deaths per 100 000 inhabitants (as shown by the darkest shade of blue) — were exclusively located in France (17 out of the 27 French regions; 2016 data) and Spain (five regions). The lowest rates in France were recorded in the capital region (Île-de-France) and in Provence-Alpes-Côte d'Azur, while the lowest rate in Spain was also in the capital region (Comunidad de Madrid). This pattern — relatively low death rates from diseases of the circulatory system in capital regions — was repeated across most of the EU Member States and may be linked to the speed with which hospital treatment is made available. In other words, access to and the availability of services for those suffering a heart attack or a stroke appears to play a role in survival chances.

Men had a higher standardised death rate for diseases of the circulatory system than women in all but one region across the EU

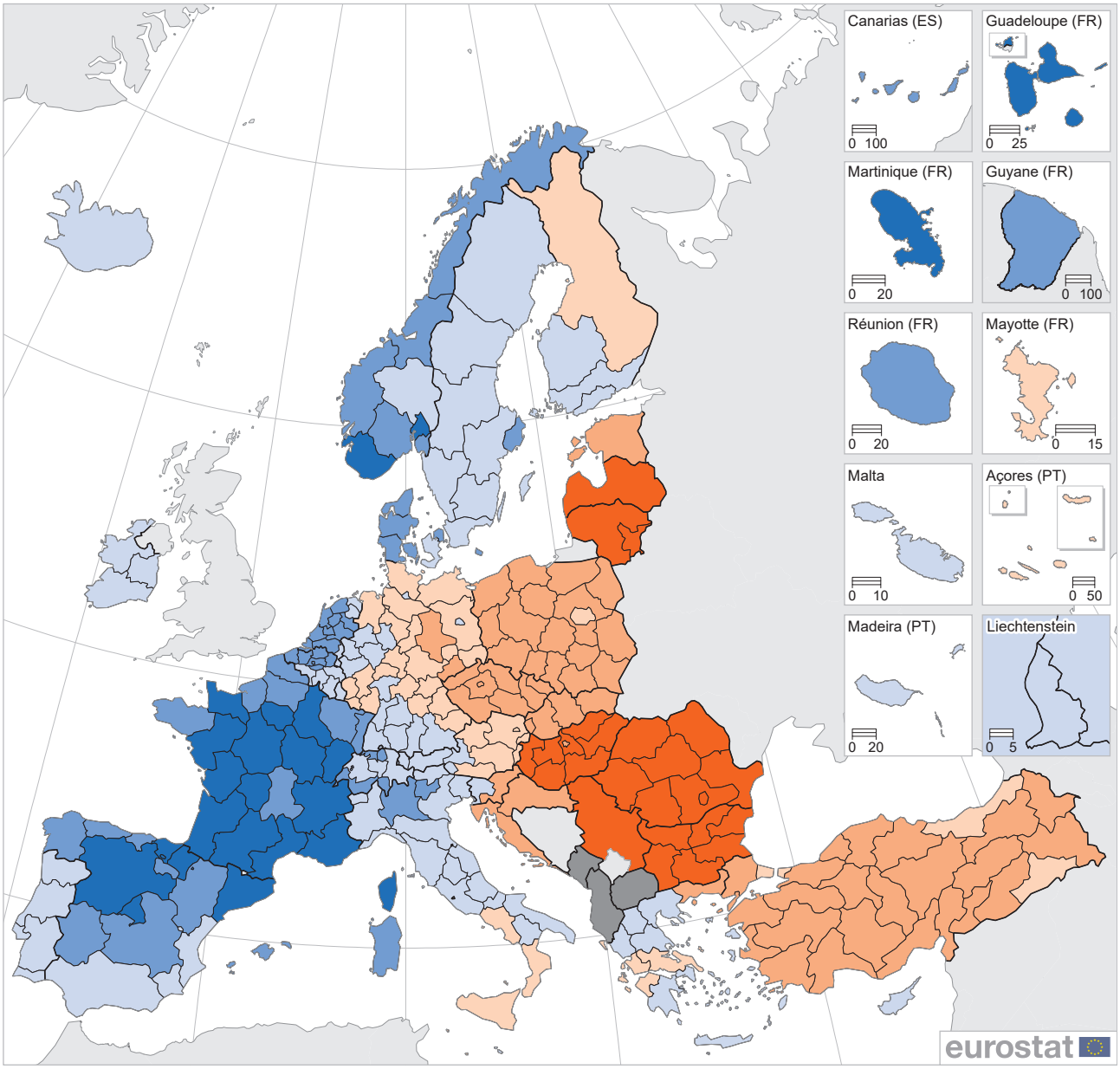
Figure 2.2 provides a more detailed analysis of standardised death rates for diseases of the circulatory system by introducing a gender dimension. Within the EU, the death rate for men was 443 deaths per 100 000 male inhabitants in 2016, which was 129 deaths higher than the corresponding rate for women (314 deaths per 100 000 female inhabitants).

For men and for women, the highest death rates for diseases of the circulatory system were recorded in regions of Bulgaria. There were only three NUTS level 2 regions across the EU where the female death rate from diseases of the circulatory system stood at more than 1 000 deaths per 100 000 female inhabitants. All three of these were located in Bulgaria — Severozapaden, Yugoiztochen and Severen tsentralen — with the first of these recording the highest rate (1 062 deaths per 100 000 female inhabitants).

A similar analysis for men reveals there were 15 NUTS level 2 regions across the EU where the male death rate from diseases of the circulatory system stood at more than 1 000 deaths per 100 000 male inhabitants in 2017. The highest death rates were recorded in the six regions of Bulgaria, with a peak of 1 470 deaths per 100 000 male inhabitants in Yugoiztochen. Very high male death rates were also recorded in six out of the eight Romanian regions (Bucureşti-Ilfov and Centru being the exceptions), Latvia, Vidurio ir vakarų Lietuvos regionas (Lithuania) and Észak-Magyarország (Hungary).

Across the 240 NUTS level 2 regions for which data are available, the outermost French region of Mayotte (2016 data) was the only region where the standardised death rate from diseases of the circulatory system was higher for women from than for men. In 2017, the gender gap for death rates from diseases of the circulatory system was smallest (in absolute terms) in several Greek, Spanish, French and Dutch regions. By contrast, the widest gaps between the sexes were recorded in regions characterised by some of the highest overall death rates, including several regions from Bulgaria and the Baltic Member States.

Map 2.6: Standardised death rates from diseases of the circulatory system, 2017
(per 100 000 inhabitants, by NUTS 2 regions)



EU = 370.2

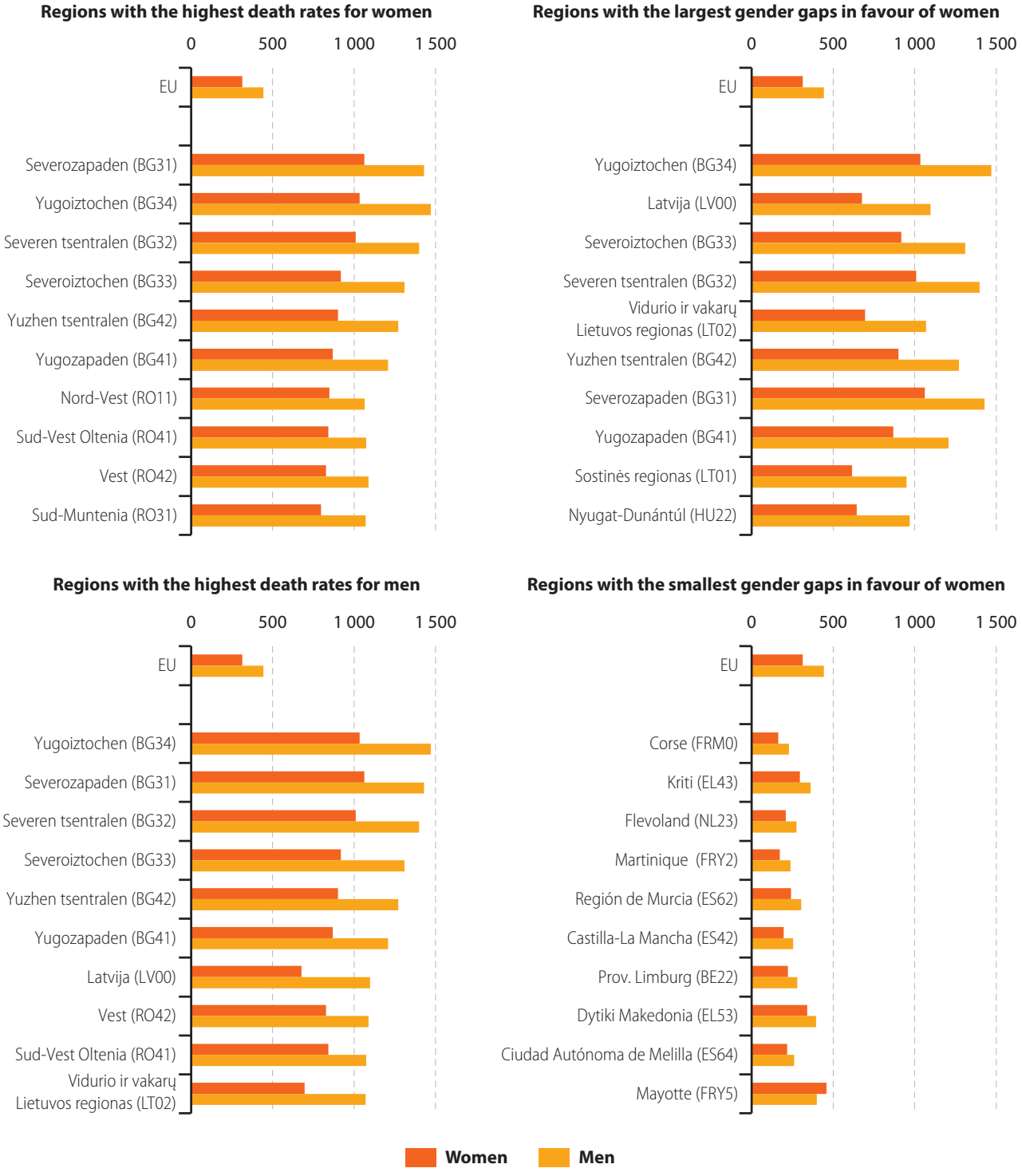
- < 215.0
- 215.0 - < 265.0
- 265.0 - < 370.2
- 370.2 - < 450.0
- 450.0 - < 685.0
- ≥ 685.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Serbia, national data. EU and France: 2016.
Source: Eurostat (online data code: hlth_cd_asdr2)

Figure 2.2: Standardised death rates from diseases of the circulatory system for women and men, 2017
(per 100 000 inhabitants, by NUTS 2 regions)



Note: rather than show the largest gender gaps in favour of men, the second half of the right-hand figure presents the smallest gender gaps in favour of women, as standardised death rates were systematically lower for women than for men across all regions other than Mayotte (FRY5). EU and France: 2016.

Source: Eurostat (online data code: hlth_cd_asdr2)

3. Education

Alongside the provision of healthcare, public expenditure on education is often considered as one of the most important investments that can be made in people. Education has the potential to drive forward socioeconomic development: 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.

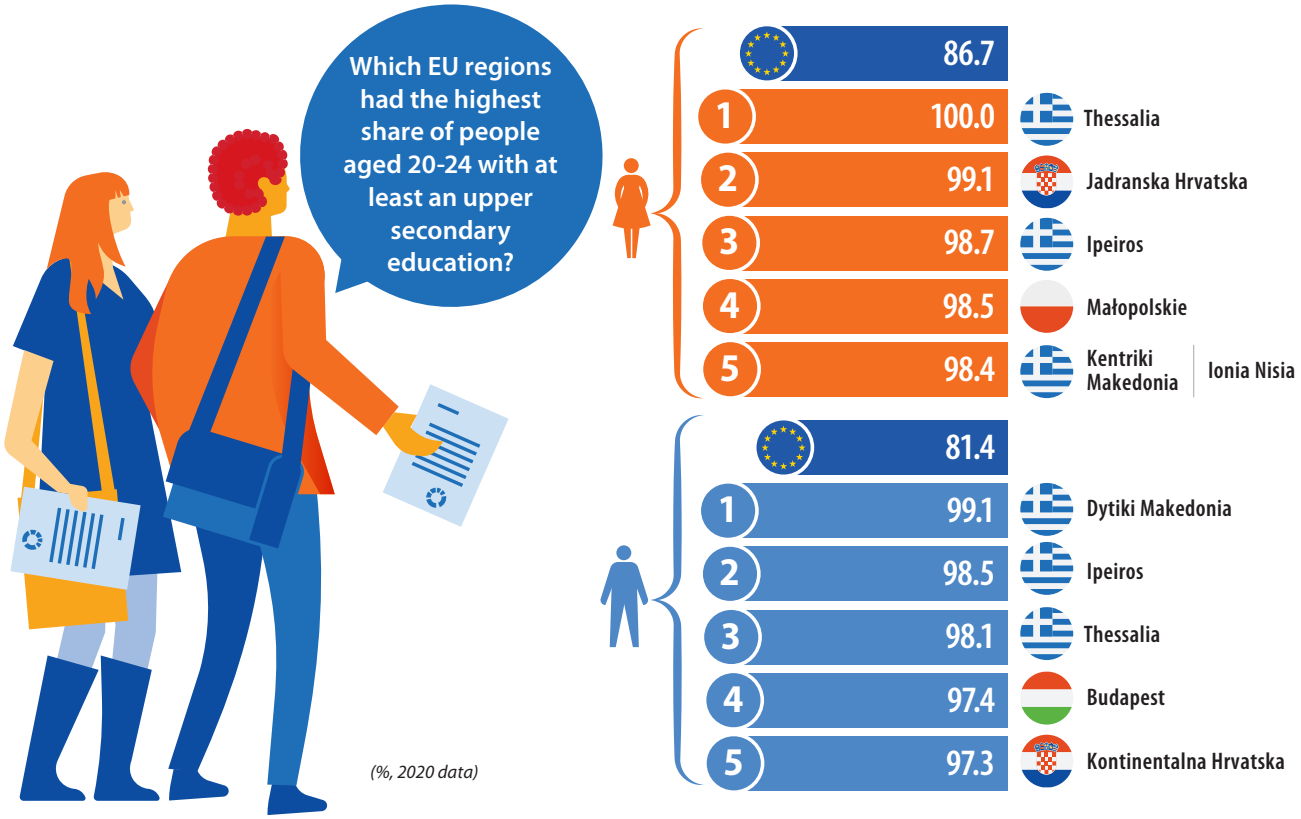
Education and training play a vital role in the economic and social strategies of the European Union (EU). In February 2021, a *Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030)* (2021/C 66/01) was adopted. It builds on previous strategies and pursues five priority actions:

- improve quality, equity, inclusion and success for all in education and training;
- make lifelong learning and mobility a reality for all;
- enhance competences and motivation in the education profession;
- reinforce tertiary education; and
- support the green and digital transitions in and through education and training.

The COVID-19 pandemic put considerable pressure on the education and training sector and often resulted in a widespread shift to remote learning during specific lockdown periods. This change in the delivery of education and training underlined a range of inequalities, including a digital divide, with pupils and students from disadvantaged backgrounds and those living in rural and remote areas often facing greater obstacles when trying to study at home.

This chapter presents data following the natural 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 analysing transitions from education into the labour market. Note that data on the participation of pupils and students in various levels of education generally refer to 2019, while the latest data on transitions into the labour market are for 2020.

In 2019, there were 95 million pupils and students enrolled across the EU in all levels of education from early childhood education to doctoral studies (as covered by ISCED levels 0-8).



Source: Eurostat (online data code: edat_lfse_04)

International standard classification of education (ISCED)

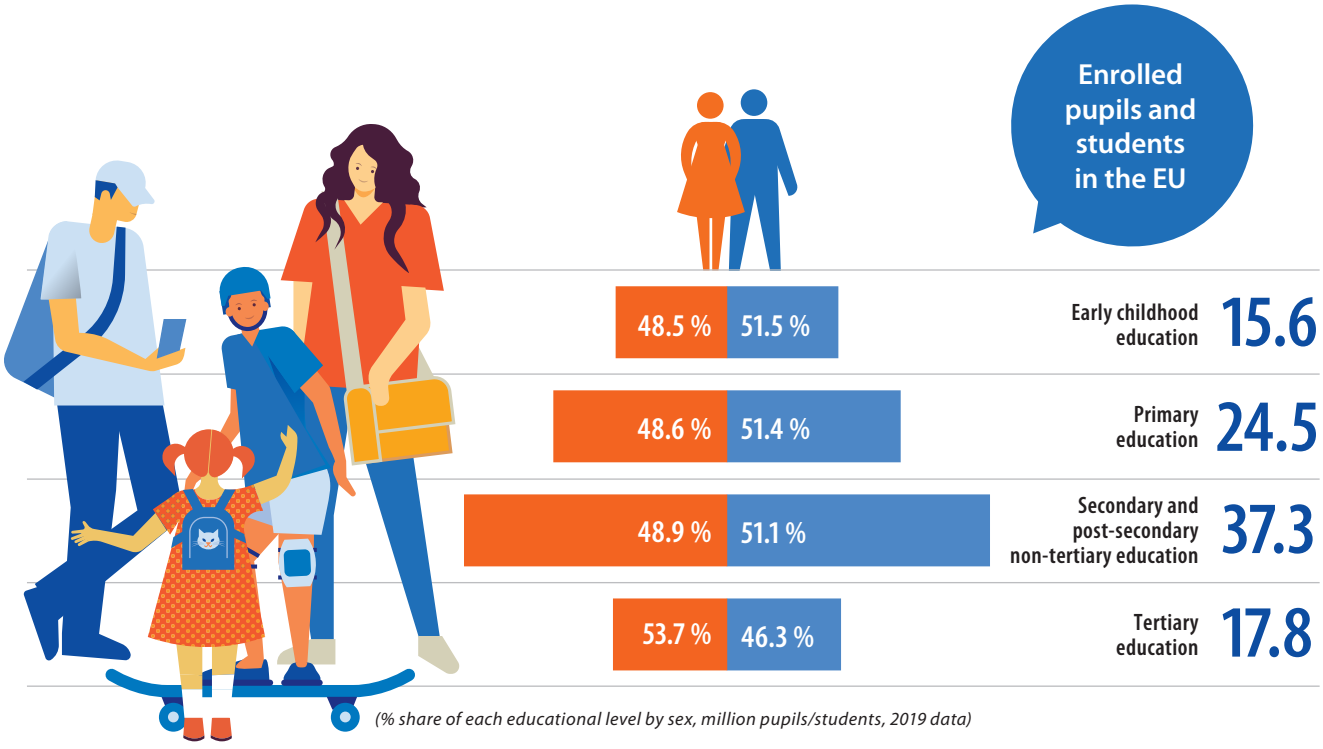
As national education systems vary in terms of structure and curricular content, statistics on education and training are compiled according to the international standard classification of education (ISCED). They cover a wide range of topics, such as:

- participation (in terms of enrolments and entrants);
- personnel;
- learning mobility;
- outcomes (in terms of graduates, educational attainment levels, and the transition from education to work);
- languages (in terms of language learning and self-reported language skills);
- expenditure.

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;
- 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 or equivalent level — ISCED level 8.

The term 'tertiary education' refers to ISCED levels 5-8.



Source: Eurostat (online data codes: educ_uoe_enrp01, educ_uoe_enrp04, educ_uoe_enrs01, educ_uoe_enrs04, educ_uoe_enrs07 and educ_uoe_enrt01)

Early childhood education

Research has shown that early experiences of children are often critical for their long-term development. Early childhood and primary education programmes are designed to play a key role in redressing life chances through tackling inequalities and raising proficiency in basic competences. In addition, they provide children with the opportunity to develop learning, critical thinking and collaborative skills. Such programmes are considered to be 'educational' within ISCED and therefore constitute the first level of education in education and training systems.

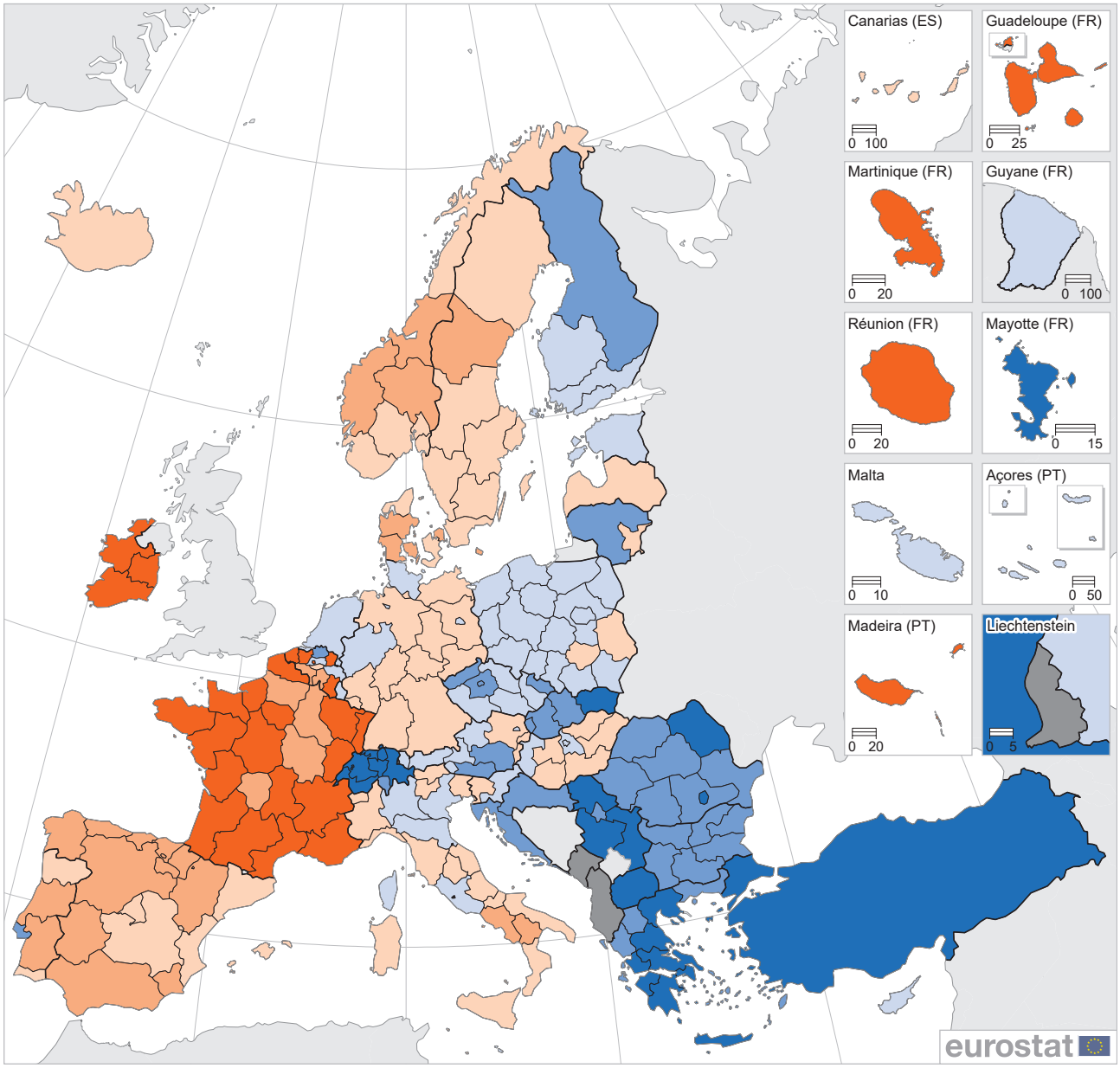
Within the strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030), one of the seven key policy targets concerns the share of children aged between 3 years and the starting age of compulsory primary education participating in early childhood education. Eurostat data are used to measure progress towards the goal of ensuring that, by 2030, at least 96 % of children in this age group are participating in early childhood education.

There were 30 regions across the EU where every child between the age of 3 years and the age for starting compulsory primary education participated in early childhood education

Across the EU, there were 15.6 million children enrolled in early childhood education in 2019; young boys accounted for a 51.5 % share of pupils at this level. Map 3.1 shows a more detailed analysis for 218 NUTS level 2 regions; note that statistics presented for Germany relate to NUTS level 1 regions. It is possible to observe a remarkable difference in terms of regional participation rates, with higher rates recorded in many of the westernmost regions of the EU and lower rates across most eastern regions. At the top end of the distribution, there were 30 regions in the EU where every child 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 orange). Looking in more detail, there were 75 regions (in other words, just over one third of all EU regions for which data are available) where the headline target of 96.0 % had already been attained in 2019. These regions were mostly located in Belgium, Denmark, Ireland, Spain and France — where (practically) all children between the age of 3 years and the age for starting compulsory primary education participated in early childhood education. There were also several regions in (predominantly southern) Italy, Portugal and Sweden, as well as single regions from each of Lithuania and Poland where this target had already been achieved.

In 2019, the proportion of young children participating in early childhood education was less than 75.0 % in approximately one twentieth of all the regions for which data are available (12 out of 207). These regions with relatively low participation rates (as shown by the darkest shade of blue in Map 3.1) were concentrated in Greece (eight regions); Mayotte (France), Nord-Est (Romania) and Východné Slovensko (Slovakia) also had relatively low rates. The lowest proportion of young children participating in early childhood education was recorded in Voreio Aigaio in Greece, at 55.0 %.

Map 3.1: Participation rates in early childhood education, 2019
(%, by NUTS 2 regions)



EU = 93.1

- < 75.0
- 75.0 - < 87.5
- 87.5 - < 93.1
- 93.1 - < 97.5
- 97.5 - < 100.0
- = 100.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: share of children between the age of three and the age of starting compulsory primary education participating in early childhood education. Greece: definition differs — data refer only to pupils from public institutions. Germany: NUTS level 1. The Netherlands and Turkey: national data. North Macedonia: 2018.

Source: (online data codes: educ_uoe_enra21 and educ_uoe_enra22)

Upper secondary education

School attendance in the EU Member States is compulsory at least for primary and lower secondary education. Young people who have successfully completed lower secondary education may enter upper secondary education (ISCED level 3), when they may have to make choices concerning subjects or specialisations to study, as well as their future education and/or career paths. Upper secondary education typically ends when students are aged 17 or 18 years. 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).

Just over half of all upper secondary students in the EU were enrolled in general education programmes

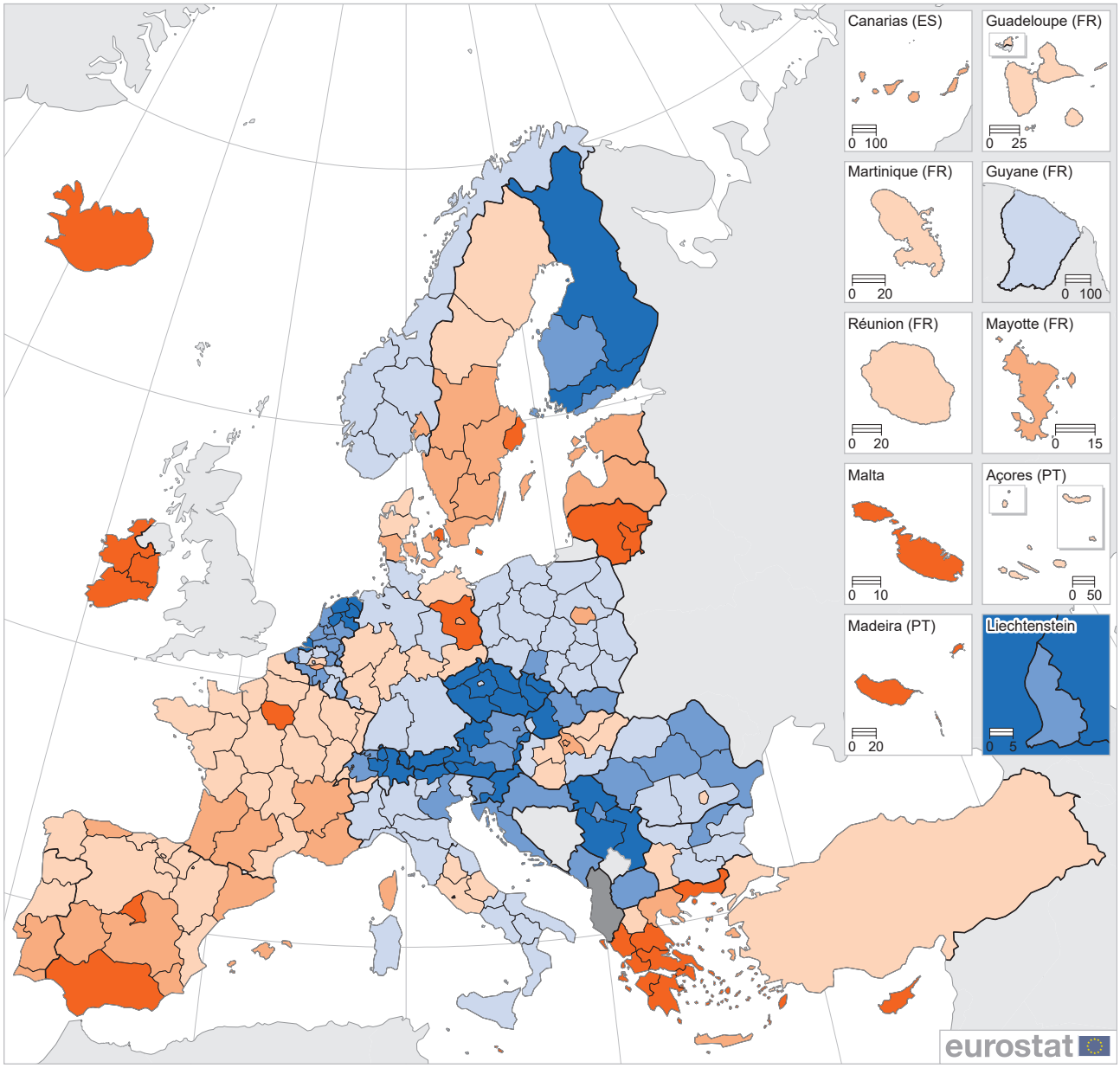
In 2019, there were 17.6 million students enrolled in the EU's upper secondary education programmes, with just over half of these (51.6 %) participating in general education that tends to be more academic; the remainder followed upper secondary vocational education programmes that are more technical or practical in nature.

Map 3.2 reflects the organisation of educational systems at a national level and the relative standing of general education and vocational education programmes. Among the 218 NUTS level 2 regions for which data are available (note that statistics presented for Germany relate to NUTS level 1 regions), there were 119 EU regions where a majority of upper secondary students followed general education programmes, leaving 99 regions where a majority of upper secondary students followed vocational education programmes. Some of these differences between regions can be attributed to the availability of and perceptions concerning general and/or vocational education in each of the EU Member States. For example, a majority of upper secondary students in Ireland or Greece follow general education programmes (as a stepping stone to tertiary education), whereas students in Czechia or Finland are more likely to follow vocational education programmes.

In 2019, there were 23 regions across the EU where the share of upper secondary students following a general education programme was at least 67.5 % (as shown by the darkest shade of orange in Map 3.2). These regions were concentrated in Ireland (all three regions), Greece (9 out of 13 regions), Lithuania (both regions), Cyprus and Malta. This group also included the capital regions of Hovedstaden (Denmark), Stockholm (Sweden), Comunidad de Madrid (Spain) and Île-de-France (France), as well as Andalucía in Spain, Brandenburg in Germany (that encircles the German capital region of Berlin; NUTS level 1) and Região Autónoma da Madeira in Portugal. Almost three quarters of the multi-regional EU Member States reported that their capital region had the highest share of upper secondary students enrolled in general education programmes; this may be linked to the relatively high concentration of general and academic establishments in these regions.

At the other end of the range, there were 24 regions in the EU where the share of upper secondary students following a general education programme was less than 30.0 % (as shown by the darkest shade of blue) and therefore where a relatively high share of students followed vocational education programmes. These regions were located in Czechia (every region except for the capital region of Praha), the Netherlands and Austria. This group also included Pohjois- ja Itä-Suomi, Etelä-Suomi (both Finland), Provincia Autonoma di Bolzano/Bozen (Italy), Západné Slovensko (Slovakia) and Vzhodna Slovenija (Slovenia). The latter was one of only three regions in the EU where less than one in four upper secondary students were enrolled in general education programmes: Vzhodna Slovenija (24.8 %), Oberösterreich in Austria (24.1 %) and Severozápad in Czechia (23.4 %).

Map 3.2: Students enrolled in upper secondary education — general, 2019
(% share of all students in upper secondary education, by NUTS 2 regions)



EU = 51.6

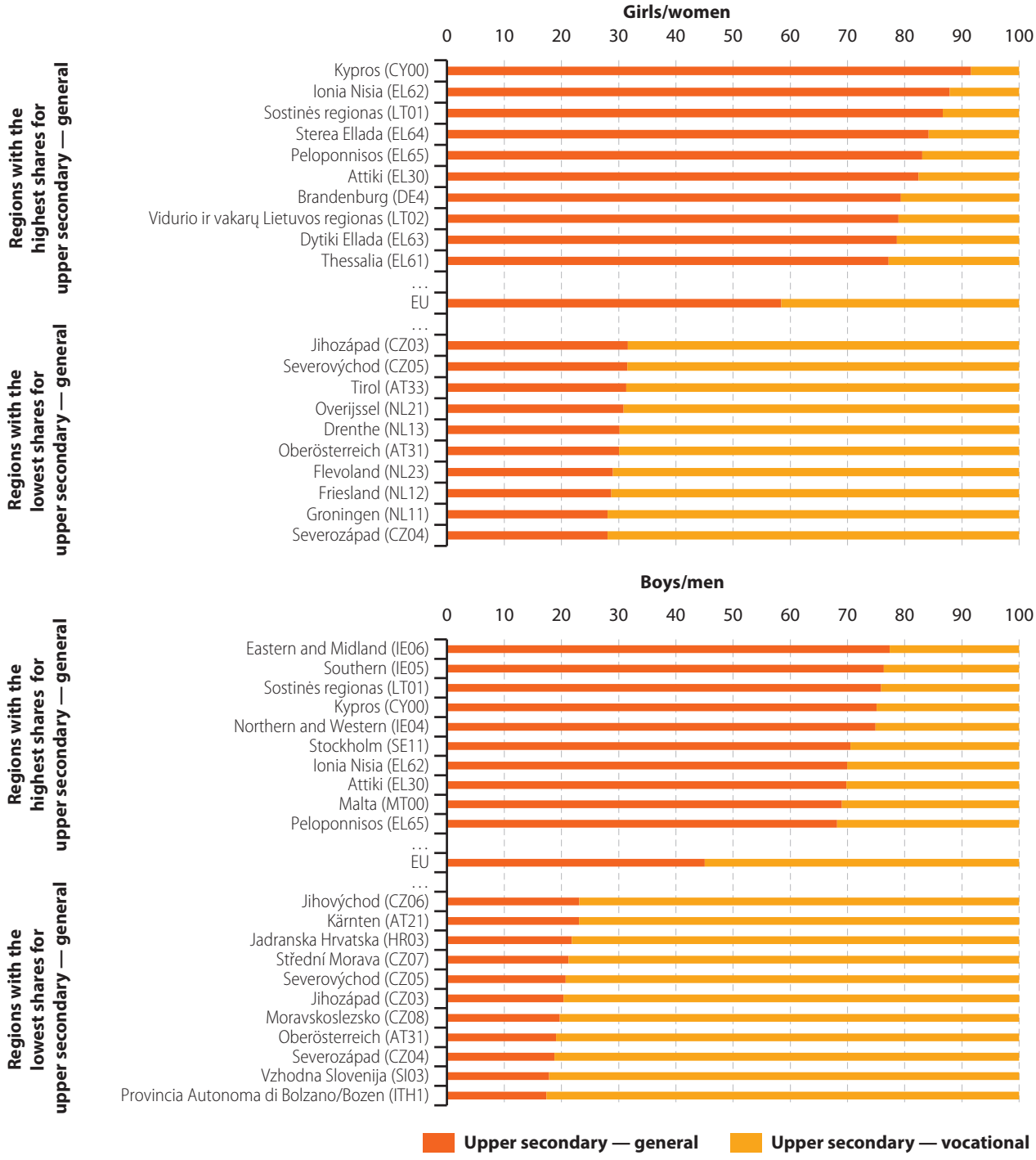
- < 30.0
- 30.0 - < 42.0
- 42.0 - < 51.6
- 51.6 - < 60.0
- 60.0 - < 67.5
- ≥ 67.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Germany, NUTS level 1. Turkey: national data. North Macedonia: 2018.
Source: Eurostat (online data codes: educ_uoe_enrs04 and educ_uoe_enrs06)

Figure 3.1: Students enrolled in upper secondary education by sex and education level, 2019
(%, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values. Germany: NUTS level 1.
Source: Eurostat (online data codes: educ_uoe_enrs04 and educ_uoe_enrs06)

Female upper secondary students were more likely (than male students) to enrol in general education programmes

In 2019, there were 8.6 million female upper secondary students in the EU, a majority of whom (58.4 %) were enrolled in general education programmes. By contrast, there were 9.0 million male upper secondary students, with a lower share (45.0 %) enrolled in general education programmes. As such, a greater proportion of female students at this level of education were following more academic studies.

Figure 3.1 highlights those regions with the highest and lowest shares of upper secondary students following general education programmes. In 2019, the highest shares among female students were recorded in Cyprus (91.6 %), Ionia Nisia in Greece (87.9 %) and Sostinės regionas (the capital region of Lithuania; 86.7 %). The highest shares among male students were recorded in the Irish regions of Eastern and Midland (the capital region; 77.4 %) and Southern (76.3 %), as well as in Sostinės regionas (75.9 %).

In 2019, at least 7 out of 10 female upper secondary students followed a vocational education programme in Severozápad in Czechia, three Dutch regions — Groningen, Friesland and Flevoland — as well as Oberösterreich in Austria. More than four out of every five male upper secondary students followed a vocational education programme in Provincia Autonoma di Bolzano/Bozen in Italy, Vzhodna Slovenija in Slovenia, Severozápad and Moravskoslezsko in Czechia, and Oberösterreich.

Tertiary education

Tertiary education (ISCED levels 5-8) builds on secondary education, providing learning activities at a higher level of complexity. This level of education — provided by universities and tertiary educational institutes — can play an important role in society, by fostering innovation, increasing economic development and growth, and improving more generally individual well-being.

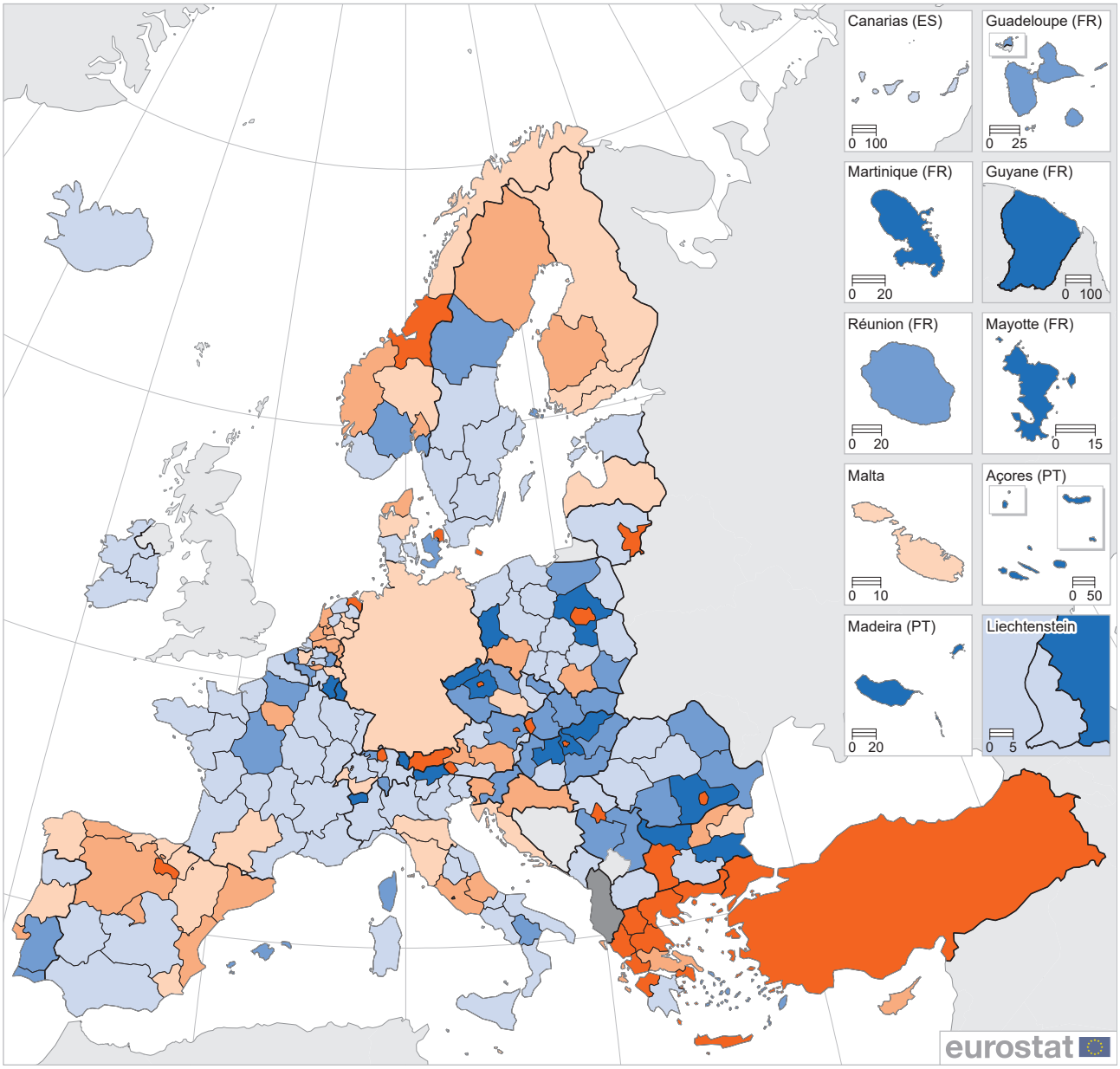
The number of people enrolling in tertiary education across the EU has risen in recent decades, reflecting a number of factors in different EU Member States or their regions, such as: changing demographics; changing patterns of labour force participation (particularly for women); increased demand from employers for tertiary education qualifications for jobs that previously required a secondary level of education; an increased awareness of the benefits of tertiary education; affordability (such as 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 studies; an increasing share of people participating in lifelong learning.

There were 17.8 million students enrolled in the EU's tertiary education establishments in 2019. They accounted for almost one in five (19.1 %) of all pupils and students enrolled in the EU's education system. A majority of the students enrolled in the tertiary education sector were female (53.7 % of the total).

Map 3.3 shows the proportion of students enrolled in tertiary education relative to the total number of pupils and students in all levels of education. The regional distribution was somewhat skewed, insofar as there were 74 regions with a share above the EU average of 19.1 % (those regions shown in orange), compared with 129 regions with shares below the EU average (shown in blue). Many urban and capital regions recorded relatively high participation rates for tertiary education. Aside from the location and availability of tertiary education establishments, the share of all students enrolled in tertiary education may also reflect, at least to some degree, previous demographic and vital events (for example, developments over time for the share of young people within the total population or the fertility rate).

In 2019, the share of tertiary education students in the total number of pupils and students across all levels of education was at least 27.0 % in approximately one tenth (21 out of 203) of the NUTS level 2 regions for which data are available; note only national data are available for Germany. Among these regions — which are shown in the darkest shade of orange in Map 3.3 — tertiary students accounted for more than 40.0 % of all pupils and students in La Rioja (Spain), Wien (the capital region of Austria), and three Greek regions — Dytiki Makedonia, Ipeiros and Dytiki Ellada — the latter being the only region in the EU where an absolute majority (51.2 %) of pupils and students were enrolled within tertiary education. At the other end of the range, there were five regions in the EU where tertiary students accounted for less than 5.0 % of all pupils and students in 2019: Sud-Muntenia (Romania), Provincia Autonoma di Bolzano/Bozen (Italy), Severozapaden (Bulgaria), Střední Čechy (Czechia) and Mayotte (France); the last two of these recorded the lowest shares in the EU, at 1.8 %.

Map 3.3: Students enrolled in tertiary education, 2019
(% share of all pupils and students in education, by NUTS 2 regions)



EU = 19.1

- < 8.5
- 8.5 - < 13.0
- 13.0 - < 19.1
- 19.1 - < 21.0
- 21.0 - < 27.0
- ≥ 27.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: the share of all pupils and students in education excludes early childhood educational development. Ireland: private government independent institutions are only partially covered. Germany and Turkey: national data. Montenegro and North Macedonia: 2018.

Source: Eurostat (online data codes: educ_uoe_enrt01 and educ_uoe_enra11)

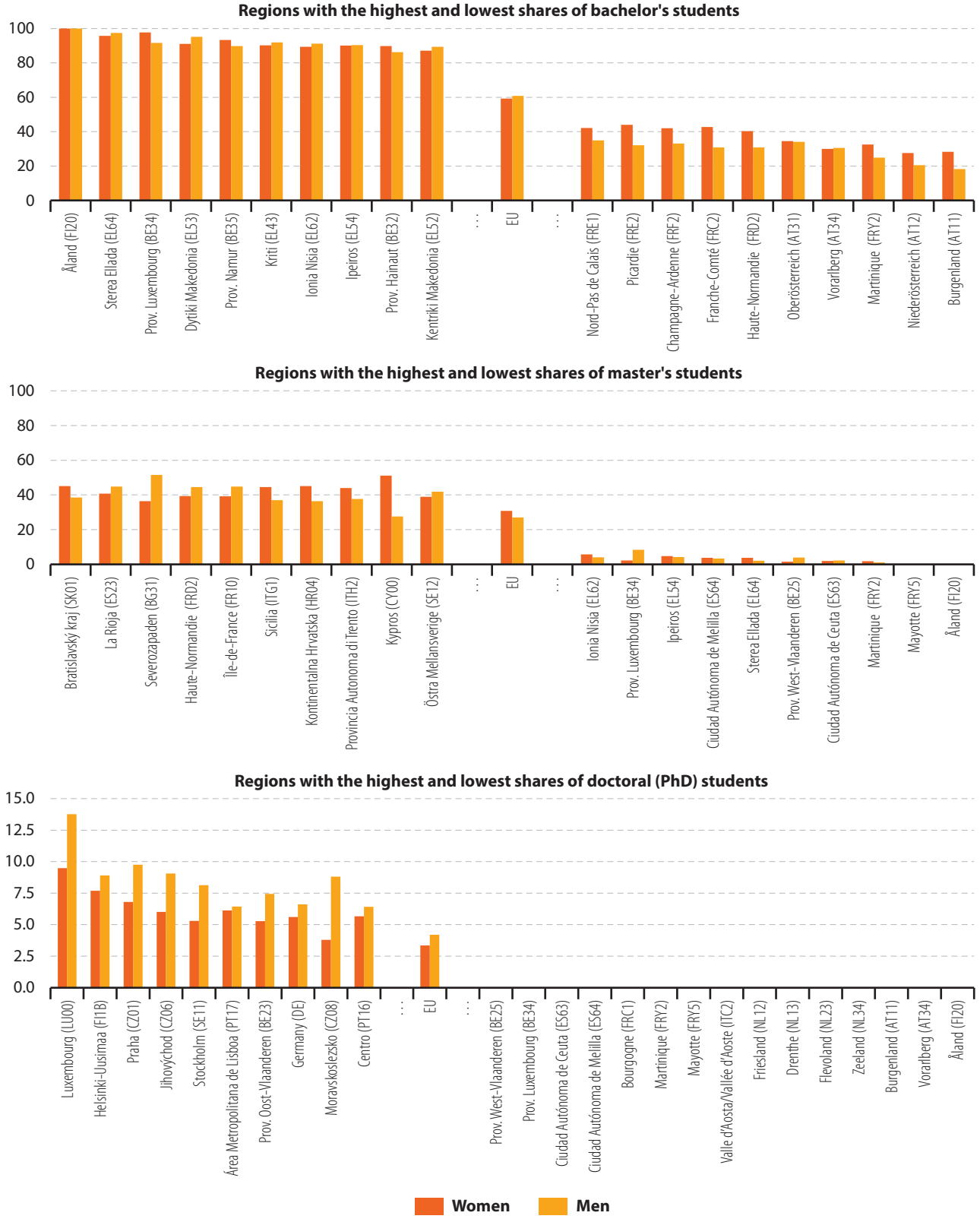
There were more women (than men) studying for bachelor's and master's degrees

In 2019, there were 10.7 million students across the EU enrolled in bachelor's programmes. This figure was slightly more than twice as high as the count of students enrolled in master's programmes (5.2 million), while there were 666 thousand students enrolled in doctoral (PhD) programmes. As noted above, women 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 (57.3 % were women) and somewhat smaller among those studying for a bachelor's degree (53.5 % were women). By contrast, a small majority (51.8 %) of the students studying for a doctoral degree were men.

Unsurprisingly, the highest numbers of tertiary students were recorded in some of the EU's principal urban regions. In 2019, there were 714 thousand tertiary students enrolled in Île-de-France (the French capital region), 409 thousand in Comunidad de Madrid (the Spanish capital region) and 379 thousand in Cataluña (also in Spain). The only other NUTS level 2 regions in the EU with more than 300 thousand tertiary students were Andalucía in Spain and Lombardia in Italy; note only national statistics are available for Germany.

Figure 3.2 provides information for those EU regions with the highest and lowest shares of tertiary students enrolled to study for a bachelor's, master's or doctoral degree. Note that each national education system has its own specific characteristics, with an education offer that is focused on particular fields or levels of education. This may explain, at least to some degree, why there were 15 regions across the EU where there were no tertiary students enrolled to study for a doctoral degree in 2019, whereas 13.8 % of male tertiary students and 9.5 % of female tertiary students in Luxembourg were enrolled to study for a doctoral degree (the highest shares in the EU). Several (other) capital regions — those of Finland, Czechia, Sweden and Portugal — also recorded a relatively large share of tertiary students enrolled at the highest level of education.

Figure 3.2: Students enrolled in tertiary education by sex and education level, 2019
(% share of all tertiary students, by NUTS 2 regions)



Note: the difference in the scales used for the y-axes. Ranking based on total shares for all students (women and men). The rankings may include more than 10 regions if several regions have identical values. Germany: national data.

Source: Eurostat (online data code: educ_uoe_enrt06)

Educational attainment

Educational attainment can be measured by looking at the highest level of education (based on the ISCED classification) that an individual has successfully completed. 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 have a lower likelihood of being unemployed and enjoy a wider range of job opportunities, higher levels of income and tend to be more satisfied with life.

PEOPLE WITH AT LEAST AN UPPER SECONDARY LEVEL OF EDUCATIONAL ATTAINMENT

Within the domain of educational attainment, the EU has several policy targets. Among these, the EU aims to ensure that the share of early leavers (aged 18-24 years) with no more than a lower secondary education and no longer in education or training should be less than 9 % by 2030. This target will be supplemented by the analysis of a complementary indicator (as covered here), namely, the share of people aged 20-24 years with at least an upper secondary (or intermediate) level of educational attainment. Note that statistics on educational attainment pertain to the highest level of attainment reached at the moment of the survey interview and that some people in the target population might still be in the process of studying. Equally, people may leave the region where they completed a particular level of education in order to find work or continue their studies, moving to regions offering a wider range of labour market and educational opportunities.

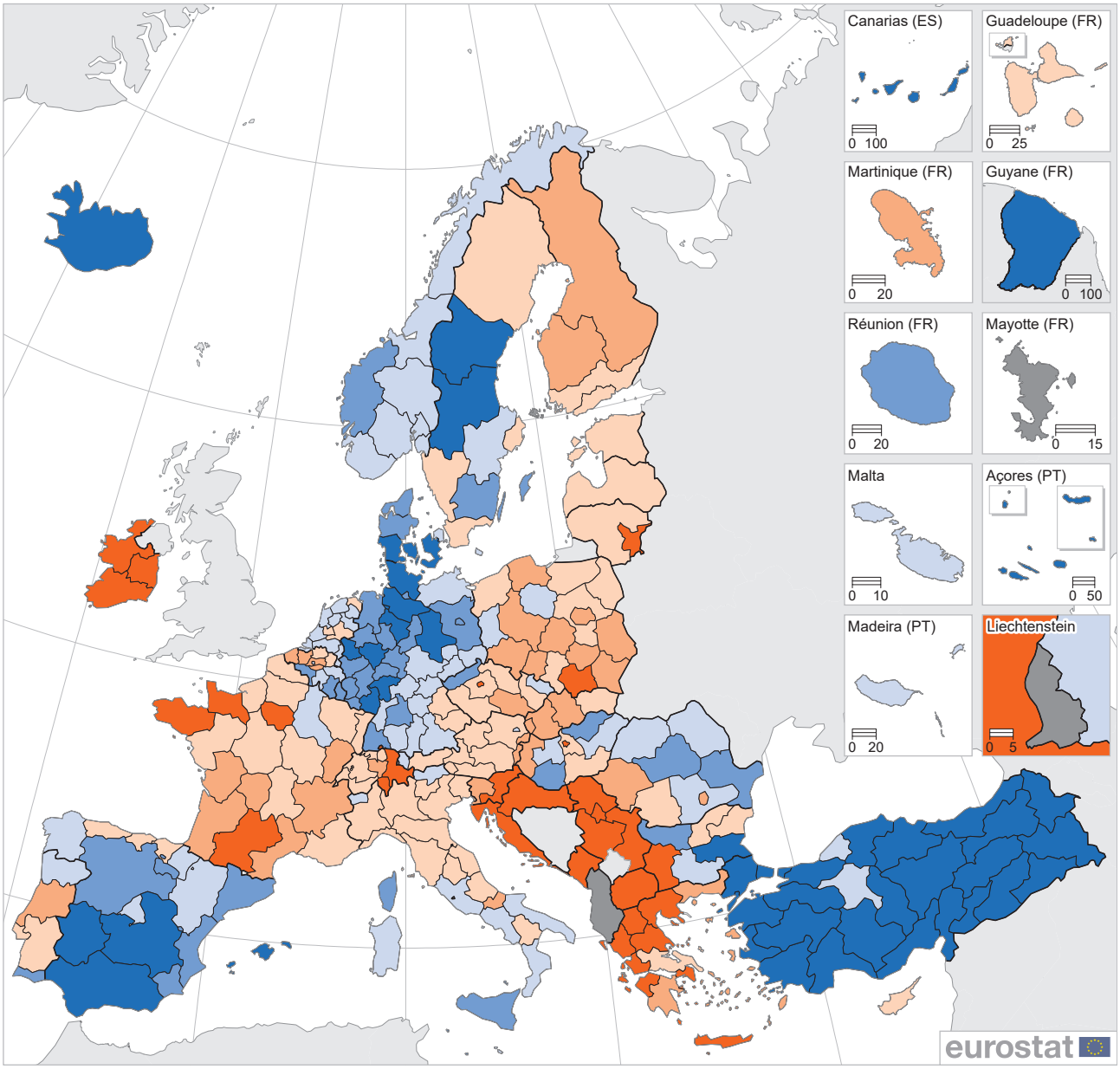
The last couple of decades have seen an expansion in the number of students graduating in intermediate (at most upper secondary or non-tertiary post-secondary) and higher (tertiary) levels of education. The share of the EU population aged 20-24 years with at least an intermediate level of educational attainment increased between 2002 and 2020 from 76.8 % to 84.0 %.

The share of young people with at least an intermediate level of education peaked at 99.0 % in Thessalia

Map 3.4 shows the proportion of young people with at least an intermediate level of education in 2020. Among the 238 NUTS level 2 regions for which data are available (2019 data for Germany; no information for Mayotte in France or Åland in Finland), there were 23 regions where this measure of educational attainment was at least 92.5 % (as shown by the darkest shade of orange). These regions with very high shares of young people having attained at least an intermediate level of education were concentrated across Ireland (all three regions), Croatia (both regions) and Greece (8 out of 13 regions). The remaining regions with very high shares included the capital regions of Hungary, Czechia, Bulgaria, France and Lithuania, as well as three additional regions from France and single regions from each of Poland and Slovenia. The central Greek region of Thessalia had the highest share of young people aged 20-24 years having attained at least an intermediate level of educational attainment, at 99.0 %. The second and third highest shares were also recorded in Greek regions: Ipeiros (98.6 %) and Dytiki Makedonia (98.2 %).

At the other end of the spectrum, the lowest levels of intermediate educational attainment — less than 75.0 % — were primarily recorded across north-western regions of Germany, northern Sweden, southern Denmark and southern Spain. There were also very low levels of intermediate educational attainment in three outermost regions of the EU — Região Autónoma dos Açores (Portugal), Guyane (France) and Canarias (Spain) — and in Yugoiztochen (Bulgaria).

Map 3.4: People with at least an upper secondary educational attainment, 2020
(% of people aged 20-24 years, by NUTS 2 regions)



EU = 84.0

- < 75.0
- 75.0 - < 78.5
- 78.5 - < 84.0
- 84.0 - < 90.0
- 90.0 - < 92.5
- ≥ 92.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Germany and Montenegro, 2019.
Source: Eurostat (online data code: edat_lfse_04)

PEOPLE WITH A TERTIARY LEVEL OF EDUCATIONAL ATTAINMENT

One of the seven EU policy targets proposed within the strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030) concerns tertiary educational attainment. The EU seeks to ensure that, by 2030, the share of 25-34 year-olds with tertiary educational attainment should be at least 45.0 %.

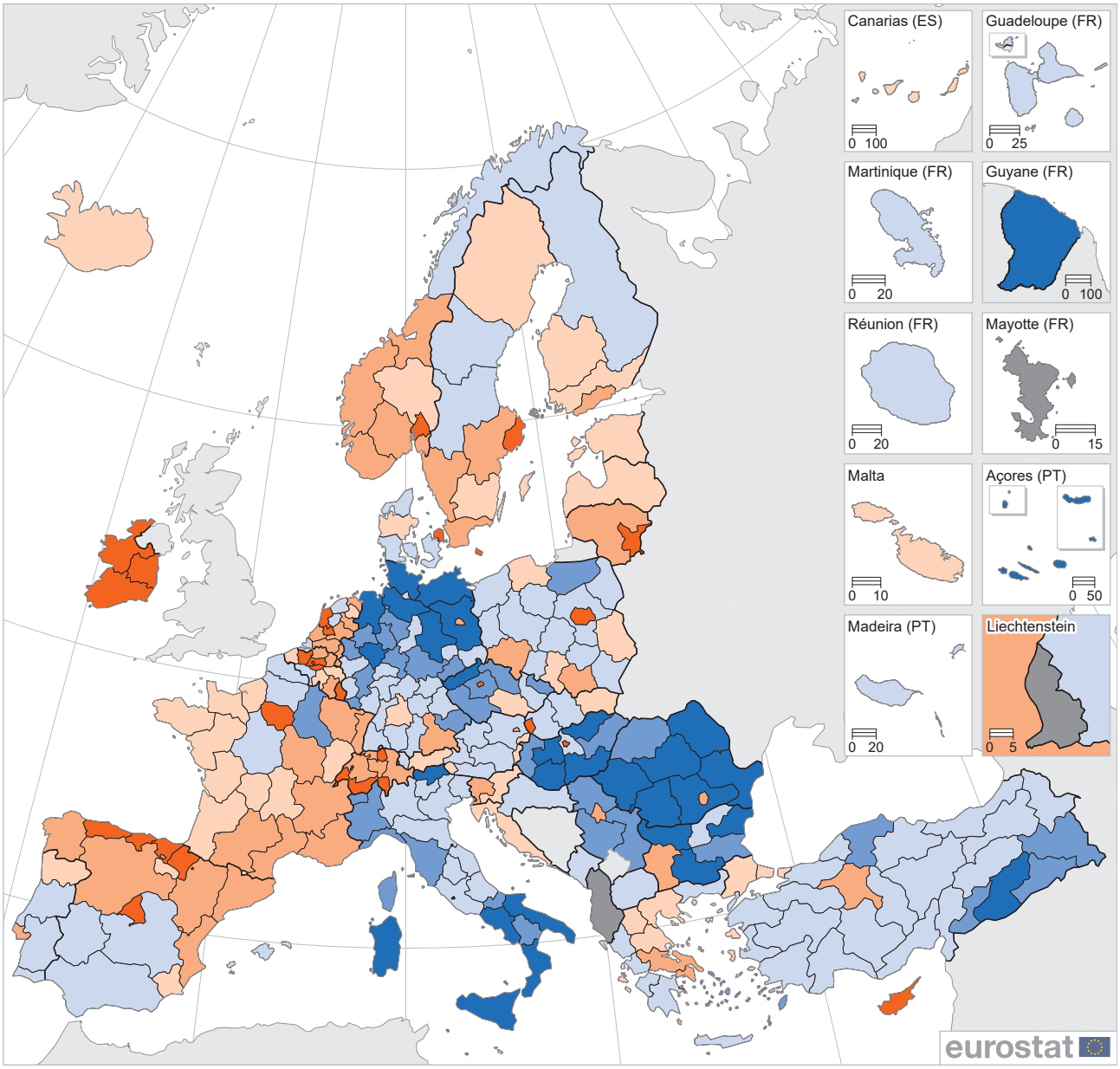
Approximately one quarter of all EU regions have reached the policy goal for tertiary educational attainment

In 2020, just over two fifths (40.2 %) of the EU population aged 25-34 years had a tertiary level of educational attainment; note that some students within this age group might still be studying. Of the 238 NUTS level 2 regions for which data are available (2019 data for Germany; no information for Mayotte in France or Åland in Finland), there were 61 regions that had already reached or surpassed the EU policy target of 45.0 % (as shown by the darkest two shades of orange in Map 3.5). By contrast, the share of people aged 25-34 years with a tertiary level of education attainment was less than the 45.0 % target in approximately three quarters of all EU regions.

At the top end of the distribution, there were nine regions in the EU where at least 6 out of every 10 people aged 25-34 years had a tertiary level of educational attainment in 2020. They included the capital regions of Lithuania, Poland, France, Luxembourg, Denmark, Sweden and Ireland, as well as Utrecht (a research hub, with one of the largest universities in the Netherlands) and País Vasco in northern Spain (where the regional economy specialises in innovation, research and high-technology manufacturing). Relatively high shares of tertiary educational attainment were also recorded in several other regions specialised in research activities and high-technology manufacturing, for example, Prov. Brabant Wallon (Belgium), Southern (Ireland) or Midi-Pyrénées (France). Regions such as these — together with capital regions — would 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.

At the bottom end of the distribution, there were 29 regions in the EU where less than a quarter of all people aged 25-34 years had a tertiary level of educational attainment in 2020 (as shown by the darkest shade of blue). These regions were principally concentrated in eastern EU Member States, as well as several predominantly eastern regions of Germany (2019 data) and several predominantly southern regions of Italy, but also included Guyane (an outermost region of France) and Região Autónoma dos Açores (in Portugal). Many were characterised as rural regions that had a relatively large agricultural sector, with a low level of supply of highly-skilled employment opportunities. Others were characterised by their relatively high specialisation in vocational educational programmes, with students moving directly into the labour market via apprenticeships and training schemes rather than as a result of obtaining academic qualifications. The lowest regional levels of tertiary educational attainment among people aged 25-34 years were recorded in two Romanian regions — Nord-Est (16.9 %), Sud-Muntenia (15.9 %) — and the Czech region of Severozápad (15.6 %).

Map 3.5: Tertiary educational attainment, 2020
(% of people aged 25-34 years, by NUTS 2 regions)



EU = 40.2

- < 25.0
- 25.0 - < 30.0
- 30.0 - < 40.2
- 40.2 - < 45.0
- 45.0 - < 53.5
- ≥ 53.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Germany and Montenegro, 2019.
Source: Eurostat (online data code: edat_lfse_04)

Transition from education to work

The final section of 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 a number of barriers that restrict their progression into the labour market, for example: a lack of relevant work experience; a lack of skills; or an overall lack of jobs during periods of economic shock (for example, during the COVID-19 pandemic).

EMPLOYMENT RATE OF RECENT GRADUATES FROM VOCATIONAL PROGRAMMES

A *Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience* (2020/C 417/01) set an EU benchmark for recent graduates from vocational programmes. The target — defined in relation to people aged 20-34 years having graduated 1-3 years earlier with an upper secondary or post-secondary non-tertiary vocational education — is for the employment rate of this subpopulation to be at least 82.0 % by 2025.

In 2019, the EU employment rate for recent graduates from vocational education programmes in upper secondary or post-secondary non-tertiary education (as covered by ISCED levels 3 and 4) was 79.1 %; as such, it stood 2.9 percentage points below the target for 2025. Map 3.6 shows that employment rates of recent vocational graduates were relatively high in a cluster of regions covering Sweden, Denmark and Germany, as well as a majority of the regions in Czechia, Austria, Slovakia and Hungary. Among the 192 regions for which data are available (for mixed reference periods covering 2018-2020), there were five regions where all recent graduates successfully found work. The employment rate of recent graduates from vocational programmes was 100.0 % in: Flevoland and Zeeland in the Netherlands (both 2020 data), Luxembourg and its neighbouring region of Trier in Germany (both 2019 data), and Övre Norrland in Sweden (also 2019 data).

The lowest employment rates for recent vocational graduates were recorded in southern regions of the EU. There were 20 regions where less than half of all recent vocational graduates had found work in 2020 and these were located in: Greece (all four NUTS level 1 regions), predominantly southern regions of Spain (2019 data for Extremadura), predominantly southern regions of Italy, as well as régions ultrapériphériques françaises (NUTS level 1; 2019 data). The lowest regional employment rates of recent graduates from vocational programmes were recorded in three Italian regions: Campania (32.6 %), Calabria (25.6 %) and Sicilia (24.8 %).

EARLY LEAVERS FROM EDUCATION AND TRAINING

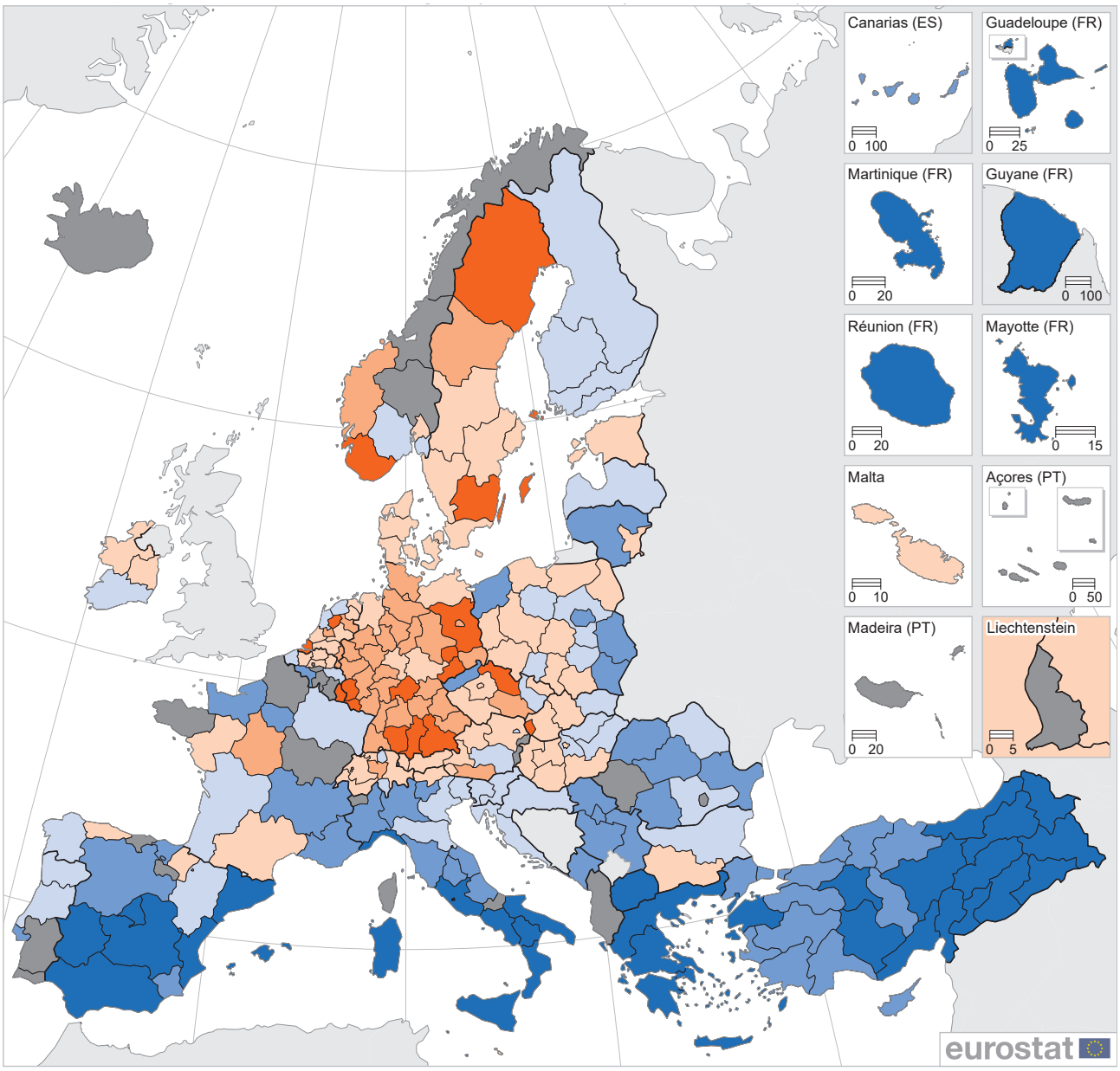
Within the EU, education policy seeks to ensure that all Europeans (irrespective of age) have the skills, knowledge and capabilities to manage and develop their careers. The transition from education into work may prove particularly difficult for people with low levels of literacy and numeracy, those who leave education at an early age, and people coming from disadvantaged backgrounds. One particular area of concern in this domain is the proportion of early leavers from education and training, in other words, the share of individuals aged 18-24 years who have at most a lower secondary level of educational attainment (ISCED levels 0-2) and who were not engaged in any further education and training (during the 4 weeks preceding the EU labour force survey). This indicator forms one of the seven key targets outlined in the strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030); the EU has set a goal to reduce the proportion of early leavers to less than 9.0 % by 2030.

During the last two decades, the share of early leavers from education and training has gradually 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 2017. Having remained unchanged in 2018, there were further reductions in the following two years: by 2020, the share of young people who had at most a lower secondary level of educational attainment and who were not engaged in any further education and training was 10.1 %.

The share of early leavers from education and training in the EU was higher among young men (12.0 %) than among young women (8.1 %)

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.

Map 3.6: Employment rate of recent graduates from vocational programmes, 2020
(% of graduates aged 20-34 years with upper secondary or post-secondary non-tertiary vocational educational attainment having left education and training 1-3 years earlier, by NUTS 2 regions)



Note: as covered by ISCED levels 3 and 4. Bulgaria, Greece and France: NUTS level 1. EU and Germany: 2019. Includes earlier reference years for several other regions (too many to document).

Source: Eurostat (online data code: edat_lfse_33)

Among other reasons, this pattern may be a reflection of lower life chances and weak local labour markets (which may act as a 'push factor' to drive away more talented students). For the gender dimension, a higher proportion of young men (compared with young women) tend to be early leavers. Within the EU, the share of early leavers from education and training in 2020 was 12.0 % among young men, which was 3.9 percentage points higher than the corresponding share among young women (8.1 %). This pattern was repeated in the vast majority of EU Member States — as only Czechia and Romania recorded lower rates for young men — with the largest gender gaps recorded in southern EU Member States, particularly those on the Iberian Peninsula.

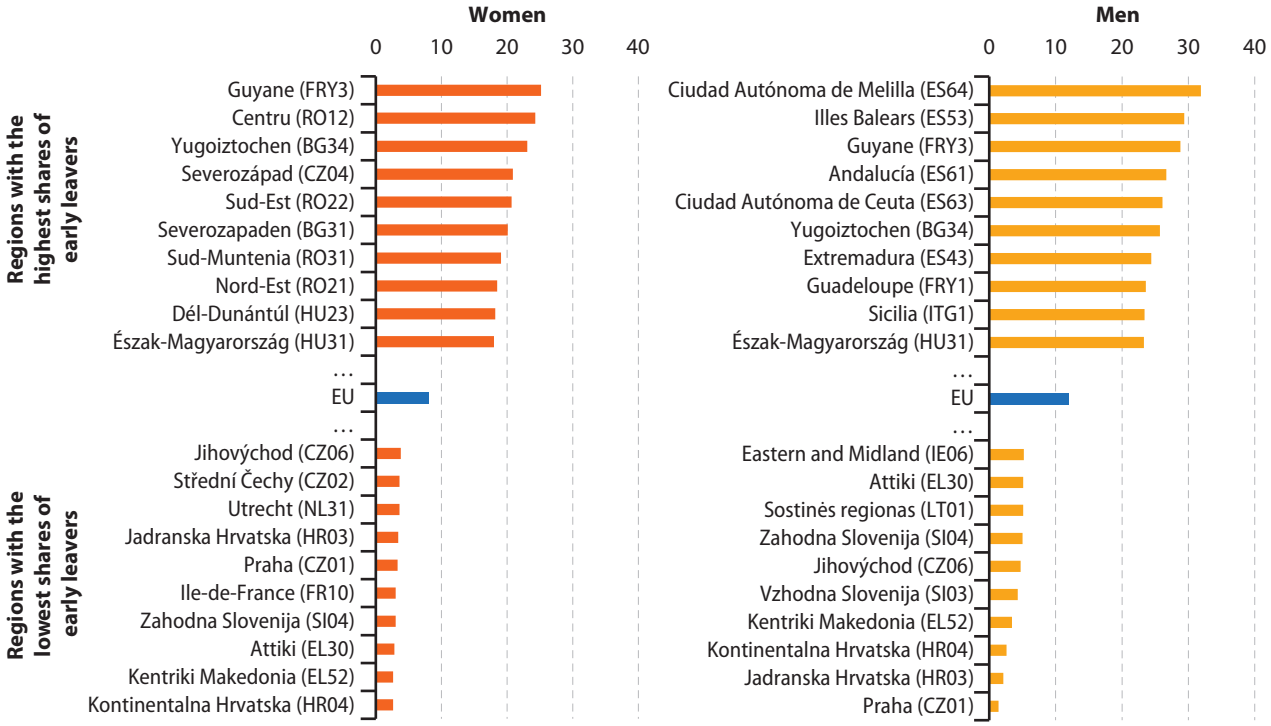
The proportion of early leavers from education and training was already less than 9.0 % in approximately half of EU regions: 110 out of 222 NUTS level 2 regions for which data are available (note the latest information available is for mixed reference periods covering 2018-2020). Some of the lowest shares of early leavers were concentrated in eastern regions of the EU, in particular across parts of Czechia, Croatia, Hungary and Poland. However, the lowest overall (young men and young women combined) share of early leavers from education and training was recorded in Kentriki Makedonia in Greece (1.3 %).

The highest regional shares of early leavers from education and training were often concentrated in southern Europe and across much of Bulgaria and Romania, as well as sparsely-populated, island and/or peripheral regions of the EU, where it is likely that a disproportionately high share of students have to leave home if they wish to follow a particular course or programme, leaving behind a higher concentration of early leavers. The islands of Região Autónoma dos Açores in Portugal had the highest overall share of early leavers from education and training in 2020, at 27.0 %.

Looking in more detail, Figure 3.3 presents information on the highest and lowest shares of early leavers from education and training by sex. It confirms that the share of early leavers was generally higher among young men than among young women. Some of the highest rates among young men were concentrated in Spanish regions, while the highest rates among young women were generally recorded in eastern regions of the EU.

At the other end of the distribution, the lowest shares of early leavers among young women — less than 3.0 % — were recorded in Attiki (the capital region of Greece), Kentriki Makedonia (also in Greece; 2018 data) and Kontinentalna Hrvatska (the capital region of Croatia). There were also three regions where the share of early leavers among young men was less than 3.0 %: Kontinentalna Hrvatska, Jadranska Hrvatska (also in Croatia) and Praha (the capital region of Czechia).

Figure 3.3: Early leavers from education and training, 2020
(% of people aged 18-24 years, by NUTS 2 regions)



Note: based on available data, some regions are not available (too many to document). Includes earlier reference years for some regions (too many to document).

Source: Eurostat (online data code: edat_lfse_16)

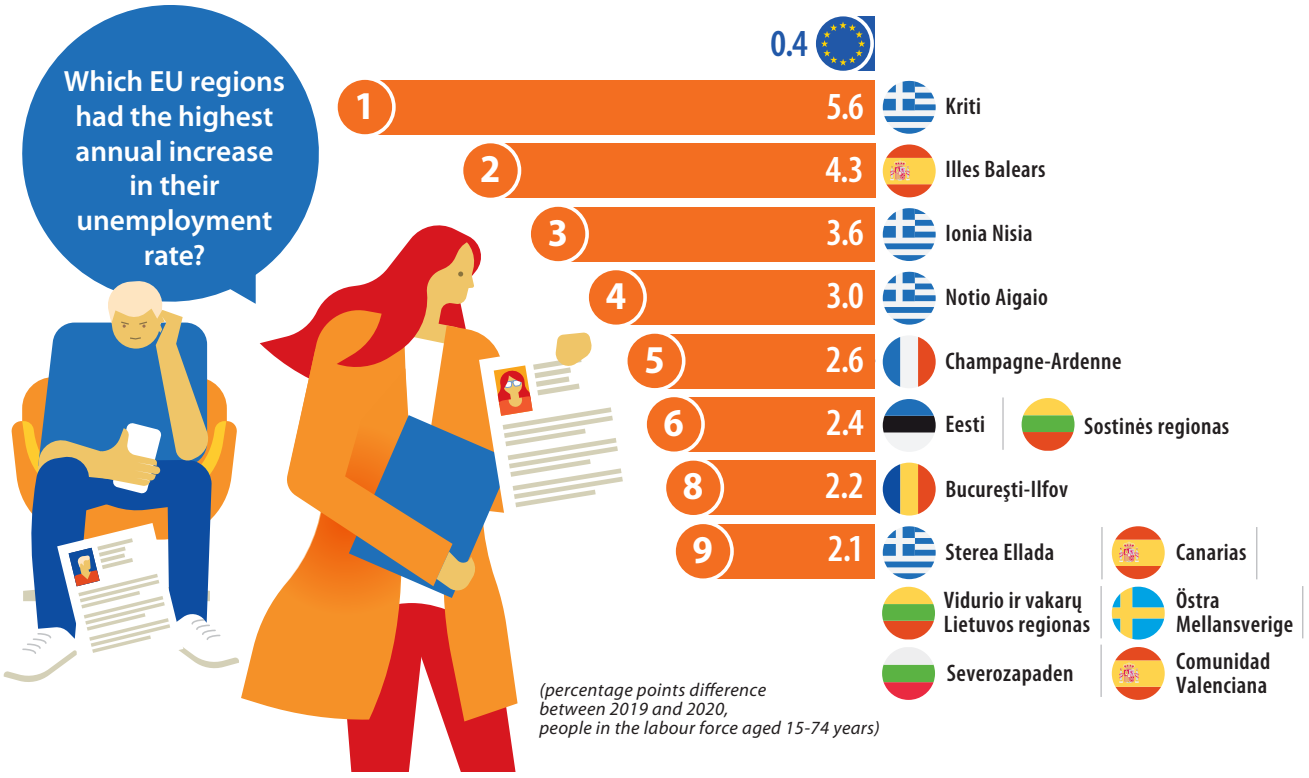
4. Labour market

The COVID-19 pandemic has had a considerable impact on all European Union (EU) labour markets. With the exception of key workers, there has generally been an increase in the number of people usually working from home. Other members of the labour force have been impacted in different ways: some were placed on furlough schemes ([1]), others were made unemployed and some self-employed lost their income.

Like the lockdown measures themselves, the impact of the measures varied considerably between and within EU Member States. This reflected not only the specific restrictions that were imposed, but also local economic structures and labour market conditions. The asymmetric impact of the pandemic was driven, at least in part, by the level of social contact and the feasibility of making use of technology at work. It is likely that the COVID-19 pandemic has accelerated some labour market transformations while introducing new ones: job losses have come from many activities, including some activities in long-term decline, as well as leisure and hospitality-related activities and/or among workers with precarious employment contracts. The pandemic also accelerated the introduction of digital technologies and a move towards more widespread use of flexible working arrangements.

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 pandemic. 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 in the EU. It includes a benchmark for the employment rate, namely that at least 78 % of people aged 20 to 64 years should be in employment by 2030.

([1]) Also known by other names, such as temporary lay-off or technical unemployment. In a furlough scheme, for a fixed or open-ended period of time employees are not required to work, but are not made unemployed. Depending on the details of specific schemes: the workers may receive full, reduced or no pay; the employers may receive full, partial or no financial support from public authorities. Furlough schemes allow employers to retain employees during economically difficult times, with the intention of the employees returning to work for the same employer at the end of the scheme.



Source: Eurostat (online data code: lfst_r_lfu3rt)

This chapter analyses EU labour markets and is split into two main sections, covering:

- regional employment, including information on employment rates, self-employment rates and a special focus on the impact of the COVID-19 pandemic, as measured by the change in the actual number of hours worked, absences from work, and changes in the proportion of people usually working from home;
- regional unemployment rates, including a special focus on one of the groups most impacted by the COVID-19 pandemic, youths — defined here as people aged 15-24 years.

In 2020, the population of the EU aged 15-74 years numbered 332.5 million persons. The labour force — also referred to as the economically active population — was composed of 211.7 million people, while 120.8 million people in this age range were considered to be outside the labour force, in other words economically inactive. This latter cohort is largely composed of school-age children, students, pensioners, people caring for other family members, as well as volunteers and people unable to work because of long-term sickness or disability. Looking in somewhat more detail: the EU labour force aged 15-74 years was composed of 196.7 million employed persons and 15.0 million unemployed persons who were not working (but were actively seeking and available for work).

Employment

The employment rate is the ratio of employed persons (of a given age) relative to the total population (of the same age). Within this section, data are presented for a slightly narrower coverage of the working-age population, defined here as people aged 20-64 years. The choice of this age range reflects the growing proportion of young people who remain within education systems into their late teens (and beyond), potentially restricting their participation in the labour market, while at the other end of the age spectrum the vast majority of people in the EU have retired by the time they reach the age of 65 years.

Increasing the number of people in work has been one of the EU's main policy objectives in recent decades. It has been part of the European employment strategy (EES) from its outset in 1997 and was subsequently incorporated as a target in the Lisbon and Europe 2020 strategies. The employment rate is also included as one of the indicators in the social scoreboard which is used to monitor the implementation of the European Pillar of Social Rights.

As part of its work to put in place a strong social EU that focuses on jobs and skills for the future, the European Commission has made a number of proposals to address the challenges linked to new societal, technological and economic developments, as well as the socioeconomic consequences of the COVID-19 pandemic. Alongside initiatives providing support for youth employment and adequate minimum wages, the European Commission has also provided guidance, designed to support a job-rich recovery: *Commission Recommendation on an Effective Active Support to Employment following the COVID-19 crisis (EASE)* (C(2021) 1372 final). The European Pillar of Social Rights Action Plan proposes three ambitious headline targets for 2030. Among these, the EU has set itself the goal whereby at least 78 % of the population aged 20-64 years should be in employment by 2030.

The EU employment rate was 72.3 % in 2020 — down compared with its peak value in 2019

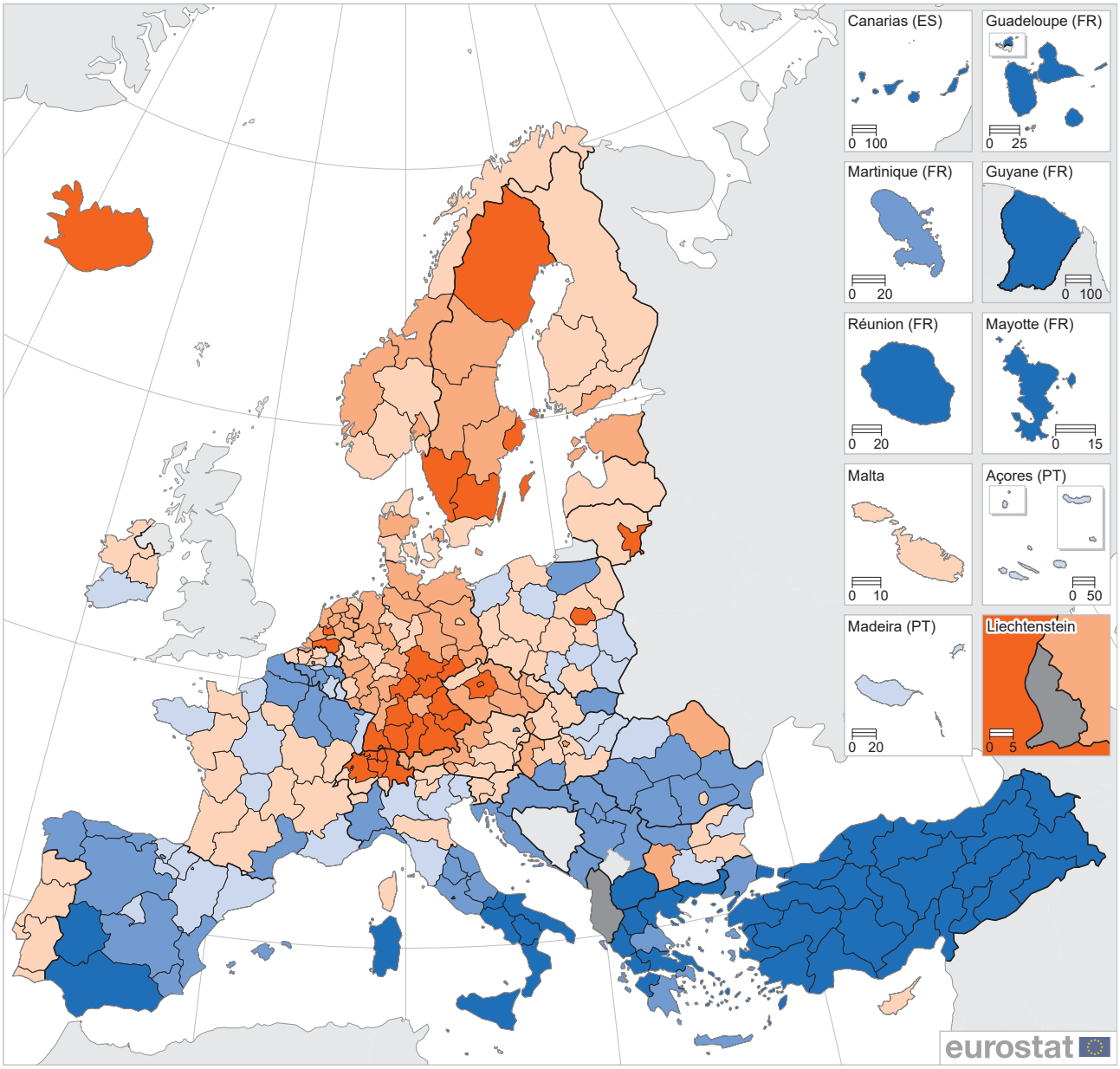
The employment rate for the working-age population (20-64 years) of the EU was 72.3 % in 2020, down 0.8 percentage points compared with 2019. The outbreak of the COVID-19 pandemic therefore ended a period of six consecutive annual increases for the EU's employment rate.

Map 4.1 presents the employment rate for NUTS level 2 regions: the highest rates — equal to or above the headline target for 2030 (of 78 %) — are shown in the two darkest shades of orange. In 2020, 69 out of the 240 regions for which data are available in the EU had reached or surpassed this target. These regions were principally located across much of Czechia, Germany, Estonia, the Netherlands and Sweden. Note that German data, due to a change in survey methodology in 2020, show a low level of reliability in some regions; these data are preliminary and may be revised in the future.

Rural, sparsely-populated or peripheral regions recorded some of the lowest regional employment rates in the EU. This pattern was apparent in southern Spain and southern Italy, much of Greece, the outermost regions of France, and many of the rural areas in eastern Europe (some of which remain characterised by semi-subsistence agriculture). Most of these regions were characterised by a lack of intermediate and highly-skilled employment opportunities. Former industrial heartlands that have not adapted economically make up another group of regions characterised by relatively low employment rates. Many of these have witnessed the negative impact of globalisation on traditional areas 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).

Looking in more detail, some of the highest regional employment rates in 2020 were concentrated in southern Germany, as rates of more than 84.0 % were

Map 4.1: Employment rate, 2020
(%, people aged 20-64 years, by NUTS 2 regions)



EU = 72.3
- < 60.0
- 60.0 - < 70.0
- 70.0 - < 72.3
- 72.3 - < 78.0
- 78.0 - < 81.5
- ≥ 81.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Montenegro, 2019.
Source: Eurostat (online data code: lfst_r_lfe2emprtn)

recorded in Oberfranken, Schwaben, Tübingen and Oberbayern. However, the highest employment rate — 86.5 % — was recorded in the island region of Åland (Finland). By contrast, more than one quarter (65 out of the 240 regions for which data are available) of all EU regions had an employment rate that was below 70.0 % (as shown by the two darkest shades of blue). Among these, there were five regions — Calabria, Campania and Sicilia (in southern Italy) as well as Mayotte and Guyane (outermost regions of France) — where less than half of the working-age population was employed.

There was often a stark contrast in employment rates for capital regions

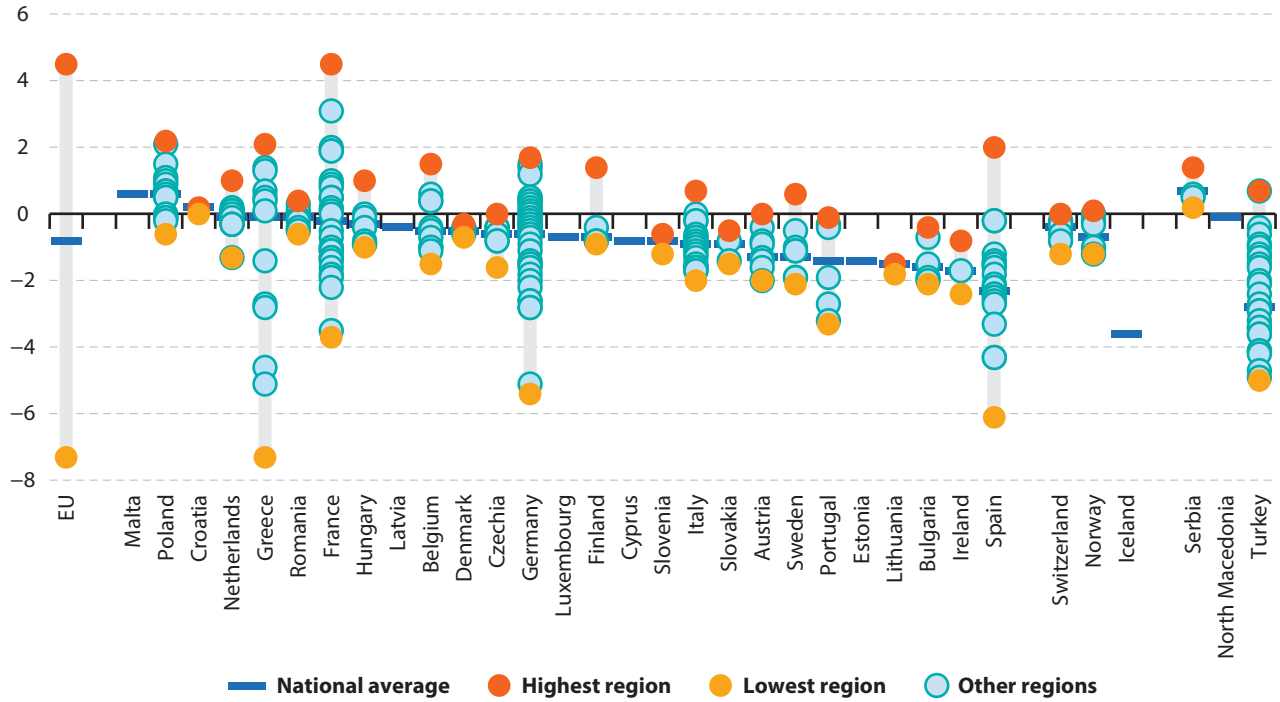
Within individual EU Member States, there were often relatively large differences in employment rates between regions. For example, in most of the multi-regional eastern and Baltic Member States it was common to find the capital region had the highest employment rate, as was the case in Bulgaria, Croatia, Lithuania, Hungary, Poland, Slovenia and Slovakia. This situation was reversed in a number of western Member States — for example, Belgium and Austria — where the capital region had one of the lowest employment rates.

ANNUAL CHANGE IN THE EMPLOYMENT RATE

The COVID-19 pandemic and its associated measures impacted EU labour markets from the end of the first quarter of 2020 onwards. Annual statistics reveal that regional employment rates (for people aged 20-64 years) fell between 2019 and 2020 in 169 out of the 240 NUTS level 2 regions for which data are available. There were however 61 regions across the EU where employment rates rose, while 10 regions recorded no change.

Figure 4.1 shows in more detail this mixed pattern of developments. The employment rate declined at a rapid pace in several regions characterised as some of the EU's principal holiday destinations. For example, between 2019 and 2020 the employment rate in Notio Aigaio and Kriti (both Greece) declined by 7.3 and 5.1 percentage points, while there were reductions of 6.1 points in Illes Balears and 4.3 points in Canarias (both Spain). By contrast, regional employment rates increased across a majority of regions in Poland between 2019 and 2020, with gains of more than 2.0 percentage points in the neighbouring central regions of Łódzkie and Świętokrzyskie. However, the highest increases were recorded in Corse and Languedoc-Roussillon (both southern France), as employment rates rose by 4.5 and 3.1 percentage points respectively; note that the sample size for 2020 data for Corse was very small and that these results should therefore be treated with caution.

Figure 4.1: Annual change in the employment rate, 2020
(percentage points, people aged 20-64 years, by NUTS 2 regions)



Note: ranked on the national average. Germany and Iceland: break in series.
Source: Eurostat (online data code: lfst_r_lfe2emprtn)

SELF-EMPLOYMENT RATE

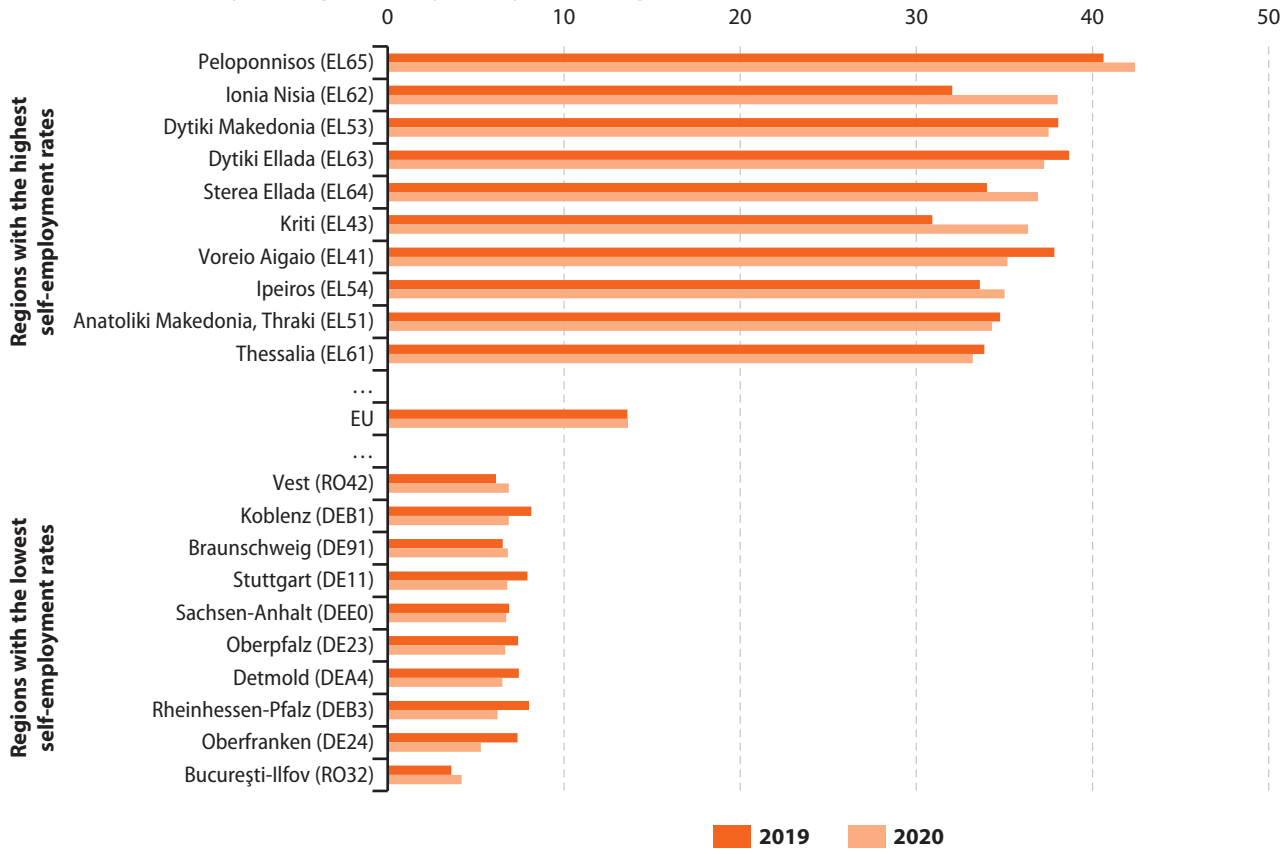
Entrepreneurship and self-employment have historically drawn the attention of policymakers as a means of promoting job creation, be it self-employed persons with employees or own-account workers. One area of discussion around self-employment concerns the motivation of individuals: do they become self-employed out of choice (being one's own boss and accepting the risks and benefits of entrepreneurship) or out of necessity (to avoid unemployment). In recent years, contracting self-employed people has been used — by some employers — as an instrument to reduce labour costs and/or to avoid some or all aspects of labour law. For example, some Member States have experienced a growth in what is often referred to as the gig economy ([2]).

The self-employed form a sizeable proportion of the EU's labour force: there were 25.8 million self-employed persons (aged 20-64 years) in 2020, representing 13.6 % of the total number of persons employed. Self-employment was particularly widespread in southern EU Member States, accounting for more than one quarter (28.0 %) of the total number of persons employed in Greece and for around one fifth (20.3 %) in Italy. At the other end of the range, the lowest self-employment rates in the EU were recorded in Germany, Denmark and Luxembourg.

Figure 4.2 shows those NUTS level 2 regions with the highest and lowest self-employment rates. The 12 regions with the highest self-employment rates in 2020 were exclusively located in Greece, with peaks recorded in Peloponnisos (42.4 %), Ionia Nisia (38.0 %) and Dytiki Makedonia (37.5 %). By contrast, Bucureşti-Ilfov — the capital region of Romania — had the lowest self-employment rate among EU regions, at 4.2 %. Note that aside from Vest (6.9 %), all of the remaining regions in Romania had self-employment rates that were in double-digits, with a majority of these posting rates above the EU average. The remaining regions at the lower end of the ranking were all located in Germany, with the lowest self-employment rate in Oberfranken (5.3 %).

([2]) In the gig economy, people — referred to by various names such as freelancers/self-employed/contractors — have a service contract/agreement to work on a specific task or project for a client, rather than a more traditional employment contract to do the same or similar work. Such working practices have always been common in some activities, such as within creative, arts and entertainment activities, but have grown in importance in other activities, such as information technology services, passenger transport services, and some professional and support services.

Figure 4.2: Self-employment rate, 2019 and 2020
(% of people in employment aged 20-64 years, by NUTS 2 regions)



Note: Bremen (DE50) and Trier (DEB2), not available (incomplete data). Åland (FI20): not available.

Source: Eurostat (online data code: lfst_r_lfe2estat)

At the start of the COVID-19 pandemic, most EU Member States introduced some form of furlough scheme in order to provide support to labour markets. However, there were considerable differences in terms of the coverage of schemes and whether or not similar schemes were implemented to protect, partially or completely, the self-employed. Figure 4.2 also shows how self-employment rates developed between 2019 and 2020. Looking at the regions with the lowest rates, the pandemic and its associated measures appear to have generally led to a reduction in the already low self-employment rates recorded in most German regions. On the other hand, the already high self-employment rates recorded in some Greek regions continued to rise. For example, self-employment rates rose by 4.8-6.0 percentage points between 2019 and 2020 in Notio Aigaio, Kriti and Ionia Nisia; these were the three largest gains among the 237 EU regions for which data are available.

FOCUS ON THE IMPACT OF THE COVID-19 PANDEMIC

At the time of writing, the pandemic is still on-going. However, it is already clear that policy measures have, to some degree, cushioned the impact of the crisis on labour markets, if compared with the more rapid contraction of gross domestic product (GDP). That said, the crisis has impacted particular groups within the labour market, for example, young people, temporary employees, those in precarious employment, or those working in leisure, hospitality and transport-related activities. The final part of this section on employment looks in more detail at the impact of the COVID-19 pandemic, as measured by regional developments for the number of hours worked, absences from work, and the proportion of people usually working from home.

There was a 13.3 % reduction in the total number of hours worked in 2020

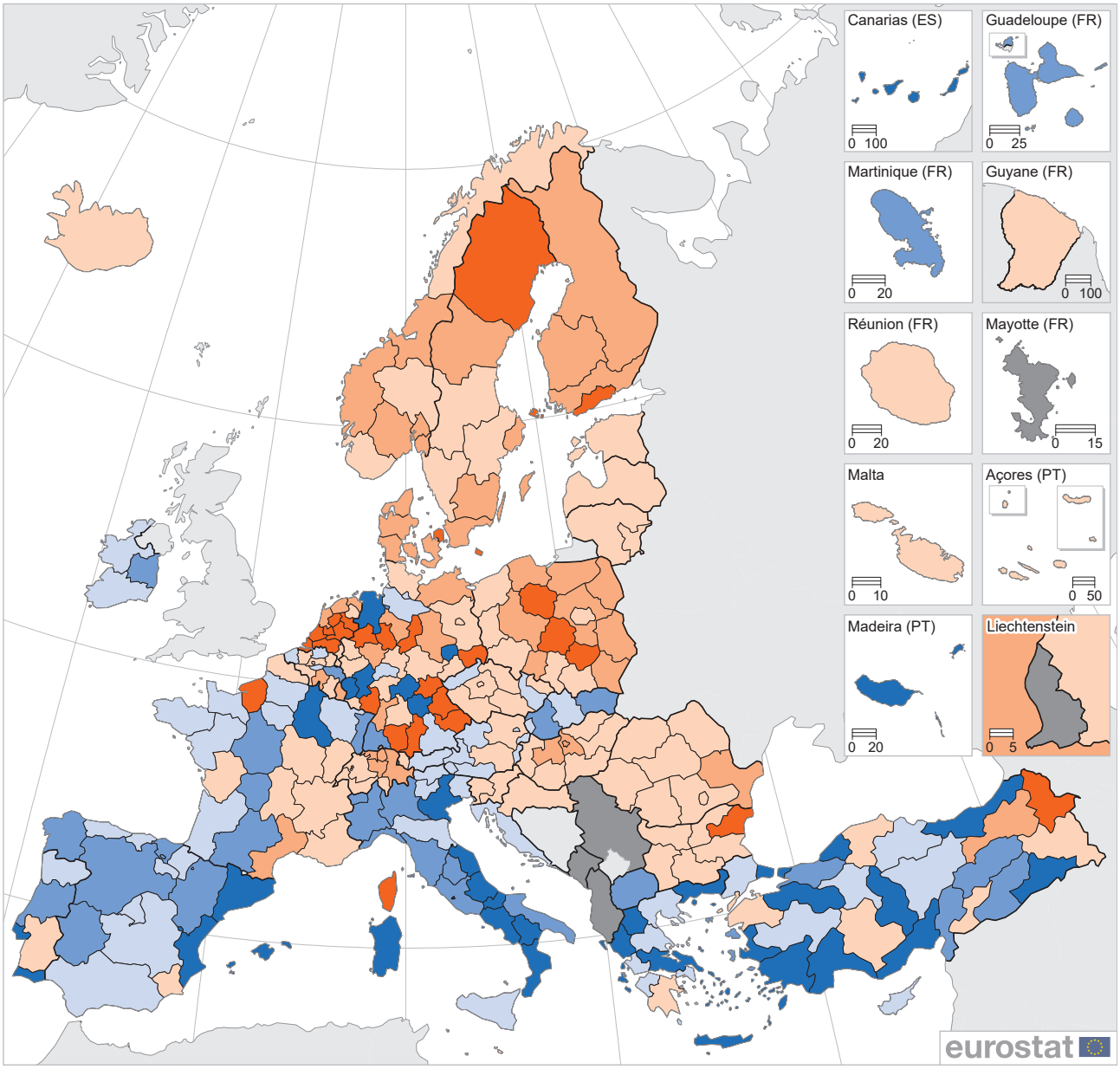
Across the EU, the total volume of work — as measured by the actual number of hours worked by each member of the labour force — fell by 13.3 % between 2019 and 2020. The vast majority of EU regions — 227 out of the 239 regions for which data are available (no information available for Mayotte in France) — recorded a fall in the actual number of hours worked between 2019 and 2020, while the overall volume of work increased in 12 regions.

Map 4.2 shows the annual change in actual number of hours worked for NUTS level 2 regions, with a varied patchwork of results across the individual regions of the EU. The impact of the COVID-19 pandemic and its associated measures on the actual number of hours worked between 2019 and 2020 was greatest across southern regions of the EU, whereas northern and eastern regions were generally less impacted.

Some of the largest reductions in the total volume of work between 2019 and 2020 were recorded in popular holiday destinations. This was particularly notable in Notio Aigaio, Ionia Nisia, Kriti (all in Greece), Illes Balears and Canarias (both in Spain), where the number of hours worked fell by more than 30.0 % — the biggest reductions across any of the regions in the EU. There were seven more regions where the total number of hours worked was reduced by at least 25.0 % — some of these were also popular holiday destinations — Mittelfranken, Koblenz (both Germany; note that there is a break in series), Algarve, Região Autónoma da Madeira (both Portugal), Ipeiros (Greece), Molise (Italy) and Champagne-Ardenne (France).

While the vast majority of EU regions experienced a sizeable contraction in the number of hours worked between 2019 and 2020, there were some regions where the impact of the pandemic and its associated measures was less marked. In total, there were 27 regions across the EU where the actual number of hours worked increased or fell by no more than 3.0 % (as shown by the darkest shade of orange in Map 4.2). These regions were located in Bulgaria (one region), Denmark (one region), Germany (10 regions; note that there is a break in series), France (two regions), the Netherlands (seven regions), Poland (three regions), Finland (two regions) and Sweden (one region).

Map 4.2: Annual change in the actual number of hours worked, 2020
(%, people aged 20-64 years, by NUTS 2 regions)



EU = −13.3

- < −20.0
- −20.0 - < −17.0
- −17.0 - < −13.3
- −13.3 - < −6.5
- −6.5 - < −3.0
- ≥ −3.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: Germany and Iceland, break in series.
Source: Eurostat ad hoc extraction from labour force survey

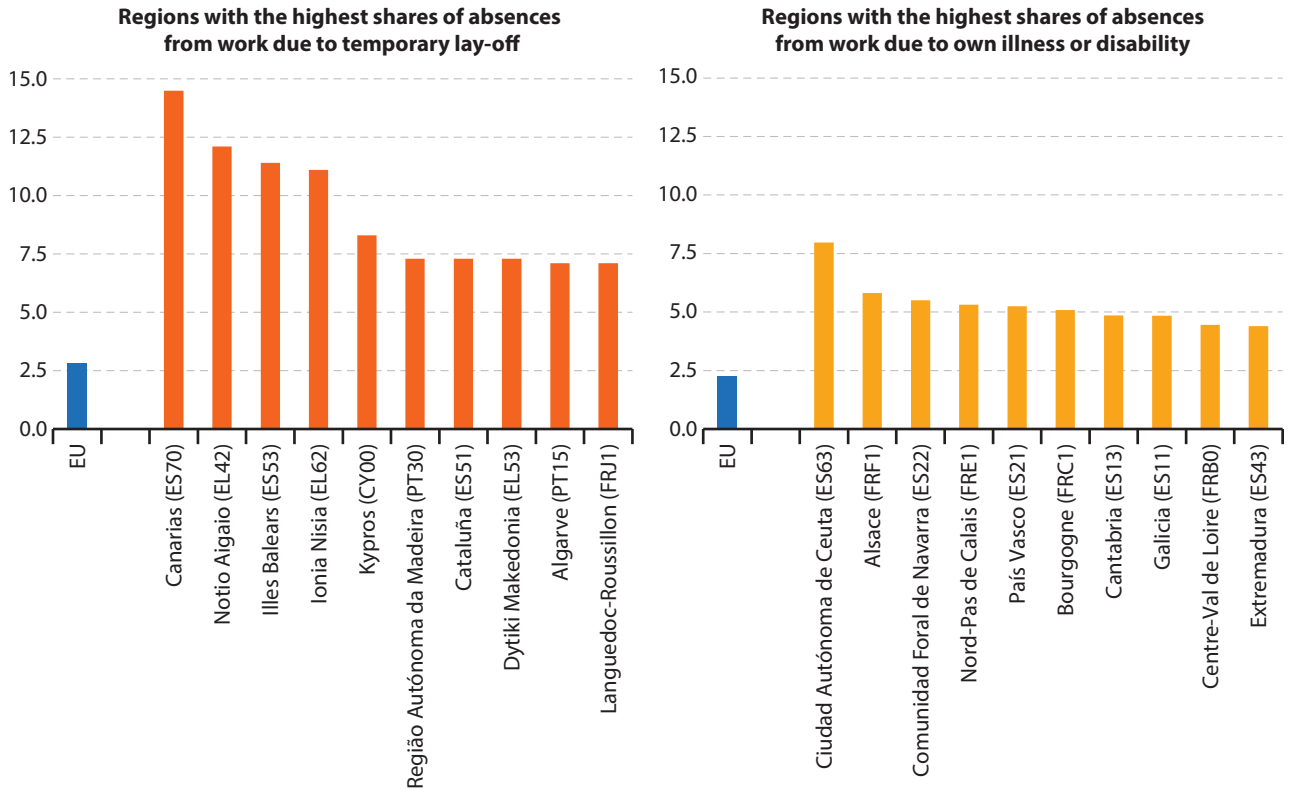
The regions with the highest proportion of people being absent from work due to temporary lay-offs in 2020 were predominantly tourist destinations

During the COVID-19 pandemic, a large proportion of the labour force was faced with changing patterns of work. For health workers, this often meant having to work longer hours and/or in more challenging circumstances. For others it meant having to work from home or accepting a temporary lay-off, in other words having to reduce (partly or completely) their working time for technical or economic reasons (sometimes supported by government schemes designed to encourage employers to retain their workforce).

Absences due to temporary lay-off impacted just 0.2 % of employed people in the EU during 2019, a share that rose to 2.8 % in 2020. Figure 4.3 (left-hand side) shows the NUTS level 2 regions with the highest shares of absences from work due to temporary lay-off. In 2020, there were four regions across the EU — Canarias, Illes Balears (both in Spain), Notio Aigaio and Ionia Nisia (both in Greece) — where upwards of 1 in 10 employed persons were absent due to temporary lay-off; a peak of 14.5 % was recorded in Canarias. A number of other popular holiday destinations — Cyprus, Região Autónoma da Madeira, Algarve (both Portugal) and Cataluña (Spain) — also featured among the regions with the highest shares of absences from work due to temporary lay-off.

There was almost no change between 2019 and 2020 as regards the share of the EU workforce affected by absences due to own illness or disability; this proportion rose marginally from 2.1 % in 2019 to 2.2 % in 2020. Figure 4.3 (right-hand side) shows the NUTS level 2 regions that had the highest shares of absences from work in 2020 due to illness or disability. In Ciudad Autónoma de Ceuta (Spain), the proportion of the workforce that was absent from work due to illness or disability was, at 8.0 %, almost four times as high as the EU average. There were nine other Spanish and French regions where the share of absences due to illness or disability was at least twice as high as the EU average.

Figure 4.3: Absences from work, 2020
(% of people in employment aged 20-64 years, by NUTS 2 regions)



Note: based on a partial dataset. Data for many regions are unreliable or not available: too many to document.
Source: Eurostat ad hoc extraction from labour force survey

The share of employed people working from home grew at its fastest pace in capital regions and other urban regions

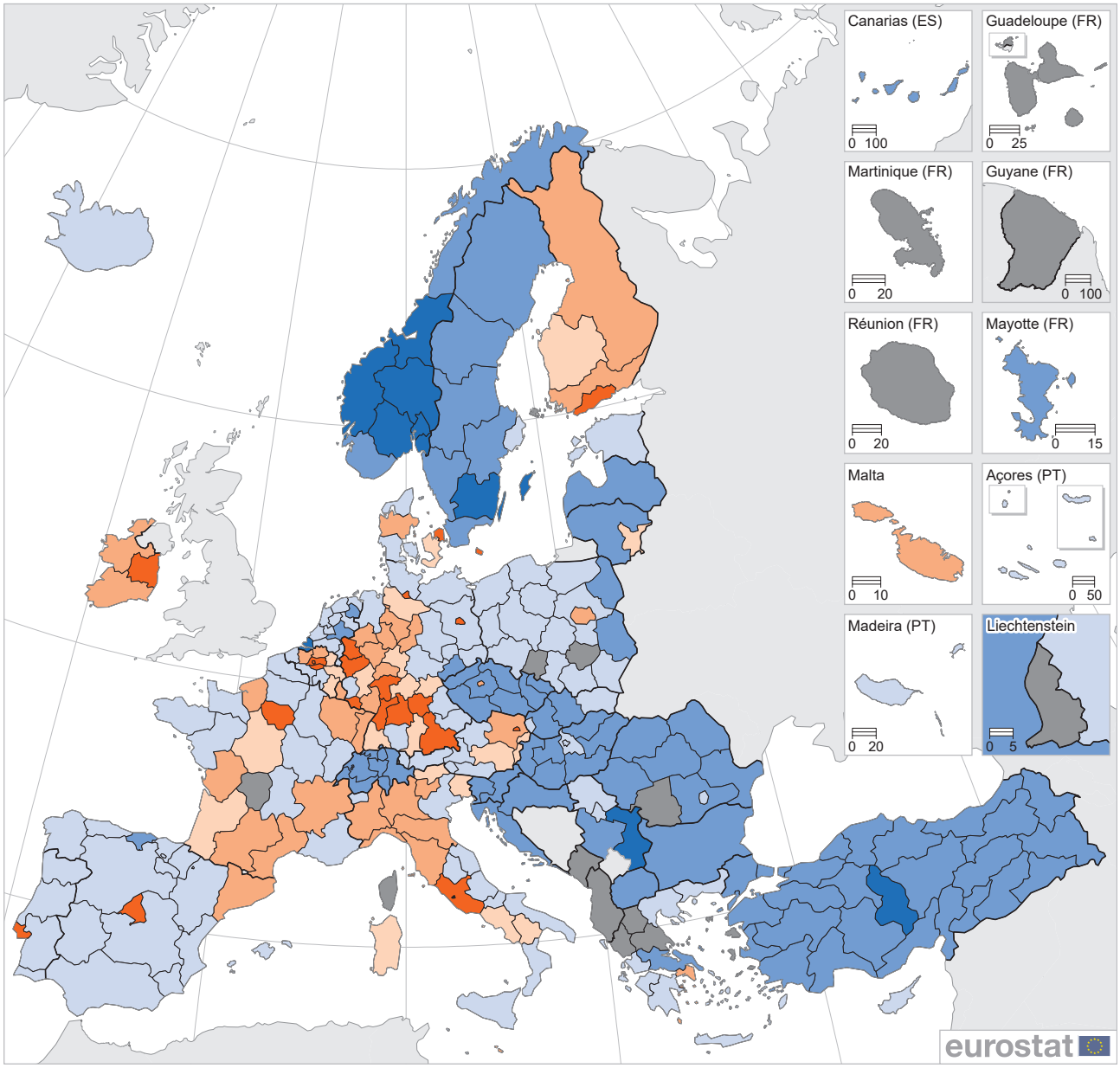
In 2019, approximately 1 in 20 (5.5 %) people aged 20-64 years in the EU's workforce usually worked from home. The impact of the COVID-19 pandemic was apparent in the latest developments for this indicator, as this share more than doubled in 2020 — increasing by 6.9 percentage points — to 12.4 %. The regional distribution was somewhat skewed, insofar as there were 94 NUTS level 2 regions where the share of the workforce usually working from home was above the EU average in 2020, compared with 134 regions that recorded lower than average shares; the propensity for employed people to work from home was also much lower than the EU average in Bulgaria (for which only national data are available).

In Helsinki-Uusimaa (the capital region of Finland), 37.0 % of employed people were usually working from home in 2020. This was the highest share across NUTS level 2 regions and was followed, at some distance, by Prov. Brabant Wallon in Belgium (26.5 %). Approximately one quarter of the workforce usually worked from home in several capital regions: Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest in Belgium (25.7 %), Eastern and Midland in Ireland (24.7 %), Wien in Austria (24.2 %), Hovedstaden in Denmark (23.6 %) and Île-de-France in France (23.4 %). There were 10 additional regions in the EU where at least one fifth of the workforce usually worked from home in 2020; these were principally urban regions and included four more capital regions, namely those of Germany, Luxembourg, the Netherlands and Portugal.

Working from home was less prevalent across many of the eastern and southern regions of the EU. In 2020, less than 5.0 % of the workforce was usually working from home in both regions of Croatia, as well as in Cyprus, Latvia and Bulgaria (only national data available). Shares of less than 5.0 % were also recorded in the vast majority of regions across Hungary and Romania (the only exceptions being the capital regions of Budapest and Bucureşti-Ilfov) as well as in a majority of the regions in Greece.

Perhaps the most striking aspect of Map 4.3 concerns the rapid increase in the proportion of employed people who were working from home in capital regions and several other urban regions. Overall, there were 21 regions in the EU where the annual change in the share of employed people usually working from home was at least 12.0 percentage points in 2020 (as shown by the darkest shade of orange). This share increased by 19.3 percentage points in Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (the capital region of Belgium), by 18.8 points in Prov. Brabant Wallon (also Belgium) and by 18.7 points in Helsinki-Uusimaa (the capital region of Finland). Aside from the capital regions of Belgium and Finland, this group of 21 regions also included the capital regions of Denmark, Germany, Ireland, Spain, France, Italy, Austria and Portugal, while urban regions — such as Köln, Düsseldorf, Oberbayern, Hamburg, Karlsruhe and Stuttgart (all in Germany) — accounted for most of the remaining regions that recorded a rapid increase in homeworking. This increase in homeworking reflects, at least to some degree, the economic structure of each region, with greater homeworking opportunities for those employed in professional, financial, information and communication, education and government sectors. By contrast; there were likely to be fewer opportunities for homeworking for people employed in manual occupations such as within the agriculture, manufacturing, or distributive trades sectors.

Map 4.3: Annual change in the share of persons usually working from home, 2020
(percentage points, people in employment aged 20-64 years, by NUTS 2 regions)



EU = 6.9

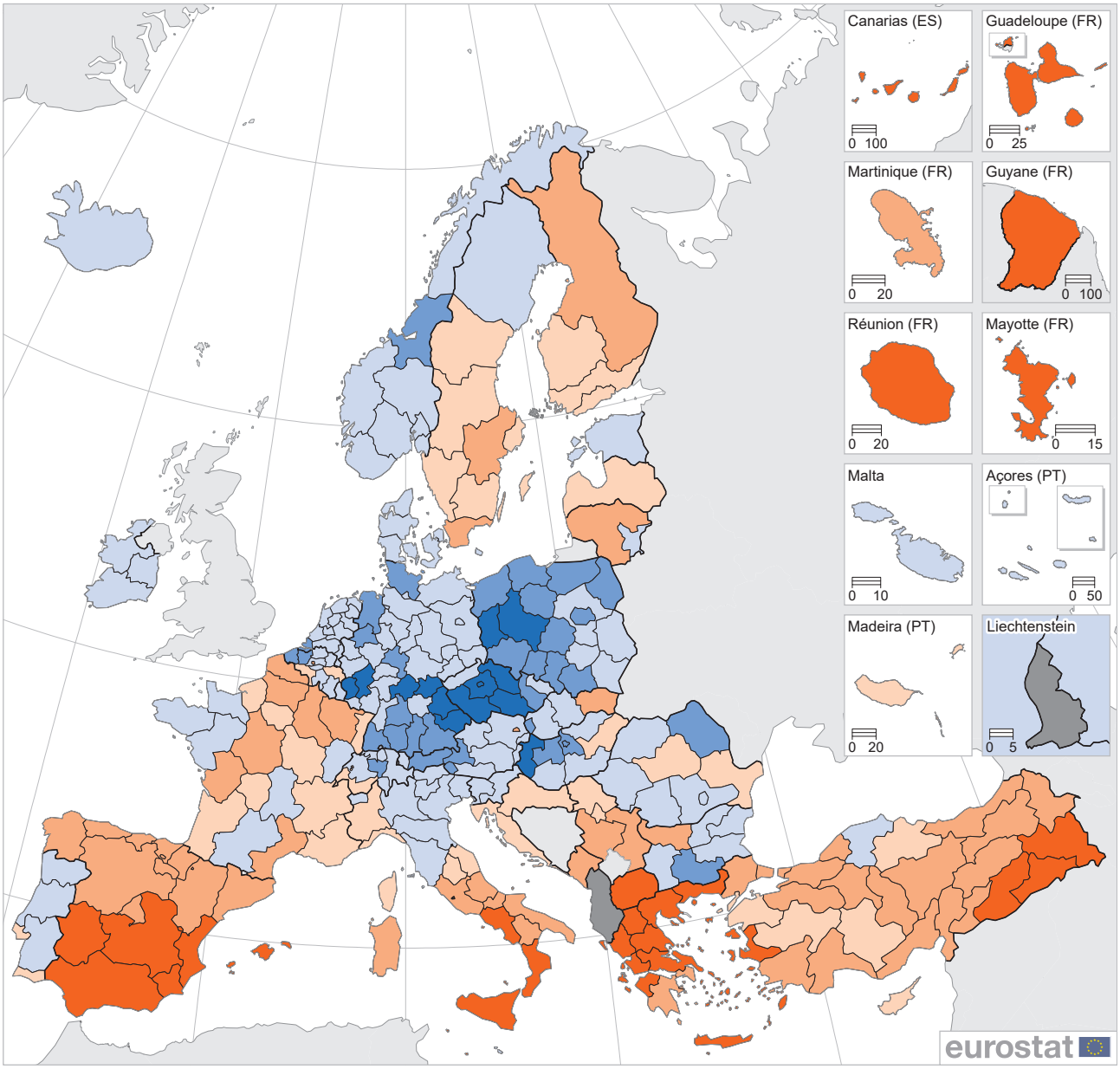
- < 0.0
- 0.0 - < 2.5
- 2.5 - < 6.9
- 6.9 - < 8.0
- 8.0 - < 12.0
- ≥ 12.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Bulgaria, national data. Germany and Iceland: break in series.
Source: Eurostat ad hoc extraction from labour force survey

Map 4.4: Unemployment rate, 2020
(%, people in the labour force aged 15-74 years, by NUTS 2 regions)



EU = 7.1

- < 2.5
- 2.5 - < 3.5
- 3.5 - < 7.1
- 7.1 - < 8.5
- 8.5 - < 16.0
- ≥ 16.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Niederbayern (DE22), Oberpfalz (DE23), Oberfranken (DE24), Unterfranken (DE26), Bremen (DE50), Kassel (DE73), Koblenz (DEB1), Trier (DEB2), Saarland (DEC0), Chemnitz (DED4) and Montenegro: 2019.

Source: Eurostat (online data code: lfst_r_lfu3rt)

Unemployment

Unemployment can have a bearing not just on the macroeconomic performance of a country (lowering productive capacity) but also on the well-being of individuals who are without work and their families. 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.

In 2020, there were 15.0 million unemployed people (aged 15-74 years) in the EU, while the unemployment rate was 7.1 %. After six consecutive years of falling unemployment, these latest figures marked the first increase since 2013.

Map 4.4 shows unemployment rates across NUTS level 2 regions: the highest rates in 2020 — as shown by the darkest shade of orange — were recorded in southern and outermost regions of the EU. The lowest rates — as shown by the darkest shade of blue — were concentrated in a cluster of regions that stretched across the southern half of Germany, Czechia and the western regions of Poland and Hungary.

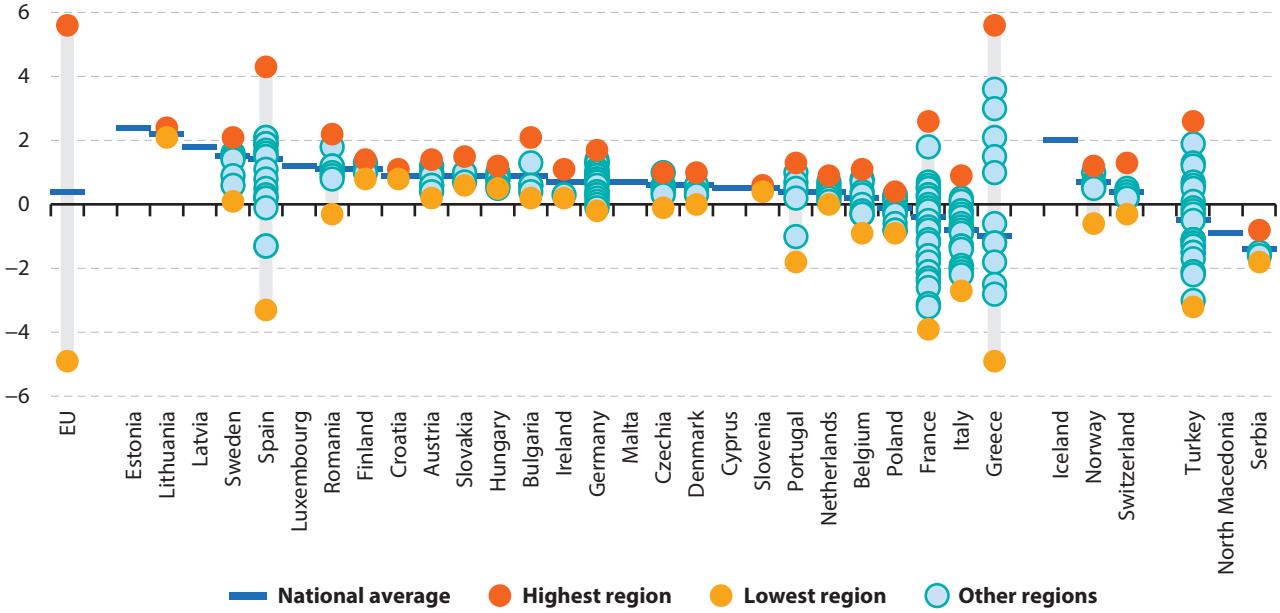
In 2020, regional unemployment rates of at least 16.0 % were recorded in: 11 of the 13 regions from Greece (the only exceptions being Peloponnisos and the capital region of Attiki), five regions from the southern half of Spain as well as the two island regions and two autonomous cities of Spain, four of the outermost regions of France, and three regions from the southern half of Italy. At the other end of the range, the lowest unemployment rates were recorded in: Wielkopolskie in Poland (1.8 %), Střední Čechy (1.9 %) and Jihozápad (2.0 %) in Czechia. The unemployment rate was also 2.0 % in three German regions: Niederbayern, Unterfranken and Trier (all 2019 data).

The EU's unemployment rate for people aged 15-74 years increased from 6.7 % to 7.1 % between 2019 and 2020. During this period — which included the onset of the COVID-19 pandemic — a majority of the EU Member States also saw their unemployment rates rise. There were however four exceptions — Poland, France, Italy and Greece — where national unemployment rates fell between 2019 and 2020.

Figure 4.4 shows that in approximately 7 out of every 10 EU regions for which data are available the unemployment rate increased between 2019 and 2020. Among the 160 NUTS level 2 regions with rising unemployment rates, the labour market situation deteriorated at its most rapid pace in the Greek regions of Kriti (as the unemployment rate increased by 5.6 percentage points), Ionia Nisia (up 3.6 points) and Notio Aigaio (up 3.0 points), as well as Illes Baleares in Spain (up 4.3 points). All of these regions are popular holiday destinations which were impacted by the pandemic and its associated measures which curtailed demand for and supply of tourism-related services.

At the other end of the scale, the biggest reductions in regional unemployment rates between 2019 and 2020 were recorded in Dytiki Makedonia in Greece (down 4.9 points), three outermost regions of France — La Réunion (down 3.9 points), Guyane (down 3.2 points) and Guadeloupe (down 3.1 points) — as well as Ciudad de Melilla in Spain (down 3.3 points).

Figure 4.4: Annual change in the unemployment rate, 2020
(percentage points, people in the labour force aged 15-74 years, by NUTS 2 regions)



Note: ranked on the national average. Germany and Iceland: break in series. Niederbayern (DE22), Oberpfalz (DE23), Oberfranken (DE24), Unterfranken (DE26), Bremen (DE50), Kassel (DE73), Koblenz (DEB1), Trier (DEB2), Saarland (DEC0) and Chemnitz (DED4): not available (incomplete data). Åland (FI20): not available.

Source: Eurostat (online data code: lfst_r_lfu3rt)

FOCUS ON YOUTH UNEMPLOYMENT AND NEETS

One of the most pressing concerns in the area of social and employment policymaking is youth unemployment. The performance of youth labour markets is closely linked to education and training systems and reflects, at least to some degree, a mismatch between the skills obtained by young people and the skills that are required by employers (to fill job vacancies).

In recent years, several EU Member States have enacted new employment laws with the goal of liberalising labour markets, for example, by providing a wider range of possibilities for hiring staff through temporary, fixed-term or zero hours contracts. In some cases this has resulted in a division between permanent, full-time employees and those with more precarious employment contracts. The latter are often young people and/or people with relatively low levels of educational attainment. This may explain, at least to some degree, why young people in the labour market generally fare worse during economic downturns such as the global financial and economic crisis or the COVID-19 pandemic. During a downturn, employers are also less likely to recruit new workers (young people coming into the labour market) or to replace older workers who retire.

The EU's youth unemployment rate was 16.9 %

The youth (people aged 15-24 years) unemployment rate in the EU fell from a peak of 24.6 % in 2013 to 15.1 % by 2019, before rising to 16.9 % in 2020 as the impact of the COVID-19 pandemic and its associated measures disproportionately impacted on young people. The youth unemployment rate rose by 1.8 percentage points in 2020, while the overall unemployment rate increased by 0.4 points during the same period.

Note that the youth unemployment rate is based on the same principles as the definition for the unemployment rate among the working-age population and that not every young person is in the labour market. As such, there is potential for the youth unemployment rate to be misinterpreted. For example, when the youth unemployment rate is 25 %, this does not mean that one quarter of all youths are unemployed. Rather, a quarter of those youths who are in the labour force are unemployed (and three quarters are employed), while youths outside the labour market (for example studying) are neither in the numerator nor the denominator.

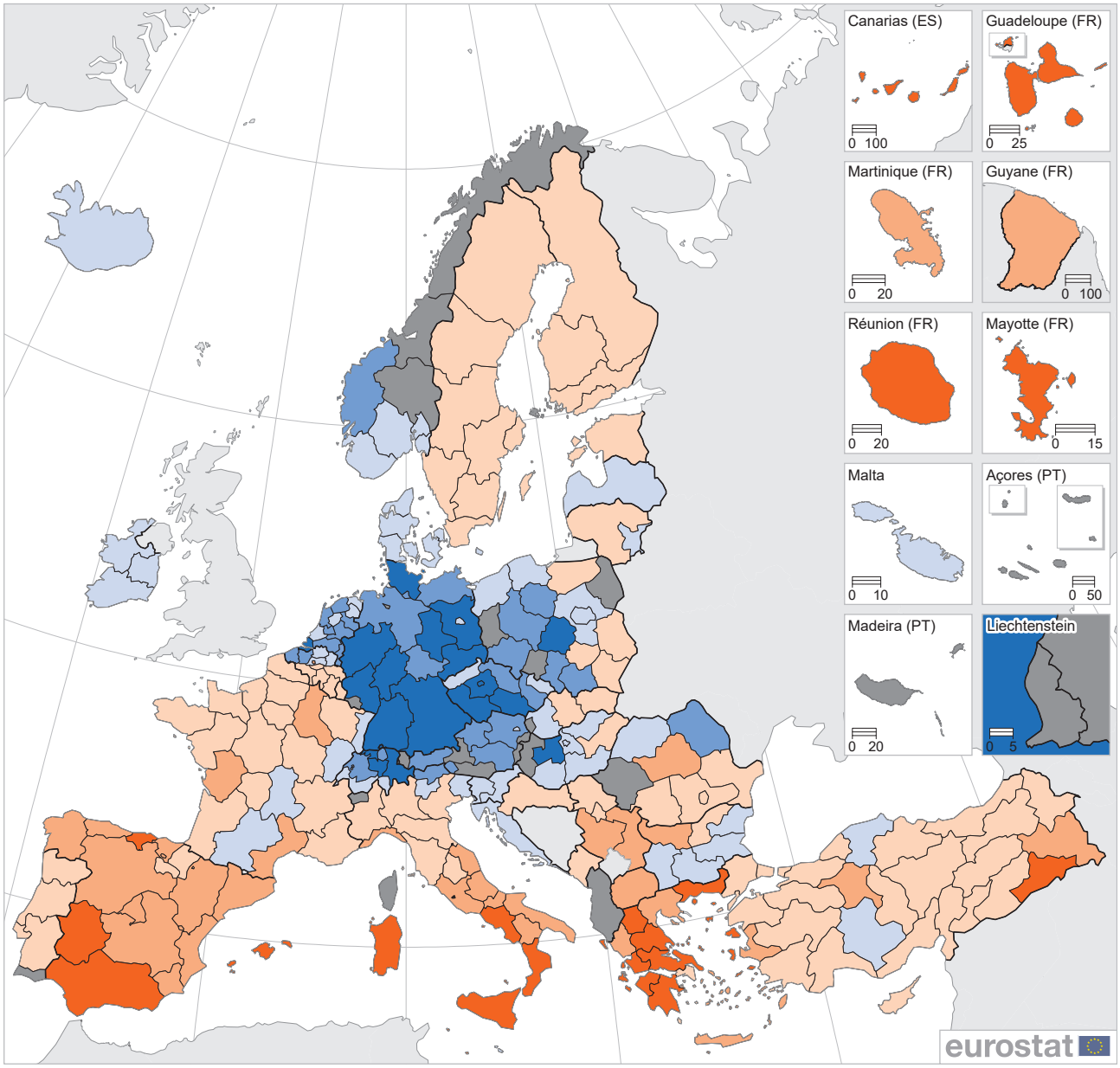
Map 4.5 shows that around one fifth of EU regions had single-digit youth unemployment rates. The lowest youth unemployment rates were concentrated in a group of regions that covered an area from the northern half of Belgium, running through much of the Netherlands and Germany (data are for NUTS level 1 regions and often refer to 2019) into most of Austria and Czechia, as well as several Polish regions. There were also relatively low youth unemployment rates in Provincia Autonoma di Bolzano/Bozen (Italy), Közép-Dunántúl (Hungary; 2018 data) and Nord-Est (Romania). Looking in more detail, the lowest youth unemployment rates in 2020 were recorded in Bayern in Germany (4.8 %) and the capital region of Czechia, Praha (5.0 %).

High youth unemployment rates were particularly concentrated in southern Europe. There were 22 regions where more than 40 % of the labour force aged 15-24 years was unemployed in 2020 (as shown by the darkest shade of orange). This group included eight regions from Greece, seven from Spain, four from southern Italy and three outermost regions of France. At the top end of the range, there were five — largely peripheral — regions where the youth unemployment rate stood at more than 50.0 %: Ciudades Autónomas de Ceuta y Melilla (two regions) and Canarias in Spain, Sterea Ellada in Greece, and Mayotte in France.

To give some idea of the disproportionate impact of unemployment on people aged 15-24 years, the youth unemployment rate in 2020 was at least twice as high as the overall unemployment rate (for people aged 15-74 years) in 170 out of 178 NUTS level 2 regions for which data are available (note there are no regional data available for Germany). Among these 178 regions, there were eight regions where the youth unemployment rate was at least four times as high as the overall unemployment rate: three from Poland, two from Romania and a single region from each of Italy, Hungary and Portugal. The highest ratio was recorded in Bucureşti-Ilfov (the capital region of Romania), where the youth unemployment rate was 4.8 times as high as the overall unemployment rate.

Compared with 2019, youth unemployment rates increased in approximately three quarters of the 170 NUTS level 2 regions for which data are available for 2020 (again there are no regional data available for Germany). The youth unemployment rate increased by at least 10.0 percentage points in Sterea Ellada in Greece, Illes Balears, Cantabria and Ciudad de Ceuta in Spain, Poitou-Charentes in France, and Centro in Portugal. By contrast, the youth unemployment rate fell by around 10.0 percentage points between 2019 and 2020 in Attiki (the Greek capital region), as well as in Guadeloupe and Martinique (both France).

Map 4.5: Youth unemployment rate, 2020
(%, people in the labour force aged 15-24 years, by NUTS 2 regions)



EU = 16.9

- < 7.5
- 7.5 - < 10.0
- 10.0 - < 16.9
- 16.9 - < 27.5
- 27.5 - < 40.0
- ≥ 40.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: Germany, NUTS level 1. Berlin (DE3), Brandenburg (DE4), Hamburg (DE6), Rheinland-Pfalz (DEB), Sachsen (DED), Sachsen-Anhalt (DEE), Schleswig-Holstein (DEF), Thüringen (DEG), Guyane (FRY3) and Montenegro: 2019. Severen tsentralen (BG32), Yugoiztochen (BG34), Yuzhen tsentralen (BG42), Mecklenburg-Vorpommern (DE8), Közép-Dunántúl (HU21), Zachodniopomorskie (PL42), Warmińsko-mazurskie (PL62) and Alentejo (PT18): 2018.

Source: Eurostat (online data code: lfst_r_lfu3rt)

In 2020, the EU's NEET rate was 11.1 %

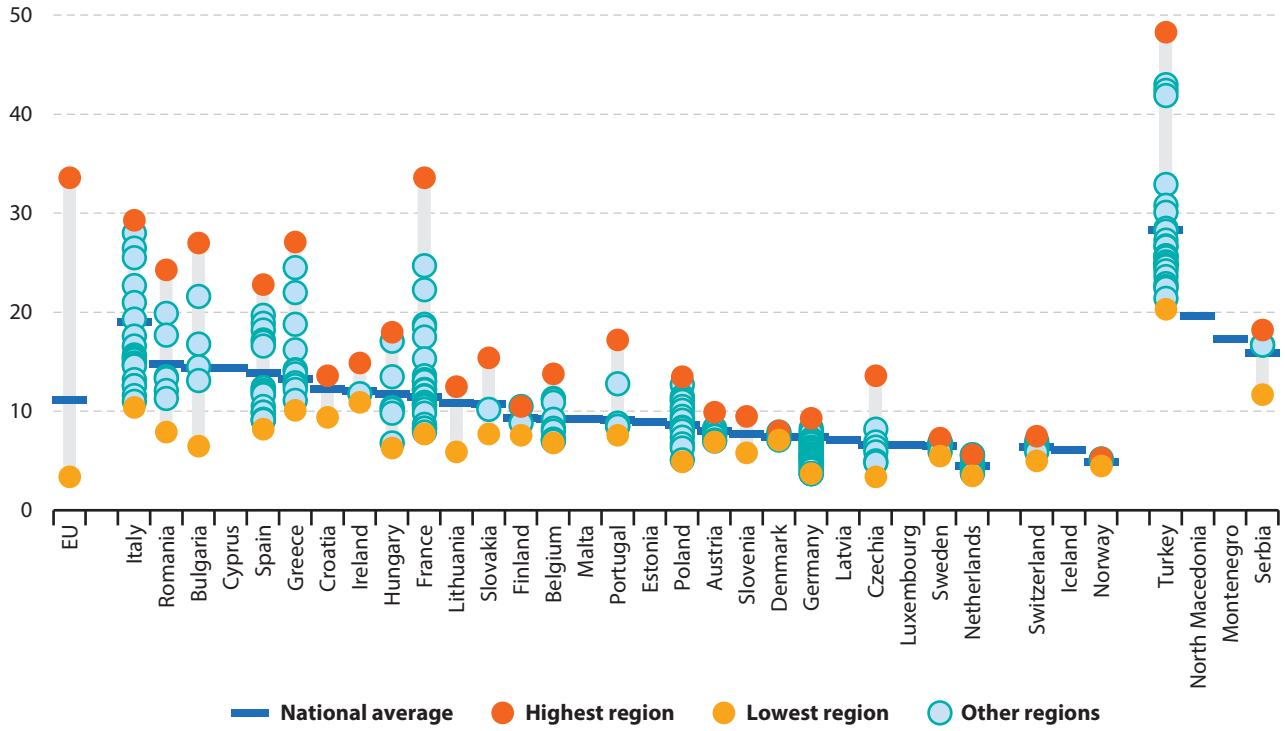
The NEET rate — defined here as the share of young people (aged 15-24 years) who are not employed and not involved in further education or training — provides a useful measure for studying the vulnerability of young people in terms of their labour market and social exclusion.

The NEET rate is closely linked to economic performance and the business cycle. Having peaked at 13.1 % in 2012, the EU's NEET rate fell slowly during seven consecutive years, to stand at 10.1 % in 2019. Following the onset of the COVID-19 pandemic, the NEET rate climbed to 11.1 % in 2020.

Figure 4.5 provides an analysis of the situation across NUTS level 2 regions in 2020. Some of the highest NEET rates in the EU were recorded in southern regions of Italy and the outermost regions of France, while there were also relatively high rates in several regions of Romania, Bulgaria and Greece. Looking in more detail, there were seven regions across the EU where more than one in four young people were neither in employment, nor in education or training in 2020. Four of these were located in Italy — Molise (25.5 %), Calabria (26.5 %), Campania (28.0 %) and Sicilia (29.3 %); they were joined by Severozapaden in Bulgaria (27.0 %), Voreio Aigaio in Greece (27.1 %) and Guyane in France (33.6 %), which had the highest rate.

Among the EU Member States characterised by relatively low NEET rates in 2020 it was common to find a narrow range of rates between regions; this pattern was apparent in the Nordic Member States, Austria and the Netherlands. For example, regional NEET rates in the Netherlands were within the narrow range of 3.7-5.6 %. Of the 10 NUTS level 2 regions across the EU with a NEET rate of less than 5.0 %, seven were located in the Netherlands. In 2020, the lowest regional NEET rates were recorded in Noord-Brabant (3.9 %) and Utrecht (3.7 %) in the Netherlands and Praha (the capital region of Czechia; 3.4 %).

Figure 4.5: Young people neither in employment nor in education or training (NEETs), 2020
(%, people aged 15-24 years, by NUTS 2 regions)



Note: ranked on the national average. Germany, Övre Norrland (SE33) and Montenegro: 2019. Zeeland (NL34) and Mellersta Norrland (SE32): 2018. Niederbayern (DE22), Oberpfalz (DE23), Oberfranken (DE24), Trier (DEB2), Leipzig (DED5), Mayotte (FRY5), Burgenland (AT11), Região Autónoma da Madeira (PT30), Bratislavský kraj (SK01), Åland (FI20), Hedmark og Oppland (NO02), Trøndelag (NO06) and Nord-Norge (NO07): not available.

Source: Eurostat (online data code: edat_lfse_38)

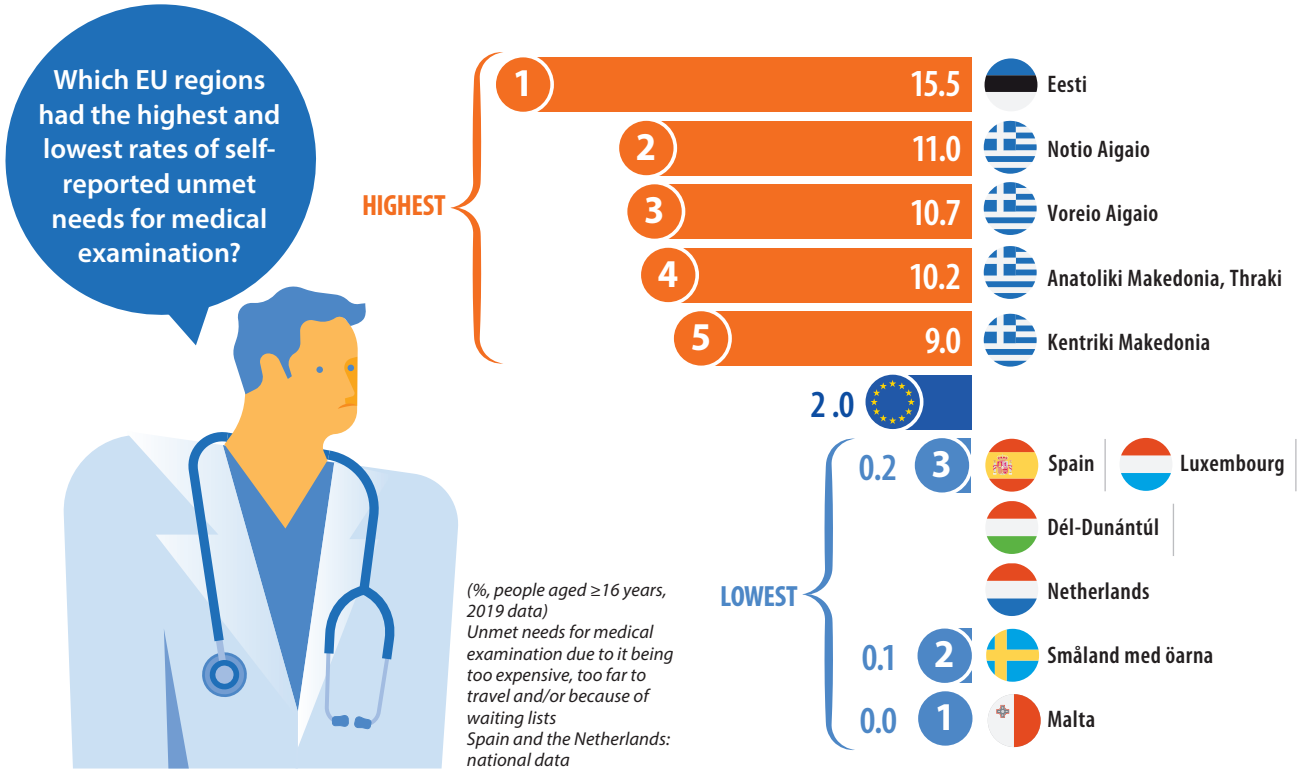
5. Living conditions

By global standards, most people living in the European Union (EU) are relatively prosperous. According to the OECD, the subjective well-being of the EU's population — as measured by life satisfaction — is also relatively high. This likely reflects the EU's high income/wealth levels and its network of established social protection systems that provide a safety net for the less fortunate.

Nevertheless, the COVID-19 pandemic has underlined systemic inequalities both between and within individual EU Member States. While some people were fortunate enough to continue working full-time from home (and in some cases were even able to save more of their income than usual), frontline and key workers faced increased health risks. Many people in precarious employment or working in sectors/businesses impacted by successive lockdowns faced reduced earnings, short-time work (furlough schemes/temporary lay-off/technical unemployment) and unemployment. Indeed, the asymmetric impact of the pandemic meant that it has in many cases exacerbated existing inequalities: some groups in society have been much more harshly affected than others, for example, the elderly, young people, parents of young children (particularly single-parents), low-wage earners, women, migrants, or people with disabilities.

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 pandemic, while fighting discrimination, tackling poverty and alleviating the risk of exclusion for vulnerable groups. *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 in the EU. It includes a benchmark for reducing the number of people at risk of poverty and social exclusion by at least 15 million persons (of which, at least five million should be children) between 2019 and 2030.

Sociodemographic characteristics like age, educational attainment, sex or 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 or the COVID-19 pandemic — can also have a considerable impact, in some cases rapidly undoing long-term gradual reductions in inequality, thereby reinforcing or exacerbating patterns of inequality and exclusion.



Source: Eurostat (online data codes: hlth_silc_08_r and hlth_silc_08)

Access to healthcare and risk of infection

Although the latest regional information on living conditions concerns data for 2019, these statistics may be used to gauge, for example, the resilience of health and social care systems to pandemics such as COVID-19. Data on poverty, income and living conditions can also be used to identify cohorts within the population that are particularly susceptible to the risks associated with shocks.

There are a variety of reasons why an individual may report having unmet needs for medical examination. Such unmet needs may result in poorer health for people not receiving care and may increase health inequalities if concentrated among disadvantaged people. The following are of interest with regard to illustrating equity in access to health care services:

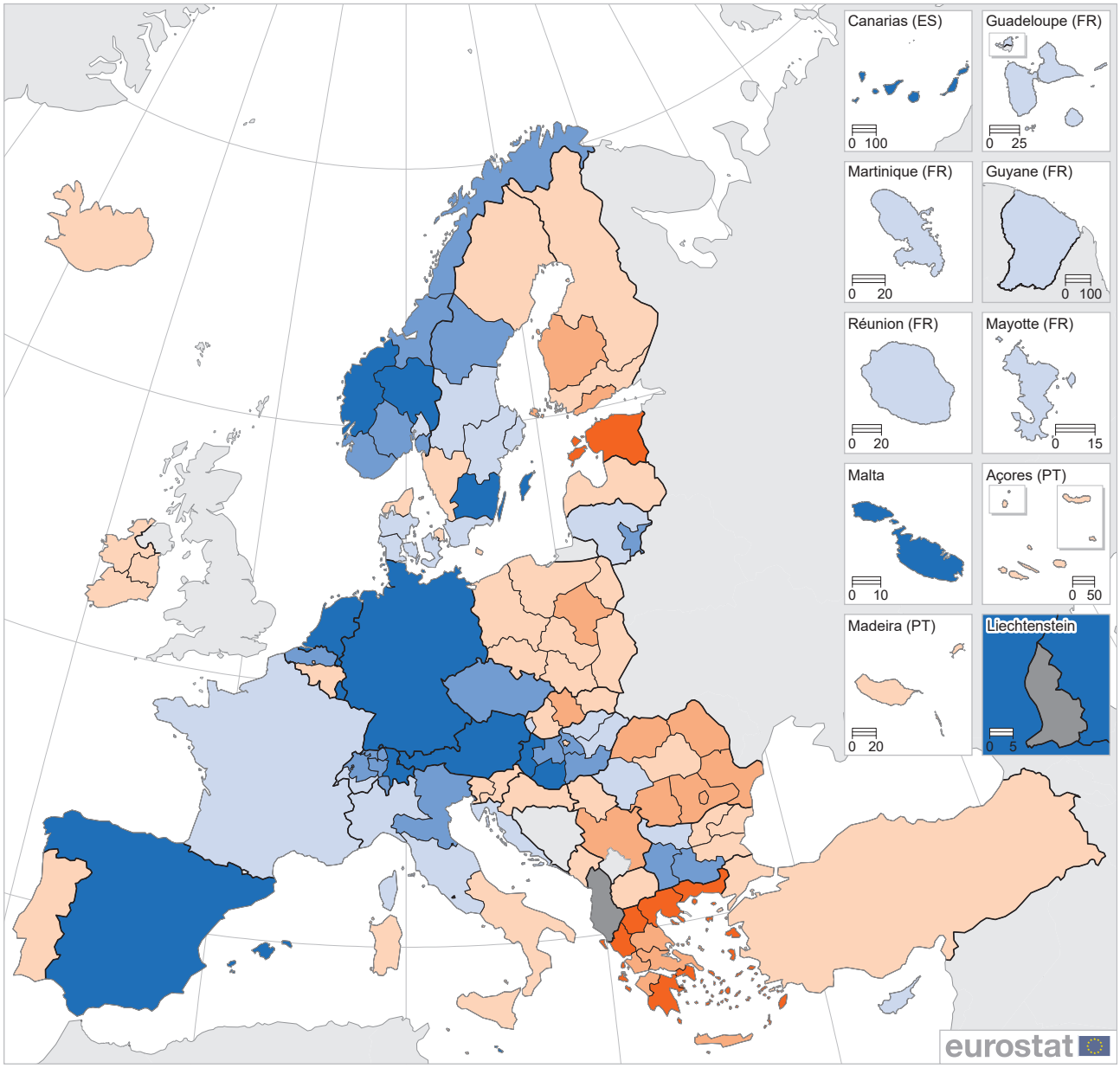
- cost, whereby medical examinations are considered too expensive;
- distance, if patients consider a clinic/hospital to be too far away for an examination or there are no means of transportation available;
- time, when patients are dissuaded from having a particular type of examination because of a lengthy waiting list.

Almost 1 in 60 adults living in the EU had unmet needs for medical examination

In 2019, the proportion of the EU adult population (defined here as people aged 16 years or over) with unmet needs for medical examination — due to it being too expensive, too far to travel, and/or because of waiting lists — was 1.7 %. A closer analysis by sex reveals that the share of women with unmet needs for medical examination (2.0 %) was somewhat higher than the share recorded among men (1.4 %), resulting in a gender gap of 0.6 percentage points. A similar gap — with a higher share for women — was observed across most of the EU Member States, with Bulgaria, the Netherlands and Luxembourg the only ones to report a higher share of their male (rather than female) population facing unmet medical needs; identical shares were recorded for men and women in Spain, Malta and Austria.

Regional shares of the adult population with unmet needs for medical examination were somewhat skewed around the EU average. In 2019, there were 37 regions that had shares below the EU average of 1.7 % (as shown by the blue shades in Map 5.1), while there were 56 regions with shares that were equal to or greater than the EU average (as shown by the orange shades in Map 5.1). Note that the statistics presented in this section for Belgium, Italy and Poland relate to NUTS level 1 regions and that only national data are available for Czechia, Germany, Spain, France, the Netherlands, Austria and Portugal. At the upper end of the distribution the share of the adult population with unmet needs for medical examination was particularly high in Estonia and in a majority of regions across Greece (as shown by the darkest shade of orange). Estonia had the highest proportion of unmet needs for medical examination (15.5 %), while three Greek regions — Notio Aigaio, Voreio Aigaio, and Anatoliki Makedonia, Thraki — were the only others within the EU to record double-digit shares. The high proportion of adults in Estonia with unmet needs for medical examination could be attributed largely to the length of waiting lists, while cost was the principal reason for unmet needs for medical examination across Greek regions.

Map 5.1: Self-reported unmet needs for medical examination, 2019
(%, people aged ≥ 16 years, by NUTS 2 regions)



EU = 1.7

- < 0.5
- 0.5 - < 1.0
- 1.0 - < 1.7
- 1.7 - < 4.5
- 4.5 - < 8.0
- ≥ 8.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Note: unmet needs for medical examination due to it being too expensive, too far to travel and/or because of waiting lists. Belgium, Italy, Poland and Serbia: NUTS level 1. Czechia, Germany, Spain, France, the Netherlands, Austria, Portugal and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Iceland: 2018.

Source: Eurostat (online data codes: hlth_silc_08_r and hlth_silc_08)

Housing conditions

People in the EU lived in dwellings with an average of 1.6 rooms per person

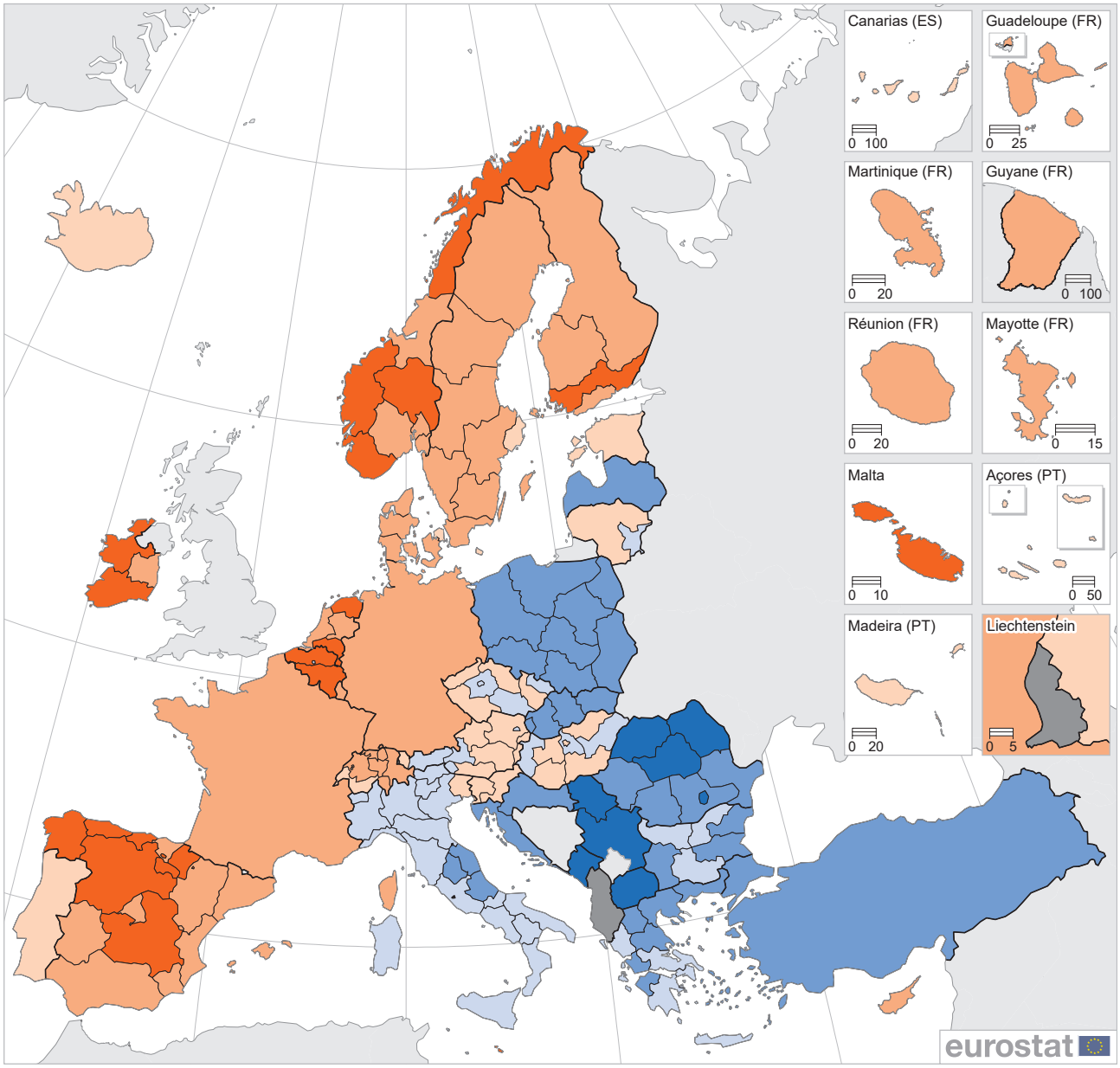
The COVID-19 pandemic has brought into stark contrast differences in living conditions, for example between people fortunate enough to have a garden and those living in high-rise flats with no balcony. Within the context of the pandemic, the average number of rooms per person may be used, among other indicators, to help assess conditions such as the strain of coping with long periods of confinement at home (alone) or the risks of infection through household transmission.

In 2019, dwellings in the EU had, on average, 1.6 rooms per person. Map 5.2 shows that there were considerable differences across NUTS level 2 regions; note that the statistics presented in this section for Belgium, the Netherlands and Poland relate to NUTS level 1 regions and that only national data are available for Germany, France and Portugal. The range was from an average of 1.0 rooms per person in four different regions of Romania up to 2.3 rooms per person in Région Wallonne (Belgium). The average number of rooms per person was relatively high in Belgium, Ireland and most of northern and central Spain (outside of their capital regions). Malta and several regions in the Netherlands and in Finland also recorded a relatively high average number of rooms per person.

The distribution of the average number of rooms per person in each region reflects, among other factors, the stock of different types of dwelling and whether or not people are living alone, in nuclear families (a couple and their dependent children) or in extended families. In 2019, more than half (53.3 %) of the EU population lived in a house (detached, semi-detached or terraced), while 46.1 % lived in flats (apartments); a small number of people lived in other forms of dwelling, for example student halls of residence, mobile/recreational homes, or non-residential buildings (such as shopkeepers living above their shop).

The regions with a relatively high average number of rooms per person were often characterised as predominantly rural, where there was often a tendency for people to live in houses (some of which were under-occupied, as grown-up children had already left the family home). By contrast, the age structure of the population is often quite young in predominantly urban regions, where it is often necessary to pay a premium for space. As such, it is perhaps unsurprising to find that a higher proportion of people in predominantly urban regions lived in flats and had a lower average number of rooms available to them. Finally, note that some rural regions of eastern and southern EU Member States are characterised by a relatively high proportion of people living in extended households (for example, with three generations living under the same roof). In these regions it was often commonplace to find a lower average number of rooms per person, as dwellings were more likely to be characterised by a lack of personal space.

Map 5.2: Average number of rooms per person, 2019
(number, by NUTS 2 regions)



Note: Belgium, the Netherlands, Poland and Serbia, NUTS level 1. Germany, France, Portugal and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018.

Source: Eurostat (online data codes: ilc_lvho04n and ilc_lvho03)

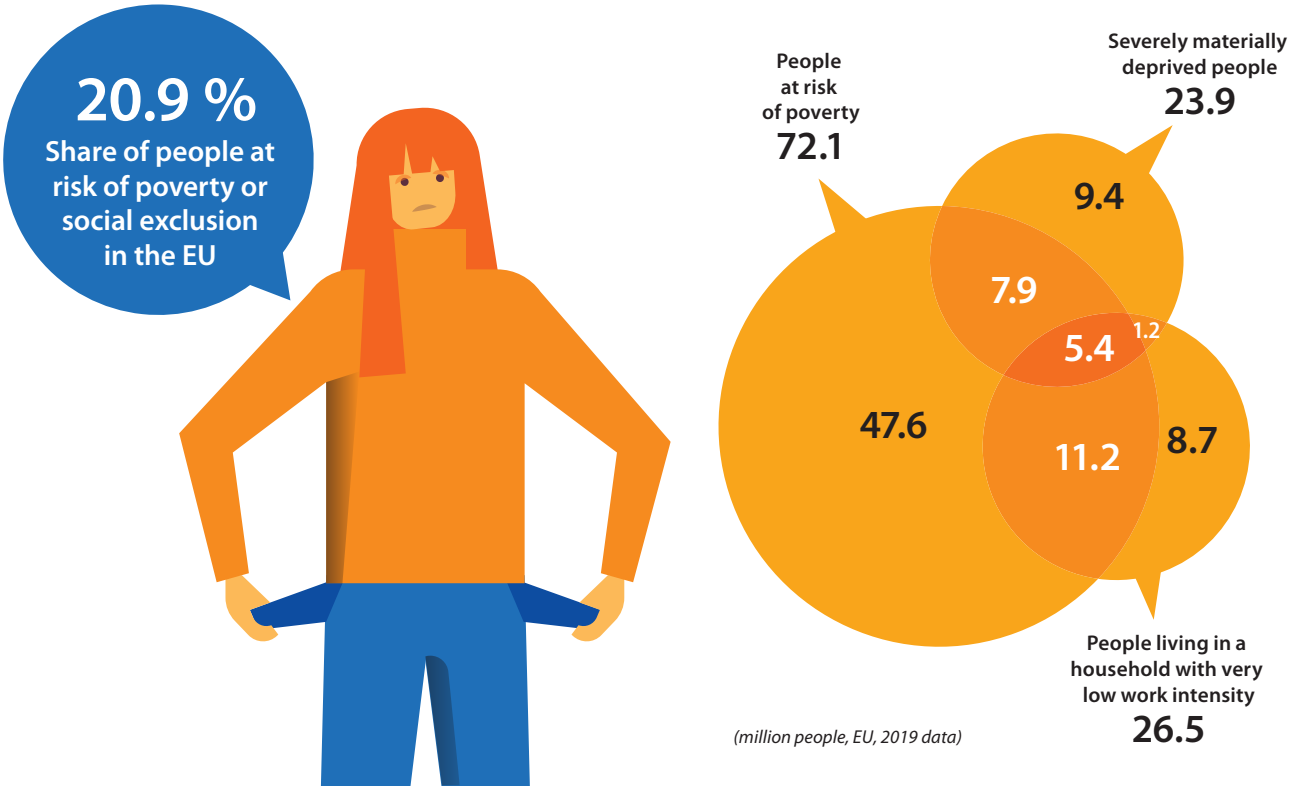
People at risk of poverty or social exclusion

There are two principal measures of poverty. Relative poverty concerns the situation where people whose income and/or resources prevent them from enjoying a 'normal' standard of living for the society in which they live (in other words, a situation where household income is a certain percentage below the median level). By contrast, absolute poverty is the deprivation of basic human needs, for example, a lack of food, shelter, water, sanitation facilities, health or education (in other words, where a household's income is insufficient to afford the basic necessities of life).

Based on the above definitions, the more common risk of poverty in the EU is relative poverty, on which the indicator for people 'at risk of poverty or social exclusion' is based. This indicator is a relatively broad concept: it does not depend exclusively on a household's level of income, as it may also reflect severe deprivation or quasi-joblessness (as shown in the infographic). The number/share of people at risk of poverty or social exclusion combines three separate criteria covering people who are in at least one of the following situations:

- at risk of poverty — people with a median equivalised disposable income (after social transfers) below the at-risk-of-poverty threshold;
- facing severe material deprivation — people unable to afford at least four out of nine material items that are considered by most to be desirable (or even necessary) for having an adequate quality of life;
- living in a household with very low work intensity — where working-age adults (18-59 years) worked no more than 20 % of their total potential during the previous 12 months.

Social models in the EU are based on offering protection to those who are most in need. Regardless of their differences, these models are designed to provide people with some protection against, among other issues, the costs of bringing up a family, the risks related to unemployment, poor health, the consequences of old age, housing and social exclusion.



Source: Eurostat (online data code: ilc_pees01)

MATERIAL AND SOCIAL DEPRIVATION RATE

The material and social deprivation rate is a wider concept than the material deprivation rate. It shows the proportion of the population who could not afford (rather than did not want or did not need) at least five out of the following 13 items: to face unexpected expenses; one week annual holiday away from home; to avoid arrears (in mortgage/house loan, rent, utility bills and/or hire purchase instalments); a meal with meat (including chicken), fish or a vegetarian equivalent every second day; to keep their home adequately warm; a car/van for personal use; to replace worn-out furniture; to replace worn-out clothes with some new ones; to have two pairs of properly fitting shoes; to spend a small amount of money each week on themselves (pocket money); to have regular leisure activities; to get together with friends/family for a drink/meal at least once a month; to have an internet connection. Many of these items are considered by most people in the EU to be desirable or even necessary to lead an acceptable life. Note that the statistics presented in this section for Belgium, Italy and Poland relate to NUTS level 1 regions and that only national data are available for Germany, France and Portugal.

In 2019, the EU material and social deprivation rate stood at 12.4 %. The proportion of women in the EU who faced material and social deprivation was 13.3 %, some 1.7 percentage points higher than the corresponding rate for men (11.6 %). This gender gap — a higher material and social deprivation rate for women than for men — was repeated in all but one of the EU Member States; the exception was the Netherlands, where the rate for women (4.6 %) was slightly lower than that for men (4.7 %).

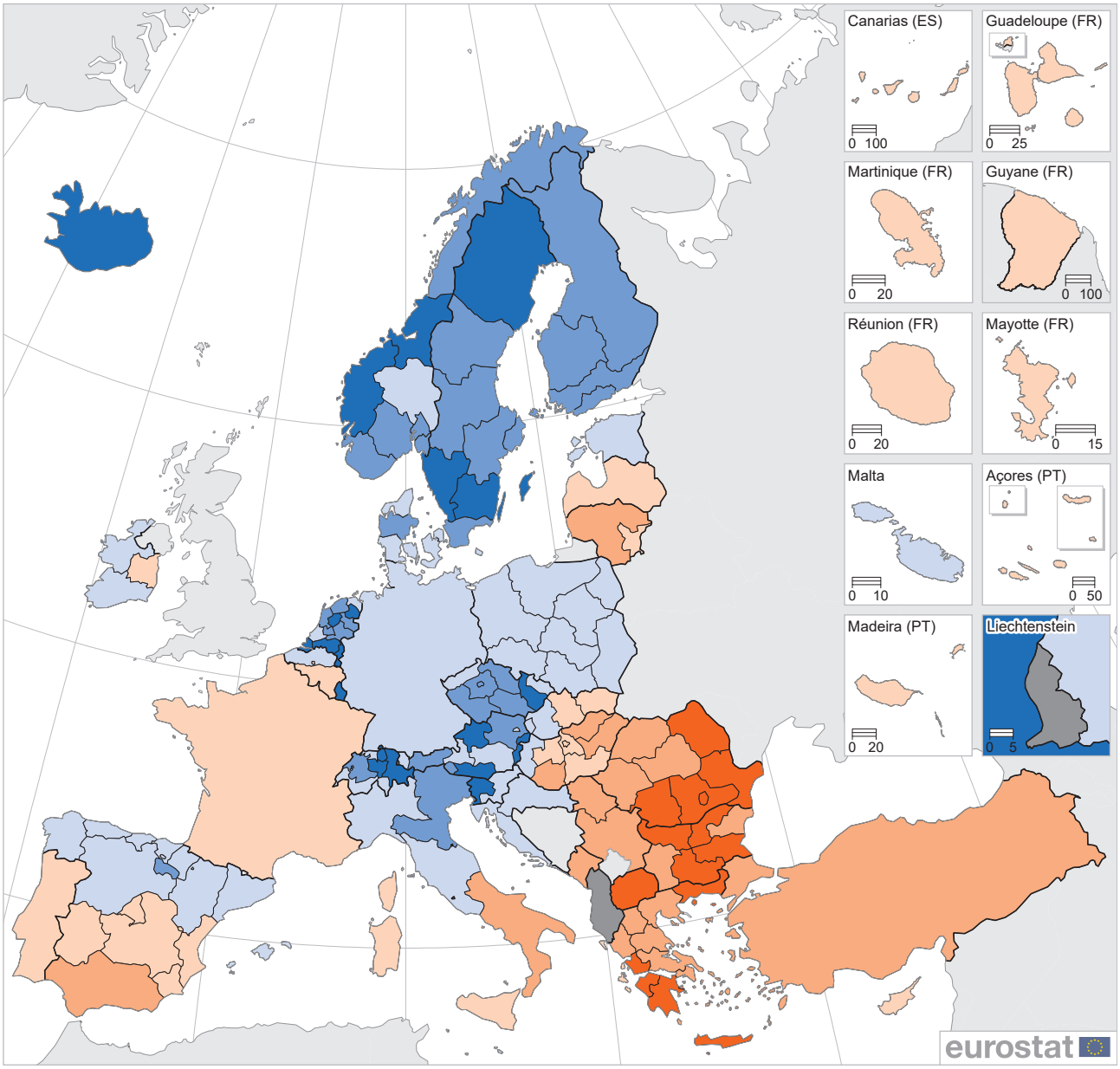
Map 5.3 shows that the lowest material and social deprivation rates across EU regions (as shown by the darkest shade of blue) were concentrated across the northern EU Member States, a belt of regions running from Czechia down through Austria and into Slovenia, as well as several regions of the Netherlands. The highest rates (as shown by the darkest shade of orange) were concentrated in the south-east corner of the EU, across several regions from each of Romania, Bulgaria and Greece. It is also interesting to note a north-south divide within Belgium, Spain and Italy, with more southerly regions recording higher material and social deprivation rates.

There were two regions in Romania where more than half of the population faced material and social deprivation

Every region of Bulgaria, Greece, Cyprus, Latvia, Lithuania and Romania had a material and social deprivation rate in 2019 that was above the EU average of 12.4 %; this was also the case in France and Portugal (for which only national data are available). A similar pattern was observed in Belgium and Hungary, although they each had a single region where the rate was below average, respectively Vlaams Gewest and Nyugat-Dunántúl. By contrast, every region in Czechia, Denmark, Estonia, Croatia, Luxembourg, Malta, the Netherlands, Austria (2018 data), Poland, Slovenia, Finland and Sweden had a material and social deprivation rate that was below the EU average; this was also the case in Germany (for which only national data are available).

Across EU regions, the highest material and social deprivation rate in 2019 was recorded in the Romanian region of Sud-Est (56.2 %). Together with its neighbouring region of Sud-Muntenia (50.6 %), these were the only two regions in the EU where more than half of the population faced material and social deprivation. At the other end of the range, the lowest rate in the EU was recorded in Övre Norrland — the northernmost region of Sweden — where only 1 in 50 persons (2.0 % of the population) faced material and social deprivation.

Map 5.3: Material and social deprivation rate, 2019
(%, by NUTS 2 regions)



EU = 12.4

- < 4.0
- 4.0 - < 5.5
- 5.5 - < 12.4
- 12.4 - < 21.5
- 21.5 - < 34.5
- ≥ 34.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium, Italy, Poland and Serbia, NUTS level 1. Germany, France, Portugal and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018.

Source: Eurostat (online data codes: ilc_mdsd08 and ilc_mdsd07)

SEVERE MATERIAL DEPRIVATION RATE

As noted above, severe material deprivation is one of the three criteria used to determine if a person is at risk of poverty or social exclusion. Severe material deprivation refers to the enforced inability (rather than the choice not to do so) to afford four (or more) of the following nine items: to face unexpected expenses; to pay for one week annual holiday away from home; to eat meat or an equivalent source of proteins every second day; to keep a home adequately warm; a colour television set; a washing machine; a personal car; a telephone; to pay rent, mortgage/house loan or utility bills.

There were 23.9 million people across the EU facing severe material deprivation in 2019, equivalent to 5.5 % of the EU's population. Having peaked at 44.6 million persons in 2012, there was a rapid reduction in the number of people experiencing severe material deprivation in the EU. This was particularly true in the three most recent years for which data are available (2017-2019), when annual reductions of more than 10 % were recorded.

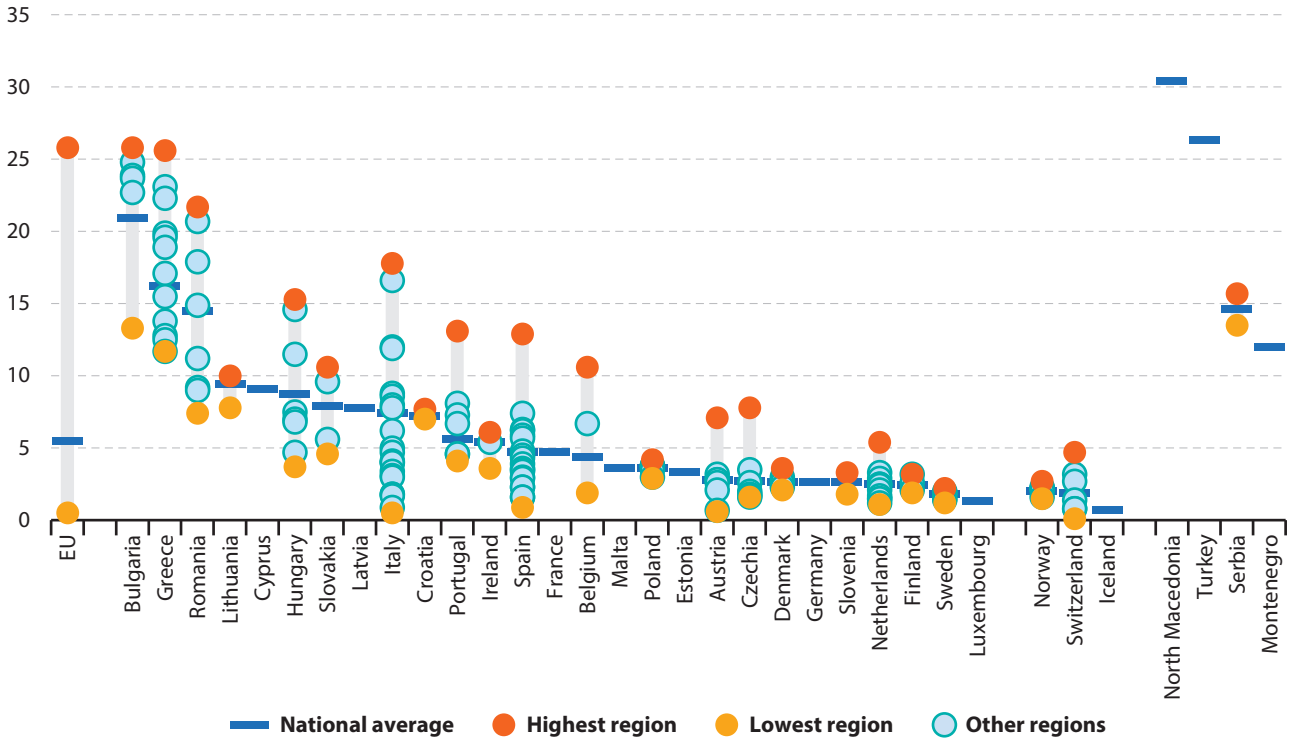
In 2019, women (5.6 %) in the EU were more likely than men (5.3 %) to experience severe material deprivation. During the period 2010-2019, this gender gap fluctuated between 0.1 and 0.6 percentage points, with the largest gap in 2011 and the smallest in 2015.

More than one quarter of the population experienced severe material deprivation in Yugoiztochen and Dytiki Ellada

Figure 5.1 shows the regional distribution of severe material deprivation rates. Note that the statistics presented in this section for Belgium and Poland relate to NUTS level 1 regions and that only national data are available for Germany and France. In 2019, the highest shares of people unable to afford at least four out of nine material items were recorded in Yugoiztochen (Bulgaria) and Dytiki Ellada (Greece); these were the only regions in the EU where more than a quarter of the population experienced severe material deprivation. The severe material deprivation rate was higher than 20.0 % in eight additional regions: all but one of the regions in Bulgaria (the exception being the capital region of Yugozapaden), two more regions in Greece (Peloponnisos and Notio Aigaio) and two regions in Romania (Sud-Muntenia and Sud-Est).

Every region of the Nordic Member States, Estonia, Luxembourg, Malta, the Netherlands, Poland and Slovenia had a severe material deprivation rate that was less than the EU average in 2019; this was also the case in Germany and France (for which only national data are available). Aside from the capital region of Wien, this pattern was also repeated in Austria (2018 data; note there are no data available for Burgenland). Looking in more detail, there were five regions across

Figure 5.1: Severe material deprivation rate, 2019
(%, by NUTS 2 regions)



Note: ranked on the national average. Belgium, Poland and Serbia: NUTS level 1. Germany, France and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018. Burgenland (AT11): not available.

Source: Eurostat (online data codes: ilc_mddd21 and ilc_mddd11)

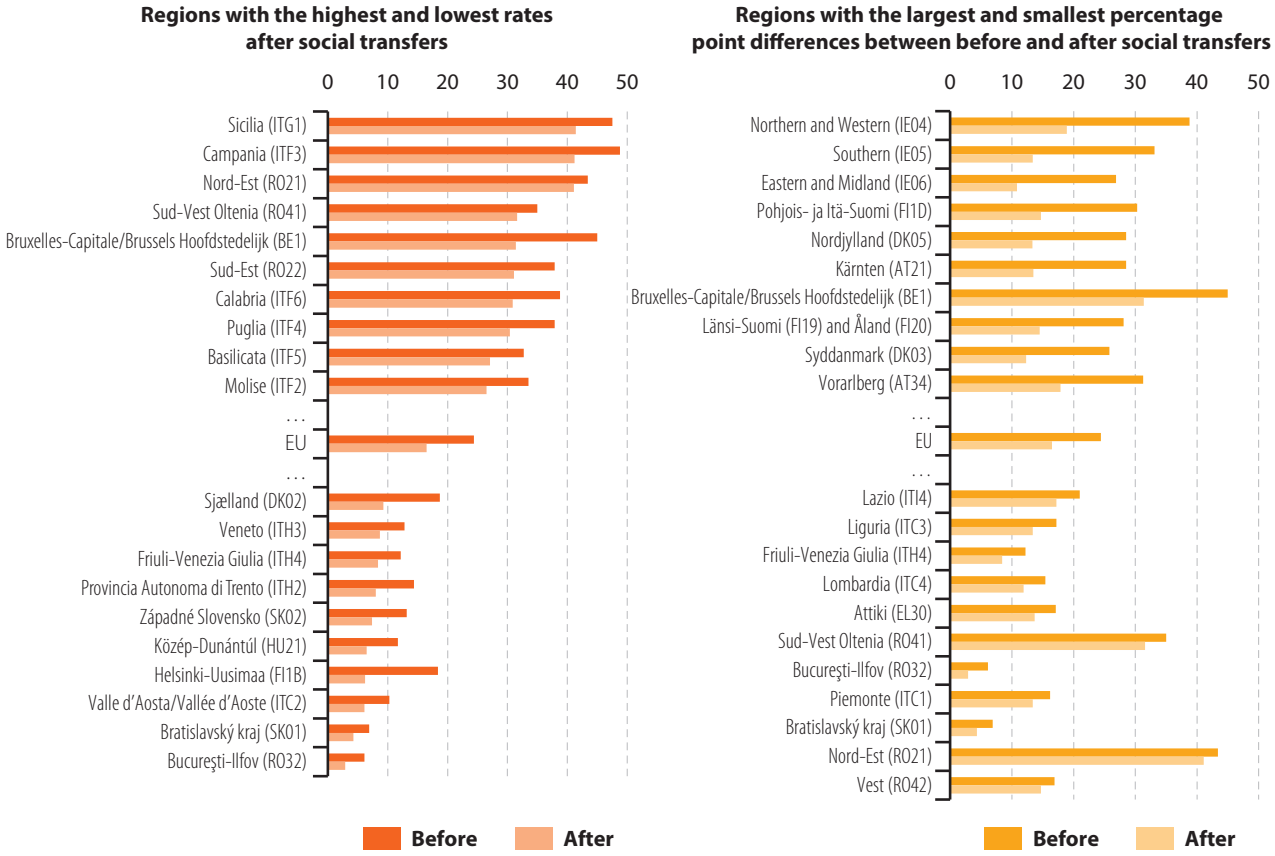
the EU where the severe material deprivation rate was less than 1.0 %. Four of these were Alpine regions — Valle d'Aosta/Vallée d'Aoste and Provincia Autonoma di Bolzano/Bozen (northern Italy), Kärnten and Oberösterreich (Austria; 2018 data) — while the fifth was the mountainous and coastal region of Cantabria in northern Spain.

AT-RISK-OF-POVERTY RATE

The at-risk-of-poverty rate (after social transfers) is also one of the three criteria used to identify people at risk of poverty or social exclusion. It identifies the proportion of the population which lives in a household with an annual equivalised disposable income that is below 60 % of the national median. Note that at-risk-of-poverty rates do not measure poverty itself, rather they provide information on the share of the population with a level of income that is below a threshold which is set separately for each EU Member State, in other words it is a measure of relatively low income; this does not necessarily imply a low overall standard of living.

The at-risk-of-poverty rate before social transfers measures a hypothetical situation where social transfers are absent (pensions not being considered as a social transfer). When comparing at-risk-of-poverty rates before and after social transfers it is possible to make an assessment of the impact and redistributive effects of welfare policies. These transfers cover assistance that is given by central, state or local institutional units and include, among others, pensions, unemployment benefits, sickness and invalidity benefits, housing allowances, social assistance and tax rebates. Note that the statistics presented in this section for Belgium relate to NUTS level 1 regions and that only national data are available for Bulgaria, Czechia, Germany, Spain, France, the Netherlands, Poland, Portugal and Sweden.

Figure 5.2: At-risk-of-poverty rate before and after social transfers, 2019
(%, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values. Belgium and Serbia: NUTS level 1. Bulgaria, Czechia, Germany, Spain, France, the Netherlands, Poland, Portugal, Sweden and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018.

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

In 2019, almost one in four people (24.4 %) in the EU were at risk of monetary poverty, with this share falling — after social transfers — to 16.5 %. Across the EU, the risk of monetary poverty prior to social transfers stood at 25.1 % among women and at 23.7 % among men, a difference of 1.4 percentage points. After taking account of social transfers, this gender gap was almost unchanged, down 0.1 points to 1.3 points, reflecting rates of 17.1 % for women and 15.8 % for men.

Prior to social transfers, the southern Italian regions of Campania and Sicilia had the highest risks of poverty, with almost half of their populations concerned in 2019; the next highest shares were recorded in the Belgian capital region (45.0 %) and the Nord-Est region of Romania (43.4 %). After taking account of the redistributive impact of social transfers, three out of the four regions in the EU with the highest risks of poverty continued to report that more than two fifths of their population were at risk: Sicilia (41.4 %), Campania (41.2 %) and Nord-Est (41.1 %) — see Figure 5.2.

By contrast, social transfers played a greater role in reducing the risk of poverty in Bruxelles-Capitale/ Brussels Hoofdstedelijk (the Belgian capital region), with a 13.6 percentage points reduction in the at-risk-of-poverty rate after social transfers. This sizeable fall meant that the Belgian capital featured among the top 10 regions in the EU where social transfers had their largest impact on reducing monetary poverty. The redistributive impact of social transfers was even greater (than in the Belgian capital) across all three regions in Ireland, as well as in Pohjois- ja Itä-Suomi (Finland), Nordjylland (Denmark) and Kärnten (Austria; 2018 data).

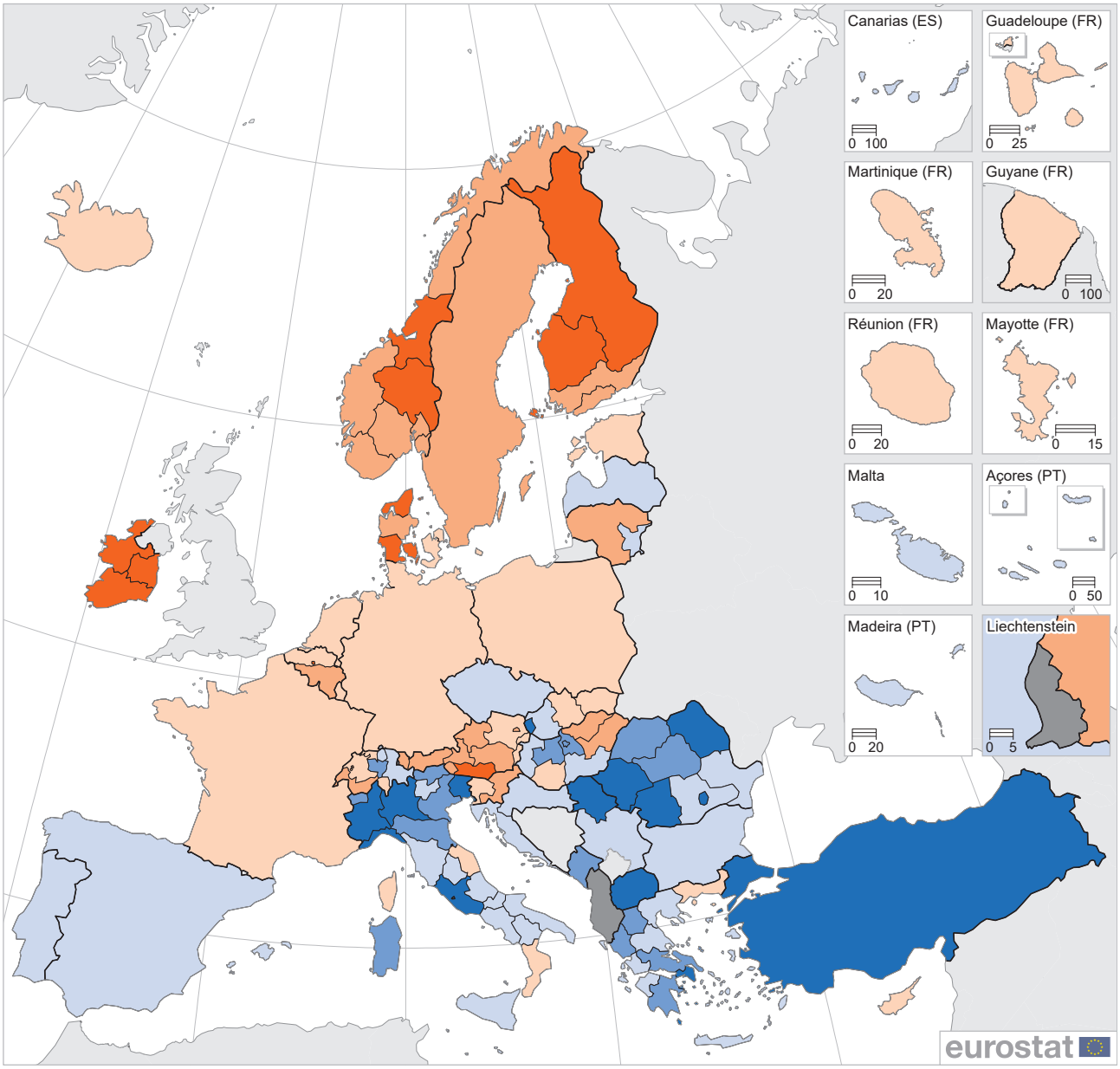
Map 5.4 provides a more detailed analysis of regional reductions in the at-risk-of-poverty rate due to the impact of social transfers. The average reduction across the whole of the EU was 7.9 percentage points such that the at-risk-of-poverty rate after social transfers stood at 16.5 % in 2019.

The map shows that there was a relatively clear north-south divide in terms of the redistributive impact of social transfers within EU regions. These differences reflect historical, political, economic and cultural factors, among others. The impact of social transfers in 2019 on reducing the at-risk-of-poverty rate was particularly marked in the Nordic Member States, Poland, Germany, the Benelux countries, France and Ireland, where reductions were consistently greater than the EU average. On the other hand, social transfers had a relatively low impact on monetary poverty in many southern and south-eastern regions of the EU.

Looking in more detail, the largest reductions in at-risk-of-poverty rates after social transfers were recorded in the three Irish regions. In 2019, their risk of poverty was reduced — as a result of social transfers — by 16.1-19.9 percentage points. The darkest shade of orange in Map 5.4 shows that there were six other regions in the EU where the risk of poverty was reduced by at least 13.5 points: Pohjois- ja Itä-Suomi, Länsi-Suomi (both in Finland; the latter also includes information for Åland), Nordjylland, Syddanmark (both in Denmark), Kärnten (Austria) and the Belgian capital region.

There were 11 regions in the EU where the at-risk-of-poverty rate was reduced by less than 4.0 percentage points as a result of social transfers in 2019 (as shown by the darkest shade of blue). These included the Greek and Slovak capital regions, respectively Attiki and Bratislavský kraj, and nine regions that were located in Italy and Romania. The impact of social transfers was particularly low in Vest, Nord-Est (both in Romania), the Slovak capital and Piemonte (in northern Italy).

Map 5.4: Reduction in the at-risk-of-poverty rate after social transfers, 2019
(percentage points, by NUTS 2 regions)



EU = 7.9

- < 4.0
- 4.0 - < 5.5
- 5.5 - < 7.9
- 7.9 - < 10.5
- 10.5 - < 13.5
- ≥ 13.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium and Serbia, NUTS level 1. Bulgaria, Czechia, Germany, Spain, France, the Netherlands, Poland, Portugal, Sweden and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018.

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

PEOPLE AT RISK OF POVERTY OR SOCIAL EXCLUSION

The final part in this section brings together some of the different indicators described above to provide a consolidated overview of the situation concerning people at risk of poverty or social exclusion. As noted at the beginning of this chapter, the at-risk-of-poverty or social exclusion rate combines three criteria covering people who are in at least one of the following situations: at-risk-of-poverty, facing severe material deprivation, or living in a household with very low work intensity. This combined measure is a key policy indicator and has been included in the European Pillar of Social Rights Action Plan as one of three, key EU targets for monitoring progress towards a 'strong social Europe'. The action plan foresees the number of people at risk of poverty or social exclusion being reduced by at least 15 million between 2019 and 2030, with at least five million of these being children.

It is too early to judge the impact of the COVID-19 pandemic on poverty and social exclusion, not least because the pandemic is still on-going at the time of writing, but also because the latest reference year for most statistics on income and living conditions is 2019. That said, in the aftermath of the last major economic shock — the global financial and economic crisis — there was a general widening of socioeconomic inequalities. Anecdotal evidence and more rapidly available statistics in other areas suggest that the COVID-19 pandemic has had a similar impact, with some groups of people being particularly impacted. Often these are people who already faced (pre-pandemic) a higher risk of poverty or social exclusion, such as: the elderly, children, people with precarious employment contracts, those with health problems or disabilities, or people working in relatively low pay sectors/businesses.

In 2019, more than one fifth of the EU population was at risk of poverty or social exclusion

In 2012, during the aftermath of the global financial and economic crisis, the number of people at risk of poverty or social exclusion in the EU reached a peak of 108.7 million. There followed seven consecutive annual reductions, as the number of people at risk of poverty or social exclusion fell to 91.4 million by 2019; this figure for 2019 was equivalent to 20.9 % of the EU population.

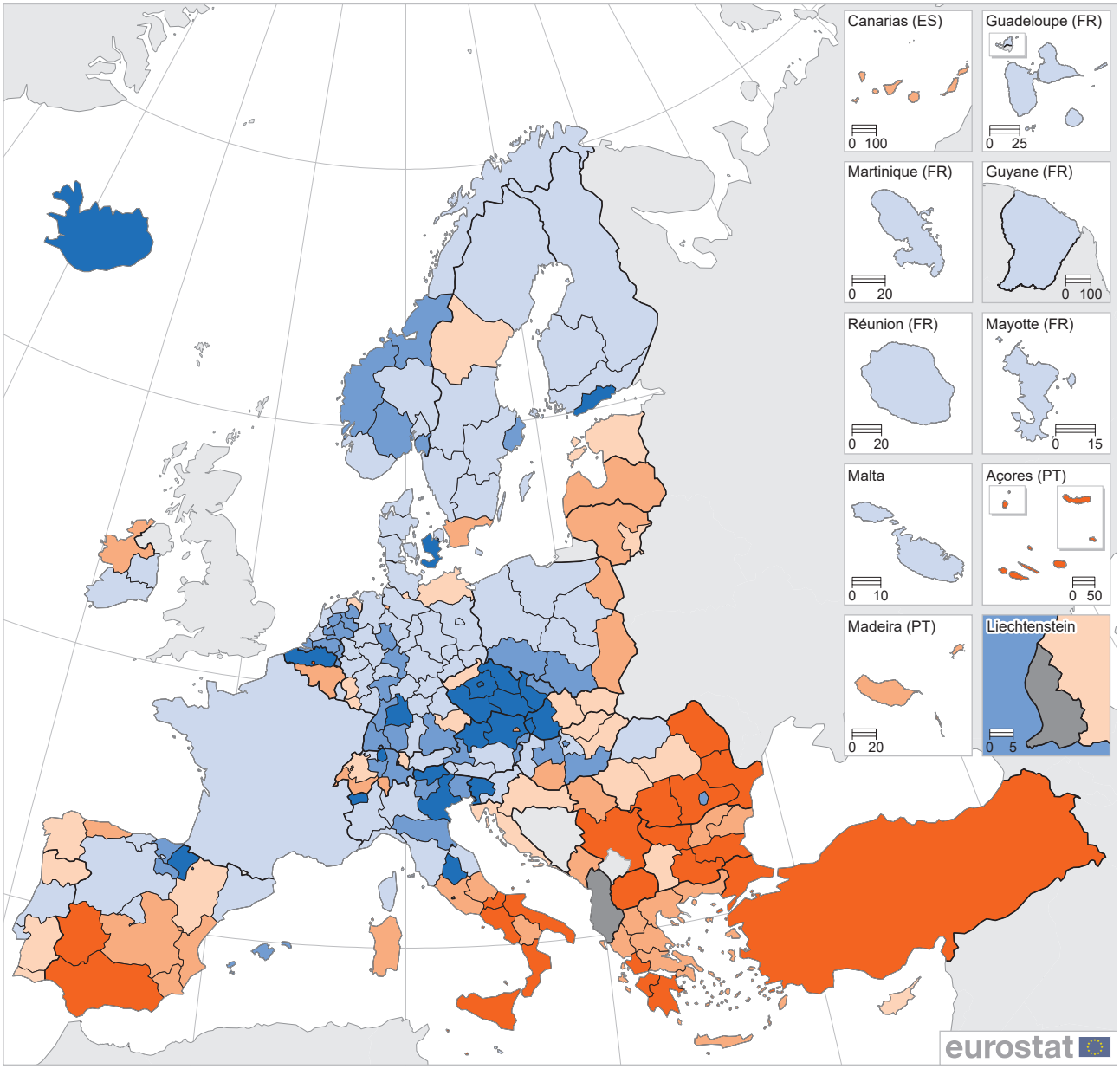
The risk-of-poverty or social exclusion in the EU was higher among women (21.8 %) than it was among men (20.0 %) in 2019. A gender gap with a higher risk for women was repeated in all but one of the EU Member States; the exception was Denmark. The largest gender gaps — where the share of women at risk of poverty or social exclusion was 4.2-5.0 percentage points above the share for men — were recorded in the Baltic Member States and Czechia.

Map 5.5 shows the regional distribution of people at risk of poverty or social exclusion across NUTS level 2 regions. Note that the statistics presented for Belgium and Poland relate to NUTS level 1 regions and that only national data are available for France. In 2019, the overall picture concerning people at risk of poverty or social exclusion was one where a relatively low proportion of people were impacted in the Nordic Member States and most western regions of the EU. By contrast, people living in the Baltic Member States and many eastern and southern regions of the EU were generally more likely to be at risk of poverty or social exclusion. The share of the population that was at risk of poverty or social exclusion was skewed, as approximately three fifths of all regions in the EU (118 out of the 196 for which data are available) recorded a share below the EU average.

Some of the highest proportions of people at risk of poverty or social exclusion were recorded in rural and remote regions of the east and south of the EU. In 2019, the highest shares of people at risk of poverty or social exclusion were recorded in the southern Italian regions of Campania (49.7 %) and Sicilia (48.7 %) and the Romanian region of Nord-Est (47.1 %). Note these were the same three regions that had the highest risk of monetary poverty after social transfers. People living in the capital regions across many of the eastern and some southern EU Member States were less likely to be at risk of poverty or social exclusion than their counterparts in other regions. The Czech and Slovak capitals (Praha and Bratislavský kraj) recorded the lowest shares of people at risk of poverty or social exclusion in the EU (both 7.9 %). Several other eastern EU Member States recorded relatively low shares of people at risk of poverty or social exclusion in their capital region. This pattern was particularly notable in Romania, as the share of people at risk of poverty or social exclusion in Bucureşti-Ilfov was 14.0 %, less than one third of the share recorded in Nord-Est.

In western EU Member States, the pattern described above was often reversed. Despite their capital regions (and other large cities/agglomerations) being among the most affluent regions in the EU, they were often characterised by pockets of social deprivation in specific neighbourhoods. For example, more than one third (37.8 %) of the population in the Belgian capital region (Région De Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest) and more than one quarter (27.5 %; 2018 data) of the population in the Austrian capital region (Wien) were at risk of poverty or social exclusion, higher shares than in any other regions of Belgium or Austria.

Map 5.5: People at risk of poverty or social exclusion, 2019
(%, by NUTS 2 regions)



EU = 20.9

- < 13.5
- 13.5 - < 16.0
- 16.0 - < 20.9
- 20.9 - < 24.5
- 24.5 - < 36.0
- ≥ 36.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium, Poland and Serbia, NUTS level 1. France and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Niederbayern (DE22), Oberpfalz (DE23), Austria and Iceland: 2018.

Source: Eurostat (online data codes: ilc_peps11 and ilc_peps01)

Income

GDP per inhabitant has traditionally been used to assess regional divergence/convergence in overall living standards. However, it does not capture the distribution of income within a population and thereby does little to reflect economic inequalities. The issue of inequality has gained increasing importance in political and socioeconomic discourse in the aftermath of the global financial and economic crisis, and in the context of people and regions being 'left behind'.

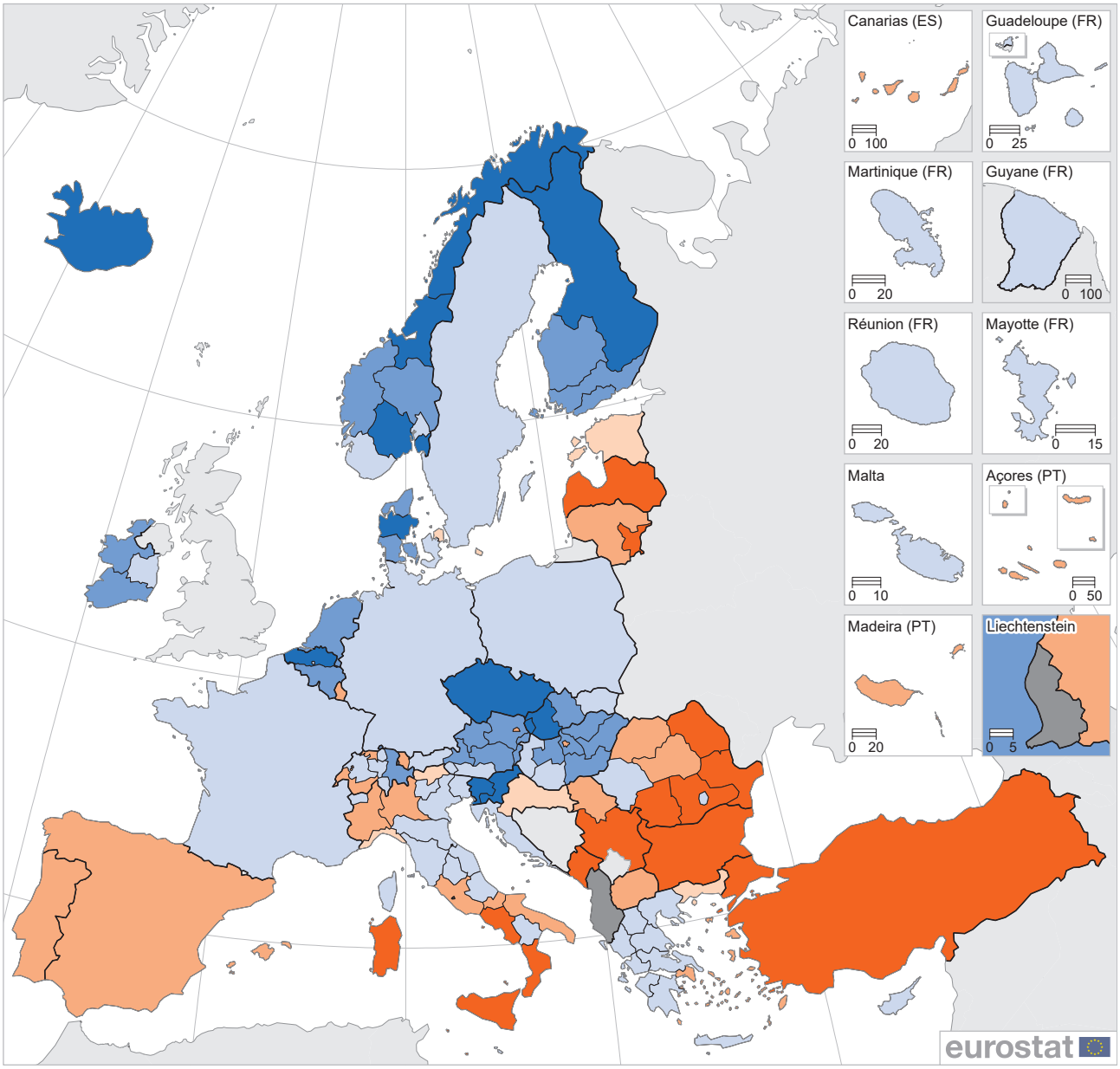
The income quintile share ratio (S80/S20 ratio) measures the inequality of income distribution. It is calculated as the ratio between the share of income received by the 20 % of the population with the highest income (the top quintile) and the share of income received by the 20 % of the population with the lowest income (the bottom quintile). In 2019, the EU's income quintile share ratio was 5.0 — in other words, the collective income received by the top 20 % of earners was five times as high as the collective income received by the bottom 20 % of earners.

Map 5.6 shows the regional distribution of the income quintile share ratio. Note that the statistics presented for Belgium relate to NUTS level 1 regions and that only national data are available for Bulgaria, Czechia, Germany, Spain, France, the Netherlands, Poland, Portugal and Sweden. The level of regional income inequality in 2019 — as measured by the income quintile share ratio — was higher than the EU average in the Baltic Member States, as well as several eastern and southern regions of the EU. The distribution of income was often more equitable across northern and western regions of the EU.

In the EU Member States which have multiple regions, the distribution of income within the capital region often had a different structure to that observed in the rest of the country. The Austrian (2018 data), Hungarian and Danish capital regions (Wien, Budapest and Hovedstaden) had income quintile share ratios of 5.5, 5.3 and 5.1 (in each case slightly higher than the EU average). However, all of the remaining regions in Austria (except for Vorarlberg), Hungary and Denmark had income distributions that were more equitable than the EU average, in other words, a lower ratio. This pattern was reversed in Romania and in Slovakia, as lower income quintile share ratios were recorded in the capital regions (Bucureşti-Ilfov and Bratislavský kraj) than in their remaining regions (apart from Západné Slovensko in Slovakia that had the same ratio as the capital region).

Across the whole of the EU, the highest income quintile share ratios in 2019 were recorded in several regions characterised as having a relatively high proportion of people at risk of poverty or social exclusion. Nord-Est (Romania) had the highest ratio, as the income of the top 20 % of earners in this region was 9.5 times as high as the income of the bottom 20 % of earners. The next highest income quintile share ratios were 9.0 in Sicilia (the southern Italian island) and 8.1 in Bulgaria. At the other end of the range, the income share held by the highest earning 20 % of the population in the Slovak regions of Bratislavský kraj and Západné Slovensko was only 2.8 times as high as that held by the lowest earning 20 % of the population.

Map 5.6: Income quintile share ratio (S80/S20), 2019
(index, by NUTS 2 regions)



EU = 5.0

- < 3.5
- 3.5 - < 4.0
- 4.0 - < 5.0
- 5.0 - < 5.2
- 5.2 - < 6.5
- ≥ 6.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium and Serbia, NUTS level 1. Bulgaria, Czechia, Germany, Spain, France, the Netherlands, Poland, Portugal, Sweden and Turkey: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Austria and Iceland: 2018.

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

6. Digital society

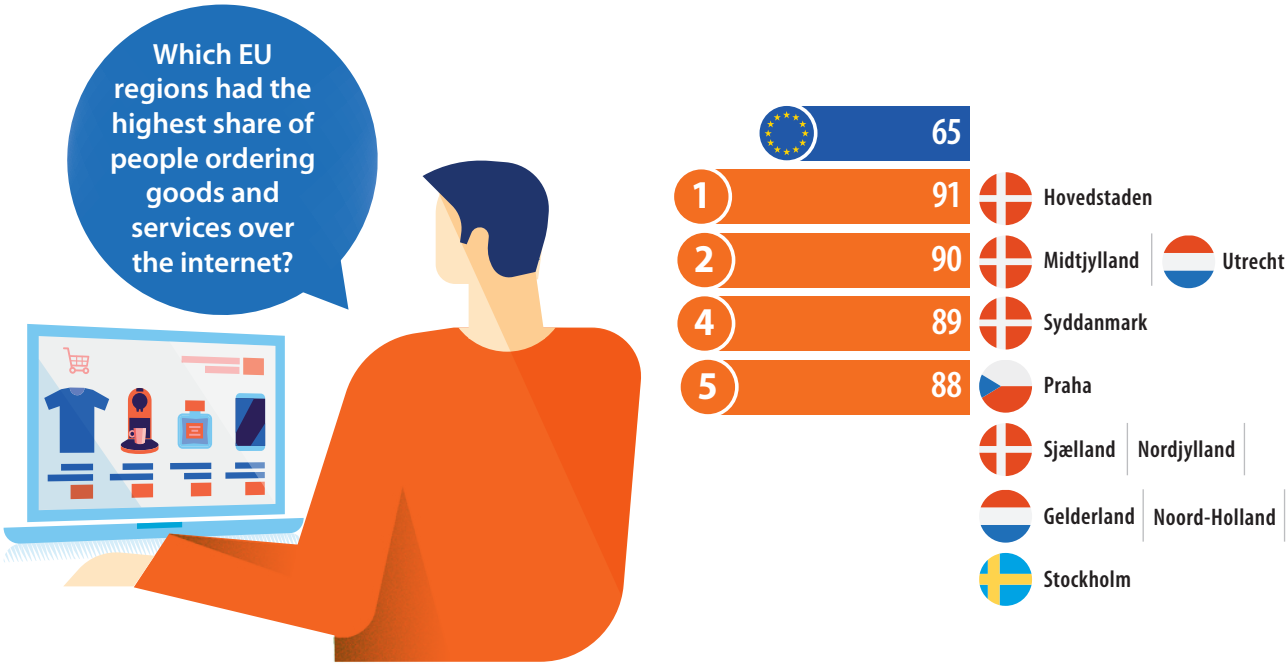
Information and communication technologies (ICTs) affect people's everyday lives in many ways, at work, studying, in the home and elsewhere — for example, when communicating, keeping abreast of the news, being entertained, interacting with public authorities, paying bills or shopping online. In order to be able to benefit from technological innovations, businesses and individuals depend, at least to some extent, on having fast and reliable internet access (whether fixed or mobile).

Indeed, access to ICTs is considered by many as fundamental for improving productivity levels and the competitiveness of regions. ICTs are credited with delivering greater flexibility in work and educational environments (for example, permitting people to work or study from home or other remote locations), while offering a broad range of options for staying in contact with colleagues, family and friends. As internet and digital technologies continue to transform the world, ICT innovations provide a stream of new business opportunities. It is hoped that this new digital world, the internet of things — which is working its way into many aspects of society — will provide tools that may be applied to a range of European Union (EU) policy objectives in fields as diverse as health, security, climate, transport, energy, or the modernisation of the public sector.

The COVID-19 pandemic and related restrictions have impacted on the use of various digital technologies. Pupils and students have been making increased use of online studying while many in the workforce have experienced a shift towards making greater use of digital technologies while working from home.

Away from studying and working, there has also been an increase in the use of digital technologies for communication between people who have been restricted in their movements and limited in the extent to which they can meet up. The pandemic has been accompanied by increased consumption of online services, for example ordering goods and services online or using streaming services. Digital technologies have played a more direct role in the efforts made to counter the spread of COVID-19, for example through test and trace procedures and for the rollout of vaccination programmes.

Household surveys to collect data on ICT usage are usually conducted during the first half of each year (although the precise date at which surveys are conducted varies across EU Member States). In general, data refer to the first quarter of the reference year and often concern activities during the previous 3 or 12 months. Hence, data refer mainly to the situation before the COVID-19 pandemic started. However, due to COVID-19 restrictions, the fieldwork had to be postponed or extended, and timing of this 3 or 12-month reference period varies across countries. As such, it is likely that the impact of the COVID-19 pandemic was only partially captured by the 2020 exercise. Note: all of the statistics presented below cover adults aged 16-74 years. Data for Germany, Greece and Poland relate to NUTS level 1 regions, while the latest data available for France concern 2019. As 2020 data for France are not available, the EU aggregates for 2020 have been estimated.



(%, people aged 16-74 years ordering goods and services over the internet during the 12 months preceding the survey, 2020 data)

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

Internet users

Although the internet is an almost constant part of the lives of many people in the EU, some people are excluded to a greater or lesser extent, resulting in the so-called digital divide. People living in remote regions may be excluded as a lack of investment in infrastructure leads to access and/or performance issues when trying to use the internet; this may result in socially undesirable outcomes. Some other people, particularly within older generations, may not have the necessary e-skills to take full advantage of various services that are provided via the internet. With a growing share of day-to-day tasks being carried out online, the ability to use modern technologies becomes increasingly important to ensure everyone can participate in the digital society. This digital divide is likely to be further challenged in the next few years, as 5G internet services (the fifth generation of cellular network technology) are gradually rolled out.

Four fifths of all adults in the EU made use of the internet on a daily basis

For the ICT survey of households and individuals, an internet user is defined as a person (aged 16-74 years) making use of the internet in whatever way: whether at home, at work, or anywhere else; whether for private or professional purposes; regardless of the device (desktop computer, laptop, netbook or tablet, smartphone, games console or e-book reader) or type of connection being used.

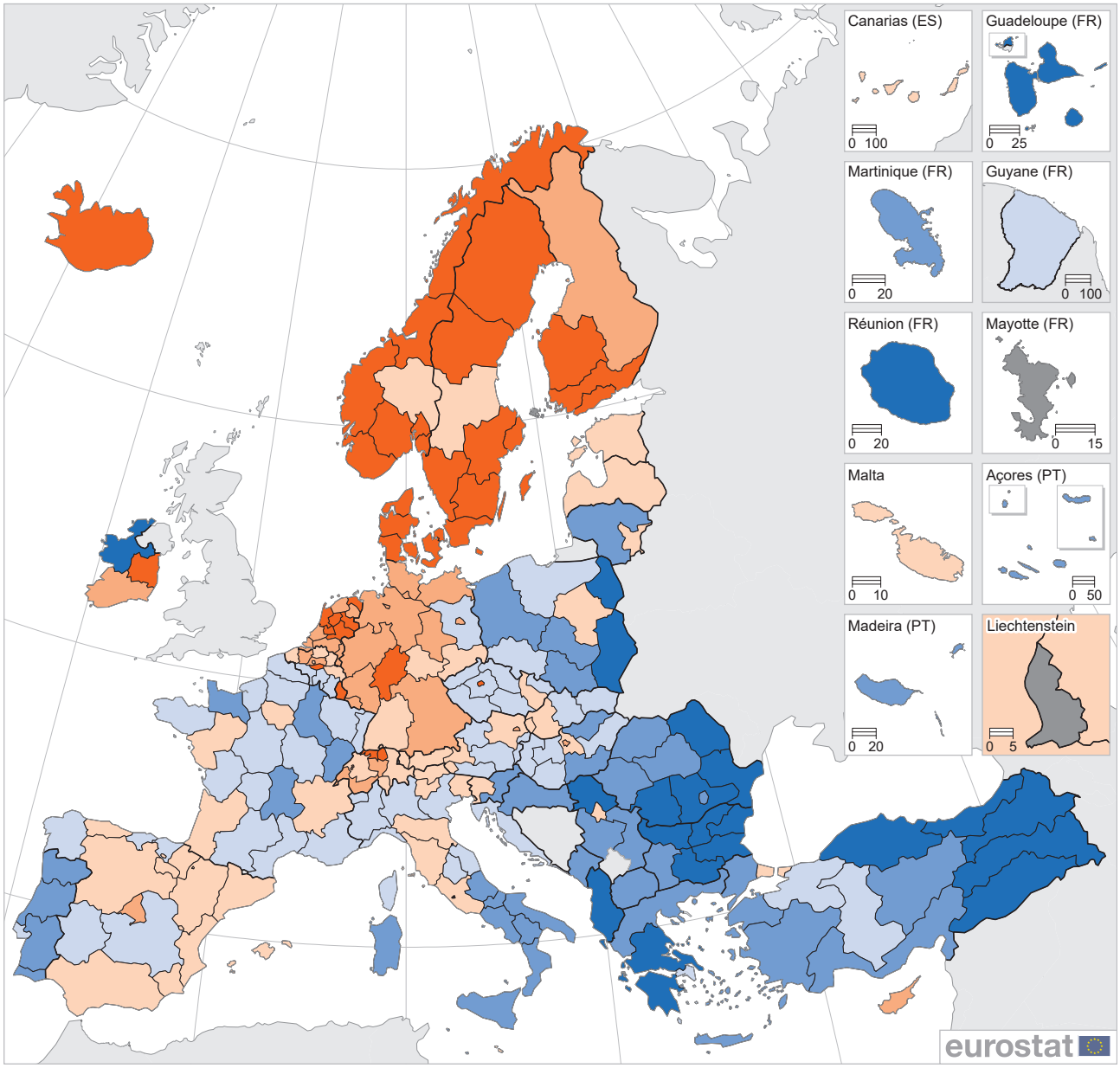
In 2020, some 80 % of the EU's adult population reported having used the internet on a daily basis during the three months preceding the survey; this figure was 3 percentage points higher than in 2019 and was 29 points higher than a decade before (51 % in 2010).

More than half of the adult population in every region of the EU was making use of the internet on a daily basis

Map 6.1 shows the regional distribution of daily internet use across NUTS level 2 regions; note again that data for Germany, Greece and Poland relate to NUTS level 1 regions. There were widespread disparities between EU regions in terms of daily use of the internet along broad geographical lines. Northern and western regions generally recorded higher levels than southern or eastern regions.

In 2020, the lowest share of adults making daily use of the internet was recorded in the outermost region of La Réunion (France; 51 % in 2019). The second lowest share was in Severozapaden (Bulgaria; 53 %) — the poorest region in the EU, as measured by GDP per inhabitant. At the other end of the range, the highest shares of adults making daily use of the internet were recorded in the three capital regions of the Nordic Member States — Hovedstaden, Helsinki-Uusimaa and Stockholm — where at least 95 % of adults were using the internet on a daily basis. Indeed, across many of the EU Member States it was common to find capital regions and other predominantly urban regions recording some of the highest proportions of adults making daily use of the internet, while more rural or remote regions recorded lower shares. This was clearly seen in most of the eastern Member States, but was also noticeable in the remainder of the EU — for example, in Ireland, Spain, Lithuania and Austria.

Map 6.1: Daily internet users during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



EU = 80

- < 65
- 65 - < 74
- 74 - < 80
- 80 - < 88
- 88 - < 91
- ≥ 91
- Data not available

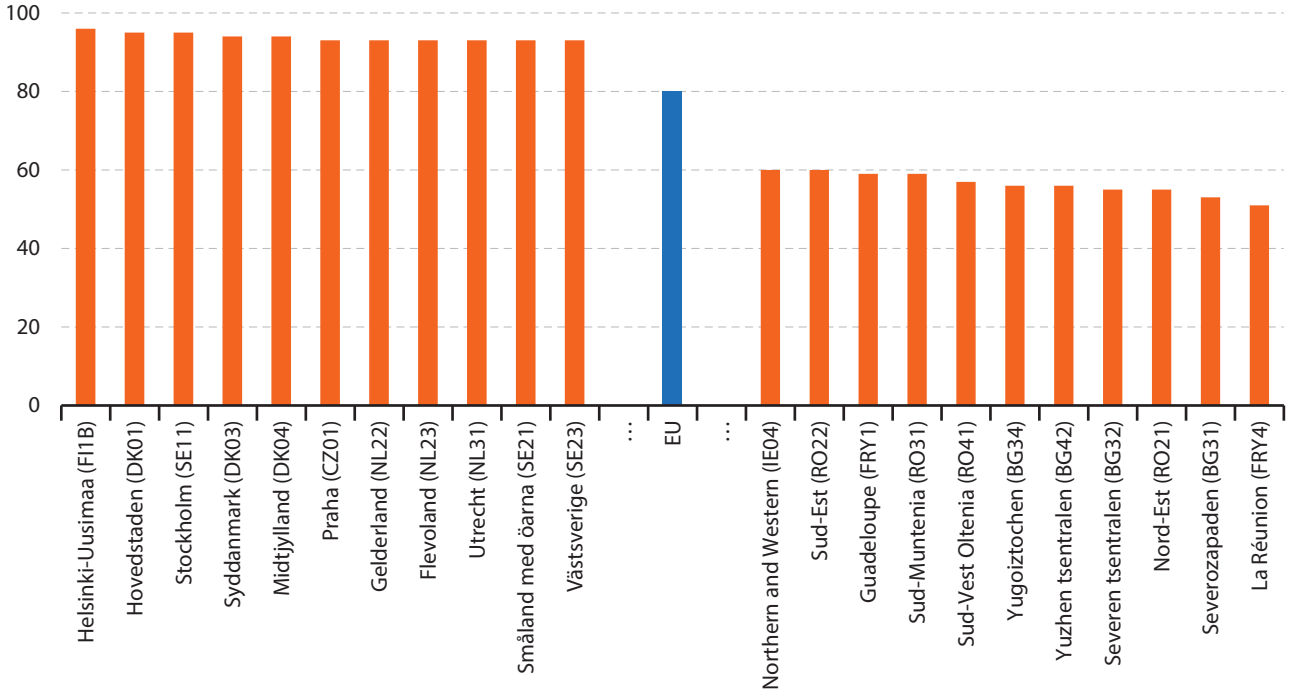
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: Germany, Greece, Poland and Turkey, NUTS level 1. Albania: national data. France, Switzerland and Albania: 2019.
Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ifp_fu)

An analysis for the EU regions with the highest and lowest shares of daily internet users is presented in Figure 6.1. Alongside the three capital regions of the Nordic Member States (mentioned above), the regions in the EU with the highest shares of daily internet users in 2020 included four more Nordic regions, Praha (the capital region of Czechia) and three regions in the Netherlands. At the other end of the range, the vast majority of EU regions with the lowest shares of daily internet users were located in Bulgaria, Romania or the outermost regions of France (2019 data).

Figure 6.1: Regions with the highest and lowest shares of daily internet users during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values. Germany, Greece and Poland: NUTS level 1. France: 2019. Mayotte (FRY5) and Åland (FI20): not available.

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

Internet activities

With the prolific use in modern society of mobile devices such as smartphones and tablets, the frequency with which people use the internet has grown exponentially. Although it was initially used as a means to exchange information (often in a working environment), the range of activities conducted over the internet has rapidly changed. For example, it is only slightly more than a decade since commercially successful app stores or streaming services were launched.

PARTICIPATION IN SOCIAL NETWORKS

One of the most popular activities on the internet is participation in social networks, for example, using Facebook, Instagram, Snapchat, TikTok or Twitter. The propensity to make use of such services is closely linked to age. A much higher proportion of younger people use social networks on a regular basis, and young people are also more likely to be early adopters of new apps/services as they seek alternative ways of exchanging text, sound, images, video and other information.

In 2020, close to three fifths (57 %) of the EU's adult population participated in social networks during the three months prior to the latest survey. The participation rate for young adults aged 16-24 years (87 %) was almost four times as high as the corresponding rate for older people aged 65-74 years (22 %). During the most recent five-year period (2015-2020) for which data are available, there was little or no change in the share of young adults participating in social networks. By contrast, the proportion of older people using social networks nearly doubled during the same period.

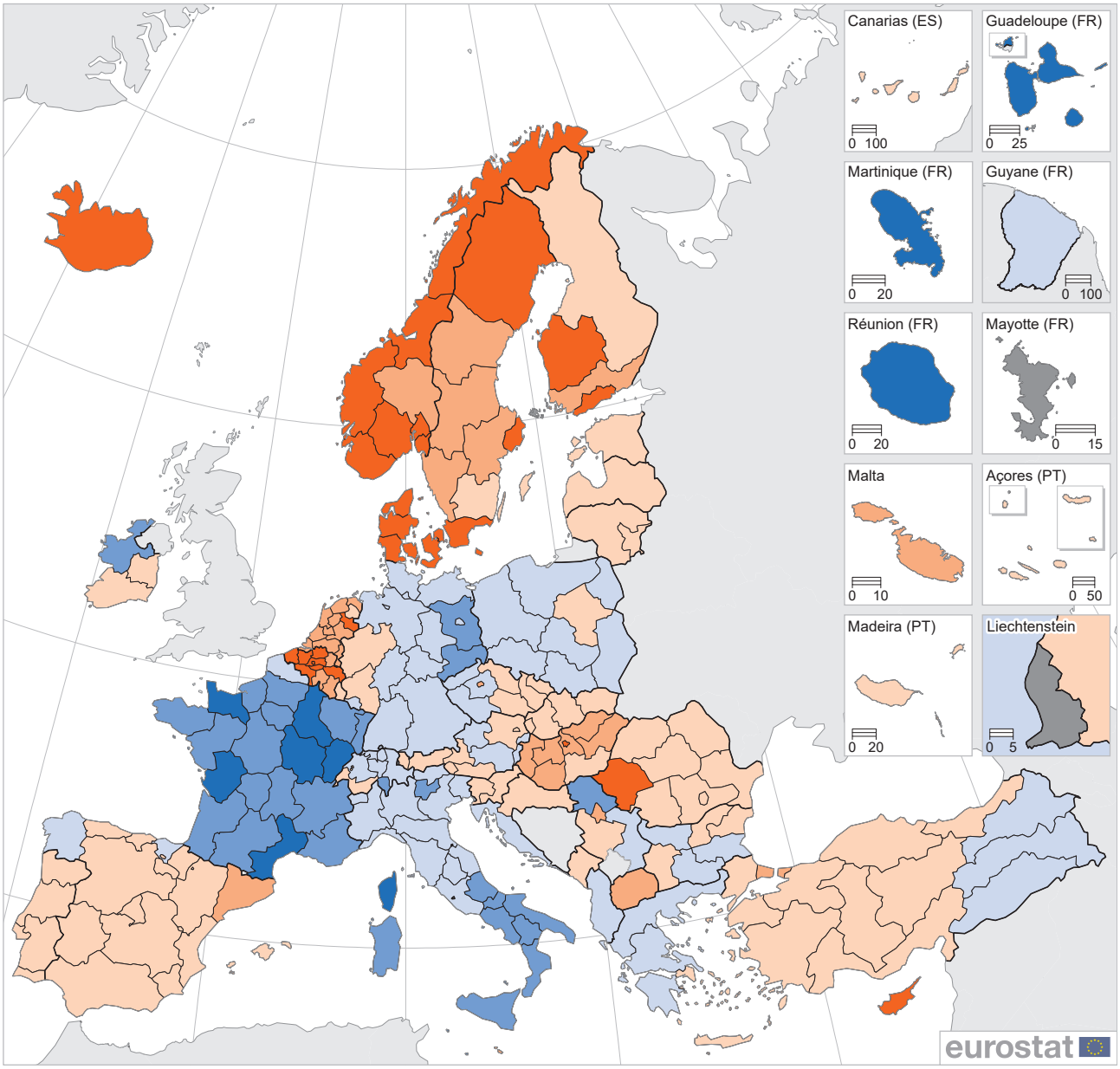
Despite relatively low levels of internet access, many eastern regions of the EU recorded high shares of people participating in social networks

In 2020, there were 23 NUTS level 2 regions across the EU where more than three quarters of the adult population participated in social networks (as shown by the darkest shade of orange in Map 6.2); note again that data for Germany, Greece and Poland relate to NUTS level 1 regions. The regions with the highest shares were concentrated in Belgium and Denmark, while a number of other Nordic regions and single regions from each of Spain, Cyprus, Hungary, the Netherlands and Romania also reported that more than three quarters of their adult populations participated in social networks.

Although many would argue that social networks are ubiquitous, there were 10 NUTS level 2 regions in the EU where less than 40 % of all adults participated in social networks (as shown by the darkest shade of blue). These 10 regions were exclusively located in France (2019 data); a majority of them were characterised as predominantly rural or outermost regions. Relatively low shares (40-48 %, as shown by the second darkest shade of blue) of adults participated in social networks in each of the southern and island regions of Italy, as well as the northern Italian region of Provincia Autonoma di Trento. They were joined by Sachsen, Brandenburg (in Germany), and Northern and Western (in Ireland), as well as all but two of the remaining French regions (2019 data).

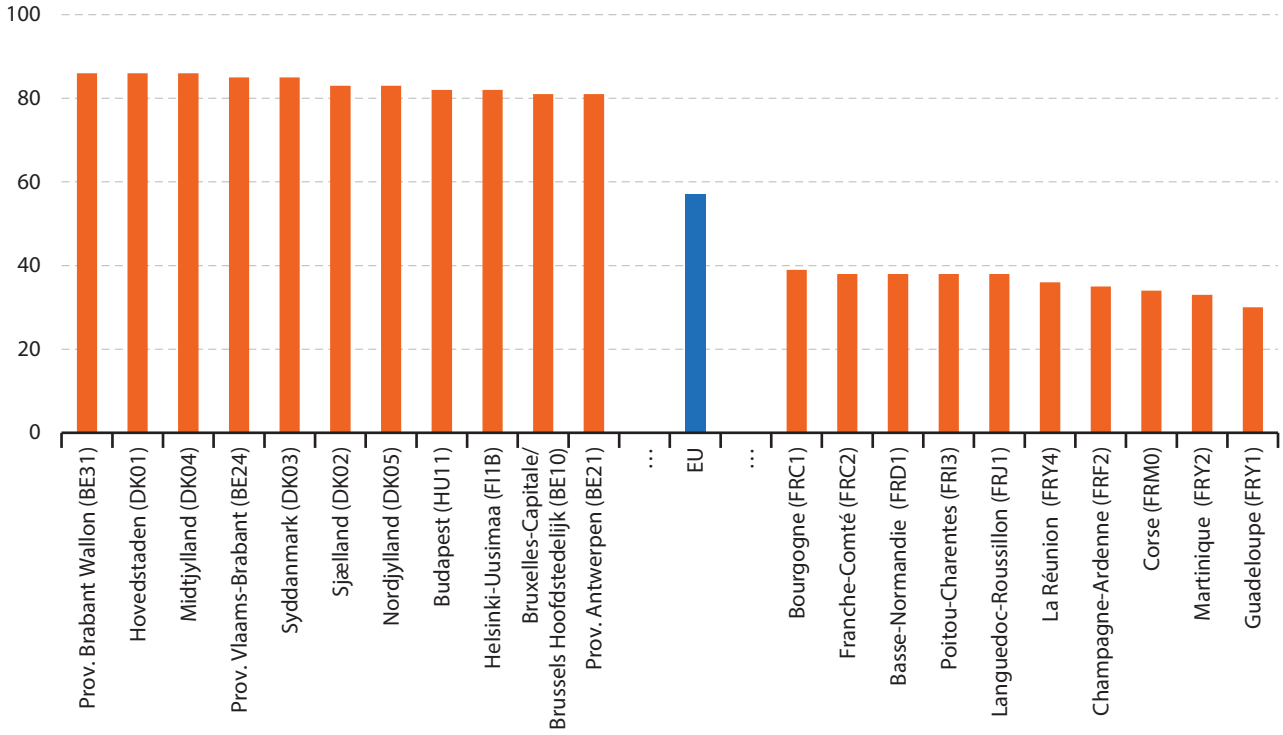
The wide differences in participation rates for social networks may, at least in part, be linked to whether (or not) people are connected to the internet. Relatively low rates of internet access will, by definition, limit the potential use of social networks. Looking back at the data presented in Map 6.1, this may partly explain the relatively low use of social networks in southern Italy. However, internet access was generally more widespread in northern Italy and much of France and Germany. As such, other factors may be relevant, for example, an ageing population structure in predominantly rural regions, or issues linked to privacy and the willingness of individuals to share their data online. By contrast, despite relatively low levels of internet access, many eastern regions of the EU recorded high shares of people participating in social networks.

Map 6.2: People participating in social networks during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: Germany, Greece, Poland and Turkey, NUTS level 1. Albania: national data. France, Switzerland and Albania: 2019.
Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

Figure 6.2: Regions with the highest and lowest shares of people participating in social networks during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values. Germany, Greece and Poland: NUTS level 1. France: 2019. Mayotte (FRY5) and Åland (FI20): not available.

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

Figure 6.2 shows, in more detail, the NUTS level 2 regions with the highest and lowest shares of people participating in social networks. In 2020, close to 9 out of every 10 adults (86 %) in Prov. Brabant Wallon (Belgium), Hovedstaden (the Danish capital region) and Midtjylland (also in Denmark) made use of social networks during the three months prior to the latest survey; there were several other regions from these two Member States that had high participation rates. Outside of Belgium and Denmark, the only other regions in the EU where more than 80 % of adults participated in social networks were the capital regions of Hungary (Budapest) and Finland (Helsinki-Uusimaa).

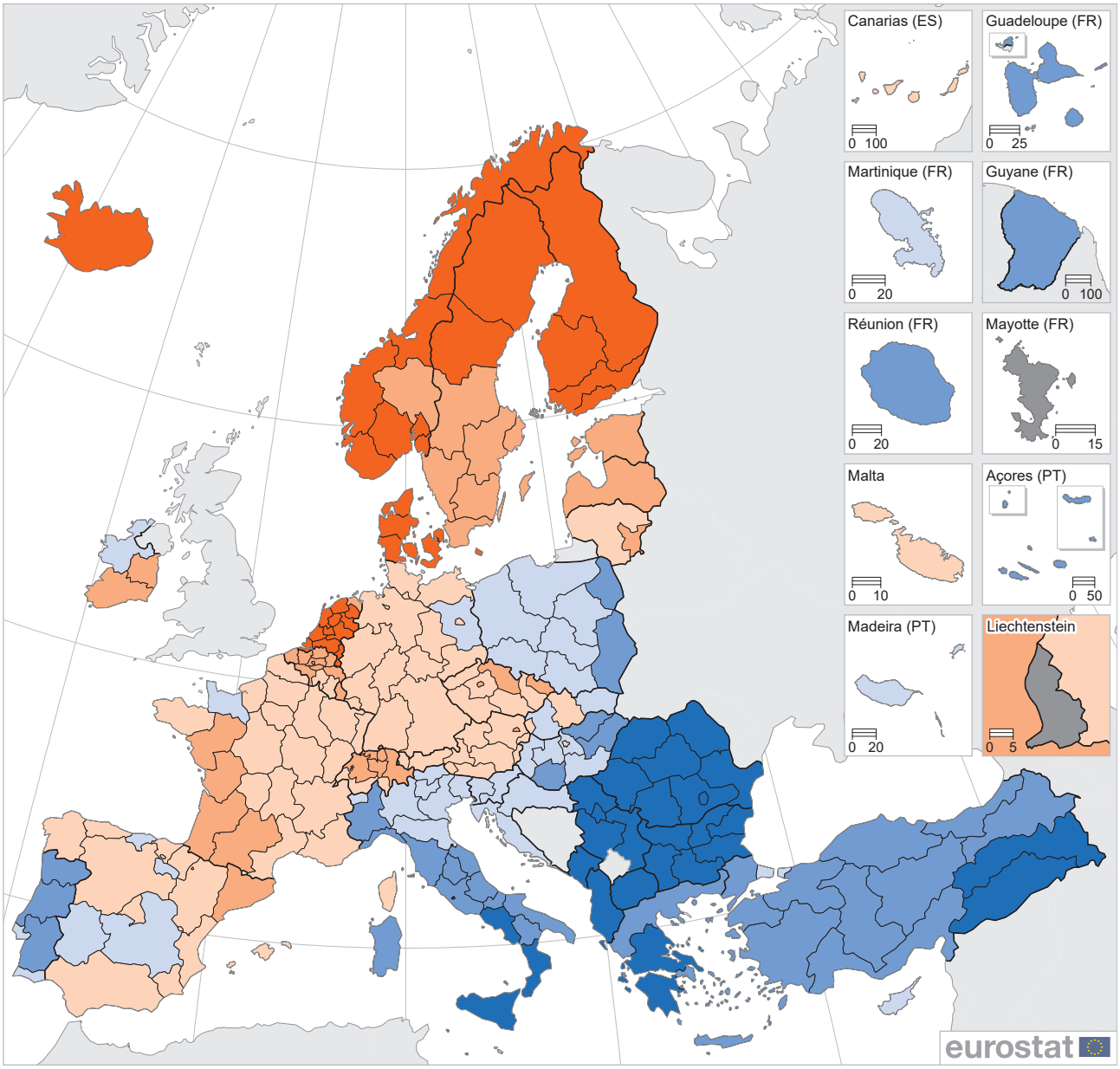
INTERNET BANKING

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, with online transfers and e-payments becoming the norm. Some markets have seen the emergence of internet (or virtual) banks that do not have any physical branches. As such, internet banks eliminate the overheads associated with running local branches and they are often in a better position to offer more competitive services than 'bricks and mortar' banks.

In 2020, almost three fifths (58 %) of the EU's adult population (aged 16-74 years) used the internet for banking during the three months prior to the latest survey. As with most internet activities, there were some quite large differences between age groups concerning the take-up of internet banking. Young people aged 25-34 years were most likely to make use of internet banking (75 %), while the share for older people (aged 65-74 years) was 34 %.

The use of internet banking reflects, to some degree, the availability of broadband internet connections. Nevertheless, an individual's choice as to whether or not they use the internet for banking often comes down to a matter of trust (which may reflect national characteristics). In 2020, at least 70 % of adults made use of internet banking in every NUTS level 2 region of Denmark, Estonia, Latvia, Luxembourg, the Netherlands, Finland and Sweden; note again that data for Germany, Greece and Poland relate to NUTS level 1 regions.

Map 6.3: People using internet banking during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: Germany, Greece, Poland and Turkey, NUTS level 1. Albania: national data. France, Switzerland and Albania: 2019.
Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

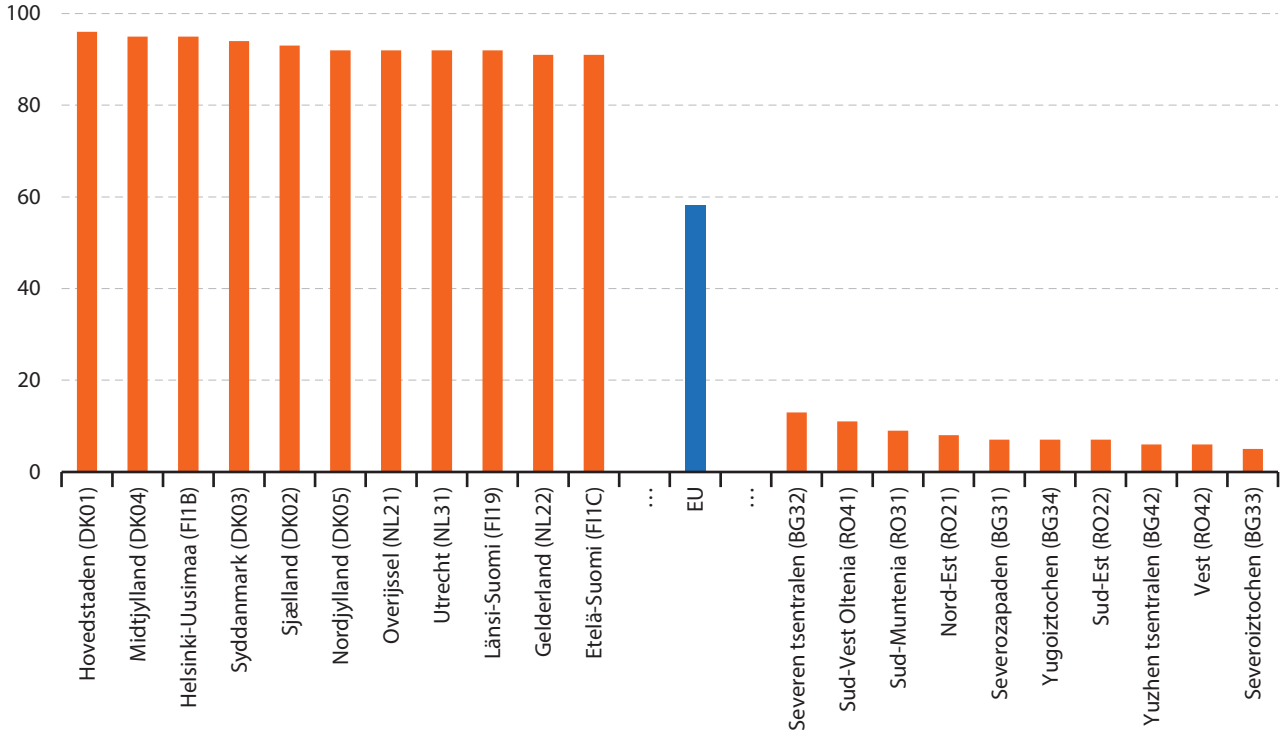
The regions where the use of internet banking was below the EU average (as shown by the blue shades in Map 6.3) were predominantly located in eastern and southern regions of the EU. In 2020, every region of Bulgaria and Romania reported that less than one quarter of all adults made use of internet banking; this was also the case for Calabria in the south of Italy.

More than 19 out of every 20 adults in the Danish capital region of Hovedstaden made use of the internet for banking

Figure 6.3 provides a more detailed set of information concerning the penetration of online banking. In 2020, Hovedstaden (the capital region of Denmark) had the highest share of people using internet banking (96 %), closely followed by Midtjylland (also Denmark) and Helsinki-Uusimaa (the capital region of Finland), both with shares of 95 %. The remaining regions at the top of the list confirmed that consumers in Denmark, the Netherlands and Finland were highly likely to make use of internet banking.

Although people living in rural regions are more likely to face issues in being able to access a physical branch of their bank, the use made of internet banking was generally lower in rural and remote regions (than it was in urban regions). Some of the lowest usage 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, just 22 % of adults from the southern Italian region of Calabria made use of internet banking in 2020, while the corresponding share for the central Greek region of Kentriki Ellada (NUTS level 1) was 27 %. However, as noted above, by far the lowest take-up of internet banking in the EU was recorded across the regions of Bulgaria and Romania. This was particularly notable in Severoiztochen (Bulgaria) and in Vest (Romania), where just 5 % and 6 % of all adults used internet banking in 2020. Issues around access to financial services may explain, at least to some degree, these very low figures, as a relatively high number of people in both Bulgaria and Romania do not possess a bank account.

Figure 6.3: Regions with the highest and lowest shares of people using internet banking during the three months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values. Germany, Greece and Poland: NUTS level 1. France: 2019. Mayotte (FRY5) and Åland (FI20): not available.

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

E-commerce

E-commerce makes it easier for consumers to compare different retail offers. It has the potential to reconfigure the geography of consumption, for example, extending consumer choice and reducing prices in remote regions of the EU, while removing the burden of travelling considerable distances to shop for specific items. As for internet banking, an individual's choice as to whether or not to use e-commerce may in part be related to trust.

The vast majority of retail sales in the EU continue to take place in shops. However, the ability to shop 24 hours a day, coupled with the ease of making electronic payments, is gradually leading to a digital transformation of the EU's retail space, disrupting many aspects of shopping behaviour. This development is believed to have been reinforced during the COVID-19 pandemic.

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 2020, almost two thirds (65 %) of the EU's adult population reported that they had bought/ordered goods or services over the internet in the 12 months prior to the survey. The propensity to make use of e-commerce — as with many other internet activities — is closely linked to age. For example, people aged 25-34 years were 2.5 times as likely to have made use of the internet to buy/order goods or services (83 %) when compared with people aged 65-74 years (33 %). Note however that this digital divide between the generations is gradually closing.

Map 6.4 shows that some of the highest shares of people buying/ordering goods or services over the internet were concentrated in Denmark and the Netherlands. In 2020, each of the 17 NUTS level 2 regions that cover these two EU Member States reported that at least 84 % of all adults made use of e-commerce. There were also several regions in Sweden and the northern half of Germany where a very high proportion of the adult population ordered goods or services over the internet (as shown by the darkest shade of orange); note again that data for Germany, Greece and Poland relate to NUTS level 1 regions.

In approximately one fifth of the NUTS level 2 regions (42 out of 197 regions for which data are available), less than half of the adult population in 2020 ordered goods or services over the internet (as shown by the two darkest shades of blue). The vast majority of these were located in eastern and southern regions of the EU. The propensity to use e-commerce was particularly low in Bulgaria, Romania and central/southern regions of Italy. This may reflect, at least in part, relatively low levels of internet access/use and relatively high numbers of people not possessing a bank account (thereby making it more difficult to pay online).

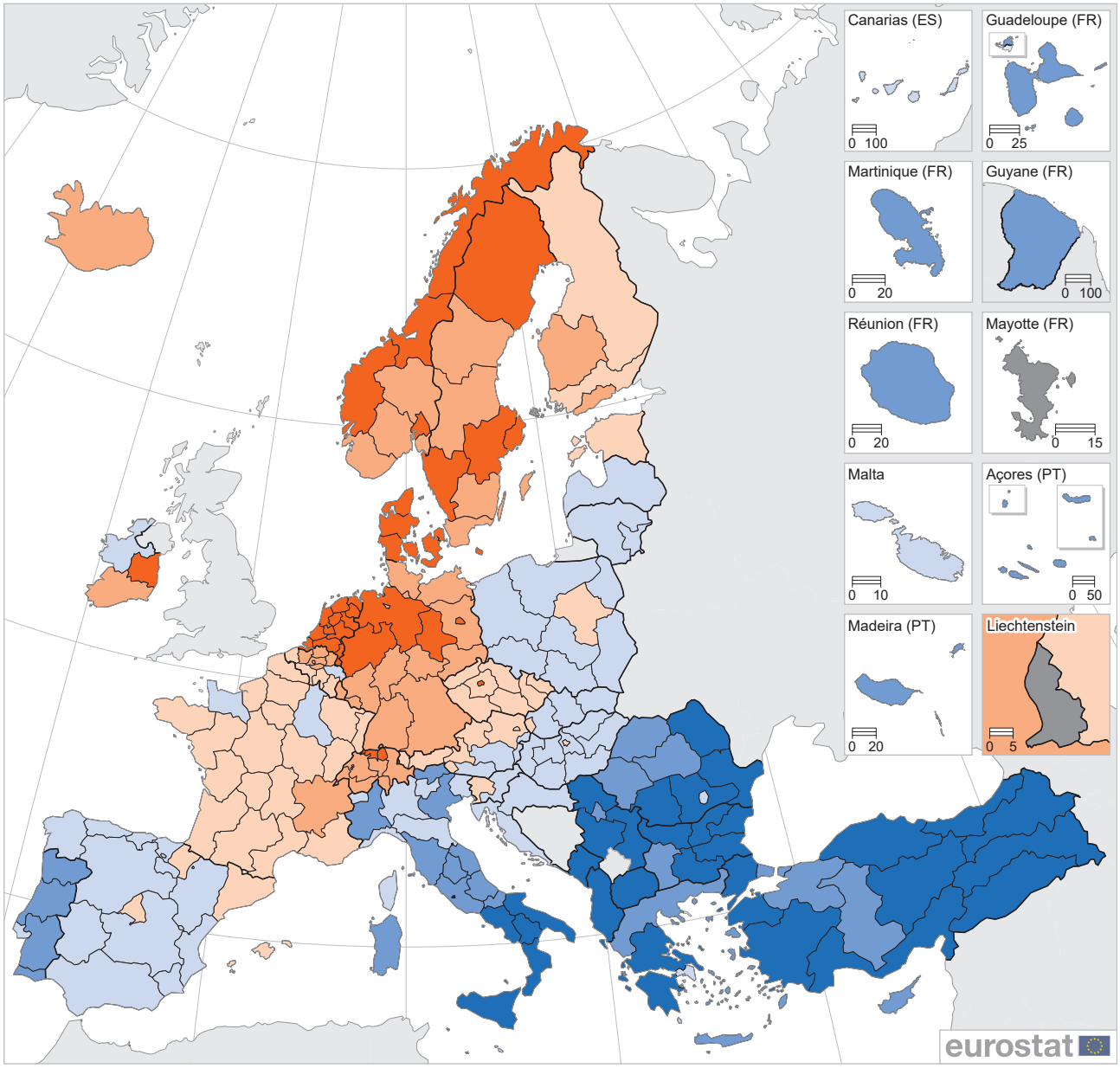
Almost one in five adults in the EU reported that they had never made an online purchase

Map 6.5 shows both the proportion of people using e-commerce and how recently people ordered goods or services over the internet. When surveyed in 2020, more than half (54 %) of all adults in the EU confirmed that they had made an online purchase during the previous three months. Relatively few people made irregular use of e-commerce: 11 % of adults made their last online purchase some 3-12 months before the survey (bringing to 65 % the total for adults having made their last online purchase anytime during the 12 months before the survey) and 5 % made their last online purchase more than a year before. By contrast, the share of adults who reported that they had never made an online purchase was 19 %.

This pattern was repeated in the vast majority (79 out of 91) of NUTS level 1 regions, as the most common response when asked about their most recent online purchase was for people to say that they had made a purchase during the previous three months. There were 13 NUTS level 1 regions where at least three quarters of all adults reported that they had made an online purchase during the previous three months; these regions were located exclusively in Denmark, Germany, the Netherlands and Sweden. The highest shares were recorded in Denmark (79 %), Niedersachsen, Nordrhein-Westfalen, Oost-Nederland and West-Nederland (all 78 %).

There were 11 regions in the EU for which the most common response was to have never made an online purchase. This was the case in every region of Bulgaria and Romania, in Sud and Isole (Italy), as well as in Kentriki Ellada (Greece), Cyprus and Região Autónoma Da Madeira (Portugal).

Map 6.4: People ordering goods or services over the internet for private use during the 12 months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



EU = 65

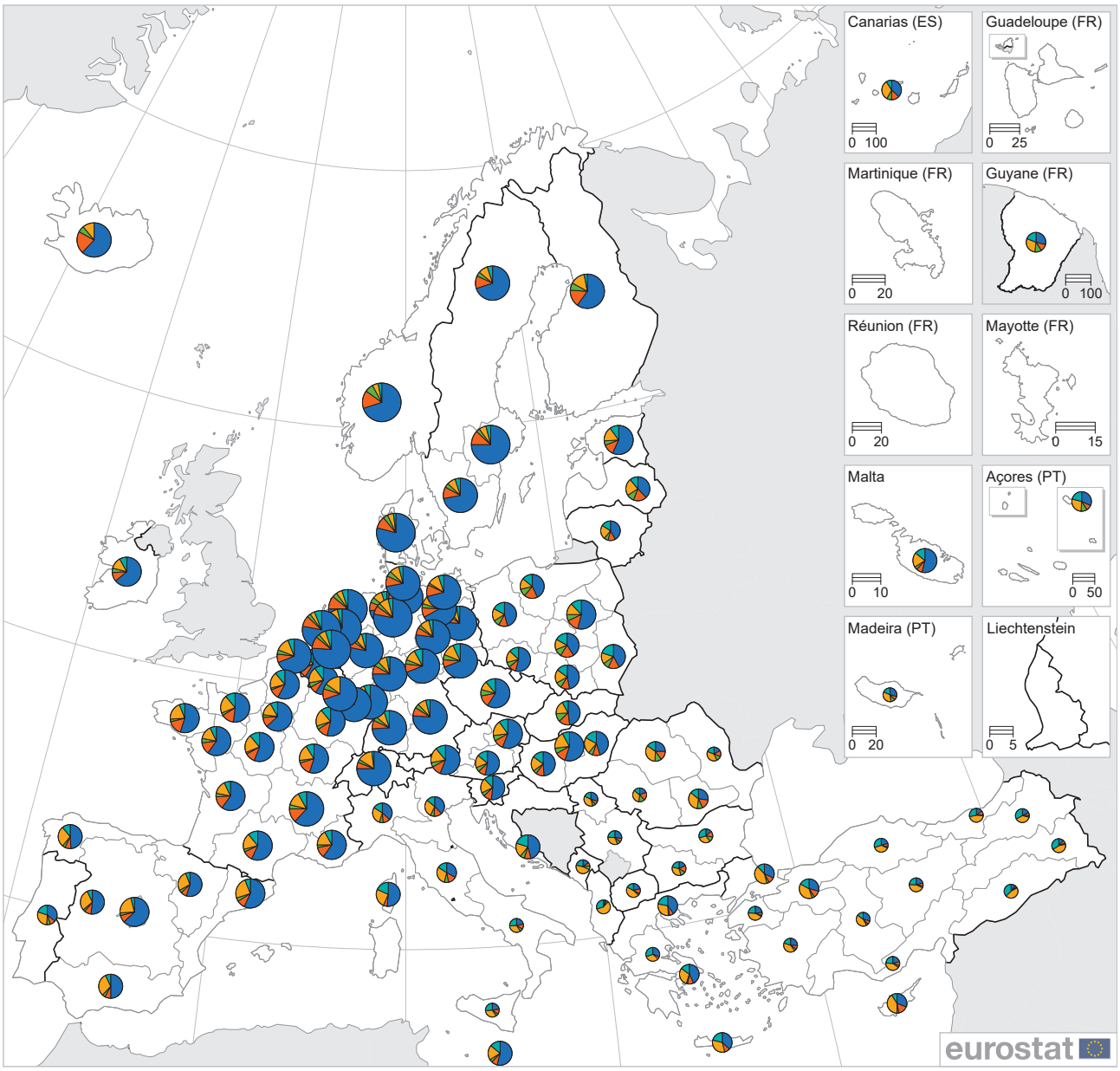
- < 38
- 38 - < 50
- 50 - < 65
- 65 - < 76
- 76 - < 84
- ≥ 84
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: Germany, Greece, Poland and Turkey, NUTS level 1. Albania: national data. France, Switzerland and Albania: 2019.
Source: Eurostat (online data codes: isoc_r_blt12_i and isoc_ec_ib20)

Map 6.5: People ordering goods or services over the internet for private use, 2020
(% of people aged 16-74 years, by NUTS 1 regions)



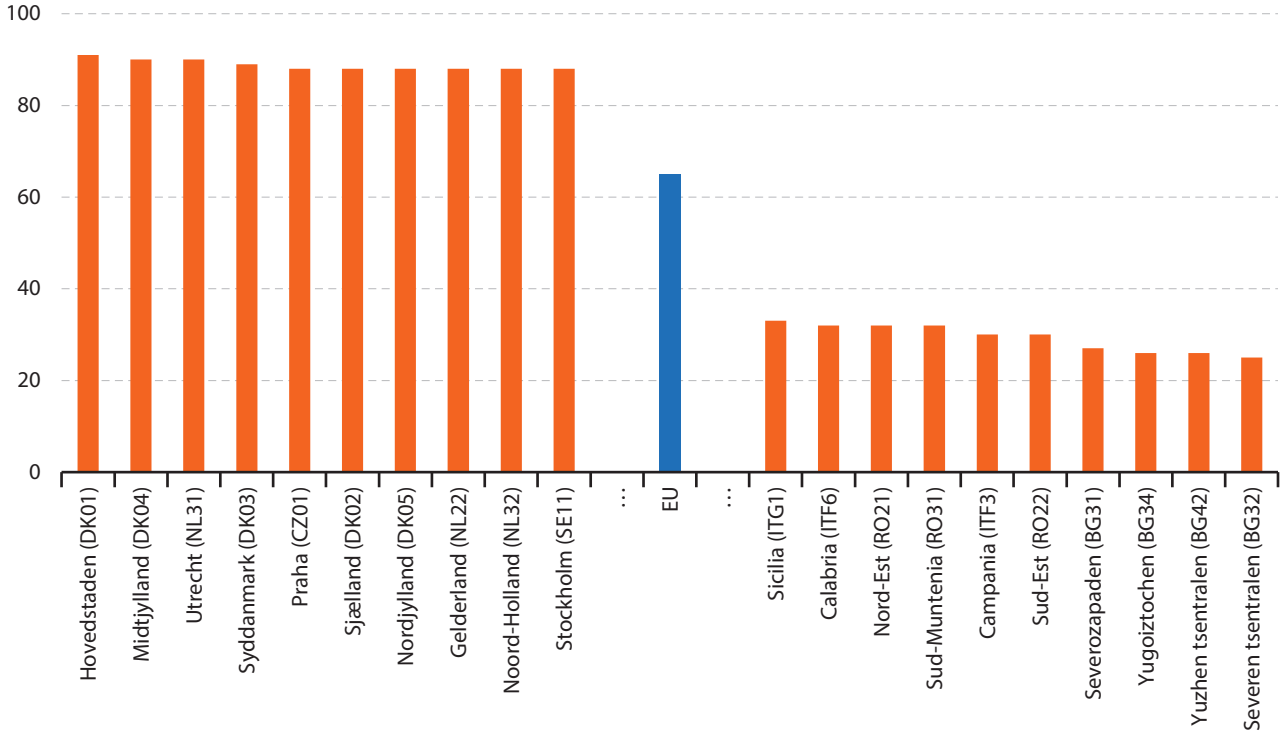
Note: France, Switzerland and Albania, 2019.

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

In 2020, there were three NUTS level 2 regions in the EU where at least 9 out of every 10 adults ordered goods or services over the internet for private use. These were the Danish regions of Hovedstaden (91 %) and Midtjylland (90 %) and the Dutch region of Utrecht (90 %). A high share of the adult population made use of e-commerce in the three remaining Danish regions and in two more regions of the Netherlands, as well as in Praha and Stockholm — the capital regions of Czechia and Sweden.

At the other end of the range, there were 10 NUTS level 2 regions in the EU where less than one third of all adults reported in 2020 that they had made an online purchase during the previous 12 months. These regions were exclusively located in Bulgaria, southern Italy or Romania. Severen tsentralen in Bulgaria (25 %) had the lowest share in the EU.

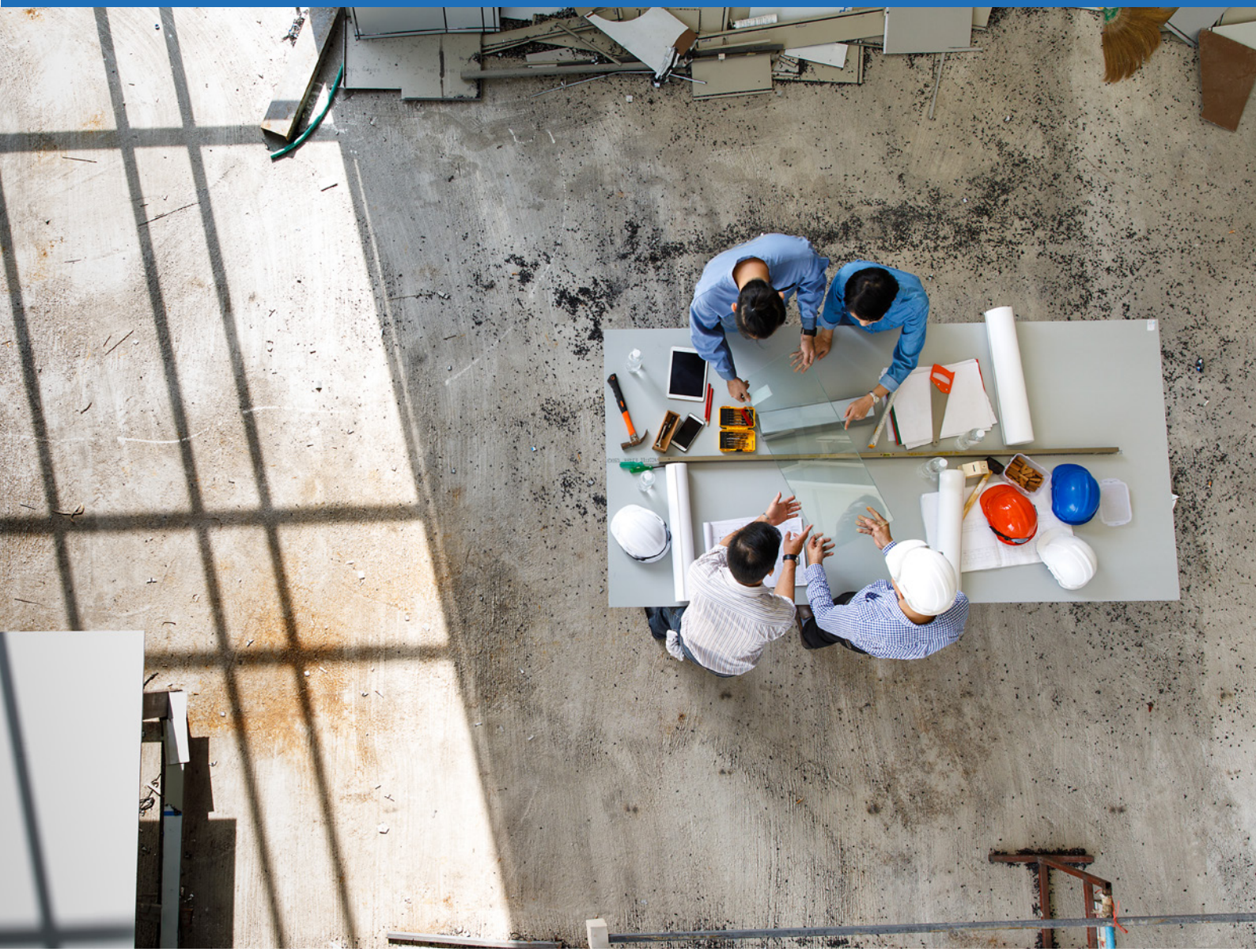
Figure 6.4: Regions with the highest and lowest shares of people ordering goods or services over the internet for private use during the 12 months preceding the survey, 2020
(% of people aged 16-74 years, by NUTS 2 regions)



Note: Germany, Greece and Poland, NUTS level 1. France: 2019. Mayotte (FRY5) and Åland (FI20): not available.
Source: Eurostat (online data codes: isoc_r_blt12_i and isoc_ec_ib20)

B

Economy and business

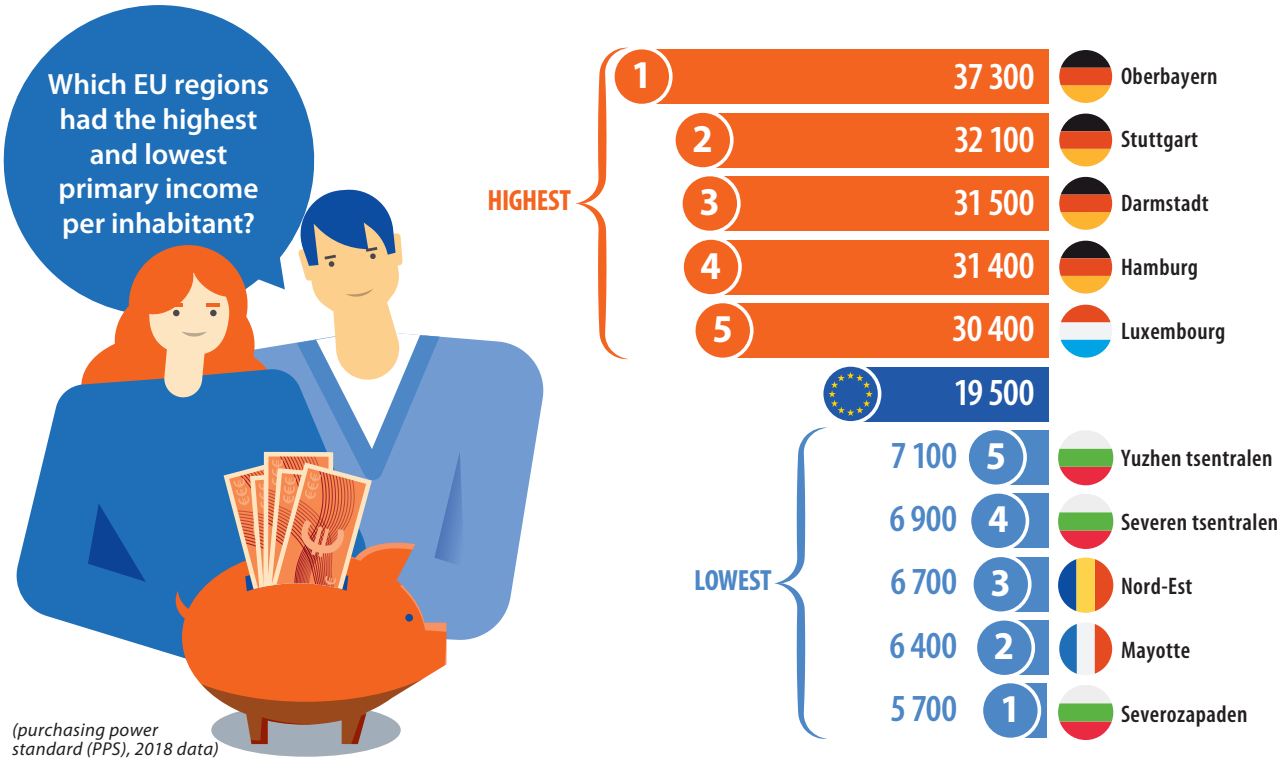


7. Economy

The European Union (EU's) regional policy aims to support broader socioeconomic priorities such as the European Semester and the European Pillar of Social Rights. Regional accounts are important in this context, as they are used to determine the extent to which EU Member States should contribute towards the EU's budget, while also serving as a key element when deciding upon the regional allocation of cohesion policy expenditure.

The EU's regional expenditure has historically been allocated on the basis of gross domestic product (GDP) per capita and gross national income (GNI) per capita. From 2021 onwards, the rules for allocating funding will become simpler and will be tailored to locally-led development strategies that will continue to take account of GDP per inhabitant, alongside information on the socioeconomic and environmental situation (for example, youth unemployment, low levels of educational attainment, the reception and integration of migrants, or climate change).

This chapter starts with information on regional GDP, the principal aggregate for measuring economic output (presented in absolute values and per inhabitant ratios), and the related concept of gross value added. Having looked at GDP from an output approach, the focus of the second and third sections switches to the income of households: the chapter presents data for primary income (from paid work and self-employment, as well as from interest, dividends and rents) per inhabitant and the compensation of employees per hour worked. The final section looks at another indicator related to labour, namely labour productivity (or gross value added per person employed) in order to assess patterns of regional competitiveness.



Source: Eurostat (online data code: nama_10r_2hhinc)

Gross domestic product (GDP)

GDP at market prices in the EU was valued at EUR 14.0 trillion in 2019, equivalent to an average of EUR 31 200 per inhabitant. Behind these overall figures there are considerable differences between EU regions in terms of their economic performance. Among other factors, these might be explained by: the availability of natural and human resources; changes brought about by globalisation, such as the relocation and outsourcing of manufacturing and some service activities; the legacy of former economic systems; socioeconomic developments; geographic proximity or remoteness to markets.

The main focus of the EU's cohesion policy is to help regions converge/catch-up. Many of the less-developed and transition regions in the EU may be characterised as having relatively low-growth, low-income (primarily in eastern, southern and Baltic Member States) or pockets of poverty, social exclusion and/or industrial decline (regions that have been 'left-behind'); these are the regions that receive the bulk of EU regional funds.

The 10 regions with the highest GDP accounted for more than one fifth of the EU's economic output

There are 240 NUTS level 2 regions across the EU for which GDP data are available. Map 7.1 is based on absolute values of regional GDP in euro terms and also the level of GDP per inhabitant (adjusted for purchasing power and then shown as a percentage of the EU average). Note that some of the differences between regions — particularly for the absolute level of GDP — reflect the (sometimes artificial) administrative boundaries that are used to delineate each region.

In 2019, the highest levels of regional GDP were recorded across major hubs of business activity (often within relatively large administrative areas). The French capital region of Île-de-France had by far the largest economy in GDP terms (EUR 739 billion), and was followed by the northern Italian region of Lombardia (EUR 399 billion) and the southern German region of Oberbayern (EUR 281 billion). There were seven more regions in the EU where GDP was EUR 200 billion or more (all shown by the largest circles in Map 7.1), all of which could also be characterised as major hubs of business activity: Lazio (in Italy), Düsseldorf, Stuttgart, Darmstadt (all in Germany), Comunidad de Madrid, Cataluña (both in Spain) and Rhône-Alpes (in France). These 10 regions with at least EUR 200 billion of GDP in 2019 collectively accounted for 21.5 % of the EU's total economic activity. This is largely a result of these major hubs of economic activity also having much higher levels of regional population, although their economic output is typically boosted by commuters who live in surrounding regions. To give an idea of how concentrated economic activity was in these regions, at the other end of the range the smallest 85 regions — which each had a level of GDP that was less than EUR 25 billion — together provided 8.2 % of the EU's economic output.

Map 7.1 also presents information for regional GDP per inhabitant in PPS terms; data are shown as an index relative to the EU average (EU = 100). Those regions considered as relatively 'rich' — where GDP per inhabitant was above the EU average — are shown in orange. In 2019, higher than average levels of GDP per inhabitant were primarily found in a band of regions that ran from the Nordic Member States, down through Germany and the Benelux countries into Austria and

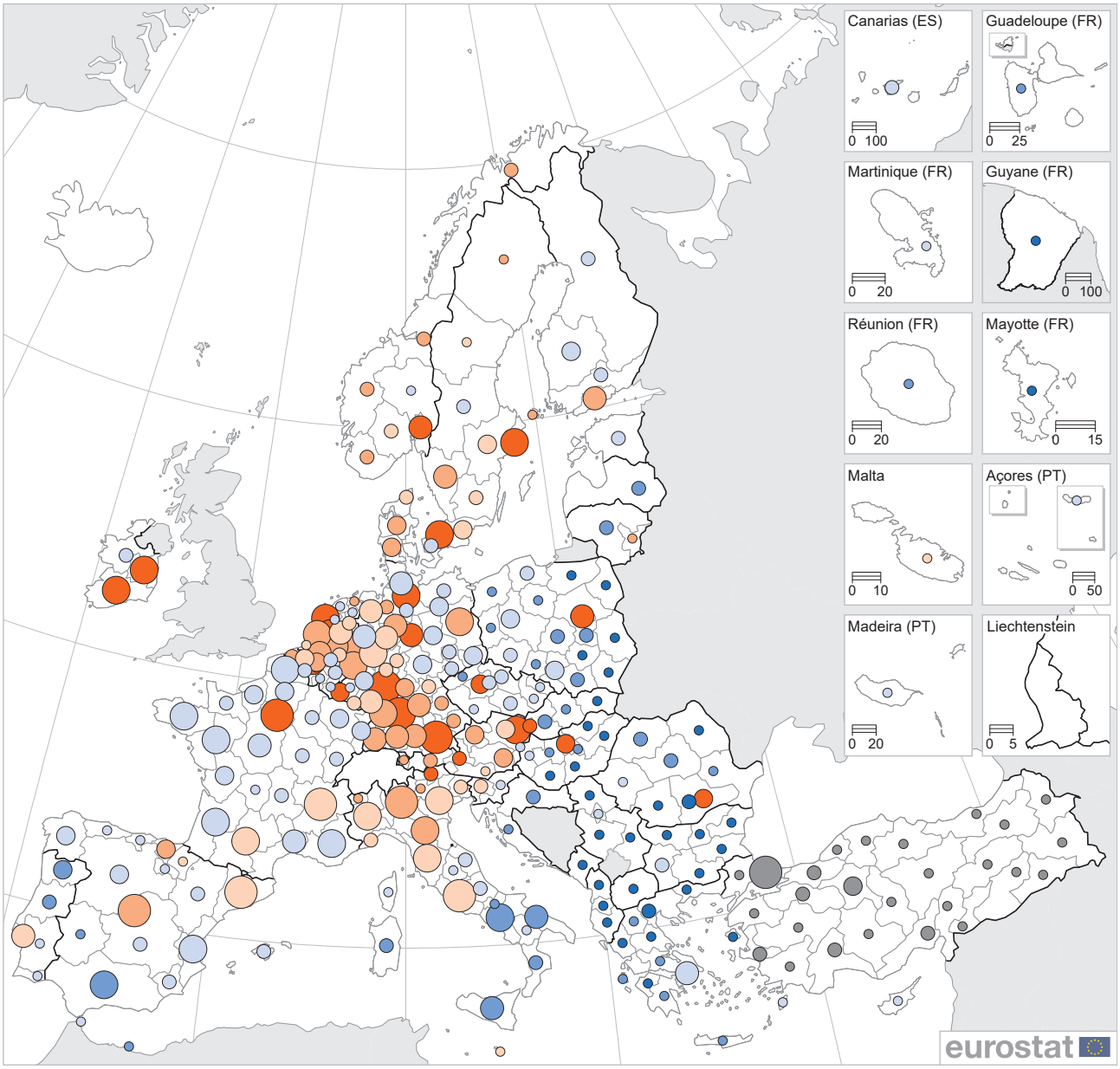
Measuring the size of an economy

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 analysing 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 has been complemented by other indicators as a source of information for informing policy debates on social and environmental aspects of well-being. This is because GDP does not take account of externalities such as environmental sustainability or issues such as income distribution or social inclusion, which are increasingly seen as important drivers for sustainable development and the overall quality of life.

In order to compensate for price level differences across 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). The use of PPS series, rather than euro-based series, tends to have a levelling effect, as countries and regions with very high GDP per inhabitant in euro terms 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).

Map 7.1: GDP and GDP per inhabitant, 2019
(by NUTS 2 regions)



GDP per inhabitant in purchasing power standards (PPS) in relation to the EU average
EU = 100

- < 55
- 55 - < 70
- 70 - < 100
- 100 - < 115
- 115 - < 145
- ≥ 145
- Data not available

GDP (billon EUR)

EU = 13 964

- < 25
- 25 - < 50
- 50 - < 75
- 75 - < 100
- 100 - < 200
- ≥ 200

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Norway, North Macedonia and Albania, 2018.
Source: Eurostat (online data code: nama_10r_2gdp)

northern Italy. Otherwise, there were a few isolated pockets of relatively high regional values for GDP per inhabitant, for example, most of Ireland, specific regions in Spain and France, as well as many capital regions.

The regions in the EU where GDP per inhabitant was less than the EU average are shown in blue in Map 7.1. Regions where GDP per inhabitant was less than 70 % of the EU average (the two darkest shades of blue), were primarily located in a band running from Latvia and Lithuania in the north, down through eastern parts of the EU into Greece and southern Italy, before extending across the Mediterranean Sea to southern regions of Spain and parts of Portugal; most of the régions ultrapériphériques françaises also had GDP per inhabitant that was less than 70 % of the EU average.

GDP per inhabitant in Luxembourg was eight times as high as in Mayotte and Severozapaden

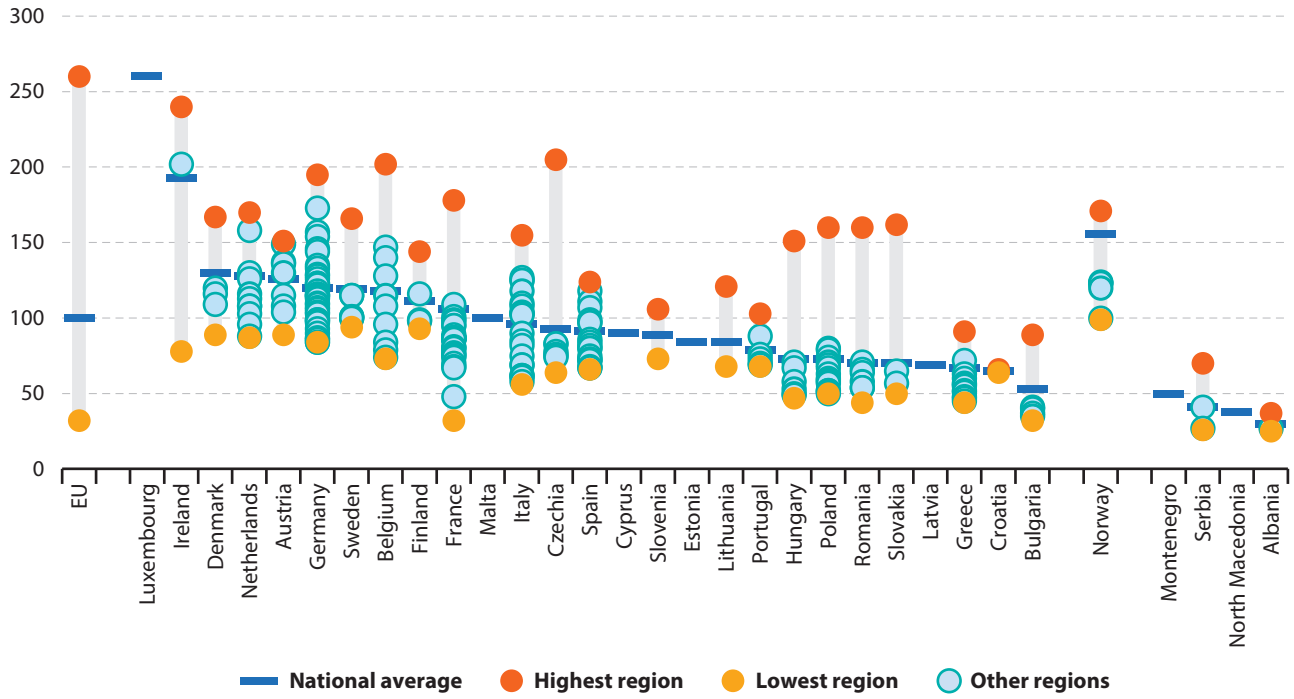
Luxembourg had the highest regional GDP per inhabitant in 2019; its level of economic output was 2.6 times as high as the EU average. There were four other NUTS level 2 regions in the EU where economic output per inhabitant was at least twice as high as the EU average. Two of these regions were in Ireland — Eastern and Midland (the capital region) and Southern — while the third was Praha (the Czech capital region) and the fourth was Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (the Belgian capital region).

The lowest levels of regional GDP per inhabitant in 2019 were recorded in Mayotte (one of the régions ultrapériphériques in France) and Severozapaden (Bulgaria), both of which recorded a level just under one third of the EU average. GDP per inhabitant in Luxembourg was eight times as high as it was in these two regions.

Germany and Italy were characterised by a polycentric pattern of economic development

There are often large differences in the economic performance (measured by GDP per inhabitant) between regions within individual EU Member States and these are illustrated in Figure 7.1. In nearly all Member States composed of more than two NUTS level 2 regions, one region had by far the highest GDP per inhabitant. In several such cases — Bulgaria, Czechia, Denmark, Hungary, Slovakia and Sweden — the region with the highest value was the only region to record GDP per inhabitant that was above the national average. A completely different situation was observed in Austria and Spain, where there was less variation between the regions and a notably smaller gap between the highest and next highest region in terms of their GDP per inhabitant. Although it only had two regions, Croatia was like Austria and Spain, in that there was little difference in the values for the two regions; this can be contrasted with the other two Member States with just two regions, Lithuania and Slovenia, where the capital region had a notably higher value.

Figure 7.1: GDP per inhabitant, 2019
(index based on GDP per inhabitant in purchasing power standards (PPS) in relation to the EU average = 100, by NUTS 2 regions)



Note: ranked on the national average. Norway, North Macedonia and Albania: 2018.
Source: Eurostat (online data code: nama_10r_2gdp)

In particular, there is often a stark contrast between the economic performance of capital regions — which often act as hubs of business (and cultural) activity — and their surrounding regions. In 2019, this pattern was most apparent in eastern EU Member States: for example, Praha (Czechia), Bratislavský kraj (Slovakia), Warszawski stołeczny (Poland), Bucureşti-Ilfov (Romania) and Budapest (Hungary) all featured among the 20 regions in the EU with the highest levels of GDP per inhabitant, while each of the remaining regions within these Member States had levels of economic activity that were below the EU average. A similar pattern, although somewhat less pronounced, could be observed in Lithuania and Portugal.

Many of the EU Member States were characterised by this monocentric pattern of economic development, with regional GDP per inhabitant typically highest in capital regions. The only exceptions (among Member States composed of more than one NUTS level 2 region) were: Germany (where the highest level of GDP per inhabitant was recorded in Hamburg), Ireland (Southern), Italy (Provincia Autonoma di Bolzano/Bozen) and Austria (Salzburg). The situation in Germany and Italy was atypical insofar as they were both characterised by a more polycentric pattern of economic development. Indeed, GDP per inhabitant in the German capital region of Berlin was lower than in 11 of the 37 other German regions, while a similar analysis for Italy reveals that GDP per inhabitant in Lazio was lower than in 5 of the 20 other Italian regions.

Across NUTS level 3 regions, approximately three quarters of the 81 regions with the highest levels of GDP per inhabitant were located in Germany

Map 7.2 provides a more detailed set of information, as it is based on NUTS level 3 regions; note that data for two level 3 regions in Ireland are not available and these have been substituted by making use of the higher aggregate for Southern (a NUTS level 2 region). More detailed data make it possible to have a regional analysis for several of the EU Member States that only have a single NUTS level 2 region: there are only two Member States — Cyprus and Luxembourg — that also remain a single region at NUTS level 3. Furthermore, this more detailed dataset offers a more enlightening regional analysis for those Member States with only two or three regions at NUTS level 2, namely Ireland, Croatia, Lithuania and Slovenia.

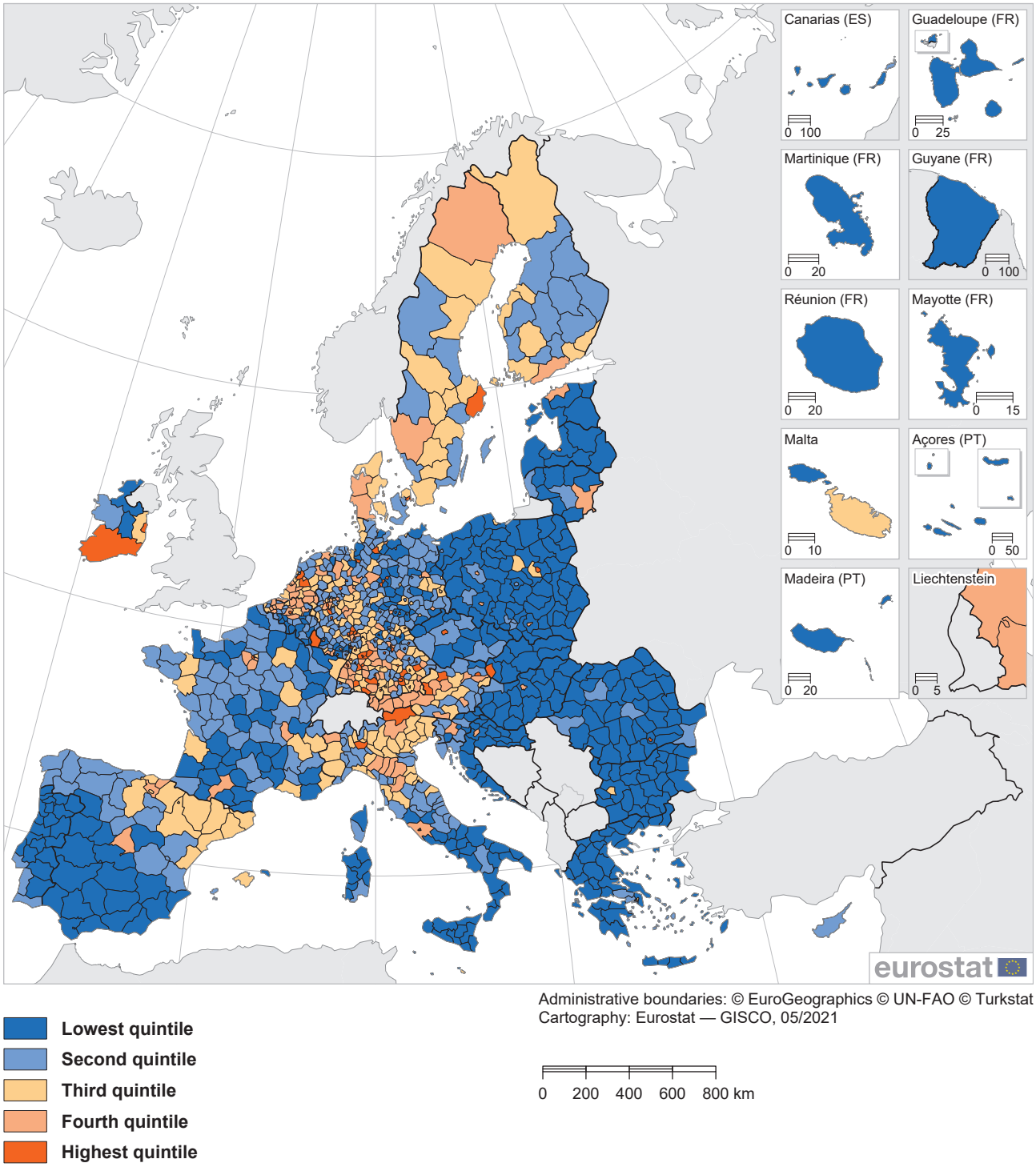
Map 7.2 shows the regional concentration of economic activity within the EU. For each of the 1 167 regions for which data are available in 2018, GDP per inhabitant in PPS was sorted in ascending order. The regions were subsequently divided into five groups (quintiles), each accounting for approximately one fifth (20 %) of the EU's total GDP, some 2.7 trillion (million million) PPS. The regions with the lowest levels of GDP per inhabitant were generally located in Baltic, eastern and southern regions of the EU, although there were also many regions in southern Belgium, much of rural France and predominantly eastern regions of Germany. There were also two regions in Ireland, and single regions in each of the Netherlands and Austria with relatively low levels of GDP per inhabitant. By contrast, the highest levels of GDP per inhabitant were generally located in Germany, as well as more isolated pockets with relatively high living standards in a number of capital regions or other urban regions (such as Milano in Italy, Utrecht in the Netherlands, or Linz-Wels and Salzburg und Umgebung in Austria).

In total, there were 432 regions in the lowest quintile (at the bottom of the distribution), where GDP per inhabitant was in the range of 7 000 PPS (Silistra; Bulgaria) up to 23 100 PPS. The second quintile was composed of 322 regions that had GDP per inhabitant within the range of 23 200 PPS to 29 600 PPS. The third quintile was composed of 206 regions where GDP per inhabitant was close to the EU average of 30 200 PPS. Those regions with GDP per inhabitant considerably above the EU average are shown in the two darker shades of orange in Map 7.2. The fourth quintile was composed of 126 regions where GDP per inhabitant was within the range of 35 500PPS to 45 400 PPS. Finally, at the upper end of the distribution, there were just 81 regions that made up the highest (or fifth) quintile, with GDP per inhabitant in the range of 45 500 PPS to 166 500 PPS (Wolfsburg; Germany).

In this upper quintile there were 61 German regions (which together contributed 37 % of the total GDP for the fifth quintile), three Austrian regions, two regions each from Denmark, France, Ireland (note one of these was a NUTS level 2 region), Italy and the Netherlands, and one region each from Belgium, Czechia, Luxembourg, Poland, Romania, Slovakia and Sweden.

As noted above, for certain EU Member States and/or regions, commuting flows are very important. The economic activity taking place in region A may result from the work of people living in a neighbouring or nearby region B, which may even be in another Member State (for example, people crossing the border from neighbouring Belgium, Germany and France to work in Luxembourg). Two neighbouring NUTS level 3 regions in Germany — Wolfsburg and Helmstedt — illustrate this situation. Wolfsburg was the EU region with the highest level of GDP per inhabitant in 2018, at 166 500 PPS, while the neighbouring region of Helmstedt had a GDP per inhabitant that was considerably less than the EU average, at 18 300 PPS. This difference — with GDP per inhabitant some 9.1 times as high in Wolfsburg as in Helmstedt — can be principally attributed to commuting flows.

Map 7.2: Distribution of regional GDP in the EU, 2018
(based on GDP per inhabitant in PPS, by NUTS 3 regions)



Note: NUTS level 3 regions were ranked according to their GDP per inhabitant (in PPS) into five roughly equal groups (quintiles), each contributing one fifth of the EU's GDP (in PPS). Southern (IE05): NUTS level 2.

Source: Eurostat (online data code: nama_10r_3gdp)

Value added developments

When calculated from the output side, the main component of GDP is value added. This is defined as output (at basic prices) minus intermediate consumption (at purchaser prices) and is the balancing item of the national accounts' production account. Value added can be analysed according to activity (for example, manufacturing or transport services) and by institutional sector (for example, government, households, financial corporations and non-financial corporations). The difference between value added and GDP is the treatment of some taxes and subsidies on products.

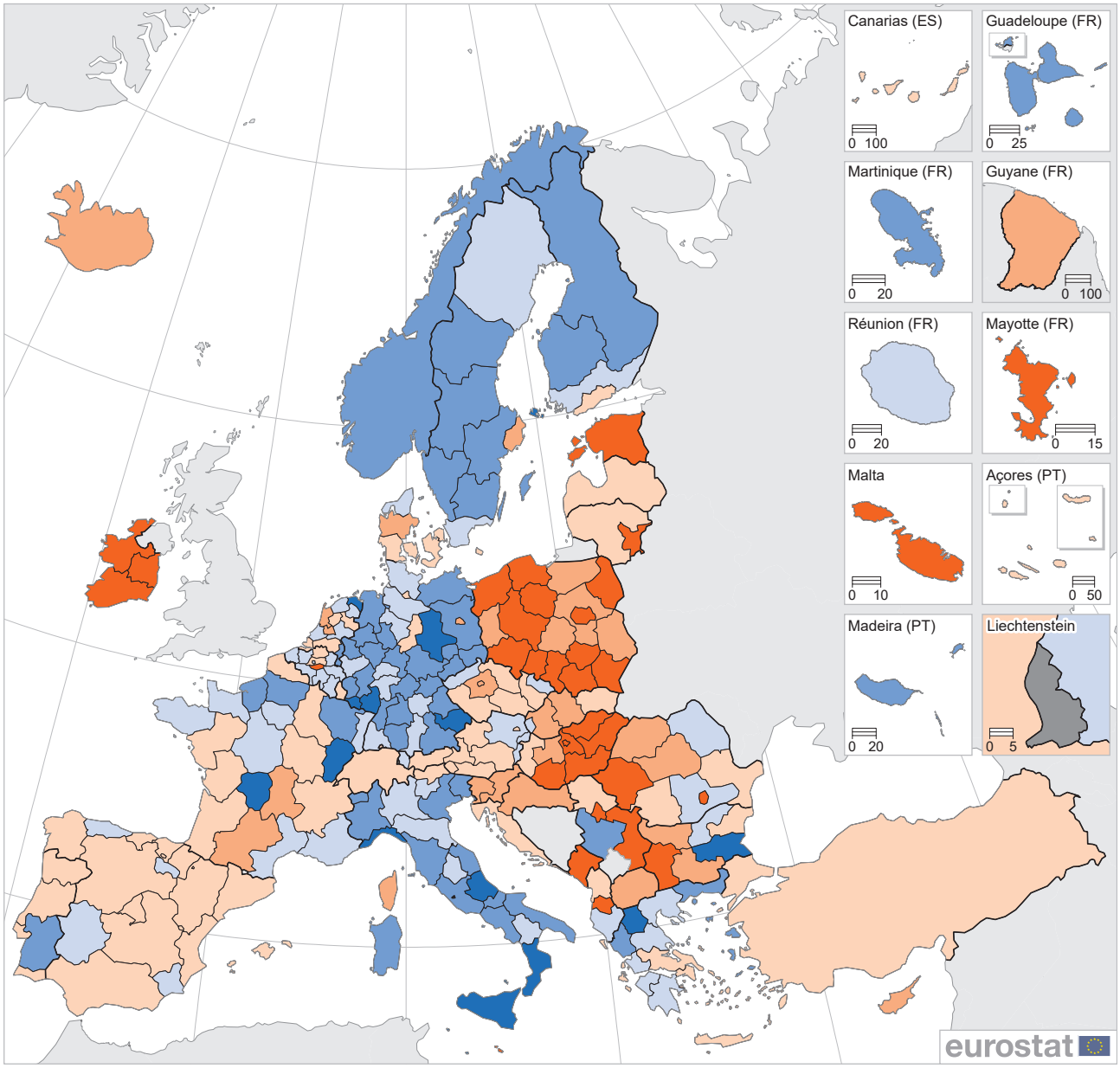
In the two years from 2017 to 2019, value added in the EU increased by an average of 1.8 % per year. Note that this is a real rate of change, in other words the effects of inflation have been removed from it. Data for this rate of change are shown in Map 7.3 and are available for 240 regions in the EU; note that for several regions data are presented for 2016-2018 rather than for 2017-2019.

In 14 NUTS level 2 regions, a negative rate of change was recorded for developments in gross value added over the period 2017-2019 (shown in Map 7.3 with the darkest shade of blue). Among these, 12 were in western and southern EU Member States, mainly in southern Italy, Germany and France, along with one region each in Greece (2016-2018) and the Netherlands. Negative rates of change were also recorded in one Bulgarian and one Finnish region. Åland in Finland recorded the largest decrease in value added, down on average by 2.4 % per year.

The two regions with the fastest growth rates for value added were both in Ireland; more generally, the fastest growth rates were in eastern and Baltic Member States

In the remaining regions, no change was recorded in three regions — Trier, Thüringen (both Germany) and Norra Mellansverige (Sweden) — and there was growth in 223 regions. The largest increases in value added, averaging 4.5 % per year or more, were recorded in 29 regions. These were principally located in Poland (12 regions; 2016-2018) and Hungary (6 regions; 2016-2018), but were also found in Ireland (three regions), Romania (two regions), and Belgium, Bulgaria, Estonia, France, Lithuania and Malta (one region each). The Irish capital region (Eastern and Midland) had the fastest value added growth, up 8.5 % per year on average. This was followed by Southern (also in Ireland) and the Polish capital region (Warszawski stołeczny; 2016-2018) with growth of 6.8 % and 6.7 % per year respectively.

Map 7.3: Average annual rate of change of gross value added, 2017-2019
(% per year, by NUTS 2 regions)



EU = 1.8

- < 0.0
- 0.0 - < 1.0
- 1.0 - < 1.8
- 1.8 - < 3.0
- 3.0 - < 4.5
- ≥ 4.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

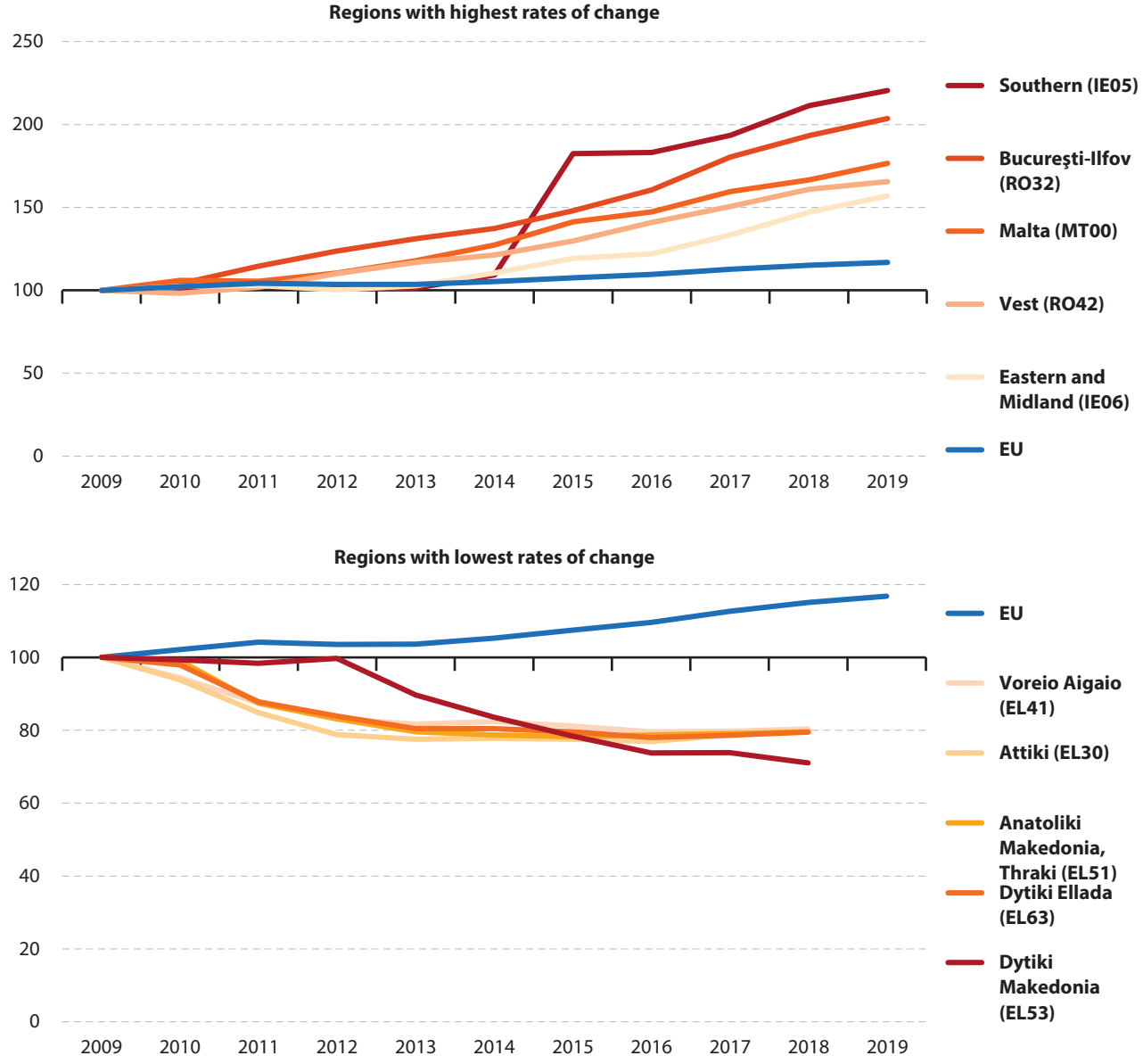
Note: Norway, Switzerland and Turkey, national data. Greece, Croatia, Hungary, Poland, Montenegro, Albania and Serbia: 2016-2018.
Source: Eurostat (online data codes: nama_10r_2gvagr and nama_10_gdp)

Figure 7.2 also presents information concerning the real development of value added, but over a longer period of time. The figure shows developments for the EU as well as for the five regions with the highest and lowest rates of change between 2009 and 2019. Over this 10-year period, value added in the EU increased overall by 16.8 %, equivalent to 1.6 % per year.

The fastest value added growth during this period in any of the EU regions was 120.4 % (equivalent to 8.2 % per year), which was recorded in Southern (Ireland). The Romanian capital region (Bucureşti-Ilfov) also reported that value added more than doubled (up 103.6 %) in real terms during this period.

Among the 213 regions for which a time series from 2009 to 2019 is available (from 2009 to 2018 for regions of some EU Member States), 28 reported a lower value added at the end of this period than at the beginning. Nearly half of these (13) were in Greece (2009-2018), 10 were in Italy, three in Romania and one each in Finland and the Netherlands. The five largest falls — as shown in the bottom half of Figure 7.2 — were all in Greece. Between 2009 and 2018, value added decreased 28.9 % in Dytiki Makedonia, equivalent to a fall of 3.7 % per year. The Greek capital region (Attiki) recorded a 20.3 % fall (down 2.5 % per year).

Figure 7.2: Development of gross value added in selected regions, 2009-2019
(index based on 2009 = 100, by NUTS 2 regions)



Note: the difference in the scales used for the y-axes. Greece, Croatia, Hungary and Poland: 2009-2018. Greece and Poland: break in series, 2010. France: not available (incomplete data).

Source: Eurostat (online data codes: nama_10r_2gvagr and nama_10_gdp)

Income

The information presented above has already highlighted that wealth creation is often concentrated in capital and other major urban regions across the EU. However, it is likely that part of the income generated in these hubs of business activity may be attributed to commuters who live in surrounding regions (where the price of property and cost of living may be lower, among other possible advantages). As a result, GDP per inhabitant in capital and urban regions tends to be relatively high compared with income measures, whereas surrounding regions are often characterised by relatively high levels of income per inhabitant when contrasted with their economic output.

PRIMARY INCOME PER INHABITANT

Primary income covers income from paid work and self-employment, as well as from interest, dividends and rents. In 2018, EU primary income per inhabitant averaged 19 500 PPS; the use of data in PPS based on consumption (rather than in euro terms) takes account of price level differences between countries and also reflects the fact that household expenditure is predominantly related to consumption.

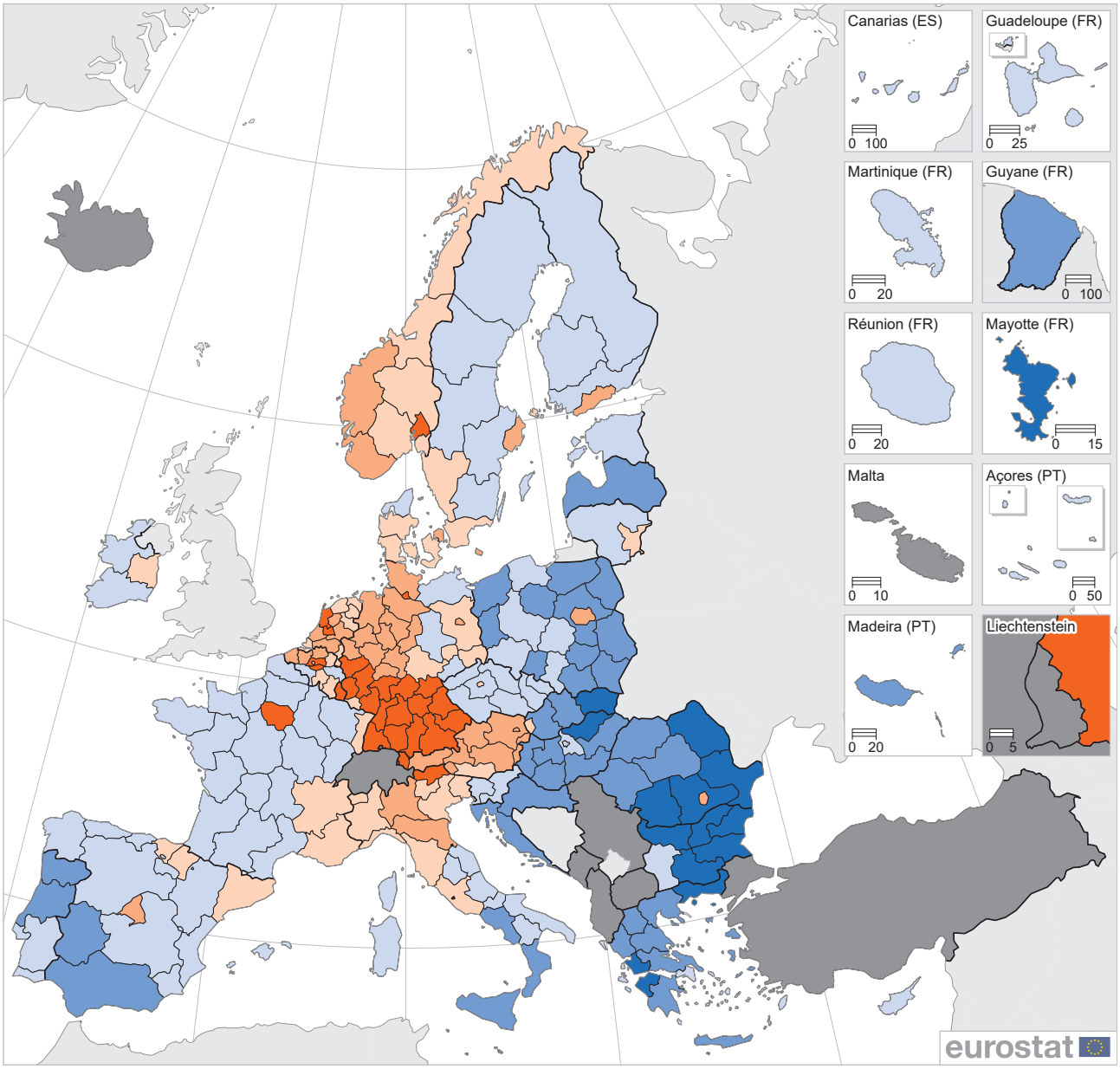
Oberbayern had the highest level of primary income per inhabitant

In 2018, there were 25 regions spread across seven different EU Member States where income per inhabitant was at least 26 500 PPS; these are shown by the darkest shade of orange in Map 7.4. A majority (17 regions) of these were located in Germany, with the highest income levels predominantly found in western (rather than eastern) regions. Five more regions were in Benelux Member States and the remaining three in France, Italy and Austria.

At the other end of the range, there were 14 regions (spread across six different EU Member States) where primary income per inhabitant was less than 10 000 PPS in 2018 (shown by the darkest shade of blue in Map 7.4). These regions were mainly concentrated in south-eastern Europe — all but one of the six regions that compose Bulgaria (the exception being the capital region of Yugozapaden), half of the eight regions that compose Romania and two Greek regions — but also included one region each from France, Hungary and Slovakia.

In 2018, primary income ranged from a high of 37 300 PPS per inhabitant in Oberbayern (Germany) down to 5 700 PPS in Severozapaden (Bulgaria). As such, the average level of income in Oberbayern was around seven times as high as the level recorded in Severozapaden. Three more German regions featured at the top of the ranking with the highest levels of income per inhabitant — Stuttgart, Darmstadt and Hamburg — and they were followed by Luxembourg. Note that Luxembourg had the second highest level of income in euro terms (EUR 39 500 per inhabitant) — behind Oberbayern (EUR 39 600 per inhabitant) — although Luxembourg' relatively high cost of living meant that it ranked fifth when analysing the data in PPS terms.

Map 7.4: Primary income per inhabitant, 2018
(purchasing power standard (PPS), by NUTS 2 regions)



EU = 19 500

- < 10 000
- 10 000 - < 13 000
- 13 000 - < 19 500
- 19 500 - < 23 000
- 23 000 - < 26 500
- ≥ 26 500
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Source: Eurostat (online data code: nama_10r_2hhinc)

Compensation of employees

One of the principal areas of interest/concern for many employees is their level of remuneration. 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 terms.

The highest level of employee compensation was recorded in Luxembourg

In 2018, employees working in the EU received an average of EUR 23.3 in gross compensation for each hour that they worked. The highest level of employee compensation was recorded in Luxembourg (EUR 46.9 per hour), while the lowest was in the Bulgarian region of Severen tsentralen (EUR 4.4 per hour). As such, the ratio between the highest and lowest levels of employee compensation was 11 : 1.

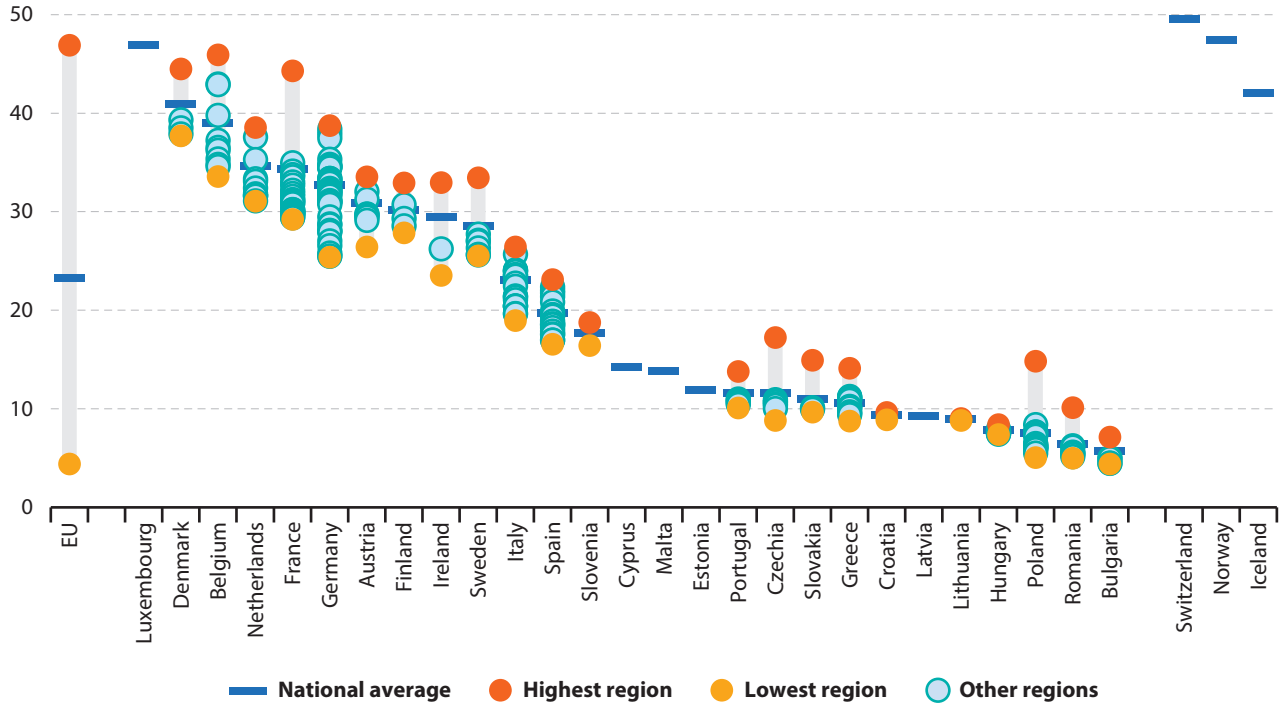
Capital regions often recorded the highest levels of employee compensation, which is perhaps unsurprising given the relatively high cost of living in these regions and the fact that they are often the location for company headquarters and national administrations. This pattern was repeated in a majority of multi-regional EU Member States in 2018: Figure 7.3 shows that the only exceptions were Oberbayern (that had the highest level of compensation per hour worked in Germany), Dytiki Makedonia (Greece), País Vasco (Spain) and Provincia Autonoma di Bolzano/Bozen (Italy).

There were six NUTS level 2 regions in the EU where the level of employee compensation was above EUR 40.0 per hour. Aside from Luxembourg, they were: the Belgian capital region (EUR 45.9 per hour); the Danish capital region (EUR 44.5); the French capital region (EUR 44.3); and two other Belgian regions that surround the Belgian capital — Prov. Vlaams-Brabant and Prov. Brabant Wallon (EUR 43.0 and EUR 42.9).

As for the analysis of GDP per inhabitant shown in Figure 7.1, it was not uncommon for one region — often the capital region — to have a notably higher level of average employee compensation per hour worked than all other regions in an EU Member State. In some of the Member States with more than two regions, the region with a particularly high value was the only one with a ratio that was above the national average; this occurred in Bulgaria, Czechia, Denmark, Ireland, Portugal, Romania, Slovakia and Sweden.

Among all EU Member States with at least two regions, the range in the regional values of the average employee compensation per hour worked within each Member State (calculated as the highest values as a percentage of the lowest value) was often narrower than the equivalent range for regional GDP per inhabitant; the only exception was Croatia (where it was marginally wider).

Figure 7.3: Compensation of employees, 2018
(EUR per hour worked, by NUTS 2 regions)



Note: ranked on the national average. Norway and Switzerland: national data.

Source: Eurostat (online data codes: nama_10r_2emhrw, nama_10r_2coe, nama_10_a10_e and nama_10_a10)

Labour productivity

Labour productivity may be defined as gross value added divided by a measure of labour input, typically either the number of persons employed or the number of hours worked. When based on a simple headcount of labour input, as in Map 7.5 and Figure 7.4, changes observed for this indicator can, at least to some degree, reflect changes in the structure of the employment market. For instance, the ratio falls if there is a shift from full-time to part-time work.

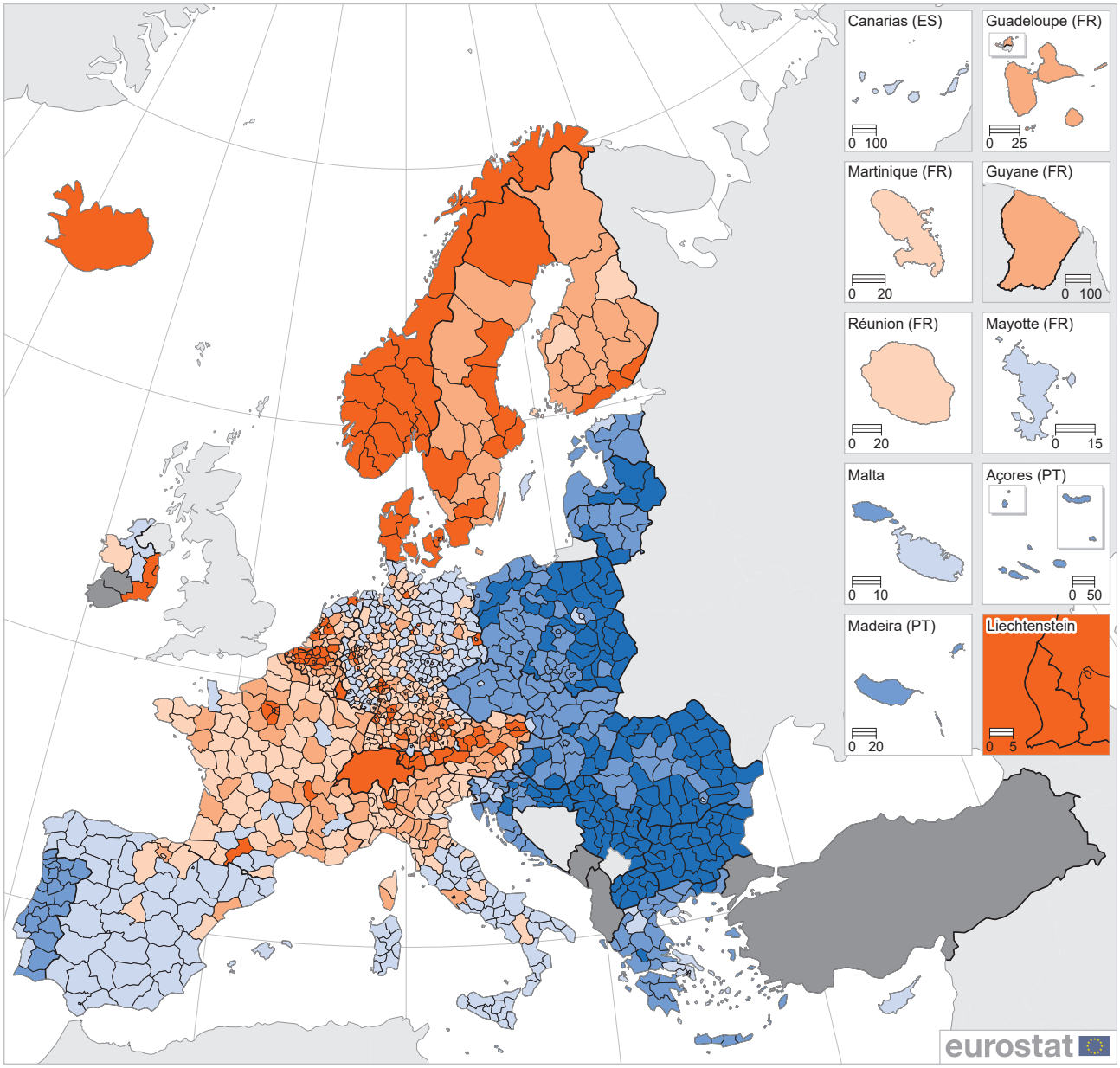
High regional levels of labour productivity may be linked to the efficient use of labour and/or reflect the skills and experience of the labour force. These in turn may result from the specific mix of activities present in each regional economy as some activities — for example, knowledge-intensive industrial activities, business or financial services — tend to be characterised by higher levels of labour productivity (as well as higher average employee compensation).

In 2018, an average of EUR 58 400 of value was added for each person employed in the EU. This figure can be used as the basis for deriving a set of labour productivity indices, which are presented relative to the EU average = 100 (see Map 7.5). There were six NUTS level 3 regions where labour productivity was more than twice as high as the EU average in 2018: three of these were situated in Germany and one each in Ireland, France and Luxembourg. The highest average labour productivity was EUR 161 700 per person employed in Dublin (Ireland), in other words 277.0 % (or nearly three times as high as) the EU average.

At the other end of the range, there were 25 NUTS level 3 regions in the EU where labour productivity was less than one fifth of the EU average in 2018, 21 of which were located in Bulgaria and the remaining four in Romania. The lowest level of labour productivity — EUR 7 600 per person employed — was recorded in Silistra in Bulgaria, equivalent to 13.0 % of the EU average.

As for GDP per inhabitant and for employee compensation, in a majority of the multi-regional EU Member States (only Cyprus and Luxembourg are mono-regional at NUTS level 3) the highest levels of labour productivity were often recorded in capital regions. Nevertheless, there were quite a few exceptions, where the highest labour productivity was recorded in a region other than the capital region: Københavns omegn (Denmark; note that this is the area around the centre of the capital), Wolfsburg, Kreisfreie Stadt (Germany), Tarragona (Spain), Hauts-de-Seine (France; note that this is an area around the western side of the capital), Milano (Italy), Kauno apskritis (Lithuania), Győr-Moson-Sopron (Hungary), Rheintal-Bodenseegebiet (Austria) and Alentejo Litoral (Portugal).

Map 7.5: Labour productivity, 2018
(index based on EUR per person employed in relation to the EU average = 100, by NUTS 3 regions)



EU = 100.0
- < 37.5
- 37.5 - < 66.0
- 66.0 - < 100.0
- 100.0 - < 113.5
- 113.5 - < 128.0
- ≥ 128.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Iceland and Switzerland, national data. Liechtenstein: 2017.
Source: Eurostat (online data codes: nama_10r_3gva, nama_10r_3empers, nama_10_a10 and nama_10_a10_e)

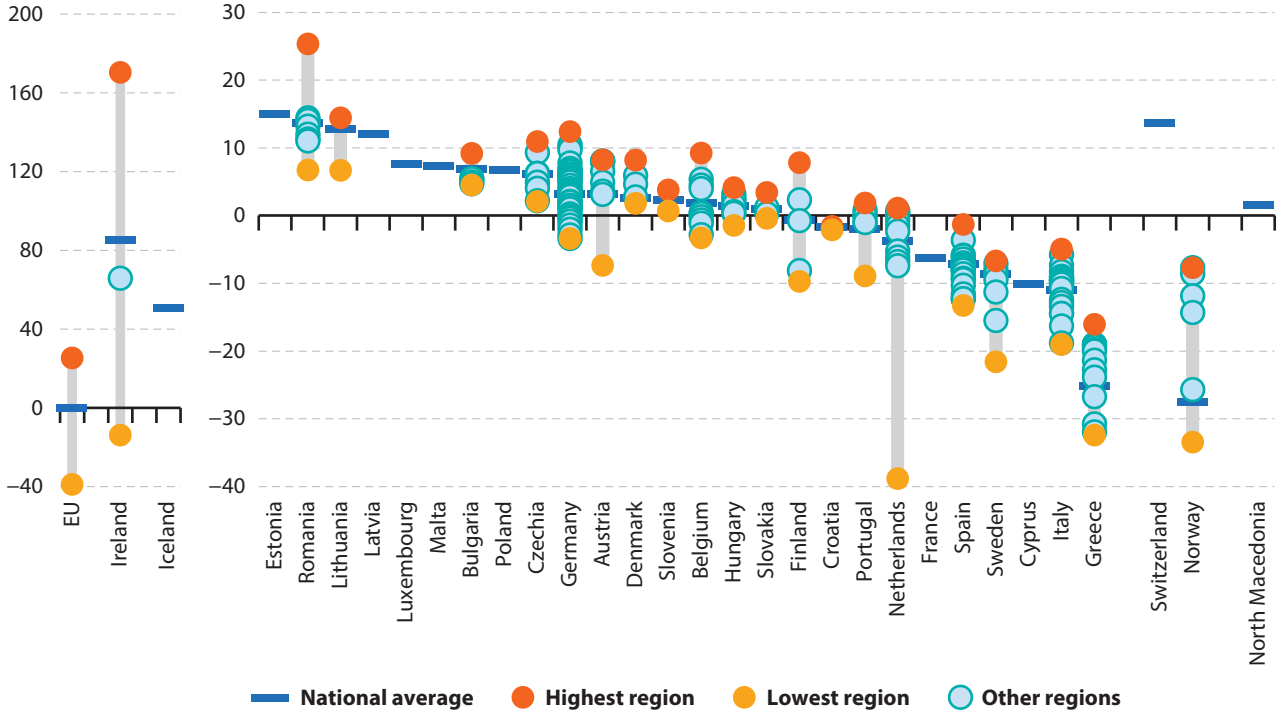
The final analysis in this section shows the change between 2010 and 2019 in the labour productivity of NUTS level 2 regions compared with the EU average. In absolute terms, average labour productivity in the EU rose in current prices from EUR 50 300 per person employed in 2010 to EUR 59 700 per person employed in 2019, an overall increase of 18.7 %. There were 15 regions in the EU where labour productivity was actually lower in 2019 than it had been in 2010: all 13 Greek regions, Molise in Italy and Groningen in the Netherlands; note that regional data are not available for this indicator for France or Poland.

Figure 7.4 does not directly show the change in productivity (which would be influenced by inflation): instead it shows the percentage point change in the labour productivity of each region expressed as a percentage of the EU average. As such it indicates whether labour productivity has increased more or less than the EU average between 2010 and 2019. Clearly the 15 regions that experienced an actual fall in labour productivity had a lower productivity as a percentage of the EU average in 2019 than they had in 2010. A further 81 regions also recorded a fall in labour productivity relative to the EU average. By contrast, 100 regions recorded a rise in labour productivity relative to the EU average.

Relative to the EU average, all regions of Greece, Spain, Croatia, Italy and Sweden recorded a fall in relative labour productivity. A relative fall was also recorded in at least half of the regions in the Netherlands, Portugal and Finland. By contrast, an increase in relative labour productivity was observed in most regions of Belgium and Germany, all but one region of Ireland, Hungary, Austria and Slovakia, and all of the regions in Bulgaria, Czechia, Denmark, Lithuania, Romania and Slovenia. The remaining EU Member States either only have national data (France and Poland) or have only one region at NUTS level 2: the labour productivity of France and Cyprus fell relative to the EU average, while that of Estonia, Latvia, Luxembourg, Malta and Poland increased.

Looking at individual regions, the largest fall in labour productivity relative to the EU average was observed in Groningen, down 38.8 percentage points; 10 of the next 11 largest falls were in Greek regions, while there was also a considerable reduction in relative labour productivity in the Swedish region of Mellersta Norrland. By far the largest increase in labour productivity relative to the EU average was observed in the Southern region of Ireland, where productivity relative to the EU average increased by 170.4 points. The second largest increase was in the Irish capital region (up 65.8 points) and the third was in the Romanian capital region (up 25.4 points).

Figure 7.4: Change in relative labour productivity, 2010-2019
(percentage points, index in relation to the EU average = 100, by NUTS 2 regions)



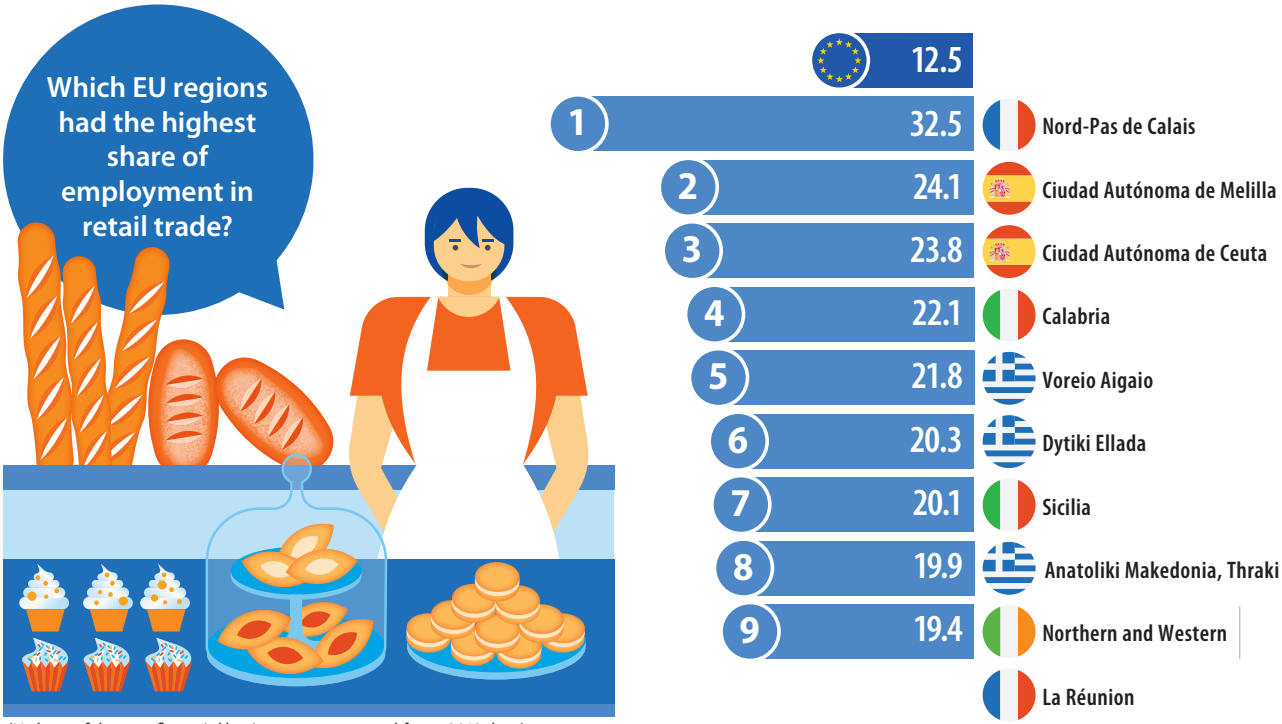
Note: the figure is divided into two parts (with different y-axes). Ranked on the national average. The difference in percentage points is calculated as the index for the later period (2019) minus the index for the earlier period (2010). France, Poland and Switzerland: national data. Norway and North Macedonia: 2010-2018.

Source: Eurostat (online data codes: nama_10r_3gva, nama_10r_3empers, nama_10_a10 and nama_10_a10_e)

8. Business

Businesses in the European Union (EU) are leaders in many industrial, construction-related and service sectors. However, the global business environment continues to undergo rapid change. This may take the form of technological change, developing patterns of trade and investment, increased awareness of environmental responsibilities, sudden economic shocks (such as the COVID-19 pandemic), or the introduction of new and more flexible working practices. Many of these changes threaten to disrupt markets or impact how businesses work. To remain competitive, among other activities businesses in the EU need to: innovate; embrace technological change; adopt methods that use less energy, reduce waste and avoid pollution; invest in skills.

Presented according to the activity classification NACE, the first part of this chapter is based on a selection of regional enterprise demography statistics with information on enterprise birth and death rates, as well as high-growth enterprises. The second and third parts present structural business statistics (SBS) which may be used to analyse regional patterns of specialisation and concentration across the EU's business economy. Special focuses are provided for retail trade and accommodation services (two activities that were particularly impacted by the COVID-19 pandemic and associated restrictions).



(% share of the non-financial business economy workforce, 2018 data)

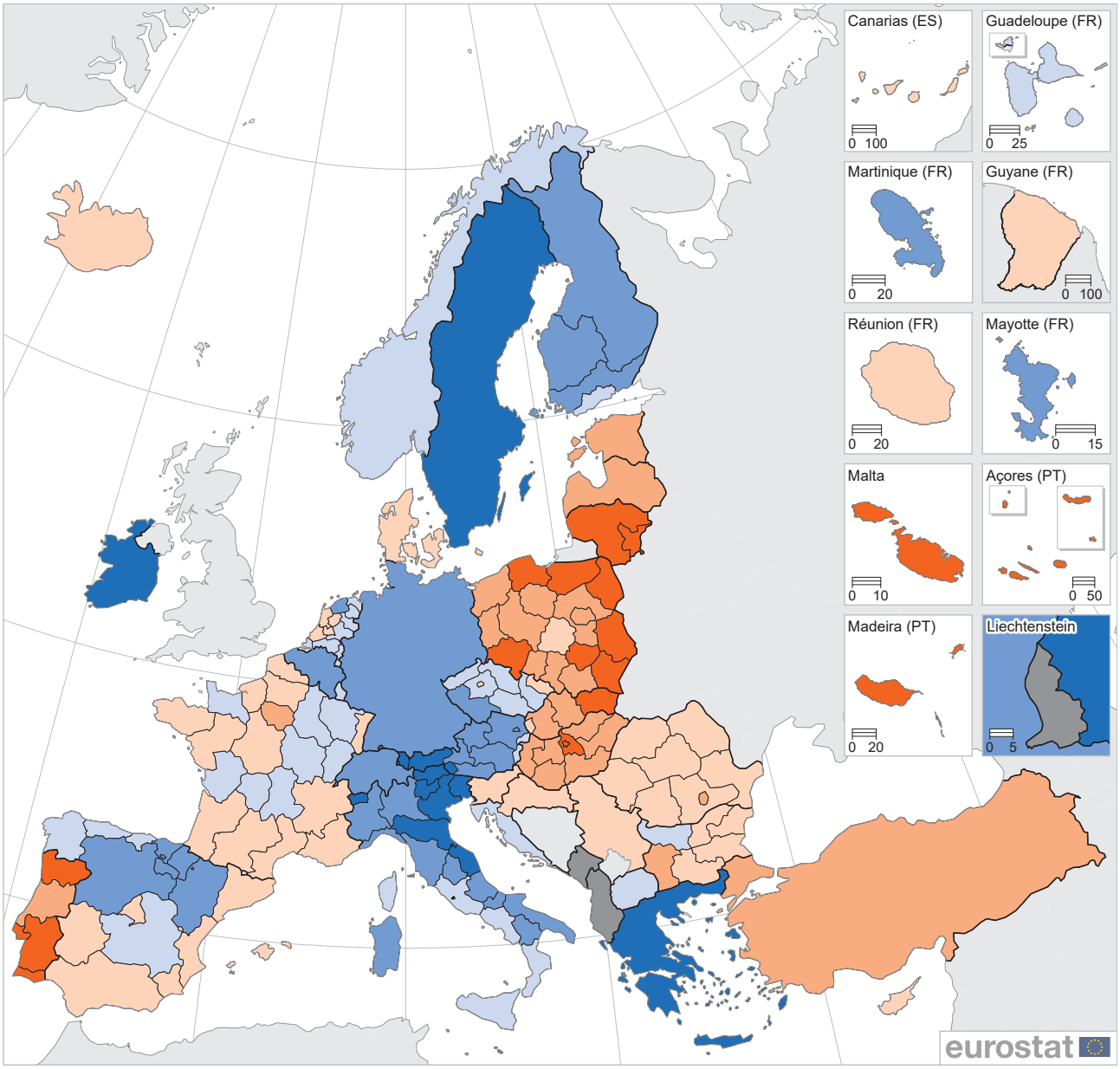
Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

Enterprise demography

Enterprise demography statistics describe enterprise characteristics: they cover, among other things, the birth of new enterprises, the growth and survival of existing enterprises (with particular interest centred on their employment impact), and enterprise deaths. 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 in an economy.

Note that throughout this section on enterprise demography the business economy is generally defined as NACE Sections B to S, excluding Group 64.2. For the EU, Sweden, Iceland and Serbia, information is presented for a narrower range of activities (NACE Sections B to N, excluding Group 64.2).

Map 8.1: Enterprise birth rate, 2018
(% of active enterprises in the business economy, by NUTS 2 regions)



EU = 9.7
- < 6.5
- 6.5 - < 8.5
- 8.5 - < 9.7
- 9.7 - < 12.0
- 12.0 - < 13.5
- ≥ 13.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: the business economy is defined as NACE Sections B to S excluding the activities of holding companies (NACE Group 64.2). EU, Sweden, Iceland and Serbia: NACE Sections B to N excluding the activities of holding companies (NACE Group 64.2). Belgium, Denmark, Germany, Ireland, Greece, Slovenia, Sweden, Norway, Switzerland, Serbia and Turkey: national data.

Source: Eurostat (online data codes: bd_size_r3 and bd_9bd_sz_cl_r2)

BIRTHS AND DEATHS

The EU enterprise birth rate was 9.7 %

The enterprise birth rate measures the number of new enterprises born during the course of a year in relation to the total population of active enterprises in the same year. The birth rate in the EU's business economy was 9.7 % in 2018, while the death rate was 7.8 % in 2018. Note the reference year for enterprise death rates generally lags that for births as, when compiling statistics on deaths, it is necessary to ensure that enterprises have remained inactive during a period of two years (without being reactivated).

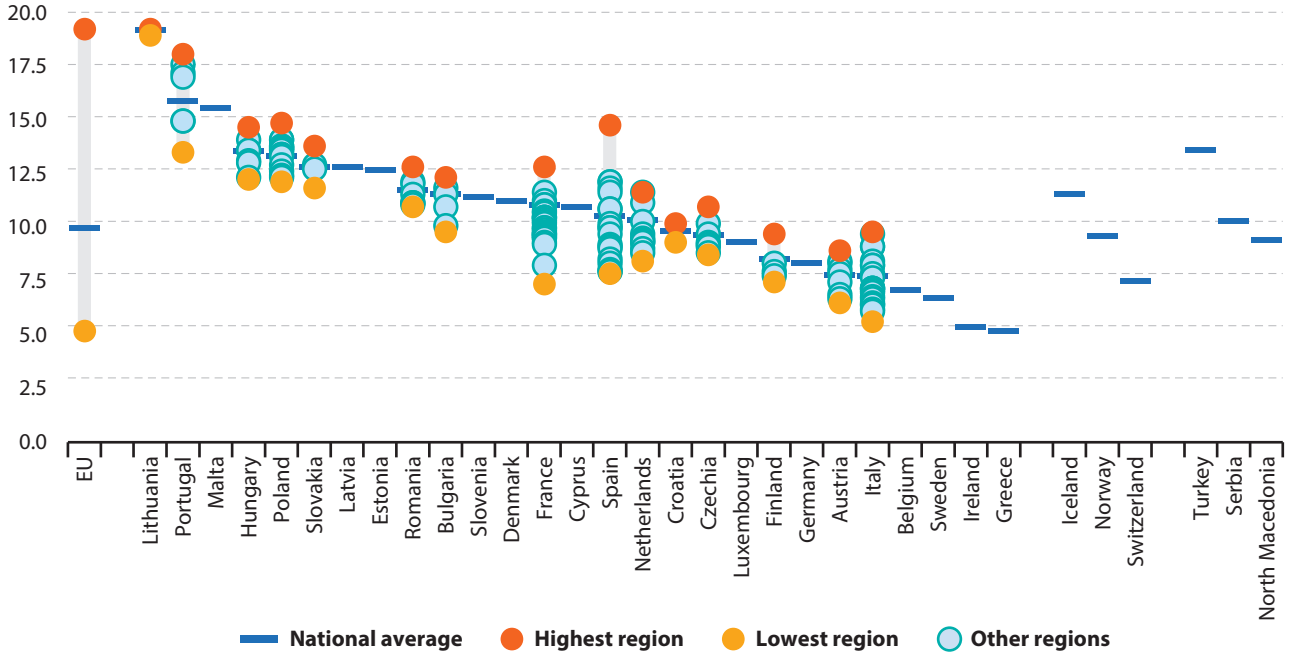
In 2018, close to one in five enterprises active in the business economy of the Lithuanian regions of Vidurio ir vakarų Lietuvos regionas (19.2 %) and Sostinės regionas (18.9 %) were newly born. These were the highest enterprise birth rates among NUTS level 2 regions; note that several EU Member States are unable to provide a regional breakdown for these statistics (see Map 8.1 for more details). The four next highest enterprise birth rates were recorded in Portugal.

More than one tenth of EU regions (20 out of 167 for which data are available) recorded enterprise birth rates across their business economies in 2018 of at least 13.5 % (as shown by the darkest shade of orange in Map 8.1). This group included both Lithuanian regions, Malta, many regions in Poland and Portugal, two Hungarian regions and one region in each of Spain and Slovakia.

At the other end of the range, there were 12 regions where the enterprise birth rate in 2018 was below 6.5 %. Most of these regions were in Italy (mainly in the north), and two were in the west of Austria; national data for Greece, Ireland and Sweden also revealed enterprise birth rates below 6.5 %. The lowest enterprise birth rates were recorded in Greece (4.8 %) and Ireland (4.9 %). Note these relatively low figures are likely to reflect a range of factors, including: underlying economic conditions, attitudes to risk, the level of competition, sectoral specialisation and the pace of structural change.

As enterprise birth rates were regularly high (or low) across whole economies, this tends to suggest that birth rates were influenced by the underlying national business environment as influenced by macro- and socioeconomic conditions. This is confirmed by Figure 8.1, where it can be seen that the regional rates for this indicator generally vary within a narrow range within each EU Member State. Where a somewhat wider range of values was recorded, this tends to reflect one or two outliers, rather than simply a wide spread in regional rates. For example, in Spain the value for Ciudad Autónoma de Melilla (14.6 %) was notably higher than the rate in any other Spanish region. A similar situation could be observed for one or two regions with particularly high or low values in France, Finland and Portugal.

Figure 8.1: Enterprise birth rate, 2018
(% of active enterprises in the business economy, by NUTS 2 regions)



Note: ranked on the national average. The business economy is defined as NACE Sections B to S excluding the activities of holding companies (NACE Group 64.2). EU, Sweden, Iceland and Serbia: NACE Sections B to N excluding the activities of holding companies (NACE Group 64.2). Belgium, Denmark, Germany, Ireland, Greece, Slovenia, Sweden, Norway, Switzerland, Serbia and Turkey: national data.

Source: Eurostat (online data codes: bd_size_r3 and bd_9bd_sz_cl_r2)

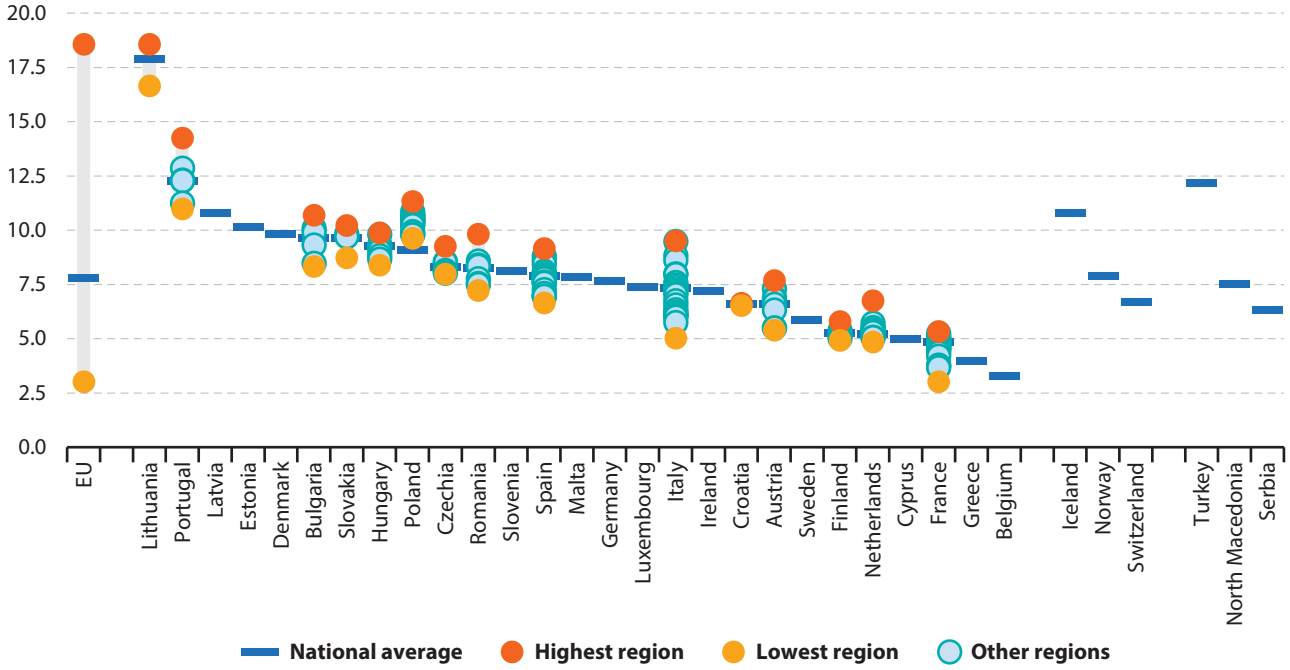
The EU enterprise death rate was 7.8 %

It was relatively common for regions with high enterprise birth rates to also record high enterprise death rates. This is perhaps not 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'). For example, within individual EU Member States (composed of more than one NUTS level 2 region) and subject to data availability, the capital regions of Bulgaria, Portugal, Romania and Finland recorded the highest rates for enterprise births and for enterprise deaths within their national territories.

As for enterprise birth rates, the two Lithuanian regions also recorded the highest enterprise death rates in 2017 among all NUTS level 2 regions of the EU: 18.6 % in Vidurio ir vakarų Lietuvos regionas and 16.7 % in Sostinės regionas. As such, these two regions had the highest levels of business churn — a measure of how frequently new enterprises are created and existing enterprises close down — indicating a high degree of business dynamism (which is often linked to productivity growth). Death rates were also generally quite high across Portuguese regions. The lowest regional enterprise death rate in 2017 was 3.0 % in Mayotte. Death rates were also relatively low in Belgium and Greece (national data) and across all French regions.

Regional enterprise death rates tended to be even less diverse within each EU Member State than was the case for enterprise birth rates. Again, a few Member States had one or two regions that had a notably higher (or lower) rate than their other regions, for example the relatively high rate of enterprise deaths in the Portuguese capital region (Área Metropolitana de Lisboa).

Figure 8.2: Enterprise death rate, 2017
(% of active enterprises in the business economy, by NUTS 2 regions)



Note: ranked on the national average. The business economy is defined as NACE Sections B to S excluding the activities of holding companies (NACE Group 64.2). EU, Sweden, Iceland and Serbia: NACE Sections B to N excluding the activities of holding companies (NACE Group 64.2). Belgium, Denmark, Germany, Ireland, Greece, Slovenia, Sweden, Norway, Switzerland, Serbia and Turkey: national data. EU average: 2018.

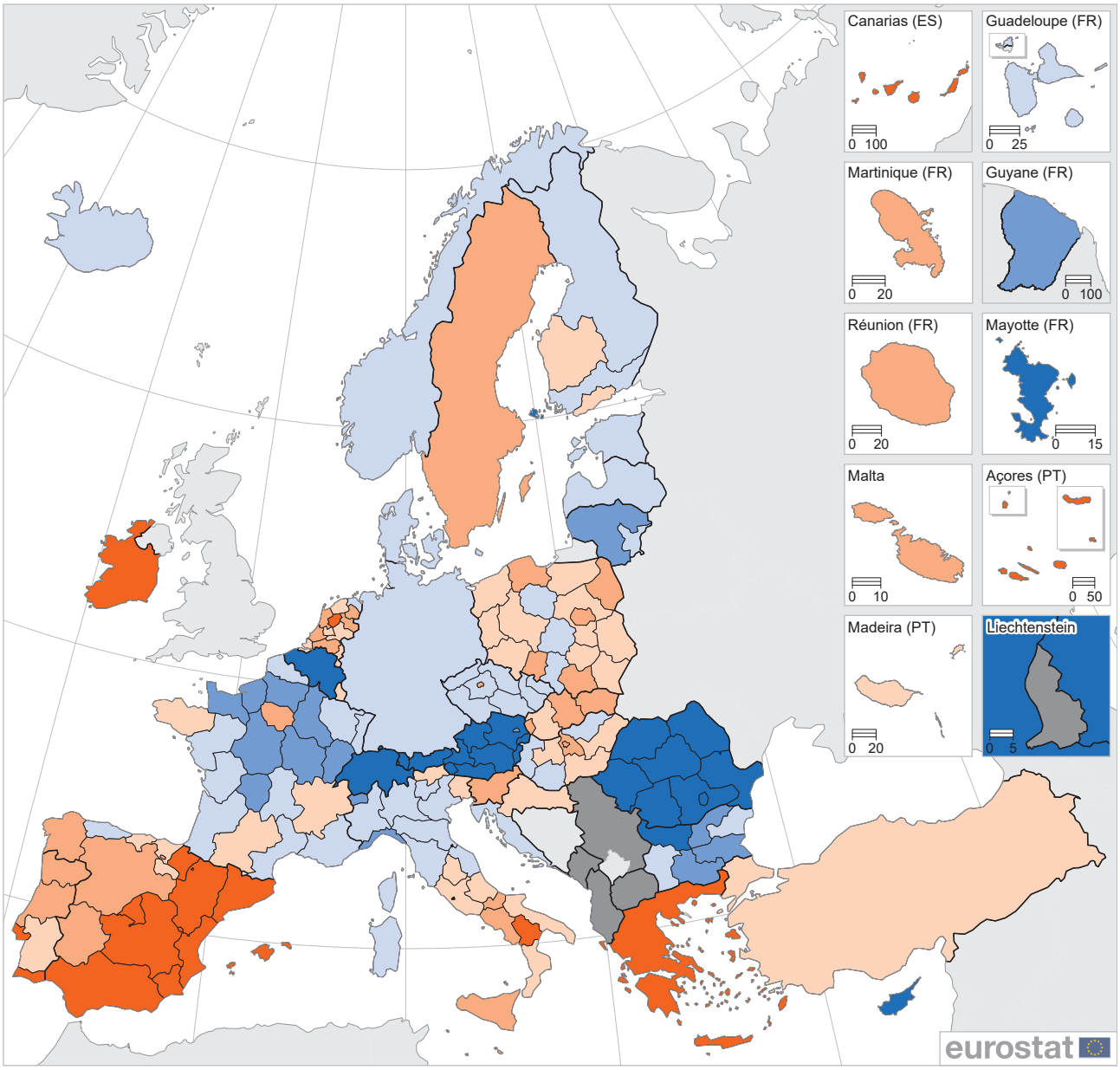
Source: Eurostat (online data codes: bd_size_r3 and bd_9bd_sz_cl_r2)

HIGH-GROWTH ENTERPRISES

High-growth enterprises are of particular interest to policymakers insofar as they can improve the economic performance of a region, create employment and, if sustained, change its economic structure. For the analysis presented here, high-growth enterprises are defined as those: born before 2015 which had survived up to 2018; with at least 10 employees in 2015; and with average employee growth of more than 10.0 % per year between 2015 and 2018. The threshold of 10 employees in 2015 is designed to exclude very small enterprises where employment increases could be very high in relative terms, but with little economic impact in absolute terms. This indicator should be analysed 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.

High-growth enterprises accounted for more than 1 out of every 10 enterprises active in the EU's business economy, some 11.9 % in 2018. The darkest shade of orange in Map 8.2 shows those regions where high-growth enterprises accounted for 15.0 % or more of all active enterprises in 2018. Note this may reflect, 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 is often referred to as the 'catch-up' process. These regions with a high proportion of high-growth enterprises were largely concentrated across southern parts of the EU, as well as in Ireland and the Netherlands. A large cluster of high-growth enterprises was on the Iberian Peninsula. The capital regions of Bulgaria, Czechia, Croatia, Lithuania, Austria, Poland, Romania and Finland recorded the highest proportions 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; a critical mass of potential business and/or consumer clients.

Map 8.2: High-growth enterprises, 2018
(% share of total number of enterprises in the business economy, by NUTS 2 regions)



EU = 11.9

- < 8.5
- 8.5 - < 10.0
- 10.0 - < 11.9
- 11.9 - < 13.0
- 13.0 - < 15.0
- ≥ 15.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: high-growth enterprises are defined as those with employment growth of 10 % or more. The rates of change are calculated as average annualised rates over a three-year period for the number of (paid) employees. To be classified as high growth, an enterprise must have had at least 10 employees at the beginning of the period. The business economy is defined as NACE Sections B to S excluding the activities of holding companies (NACE Group 64.2). EU, Belgium, Denmark, Germany, Ireland, Greece, Cyprus, Luxembourg, Slovenia, Sweden, Iceland, Norway, Switzerland and Turkey: NACE Sections B to N excluding the activities of holding companies (NACE Group 64.2). Belgium, Denmark, Germany, Ireland, Greece, Slovenia, Sweden, Norway, Switzerland and Turkey: national data. Switzerland: 2017.

Source: Eurostat (online data codes: bd_hgnace2_r3 and bd_9pm_r2)

Regional patterns of employment specialisation and concentration in manufacturing

Structural business statistics (SBS) can be analysed 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, wealth creation, productivity, investment and profitability. This information can be used to analyse (among other issues) structural shifts in an economy, national or regional specialisations, and sectoral patterns.

In 2018, there were 22.7 million enterprises active in the EU's non-financial business economy (defined here as NACE Sections B to J and L to N and Division 95); together, their gross value added was EUR 6 558 billion and they employed 129.4 million persons.

Manufacturing (NACE Section C) provides goods and industrial services for domestic use (investment, further processing or consumption) and for export and has traditionally been considered a cornerstone of economic prosperity within the EU. However, in recent decades this sector has experienced wide-ranging transformations, such as 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.

The EU's manufacturing base has migrated eastwards

There has been an eastward shift in the EU's manufacturing base during the last two to three decades, reflecting, among other factors, differences in: labour costs; flows of foreign direct investment (FDI); the presence of multinational enterprises; natural resource endowments; environmental standards. Eastern EU Member States are increasingly used as manufacturing bases by enterprises from other EU Member States, in particular neighbouring countries such as Germany, and enterprises from non-member countries that would like to establish a manufacturing base within the EU's single market. They often form an integral part of international supply chains, with a relatively highly-skilled but low-cost workforce.

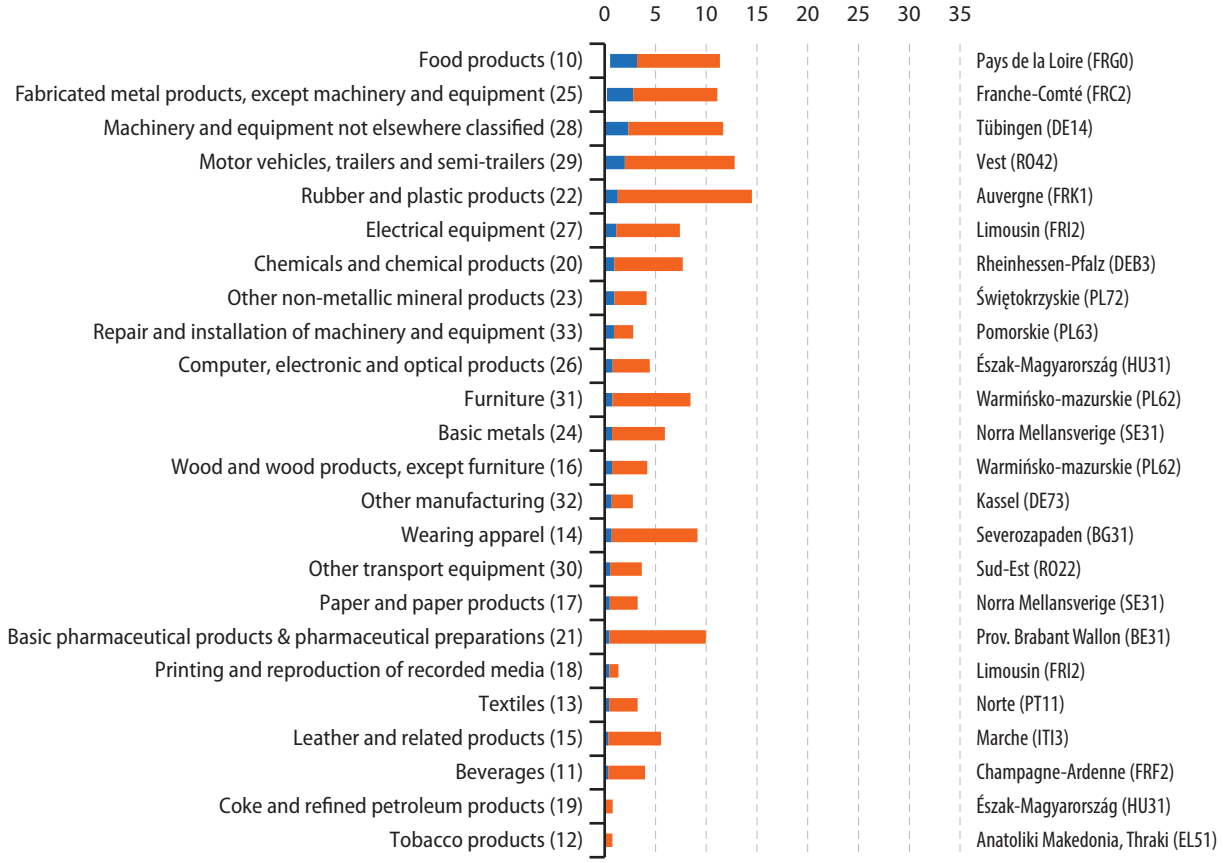
In 2018, manufacturing employed close to one quarter (23.1 %) of the EU non-financial business economy workforce, while its share of value added was 6.6 percentage points higher, at 29.7 %. The largest manufacturing subsector in the EU — in employment terms and as defined by NACE divisions — was the manufacture of food products (3.2 % of the non-financial business economy total), while there were only three other subsectors which accounted for at least 2.0 % of the non-financial business economy workforce: the manufacture of fabricated metal products, except machinery and equipment (2.8 %), the manufacture of machinery and equipment not elsewhere classified (2.3 %) and the manufacture of motor vehicles, trailers and semi-trailers (2.0 %).

Figure 8.3 shows information for 24 different manufacturing activities (as defined by NACE divisions). The bars show the number of persons employed in a specific manufacturing activity as a share of the non-financial business economy workforce, with the top/bottom ends of each bar providing information on the regions with the highest/lowest regional shares; the point where the blue and orange parts of each bar meet indicates the EU average. For example, in the French region of Pays de la Loire, manufacturing food products employed 11.4 % of the non-financial business economy workforce in 2018; this was 3.6 times as high as the EU average (3.2 %).

Primary processing activities are often located close to the source of raw materials

The information presented in Figure 8.3 indicates that the distribution of employment across the various manufacturing divisions was often highly skewed, with particularly high levels of employment concentrated in a handful of regions. Activities that involve the primary processing stages of agricultural, fishing or forestry products were often located close to the source of their raw materials. This was the case for manufacturing food products in Pays de la Loire (as mentioned above). There was one other agricultural region where manufacturing food products accounted for more than 10.0 % of employment within the non-financial business economy in 2018, namely Bretagne (also in France). The highest employment share for the manufacturing of beverages (NACE Division 11) was recorded in Champagne-Ardenne (France; 4.0 %). Regions specialised in the manufacture of textiles (NACE Division 13) were often located close to an abundant supply of water; the highest share was recorded in Norte (Portugal; 3.2 %). Norra Mellansverige (Sweden) had the highest employment shares for the manufacture of basic metals (NACE Division 24; 5.9 %) and for the manufacture of paper and paper products (NACE Division 17; 3.2 %). Warmińsko-mazurskie in Poland had the highest employment share in furniture manufacturing (NACE Division 31; 8.4 %) as well as one of its upstream supply activities, the manufacture of wood and wood products, except furniture (NACE Division 16; 4.2 %).

Figure 8.3: Regional specialisation within the manufacturing economy, 2018
(% share of regional non-financial business economy employment, by NUTS 2 regions)



Note: the EU average is shown by the point within each bar where the blue and orange 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 orange/blue); the name of the region with the highest value is also shown. NACE division codes are given in brackets after each of the activity labels. The figure is based on non-confidential data (some activities are not available for a limited number of regions). Mayotte (FRY5): not available.

Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

The manufacture of transport equipment is characterised by clusters of economic activity

Manufacturing transport equipment is characterised by clusters of economic activity and highly-integrated production chains. In 2018, the westernmost Romanian region of Vest had the highest degree of employment specialisation for the manufacture of motor vehicles, trailers and semi-trailers (NACE Division 29; 12.8 %). Střední Čechy (Czechia) and Nyugat-Dunántúl (Hungary) also reported double-digit employment shares for this activity (both 11.5 %). Another Romanian region, Sud-Est, was the most specialised region for the manufacture of other transport equipment (NACE Division 30; 3.7 %).

Regional patterns of employment specialisation and concentration in services (other than finance)

Non-financial services (NACE Sections G to J and L to N and Division 95) provided work to 84.1 million persons across the EU in 2018. This equated to slightly less than two thirds (65.0 %) of the total number of persons employed in the non-financial business economy. The contribution of non-financial services to the non-financial business economy workforce ranged — among NUTS level 2 regions — from shares below 45 % in four regions of Czechia up to a high of 89.1 % in Ionia Nisia (a Greek region that is a popular holiday destination). The share of non-financial services in the non-financial business economy workforce was possibly even higher in Notio Aigaio — another popular tourist destination in Greece — although this was based on a partial dataset excluding those employed in construction activities.

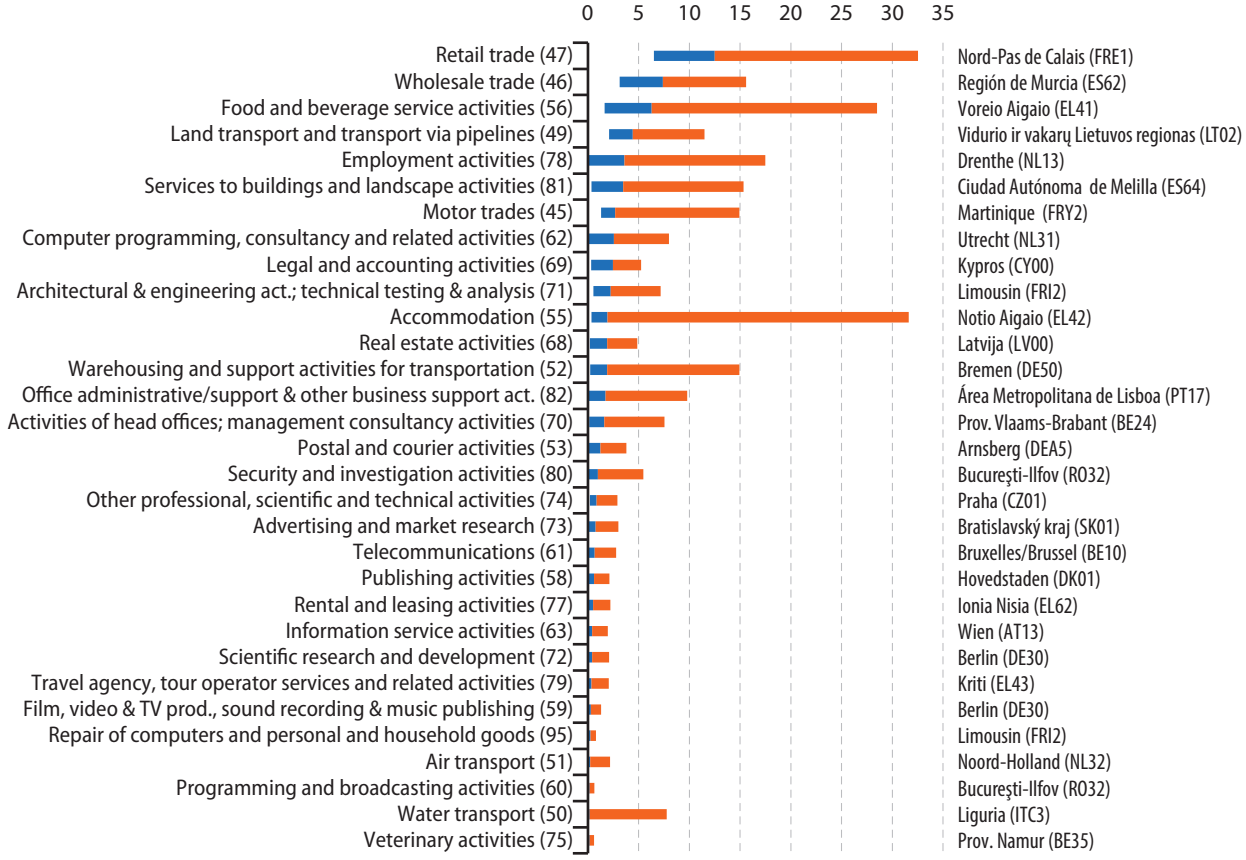
Some service activities are commonly spread across the EU territory, whereas others are concentrated within close proximity of a mass of potential clients

Figure 8.4 provides information for 31 different service activities, presenting the regions with the highest degree of employment specialisation (based on regional shares for each activity in the non-financial 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 or a critical mass of customers; access to markets; or legislative constraints.

Some service activities are common, appearing in every region: for example, retail trade, wholesale trade, or food and beverage services. They were also the largest employers in 2018, as retail trade (NACE Division 47) accounted for 12.5 % of the EU's non-financial business economy workforce, followed by wholesale trade (NACE Division 46; 7.4 %) and food and beverage service activities (NACE Division 56; 6.3 %). The northern French region of Nord-Pas de Calais had the highest employment share (32.5 %) for retail trade, which may reflect, at least to some degree, its location — providing ease of access to cross-border shoppers from Belgium or the United Kingdom. The highest employment share for wholesale trade was recorded in Región de Murcia (Spain; 15.6 %), reflecting the high level of fruit and vegetables transported out of this region. In regions traditionally associated with tourism and in densely-populated regions, it was commonplace to find that a relatively high share of the non-financial business economy workforce was employed within food and beverage service activities. The highest employment share for these activities was recorded in the island region of Voreio Aigaio (Greece; 28.5 %).

Capital regions were among some of the most specialised regions for a range of activities that rely on the close proximity of a large number of potential clients (be these other businesses or households). For example, in 2018 the Área Metropolitana de Lisboa (Portugal) had the highest employment share for office administrative/support and other business support activities (9.8 %), Bucureşti-Ilfov (Romania) for security and investigation activities (5.5 %), Bratislavský kraj (Slovakia) for advertising and market research (3.0 %), and Praha (Czechia) for other professional, scientific and technical activities (2.9 %).

Figure 8.4: Regional specialisation within the non-financial services economy, 2018
(% share of regional non-financial business economy employment, by NUTS 2 regions)



Note: the EU average is shown by the point within each bar where the blue and orange 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 orange/blue); the name of the region with the highest value is also shown. NACE division codes are given in brackets after each of the activity labels. The figure is based on non-confidential data (some activities are not available for a limited number of regions). Mayotte (FRY5): not available.

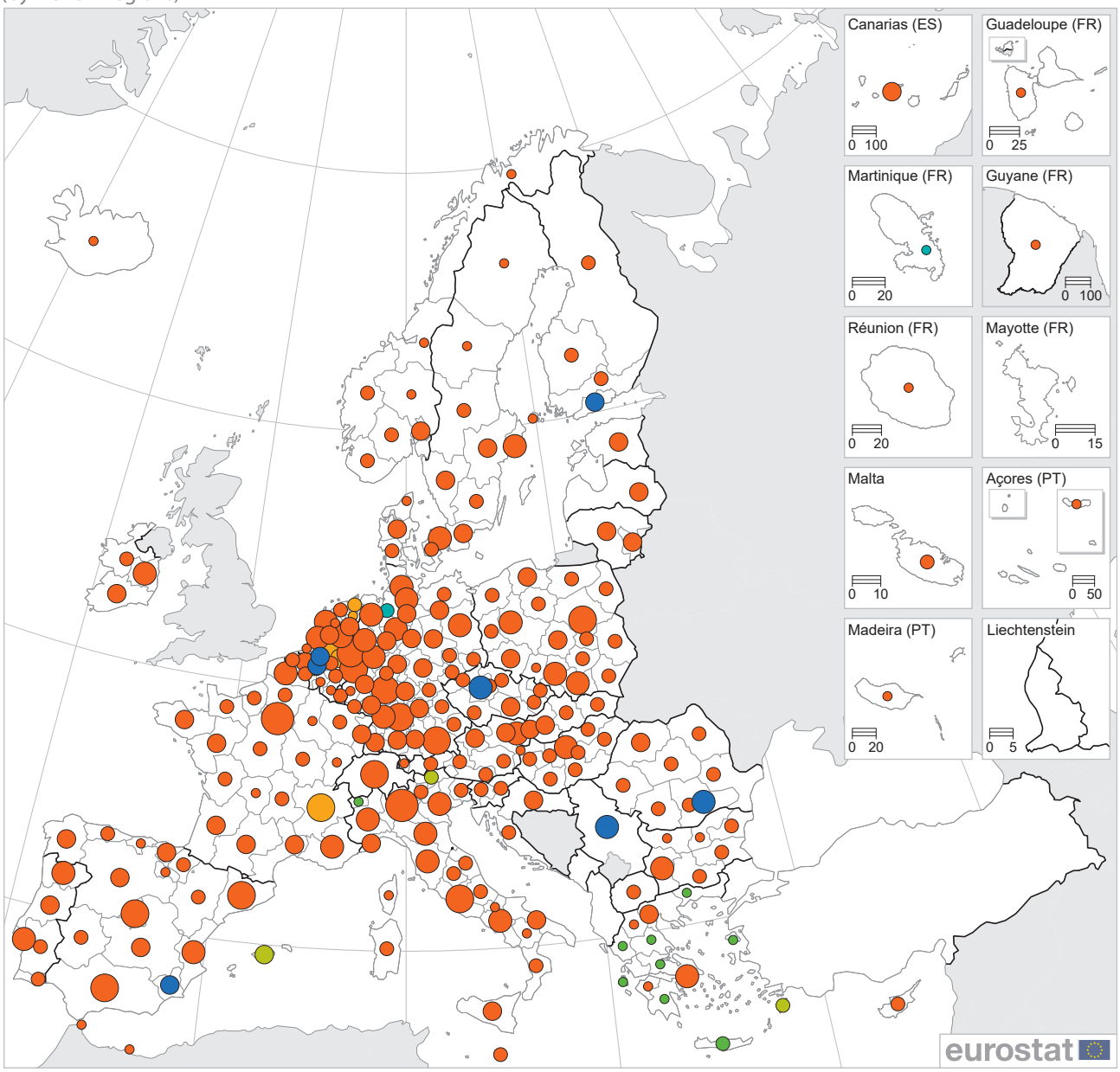
Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

Map 8.3 gives an idea of the absolute size of employment in non-financial services in each of the regions of the EU and also indicates which service activity (at the division level) was the largest employer in 2018.

The number of persons employed in non-financial services in a particular region is influenced to some extent by its geographical size. Nevertheless, the largest non-financial services workforces in 2018 were mainly in capital regions (such as the French, Spanish, Polish and Italian capitals) and other regions containing large urban areas, such as Lombardia in Italy, Cataluña and Andalucía in Spain, Düsseldorf, Oberbayern, Köln, Darmstadt and Stuttgart in Germany, and Rhône-Alpes in France. Each of these regions employed at least 1.0 million people in non-financial services, with this number reaching 2.1 million in Lombardia and 4.5 million in the French capital region. With the exception of Rhône-Alpes (where employment activities was largest), retail trade was the largest non-financial services division in each of these predominantly urban regions.

The fact that retail trade was the largest division in nearly all of the regions with the largest non-financial services workforces was not unusual. Across the 239 regions in the EU for which data are available, retail trade was the largest division (in employment terms) in 213 of them. Food and beverage service activities was the largest non-financial services division in Valle d'Aosta/Vallée d'Aoste (Italy) and eight Greek regions. Wholesale trade was the largest division in six regions, including three capital regions (those in Czechia, Romania and Finland), two Belgian regions, and Región de Murcia (Spain). Along with Rhône-Alpes, employment activities was the largest non-financial services division in the Belgian capital region and four Dutch regions. The largest non-financial services division was accommodation services in three regions notable for tourism — two island regions and one mountainous one: Illes Balears (Spain), Notio Aigaio (Greece) and Provincia Autonoma di Bolzano/Bozen (Italy). The two remaining regions were: Bremen, where warehousing and support activities for transportation had the largest non-financial services workforce; Martinique where motor trades had the largest non-financial services workforce.

Map 8.3: Employment in non-financial services, 2018
(by NUTS 2 regions)



Non-financial service with the largest workforce
EU = retail trade

- Wholesale trade
- Retail trade
- Food and beverage service activities
- Employment activities
- Accommodation
- Others

Total number of persons employed in non-financial services (thousand persons)
EU = 84 130

- < 100
- 100 - < 250
- 250 - < 500
- 500 - < 1 000
- 1 000 - < 2 000
- ≥ 2 000

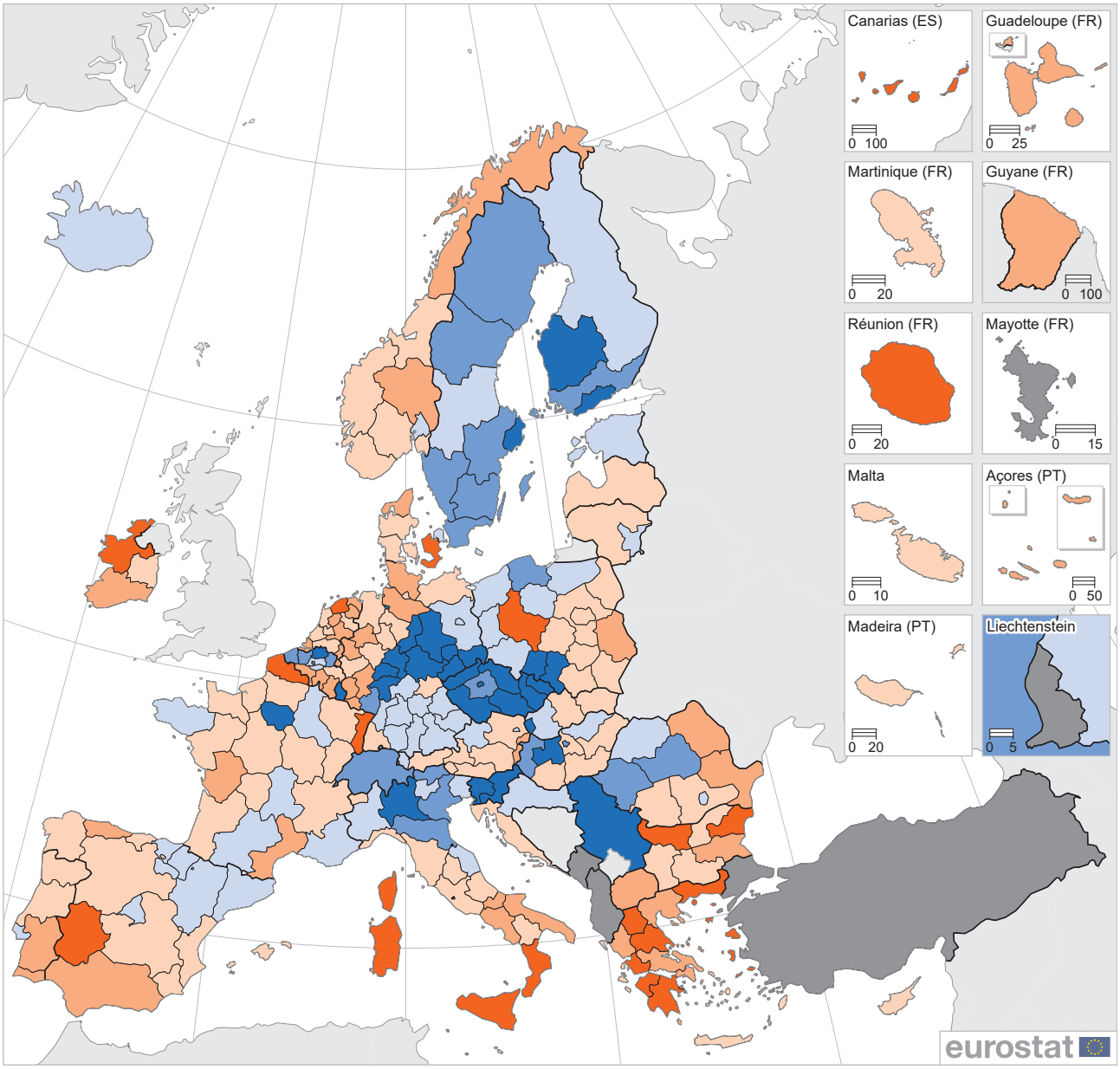
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Switzerland and Serbia, national data.

Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

Map 8.4: Employment in retail trade, 2018
(% share of non-financial business economy employment, by NUTS 2 regions)



EU = 12.5

- < 10.0
- 10.0 - < 11.0
- 11.0 - < 12.5
- 12.5 - < 15.5
- 15.5 - < 17.5
- ≥ 17.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Switzerland and Serbia, national data.

Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

The final part of this chapter provides a special focus for two activities that have been particularly impacted by the COVID-19 pandemic and its associated restrictions. Note that while the information presented for retail trade and accommodation services refer to 2018 (the latest reference period for which structural business statistics are available), short-term indicators have already provided evidence as to the negative impact of the pandemic on activities such as these. The information below highlights regions where retail trade and accommodation services are particularly prevalent; these are likely to be some of the regions where the economic downturn associated with the pandemic was most pronounced.

FOCUS ON RETAIL TRADE

Retail trade (NACE Division 47) uses a range of formats to supply consumers, mainly specialised or unspecialised stores (the latter often distinguished between those with food dominating and others); retail trade also includes retailing outside of stores, through traditional forms such as outdoor markets or via mail order and increasingly via online sales.

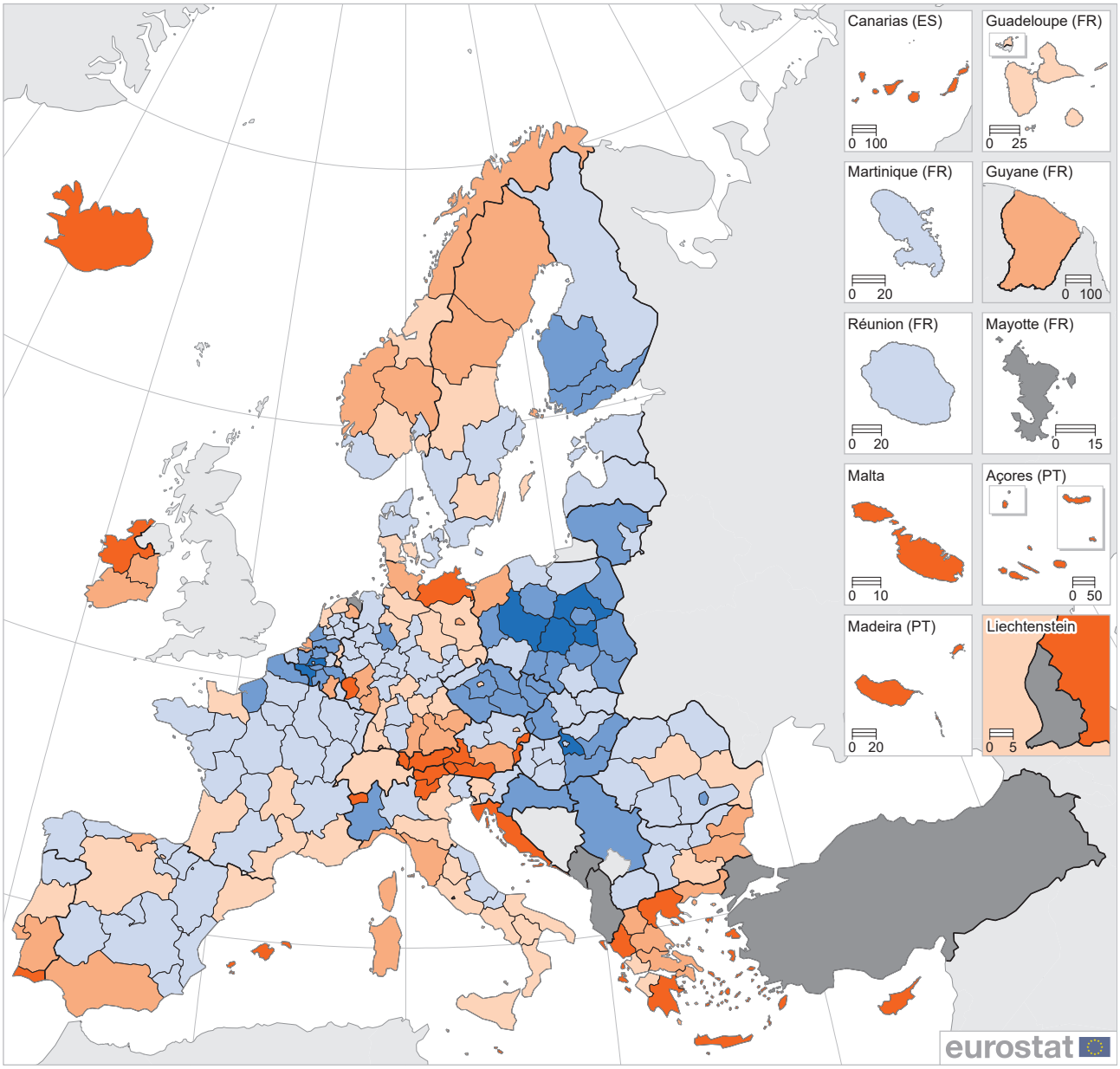
Across the EU, retail trade employed 16.2 million persons in 2018. This represented 12.5 % of the non-financial business economy workforce. Map 8.4 shows the employment share of retail trade activities in the non-financial business economy, with high employment shares mainly concentrated in southern regions of the EU, although by far the highest share of all was in Nord-Pas de Calais in northern France (32.5 %). Retail trade provided work to 17.5 % or more of the non-financial business economy workforce in 23 NUTS level 2 regions across the EU (as shown by the darkest shade of orange in Map 8.4). The share of retail trade in the non-financial business economy (in employment terms) was relatively low in a number of predominantly urban regions. It was below 10.0 % in 30 regions of the EU (as shown by the darkest shade of blue in Map 8.4), including seven capital regions and a number of other regions with major cities; among these was Bremen, which recorded the lowest share (6.5 %) among all regions in the EU.

FOCUS ON ACCOMMODATION SERVICES

Accommodation service activities (NACE Division 55) include: hotels and similar accommodation such as apartment hotels or motels; holiday and other short-stay accommodation, such as self-contained apartments, chalets, villas and cabins rented on a daily or weekly basis; camping and caravanning sites; other accommodation, such as residences for students and workers or railway sleeping cars.

Across the EU, accommodation service activities employed 2.5 million persons in 2018. This represented 1.9 % of the non-financial business economy workforce. Map 8.5 shows the employment share of accommodation service activities in the non-financial business economy for NUTS level 2 regions, with high employment shares concentrated, unsurprisingly, in regions notable for tourism, particularly southern coastal regions of the EU and in Austria. The highest shares of the non-financial business economy workforce that were employed in accommodation service activities were recorded in three Greek island regions: Notio Aigaio (31.6 %), Ionia Nisia (24.7 %) and Kriti (18.7 %). The share of accommodation service activities in the non-financial business economy (in employment terms) was below 0.5 % in six regions of the EU (as shown by the darkest shade of blue in Map 8.5): three in Poland, two in Belgium and one in Hungary, all of which recorded shares of 0.4 %.

Map 8.5: Employment in accommodation, 2018
(% share of non-financial business economy employment, by NUTS 2 regions)



EU = 1.9

- < 0.5
- 0.5 - < 1.0
- 1.0 - < 1.9
- 1.9 - < 2.5
- 2.5 - < 5.0
- ≥ 5.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Switzerland and Serbia, national data.

Source: Eurostat (online data codes: sbs_r_nuts06_r2 and sbs_na_sca_r2)

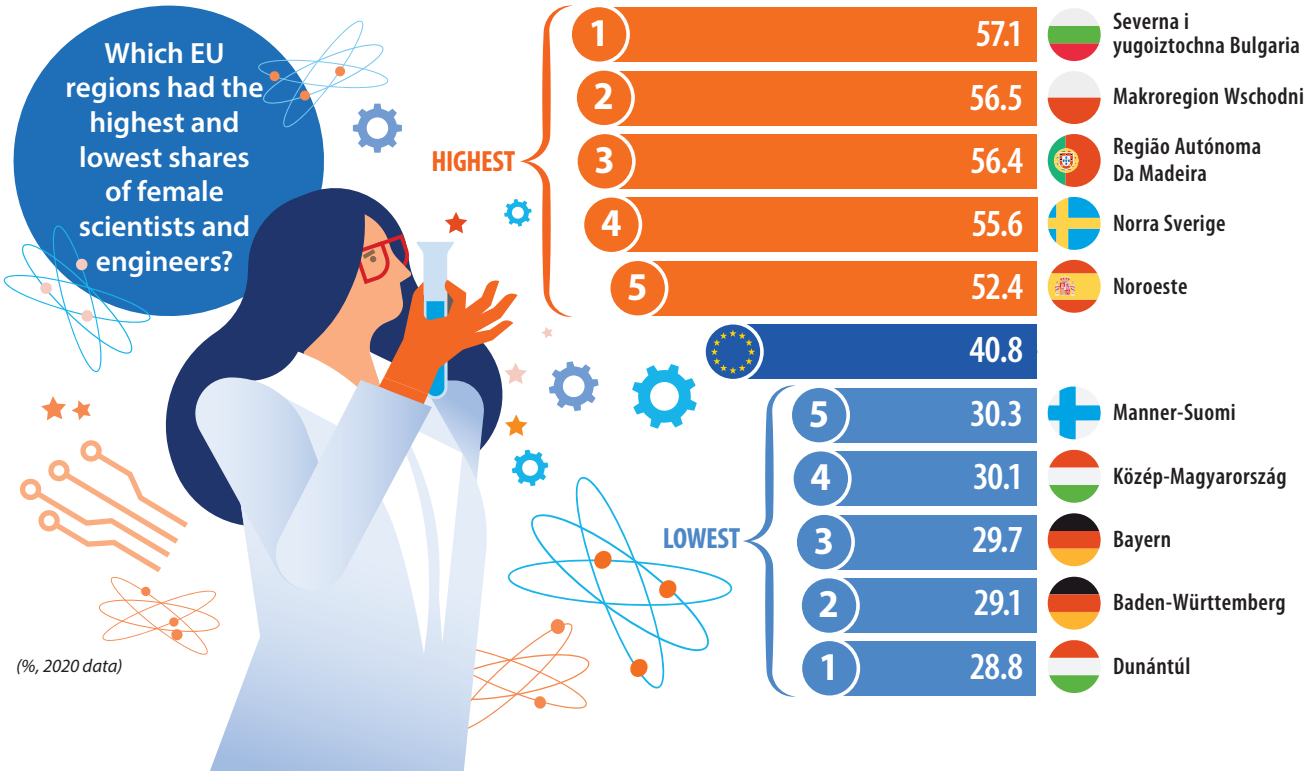
9. Research and development

Spending on research and development 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 and generational challenges. For example, the European Commission's political guidelines for the period 2019-2024 include a target to become the world's first climate-neutral continent by 2050. These guidelines are backed-up by a commitment to invest in innovation and research through the European Green Deal Investment Plan and Just Transition Mechanism, to help facilitate a transition towards a climate-neutral, competitive and inclusive European economy.

The EU is one of the world's leading producers of scientific knowledge: it welcomes researchers from all over the globe. In May 2021, the European Commission 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), which underlines the EU's desire to play a leading role in supporting international research and innovation partnerships, while delivering innovative solutions that deliver green and digital solutions in line with the sustainable development goals, while promoting resilience, prosperity, competitiveness, economic and social well-being.

It is often claimed that Europe faces an innovation deficit. Indeed, a European Commission communication adopted in January 2018 *Horizon 2020 interim evaluation: maximising the impact of EU research and innovation* (COM(2018) 2 final) identified that the innovation deficit was not due to an absence of new ideas or discoveries, but instead reflected a lack of success in diffusing/commercialising inventions. This may, in part, be linked to the willingness of EU businesses and financial systems to accept risk, which may impinge upon their ability to identify disruptive research. The communication identified areas such as investing more ambitiously and supporting breakthrough innovations as ways to remedy the deficit.

Young women tend to be under-represented when studying to be ICT professionals, mathematicians, scientists or engineers. In 2020, there were 6.7 million female scientists and engineers in the EU, accounting for 40.8 % of the total number of people employed in science and engineering. Across NUTS level 1 regions, female scientists and engineers were in the majority in just 13 out of the 89 regions for which data are available. The highest shares of female scientists and engineers were recorded in the Bulgarian region of Severna i yugoiztochna Bulgaria (57.1 %), the Polish region of Makroregion Wschodni (56.5 %), the



Source: Eurostat (online data code: hrst_st_rsex)

Portuguese Região Autónoma Da Madeira (56.4 %) and the Swedish region of Norra Sverige (55.6 %). At the other end of the range, there were three regions across the EU where less than 3 out of every 10 scientists and engineers were women: Bayern (29.7 %) and Baden-Württemberg (29.1 %) in Germany, and Dunántúl (28.8 %) in Hungary.

This chapter presents statistical information analysing regional developments for a range of research and development-related indicators within the EU, including the following topics: R&D intensity, R&D expenditure per inhabitant, human resources in science and technology (HRST) and the number of researchers.

Research and development expenditure

Research and experimental development (R&D) — creative and systematic work undertaken to increase the stock of knowledge or to devise new applications of existing knowledge — tends to be concentrated in clusters. Research-intensive regions are often situated around academic institutions, high-technology industrial activities and/or knowledge-based services, which attract new start-ups and highly qualified personnel.

Gross domestic expenditure on R&D (GERD) includes research expenditure made by business enterprises, higher education institutions, government and private non-profit organisations. In 2019, GERD was valued at EUR 307.8 billion across the EU; this was EUR 12.9 billion (or 4.3 %) higher than its level in 2018 (EUR 294.9 billion).

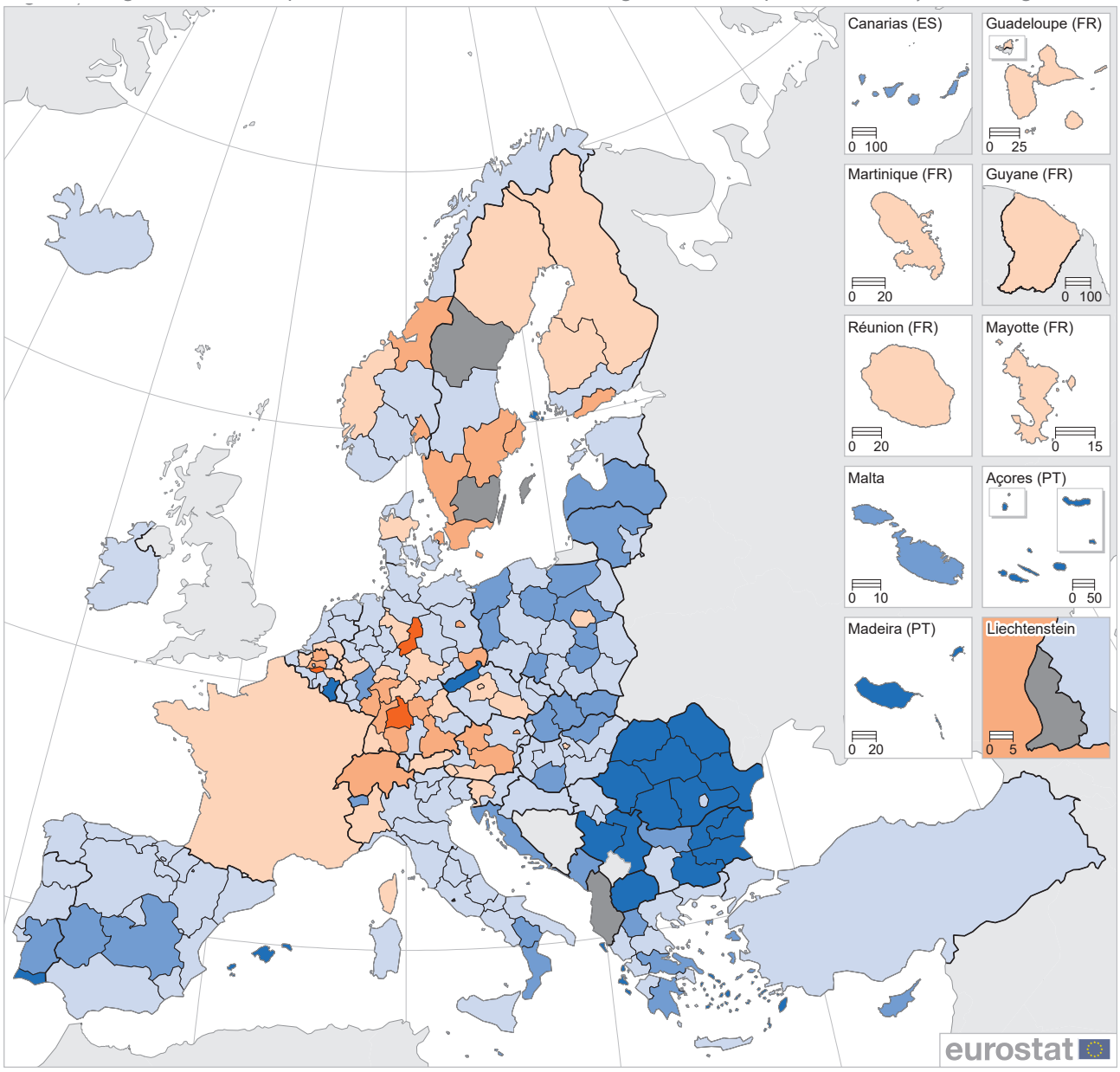
Regional R&D statistics are only available for 2018, when the skewed nature of R&D activity was such that nearly half (around 49 %) of the EU's intramural R&D expenditure took place in just 15 out of 201 NUTS level 2 regions (national data for Ireland and France; NUTS level 1 data for the Netherlands). These were the only regions in the EU where R&D expenditure was in excess of EUR 4.0 billion, underlining the significance of clusters of scientific and technological excellence. Leaving aside the national data for Ireland and France, the two regions with the highest levels of R&D expenditure were both located in Germany (2017 data): Stuttgart (EUR 15.9 billion) and Oberbayern (EUR 10.7 billion).

The highest R&D intensity was recorded in Braunschweig

R&D intensity is frequently used as a measure to determine an economy's creative/innovative capacity. It is calculated as the ratio of R&D expenditure relative to gross domestic product (GDP). Despite modest annual increases over most of the last decade, R&D intensity remained below its Europe 2020 benchmark target of 3.00 %: the EU ratio stood at 2.18 % in 2018.

There were 22 regions that recorded ratios of at least 3.00 % in 2018 (national data for Ireland and France; NUTS level 1 data for the Netherlands; 2017 data for Belgium, Denmark, Germany, Austria and Sweden) — as shown by the two darkest shades of orange in Map 9.1. They were predominantly located in Germany, Belgium, Austria and Sweden, although this group also included the capital regions from Denmark and Finland. The three highest ratios for R&D intensity — the only ones in excess of 5.00 % — were recorded in Braunschweig (8.52 %; 2017 data) and Stuttgart (7.69 %; 2017 data) in Germany, and Prov. Brabant Wallon (7.67 %; 2017 data) in Belgium. The two German regions are characterised by clusters of innovative automotive manufacturers, engineering and component suppliers. The Braunschweig region includes Wolfsburg (which is headquarters to the Volkswagen Group), while the Stuttgart region is home, among others, to the headquarters of Bosch, Mercedes-Benz and Porsche. At the other end of the scale, there were 20 regions where the R&D intensity was less than 0.45 % (as shown by the darkest shade of blue). These regions were principally in Romania, Bulgaria, Portugal and Greece, with single regions from Belgium (2017 data), Czechia, Spain and Finland also in this category.

Map 9.1: R&D intensity, 2018
(%, based on gross domestic expenditure on R&D (GERD) relative to gross domestic product (GDP), by NUTS 2 regions)



EU = 2.18
- < 0.45
- 0.45 - < 0.70
- 0.70 - < 2.18
- 2.18 - < 3.00
- 3.00 - < 5.00
- ≥ 5.00
- Data not available

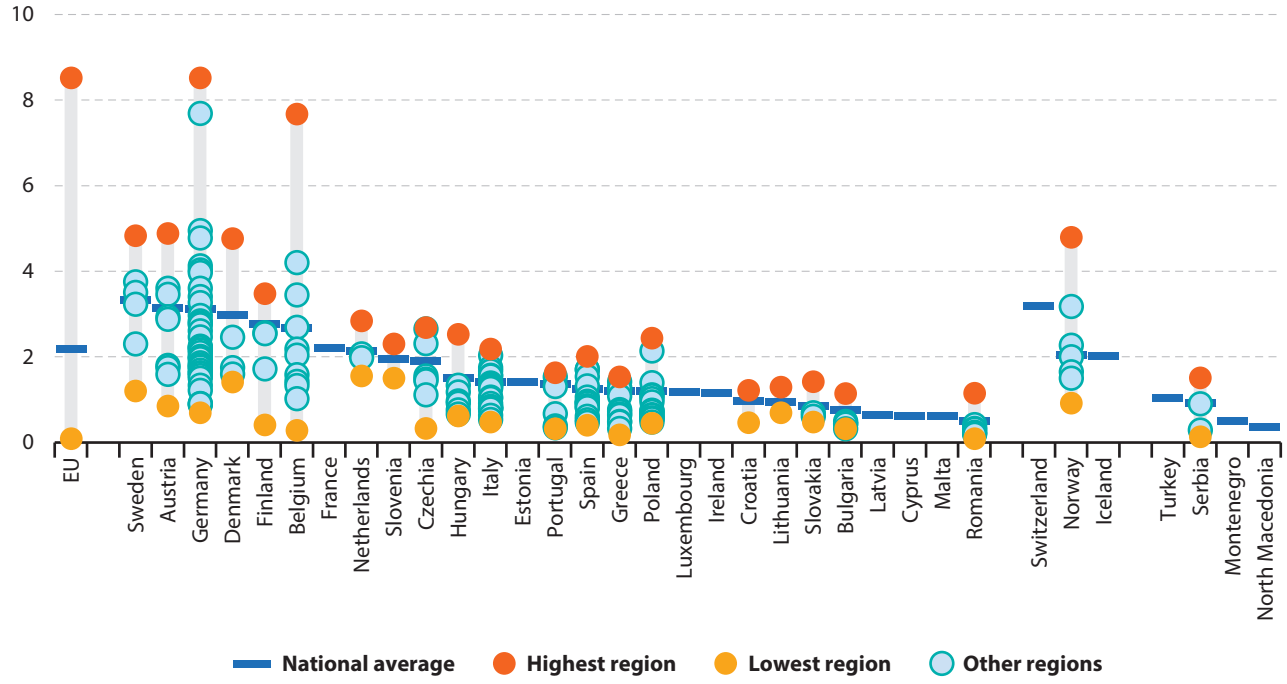
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: the Netherlands, NUTS level 1. Ireland, France, Switzerland and Turkey: national data. Belgium, Denmark, Germany, Austria, Sweden, Norway and Switzerland: 2017.

Source: Eurostat (online data code: rd_e_gerdreg)

Figure 9.1: R&D intensity, 2018
(%, based on gross domestic expenditure on R&D (GERD) relative to gross domestic product (GDP), by NUTS 2 regions)



Note: ranked on the national average. The Netherlands: NUTS level 1. Ireland, France, Switzerland and Turkey: national data. Belgium, Denmark, Germany, Austria, Sweden, Norway and Switzerland: 2017. Ciudad Autónoma de Ceuta (ES63), Ciudad Autónoma de Melilla (ES64), Småland med öarna (SE21) and Mellersta Norrland (SE32): not available.

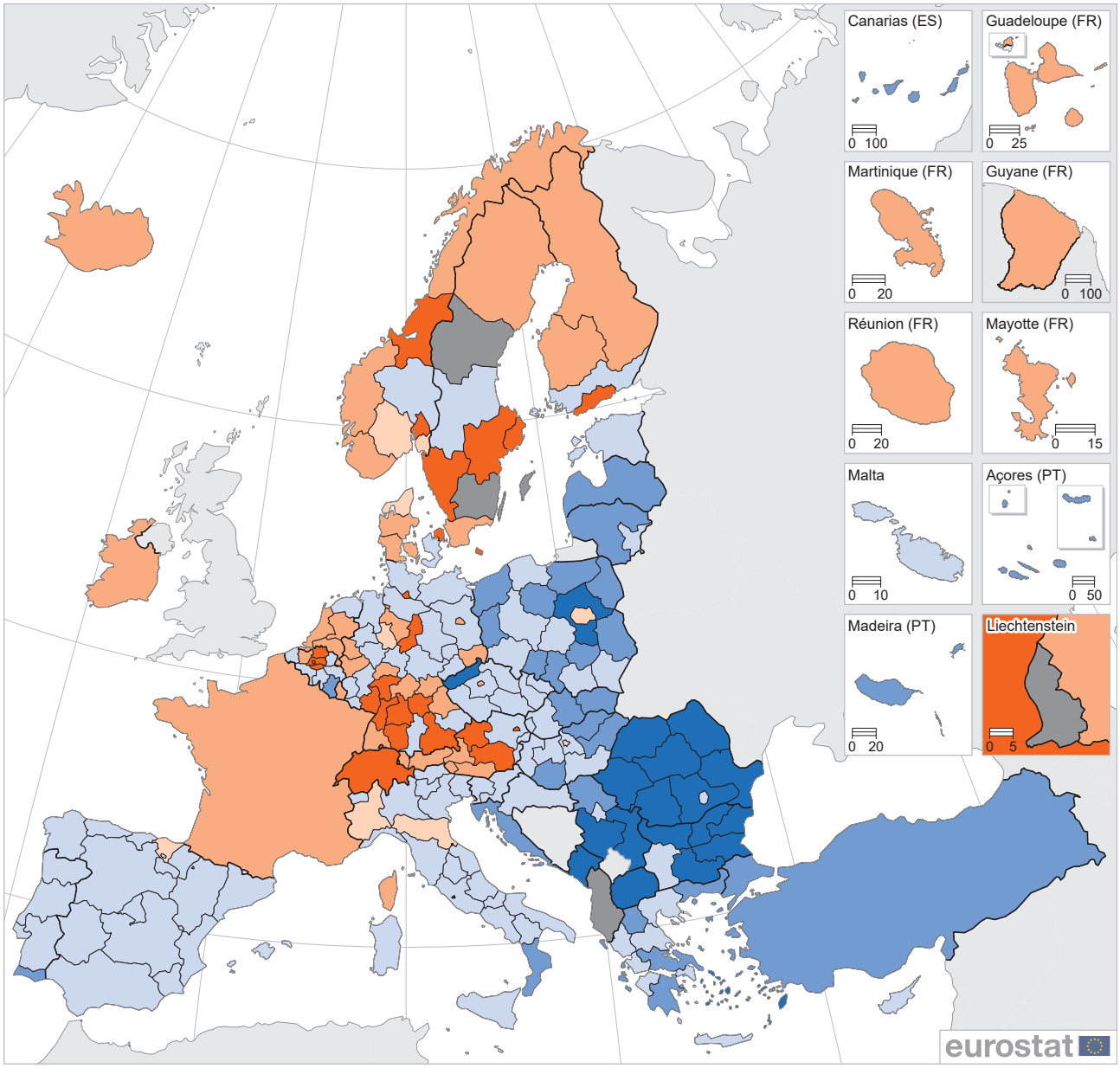
Source: Eurostat (online data code: rd_e_gerdreg)

Figure 9.1 identifies the highest and lowest regional ratios for R&D intensity in each of the EU Member States. Although the range between highest and lowest regional values was quite narrow in Romania, it had the greatest variation for regional R&D intensities among the multi-regional Member States for which regional data are available. This reflected the fact that the R&D intensity was very low in nearly all Romanian regions, with a single region (the capital, Bucureşti-Ilfov) recording a value that was 2.7 times as high as the second highest regional value. Belgium also had a high variation in regional values, but had a large range between the regions with the highest and lowest values: R&D intensity in Prov. Brabant Wallon was 27 times as high as the intensity in Prov. Luxembourg. By contrast, regional R&D intensities varied the least within the Netherlands (NUTS level 1 regions) and Slovenia.

An alternative measure of the level of R&D expenditure is given by the ratio of expenditure relative to the population size. Overall, there were 21 regions across the EU that recorded ratios of at least EUR 1 350 of R&D expenditure per inhabitant in 2018 (national data for Ireland and France; NUTS level 1 data for the Netherlands; 2017 data for Belgium, Denmark, Germany, Austria and Sweden). Again, these were predominantly located in Germany, Belgium, Sweden and Austria, but once more this group also included the capital regions from Denmark and Finland. The three highest ratios for R&D expenditure per inhabitant were the same as for R&D intensity, namely Stuttgart (EUR 3 884 per inhabitant) and Braunschweig (EUR 3 683 per inhabitant) in Germany, and Prov. Brabant Wallon (EUR 3 514) in Belgium. At the other end of the scale, there were 15 regions where R&D expenditure per inhabitant was less than EUR 50. These regions were principally in Romania and Bulgaria, with single regions from Greece, Czechia and Poland also in this category. The skewed nature of R&D expenditure can be underlined by the fact that there were 57 regions with a level of R&D expenditure per inhabitant that was above the EU average (shown with orange shades in Map 9.2), compared with 143 regions with values below the EU average (shown with blue shades).

Comparing the information presented in Maps 9.1 and 9.2 it is possible to identify a group of regions where R&D expenditure per inhabitant was relatively high when contrasted with R&D intensity. The vast majority were located in western EU Member States, for example: the capital region in Belgium, Syddanmark and Nordjylland in Denmark, Hamburg, Oberfranken, Düsseldorf and Detmold in Germany, País Vasco in Spain, Emilia-Romagna in Italy, Luxembourg, the Dutch regions of Oost-Nederland and West-Nederland (both NUTS level 1), Salzburg and Vorarlberg in Austria, as well as Ireland (national data). Each of these had a level of R&D expenditure per inhabitant that was above the EU average and a level of R&D intensity that was below the EU average.

Map 9.2: R&D expenditure per inhabitant, 2018
(EUR, by NUTS 2 regions)



EU = 660.9

- < 50.0
- 50.0 - < 100.0
- 100.0 - < 660.9
- 660.9 - < 750.0
- 750.0 - < 1 350.0
- ≥ 1 350.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: the Netherlands, NUTS level 1. Ireland, France, Switzerland and Turkey: national data. Belgium, Denmark, Germany, Austria, Sweden, Norway and Switzerland: 2017.

Source: Eurostat (online data code: rd_e_gerdreg)

Human resources in science and technology

Human resources in science and technology (HRST) are defined as persons who fulfil one or other of the following two criteria:

- have successfully completed a tertiary education;
- employed in a science and technology occupation where the above qualifications are normally required (defined here as those who work as professionals, technicians and associate professionals — as defined by the international standard classification of occupations (ISCO) major groups 2 and 3).

As such, the concept of HRST can relate to a person's level of education, irrespective of their actual professional occupation. By contrast, the concept of R&D personnel relates specifically to the actual occupation of persons, namely if they are directly engaged in R&D (creative and systematic work undertaken to increase the stock of knowledge or to devise new applications of existing knowledge). Therefore, the criteria for HRST are broader, with the number of HRST considerably higher than the number of R&D personnel.

In 2020, there were 118.2 million persons employed in the EU as HRST; among these, there were 72.9 million who met the occupational criterion, 95.0 million who met the educational criterion, and 49.7 million who met both the educational and occupational criteria (otherwise referred to as HRST core).

Map 9.3 shows the share of HRST in the economically active population (hereafter referred to as the labour force). In 2020, the share of HRST in the EU labour force was 47.2 %. Unlike other science and technology indicators, the regional distribution for this indicator was not highly skewed. Rather, there was a fairly equal split in the number of regions with shares above (112 regions) and below (128 regions) the EU average.

The highest shares of HRST in the labour force were concentrated in capital regions and other urban regions; they were principally located in western regions of the EU. To a large degree — given that a majority of HRST meet the education rather than occupation criterion — the regional distribution shown in Map 9.3 closely resembles the distribution of people with a tertiary level of educational attainment (for more details, see Chapter 3 on education and training statistics). Regions with high shares of HRST 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.

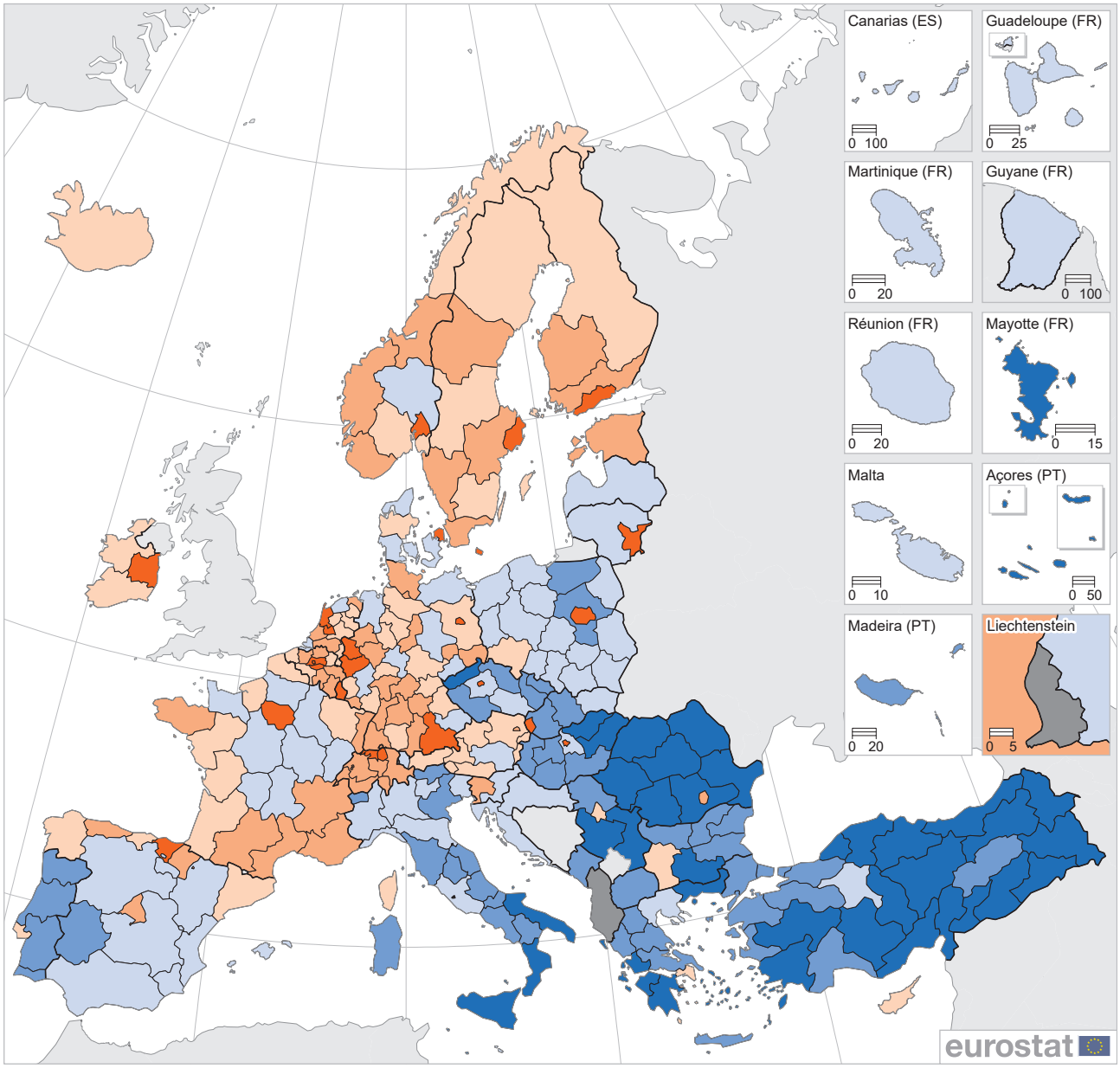
In 2020, there were 21 NUTS level 2 regions across the EU where HRST accounted for at least 57.5 % of the labour force (as shown by the darkest shade of orange in Map 9.3). More than half of these were located in western regions of the EU: Germany (four regions), Belgium (three regions) and the Netherlands (two regions) were the only EU Member States to have multiple regions that met this criterion. Within this group of 21 regions, Prov. Brabant Wallon in Belgium, País Vasco in Spain and Utrecht in the Netherlands were atypical insofar as they attracted a higher share of HRST to their regional labour force than their respective capital regions.

At the other end of the range, there were 21 regions across the EU where the share of HRST in the labour force was less than 30.0 % (as shown by the darkest shade of blue). Generally they were characterised as rural and peripheral regions that were concentrated in eastern and southern parts of the EU. Nord-Est (Romania) had the lowest regional share, with HRST accounting for around one sixth (15.6 %) of its labour force. There were four other regions in Romania — Sud-Muntenia, Sud-Est, Sud-Vest Oltenia and Vest — where the share of HRST in the labour force was lower than in any other region of the EU (all with HRST accounting for between one fifth and one quarter of their respective labour forces); the next lowest share was recorded in Mayotte (France), at 25.9 %.

In keeping with many other science and technology indicators, some of the highest shares of HRST in the labour force were recorded in capital regions. Indeed, capital regions accounted for 8 out of the 10 regions in the EU where the share of HRST was highest (as shown in the top left part of Figure 9.2). They included the capital regions of Poland, Germany, the Nordic Member States, France, Czechia and Lithuania; the other two regions were Prov. Brabant Wallon (Belgium) and Utrecht (the Netherlands). In 2020, the highest share of HRST was recorded in Prov. Brabant Wallon (a region neighbouring the Belgian capital region), where HRST accounted for 7 out of 10 persons (70.5 %) in the labour force.

The top right part of Figure 9.2 shows the share of people with tertiary education within the labour force. This includes people considered as HRST core (in other words meeting both the education and occupation criteria) as well as people who just meet the education criterion. Within the EU, this share was 36.3 % in 2020. Capital regions accounted for 7 out of the 10 regions in the EU where the share of people with tertiary education was highest; the three other regions were Prov. Brabant Wallon and Prov. Vlaams-Brabant in Belgium, and País Vasco in Spain. The highest share of people with tertiary education was 63.2 % in Prov. Brabant Wallon.

Map 9.3: Human resources in science and technology, 2020
(% of the economically active population, by NUTS 2 regions)



EU = 47.2

- < 30.0
- 30.0 - < 37.5
- 37.5 - < 47.2
- 47.2 - < 52.0
- 52.0 - < 57.5
- ≥ 57.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

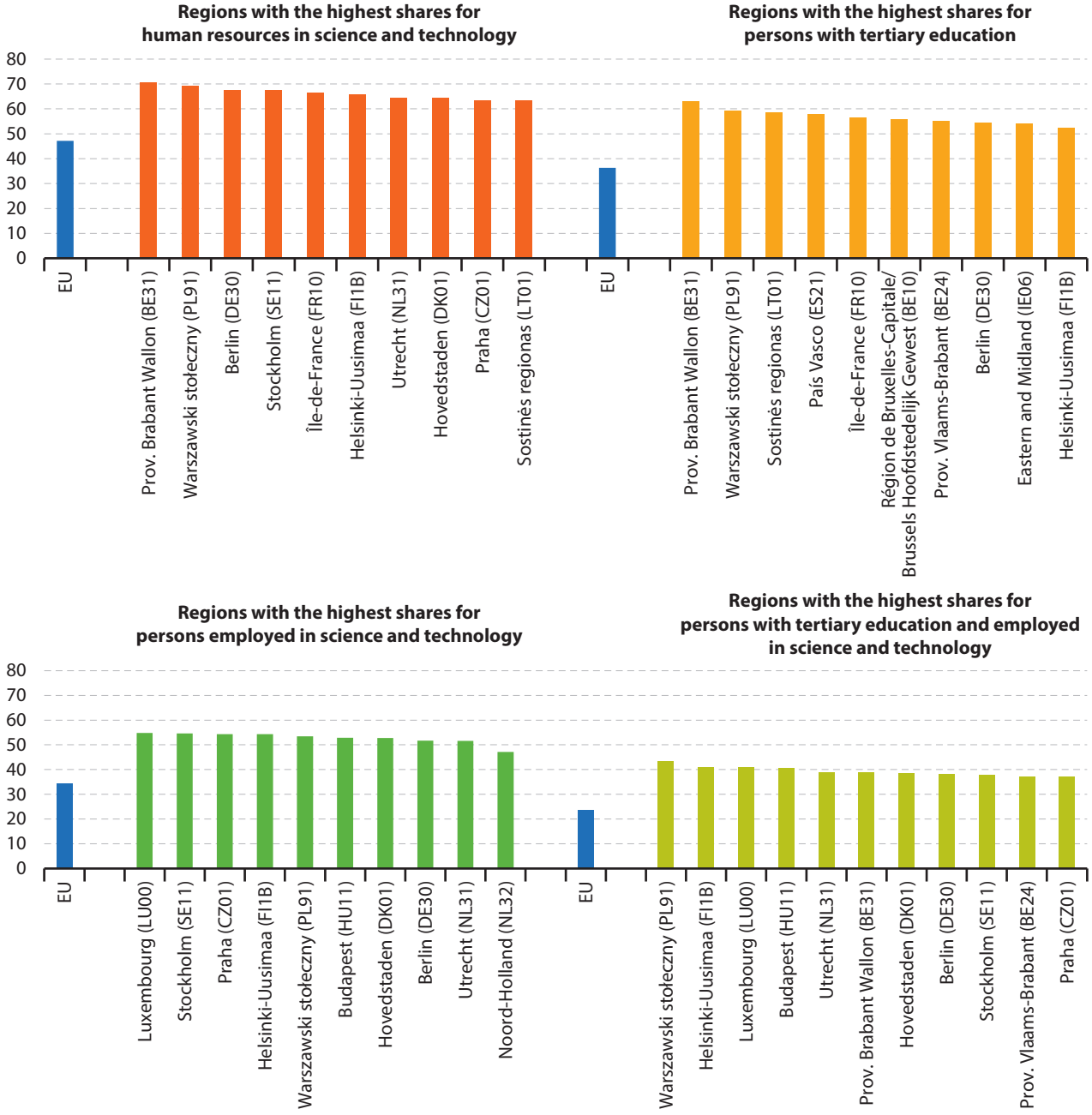
0 200 400 600 800 km

Note: Montenegro, 2019.
Source: Eurostat (online data code: hrst_st_rcat)

The bottom left part of Figure 9.2 shows the share of people employed in a science and technology occupation within the labour force. This includes people considered as HRST core (in other words meting both the education and occupation criteria) as well as people who just meet the occupation criterion. Within the EU, this share was 34.5 % in 2020. Capital regions accounted for 9 out of the 10 regions in the EU where the share of people employed in a science and technology occupation was highest; the other region was Utrecht in the Netherlands. The share of people employed in a science and technology occupation peaked at 54.8 % in Luxembourg.

The final part of Figure 9.2 — the bottom right — shows the share of people considered as HRST core. Within the EU, this share was 23.5 % in 2020. Capital regions accounted for 8 out of the 11 regions in the EU where the share of people with tertiary education was highest; the three other regions were Prov. Brabant Wallon and Prov. Vlaams-Brabant in Belgium, and Utrecht in the Netherlands. The share of HRST core peaked at 43.5 % in the Polish capital region (Warszawski stołeczny).

Figure 9.2: Human resources in science and technology by category, 2020
(% of the economically active population, by NUTS 2 regions)



Note: the rankings may include more than 10 regions if several regions have identical values.

Source: Eurostat (online data code: hrst_st_rcat)

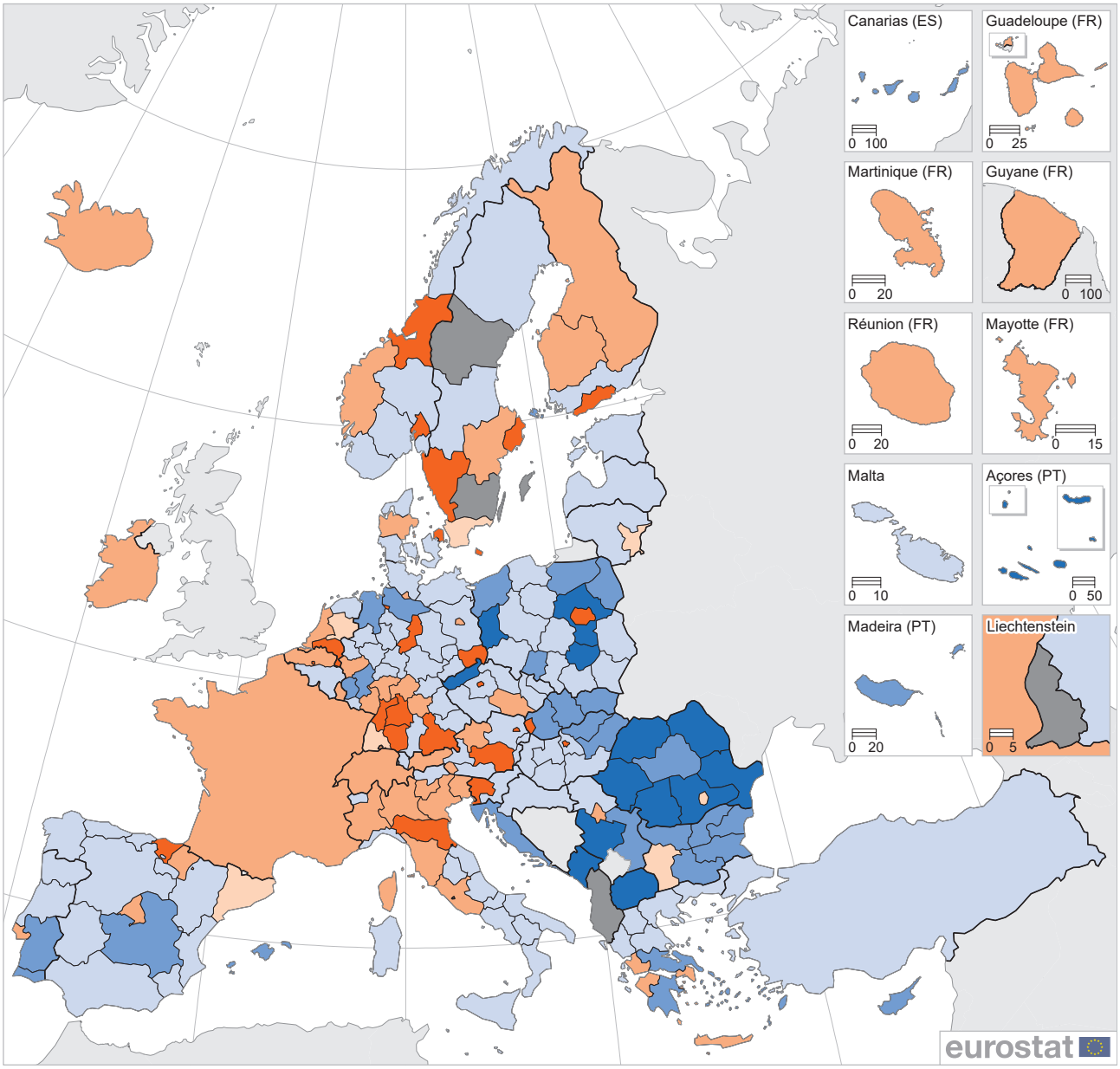
R&D personnel

The category of R&D personnel consists of all individuals employed directly in the field of R&D. Included are not only researchers, but also technicians and equivalent staff as well as supporting staff (such as managers, administrators and clerical staff). R&D researchers are employed in public and private sectors (in business enterprises, government, higher education and private non-profit organisations) to create new knowledge, products, processes and methods, as well as to manage the projects concerned.

In 2018, 2.8 million people (in full-time equivalents) were categorised as R&D personnel in the EU. Map 9.4 puts the figures on the size of the R&D workforce into context, showing R&D personnel from all sectors together as a share of the overall number of persons employed: for the EU as a whole, this share was 1.5 % in 2018. In the Danish capital region (Hovedstaden), 4.2 % of persons employed were R&D personnel (2017 data).

This was the only region in the EU with a share above 4.0 %; the next highest share was 3.9 %, observed in the German regions of Stuttgart and Braunschweig (2017 data for both regions). Including these three regions, there were 22 regions which recorded shares of at least 2.1 % (shown in the map with the darkest shade of orange), spread across 14 EU Member States; note that data are for 2017 for many of these regions and that the information for Belgium and the Netherlands concerns NUTS level 1 regions. Alongside seven German regions (not including the German capital region), this group of regions with the highest shares of R&D personnel included 10 capital regions, as well as País Vasco in Spain, Emilia-Romagna in Italy, Zuid-Nederland in the Netherlands, Steiermark in Austria, and Västsverige in Sweden. At the other end of the range, the share of R&D personnel in the total number of persons employed was less than 0.4 % in 11 regions across the EU. These were mainly in Romania and Poland (2017 data for one region), with a single region in each of Czechia and Portugal.

Map 9.4: R&D personnel, 2018
(% of all persons employed (measured in FTEs), by NUTS 2 regions)



EU = 1.5
- < 0.4
- 0.4 - < 0.6
- 0.6 - < 1.5
- 1.5 - < 1.6
- 1.6 - < 2.1
- ≥ 2.1
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium and the Netherlands, NUTS level 1. Ireland, France, Switzerland and Turkey: national data. Belgium, Denmark, Germany, Greece, Austria, Warszawski stołeczny (PL91), Mazowiecki regionalny (PL92), Sweden and Switzerland: 2017.

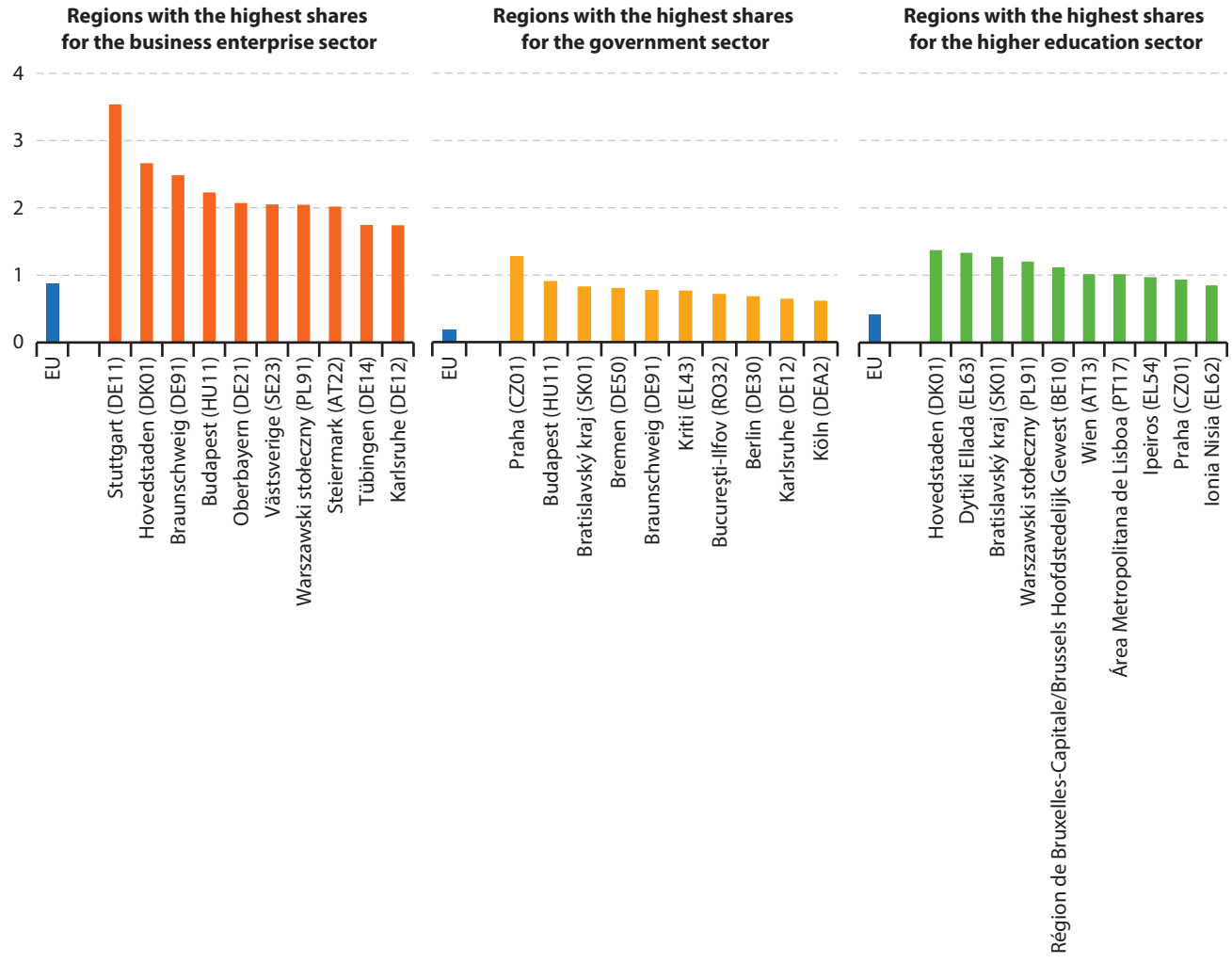
Source: Eurostat (online data code: rd_p_persreg)

SECTORAL ANALYSIS OF R&D PERSONNEL

The category of R&D personnel includes people working for business enterprises, higher education institutions, governments and private non-profit organisations. In 2018, 0.87 % of employed persons in the EU were R&D personnel working in the business enterprise sector. The corresponding shares for the higher education (0.41 %) and government (0.18 %) sectors were considerably lower (see Figure 9.3).

The three regions with the highest R&D intensity, highest R&D expenditure per inhabitant and highest ratio of R&D personnel to the total number of persons employed also had the highest ratios of R&D personnel within the business sector to the total number of persons employed: 3.54 % in Stuttgart, 2.67 % in Hovedstaden and 2.48 % in Braunschweig. Braunschweig also appeared among the top 10 regions in terms of the ratio of R&D personnel within the government sector to the total number of persons employed, although its ratio was lower than those recorded for the Czech, Hungarian and Slovak capital regions and for Bremen (also in Germany). As well as being in the top three regions for the business sector ratio, Hovedstaden had the highest ratio of R&D personnel within the higher education sector to the total number of persons employed, ahead of Dytiki Ellada in Greece.

Figure 9.3: R&D personnel by sector, 2018
(% of all persons employed (measured in FTEs), by NUTS 2 regions)



Note: Belgium, NUTS level 1. Ireland, France and the Netherlands: national data. Belgium, Yugoiztochen (BG34, higher education sector only), Denmark, Germany (business enterprise sector only), Greece, Castilla-La Mancha (ES42, higher education sector only), Austria, Warszawski stołeczny and Mazowiecki regionalny (PL91 and PL92, business enterprise sector only) and Sweden: 2017. Some values are not available (too many to document).

Source: Eurostat (online data code: rd_p_persreg)

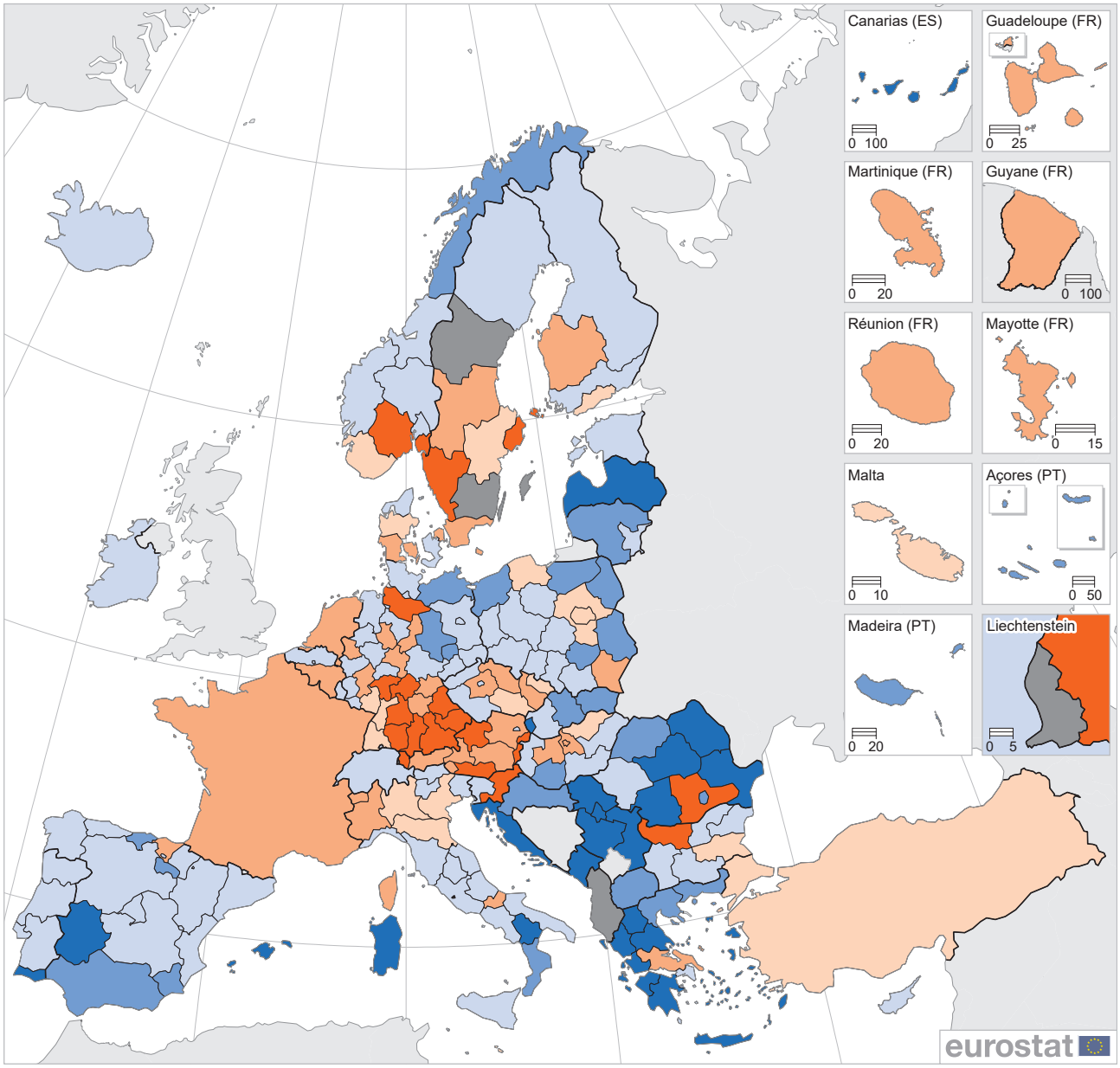
Researchers

Researchers are persons engaged in R&D activities: they are defined as 'professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques instrumentation, software or operational methods.'

Taking account of different working hours and working patterns, the number of full-time equivalent (FTE) researchers in the EU in 2019 was 1.86 million, equivalent to 0.96 % of all people employed in the EU. Regional data concerning researchers are available for 2018. In approximately 7 out of 10 (137 out of 192) NUTS level 2 regions (national data for Ireland and France) for which recent data are available (2017 data for some regions), researchers accounted for a share of the total number of persons employed that was smaller than the EU average. At the top end of the distribution, the share of researchers within total employment was more than double the EU average in 12 regions: these were mainly capital regions but also included Stuttgart and Braunschweig in Germany, and Västsverige in Sweden. As such, the distribution of researchers across EU regions can be considered to be highly skewed, with a high proportion concentrated in private and public (including academic) research in a relatively small number of regions.

More than half (54.8 %) of the researchers working in the EU were employed in the business enterprise sector. This share was also quite skewed, as nearly two thirds (122 out of 189) of NUTS level 2 regions (NUTS level 1 data for Belgium, national data for Ireland, France and the Netherlands) recorded a lower share than the EU average in 2018 (2017 data for Belgium, Denmark, Germany, Greece, Austria, five Polish regions and Sweden; 2016 data for one Polish region). In 19 regions across the EU, the business enterprise sector accounted for 70.0 % or more of all researchers (as shown by the darkest shade of orange in Map 9.5). These regions were mainly in Germany (nine regions; 2017 data) and Austria (four regions; 2017 data). The highest shares of all were in Vorarlberg in Austria (93.1 %) and Stuttgart in Germany (90.1 %).

Map 9.5: R&D researchers in the business enterprise sector, 2018
(% of researchers in all sectors (measured in FTEs), by NUTS 2 regions)



EU = 54.8

- < 20.0
- 20.0 - < 30.0
- 30.0 - < 54.8
- 54.8 - < 60.0
- 60.0 - < 70.0
- ≥ 70.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Belgium, NUTS level 1. Ireland, France, the Netherlands, Switzerland and Turkey: national data. Belgium, Denmark, Germany, Greece, Austria, Kujawsko-pomorskie (PL61), Warmińsko-mazurskie (PL62), Lubelskie (PL81), Warszawski stołeczny (PL91), Mazowiecki regionalny (PL92), Sweden and Switzerland: 2017. Podkarpackie (PL84): 2016.

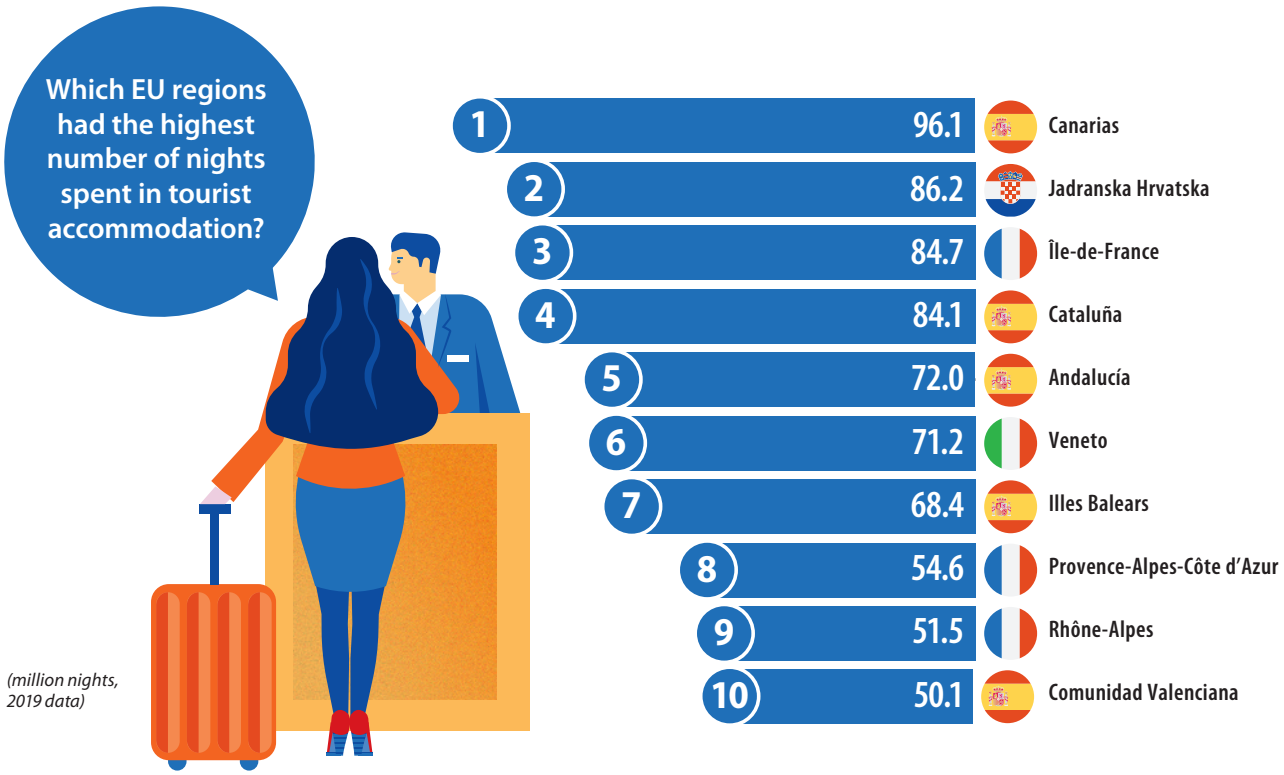
Source: Eurostat (online data code: rd_p_persreg)

10. Tourism

Tourism has the potential to play a significant role in the economic aspirations of many European Union (EU) regions and can be of particular importance in remote/peripheral regions, such as the EU's coastal, mountainous 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. However, (mass) tourism can have negative consequences, as excess demand puts a strain on local infrastructure and may be a nuisance to local communities, while tourists may impact the environment locally through noise, pollution, waste and wastewater, habitat loss and globally through transport-related emissions.

In spring 2020, during the early months of the COVID-19 pandemic in the EU, virtually all EU Member States implemented containment measures and restrictions on non-essential travel internally and/or internationally. Some partially or completely closed borders. Where international travel continued, it was in some cases accompanied by a requirement to go into quarantine. These travel-related restrictions had an immediate and massive impact on tourism. As well as travel-related restrictions, governments imposed restrictions on the way that many tourism-related businesses could operate, in some cases closing them altogether. In the course of spring 2020, tourism came to a halt in many Member States as both demand and supply were hit by the pandemic and the actions implemented to slow its spread. Most restrictions were lifted before or during the peak summer season.

The partial recovery in the number of tourist accommodation arrivals in the EU during the summer of 2020 was largely driven by domestic demand, with many people staying in their home country for a 'staycation' rather than crossing borders for a foreign holiday. Compared with 2019, the number of arrivals in July and August 2020 was particularly low in hotels and similar establishments, while the impact was less



Source: Eurostat (online data code: tour_occ_nin2)

for holiday and other short-stay accommodation. Least impacted were camping grounds, recreational vehicle parks and trailer parks, although the number of arrivals in this type of accommodation was still down by about one quarter. As subsequent waves of the pandemic affected various EU Member States, many reintroduced restrictions in autumn and winter 2020, with major consequences for winter tourism, whether related or not to winter sports. At the time of writing, in spring 2021, some Member States have started to reduce or remove restrictions on international travel from selected countries.

It should be remembered that there are many regions within the EU where tourism-related activities play an important and sometimes dominant role; these are likely to have been particularly hard hit by the economic and social consequences of the crisis. The same is true for the people working in tourism-related enterprises: young people, immigrants, women and people on low pay typically make up a relatively large proportion of the workforce in many of these enterprises.

This chapter presents information on regional patterns of tourism across the EU. Its main focus is the provision of tourist accommodation services, as measured by the number of nights spent; it concludes with information relating to the sustainability of tourism, as detailed by a number of indicators that measure tourism pressures.

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. It is important to note that 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.

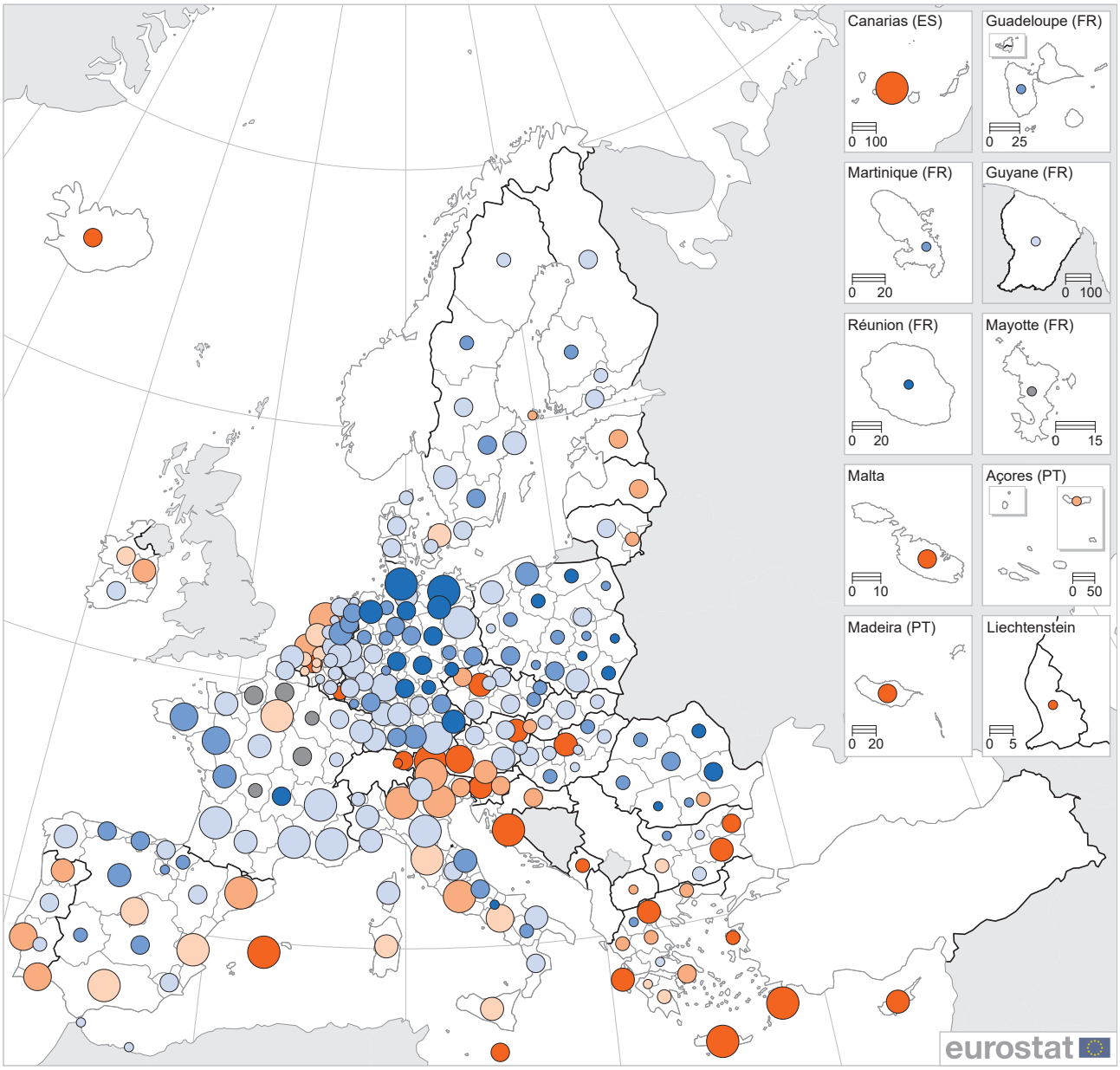
Number of nights spent

In 2019, there were 2.9 billion nights spent in tourist accommodation across the EU. This figure refers to the total number of nights spent by all tourists and reflects both the length of stay and the number of tourists. It is considered a key indicator for analysing the tourism sector, even if it does not cover stays at non-rented accommodation nor same-day visits.

Map 10.1 shows information on the number of nights spent in tourist accommodation in 2019 by domestic tourists and international tourists for NUTS level 2 regions.

There were 25 regions in the EU (out of 240 for which data are available; note that data for Greece are for 2018) where at least 30.0 million nights were spent in tourist accommodation. These regions were mainly coastal regions, along with several mountain regions (such as Tirol in Austria) and a very small number of inland urban regions (city destinations such as the French capital region). A total of 1.3 billion nights were spent in tourist accommodation across these 25 regions. As such, approximately one tenth of the EU regions accounted for a cumulative share of 44 % of the total nights spent. This high concentration of tourist numbers in relatively few locations has implications for sustainable development.

Map 10.1: Nights spent in tourist accommodation by origin, 2019
(by NUTS 2 regions)



Share of international tourists in total nights spent (%)
EU = 47.3

- < 12.5
- 12.5 - < 20.0
- 20.0 - < 47.3
- 47.3 - < 55.0
- 55.0 - < 75.0
- ≥ 75.0
- Data not available

Total nights spent (million)
EU = 2 875

- < 2.5
- 2.5 - < 5.0
- 5.0 - < 10.0
- 10.0 - < 20.0
- 20.0 - < 30.0
- ≥ 30.0

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

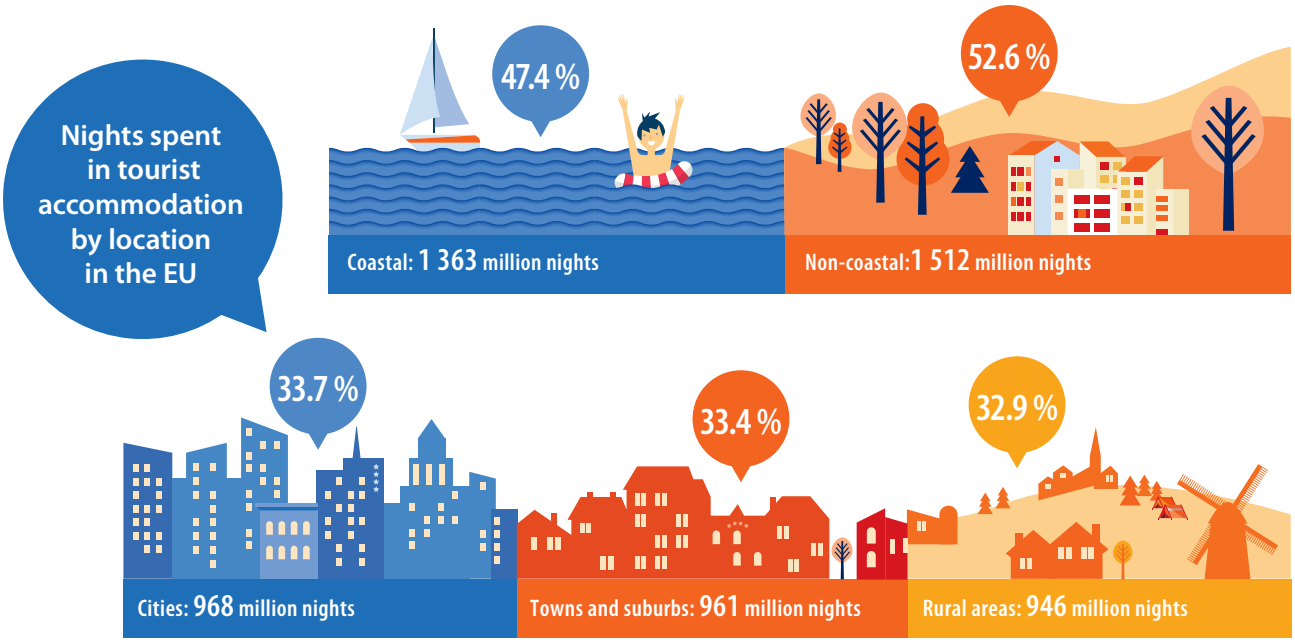
0 200 400 600 800 km

Note: Greece, 2018. Montenegro: 2017.

Source: Eurostat (online data code: tour_occ_nin2)

The infographic below shows that there were 1.4 million nights spent in coastal regions of the EU in 2019, which was 47.4 % of the total. International tourists are generally more likely (than domestic tourists) to spend their holidays in coastal areas.

The distribution of nights spent in tourist accommodation according to the degree of urbanisation was balanced as approximately one third of the total was in each of the categories: 33.7 % in cities, 33.4 % in towns and suburbs and 32.9 % in rural areas.



(2019 data)

Source: Eurostat (online data code: tour_occ_nin2)

The three regions with the highest number of tourist nights in the EU were the island region of Canarias (Spain), Jadranska Hrvatska (on the Adriatic coast in Croatia) and Île-de-France (the French capital)

The list of the EU regions with the highest numbers of tourist nights in 2019 is dominated by coastal regions around the Mediterranean Sea. Nevertheless, the highest number of nights spent in tourist accommodation was recorded in Spain's Atlantic island destination of Canarias (96.1 million). Several other coastal regions featured in the top 10: the Adriatic region of Jadranska Hrvatska (Croatia; 86.2 million), four more Spanish regions — Cataluña (84.1 million), Andalucía (72.0 million), Illes Balears (68.4 million) and Comunidad Valenciana (50.1 million) — as well as Veneto (Italy; 71.2 million) and Provence-Alpes-Côte d'Azur (France; 54.6 million). The top 10 was completed by two non-coastal regions, both of which were located in France: the capital region of Île-de-France (which had the third highest number of nights spent in tourist accommodation at 84.7 million) and Rhône-Alpes (51.5 million).

Map 10.1 also displays information concerning the share of nights spent by international (or non-resident) tourists. Across the EU as a whole, the share was 47.3 % in 2019; in other words, just under half of the nights spent in tourist accommodation in the EU were spent by people who were not residents of the country where they were staying.

In 2019, domestic tourists (residents of the country visited) accounted for 1.5 billion nights spent in tourist accommodation across the EU. This figure was 11 % higher than the 1.3 billion nights spent by international tourists; note that the latter includes tourists from other EU Member States as well as from non-member countries.

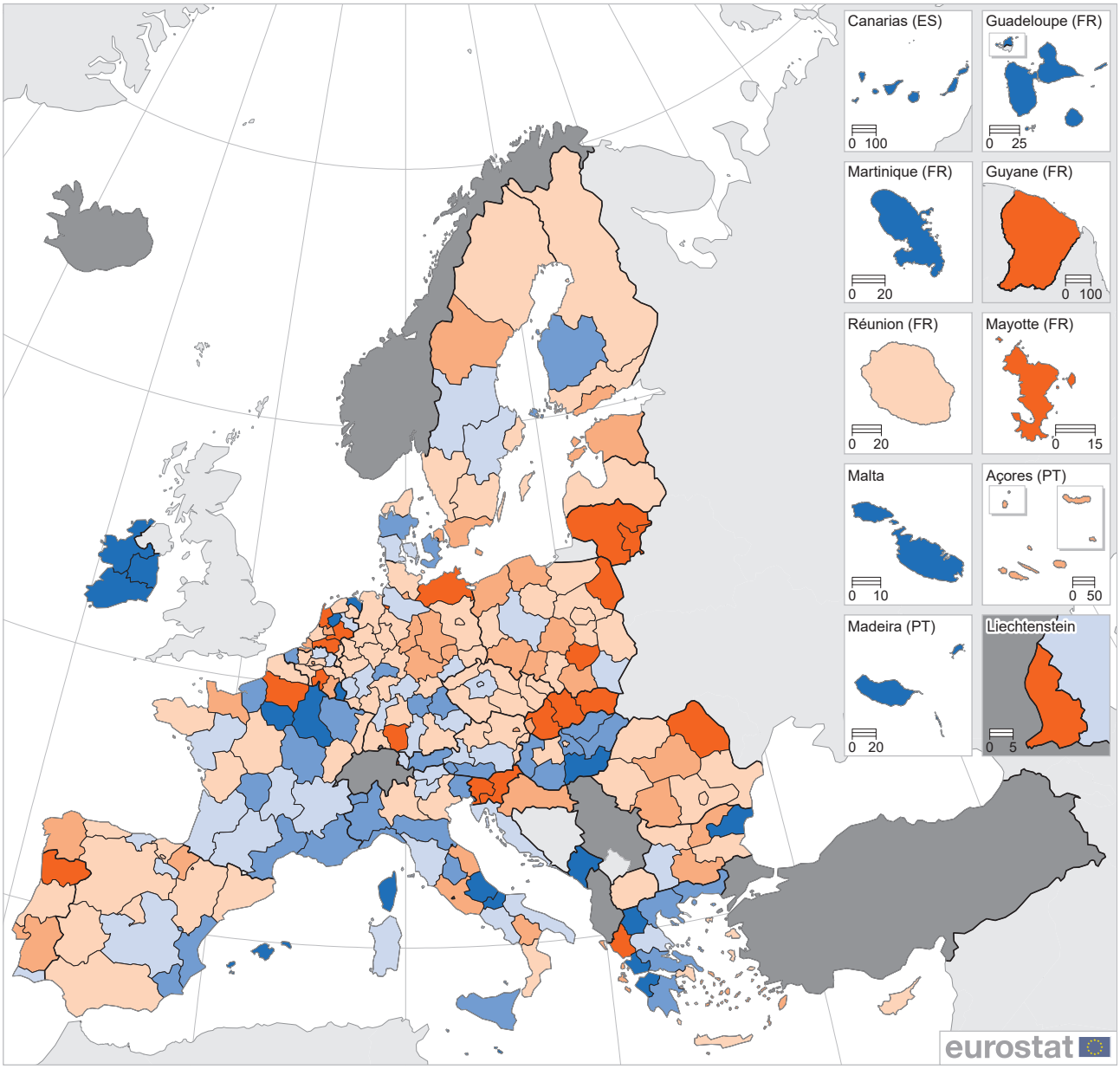
The share of international tourists in the total number of nights spent in tourist accommodation was generally high in coastal regions, particularly island regions. It exceeded 90.0 % in seven regions: five island regions — Kriti (Greece, 2018), Malta, Cyprus, Ionia Nisia (Greece, 2018) and Iles Balears; the coastal region of Jadranska Hrvatska; and the mountainous region of Tirol. Several capital regions appear among the 15 other regions where this share reached 75.0 % or higher (as shown by the darkest orange shade in the map), with particularly high shares of international tourists in the Czech and Hungarian capitals.

In 2019, there was an annual increase of 2.3 % in the number of nights spent in EU tourist accommodation

Between 2018 and 2019, the number of nights spent in EU tourist accommodation increased by 2.3 %. Map 10.2 presents regional information for the annual rate of change in the total number of nights spent in tourist accommodation between 2018 and 2019. More than four fifths of NUTS level 2 regions recorded an increase in their number of nights spent in 2019. This was the case for 201 out of the 240 EU regions for which data are available (note that data for Greece and Slovenia relate to the change in 2018 and 2017 respectively). There were 38 regions where the change in the number of nights spent was negative, including 23 where the decline was larger than 1.5 % (as shown in Map 10.2 in the darkest shade of blue).

Between 2018 and 2019, one quarter of all EU regions recorded an increase of at least 5.0 % in the total number of nights spent in tourist accommodation (as shown by the two darkest orange shades in the map). The highest growth rates were recorded in Zahodna Slovenija (Slovenia), Prov. Namur (Belgium), Mayotte (France), Stredné Slovensko and Východné Slovensko (both Slovakia), ranging from 15.9 % to 18.3 %. Among these five regions with the fastest growth, Zahodna Slovenija was the only region with more than 10.0 million nights spent in 2019, while Mayotte had the smallest level of tourism by this measure (0.1 million nights).

Map 10.2: Annual rate of change for nights spent in tourist accommodation, 2018-2019
(%, by NUTS 2 regions)



EU = 2.3

- < −1.5
- −1.5 − < 1.0
- 1.0 - < 2.3
- 2.3 - < 5.0
- 5.0 - < 7.5
- ≥ 7.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Greece, 2017-2018. Slovenia and Montenegro: 2016-2017. Montenegro: break in series.
Source: Eurostat (online data code: tour_occ_nin2)

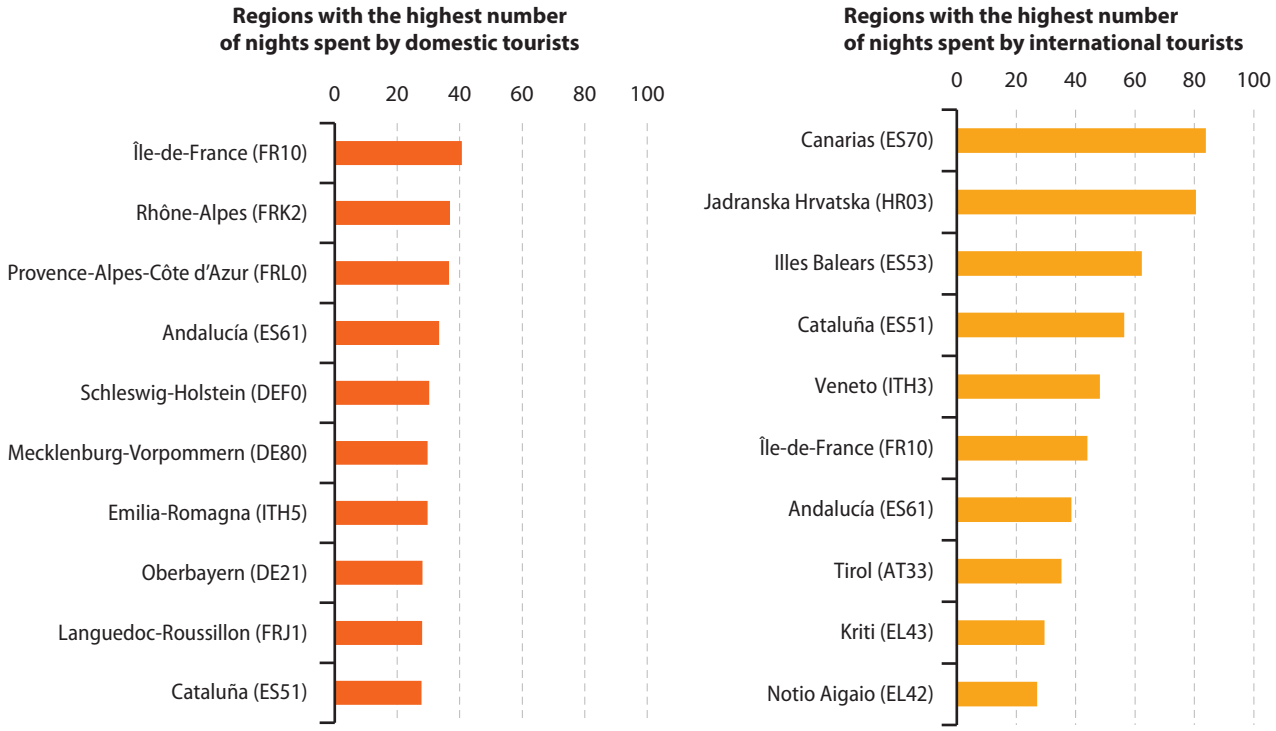
An analysis of the top 5 tourist destinations in the EU reveals a variety of developments between 2018 and 2019. Among these regions, Andalucía and Cataluña recorded the highest growth rates in terms of nights spent (up 3.5 % and 2.9 % respectively), while Jadranska Hrvatska recorded a more modest increase (up 1.6 %). By contrast, there was a decline in the total number of nights spent in the Île-de-France (down 1.6 %) and in Canarias (down 3.8 %). The contrasting developments for the Île-de-France and Jadranska Hrvatska resulted in the Croatian coastal region overtaking the French capital region to record the second highest number of nights spent (behind Canarias).

The three destinations with the highest number of nights spent by domestic tourists were French: Île-de-France, Rhône-Alpes and Provence-Alpes-Côte d'Azur

Figure 10.1 presents the most frequented tourist destinations for both domestic and international tourists. The ranking for domestic tourists is dominated by relatively large EU Member States, reflecting the fact that they have a larger number of potential clients. In 2019, the three most frequented regions across the EU for domestic tourists were all located in France. There were 40.7 million nights spent by domestic tourists in tourist accommodation within Île-de-France, while Rhône-Alpes (36.9 million) and Provence-Alpes-Côte d'Azur (36.6 million) recorded almost as many nights. Within Spain, Andalucía had the highest number of nights spent by domestic tourists, Schleswig-Holstein had the highest number of nights spent by domestic tourists in Germany, and in Italy the most frequented region for domestic tourists was Emilia-Romagna.

The second half of Figure 10.1 shows that international tourists often stayed in the most frequented holiday destinations in the EU. The large number of nights spent by international tourists in some of these regions may result in considerable pressures on the environment and sustainability, especially as many international tourists arrive by air (particularly for some of the island regions) and tend to travel during high/peak seasons. In 2019, three of the top four most frequented destinations in the EU for international tourists were located in Spain: Canarias (83.9 million nights in tourist accommodation), Illes Balears (62.3 million) and Cataluña (56.4 million). The second most frequented destination for international tourists was Jadranska Hrvatska (80.6 million).

Figure 10.1: Top tourist regions in the EU, 2019
(million nights spent in tourist accommodation, by NUTS 2 regions)



Note: Greece, 2018. Bourgogne (FRC1), Haute-Normandie (FRD2), Picardie (FRE2), Champagne-Ardenne (FRF2), Limousin (FRI2) and Mayotte (FRY5): not available.

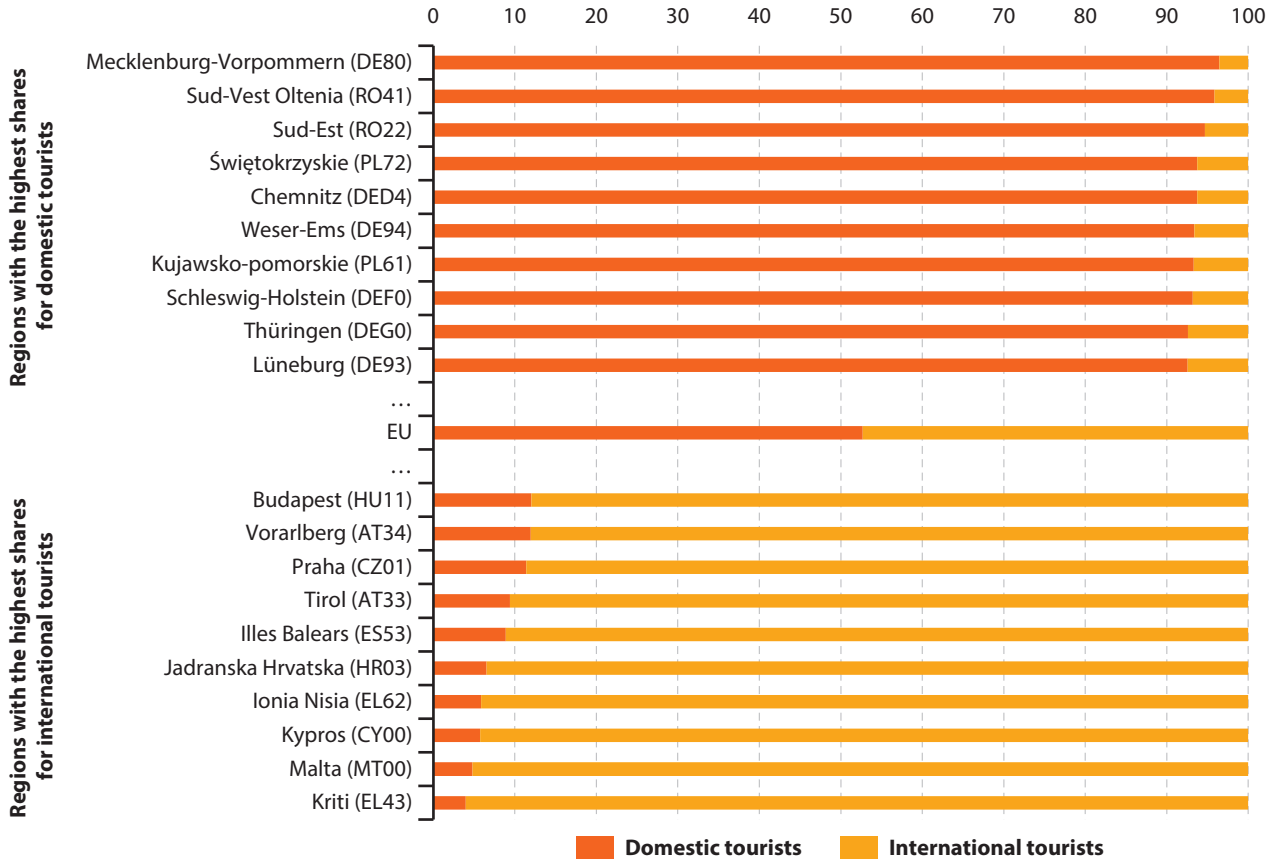
Source: Eurostat (online data code: tour_occ_nin2)

More than 19 out of 20 nights spent in Kriti and Malta were attributed to international tourists

Figure 10.2 extends the analysis of the most frequented destinations by providing information about those NUTS level 2 regions that were most dependent upon domestic and upon international tourists. In 2019, Mecklenburg-Vorpommern (Germany) on the Baltic coast had the highest share of nights spent in tourist accommodation attributed to domestic tourists (96.4 %), followed by two Romanian regions: Sud-Vest Oltenia (95.8 %) and Sud-Est (94.7 %). Several of the regions with high shares for domestic tourists were located in Germany.

International tourists accounted for a majority of the nights spent in many of the EU's most frequented tourist destinations in 2019. This was most notably the case in the Greek island region of Kriti, where 96.0 % (2018 data) of nights spent in tourist accommodation were attributed to international tourists. There were also very high shares for international tourists in Malta (95.2 %), Cyprus (94.2 %) and Ionia Nisia (94.1 %), as well as the coastal region of Jadranska Hrvatska (93.5 %). Aside from coastal and island destinations, international tourists also accounted for a high proportion of the total nights spent in the mountainous western Austrian regions of Tirol and Vorarlberg, as well as the capital regions of Praha and Budapest.

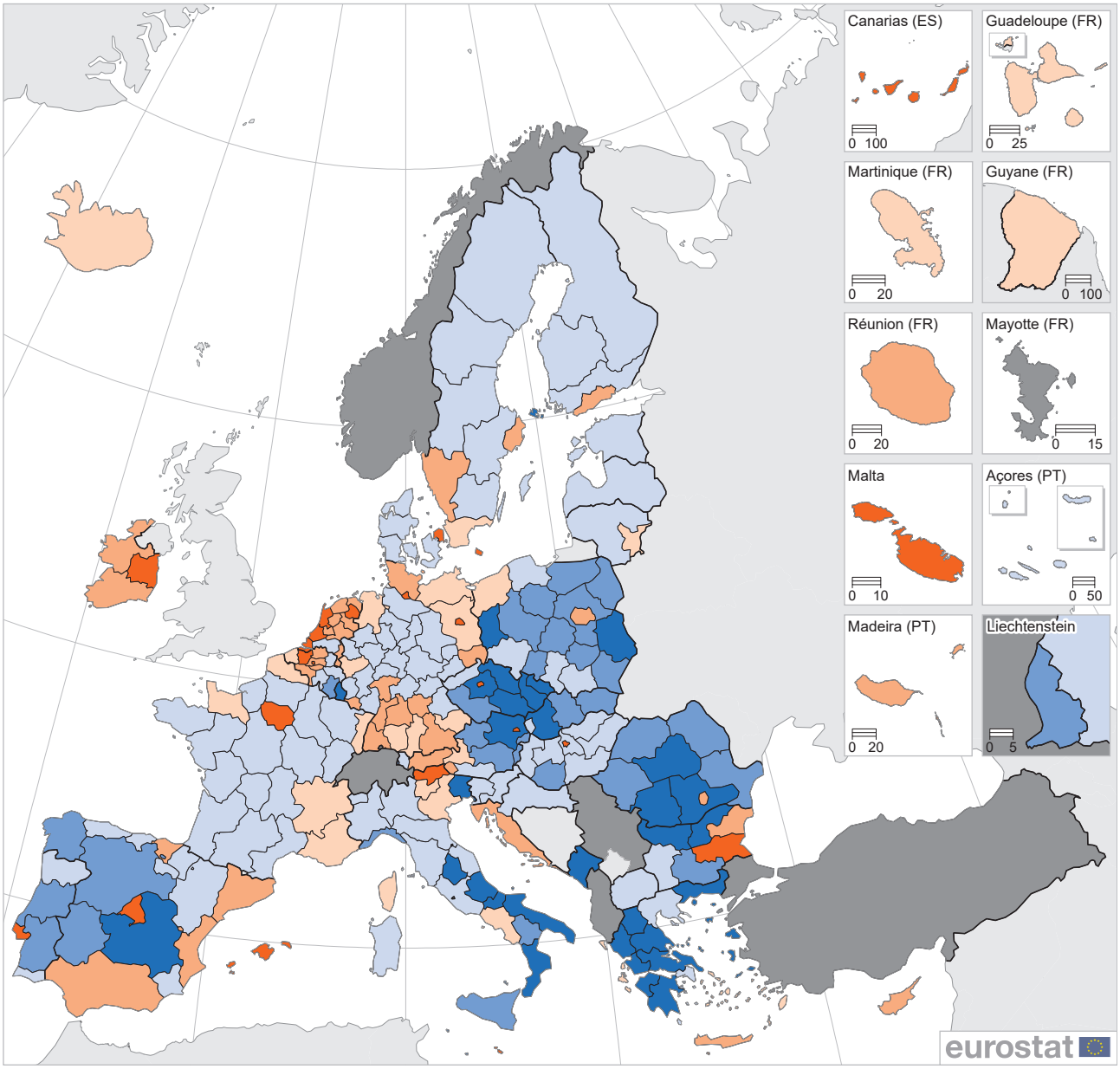
Figure 10.2: Nights spent in tourist accommodation, 2019
(%, share of total nights spent by domestic and international tourists, by NUTS 2 regions)



Note: Greece, 2018. Bourgogne (FRC1), Haute-Normandie (FRD2), Picardie (FRE2), Champagne-Ardenne (FRF2), Limousin (FRI2) and Mayotte (FRY5): not available.

Source: Eurostat (online data code: tour_occ_nin2)

Map 10.3: Bedroom occupancy rates in hotels and similar establishments, 2019
(%, by NUTS 2 regions)



EU = 59.0

- < 40.0
- 40.0 - < 46.0
- 46.0 - < 59.0
- 59.0 - < 62.0
- 62.0 - < 70.0
- ≥ 70.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: Greece, 2018. Montenegro: 2017.
Source: Eurostat (online data code: tour_occ_anor2)

Occupancy rates

This section focuses on net occupancy rates of bedrooms in hotels and similar accommodation establishments for 2019. The occupancy rate of bedrooms is calculated as the percentage of available bedrooms that are used; bedrooms that are closed for seasonal or other temporary reasons are excluded. Across the EU, the occupancy rate for 2019 was 59.0 %. Rates of 70.0 % or more were recorded in 21 NUTS level 2 regions (shown with the darkest shade of orange in Map 10.3). Among these, three recorded rates of 80.0 % or 80.1 %: Illes Balears and Canarias (both in Spain) and Noord-Holland (in the Netherlands). Occupancy rates below 50.0 % were recorded in 81 of 239 regions in the EU for which data are available (2018 data for Greece). Among these, 31 regions had rates below 40.0 % (the darkest shade of blue in the map). A large number of these regions with relatively low rates were in Greece or Italy, with most of the remainder in eastern EU Member States, most notably in Czechia, Romania and Bulgaria. The lowest bedroom occupancy rate of all was 18.2 % in Dytiki Makedonia (Greece).

Tourism pressures

Since the advent of mass tourism in the 1950s and 1960s, EU regions have been affected by tourism in different ways. Some regions continue to receive very few visitors, while others have seen their numbers of tourists grow at a rapid pace. The vast majority of regions receive the bulk of their visitors during a single season, although others have a more steady flow of tourists year-round (note that from 2021 onwards, Eurostat will publish monthly, regional accommodation statistics).

Sustainable tourism involves the preservation and enhancement of cultural and natural heritage, including the arts, gastronomy or the preservation of 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.

Tourism density — defined here as the relationship between the total number of nights spent and the total area of each region — provides one measure that may be used to analyse sustainability issues. In 2019, there were, on average, some 671 nights spent in tourist accommodation for every square kilometre (km^2) across the EU territory. Tourism density was generally high in regions where space was at a premium: capital regions, other major urban regions, and some coastal (particularly small island) regions. By contrast, tourism density was relatively low in many eastern and northern regions of the EU, as well as some interior regions of Spain.

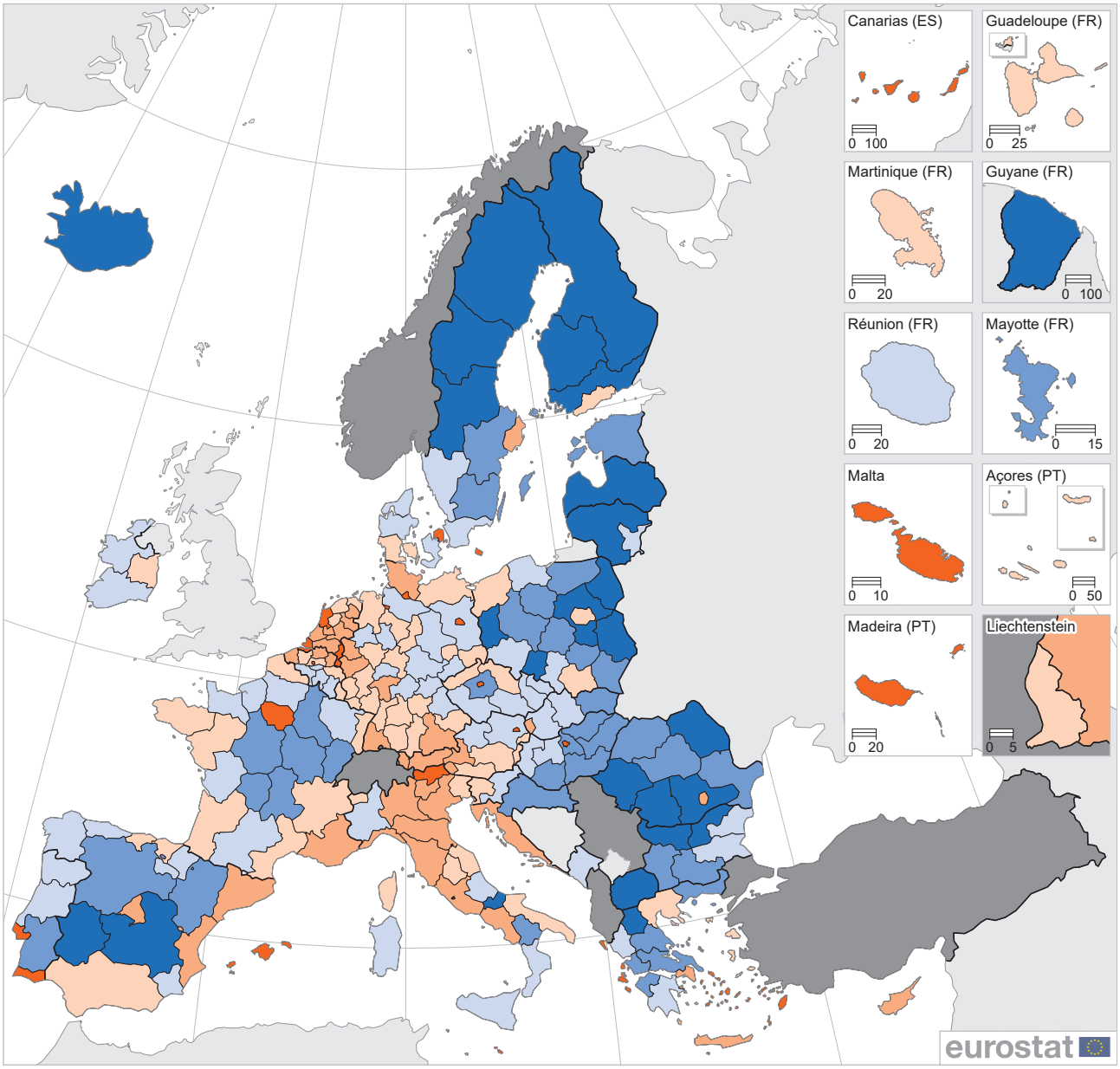
There were 23 NUTS level 2 regions in the EU where tourism density in 2019 stood at more than 4 000 nights per km^2 (as shown by the darkest shade of orange in Map 10.4); among these, 11 had ratios in excess of 10 000 per km^2. The highest ratios were recorded in capital regions: Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (45 856), Wien (40 525), Berlin (38 072), Praha (37 257), Budapest (20 508) and Noord-Holland (10 304). Regional tourism density was also high in three island destinations that attract tourists year-round: Malta (31 365), Illes Balears (13 703) and Canarias (12 906). There were two other regions that recorded ratios of more than 10 000 nights spent per km^2: Hamburg in Germany (20 373) and Ciudad Autónoma de Melilla in Spain (10 451). Note these density ratios are influenced by the administrative boundaries that delineate each region. For example, the capital regions of Belgium, Austria and Czechia mentioned above each cover an area of less than 500 km^2. By contrast, the French capital region of Île-de-France — which is the second most frequented tourist destination in the EU — has an area of almost 12 000 km^2; a high proportion of its visitors stay within the city boundaries of Paris (103 km^2).

An alternative tourism pressure indicator can be calculated as the number of nights spent in tourist accommodation relative to the resident population in a region. This can give an idea of the pressure on a region's infrastructure. In the EU, there were 6 439 nights spent in tourist accommodation per 1 000 inhabitants in 2019.

This measure was generally high in island, coastal, mountain and rural regions, particularly in southern Europe, Austria and Croatia, but also further north, for example in Zeeland and Drenthe in the Netherlands. One notable, urban exception was the Czech capital region. By far the highest ratios of nights spent in tourist accommodation relative to the resident population were in the Greek islands of Notio Aigaio and Ionia Nisia, with ratios of 90 278 and 75 508 nights spent per 1 000 inhabitants (both 2018 data) respectively.

By contrast, the number of nights spent in tourist accommodation relative to the resident population was relatively low in many eastern regions of the EU, particularly in Poland and Romania. However, the lowest ratio was in the outermost French region of Mayotte (373 per 1 000 inhabitants).

Map 10.4: Nights spent in tourist accommodation relative to total area, 2019
(per km², by NUTS 2 regions)



EU = 671.1

- < 110.0
- 110.0 - < 275.0
- 275.0 - < 671.1
- 671.1 - < 1 575.0
- 1 575.0 - < 4 000.0
- ≥ 4 000.0
- Data not available

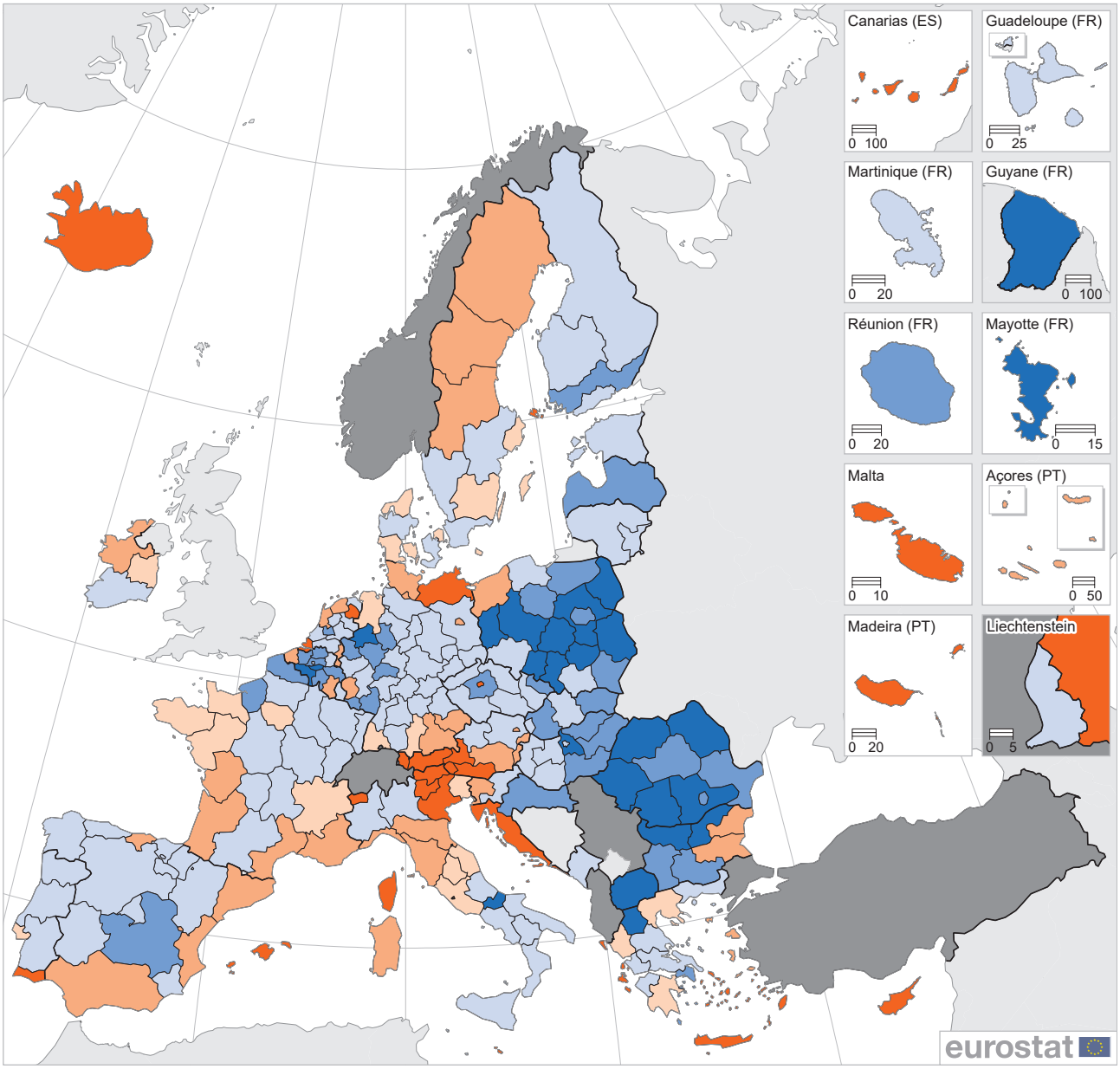
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 07/2021

0 200 400 600 800 km

Note: Greece: 2018. Montenegro: 2017.

Source: Eurostat (online data codes: tour_occ_nin2 and reg_area3)

Map 10.5: Nights spent in tourist accommodation relative to resident population, 2019
(per 1 000 inhabitants, by NUTS 2 regions)



EU = 6 439.3

- < 1 650.0
- 1 650.0 - < 2 900.0
- 2 900.0 - < 6 439.3
- 6 439.3 - < 8 150.0
- 8 150.0 - < 13 000.0
- ≥ 13 000.0
- Data not available

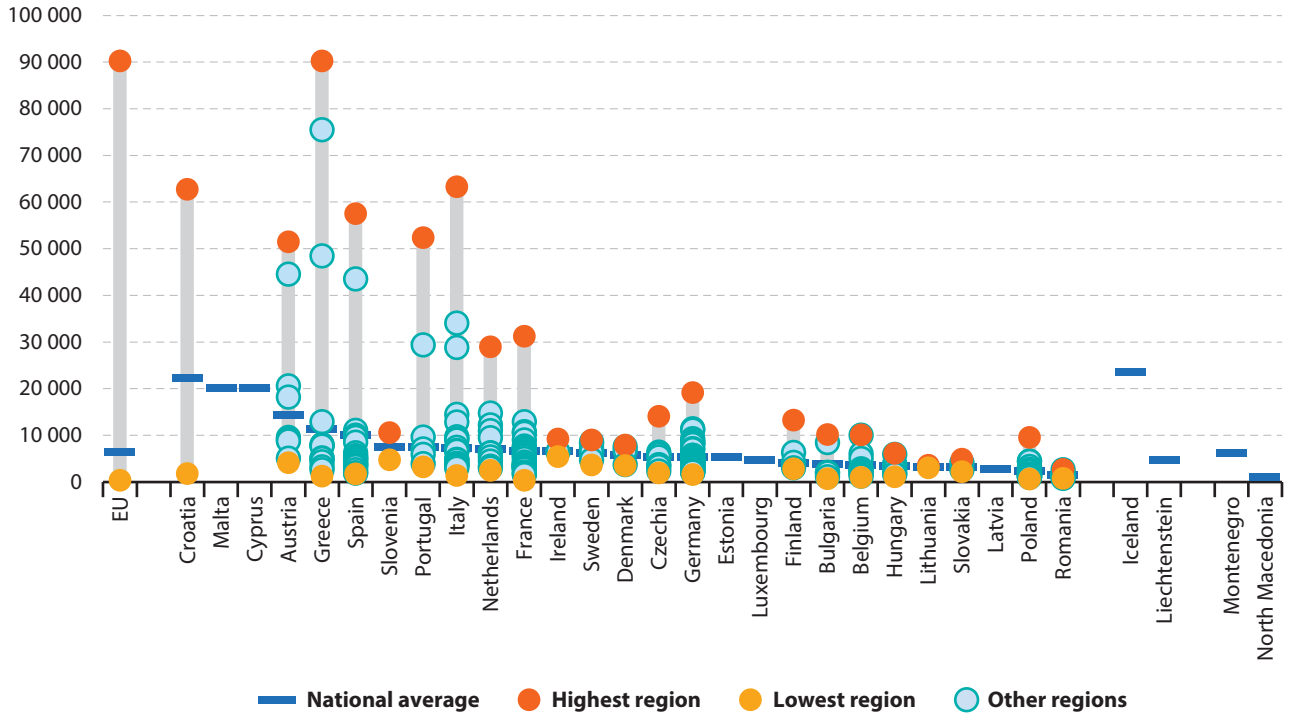
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Greece, 2018. Montenegro: 2017.
Source: Eurostat (online data code: tour_occ_nin2)

The same indicator as shown in Map 10.5 is also presented in Figure 10.3. This figure illustrates the extent to which this measure of tourism pressure varies between the regions within each EU Member State. The largest ranges were observed in France and Greece (2018 data): the ratio of 31 254 nights per 1 000 inhabitants in Corse was 84 times as high as the ratio of 373 per 1 000 in Mayotte; the ratio of 90 278 nights per 1 000 inhabitants in Notio Aigaio was 72 times as high as the ratio of 1 262 per 1 000 in Dytiki Makedonia. Relatively large inter-regional differences were also observed in Italy, Croatia and Spain. By contrast, there was relatively little regional difference for this indicator among the regions of Lithuania or Ireland.

Figure 10.3: Nights spent in tourist accommodation relative to resident population, 2019
(per 1 000 inhabitants, by NUTS 2 regions)



Note: ranked on the national average. Greece: 2018. Montenegro: 2017.
Source: Eurostat (online data code: tour_occ_nin2)

C

Environment and natural resources

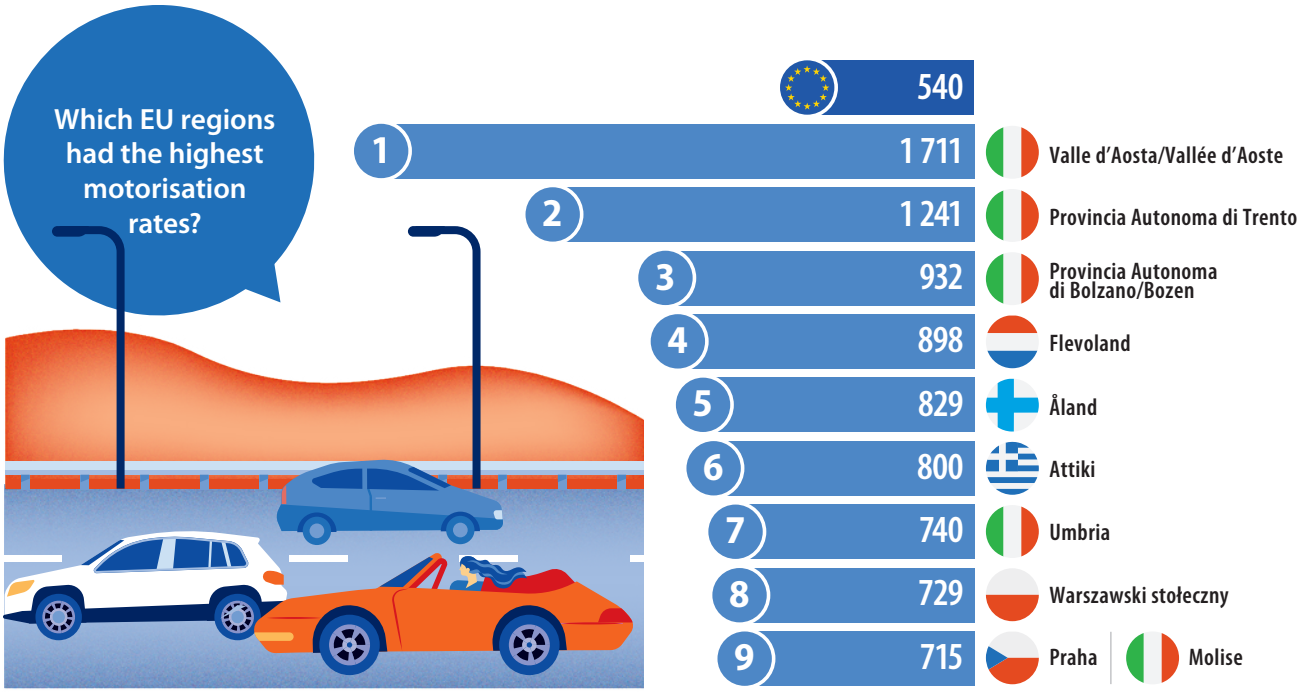
11. Transport

European Union (EU) transport policy aims to promote environmentally friendly, safe and efficient travel, while underpinning the rights of citizens, goods and services to circulate freely within the single market.

In spring 2020, during the early months of the COVID-19 pandemic in the EU, virtually all EU Member States implemented containment measures and restrictions on non-essential travel internally and/or internationally. Some partially or completely closed borders. Where international travel continued, it was in some cases accompanied by a requirement to go into quarantine. These travel-related restrictions had an immediate and massive impact on nearly all modes of transport, particularly concerning passenger transport. As the pandemic continued in 2020 and into 2021, waves of travel restrictions were imposed and lifted with some subsequently reinstated. Commercial transport services that operated during the pandemic implemented initiatives to try to protect transport workers and travellers, as well as to ensure the circulation of goods (particularly essential goods) within and between EU Member States as well as between the EU and non-member countries.

This chapter focuses on regional statistics for road, air and rail transport as well as road accidents. Note the latest available data relate to the 2019 reference period (as such, they do not cover any impacts resulting from the COVID-19 pandemic). The first section presents information concerning road transport and accidents: the number of passenger cars relative to the total number of inhabitants (otherwise referred to as the motorisation rate), as well as the number of road accidents resulting in injuries or fatalities. The second section provides statistics on air traffic: regional data for the number of passengers carried as well as information for the busiest airports. The final section concerns the density of rail networks.

Note that a wider selection of information for transport infrastructure was presented in a previous edition of the *Eurostat regional yearbook*.



(number of passenger cars per 1 000 inhabitants, 2019 data)

Source: Eurostat (online data codes: tran_r_vehst, road_eqs_carage and demo_pjan)

Road transport and accidents

Roads are by far the most common transport mode in the EU for passenger and inland freight transport. Policy objectives for road transport include, among other issues: ensuring mobility on an ever more congested road network; reducing road fatalities; lowering air pollution (emissions of carbon dioxide and other pollutants) and the carbon footprint to which road transport contributes; decreasing the reliance on fossil fuel use and promoting the use of electric vehicles; reviewing the working conditions of professional drivers.

MOTORISATION RATE

In 2019, there were 241 million passenger cars circulating on the roads of the EU. Across NUTS level 2 regions, in absolute terms the largest number of passenger cars was recorded in Lombardia (Italy), with 6.2 million in 2019. Leaving aside Portugal (for which only national data are available), the next highest regional figures were for Île-de-France (the French capital region; 5.2 million) and Andalucía (Spain; 4.2 million).

The EU motorisation rate — or the average number of passenger cars per inhabitant — stood at 540 per 1 000 inhabitants; in other words, there was just over one car for every two persons in the EU. In mature markets, the use of passenger cars may be expected to be relatively low in regions characterised by efficient and extensive public transport systems that have frequent services. In these regions, people may be less inclined to own a vehicle (or multiple vehicles within one household), especially when the regions where they live/work suffer from congestion and/or difficulties to find a place to park. This pattern was particularly apparent in capital and urban regions of western and Nordic Member States. By contrast, in eastern and southern parts of the EU the highest motorisation rates were often recorded in capital regions. Motorisation rates were also relatively high in several regions that receive a large number of tourists.

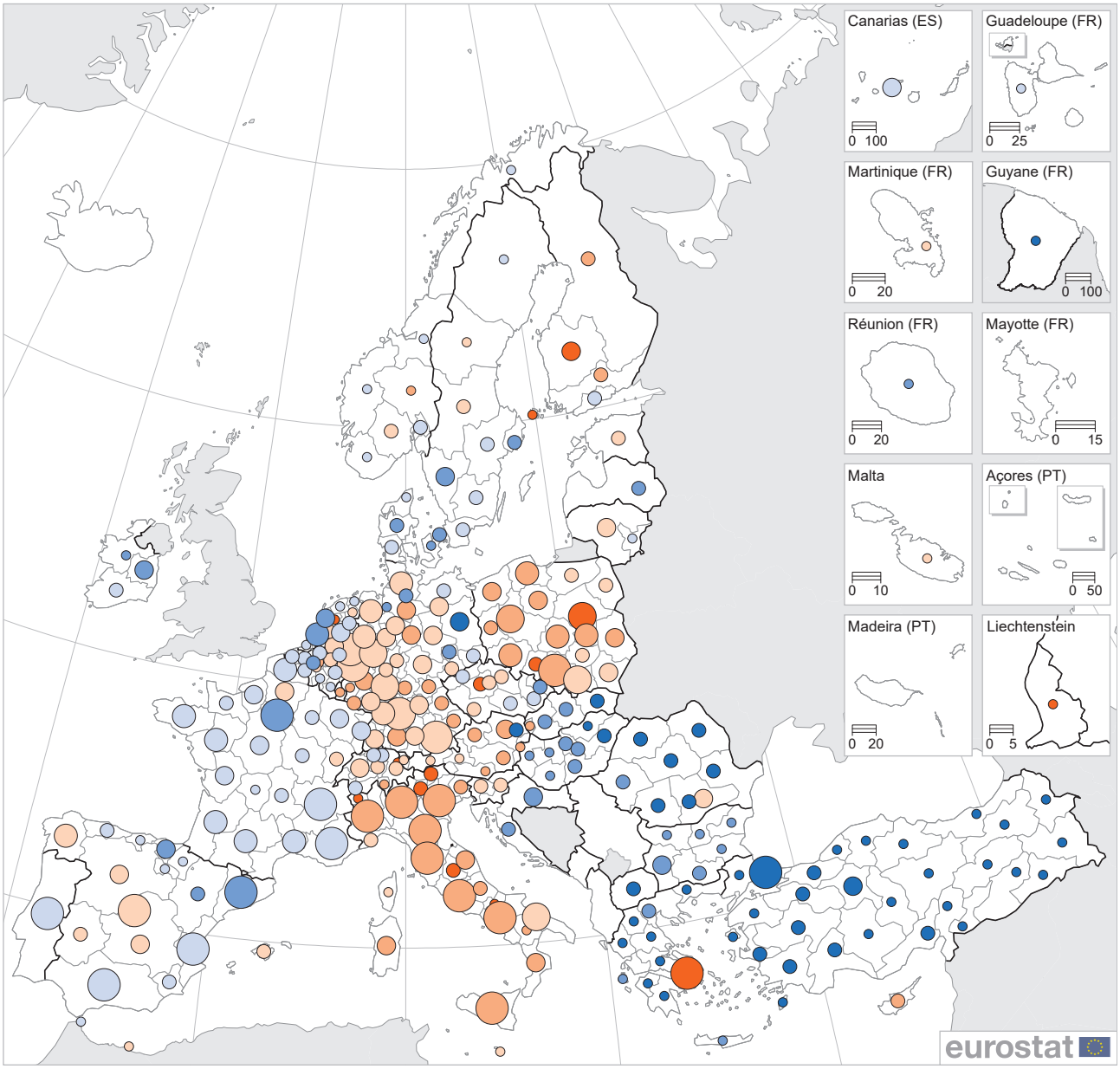
Berlin (Germany) had one of the lowest motorisation rates in the EU, at 330 passenger cars per 1 000 inhabitants in 2019. Car ownership in Berlin was considerably lower than in any other part of Germany, with the next lowest motorisation rates being recorded in Bremen and Hamburg (429 and 430 passenger cars per 1 000 inhabitants respectively). Relatively low motorisation rates — less than 475 passenger cars per 1 000 inhabitants — were also reported in the capital regions of Austria, Hungary, Sweden, Belgium, Denmark, Croatia, France, the Netherlands, Ireland and Bulgaria.

Higher motorisation rates are often found in suburban, rural and peripheral regions, especially when these lack alternative modes of inland passenger transport. The highest motorisation rates in the EU — at least 700 passenger cars per 1 000 inhabitants in 2019 — are shown by the darkest orange shade in Map 11.1. These regions were principally located in Italy (five regions), Poland and Finland (two regions each). There were three other regions with rates above this threshold: Flevoland (the Netherlands), which is in commuting distance of the Dutch capital region; Attiki and Praha, the capital regions of Greece and Czechia.

The motorisation rate in Valle d'Aosta/Vallee d'Aoste (Italy) was 9.4 times as high as that recorded in Peloponnisos (Greece)

The highest motorisation rates were recorded in northern Italy: Valle d'Aosta/Vallée d'Aoste (1 711 passenger cars per 1 000 inhabitants), Provincia Autonoma di Trento (1 241) and Provincia Autonoma di Bolzano/Bozen (932). Note that these statistics may reflect specific circumstances: for example, the high rate in Valle d'Aosta/Vallee d'Aoste is, at least in part, attributed to lower taxation on new vehicle registrations. At the other end of the range, the lowest motorisation rate was recorded in Peloponnisos (southern mainland Greece), at 182 passenger cars per 1 000 inhabitants. There were 20 other regions with motorisation rates that were below 375 passenger cars per 1 000 inhabitants (as shown by the darkest blue shade in Map 11.1); a majority of these were regions from Greece and Romania.

Map 11.1: Passenger car numbers and the motorisation rate, 2019
(by NUTS 2 regions)



Motorisation rate (number of passenger cars per 1 000 inhabitants)
EU = 540

- < 375
- 375 - < 475
- 475 - < 540
- 540 - < 610
- 610 - < 700
- ≥ 700

Number of passenger cars (million)

EU = 241.5

- < 0.5
- 0.5 - < 1.0
- 1.0 - < 1.5
- 1.5 - < 2.0
- 2.0 - < 2.5
- ≥ 2.5

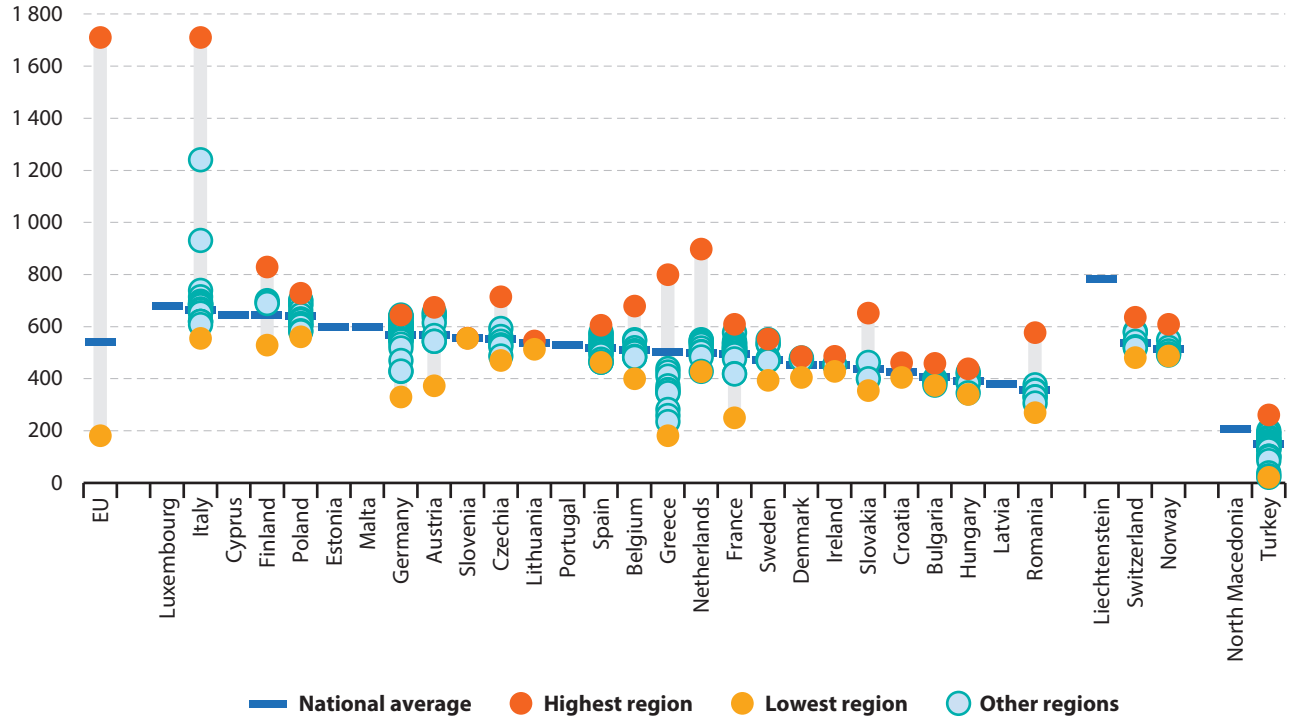
0 200 400 600 800 km

Note: Portugal, national data. Turkey: 2018.

Source: Eurostat (online data codes: tran_r_vehst, road_eqs_carage and demo_pjan)

In most EU Member States, there was little variation between regions for motorisation rates — see Figure 11.1. Slovenia has only two NUTS level 2 regions, and they had almost identical motorisation rates. Lithuania, Ireland and Denmark also have few regions, and the rates in each of these Member States were all within a narrow range. This situation was not reserved for smaller Member States, as the dispersion of rates in Poland was also low, as it was to a lesser extent in Germany and France. The Netherlands, Romania, Slovakia and Greece showed a greater regional dispersion, mainly due to each having one region with a particularly high rate. Italy also had a high regional dispersion, as three northern regions — as mentioned above — had motorisation rates that were notably higher than in the rest of Italy (as well as being higher than in any other region of the EU).

Figure 11.1: Motorisation rate, 2019
(number of passenger cars per 1 000 inhabitants, by NUTS 2 regions)



Note: ranked on the national average. Portugal: national data. Turkey: 2018. Mayotte (FRY5): not available.
Source: Eurostat (online data codes: tran_r_vehst, road_eqs_carage and demo_pjan)

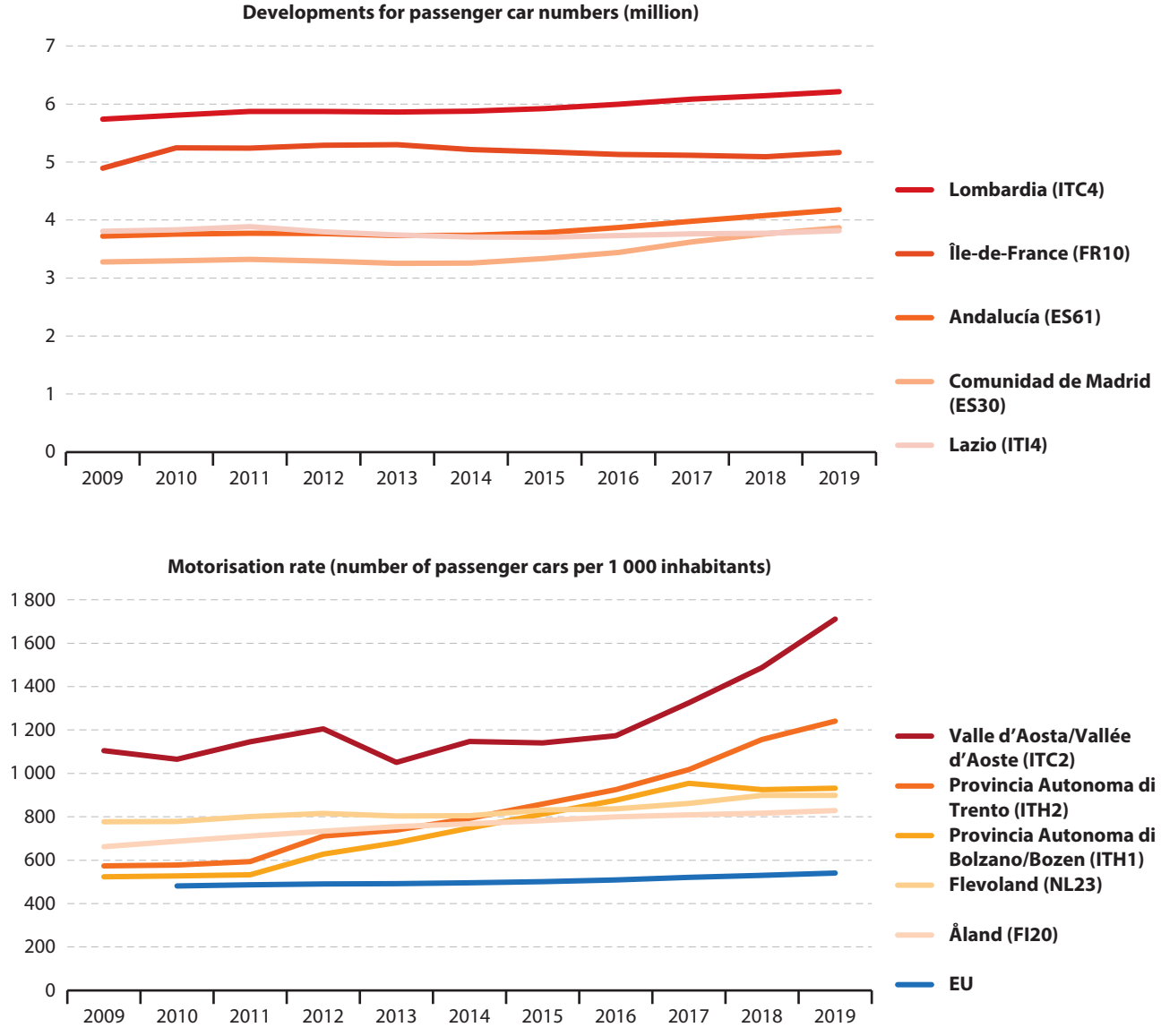
Figure 11.2 illustrates the development in passenger car ownership and motorisation rates over the most recent 10-year period for a selection of NUTS level 2 regions, namely those with the largest numbers of passenger cars and those with the highest motorisation rates.

Among the regions with large numbers of passenger cars, the Italian capital region (Lazio) recorded a relatively stable development; in 2019, the number of passenger cars was 0.3 % higher than in 2009. The French capital region (Île-de-France) also recorded little overall growth (up 5.6 %), as an increase of 7.1 % in 2010 was partially compensated by falling passenger car numbers for five years between 2014 and 2018.

Lombardia (Italy) recorded a steady increase in car numbers, up 8.2 % overall, while stronger growth was observed for the two Spanish regions: 12.3 % for Andalucía and 18.0 % for the capital region (Comunidad de Madrid).

Relatively strong growth was recorded for the motorisation rate for the five regions shown in the lower half of Figure 11.2, particularly for the three northern Italian regions. The motorisation rate for the Provincia Autonoma di Trento more than doubled from 574 per 1 000 inhabitants in 2009 to 1 241 per 1 000 inhabitants in 2019.

Figure 11.2: Developments for passenger car numbers and the motorisation rate, 2009-2019 (by NUTS 2 regions)



Note: the figure shows the five regions with the highest values in 2019, as well as the EU average for the motorisation rate. Mayotte (FRY5) and Portugal: not available. EU: 2009, not available.

Source: Eurostat (online data codes: tran_r_vehst, road_eqs_carage and demo_pjan)

ROAD ACCIDENTS

Road safety in the EU has improved in recent decades and EU roads are among the safest in the world. That said, road safety remains a major societal issue: in 2018, there were 23 563 road fatalities and no fewer than 1.23 million injuries on the EU's roads. In recent years, there has been some evidence of a slowdown in the rate at which the number of EU road fatalities has been falling.

To address the issue of road safety, the EU has adopted Vision Zero, which aims to reduce the number of deaths on the EU's roads to almost zero by 2050. Vision Zero provides a strategic plan and monitoring of key safety performance indicators, for example on vehicle safety, seat belt wearing rates, speed compliance or post-crash care. The strategy has set the initial goal of cutting in half the number of fatalities and serious injuries by 2030.

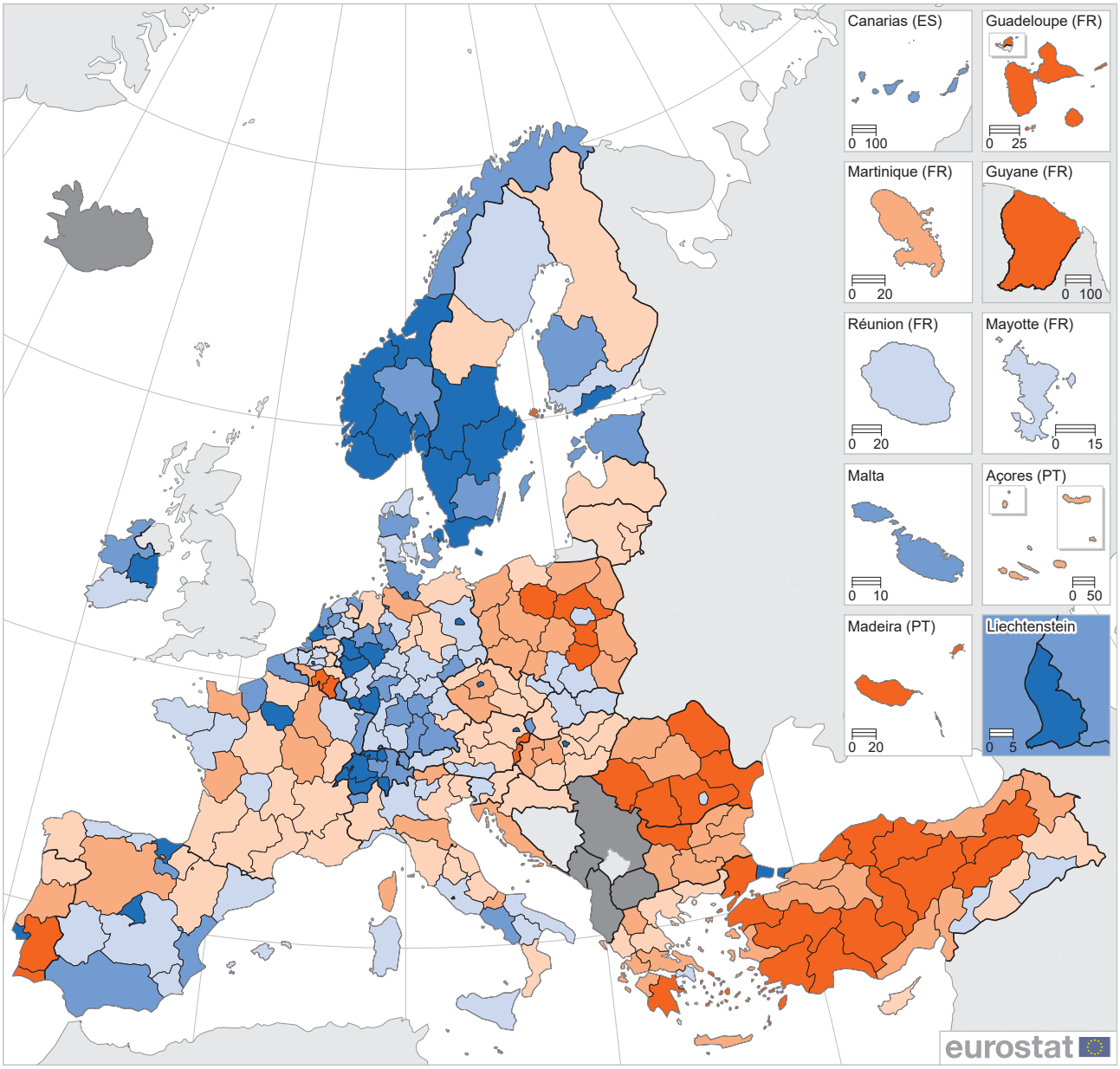
In 2018, there were 53 road fatalities per million inhabitants across the EU. Map 11.2 confirms that some of the highest incidence rates for road fatalities in 2019 were recorded in rural regions. By contrast, urban regions tended to report a much lower incidence of road fatalities. This may be linked to lower average speeds: for example, there may be lower speed limits in built-up areas or motorway networks in and around major conurbations may be frequently congested. Equally, 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 other 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.

There were 20 NUTS level 2 regions where the number of road fatalities was at least 100 deaths per million inhabitants in 2019 (as shown by the darkest orange shade in Map 11.2). Several of these regions were in clusters, for example, in north-eastern Bulgaria and Romania, southern Belgium, central Poland, or southern Portugal. Several others were island regions, namely Notio Aigaio (Greece), Guadeloupe (France), Região Autónoma da Madeira (Portugal) and Åland (Finland). The highest incidence rates for road fatalities in 2019 were recorded in Prov. Luxembourg (Belgium; 171 road fatalities per million inhabitants), Região Autónoma da Madeira (Portugal; 165) and Alentejo (Portugal; 156).

Wien (Austria) had the lowest regional incidence of fatal road accidents in 2019

There were 25 regions across the EU where the incidence of road fatalities was less than 30 deaths per million inhabitants in 2019 (as shown by the darkest blue shade in Map 11.2). The lowest incidence rate was recorded in Wien, the Austrian capital region, where there were 6 road accident deaths per million inhabitants in 2019. Most regions with relatively low fatality rates were predominantly urban areas. The next lowest ratios were recorded in the capital regions of Sweden and Germany.

Map 11.2: Fatal road accidents, 2019
(per million inhabitants, by NUTS 2 regions)



EU = 53

- < 30
- 30 - < 40
- 40 - < 53
- 53 - < 70
- 70 - < 100
- ≥ 100
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: EU, Spain and Turkey, 2018.

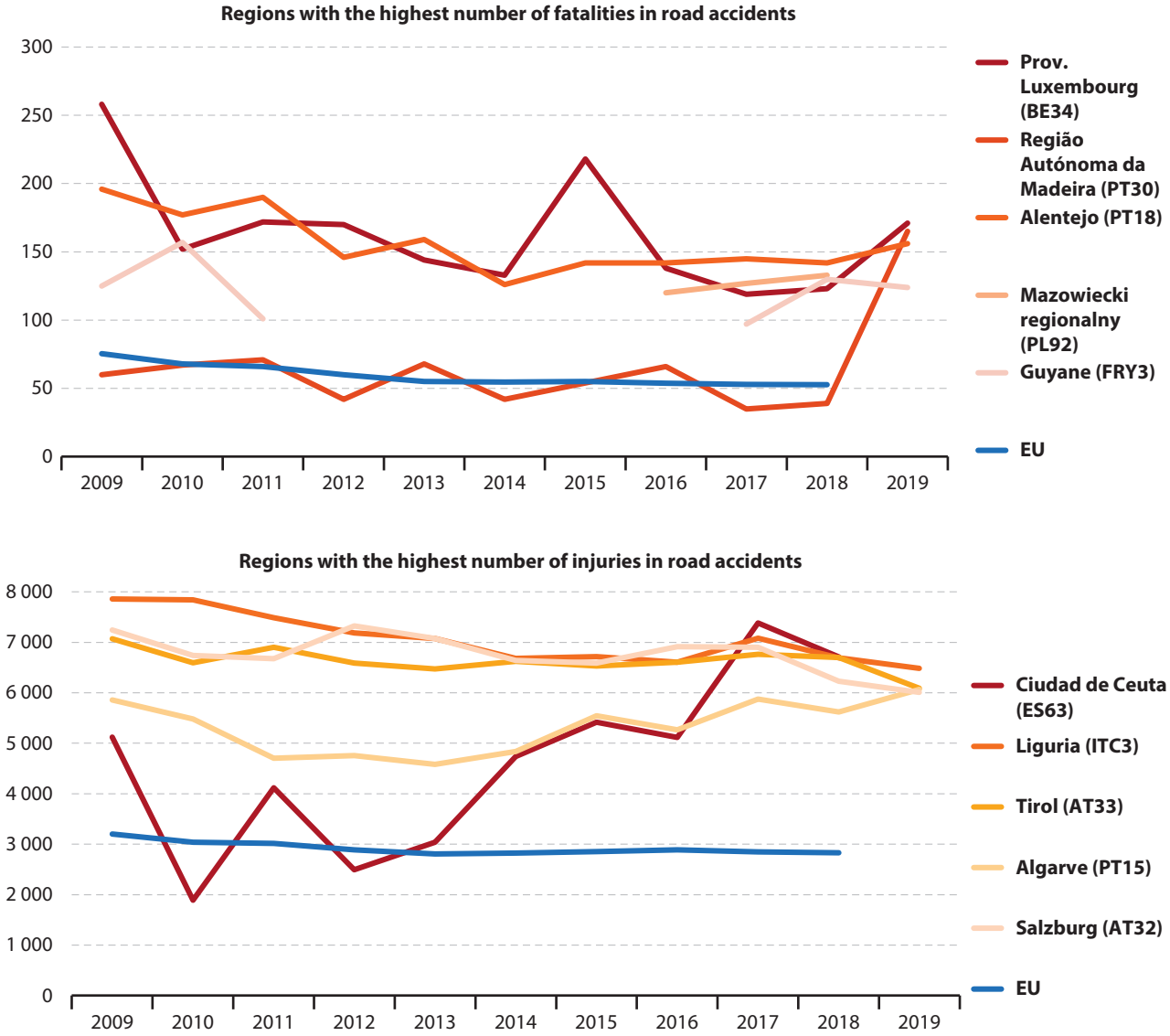
Source: Eurostat (online data codes: tran_r_acci, tran_sf_roadse and demo_pjan)

Figure 11.3 shows the development in the incidence of fatal road accidents for the most recent 10-year period: the figure shows this development for the EU as well as for the five NUTS level 2 regions with the highest incidence in 2019. As can be seen, the incidence of fatal road accidents in individual regions can be quite volatile, especially in smaller regions where the absolute number of fatalities is small. For example, in the Região Autónoma da Madeira the number of deaths per million inhabitants was close to the EU average — sometimes just above, sometimes just below — in all years from 2009 to 2018, but jumped in 2019 to record the second highest incidence among all regions in the EU. The underlying number of deaths ranged from 9 to 19 between 2009 and 2018, but jumped to 42 in 2019, inflated by a single event (a tourist bus crash) that year.

Liguria (Italy) had the highest regional incidence of injuries from road accidents in 2019

Figure 11.3 extends the analysis of victims of road accidents to include road injuries (note there are no regional data available for the Netherlands, while the latest reference period for Ireland and Spain is 2018). These injuries are diverse in nature and outcome: some victims will fully recover within a relatively short period of time, whereas others may remain permanently disabled. The developments for injuries in road accidents tend to be less volatile than for fatalities, as accidents leading to injuries are generally more common; very small regions, such as the Ciudad Autónoma de Ceuta (data are only available for 2009-2018), are exceptions. Several of the larger regions in

Figure 11.3: Victims in road accidents, 2009-2019
(per million inhabitants, by NUTS 2 regions)



Note: Portugal, 2010 break in series. EU: 2019, not available. EU: injuries in road accidents, excluding the Netherlands. Mazowiecki regionalny (PL92): fatalities in road accidents, 2009-2016 not available. Guyane (FRY3): fatalities in road accidents, 2012-2016 not available. Ciudad de Ceuta (ES63): injuries in road accidents, 2019 not available.

Source: Eurostat (online data codes: tran_r_acci, tran_sf_roadse and demo_pjan)

the lower part of Figure 11.3 recorded a downward development for the incidence of injuries from road accidents, and this reflected the development observed for the EU as a whole. An exception was the Algarve, where the incidence increased strongly in several recent years (2014, 2015, 2017 and 2019), outweighing the decreases recorded in most other years between 2009 and 2019; consequently, the rate in 2019 was higher than it had been in 2009. In 2019, the highest incidence of road accidents in the EU was recorded in the northern Italian region of Liguria (6 482 accidents per million inhabitants).

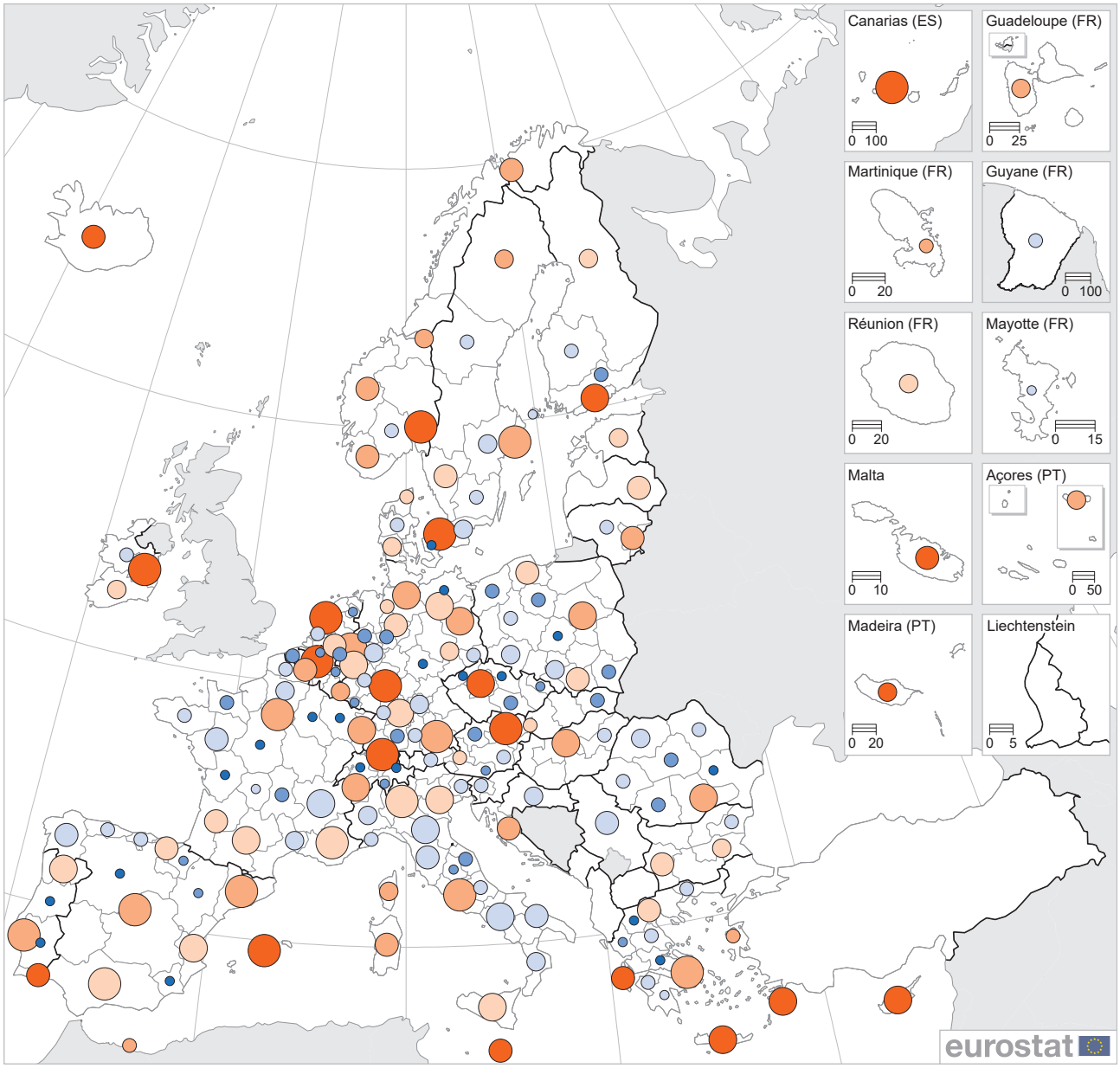
Air traffic

Liberalisation measures in recent years have led to the growth of low-cost airlines and an expansion of smaller regional airports which are generally less congested and charge lower landing fees than main international airports. Air transport was particularly hard hit by the COVID-19 crisis: the immediate impact of the crisis is not yet visible in the regional air transport statistics as, at the time of writing, data for 2020 are not yet available.

Regional data on passenger air traffic are available for 173 (out of 240) NUTS level 2 regions in the EU; many of the regions for which data are not available do not have airports. The EU region with the largest number of passengers carried in 2019 was the French capital region (Île-de-France), home to Charles de Gaulle and Orly airports. The Dutch, Spanish and Italian capital regions had the second, fourth and sixth largest numbers of air passengers, while the highest numbers in non-capital regions were recorded in Darmstadt, Oberbayern (both Germany), Cataluña, Illes Balears, Canarias (all in Spain) and Lombardia (Italy).

Relative to population size, the three regions with the highest numbers of air passengers in 2019 were all island regions: Notio Aigaio (Greece; 35 000 passengers per 1 000 inhabitants), Illes Balears (Spain; 33 000) and Ionia Nisia (Greece; 27 000).

Map 11.3: Air passengers, 2019
(by NUTS 2 regions)



Number of passengers carried per 1 000 inhabitants
EU = 2 312

- < 150
- 150 - < 400
- 400 - < 2 312
- 2 312 - < 5 000
- 5 000 - < 12 500
- ≥ 12 500

Number of passengers carried (million)
EU = 1 034

- < 0.5
- 0.5 - < 2.5
- 2.5 - < 5.0
- 5.0 - < 10.0
- 10.0 - < 25.0
- ≥ 25.0

0 200 400 600 800 km

Source: Eurostat (online data codes: tran_r_avpa_nm, ttr00012 and demo_r_d2jan)

The busiest passenger airport in the EU was Charles de Gaulle (Paris)

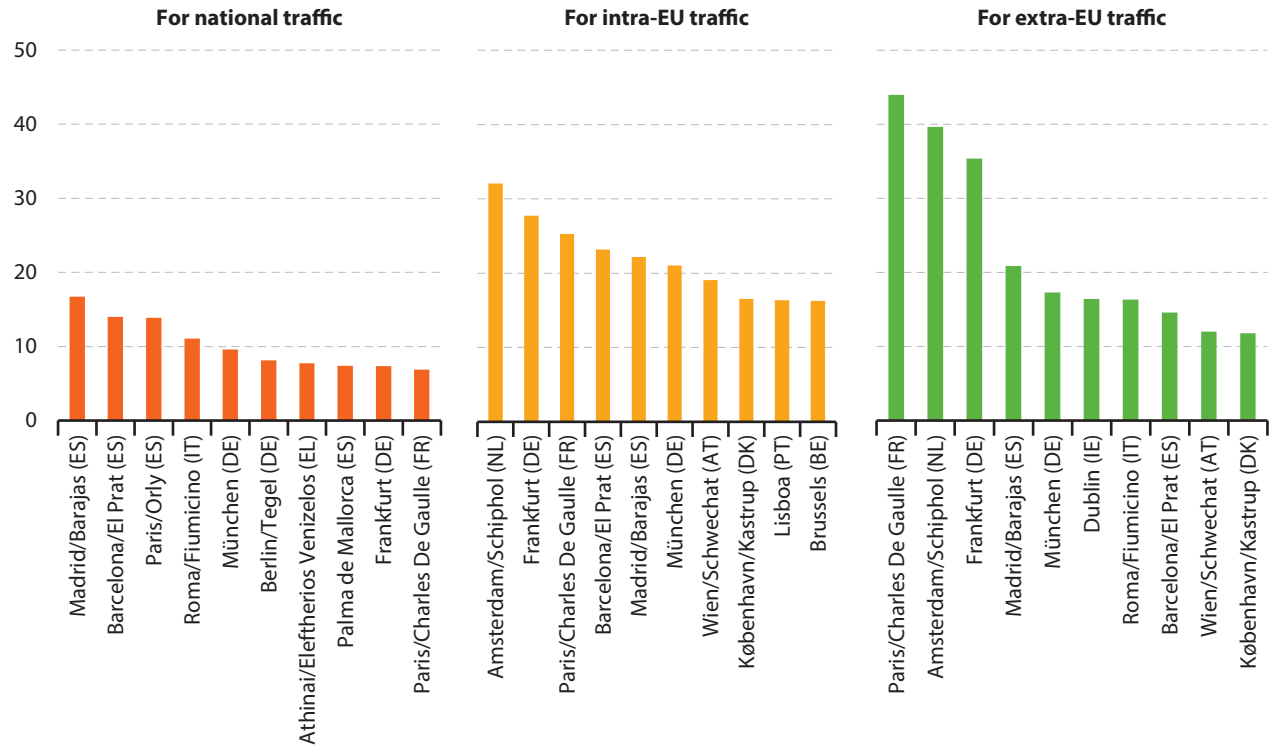
Figure 11.4 presents information relating to the busiest 10 passenger airports in the EU, as measured by the number of passengers carried (arrivals plus departures): the lists of airports are shown separately for domestic (national) traffic, traffic within the EU (intra-EU), and traffic to and from countries outside the EU (extra-EU). In 2019, there were 1.0 billion air passengers carried in the EU; half (50.2 %) of this total represented extra-EU traffic, more than one third (34.3 %) was intra-EU traffic, and the remaining share (15.5 %) was national traffic.

The busiest 10 airports for extra-EU traffic collectively accounted for 44.0 % of the EU total in 2019. The largest was Charles de Gaulle, with 44.0 million passengers carried on extra-EU flights, 8.5 % of the EU total. There were three other airports with more than 20 million passengers carried on extra-EU flights in 2019: Schiphol (Amsterdam, the Netherlands), Frankfurt (Germany) and Barajas (Madrid, Spain).

The busiest 10 airports for intra-EU traffic collectively accounted for 61.9 % of the EU total in 2019. The largest was Schiphol, with 32.1 million passengers carried on intra-EU flights, 9.0 % of the EU total. There were five other airports with more than 20 million passengers carried on intra-EU flights in 2019: Frankfurt, Charles de Gaulle, El Prat (Barcelona, Spain) and München (Germany).

The busiest 10 airports for national traffic collectively accounted for 64.0 % of the EU total in 2019. The largest was Barajas, with 16.7 million passengers carried on national flights, 10.4 % of the EU total. There were three other airports with more than 10 million passengers carried on national flights in 2019: El Prat, Orly and Fiumicino (Roma, Italy).

Figure 11.4: Busiest airports in the EU for air passengers, 2019
(million passengers)



Note: the figure shows the top 10 airports with the highest numbers of passengers for each category.
Source: Eurostat (online data code: avia_tf_ala)

Rail transport

2021 is the European Year of Rail with various events, projects and activities across the EU to highlight the many dimensions of rail transport: the EU's innovative rail industry, rail's role in the EU's culture and heritage, its importance for connecting regions, people and businesses, its part in sustainable tourism, as well as its involvement in the EU's relations with neighbouring countries.

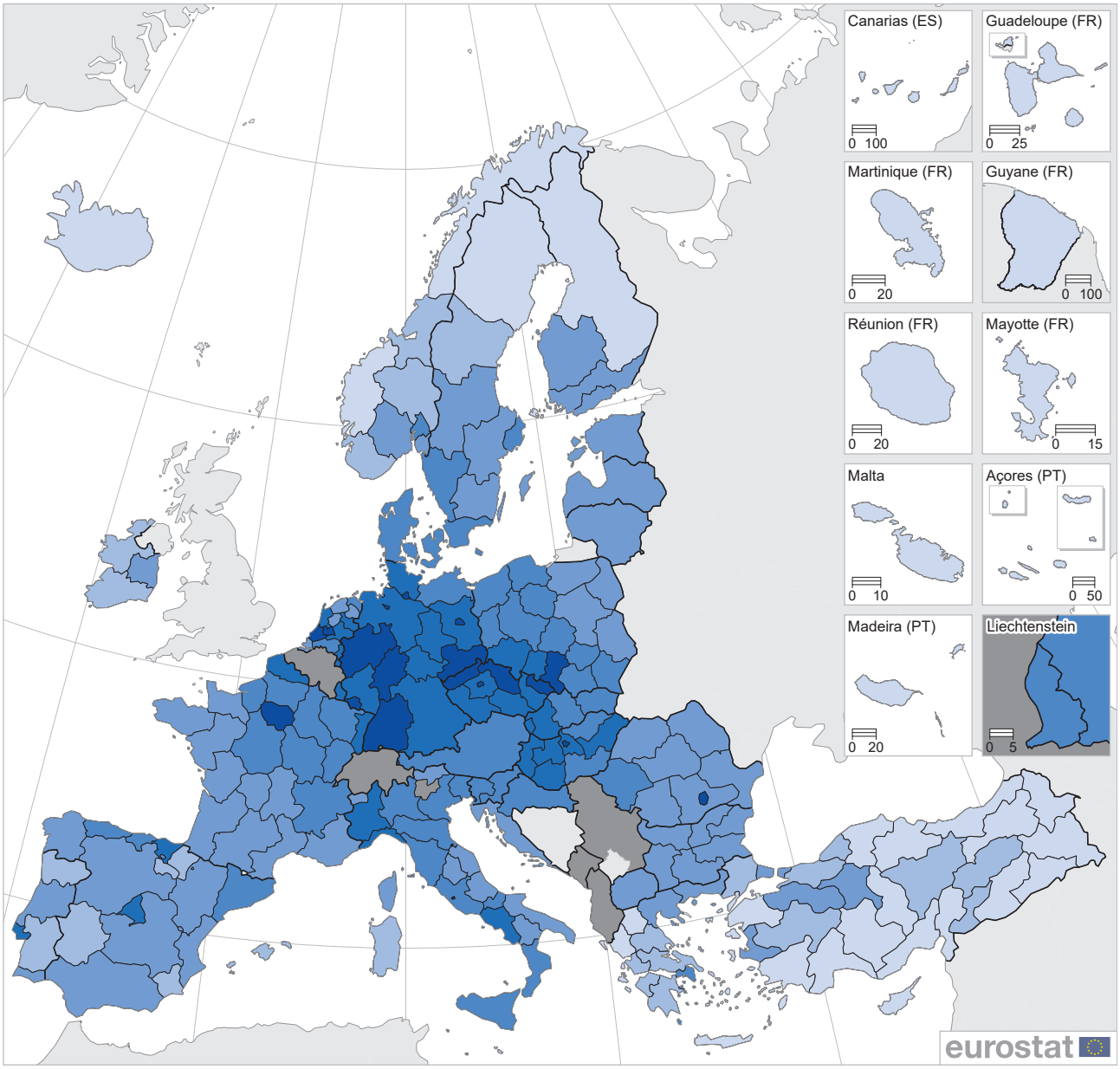
The regional distribution of railway infrastructure is shaped by specific historical developments, economic developments and the geographical characteristics of regions. For example, several eastern EU Member States have longer rail networks than their western neighbours, reflecting a legacy from the communist or Soviet era when there was often a greater reliance on rail (compared with road) for transporting passengers and goods.

Map 11.4 presents information on railway density — as measured by the length of railway lines per 1 000 km^2 of territory. Note that the statistics presented for Denmark, Germany, Lithuania and Makroregion Województwo Mazowieckie (Poland) relate to NUTS level 1 regions, while only national data are available for Austria. In general, the lowest levels of railway density were recorded in peripheral regions of the EU, whereas the highest ratios tended to be in the centre of the EU (where there are more opportunities for establishing a network of connections to surrounding regions). Railway density peaked in a band of regions that ran from the Netherlands and Germany into Czechia.

Looking in more detail, the densest rail networks in the EU in 2019 were recorded in the capital regions of Germany and Czechia: Berlin (698 km/1 000 km^2) and Praha (491 km/1 000 km^2). Other capital regions that had relatively high ratios of railway density included Budapest (Hungary), Bucureşti-Ilfov (Romania) and Île-de-France (France). These high ratios in capital regions may reflect, among other factors, the relatively small area covered by most capital regions, as well as the presence of (several) mainline terminals/stations from which railway lines tend to radiate outwards. Other than capital regions, railway density was also relatively high — at least 120 km/1 000 km^2 (as shown by the darkest shade of blue) — in several largely industrial and/or densely-populated regions; these non-capital regions with a high density of railway lines were located exclusively across Czechia, Germany, the Netherlands and Poland.

At the other end of the range, there was no railway in 18 regions of the EU in 2019. These were predominantly island and/or peripheral regions located in Greece, Spain, France, Cyprus, Malta, Portugal and Finland; they are shown by the lightest shade of blue in Map 11.4. The Greek region of Dytiki Makedonia, the Swedish region of Övre Norrland and the Finnish region of Pohjois- ja Itä-Suomi had the three lowest railway densities (among those regions with a railway), at less than 15 km/1 000 km^2.

Map 11.4: Railway density, 2019
(km of railway lines per 1 000 km^2, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

< 15
15 - < 25
25 - < 50
50 - < 75
75 - < 120
≥ 120
Data not available

Note: Denmark, Germany, Lithuania and Makroregion Województwo Mazowieckie (PL9), NUTS level 1. Austria: national data. Spain and Turkey: 2018.

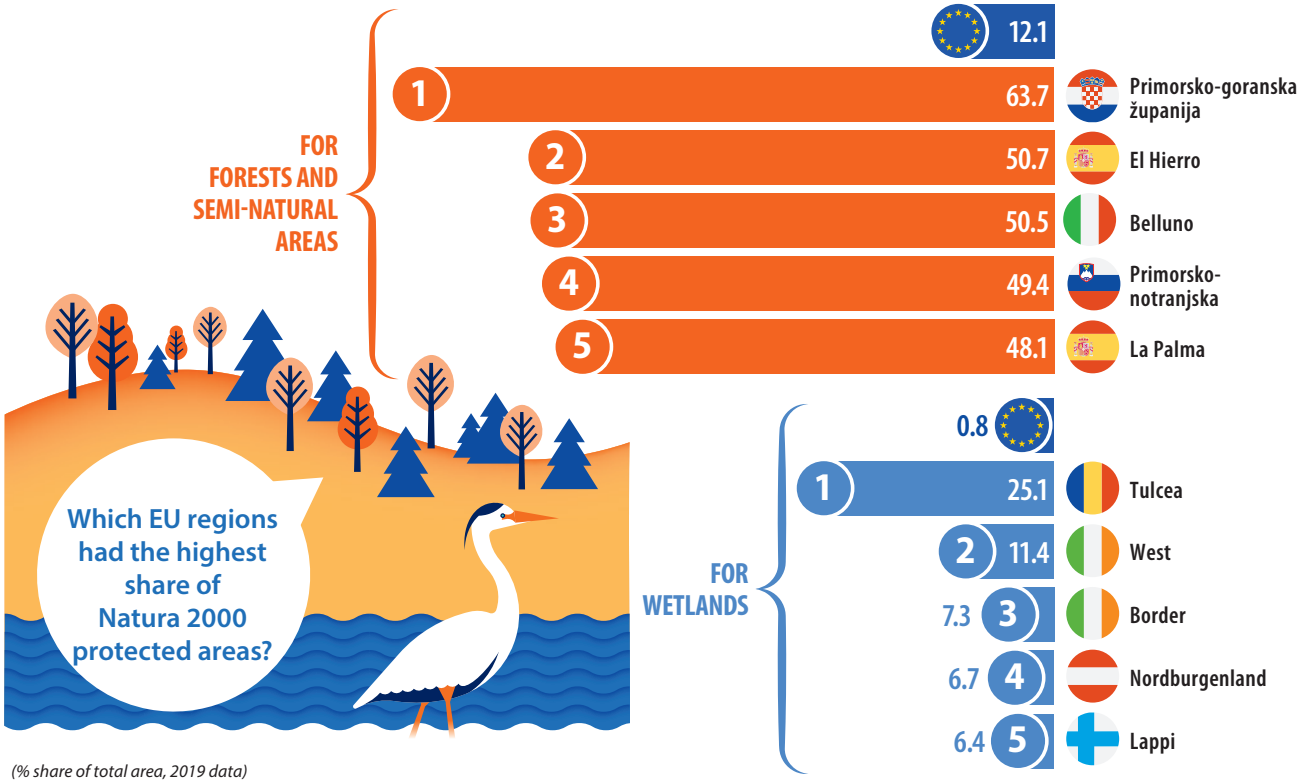
Source: Eurostat (online data codes: tran_r_net, rail_if_tracks and reg_area3)

12. Environment

Climate change and environmental degradation are two of the most serious threats to the European Union (EU) and the wider world. The United Nations (UN's) 2030 Agenda for Sustainable Development is a long-term strategy that seeks, among other socioeconomic and environmental goals, to protect the Earth from environmental degradation, through sustainable consumption and production, coupled with urgent action on climate change. The agenda introduced a set of 17 Sustainable Development Goals (SDGs); to monitor progress towards these goals the UN has adopted 231 (unique) indicators.

The European Green Deal is the EU's growth strategy to become a modern, resource-efficient and sustainable economy — the first climate-neutral continent by 2050 — it is fully consistent with the SDGs that are concerned with the environment. The European Green Deal seeks to turn climate and environmental challenges into opportunities, for example, by: undertaking to reduce net emissions of greenhouse gases to zero; ensuring economic growth is decoupled from resource use; cutting pollution; restoring biodiversity. The *EU's Biodiversity Strategy for 2030* aims to ensure legal protection for at least 30 % of its land and sea area as part of a trans-European nature network.

The first section of this chapter provides a description of landscapes in the EU, focusing on protected areas and fragmented landscapes. The second section details information on air pollution and in particular exposure to fine particulate matter that may cause or aggravate, among other conditions, a range of respiratory and cardiovascular diseases. The chapter concludes with statistics on soil, analysed in relation to soil sealing (imperviousness), soil erosion and changes in soil moisture.



(% share of total area, 2019 data)

Source: Eurostat (online data code: reg_area3) and the European Environment Agency

Landscape/biodiversity

Historically, human activity was generally assumed to have had little lasting impact on the land or the environment, as many people held a common belief that nature could restore or replenish itself. However, land has become a natural and economic resource used for multiple purposes: agriculture and forestry; mining; manufacturing; construction; distributive trades, transport and other services; as well as for residential and leisure use. The effects of certain phenomena — rising temperatures, the rapid disappearance of vast areas of forest, the gradual desertification of certain regions, or sprawling urban developments — have contributed towards increasing awareness. Land is a finite resource and its use constitutes one of the principal drivers of environmental change, with potential impacts on the climate, ecosystems, biodiversity and the overall quality of life.

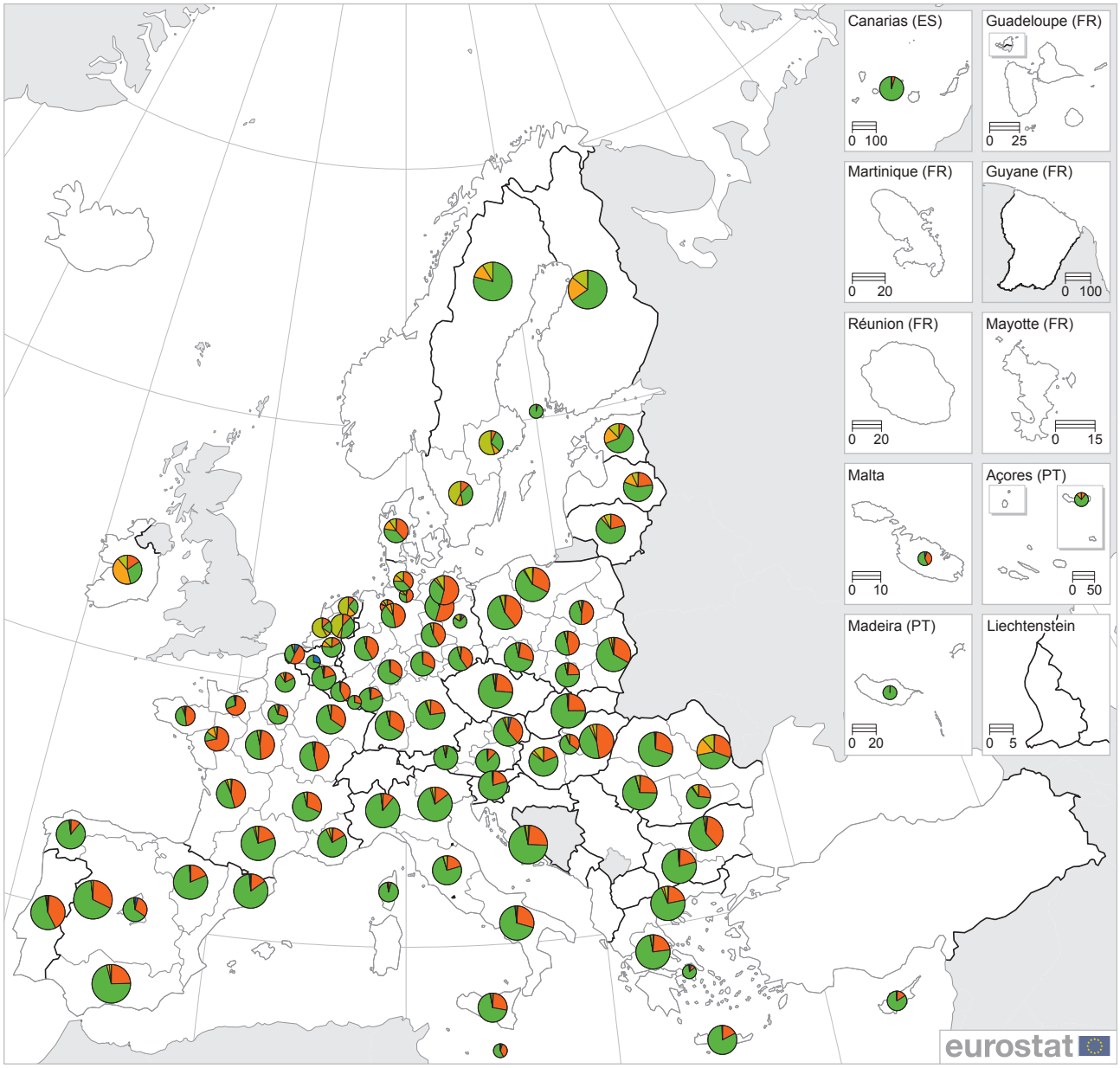
NATURA 2000

Natura 2000 is a network of areas that have been designated as protected sites under the Birds Directive and the Habitats Directive. The target is to ensure the long-term sustainability of the habitats and species they have been set up to protect. The Birds Directive established a protection regime for all bird species naturally occurring in the EU. It included classification by EU Member States of special protection areas (SPA) for particularly threatened bird species and for all migratory birds. This approach was extended through the Habitats Directive, which provided for the establishment of sites of community importance (SCI); it aims to support the conservation of habitat types and species listed in two annexes. Over time, SCIs must also be designated as special areas of conservation. Together, the SPAs and the SCIs/SACs make up the Natura 2000 network. The sites in the Natura 2000 network are the contribution from Member States to the pan-European Emerald Network of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.

Map 12.1 indicates how large the Natura 2000 sites are in each NUTS level 1 region in 2019 and also indicates the different types of area within these sites. The four regions with the largest area of Natura 2000 sites were Centro (55 600 km^2) in Spain, Norra Sverige (49 300 km^2) in Sweden, Manner-Suomi (42 100 km^2) in Finland and Sur (28 700 km^2) in Spain. The smallest Natura 2000 area was in Åland (11 km^2) in Finland, which is also one of the smallest regions in terms of its total area.

More data and information on protected areas, protected species and habitats, ecosystems and biodiversity can be found at: https://biodiversity.europa.eu/

Map 12.1: Natura 2000 protected areas, 2019
(by NUTS 1 regions)



Share of protected areas (%)

- Artificial surfaces
- Agricultural areas
- Forest and semi-natural areas
- Wetland
- Water bodies

Natura 2000 protected areas (km²)
EU = 757 996

- < 500
- 500 - < 2 000
- 2 000 - < 5 000
- 5 000 - < 10 000
- 10 000 - < 20 000
- ≥ 20 000

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: EU, excluding Régions Ultrapériphériques Françaises (FRY).
Source: Eurostat (online data code: reg_area3) and the European Environment Agency

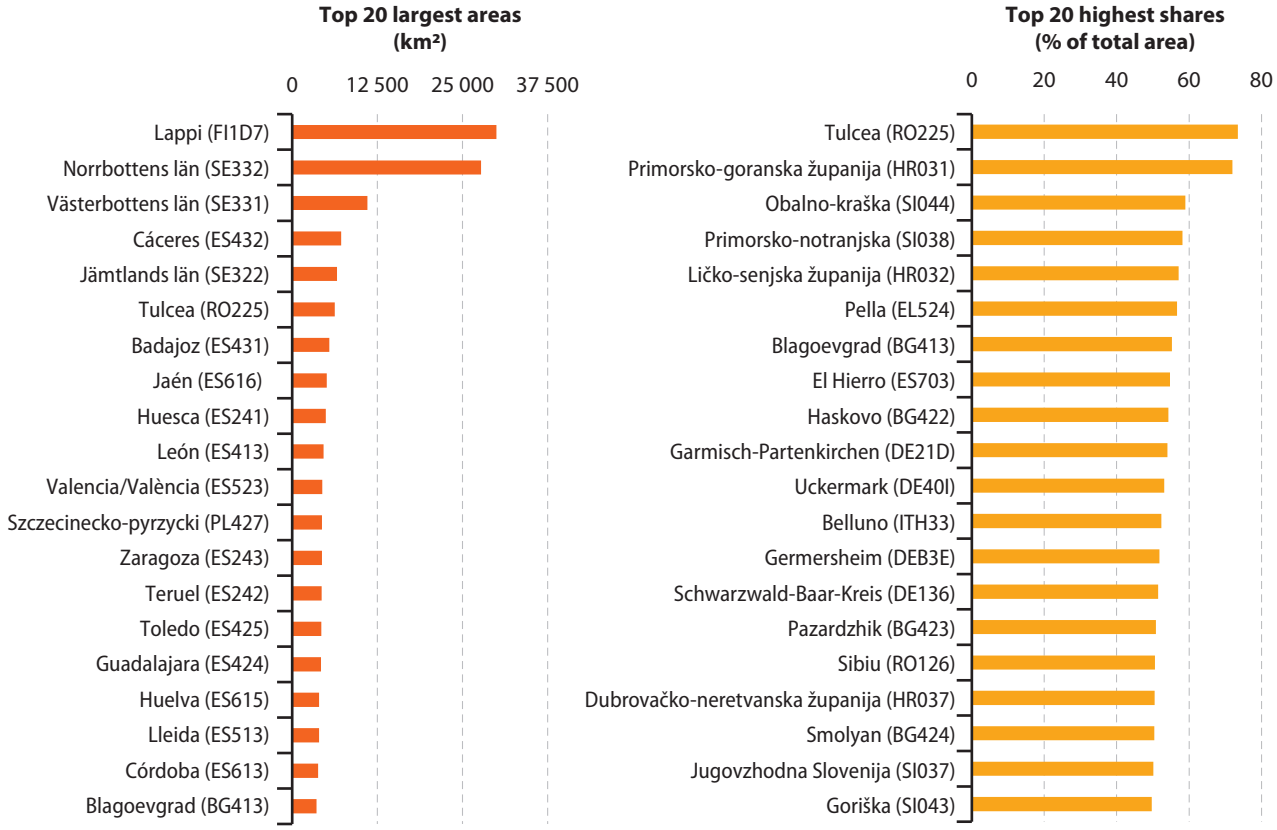
In 2019, forest and semi-natural areas was the most common type of land cover within Natura 2000 sites in 74 or the 91 NUTS level 1 regions for which data are available in Map 12.1. In fact, more than half of the area of the Natura 2000 sites was forest or semi-natural areas in 68 regions, with this share exceeding 90.0 % in Corse (France; 93.0 %), Westösterreich (Austria; 93.3 %), Canarias (Spain; 95.2 %), Åland (Finland; 95.3 %) and Região Autónoma Da Madeira (Portugal; 99.0 %). In 11 regions, mainly in Germany (five regions) and France (three regions), the most common land cover of Natura 2000 sites was agricultural, with this share peaking at 79.1 % in the small (in terms of area) German region of Bremen. In five regions — three in the Netherlands and two in Sweden — the most common land cover type in Natura 2000 sites was water bodies, peaking at 58.4 % in West-Nederland. Ireland was the only region in the EU where wetlands were the most common land cover type in Natura 2000 sites, with a 42.5 % share.

As noted above concerning Åland, some regions have small areas designated as Natura 2000 sites partly because the regions themselves are small. Figure 12.1 presents information on Natura 2000 sites at the more detailed NUTS level 3. As well as listing the 20 areas with the largest protected areas, this figure provides standardised information, by comparing the area of Natura 2000 sites in each region with the region's total area.

At NUTS level 3, the three regions with by far the largest Natura 2000 protected areas in 2019 were Lappi in Finland and the Swedish regions of Norrbottens län and Västerbottens län; the protected areas in all three of these regions were mainly forest and semi natural areas, but they also had quite large wetlands and water bodies. However, none of these three regions were included in the 20 regions with the largest share of their area designated as Natura 2000 sites. Among the 1 151 regions for which data are available, there were 19 where more than half of the total area was protected. This share reached 72.0 % in Primorsko-goranska županija (Croatia) and 73.5 % in Tulcea (Romania): in the former, most of the protected areas were forest and semi natural areas; in the latter, wetland areas were particularly large, along with relatively large protected agricultural areas and also forest and semi natural areas. By contrast, there were 27 regions (mainly urban) where less than 1.0 % of the total area was designated as a Natura 2000 site; the lowest share across NUTS level 3 regions in the EU was 0.04 % in Gliwicki (Poland).

More data and information on Europe's forests can be found at: https://forest.eea.europa.eu/

Figure 12.1: Top regions for Natura 2000 protected areas, 2019
(by NUTS 3 regions)



Note: excluding Régions Ultrapériphériques Françaises (FRY).
Source: Eurostat (online data code: reg_area3) and the European Environment Agency

FRAGMENTED LANDSCAPES

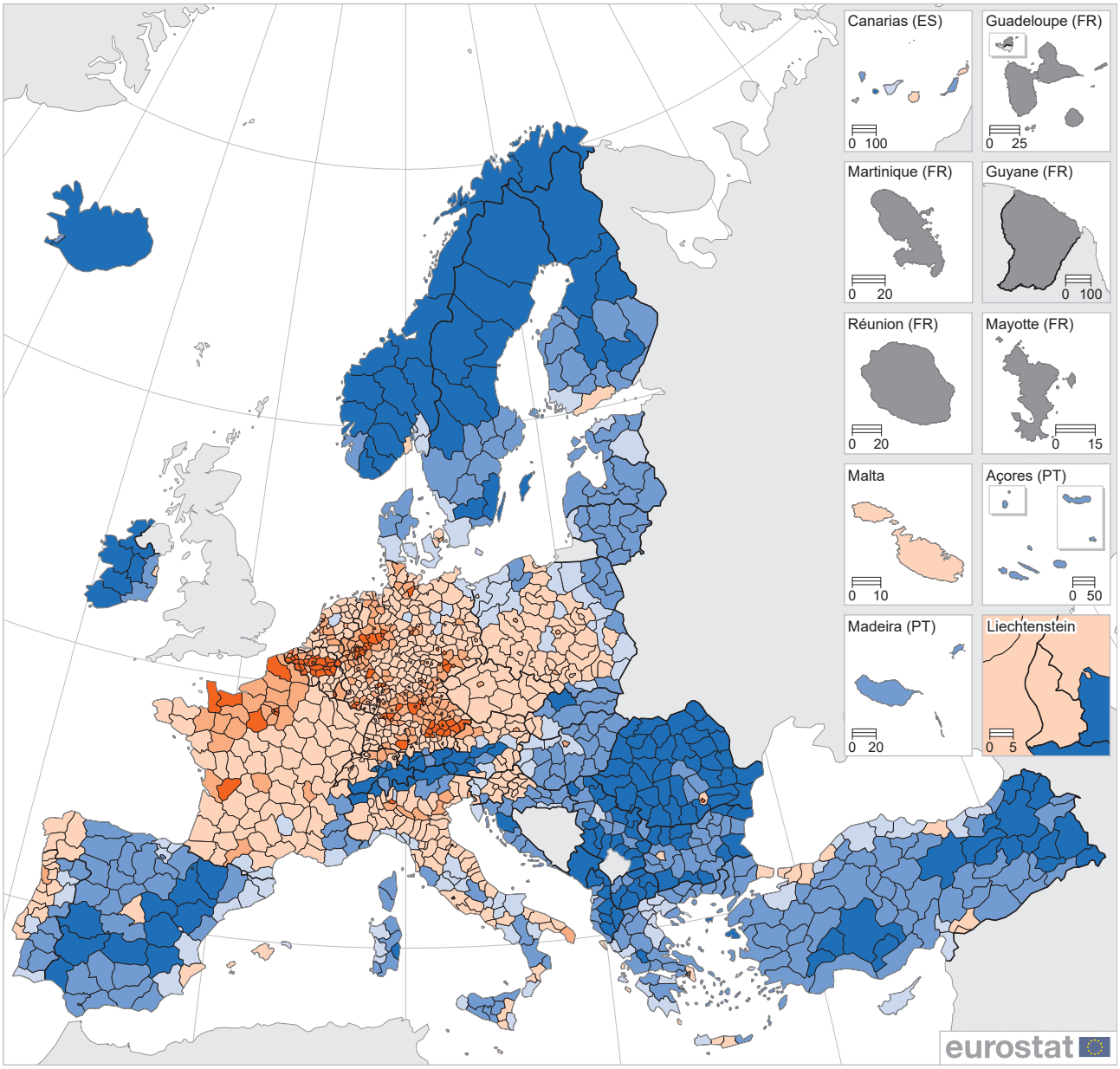
One of the impacts of increasing settlements and other man-made developments is that natural habitats have become fragmented by various elements, including natural ones (such as hedges) and artificial ones (such as roads and built up areas).

One measure of the extent of artificial elements, which identifies very highly fragmented landscapes, is produced by the European Environment Agency. The indicator can be seen as a measure of the extent to which points within an area of land are accessible to each other, without encountering artificial surfaces such as roads or built up areas. A very highly fragmented landscape is an area with more than 50 landscape elements per 1 000 km^2.

In the EU, 30 % of the total area in 2018 was classified as very highly fragmented. In general, shares of very highly fragmented landscapes above the EU average were recorded across all or nearly all of France, the Benelux Member States, Germany, Czechia and Malta, most regions in Italy, Austria, Poland and Slovenia, as well as many regions in Denmark and Portugal. Among the EU Member States where a relatively large proportion of regions had shares of very highly fragmented landscapes that were below the EU average, it was common to find that their capital regions had an above average share; this was observed in Bulgaria, Ireland, Greece, Spain, Croatia, Latvia, Hungary, Romania, Slovakia and Finland. As such, Estonia, Cyprus, Lithuania and Sweden were the only Member States where none of the regions recorded a share of very highly fragmented landscapes above the EU average, not even in the capital region. Note that no data are available for the outermost regions of France.

Among the 1 164 NUTS level 3 regions for which data are presented in Map 12.2, in a small majority (605) at least half of the area was classified as very highly fragmented. The share was at least 92 % in 124 regions (as shown by the darkest shade of orange in the map), among which 16 regions had a share of 100.0 %. These regions that were exclusively made up of very highly fragmented areas were mainly in Germany (14 regions), with the others in Belgium (two regions). By contrast, in 98 regions the share of very highly fragmented landscapes was below 7 % (as shown by the darkest shade of blue in the map), with this measure falling below 1 % in Tulcea (Romania), Lappi (Finland), Jämtlands län, Västerbottens län and Norrbottens län (all Sweden).

Map 12.2: Very highly fragmented landscapes, 2018
(% share of total area, by NUTS 3 regions)



EU = 30
- < 7
- 7 - < 18
- 18 - < 30
- 30 - < 78
- 78 - < 92
- ≥ 92
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2021

0 200 400 600 800 km

Note: EU, excluding Régions Ultrapériphériques Françaises (FRY).
Source: the European Environment Agency

Air pollution

Air pollution refers to the release into or the presence in the air of pollutants (particles or gases): it may be anthropogenic (human-induced) or of natural origin. Examples of human-induced activities that lead to air pollution include the burning of fossil fuels (such as in conventionally-powered vehicles), industrial processes (including electricity generation), agriculture or the treatment of waste. Examples of events that lead to naturally occurring air pollution include volcanic eruptions, desert dust, forest fires or sea-salt spray. Air pollution has the potential to harm both human health and the environment: particulate matter (PM), nitrogen dioxide and ground-level ozone are known to pose particular health risks.

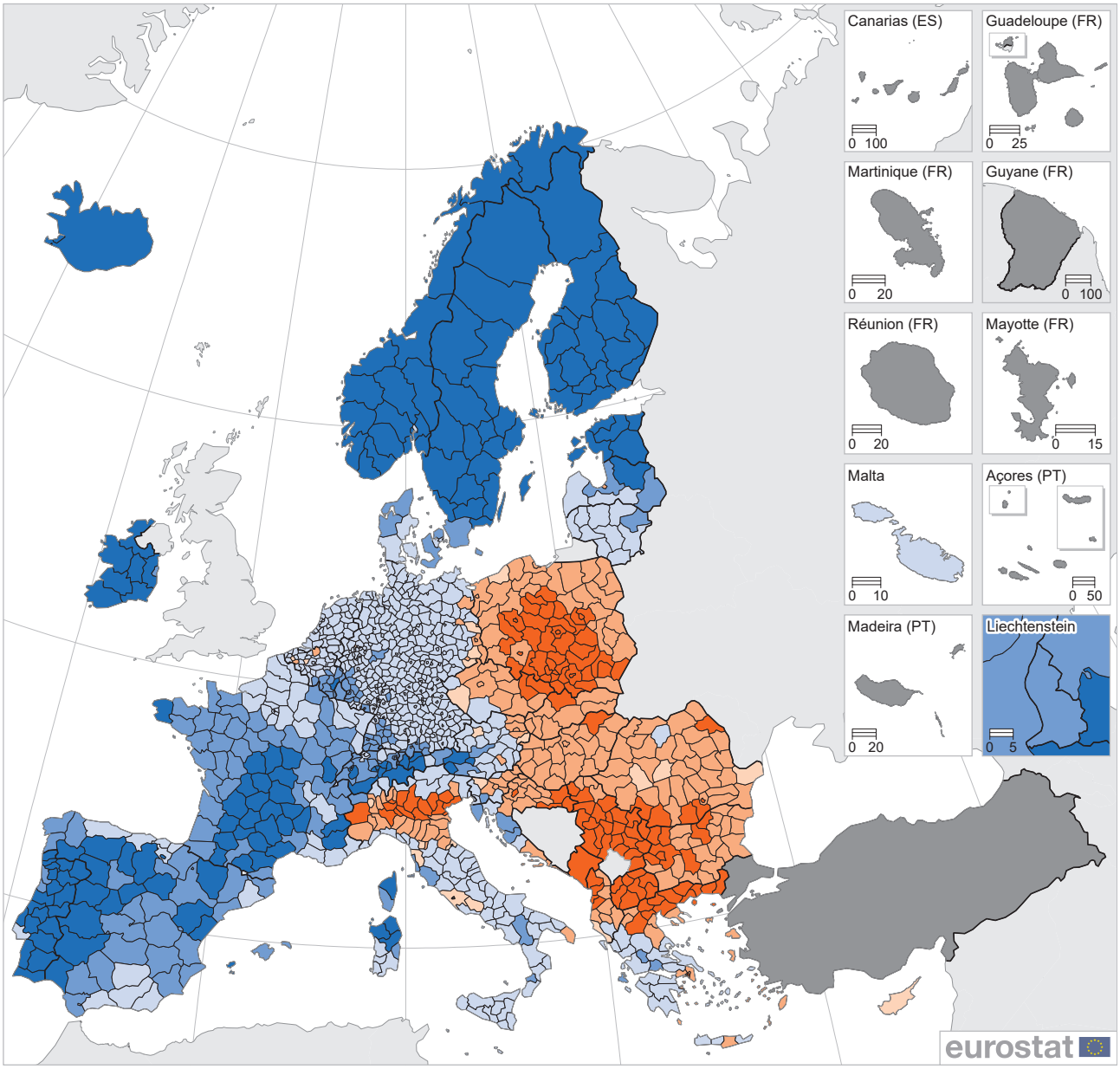
Regions with concentrated economic activity and/or a high population density are likely to have a greater impact on the environment in general and air pollution in particular. However many other factors, other than just economic or population size, impact on the extent of air pollution. For example, climatic conditions play a role, influencing energy demand for heating or cooling. Low-quality solid fuels and low-efficiency appliances can increase exposure to particulate matter, both indoors and outdoors. As well as having an impact on the environment, long-term and peak exposures to pollutants may impact humans directly, for example impacting human health. Particulates can be carried deep into the lungs where they can cause inflammation and a worsening of the condition of people with heart and lung diseases. According to the recommendations of the World Health Organisation (WHO), the annual mean concentration is the best indicator for PM-related health effects.

Although air quality in the EU has generally improved in recent decades, some urban populations remain exposed to high concentrations of air pollutants, for example, as a result of industrial and transport activities.

Map 12.3 presents information for NUTS level 3 regions concerning average concentration levels of fine particulate matter ($PM_{2.5}$ — particles with a diameter of 2.5 micrometres or less) to which the population is exposed. In 2018, the highest population exposures were across several of the southern and eastern EU Member States, principally Bulgaria, Czechia, Greece, Croatia, northern Italy, Poland and Romania, but also in isolated regions of Hungary and Slovakia. By contrast, the lowest values were concentrated in many or all of the regions in Estonia, Ireland, Spain, France, Austria, Portugal, Finland and Sweden, with isolated regions in Belgium and Latvia also recording particularly low exposure.

Looking in more detail, approximately one fifth of NUTS level 3 regions in the EU (218 out of 1 155 regions for which data are available) had an average exposure to fine particulate matter that was less than the WHO target value of 10.0 µg/m^3; 264 regions had an average exposure below 10.5 µg/m^3 (shown by the two darkest blue shades in Map 12.3). By contrast, 93 regions presented average exposure to at least 20.0 µg/m^3 of fine particulate matter (double the WHO target; as shown by the darkest shade of orange in Map 12.3), with 18 of these regions having exposure to at least 25.0 µg/m^3 (in other words, above the EU's limit value).

Map 12.3: Exposure to air pollution by fine particulate matter ($PM_{2.5}$), 2018
(µg/m³, by NUTS 3 regions)



EU = 14.5

- < 8.5
- 8.5 - < 10.5
- 10.5 - < 14.5
- 14.5 - < 15.0
- 15.0 - < 20.0
- ≥ 20.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

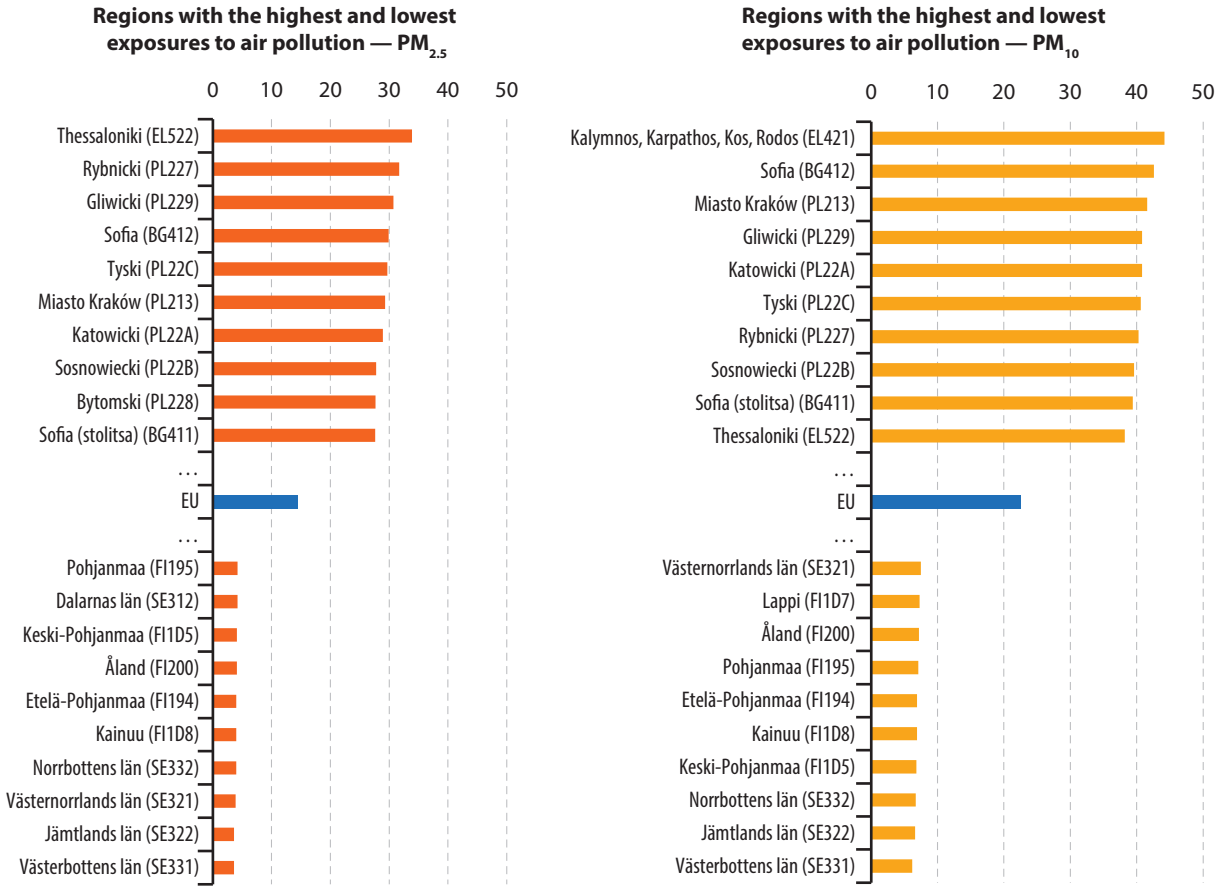
Note: exposure to fine particulate matter expressed as population-weighted concentration in µg/m³.
Source: the European Environment Agency

In 2018, the highest exposure to air pollution by particulate matter ($PM_{2.5}$) among NUTS level 3 regions was registered in Thessaloniki (Greece; 33.9 µg/m^3), as can be seen in the left hand half of Figure 12.2. The other regions in the top 10 were principally located in Poland (seven regions), along with two regions located in Bulgaria. The top six regions all had exposure levels that were more than double the EU average (14.5 µg/m^3). The lowest values of exposure to $PM_{2.5}$ were recorded in Västerbottens län and Jämtlands län, in northern Sweden (3.6 µg/m^3). The other regions in the bottom 10 were all in Finland (five regions) or Sweden (three regions); in fact, the 22 regions with the lowest exposure (5.1 µg/m^3 or less) were all in Finland or Sweden.

The right hand side of Figure 12.2 shows a similar analysis for a broader definition of particulate matter, expanded to include also medium and coarser particles with a diameter up to 10 micrometres or less (PM_{10}). As for $PM_{2.5}$, a Greek region topped the list for exposure to PM_{10} in 2018, this time Kalymnos, Karpathos, Kos, Rodos. Another similarity with the top 10 for $PM_{2.5}$ is that the list for PM_{10} contains only regions from Bulgaria, Greece and Poland. In fact, 9 of the 10 regions are common to both lists. At the bottom of the list the similarities persist, with the same two Swedish regions having the lowest exposure to PM_{10} as for $PM_{2.5}$, and again 9 out of 10 regions appearing in both lists. One difference between the lists for exposure to $PM_{2.5}$ and to PM_{10} is that for the latter, none of the regions had a level of exposure that was more than double the EU average (22.5 µg/m^3).

More data and information on European air quality can be found at: https://sdi.eea.europa.eu/catalogue/srv/eng/catalog.search#/metadata/282ed4e9-d58a-44ae-8c48-e688bdfed281

Figure 12.2: Exposure to air pollution by particulate matter, 2018
(µg/m^3, by NUTS 3 regions)



Note: exposure to air particulate matter expressed as population-weighted concentration in µg/m^3. Canarias (ES7), Régions Ultrapériphériques Françaises (FRY), Região Autónoma Dos Açores (PT2) and Região Autónoma Da Madeira (PT3): not available.

Source: the European Environment Agency

Soils

Soil is a vital resource that supports the production of food, while helping to regulate water quality and quantity and plays a role in species diversity. It is also an important factor in mitigating climate change, as it stores carbon (providing the second largest sink after the oceans). However, changes in land cover and land use have the potential to result in carbon losses, for example, as a result of draining peatlands, intensive agriculture or soil sealing.

SEALED SOIL SURFACES

There is growing competition for finite land resources which has, in most EU Member States, resulted in increased use of land for urban or industrial developments as well as related infrastructure. These changes have potentially significant implications for soil functions (including drainage, carbon storage and sequestration). Soil sealing (or imperviousness) is defined as the covering of soil surfaces with impervious materials as a result of urban development and infrastructure construction (buildings, other constructions and laying completely/partially impermeable artificial materials such as asphalt, metal, glass, plastic or concrete). There are a range of factors that may affect the extent of soil sealing, among which: land availability; population size, density and distribution; housing type preferences; average numbers of occupants per household; and spatial planning.

The indicator shown in Map 12.4 provides information on the share of the total area impacted by soil sealing (as a result of artificial and urban land use). In total, there were 88 565 km^2 of sealed surfaces in the EU in 2018, equivalent to 2.13 % of the EU's total area. These data should be considered as provisional, as the mapping for 2018 had access to higher resolution imagery than that used for previous years and, at the time of writing, is still under review.

Paris (France) had the highest share of sealed soil surfaces

An analysis by NUTS level 3 regions reveals that the largest areas of sealed soil surfaces were unsurprisingly recorded in some of the most built-up areas of the EU. Note that the administrative boundaries that are used to delimit each region may play an important role in determining the sealed surface area, as some regions are constrained within the boundaries of their city centre (for example Paris covers a relatively small area), whereas other regions may extend into their suburbs and beyond. In absolute terms, the highest areas of sealed soil surfaces in 2018 were recorded in the Spanish regions of Madrid (592 km^2) and Barcelona (516 km^2), followed by Nord in France (468 km^2). There were five regions in the EU where the area of sealed soil surfaces was within the range of 417-433 km^2: Gironde, Bouches-du-Rhône (both France), Roma (Italy), Área Metropolitana de Lisboa (Portugal) and Středočeský kraj (which encircles the Czech capital region of Praha).

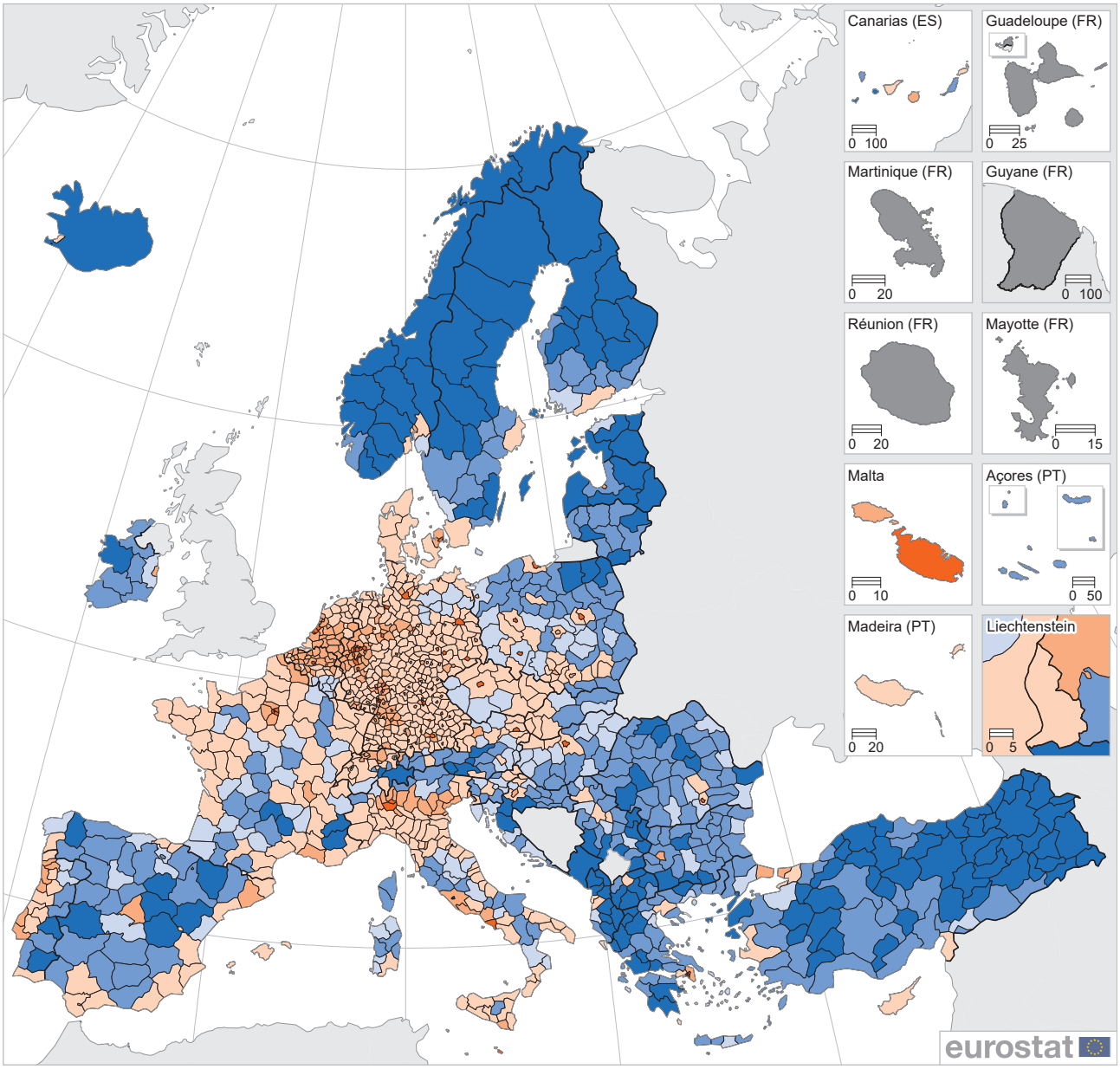
The information presented in Map 12.4 concerns the share of sealed soil surfaces in the total area of each region. In 2018, the highest rate was recorded in the French capital region, Paris, at 69.9 %. There were only three other regions in the EU — two of which were in the suburbs of Paris — where the share of sealed soil surfaces was above 50 % in 2018: Seine-Saint-Denis, Hauts-de-Seine (both in France) and Kentrikos Tomeas Athinon (which forms part of the Greek capital).

Among the 1 164 NUTS level 3 regions for which data are available, there were 87 regions of the EU where the share of sealed soil surfaces relative to total area was at least 20 % in 2018 (as shown by the darkest shade of orange in the map). These regions were predominantly concentrated across Denmark, Germany, Greece, France, Italy, the Netherlands and Poland, including five of their capital regions (the exceptions were for Italy and the Netherlands). This group also included the capital regions of Belgium, Czechia, Hungary, Malta, Austria and Romania, as well as the Spanish regions of Ceuta and Melilla.

By contrast, there were 82 regions in the EU (shown with the darkest shade of blue in Map 12.4) where the share of sealed soil surfaces relative to the total area was less than 0.75 % in 2018. These regions included more than half of all regions in Estonia, Latvia, Finland and Sweden, as well as many mountain regions (for example in Greece, France or Austria).

Across the EU, there were on average 198 m^2 of sealed soil surfaces per inhabitant in 2018. It is interesting to note that the environmental impact of sealed soil surfaces — using this measure — was reversed, insofar as some of the lowest ratios were generally recorded in the most densely-populated regions of the EU. For example, the three lowest ratios were in the French, Greek and Romanian capital regions, with 34 m^2 of sealed soil surfaces per inhabitant in Paris, 48 m^2 per inhabitant in Kentrikos Tomeas Athinon and 51 m^2 per inhabitant in Bucureşti. At the other end of the range, the coastal Portuguese region of Alentejo Litoral had 579 m^2 of sealed soil surfaces per inhabitant.

Map 12.4: Sealed soil surfaces with impervious materials, 2018
(% of total area, by NUTS 3 regions)



EU = 2.13

- < 0.75
- 0.75 - < 1.50
- 1.50 - < 2.13
- 2.13 - < 6.25
- 6.25 - < 20.00
- ≥ 20.00
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2021

0 200 400 600 800 km

Source: the European Environment Agency

SOIL EROSION

Having looked at the impact of soil sealing from artificial and urban land use, this section analyses another environmental impact on soils. Soil erosion — the physical displacement of soil particles — principally occurs as a result of water or wind processes; the analysis in Map 12.5 covers soil loss as a result of water erosion.

With climate change leading to more extreme weather events, there is an increased risk that storms and prolonged periods of rainfall or drought will result in higher levels of soil erosion. Processes like rain splash, overland flow/sheet wash and rill formation can remove soil, leading to, among other results: the potential loss of fertile topsoil; the breakdown of soil structures (and associated losses of soil carbon); a reduction in the level of stored water; an increased risk of flooding or landslides; the pollution of water bodies; and negative impacts on habitats and biodiversity.

Severe soil erosion by water is defined as a situation where non-artificial areas — agricultural areas, forest and semi-natural areas (excluding beaches, dunes, sand plains, bare rock, glaciers and perpetual snow cover) — are at risk of being subject to the removal of upwards of 10 tonnes of soil per hectare per year. Estimates made by the European Commission's Joint Research Centre (JRC) indicate that, on average, 2.5 tonnes of soil was lost per hectare of non-artificial areas in the EU as a result of water erosion in 2016.

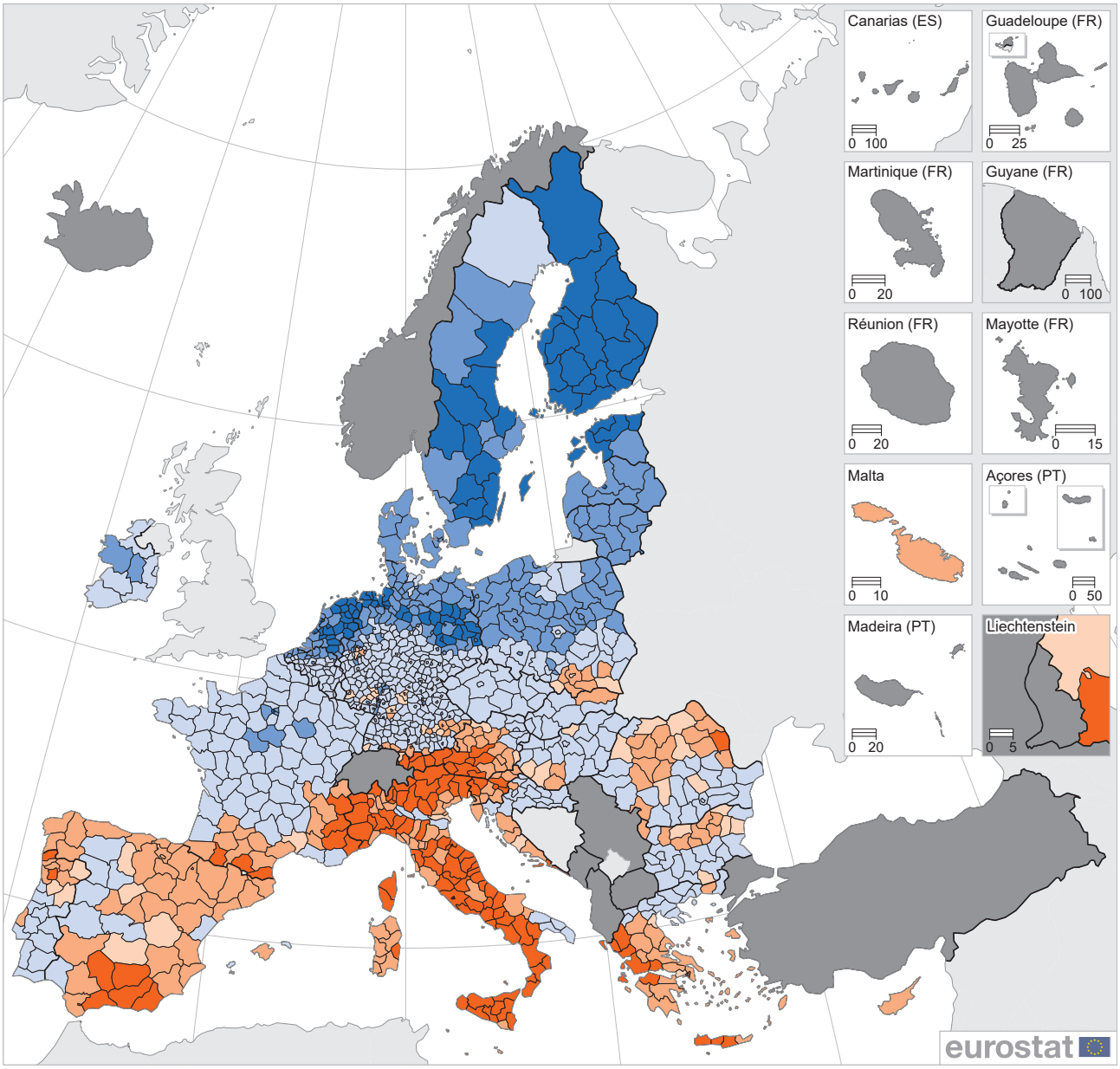
In Crotone (Italy), an estimated 20.3 tonnes of soil was lost per hectare of non-artificial areas as a result of water erosion in 2016

Among the 1 154 NUTS level 3 regions for which data are available, there were 343 regions where soil loss among non-artificial areas was at least as high as the EU average; these regions are shaded orange in Map 12.5. There is a relatively clear North–South divide in terms of soil loss as a result of water erosion, with above average erosion concentrated in the south. There is also an apparent, but less uniform, East–West divide, with clusters of regions in some eastern EU Member States recording above average soil loss. None of the regions in northern Member States had an above average soil loss, while among western Member States such regions were mainly concentrated in mountainous or hilly regions of southern Germany, southern France and Austria. In general, the risk of soil erosion was particularly pronounced in regions where the local topography was composed of lengthy, steep slopes, or in regions around the Mediterranean Sea that were particularly prone to soil erosion by water because of long dry periods followed by heavy bursts of intense precipitation on steep slopes with fragile soils.

The majority of regions with above average soil loss as a result of water erosion stretched from northern Portugal, through much of Spain and southern France, into Italy, Austria and southern Germany, and then down through south-western Hungary, Slovenia and parts of Croatia towards Greece. Practically all of the purely island regions in the Mediterranean — whether in Spain, France, Italy, Malta, Croatia, Greece or Cyprus — also had above average soil erosion. Note that some Croatian islands (such as Cres) and Greek islands (such as Thasos and Samothraki) that are combined in regions with mainland areas also had below average soil erosion for the whole region to which they belong. Relatively large clusters of regions with above average soil loss were also found in southern Poland/north-eastern Slovakia (around the Tatra Mountains), northern and central Romania, and northern Bulgaria.

The darkest shade of orange in Map 12.5 indicates regions where soil loss as a result of water erosion was at least 6.4 tonnes per hectare; in total, 118 NUTS level 3 regions were estimated to have such a level of soil loss, among which were 58 that experienced severe soil erosion, in other words with loss of at least 10.0 tonnes per hectare. The regions with severe soil erosion were mainly located in Italy (34 regions), Austria (eight regions) and Greece (six regions), although there were also some regions in France, Spain, Slovenia and Croatia. The highest levels of soil loss as a result of water erosion — mainly resulting from their topography — were in the Austrian regions of Osttirol (28.2 tonnes per hectare) and Tiroler Oberland (26.7 tonnes per hectare).

Map 12.5: Soil loss by water erosion, 2016
(tonnes per hectare, by NUTS 3 regions)



EU = 2.5

- < 0.3
- 0.3 - < 0.7
- 0.7 - < 2.5
- 2.5 - < 2.8
- 2.8 - < 6.4
- ≥ 6.4
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: the map shows soil loss by water erosion for agricultural areas, forest and semi-natural areas (excluding beaches, dunes, sand plains, bare rock, glaciers and permanent snow cover).

Source: Eurostat (online data code: aei_pr_soiler)

SOIL MOISTURE

Alongside soil erosion, soil moisture is also impacted by climate change. A deficit of soil moisture, for example during a drought, impacts on vegetation, both naturally occurring and cultivated. This has a variety of consequences, for example on the productivity of agricultural land for food supply, as well as the vulnerability of an area to wind and water erosion and to forest fires.

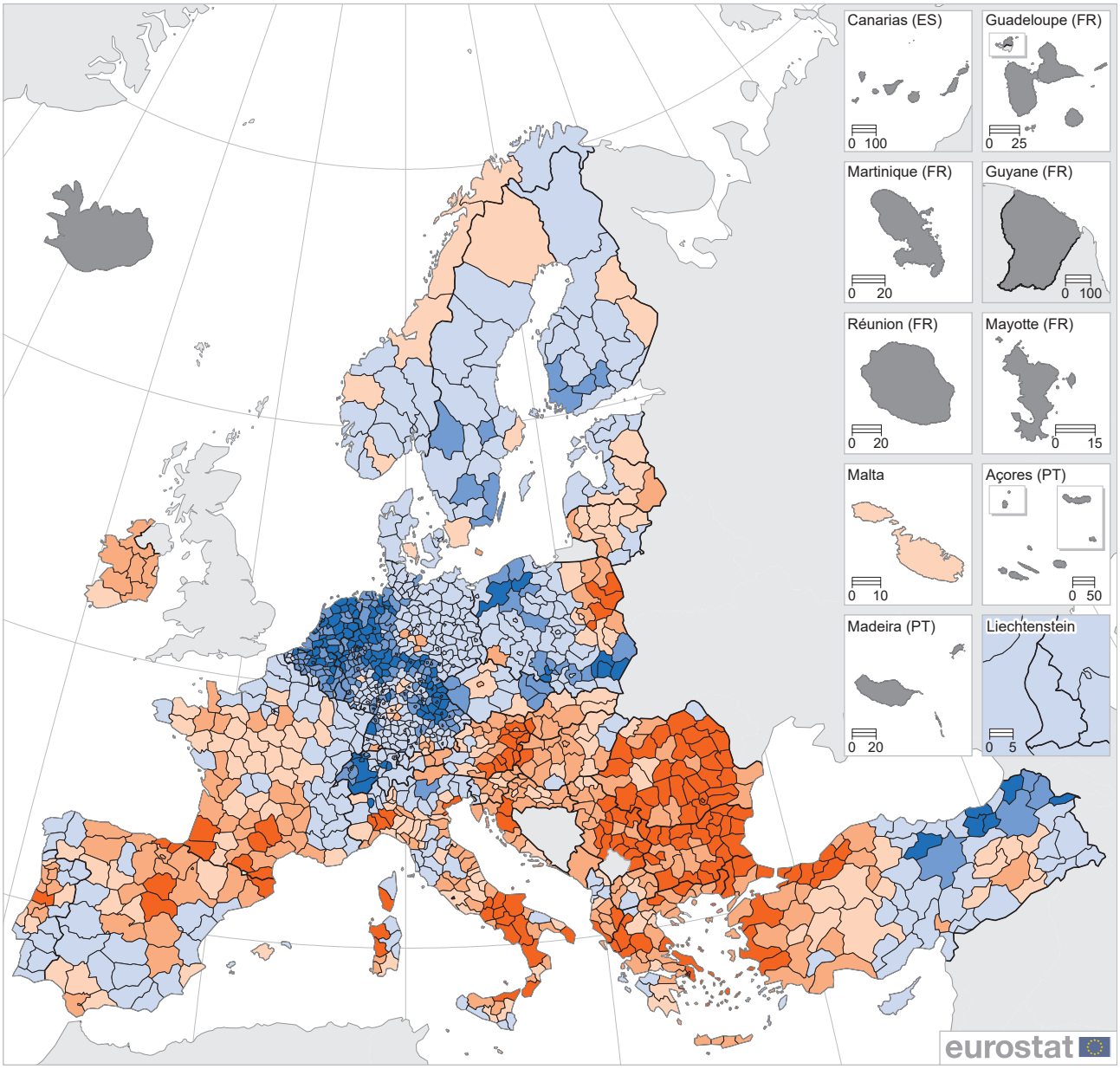
Map 12.6 indicates the extent to which the soil moisture level in 2019 was different to that in 2000. As such, it does not reflect whether a region has a high or low level of soil moisture, but the extent to which this differed in two years that were nearly two decades apart. Overall, soil moisture in the EU was 10.2 % lower in 2019 than it had been in 2000.

The distribution of NUTS level 3 regions around the EU average was quite uneven: 705 regions had a larger (than the EU) negative difference between 2000 and 2019 in soil moisture (those shaded blue in the map); 149 regions recorded a negative difference in soil moisture that was equal to or smaller than that observed for the EU (shown with the lightest shade of orange in the map); one region had no difference in soil moisture content and 300 regions had a positive difference in soil moisture (as shown by the two darker shades of orange).

The largest negative differences in soil moisture between 2000 and 2019 — where the level of moisture in 2019 was less than half the level in 2000 (as shown by the darkest shade of blue in the map) — were concentrated in relatively central regions (on a North–South axis) within the EU. The 116 NUTS level 3 regions with soil moisture in 2019 that was less than 50 % of its 2000 level were in a band running from Belgium (11 regions), through the Netherlands (28 regions) and Germany (69 regions), into Poland (seven regions); the only other region with such a large negative difference in soil moisture was Biella in northern Italy. The largest negative difference in soil moisture was in Eisenach, Kreisfreie Stadt in Germany.

The largest positive differences — where soil moisture was at least 17.5 % higher in 2019 than it had been in 2000 — were estimated for 117 regions. Although these were spread across 11 EU Member States, these regions were mainly found in Romania (29 regions), Bulgaria (22 regions), Italy (18 regions), Greece (17 regions) and Austria (11 regions); there was also a cluster of regions either side of the Spanish–French border and another in north-eastern Poland. The two regions where the positive difference in soil moisture was greatest were Prahova in Romania (56.1 % higher in 2019) and Yambol in Romania (50.6 % higher).

Map 12.6: Overall change in soil moisture, 2000-2019
(%, by NUTS 3 regions)



EU = −10.2

- < −50.0
- −50.0 - < −38.5
- −38.5 - < −10.2
- −10.2 - < 0.0
- 0.0 - < 17.5
- ≥ 17.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: soil moisture is averaged over each growing season for a spatial dataset composed of 500m grid cells and then aggregated to NUTS level 3 regions.

Source: the European Environment Agency

13. Agriculture

Agricultural products, food and culinary traditions are a major part of the European Union's (EU's) regional and cultural identity. This is, at least in part, due to a diverse range of natural environments, climates and farming practices that feed through into a wide array of agricultural products.

Around two fifths (38.2 %) of the EU's land is farmed: this underlines the important impact that farming can have on natural environments, natural resources and wildlife. Farmers in the EU are increasingly being encouraged to manage the countryside as a public good, so that the whole of society can benefit.

This chapter presents regional agricultural statistics focusing on three specific areas with information on: organic farming; the harvested production of various cereals (common wheat and spelt; barley; grain maize and corn-cob-mix; other cereals); and the number of animals, focusing on swine (such as pigs).

(million tonnes, 2019 data)
Germany: NUTS level 1

Source: Eurostat (online data code: apro_cpshr)

Area under organic farming

Intensive farming can have a considerable environmental impact. Among other issues, it can lead to an increase in greenhouse gas emissions or soil erosion, or result in habitat and biodiversity loss, deforestation or the contamination of waters.

EU regulations on organic farming are designed to provide a structure for the production of organic goods. Consumers are increasingly aware of provenance and farming methods: this may explain, at least in part, why a growing proportion of EU farmers have adopted organic farming methods. In 2016, the EU's organic area covered 11.4 million hectares, which corresponded to a 7.1 % share of the total utilised agricultural area. Note the organic area includes the agricultural area fully converted and the agricultural area that is under conversion. While most regional data presented in this chapter relate to 2016, more recent national data indicate that this share had risen to 8.5 % by 2019.

The share of the utilised agricultural area that was under organic farming in 2016 varied considerably between EU Member States and between NUTS level 2 regions; note that the statistics presented for Közép-Magyarország (Hungary) and Makroregion Województwo Mazowieckie (Poland) relate to NUTS level 1 regions, while national data are provided for Ireland and Lithuania. Out of 232 regions for which data are available, there were 26 where, in 2016, the area under organic farming represented at least 16.5 % of the total (as shown by the darkest shade of orange in Map 13.1). There were relatively high shares of agricultural land using organic farming methods in Austria, Sweden, Estonia, and to a somewhat lesser degree, Czechia and Italy. By contrast, organic farming was much less common in Malta, as well as in several regions of Belgium, Spain, Poland and Romania.

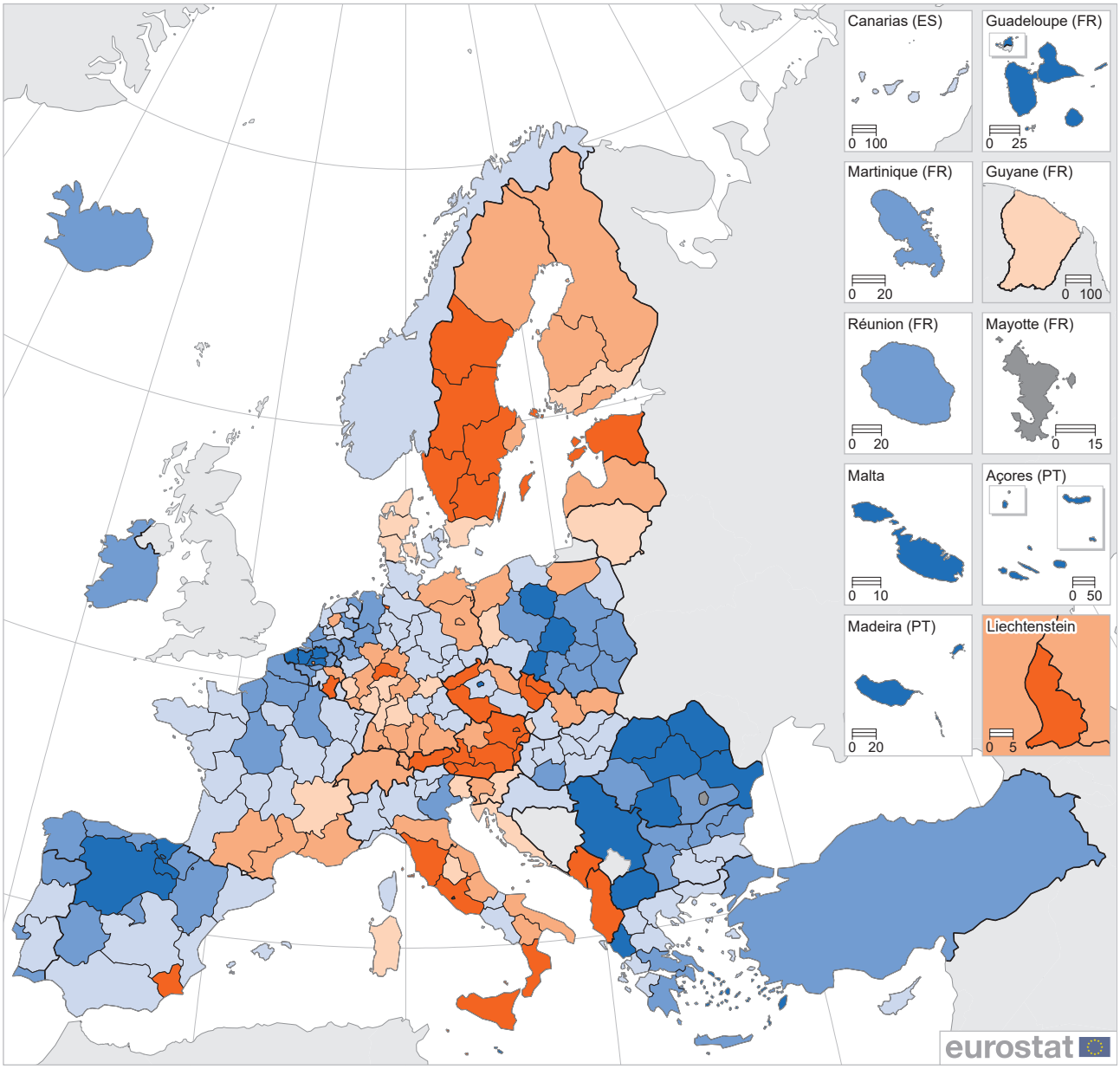
Salzburg (Austria) was the only region in the EU where organic farming accounted for more than half of the total utilised agricultural area

The highest share of organic farming was recorded in Salzburg (Austria). It was the only region in the EU to report that more than half (51.8 %) of its utilised agricultural area in 2016 was under organic farming, some 93 000 hectares. The next highest shares — within the range of 29.3-29.6 % — were recorded in Severozápad (Czechia), Norra Mellansverige (Sweden) and Calabria (Italy). Among the 26 regions where the area under organic farming represented at least 16.5 % of the total utilised agricultural area, the largest areas under organic farming were in: Sicilia (Italy; 375 000 hectares) and Estonia (181 000 hectares).

Map 13.2 looks at the absolute size of the organic area in each region, rather than its share; unlike Map 13.1, this map is based on NUTS level 1 regions. The two regions with the largest organic farming areas in 2016 were the Sud and Isole regions of Italy.

Permanent grassland accounted for at least half of the organic area in 35 of the 73 EU regions for which data are shown, peaking at 97.3 % in Ireland. This type of organic area was particularly common in several regions across northern and western EU Member States; the Nord-Est region of Italy was the only southern region with permanent grassland accounting for more than half of the organic area, while Czechia, Makroregion Południowy (Poland), Macroregiunea Unu (Romania), Slovenia and Slovakia were the only eastern regions. Arable land accounted for the majority of the organic area in Macroregiunea Doi (Romania), Lithuania and Ostösterreich (Austria), while permanent crops accounted for more than half of the organic area in Comunidad De Madrid (Spain) and Nisia Aigaiou, Kriti (Greece).

Map 13.1: Share of organic farming in utilised agricultural area (UAA), 2016
(%, by NUTS 2 regions)



EU = 7.1
- < 1.0
- 1.0 - < 2.5
- 2.5 - < 7.1
- 7.1 - < 9.0
- 9.0 - < 16.5
- ≥ 16.5
- Data not available

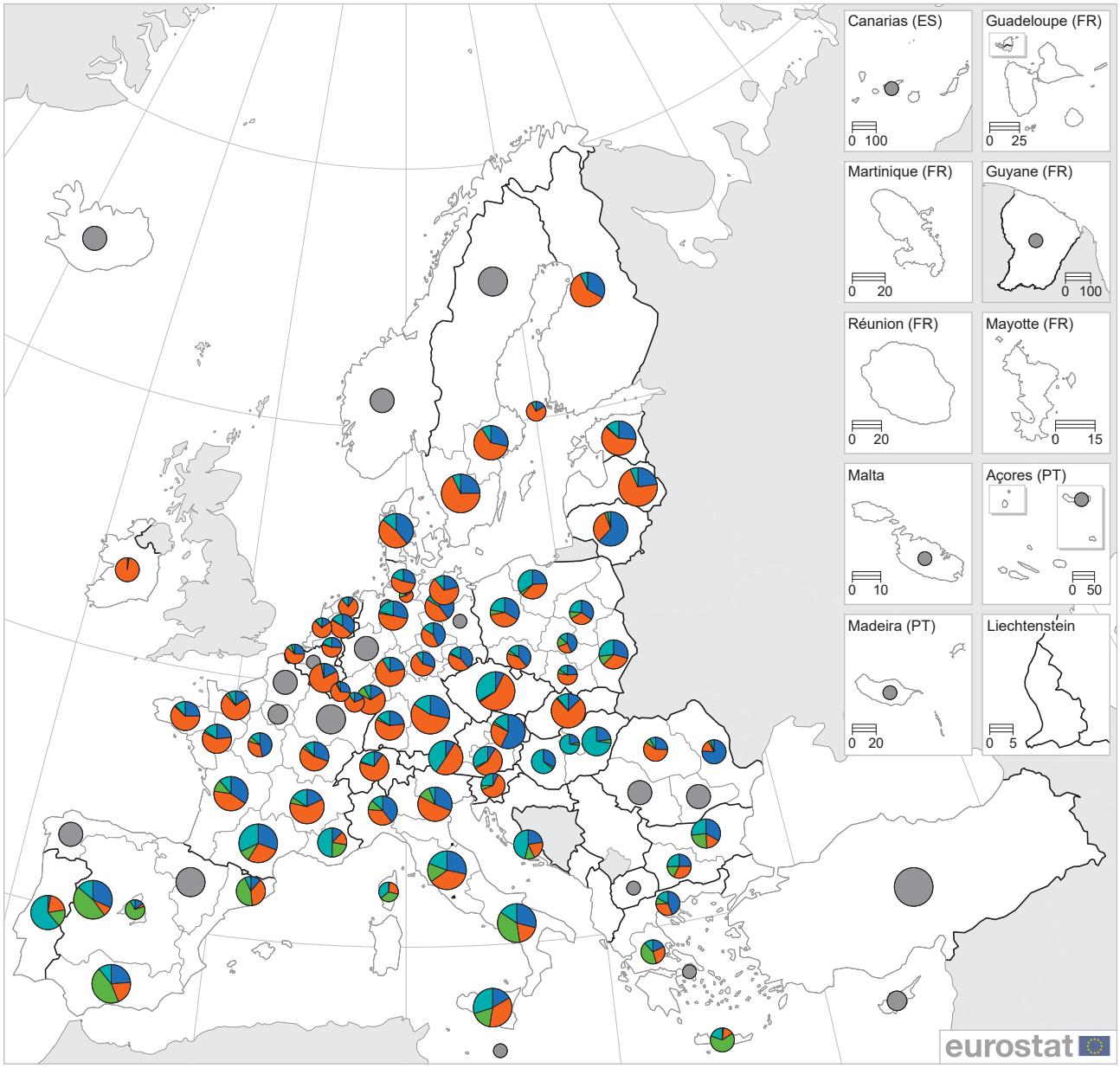
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: the total area for organic farming includes both the agricultural area fully converted and the agricultural area under conversion. Közép-Magyarország (HU1) and Makroregion Województwo Mazowieckie (PL9): NUTS level 1. Ireland, Lithuania, Norway, Switzerland, Serbia and Turkey: national data. Iceland: 2015. Praha (CZ01): 2013.

Source: (online data codes: ef_lus_main and org_cropar)

Map 13.2: Organic farm area, 2016
(by NUTS 1 regions)



Share of organic farm area by type (%)

- Arable land
- Permanent grassland
- Permanent crops
- Other
- Incomplete or not available

Organic farm area (thousand hectares)
EU = 9 235

- < 3.5
- 3.5 - < 17.5
- 17.5 - < 60.0
- 60.0 - < 150.0
- 150.0 - < 250.0
- ≥ 250.0

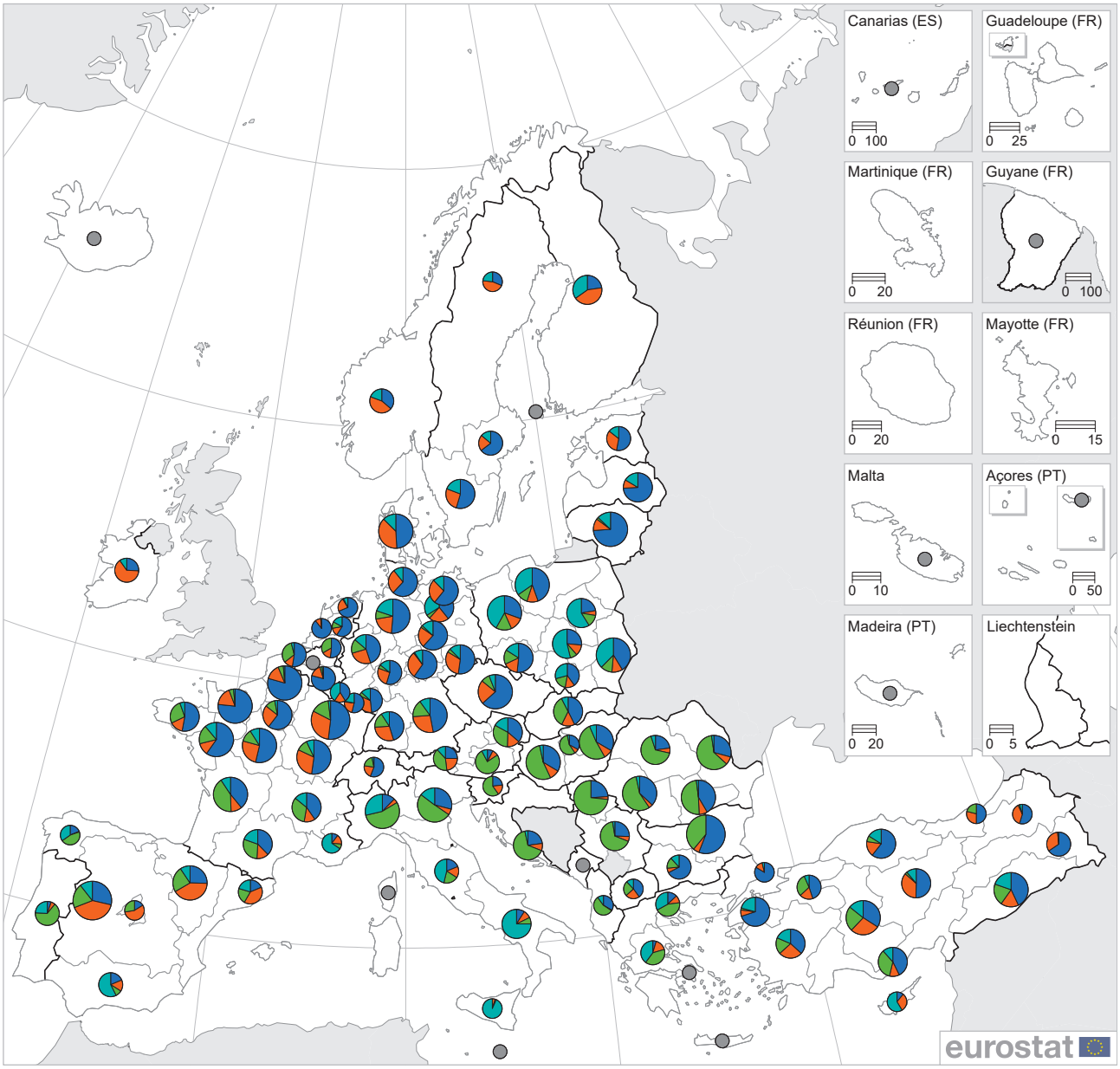
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2021

0 200 400 600 800 km

Note: Turkey, national data. Régions Ultrapériphériques Françaises (FRY): area of organic farming excluding Mayotte (FRY5). Macroregiunea Trei (RO3): area of organic farming excluding Bucuresti - Ilfov (RO32).

Source: (online data codes: ef_lus_main and org_cropar)

Map 13.3: Harvested production of cereals, 2019
(by NUTS 1 regions)



Note: Saarland (DEC0) and Portugal, 2018.
Source: Eurostat (online data code: apro_cpshr)

Cereals

Arable land is often used for the production of cereals, one of the most important outputs of the EU's agricultural sector. Cereals are used primarily for human consumption and animal feed, but they may also be used to make drinks and industrial products (for example, starch).

There is considerable diversity in relation to the types of cereal that are grown in the EU, with regional specialisation reflecting, at least to some degree, topography, soil type, climate and rainfall, or competing land uses. In 2019, the harvested production of cereals in the EU was 299.3 million tonnes. Common wheat and spelt (131.8 million tonnes or 44.0 % of total cereals production) was the most frequently grown category of cereals.

Three of the NUTS level 1 regions in the EU had a production of cereals in 2019 in excess of 10.0 million tonnes, namely Centro in Spain, Alsace-Champagne-Ardenne-Lorraine in France and Severna i yugoiztochna in Bulgaria. Three other French regions, two Romanian regions, and Denmark all had production in excess of 9.0 million tonnes. Among these nine regions with the largest production of cereals, common wheat and spelt was the most commonly harvested cereal in five of them. In the two Romanian regions as well as Aquitaine-Limousin-Poitou-Charentes (France), grain maize and corn-cob-mix was the main cereal crop. In Centro (Spain), barley accounted for just over two fifths of total cereals production.

Figures 13.1 and 13.2 provide a summary of the regions with the highest levels of production for common wheat and spelt as well as for grain maize and corn-cob-mix: note that these figures are based on data for NUTS level 2 regions (although German data are only available for level 1 regions).

COMMON WHEAT AND SPELT

Production of common wheat and spelt was principally located in lowland regions characterised by large plains, a temperate climate and relatively modest levels of rainfall. In terms of the area on which common wheat and spelt was cultivated in 2019, the largest was Vidurio ir vakarų Lietuvos regionas in Lithuania, followed by Castilla y León in Spain. Three Romanian regions figured among the top 10 in terms of cultivated area. In terms of the production quantity, the two largest regions — with production around 5 million tonnes each in 2019 — were Centre-Val de Loire and Picardie, both in France. In total, six French regions were among the top 10 in terms of the level of production. The differences between the rankings in terms of area and production reflect regional yields, which in turn reflect variations in a wide range of factors, such as rainfall, temperature, or the use of nutrients and pesticides.

GRAIN MAIZE AND CORN-COB-MIX

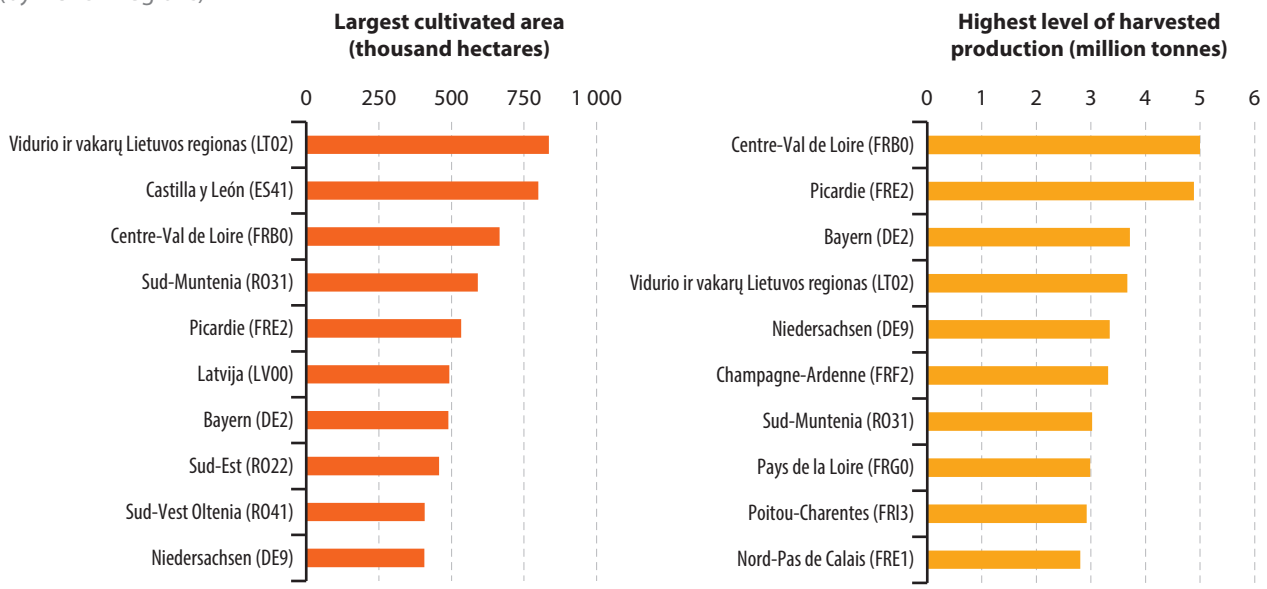
A majority of the EU's production of grain maize and corn-cob mix is used by livestock farmers as a high energy ingredient in animal feed. The data presented below exclude the production of sweet corn cobs for human consumption as well as maize that is harvested green for fodder or renewable energy use.

In 2019, grain maize and corn-cob-mix accounted for just under one quarter (23.4 %) of the EU's total cereals production. As such, this was the second most frequently produced category of cereals (behind common wheat and spelt). EU production of grain maize and corn-cob-mix was 70.1 million tonnes in 2019.

Many of the regions that are specialised in the production of grain maize and corn-cob mix are located in southern and eastern EU Member States, where there are typically the necessary warm temperatures required. From the western Member States, some French regions are also relatively specialised in the production of grain maize and corn-cob mix.

In 2019, the five EU regions with the largest cultivated areas for grain maize and corn-cob-mix were all located in Romania, as was the seventh. Equally, 6 of the 10 regions in the EU with the highest levels of harvested production of grain maize and corn-cob-mix were located in Romania; the three largest were Sud-Muntenia (3.6 million tonnes of output), followed by Vest (3.3 million tonnes) and Sud-Est (3.0 million tonnes) — see Figure 13.2. In terms of area and also production, the six Romanian regions were joined by two Hungarian regions (Észak-Alföld for area and production, Dél-Alföld for area and Dél-Dunántúl for production), and single regions from France (Aquitaine) and Croatia (Kontinentalna Hrvatska).

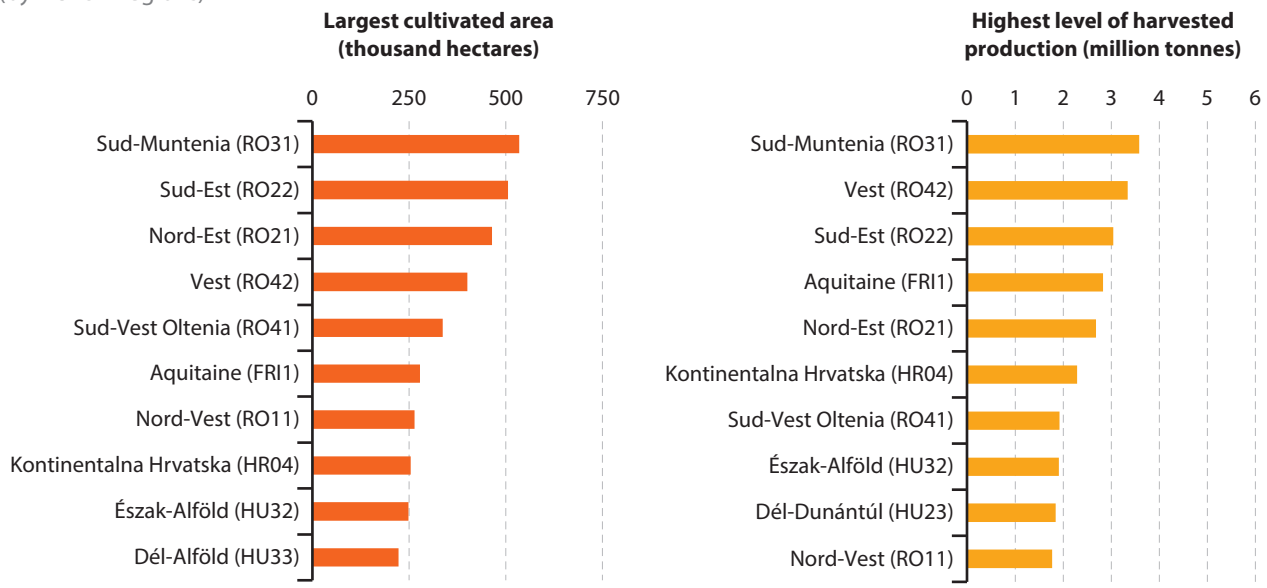
Figure 13.1: Top regions in the EU for the production of common wheat and spelt, 2019
(by NUTS 2 regions)



Note: Germany, NUTS level 1. Severozapaden (BG31), Severen tsentralen (BG32), Yugozapaden (BG41), Yuzhen tsentralen (BG42) and Portugal: 2018. Berlin (DE3) and Bremen (DE5): not available. Hamburg (DE6): harvested production, not available.

Source: Eurostat (online data code: apro_cpshr)

Figure 13.2: Top regions in the EU for the production of grain maize and corn-cob-mix, 2019
(by NUTS 2 regions)



Note: Germany, NUTS level 1. Portugal: 2018. Hamburg (DE6): not available. Berlin (DE3), Bremen (DE5) and Saarland (DEC): harvested production, not available.

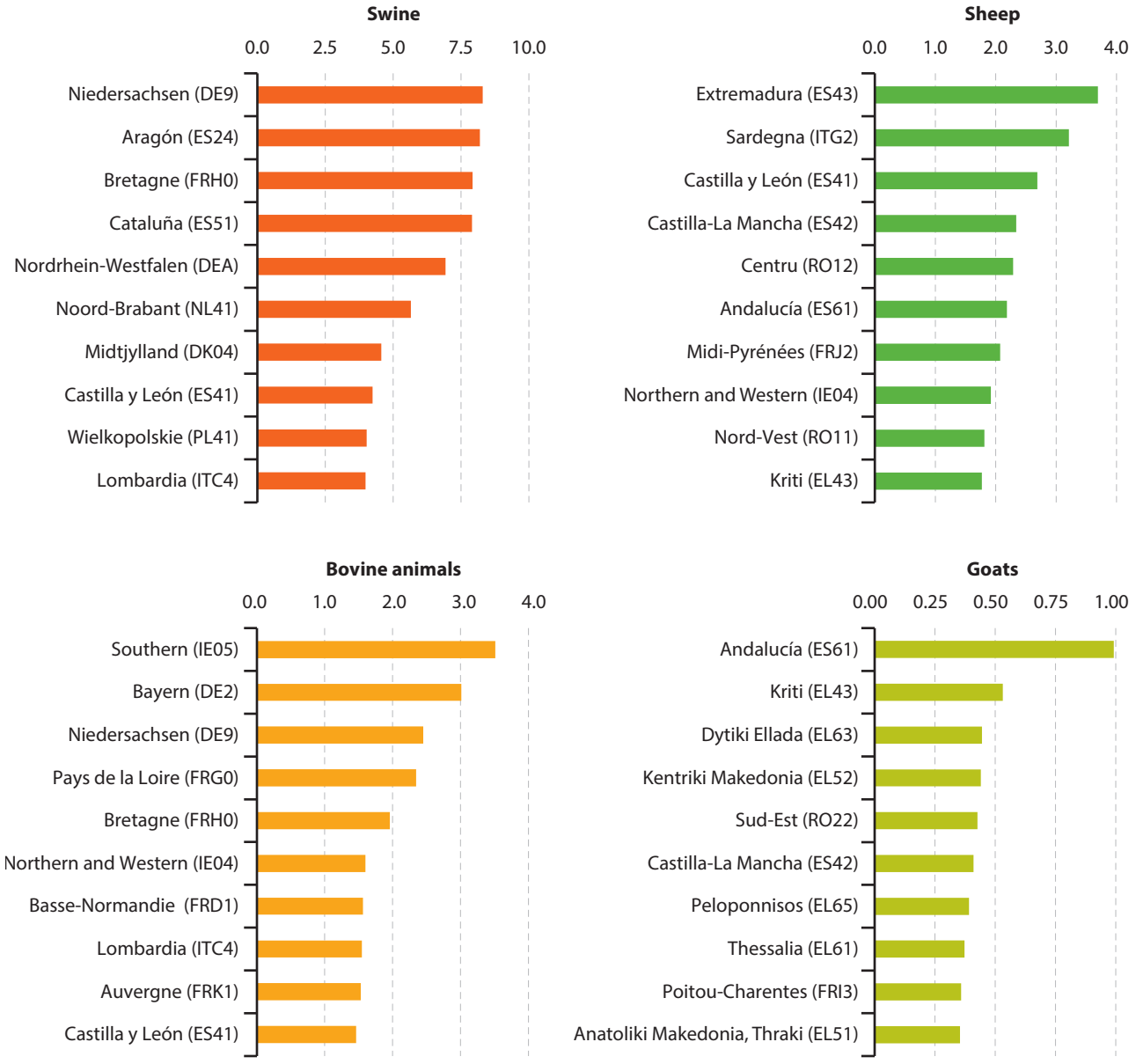
Source: Eurostat (online data code: apro_cpshr)

Animals

In December 2019, pigs (swine) were the most commonly reared animals in the EU (143.1 million head), followed by bovine animals (such as cows; 77.2 million head), sheep (an estimated 62.5 million head) and goats (an estimated 12.1 million head). The total livestock population for these four types of animals in the EU was 295 million head.

Several EU Member States have clear livestock rearing specialisations that were common to most or even all of their regions. For example, this was the case for goats in Greece, pigs in Denmark and bovine animals in Ireland.

Figure 13.3: Top regions in the EU for livestock, 2019
(million head, by NUTS 2 regions)



Note: the difference in the scales used for the y-axes. Based on available data (too many missing values to document). Germany, NUTS level 1.
Source: Eurostat (online data code: agr_r_animal)

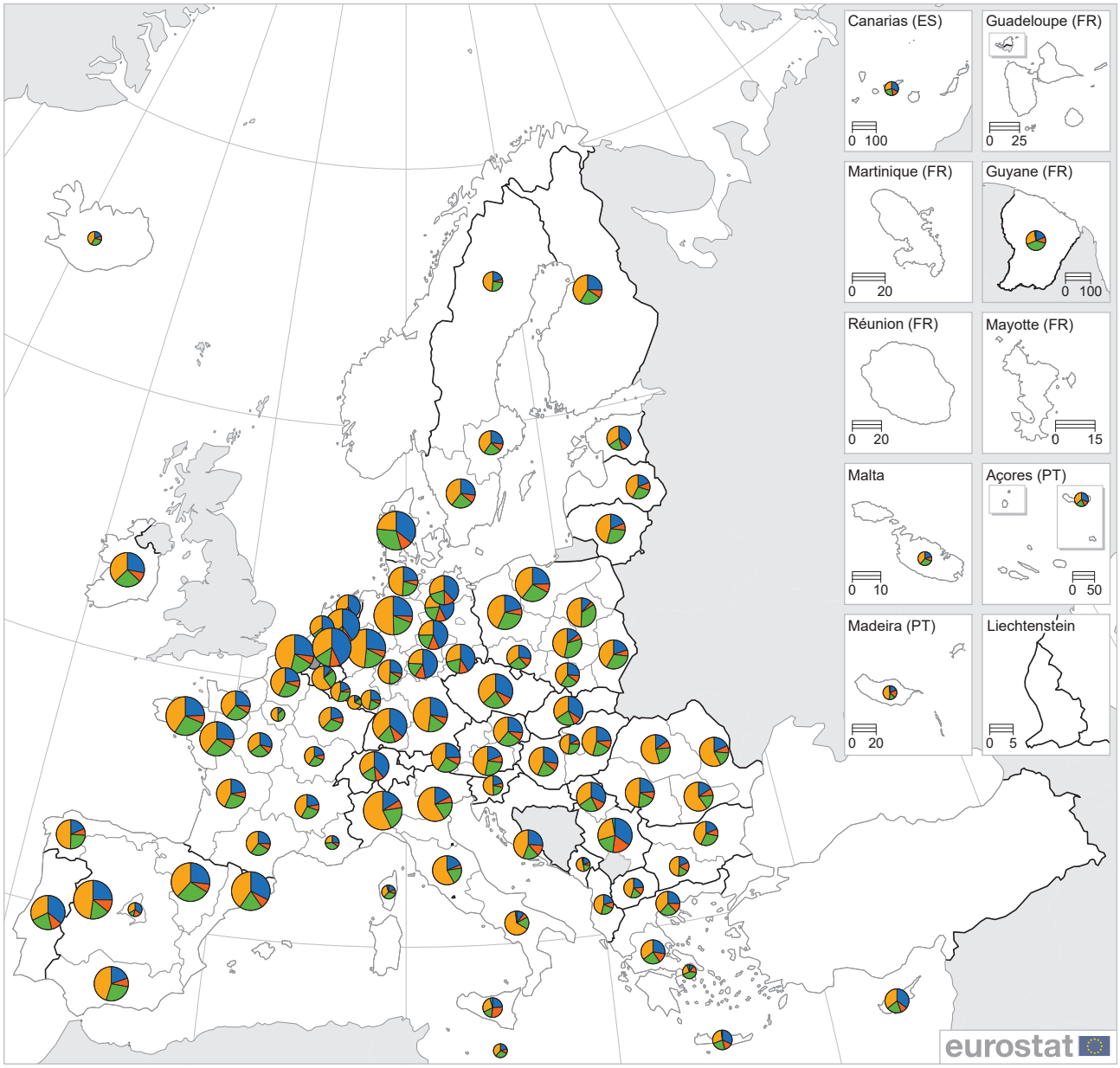
LIVESTOCK: NUMBER OF LIVE SWINE

The final section of this chapter focuses on swine, the largest of the four main types of livestock in the EU. As seen in Figure 13.3, Niedersachsen in Germany had the largest swine population in 2019, 8.3 million head. However, it should be noted that German data are only available for NUTS level 1 regions. Among the NUTS level 2 regions, the largest population of swine was 8.2 million in Aragón, Spain.

Map 13.4 shows not only the overall size of swine populations in each region, but also an analysis by type of pigs; note these data are presented for NUTS level 1 regions. At this level of detail, the regions with the largest swine populations in 2019 were Denmark (12.7 million head), the Spanish regions of Este (9.1 million) and Noreste (9.0 million), and Niedersachsen. Across the EU, 33 of the 88 regions for which data are available had at least 1.0 million swine. These regions were widely spread across the EU, including among others: Denmark and Finland (national data only) in the north; many German regions and Ireland in the west; several Spanish regions, Continente (Portugal) and two northern Italian regions in the south; and Czechia, Croatia, two (of three) Hungarian regions and several Polish regions in the east.

In three of the regions with at least 1.0 million swine — Nord-Est and Nord-Ovest in Italy as well as Niedersachsen in Germany — more than half of the swine were fattening pigs (weighing at least 50 kg). This share was also nearly reached in several other regions, such as Noroeste in Spain and Makroregion Województwo Mazowieckie in Poland. By contrast, piglets accounted for at least two fifths of the swine population in Sachsen-Anhalt in Germany and the two Dutch regions with large swine populations, namely Zuid-Nederland and Oost-Nederland.

Map 13.4: Live swine, December 2019
(by NUTS 1 regions)



Share of live swine (%)

- Piglets
- Breeding sows
- Pigs (20 to < 50 kg)
- Fattening pigs (≥ 50 kg)
- Other
- Data not available

Number of live swine (million head of livestock)
EU = 143.1

- 0.0
- 0.1 - < 0.3
- 0.3 - < 0.6
- 0.6 - < 1.5
- 1.5 - < 5.0
- ≥ 5.0

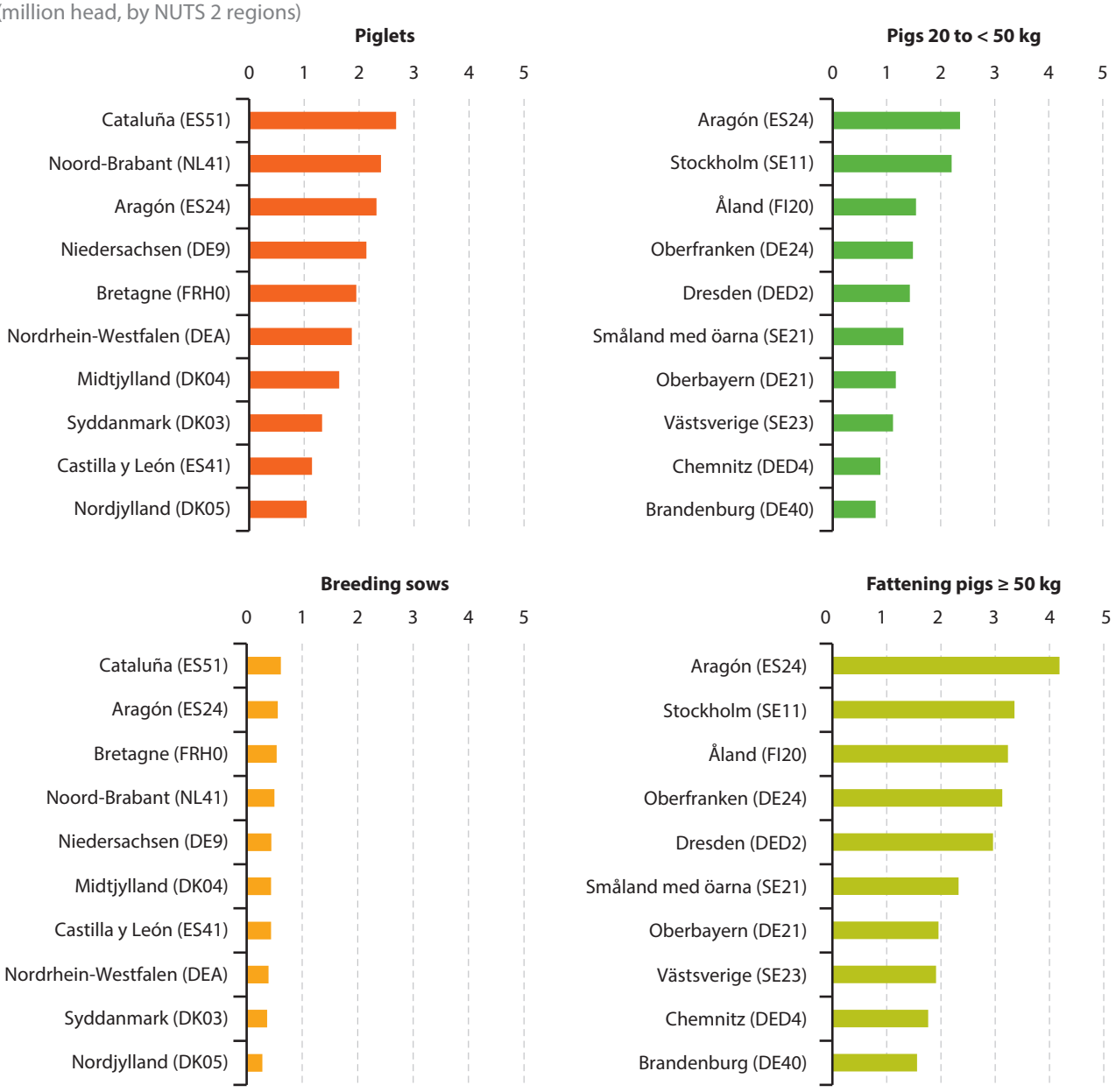
0 200 400 600 800 km

Note: Finland, national data.

Source: Eurostat (online data codes: agr_r_animal and apro_mt_lspig)

Figure 13.4 provides a similar analysis to that in Map 13.4, but shows the absolute numbers for each of the four swine categories for NUTS level 2 regions; note the latest data for Germany are once again at NUTS level 1. In 2019, the two largest populations of fattening pigs weighing at least 50 kg were in the German regions of Niedersachsen and Nordrhein-Westfalen, with 4.2 and 3.4 million fattening pigs each, while there were 3.0-3.2 million fattening pigs in Bretagne (France), Cataluña and Aragón (both Spain). Smaller pigs, weighing 20 to less than 50 kg were most common in Aragón (2.4 million) and Stockholm, the Swedish capital region (2.2 million). There were four regions across the EU that reported a population of piglets that was above 2.0 million head: Cataluña and Aragón, Niedersachsen and Noord-Brabant (the Netherlands).

Figure 13.4: Top regions in the EU for live swine, 2019
(million head, by NUTS 2 regions)



Note: Germany, NUTS level 1. Helsinki-Uusimaa (FI1B) and Pohjois- ja Itä-Suomi (FI1D): 2018. Berlin (DE3), Bremen (DE5), Hamburg (DE6), Mayotte (FRY5) and Åland (FI20): not available. Bratislavský kraj (SK01) and Stredné Slovensko (SK03): breeding sows, not available.

Source: Eurostat (online data codes: agr_r_animal and apro_mt_lspig)

Getting in touch with the EU

In person

All over the European Union there are hundreds of Europe Direct Information Centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by e-mail

Europe Direct is a service that answers your questions about the European Union. You can contact this service

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696 or
- by electronic mail via: https://europa.eu/european-union/contact_en

Finding information about the EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU Publications

You can download or order free and priced EU publications at: https://publications.europa.eu/en/publications. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: http://eur-lex.europa.eu

Open data from the EU

The EU Open Data Portal (http://data.europa.eu/euodp/en) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.

Print: KS-HA-21-001-EN-C
PDF: KS-HA-21-001-EN-N

Eurostat regional yearbook 2021

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 2021* provides a detailed picture relating to a broad range of statistical topics across the regions of the EU Member States, as well as the regions of the 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.

For more information
https://ec.europa.eu/eurostat/

Publications Office
of the European Union

Print: ISBN 978-92-76-37761-0 doi:10.2785/762788
PDF: ISBN 978-92-76-37762-7 doi:10.2785/894358