# Eurostat regional yearbook

2016 edition

STATISTICAL BOOKS

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# Eurostat regional yearbook

2016 edition

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Luxembourg: Publications office of the European Union, 2016

PDF: ISBN 978-92-79-60090-6
ISSN 2363-1716
doi: 10.2785/29084
Cat. No: KS-HA-16-001-EN-N

Print: ISBN 978-92-79-60091-3
ISSN 1830-9674
doi: 10.2785/671934
Cat. No: KS-HA-16-001-EN-C

**Theme: General and regional statistics**
**Collection: Statistical books**



*Printed in Belgium*

PRINTED ON ELEMENTAL CHLORINE-FREE BLEACHED PAPER (ECF)

# Foreword

The *Eurostat regional yearbook* provides an overview of official statistics that are available in relation to the regions within the European Union (EU). Whereas most official statistics produced by Eurostat relate to the EU as a whole or to its Member States, the publication of regional data helps to increase the understanding of the regional diversity that exists, as considering national figures alone does not reveal the full and sometimes complex picture of what is happening in the EU. Indeed, very different situations and developments can often be observed when analysing data at a regional level. As such, the analysis presented in this publication complements that provided in the online version of *Europe in figures — Eurostat's yearbook*, which concentrates on statistics for the EU and national statistics for its Member States.

Within the EU, regional statistics are based on the classification of territorial units for statistics, known by the acronym NUTS. This classification is based on harmonised conventions to define regions in a comparable manner, reflecting the diverse physical, demographic and administrative situations in the EU Member States. This classification has implications beyond the direct field of statistics as it is increasingly used in other areas. The data presented in this publication are based on the recently implemented 2013 version of the NUTS classification.

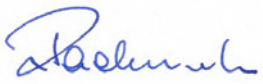
The *Eurostat regional yearbook* maintains its emphasis on the most recent data available, but also provides (when possible) analysis of changes over a period of 5 or 10 years — thereby identifying structural changes. The analysis is supported by a range of maps, tables and figures, which seek to reveal regional variations at a glance. This edition contains two special chapters: a focus on commuting patterns between regions and a focus on regional population projections.

The content of this book is available online in Statistics Explained on the Eurostat website. The latest data can be downloaded from Eurostat's database, where more disaggregated data can often be found.

Between 2002 and 2015, each edition of the *Eurostat regional yearbook* contained a chapter on cities or urban statistics. No such chapter appears in the 2016 edition as a separate publication has been released in 2016 that is entirely dedicated to this topic; it is titled *Urban Europe — statistics on cities, towns and suburbs*.

Eurostat is the statistical office of the EU. Working together with national statistical authorities in the European statistical system, our mission is to provide high-quality statistics for Europe.

I wish you an enjoyable trip through the regions of the EU!



**Walter Radermacher**

Director-General, Eurostat

Chief Statistician of the European Union

# 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 2016* gives 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 maps, tables and figures, accompanied by a description of the policy context, main findings and data sources. These regional indicators are presented for the following 12 subjects: regional policies and Europe 2020, population, health, education and training, the labour market, the economy, structural business statistics, research and innovation, the information society, tourism, transport, and agriculture. In addition, two special chapters are included in this edition: a focus on commuting patterns between regions and a focus on regional population projections.

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## Data extraction

The data presented within this publication were extracted during March and April 2016.

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

All statements on policies within this publication are given for information purposes only. They do not constitute an official policy position of the European Commission and are not legally binding. To know more about such policies, please consult the European Commission's website at: http://ec.europa.eu

# Acknowledgements

The chief editor and editors of the *Eurostat regional yearbook 2016* would like to thank their colleagues who contributed to this publication and, in particular, to members of the steering group — Emanuele Baldacci, Philippe Bautier, Louise Corselli-Nordblad, Christophe Demunter, Annika Johansson, Marcel Jortay, Iuliana Lupu, Fabienne Montaigne, Andrew Redpath, Gunter Schäfer, Tiny Vandewiele, Sylvie Villaume and Pascal Wolff — as well as those involved closely in the editorial work for each chapter:

- **Introduction**: Oliver Müller (Eurostat, Unit E.4., Regional statistics and geographical information)
- **Regional policies and Europe 2020**: Simon Bley and Fritz Gebhard (Eurostat, Unit E.2., Environmental statistics and accounts; sustainable development); Lewis Dijkstra and Hugo Poelmann (Directorate-General for Regional and Urban Policy, Unit B.1., Economic analysis); Wolfgang Petzold (European Committee of the Regions)
- **Population**: Andrea Gereöffy, Monica Marcu and Gabriela Senchea Badea (Eurostat, Unit F.2., Population and migration)
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- **Information society**: Cristina Calizzani, Michaela Grell and Petronela Reinecke (Eurostat, Unit G.4., Innovation and information society)
- **Tourism**: Christophe Demunter and Sylvie Villaume (Eurostat, Unit G.3., Business cycle, tourism and registers)
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- **Focus on commuting patterns**: Håvard Lien, Fabienne Montaigne and Hartmut Schrör (Eurostat, Unit F.3., Labour market and lifelong learning)
- **Focus on regional population projections**: Giampaolo Lanzieri and Gabriela Senchea Badea (Eurostat, Unit F.2., Population and migration)

We are also grateful to:

- the Directorate-General for Translation of the European Commission, particularly the German and French translation units;
- the Publications Office of the European Union, and in particular François Andrianne, Unit B.2., Publications.

# Contents

# Introduction

Eurostat, the statistical office of the European Union (EU), collects and publishes statistics for the EU and euro area aggregates, as well as national and regional data, primarily for the 28 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 on regions across a range of subjects.

## Statistics on regions

The EU Member States are often compared with each other, but in reality it is very difficult to compare a small Member State like Malta, which has around 430 000 inhabitants, or Luxembourg, which has around 560 000 inhabitants, with Germany, the most populous EU Member State, at just over 81 million inhabitants. Comparing data at a regional level is often more meaningful, and such an analysis may also highlight potential disparities hidden when studying national data.

### THE NUTS CLASSIFICATION

At the heart of regional statistics is the NUTS classification — the classification of territorial units for statistics. This is a regional classification for the EU Member States based on a hierarchy of regions: the NUTS classification subdivides each Member State into regions at three different levels, covering NUTS levels 1, 2 and 3 from larger to smaller areas.

It should be noted that some EU Member States have a relatively small population and may therefore not be subdivided at some (or even all) of the different levels of the NUTS classification. For example, six of the EU Member States — Estonia, Cyprus, Latvia, Lithuania, Luxembourg and Malta — are each composed of a single NUTS level 2 region according to the 2013 version of the NUTS classification. This situation also occurs for the level 2 statistical regions of Iceland, Liechtenstein, Montenegro and the former Yugoslav Republic of Macedonia ([1]), where the whole country also consists of a single level 2 statistical region. Note also that there is currently no agreement on statistical regions with Serbia and so only national data are presented for this country.

**Table 1** provides an overview of the number of NUTS regions and statistical regions for each of the EU Member States and non-member countries that are covered within the *Eurostat regional yearbook*.

### The use of NUTS in this publication

The data presented in the *Eurostat regional yearbook* are based exclusively on the NUTS 2013 classification. Most of the regional statistics shown are for NUTS level 2 regions, but, subject to data availability, some maps, tables and figures are shown for NUTS level 1 regions (more aggregated geographical information) or NUTS level 3 regions (the most detailed geographical information; this is available for a limited selection of indicators that includes population data, patent applications, road freight transport and agri-environmental indicators).

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, table or figure — these cases are documented in footnotes and are generally made in order to improve data coverage. Where little or no regional data exist for a particular EU Member State and indicator combination, use has been made of national data; these exceptions are again documented in footnotes.

([1]) The name of the former Yugoslav Republic of Macedonia is shown in tables and figures in this online publication as FYR of Macedonia. This does not prejudge in any way the definitive nomenclature for this country, which is to be agreed following the conclusion of negotiations currently taking place on this subject at the United Nations.

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

| | (number of NUTS 2010 regions) | | |
|---|---|---|---|
| | **NUTS level 1** | **NUTS level 2** | **NUTS level 3** |
| **EU-28** | 98 | 276 | 1 342 |
| Belgium | 3 | 11 | 44 |
| Bulgaria | 2 | 6 | 28 |
| Czech Republic | 1 | 8 | 14 |
| Denmark | 1 | 5 | 11 |
| Germany | 16 | 38 | 402 |
| Estonia | 1 | 1 | 5 |
| Ireland | 1 | 2 | 8 |
| Greece | 4 | 13 | 52 |
| Spain | 7 | 19 | 59 |
| France | 9 | 27 | 101 |
| Croatia | 1 | 2 | 21 |
| Italy | 5 | 21 | 110 |
| Cyprus | 1 | 1 | 1 |
| Latvia | 1 | 1 | 6 |
| Lithuania | 1 | 1 | 10 |
| Luxembourg | 1 | 1 | 1 |
| Hungary | 3 | 7 | 20 |
| Malta | 1 | 1 | 2 |
| Netherlands | 4 | 12 | 40 |
| Austria | 3 | 9 | 35 |
| Poland | 6 | 16 | 72 |
| Portugal | 3 | 7 | 25 |
| Romania | 4 | 8 | 42 |
| Slovenia | 1 | 2 | 12 |
| Slovakia | 1 | 4 | 8 |
| Finland | 2 | 5 | 19 |
| Sweden | 3 | 8 | 21 |
| United Kingdom | 12 | 40 | 173 |
| | **(number of statistical regions)** | | |
| | **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 |
| FYR of Macedonia | 1 | 1 | 8 |
| Albania | 1 | 3 | 12 |
| Serbia (1) | : | : | : |
| Turkey | 12 | 26 | 81 |

(1) There is currently no agreement on statistical regions with Serbia and so information is presented only at the national level.

*Source:* Eurostat



## The NUTS regulation and classification

The NUTS classification is defined in Regulation (EC) 1059/2003 of the European Parliament and of the Council, which has to be amended by a European Commission regulation for each update of the classification (each NUTS version). 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 for the inclusion of regions from new EU Member States into the classification. Since 2003, the NUTS classification has been amended several times, partly due to regular amendments, partly due to the accession of new Member States.

The third regular amendment (Commission Regulation No 1319/2013) was adopted in December 2013 and has applied since 1 January 2015. This is referred to as NUTS 2013 and relates to annual data from reference period 2015 onwards. The 2013 version is the basis for classifying regional statistics used in this edition of the *Eurostat regional yearbook*. It should be noted that much of the data presented in this publication were collected using previous versions of NUTS and have been recoded to NUTS 2013; 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.

## The main principles of the NUTS classification

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

**Table 2: Size constraints for NUTS 2013 regions, by population**
(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

**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, regions are created by aggregating smaller administrative regions.

Regions have also been defined and agreed with the EFTA and candidate countries on a bilateral basis; these are called statistical regions and follow exactly the same rules as the NUTS regions in the EU, although they have no legal basis. There is currently no agreement on statistical regions with Serbia and so information for this country is presented only at the national level.

### STATISTICS BY DEGREE OF URBANISATION

The degree of urbanisation is a classification originally introduced in 1991 to distinguish densely, intermediate and thinly populated areas. The definition was based on the population size, population density and contiguity of local administrative units at level 2 (LAU2 or municipalities).

The new degree of urbanisation classification is based on three types of area, which are defined using a criterion of geographical contiguity based on a population grid of 1 km$^2$ in combination with a minimum population threshold (**Table 3** presents a summary of the spatial concepts employed), identifying:

- rural areas (previously referred to as thinly populated areas);
- towns and suburbs (previously referred to as intermediate density areas);
- cities (previously referred to as densely populated areas).

The revision also created the opportunity to streamline and harmonise a number of similar but not identical spatial concepts for which data was being collected. The revised degree of urbanisation classification uses urban centres to identify European cities that have a centre with at least 50 000 inhabitants.

The new degree of urbanisation classification may also be used to supply data to the United Nations on rural and urban areas (the latter being a simple aggregate of the data for cities combined with that for towns and suburbs).

**Table 3:** Spatial concepts in relation to the revised degree of urbanisation

| Grid cell concept | Criteria |
|---|---|
| High density clusters (urban centres) | Population ≥ 50 000 inhabitants and contiguous grid cells of 1 km² with ≥ 1 500 inhabitants per km² |
| Urban clusters | Population ≥ 5 000 inhabitants and contiguous grid cells of 1 km² with ≥ 300 inhabitants per km² |
| Rural grid cells | Grid cells outside urban clusters and urban centres |

| Degree of urbanisation concept | Common terminology | UN classification | Criteria |
|---|---|---|---|
| Densely populated areas | Cities | Large urban areas | ≥ 50 % of the population lives in high-density clusters |
| Intermediate urbanised areas | Towns and suburbs | Small urban areas | < 50 % of the population lives in rural grid cells and < 50 % of the population lives in high-density clusters |
| Thinly populated areas | Rural areas | Rural areas | > 50 % of the population lives in rural grid cells |

*Source:* Eurostat, the European Commission Directorate-General for Regional Policy, OECD

**Map 1** shows the degree of urbanisation in the EU, detailing the distribution of rural areas, towns and suburbs, and cities.

More information on the new definition is available in a working paper released by the Directorate-General for Regional and Urban Policy — A harmonised definition of cities and rural areas: the new degree of urbanisation.

Within this edition of the *Eurostat regional yearbook*, statistics by degree of urbanisation are used in Chapter 1 on regional policies and Europe 2020, Chapter 3 on health, Chapter 5 on the labour market, Chapter 9 on the information society and Chapter 10 on tourism.

## Coverage and timeliness

The *Eurostat regional yearbook* contains statistics for the 28 Member States of the EU and, where available, data are also shown for the EFTA countries (Iceland, Liechtenstein, Norway and Switzerland) and the candidate countries (Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey). Since 1 March 2012, Serbia has been a candidate country to the EU. There is currently no agreement on its regional boundaries, especially concerning Kosovo ([2]) — the latter is not covered in this publication — and so only national statistics are presented for Serbia (when available).

The geographical descriptions used to group EU Member States, for example, 'northern', 'eastern', 'southern' and 'western' are not intended as political categorisations. Rather, 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.

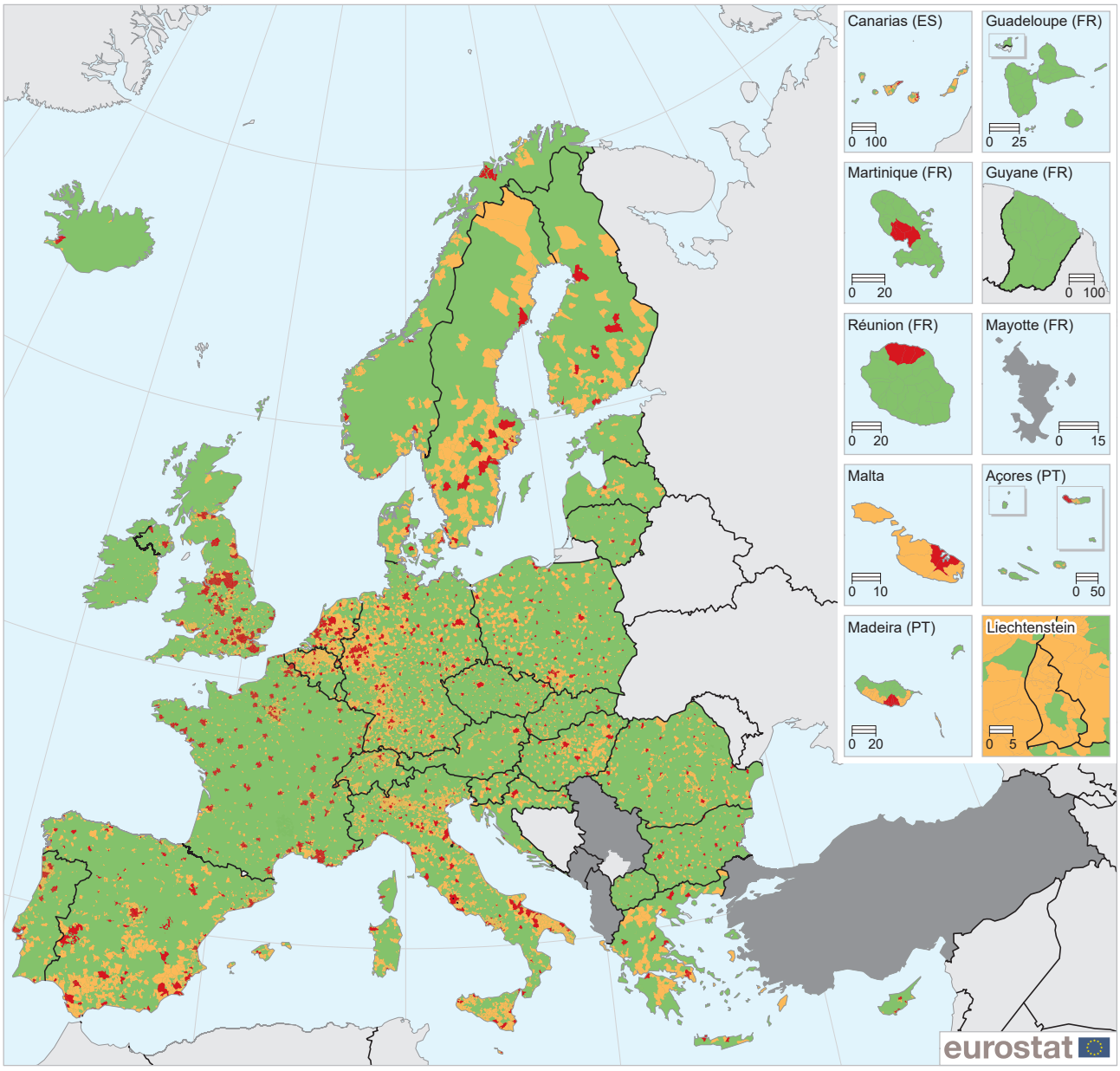
([2]) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

There is a wide range of surveys and data collection exercises whose data are used within the *Eurostat regional yearbook*. As a result, there are differences with respect to the latest available reference year across the different chapters: each chapter aims to show the latest information available for that subject area. In general, 2015 data are available from the labour force survey (used extensively in the chapters on education and training, the labour market and the focus on commuting patterns) and from the information society survey (used in the information society chapter). 2014 data are generally available for most other chapters, namely population (with some data for 1 January 2015), education and training, the economy, tourism, transport and agriculture. 2013 data are available for most of the chapter on structural business statistics. For the health chapter the data are from 2012 (causes of death), 2013 (healthcare resources) and 2014 (by degree of urbanisation), while for the chapter on research and innovation the data range from 2011 for patents, through 2013 for R & D expenditure, to 2014 for data on human resources, trademarks and Community designs.

Note that it is possible that Eurostat's website has fresher data available due to the continuous nature of data collection and processing (resulting in updates and new reference periods being added).

Regional data sets on Eurostat's website generally include national data alongside regional information. As such, both national and regional statistics may be accessed through a single online data code. The online data code(s) below each map, table and figure helps users to locate the freshest data (see below for more information pertaining to online data codes). In some exceptional cases, use has been made of national data sets on Eurostat's website in order to fill gaps in the regional data sets.

**Map 1:** Degree of urbanisation for local administrative units level 2 (LAU2) ([1])




Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

**Cities**
(Densely populated areas: at least 50 % of the population lives in urban centres)

**Towns and suburbs**
(Intermediate density areas: less than 50 % of the population lives in rural grid cells and less than 50 % of the population lives in urban centres)

**Rural areas**
(Thinly populated areas: more than 50 % of the population lives in rural grid cells)

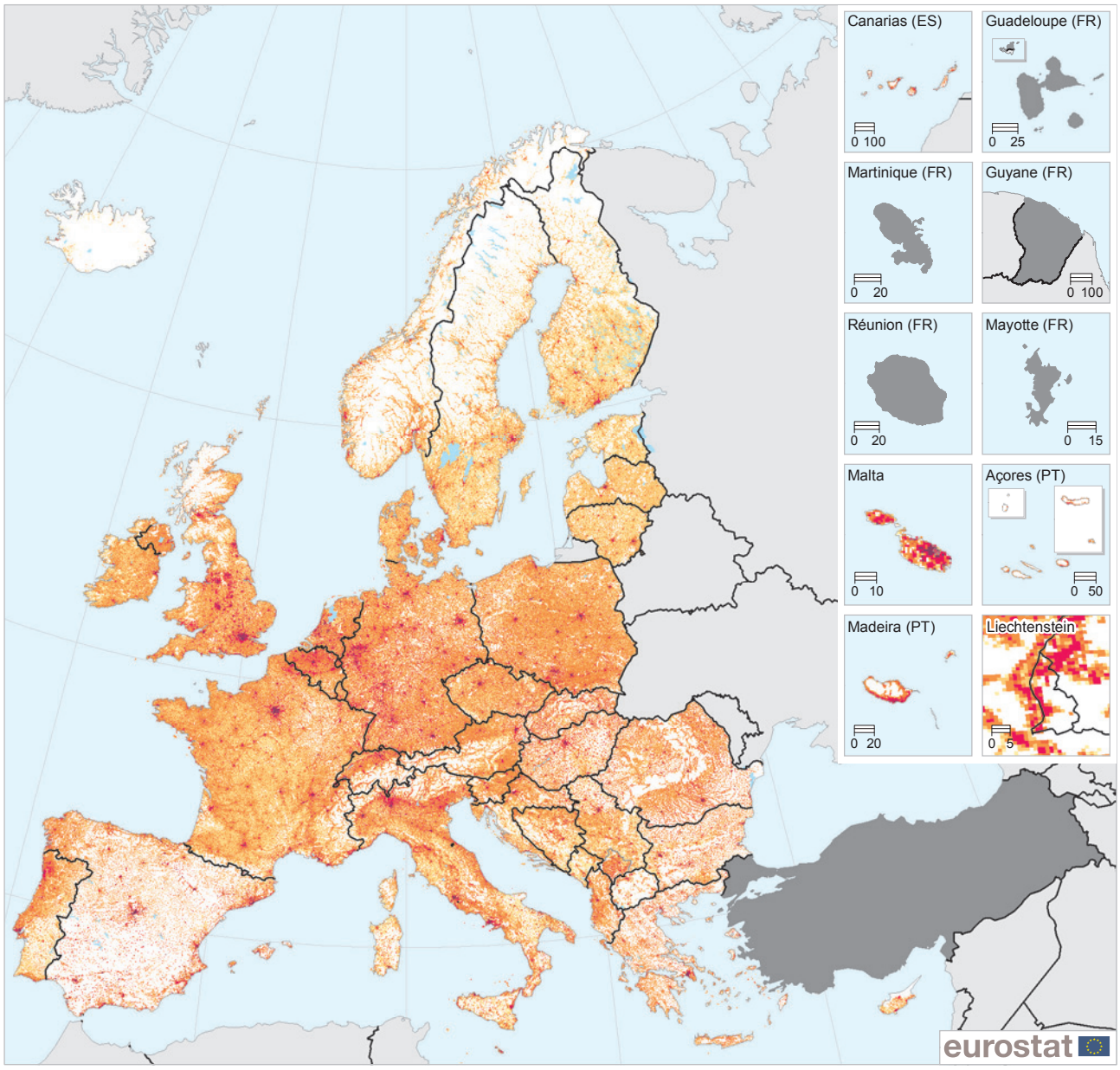
**Data not available**

0 200 400 600 800 km

([1]) Based on population grid from 2011 and LAU 2014. Denmark, Greece and Malta: local administrative units level 1 (LAU1).

*Source:* Eurostat, JRC and European Commission Directorate-General for Regional Policy

**Map 2:** **Population density based on the GEOSTAT population grid, 2011**
(number of inhabitants/km²)




number of inhabitants/km²

- 0
- 1 – 4
- 5 – 19
- 20 – 199
- 200 – 499
- 500 – 5 000
- > 5 000
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 03/2016

0 200 400 600 800 km

*Source:* JRC, Eurostat, GEOSTAT Population Grid 2011

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 pertaining to the status of the data, for example, detailing whether the data are estimated, provisional or forecasted. These flags have either been converted into footnotes which appear under each map or figure, while in tables these flags are indicated by way of italic text.

### Changes compared with the previous edition

Compared with the 2015 edition of the *Eurostat regional yearbook*, this edition includes some new chapters and subchapters. The main differences include:

- information in the population chapter focuses on annual population data rather than the population and housing census data (of 2011);
- an additional section has been added on health status by degree of urbanisation within the chapter on health;
- an additional section has been added on young people neither in employment nor in education or training (NEETs) within the chapter on education and training;
- an additional section has been added on private household income within the chapter on the economy;
- an additional section has been added on e-commerce within the chapter on the information society;
- the transport chapter focuses on road transport, including additional indicators on road freight and road safety;
- additional sections have been added on economic agricultural accounts, agricultural land use and soil erosion within the agriculture chapter;
- there is a new chapter on commuting patterns between regions;
- there is a new chapter on regional population projections.

### Data presentation

In order to improve readability, only the most significant information has been included as footnotes under the maps, tables and figures. In addition to footnotes, in tables, the following formatting and symbols are used, where necessary:

| | |
|---|---|
| *italic* | data value is forecasted, provisional or estimated and is likely to change; |
| : | not available, confidential or unreliable value; |
| – | not applicable. |

Where appropriate, breaks in series are indicated in the footnotes provided under each map, table or figure.

Note that throughout this publication billion is used to indicate a thousand million and trillion is used to indicate a thousand billion.

## More information about regions on Eurostat's website

### EUROBASE — EUROSTAT'S ONLINE DATABASE

The simplest way to access Eurostat's broad range of statistical information is through the Eurostat website (http://ec.europa.eu/eurostat). Eurostat provides users with free access to its databases and all of its publications in portable document format (PDF) via the internet. The website is updated daily with the latest and most comprehensive statistical information available on: the EU and euro area, the EU Member States, EFTA countries, candidate countries, and potential candidates.

Eurostat online data codes, such as **tps00001** and **nama_10_gdp** ([3]), provide easy access to the most recent data available. In this publication these online data codes are given as part of the source below each map, table or figure. In the PDF version, readers are led directly to the freshest data when clicking on the hyperlinks provided. For readers of the paper publication, the freshest data can be accessed by typing a standardised hyperlink into a web browser, http://ec.europa.eu/eurostat/product?code=<data_code>&mode=view , where <data_code> is to be replaced by the online data code in question. Online data codes can also be fed into the 'Search' function, which is found in the upper-right corner of the Eurostat homepage.

([3]) There are two types of online data codes: Tables (accessed using the TGM interface) have 8-character codes, which consist of 3 or 5 letters — the first of which is 't' — followed by 5 or 3 digits, e.g. tps00001 and tsdph220. Databases (accessed using the Data Explorer interface) have codes that use an underscore '_' within the syntax of the code, for example, nama_10_gdp.

### Statistics on regions

Eurostat's regional database provides a wealth of information that extends well beyond that shown in the *Eurostat regional yearbook* — with a wider range of indicators, longer time series, and different levels of the NUTS classification.

A dedicated section containing background information on regional statistics may be found on Eurostat's website under the heading regions.

### Statistics by degree of urbanisation

Eurostat's database with statistics by degree of urbanisation contains a range of population and social indicators covering: education and training, living conditions and welfare, the labour market, tourism and the information society.

A dedicated section containing background information on data by degree of urbanisation may be found on Eurostat's website under the heading degree of urbanisation.

## Statistics Explained

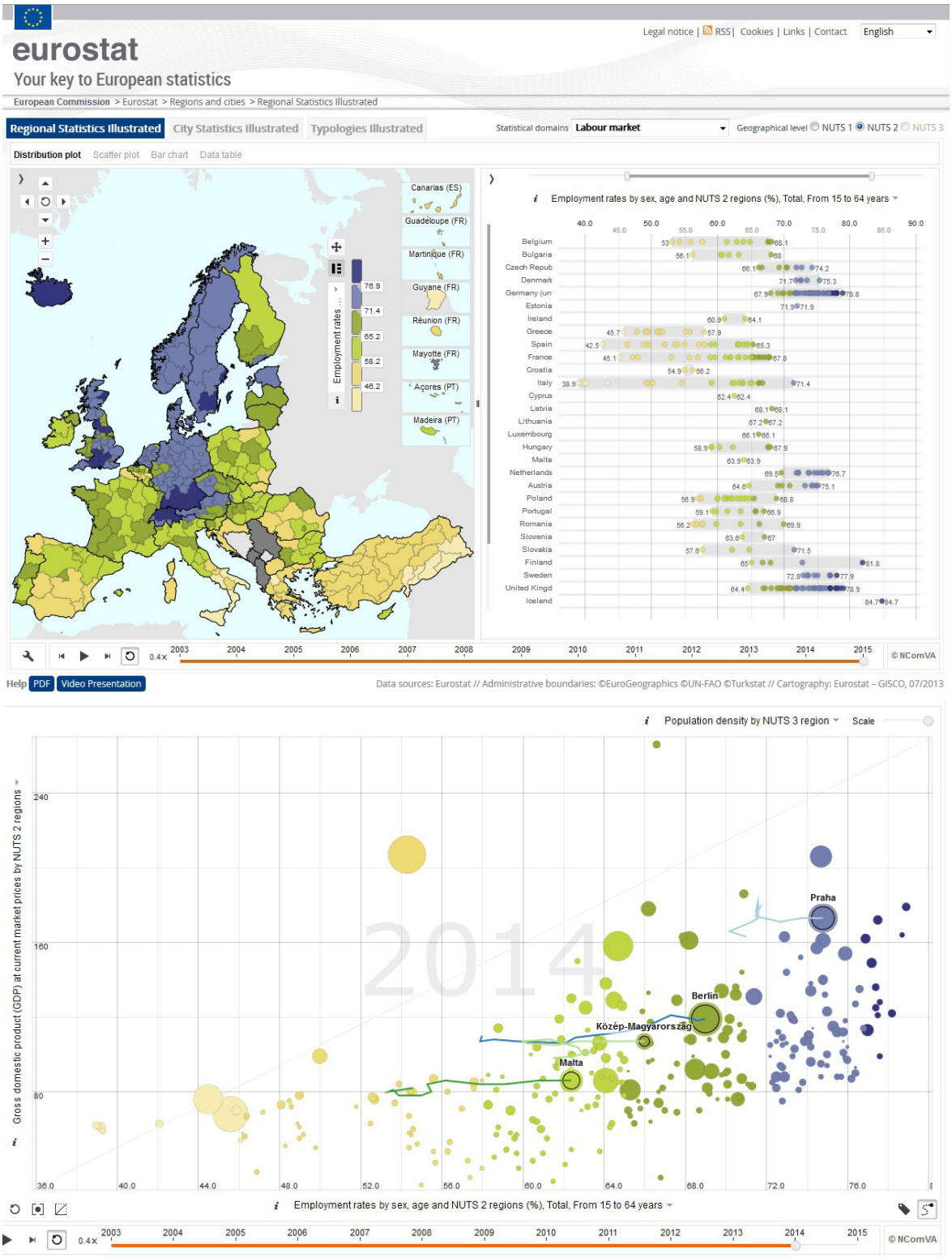
Statistics Explained is a wiki-based system which presents statistical topics in an easy-to-understand way; each of the chapters from the *Eurostat regional yearbook* is included as a separate article. Statistics Explained articles form an encyclopaedia of European statistics, which is completed by a statistical glossary clarifying the terms used. In addition, numerous links are provided to data, metadata, and further information; as such, Statistics Explained is a portal for regular and occasional users of official European statistics.

Since the 2011 edition of the *Eurostat regional yearbook*, the German and French versions of the complete publication are available on Statistics Explained, rather than in printed form. Since the 2012 edition, the analysis/text commentary for three chapters from the *Eurostat regional yearbook* — those on population, education and the economy — are available on Statistics Explained in an additional 19 European languages (besides German, English and French). The underlying data to all maps, tables and figures for each chapter are available on Statistics Explained in MS Excel workbooks.

### Online glossary

Many terms and abbreviations used in this publication are linked to glossary pages (http://ec.europa.eu/eurostat/statistics-explained/index.php/Thematic_glossaries) on Statistics Explained. The glossary gives clear and concise definitions of statistical terminology and concepts.

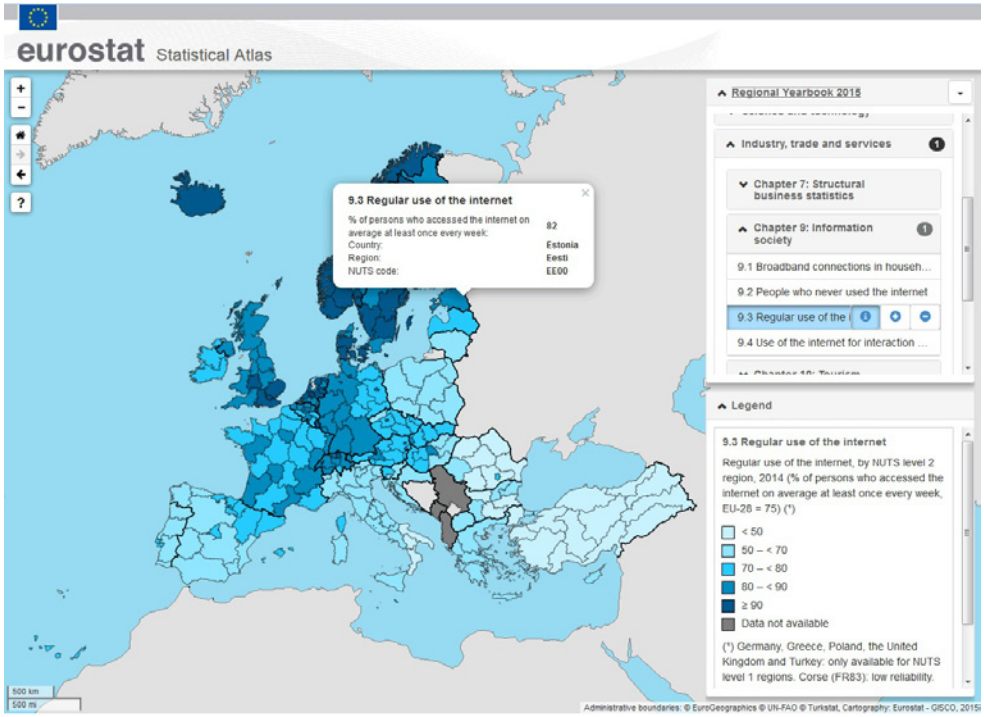
# Regional Statistics Illustrated

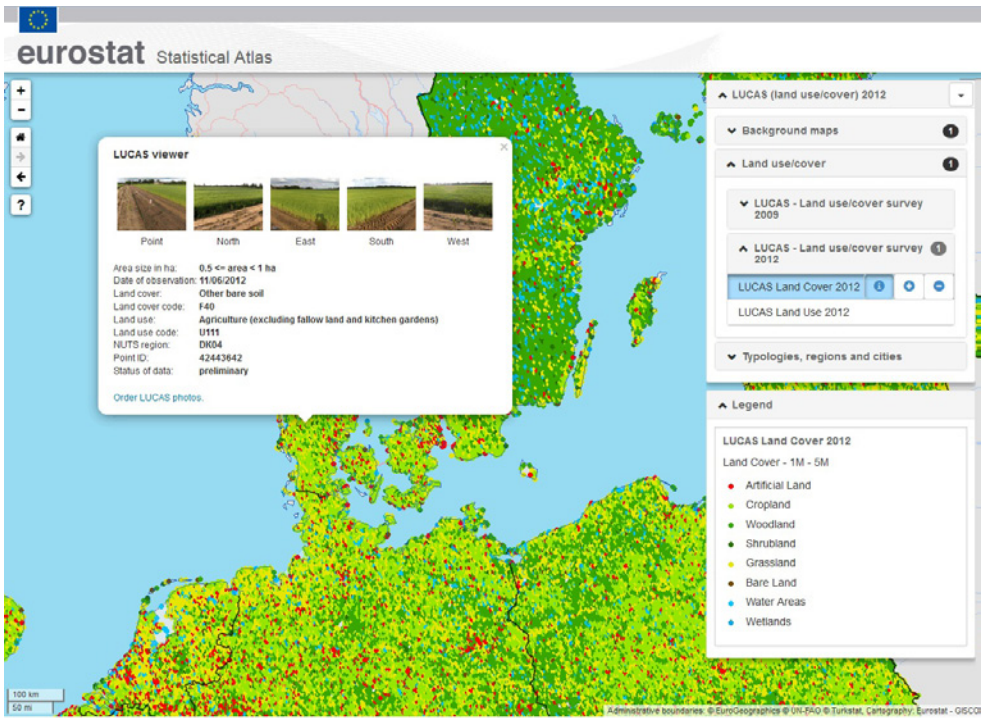



***Screenshots from Regional Statistics Illustrated***

Eurostat offers several interactive applications on its website which provide tools for visualising and analysing territorial data. *Regional Statistics Illustrated* contains data for a wide range of statistical indicators across European regions. There are four standard visualisations (a distribution plot, a scatter plot, a bar chart and a data table); these provide an opportunity to make deeper analyses of regional data as well as comparisons and rankings of different regions. In addition, an animated timeline can be used to explore how indicators for specific regions have developed over time.

# Statistical Atlas

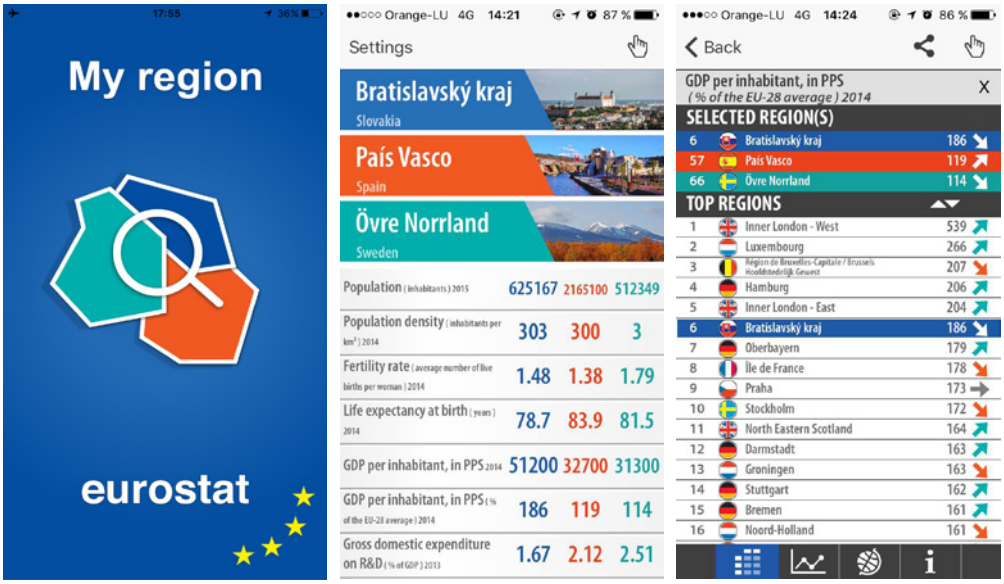



***Screenshots from the Statistical Atlas***

Eurostat's *Statistical Atlas*, is an interactive viewer that allows users to study layers of statistical data in combination with layers of geographical information (for example, statistical regions, cities, roads or rivers). The Statistical Atlas can be used for viewing all of the maps that are contained within the *Eurostat regional yearbook* and provides users with an opportunity to focus on information for a single administrative region in Europe; the maps can be downloaded as high-resolution PDFs. This application is also used to present results from the EU's land cover and land use survey (LUCAS).

## My region




***Screenshots from My region***

Another application, Eurostat's *My region*, gives mobile access to a selection of annual regional indicators at NUTS level 2 level. The app includes regional data for EU Member States, as well as EFTA and candidate countries. The app is available in three language versions: English, French and German. The update function makes it possible to download the freshest data from Eurostat's database. It is available both for iPhone and for Android.

# 1 Regional policies and Europe 2020

The Europe 2020 strategy, designed as the successor to the Lisbon strategy, was adopted by the European Council on 17 June 2010. It is the EU's common agenda for this decade — placing emphasis on promoting a growth pact that can lead to a smart, sustainable and inclusive economy, in order to overcome structural weaknesses, improve Europe's competitiveness and productivity, and underpin a sustainable social market economy.

This chapter is divided into two distinct parts: the first provides an overview of European Union (EU) policy developments that potentially impact Europe's regions (starting with the Europe 2020 strategy), while the second provides an analysis of the latest data available, looking at a range of socio-economic indicators that provide information on regional performance in relation to the Europe 2020 targets.

## Principal EU policies impacting upon Europe's regions

### THE EUROPE 2020 STRATEGY: CREATING A SMART, SUSTAINABLE AND INCLUSIVE ECONOMY

The Europe 2020 strategy seeks to achieve the following five targets by 2020.

- **Employment** — increase the employment rate among those aged 20–64 to at least 75 %.
- **Research and development** — increase combined public and private investment in R & D to 3 % of gross domestic product (GDP).
- **Climate change and energy sustainability** — reduce greenhouse gas emissions by at least 20 % (or even 30 %, if conditions are right) compared with 1990 levels, increase the share of renewable energy in final energy consumption to 20 %, and encourage a 20 % increase in energy efficiency.
- **Education** — reduce the rate of early leavers from education and training to less than 10 % and increase the proportion of those aged 30–34 having completed tertiary education to at least 40 %.
- **Fighting poverty and social exclusion** — lift at least 20 million people out of the risk of poverty and social exclusion.

The European Commission adopted seven flagship initiatives in order to drive progress towards these Europe 2020 goals; they are grouped together under three headings for:

- smart growth — the digital agenda for Europe, the innovation union, and youth on the move, the latter ended as of December 2014;
- sustainable growth — resource efficient Europe and an industrial policy for the globalisation era;
- inclusive growth — an agenda for new skills and jobs, and the European platform against poverty and social exclusion.

#### A mid-term review of the Europe 2020 strategy

On 5 March 2014, the European Commission released a Communication titled, 'Taking stock of the Europe 2020 strategy for smart, sustainable and inclusive growth' (COM(2014) 130 final). This provided a review of the achievements made and difficulties encountered during the first four years of the Europe 2020 strategy and launched a mid-term review. After endorsement by the European Council in March 2014, the European Commission launched a public consultation of the strategy which took place from May–October 2014. The results of this public consultation (COM(2015 100 final) concluded, among others, that:

- the delivery of objectives linked to jobs and economic growth was mixed, notably due to the impact of the global financial and economic crisis;
- the crisis had also affected progress towards the Europe 2020 headline targets;
- the mixed progress towards Europe 2020 targets could also be attributed to the time lag with which structural reforms produce their full impact;
- growing divergences across and often within EU Member States had hampered progress towards the Europe 2020 targets.

In March 2015, the European Commission also proposed a new set of Broad guidelines for the economic policies of the Member States and of the Union, (COM(2015) 99 final), which focused on:

- boosting investment;
- enhancing growth through the implementation of structural reforms in the EU Member States;
- removing key barriers to growth and jobs at an EU level;
- improving the sustainability and growth-friendliness of public finances.

At the same time, the Commission also proposed a set of Guidelines for the employment policies of the Member States (COM°2015) 098 final), namely:

- boosting demand for labour;
- enhancing labour supply and skills;
- enhancing the functioning of labour markets;
- ensuring fairness, combatting poverty and promoting equal opportunities.

The European Commission is in the process of reflecting on the results of the public consultation and is also taking account of contributions from the European Parliament, the Council, national parliaments,

the European Economic and Social Committee and the European Committee of the Regions.

At the end of 2015, the European Commission presented its Annual growth survey 2016 — strengthening the recovery and fostering convergence (COM(2015) 690 final), which proposed to focus efforts in 2016 on three key areas, namely:

- re-launching investment;
- pursuing structural reforms to modernise the economies of the EU Member States;
- encouraging responsible fiscal policies.

More information about the Europe 2020 strategy is provided on the European Commission's website.

## COHESION POLICY

### What is cohesion policy?

The EU's cohesion policy has the goal of investing in growth and jobs and promoting territorial cooperation. It is behind thousands of projects that have taken place all over Europe. Cohesion policy aims to reduce the disparities that exist between EU regions, promoting a balanced and sustainable pattern of territorial development. The EU's cohesion policy is established on the basis of seven-year programming periods; the current period covers 2014–20, for which expenditure of almost EUR 352 billion has been allocated for cohesion policy measures in the EU Member States, equivalent to almost one third (32.5 %) of the total EU budget. Priority is given to those regions whose development is lagging behind the EU average, with more than half (EUR 182 billion) of the total allocation set aside for less developed regions whose GDP is lower than 75 % of the EU average.

#### *EU cohesion policy — the three principle funds*

The EU's cohesion policy for 2014–20 has 11 thematic objectives, which are covered by three principal financial tools that have been set up to implement regional policy within the EU.

The European regional development fund (ERDF) concentrates its actions on innovation and research, the digital agenda, support for small and medium-sized enterprises (SMEs), and the low-carbon economy. The resources allocated to each of these priorities depends upon the region. For example, in more developed regions, at least 80 % of any funding should focus on at least two of these priorities, whereas in less developed regions this share falls to 50 %.

The European social fund (ESF) aims to improve employment and education opportunities, as well as the situation of the most vulnerable people, for example, those at risk of poverty. During the period 2014–20, more than EUR 80 billion has been earmarked for human capital investment in the EU Member States. The ESF will focus on supporting four thematic objectives: promoting employment and supporting labour mobility; promoting social inclusion and combating poverty; investing in education, skills and lifelong learning; enhancing institutional capacity and an efficient public administration.

The cohesion fund supports those EU Member States whose gross national income (GNI) per inhabitant is less than 90 % of the EU average. During the period 2014–20 it will allocate a total of EUR 63.4 billion to a range of investment projects primarily in relation to trans-European networks and the environment, through a focus on the following areas: the shift towards a low-carbon economy; promoting climate change adaptation and risk prevention; preserving and protecting the environment and promoting resource efficiency; promoting sustainable transport and removing key bottlenecks in network infrastructures; enhancing institutional capacity. It is subject to the same rules of programming, management and monitoring as the ERDF and ESF.

**For more information**: http://ec.europa.eu/regional_policy/en/policy/what/investment-policy.

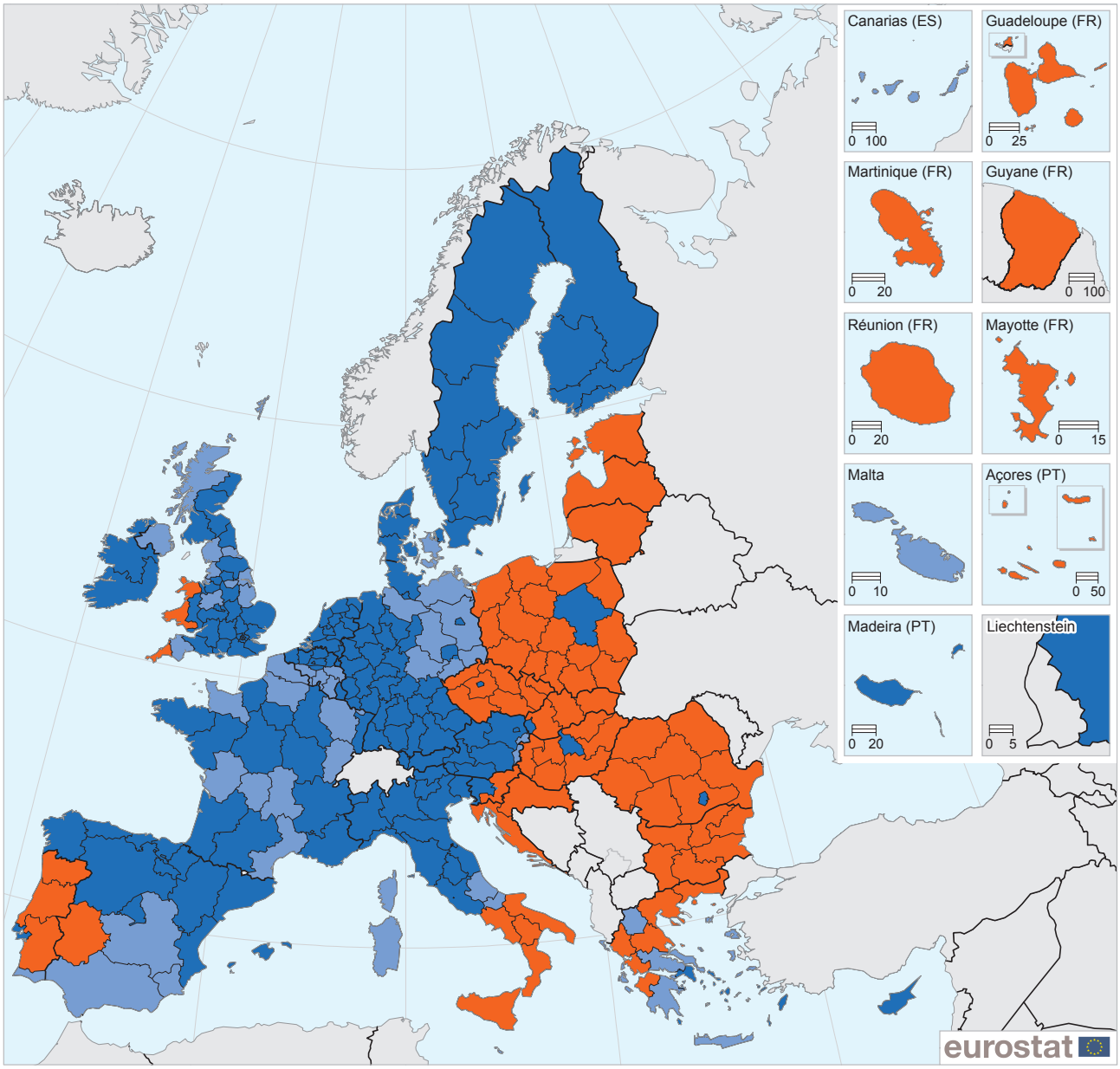
### How is the budget decided?

The total budget for cohesion policy and the rules associated with its allocation are jointly decided by the Council and the European Parliament. A legislative package for cohesion policy for 2014–20 was adopted on 17 December 2013. This included a common provisions regulation (CPR) which lays down general provisions and the simplification of European Structural and Investment (ESI) funds; the CPR was amended in October 2015 to take account of the unique situation of Greece resulting from the financial and economic crisis.

Structural and investment funds are attributed through a collective process which involves European, national, regional and local authorities, as well as social partners and organisations from civil society. There have been a number of changes to the design and implementation of cohesion policy for the 2014–20 programming period, with a shift in funding so that it is concentrated on the Europe 2020 priorities of smart, sustainable and inclusive growth. The revised policy seeks to reward performance, support integrated programming, focus on results (through monitoring progress towards agreed objectives) and simplify delivery.

The EU does not directly fund individual projects — rather, European structural and investment funds are attributed to multi-annual national programmes in each of the EU Member States — these programmes should be aligned with general EU objectives and priorities. Each Member State produces a draft

**Map 1.1: Eligibility of regions for cohesion funds based on gross domestic product (GDP) per inhabitant (in PPS), by NUTS 2 regions, for the programming period 2014–20 (1)**
(% of EU-27 average)




(% of EU-27 average)

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

**Less developed regions (GDP per inhabitant, < 75)**
**Transition regions (GDP per inhabitant, ≥ 75 – < 90)**
**More developed regions (GDP per inhabitant, ≥ 90)**

0 200 400 600 800 km

(1) GDP per inhabitant (in PPS) over the period 2007–09 was used as the basis for the allocation of structural funds for 2014–20; as such, calculations relating to regional eligibility were based on the NUTS 2006 classification and with reference to the EU-27 average. The EU-28 regions in this publication are delineated on the basis of the NUTS 2013 classification and as a result there are regions where regional eligibility does not follow the new NUTS boundaries: Chemnitz (DED4) and Merseyside (UKD7) are partly eligible as transition regions and partly as more developed regions; Vzhodna Slovenija (SI03) is mostly eligible as a less developed region and partly as a more developed region.

*Source:* European Commission, Directorate-General for Regional and Urban Policy

partnership agreement, which outlines their strategy and proposes a list of programmes; the European Commission negotiates with the national authorities on the content of these agreements. The programmes are implemented by individual Member States and their regions, through one or more managing authorities.

### The NUTS classification — an objective basis for the allocation of cohesion funds

Regional statistics are employed when allocating structural and investment funds. The NUTS classification is used to define regional boundaries and determine geographic eligibility for these funds. Regional eligibility for the ERDF and the ESF during the programming period 2014–20 was calculated on the basis of regional GDP per inhabitant (in PPS) averaged over the period 2007–09. 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-27 average;
- transition regions where GDP per inhabitant was between 75 % and 90 % of the EU-27 average; and
- more developed regions where GDP per inhabitant was more than 90 % of the EU-27 average.

**Map 1.1** shows the eligibility of NUTS level 2 regions for structural funds over the programming period 2014–20. The less developed regions, which receive the highest proportion of funds, are predominantly in the east and south of the EU, and also include the Baltic Member States.

Eligibility for the cohesion fund was calculated on the basis of GNI per inhabitant (in PPS) and averaged over the period 2008–10. Only EU Member States whose GNI per inhabitant was less than 90 % of the EU-27 average are supported. Eligibility for the cohesion fund during the programming period 2014–20 therefore covers actions in Bulgaria, the Czech Republic, Estonia, Greece, Croatia, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia and Slovakia; Cyprus is eligible for a phase-out fund. Eligibility for the cohesion fund will be re-assessed during the course of 2016.

**Table 1.1** provides an overview of the allocation of cohesion policy funds (for the two structural funds and the cohesion fund) for the programming period 2014–20. Over this period, Poland has been allocated 22.0 % of the EU's cohesion policy funds, while the next highest allocations were for Italy (9.3 %) and Spain (8.1 %). Note that following a mid-term review of cohesion policy allocations during the course of 2016, the breakdown shown in **Table 1.1** may undergo some changes; for the latest information, please refer to the website of the Directorate-General for Regional and Urban Policy.

### Cohesion policy — the EU's principal investment tool for Europe 2020 targets

To conclude, cohesion policy during the 2014–20 programming period seeks to encourage a more results-orientated approach with more transparent controls and less red tape; these initiatives are designed to boost growth and jobs across Europe. Programming is, for the first time, embedded within overall economic policy coordination, in particular the European semester, a regular cycle of economic policy coordination that is designed to coordinate the individual efforts of EU Member States so they result in the desired impact on growth. As such, the EU's cohesion policy is closely integrated with the Europe 2020 strategy and cohesion policy will, over the coming years, be the EU's principle investment tool for delivering the Europe 2020 targets.

## EUROPEAN COMMITTEE OF THE REGIONS

The European Committee of the Regions is the EU's assembly of regional and local representatives. It was created in 1994 and is composed of 350 members who are regional presidents, mayors or elected representatives of regions and cities in the 28 Member States of the EU. Successive European treaties have broadened its role: indeed, since the entry into force of the Lisbon Treaty it has to be consulted throughout the European legislative process.

The European Committee of the Regions works closely together with the European Commission, the European Parliament and the Council of the European Union, and in the EU Member States with the various tiers of authority, in order to promote multi-level governance. It aims to ensure that European policy developments uphold the principles of subsidiarity and proportionality and promotes economic, social and territorial cohesion in the EU through autonomy for regional and local authorities, encouraging decentralisation and cooperation at a regional and local level.

### A territorial dimension for Europe 2020

At its 6th European summit of regions and cities on 7/8 March 2014, the European Committee of the Regions adopted its Athens Declaration. It made the case for shifting the focus of the Europe 2020 strategy towards a regional and local dimension and included a seven-point plan, to:

- give the Europe 2020 strategy a territorial dimension;
- make local and regional authorities partners in the preparation of national reform programmes;
- make multi-level governance the standard approach;
- align the European semester more closely with the objectives of the Europe 2020 strategy;
- use the Europe 2020 flagship initiatives for enhanced policy coordination;

**Table 1.1: Allocation of cohesion policy funds for the programming period 2014–20**
(million EUR)

| | European Regional Development Fund and European Social Fund | | | Cohesion Fund | Total cohesion policy (1) | Share of EU-28 cohesion policy funds (%) |
|---|---|---|---|---|---|---|
| | Less developed regions | Transition regions | More developed regions | | | |
| EU-28 | 182 171.8 | 35 381.1 | 54 350.5 | 63 399.7 | 351 854.2 | 100.0 |
| Belgium | - | 1 039.7 | 938.6 | - | 2 283.9 | 0.6 |
| Bulgaria | 5 089.3 | - | - | 2 278.3 | 7 588.4 | 2.2 |
| Czech Republic | 15 282.5 | - | 88.2 | 6 258.9 | 21 982.9 | 6.2 |
| Denmark | - | 71.4 | 255.1 | - | 553.4 | 0.2 |
| Germany | - | 9 771.5 | 8 498.0 | - | 19 234.9 | 5.5 |
| Estonia | 2 461.2 | - | - | 1 073.3 | 3 590.0 | 1.0 |
| Ireland | - | - | 951.6 | - | 1 188.6 | 0.3 |
| Greece | 7 034.2 | 2 306.1 | 2 528.2 | 3 250.2 | 15 521.9 | 4.4 |
| Spain | 2 040.4 | 13 399.5 | 11 074.4 | - | 28 559.5 | 8.1 |
| France | 3 407.8 | 4 253.3 | 6 348.5 | - | 15 852.5 | 4.5 |
| Croatia | 5 837.5 | - | - | 2 559.5 | 8 609.4 | 2.4 |
| Italy | 22 324.6 | 1 102.0 | 7 692.2 | - | 32 823.0 | 9.3 |
| Cyprus | - | - | 421.8 | 269.5 | 735.6 | 0.2 |
| Latvia | 3 039.8 | - | - | 1 349.4 | 4 511.8 | 1.3 |
| Lithuania | 4 628.7 | - | - | 2 048.9 | 6 823.1 | 1.9 |
| Luxembourg | - | - | 39.6 | - | 59.7 | 0.0 |
| Hungary | 15 005.2 | - | 463.7 | 6 025.4 | 21 905.9 | 6.2 |
| Malta | - | 490.2 | - | 217.7 | 725.0 | 0.2 |
| Netherlands | - | - | 1 014.6 | - | 1 404.3 | 0.4 |
| Austria | - | 72.3 | 906.0 | - | 1 235.6 | 0.4 |
| Poland | 51 163.6 | - | 2 242.4 | 23 208.0 | 77 567.0 | 22.0 |
| Portugal | 16 671.2 | 257.6 | 1 275.5 | 2 861.7 | 21 465.0 | 6.1 |
| Romania | 15 058.8 | - | 441.3 | 6 935.0 | 22 993.8 | 6.5 |
| Slovenia | 1 260.0 | - | 847.3 | 895.4 | 3 074.8 | 0.9 |
| Slovakia | 9 483.7 | - | 44.2 | 4 168.3 | 13 991.7 | 4.0 |
| Finland | - | - | 999.1 | - | 1 465.8 | 0.4 |
| Sweden | - | - | 1 512.4 | - | 2 105.8 | 0.6 |
| United Kingdom | 2 383.2 | 2 617.4 | 5 767.6 | - | 11 839.9 | 3.4 |

(1) The totals presented include a number of allocations which are not detailed in this table: European territorial cooperation, special allocations for outermost and northern sparsely populated regions, additional allocations for the Youth Employment Initiative, urban innovative actions and technical assistance.

*Source:* European Commission, Directorate-General for Regional and Urban Policy

- mobilise funding for long-term investment, ensuring better spending;
- strengthen administrative capacity for more effective implementation.

The Athens Declaration also called for '… the introduction of an enhanced monitoring system for Europe 2020 at regional level, which requires the timely development of an adequate statistical basis at regional and local level and the possible development of regional progress indicators'. More evidence in support of the Athens Declaration is available in a European Committee of the Regions report, Mid-term assessment of Europe 2020: rethinking Europe's growth and jobs strategy. A full report on the proceedings of this Athens summit, including the Declaration, is available on the European Committee of the Regions' website.

## Europe 2020: monitoring platform

The European Committee of the Regions has set up a Europe 2020 monitoring platform to analyse the implementation of the Europe 2020 strategy at a regional and local level. It is designed to provide a means for regional and local authorities to have a say in this policy area, ensuring better implementation of policies linked to Europe 2020 strategic goals, such as the changing relationship between the Europe 2020 strategy and cohesion policy, linking the European Semester governance process to the longer time perspective of Europe 2020.

Building on the Athens Declaration, a steering committee of the Europe 2020 monitoring platform released a Blueprint for a revised Europe 2020 strategy. The Blueprint argues that Europe 2020 headline and national targets should be regionally differentiated as, for example, one region may already have met the national target for the employment rate although it might not be realistic for the same region to meet the national target for R & D expenditure.

To allow local and regional policymakers to monitor progress and performance more closely in relation to the Europe 2020 strategy, the Blueprint calls for the timely release of more detailed sub-national statistics (at NUTS levels 2 and 3) for headline (and possibly additional) indicators.

### European week of regions and cities

The European week of regions and cities is an annual four-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 regional level for good European governance.

**European Week of Regions and Cities** | **Brussels** 10-13 October 2016

The event was created in 2003 by the European Committee of the Regions, which joined forces with the European Commission's Directorate-General for Regional and Urban Policy one year later. It has become a networking platform for regional and local development, which is viewed as a key event for policy practitioners. The next European week of regions and cities will be held under the title, 'Regions and cities for sustainable and inclusive growth', with three principal themes:

- sustained and sustainable economic growth;
- inclusive economic growth;
- making European structural and investment funds simpler.

As such, the event is designed to be aligned with the political priorities of the European Commission and the European Committee of the Regions for 2016, namely the promotion of a stronger territorial dimension in shaping and implementing the Europe 2020 strategy.

**For more information**: http://ec.europa.eu/regional_policy/regions-and-cities/2016/index.cfm.

## EUROPE 2020 FROM A REGIONAL PERSPECTIVE

While the Europe 2020 strategy does not specifically touch upon regional policy, there has been a growing volume of work — for example, by the Directorate-General for Regional and Urban Policy, the European Committee of the Regions, the European Parliament and the Joint Research Centre (JRC) — on the relationship between regional development and the Europe 2020 strategy. As these regional and territorial aspects have been highlighted, there have been calls to align regional funding more closely with the Europe 2020 strategy and to monitor in more detail the performance of EU regions with respect to Europe 2020 targets. In practical terms, this means that the Directorate-General for Regional and Urban Policy has increased efforts to match various dimensions of regional funding to the Europe 2020 targets. As part of this process, the second half of this chapter provides analyses for the latest data available relating to a range of Europe 2020 indicators, detailing regional performance of NUTS level 2 regions in relation to the five headline targets of the Europe 2020 strategy.

***Looking for more information?***

The latest edition of Eurostat's publication titled 'Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy' was released in July 2016. It provides statistical analyses — principally for EU Member States — in relation to the Europe 2020 strategy, monitoring its five headline targets. The publication investigates the reasons behind changes observed in the time series that are available for the headline indicators, rather than aiming to predict whether (or not) the Europe 2020 targets will be reached; it also provides a set of country profiles that present the national situation in relation to the headline indicators and national targets.

The Joint Research Centre (JRC) and the European Commission's Directorate-General for Regional and Urban Policy have released three studies based on composite indicators linked to the socio-economic performance of EU regions, which provide a set of subnational analyses in relation to the Europe 2020 strategy and broader measures of competitiveness.

### Further reading:

Smarter, greener, more inclusive? – Indicators to support the Europe 2020 strategy, 2016 (Eurostat);

The Europe 2020 Regional Index, 2014 (Athanasoglou S. and Dijkstra L.);

The Europe 2020 Index: the progress of EU countries, regions and cities to the 2020 targets, 2015 (Dijkstra L. and Athanasoglou S.);

EU Regional Competitiveness Index, 2013 (Annoni P. and Dijkstra L.).

# Main statistical findings

## EUROPE 2020 TARGET: INCREASE THE EMPLOYMENT RATE OF PEOPLE AGED 20–64 TO AT LEAST 75 %

The employment rate is considered to be a key social indicator for analytical purposes when studying developments within labour markets. In the face of demographic changes and the ageing of the EU's population, raising the employment rate is considered essential for the sustainability of the EU's social model, welfare and its public finances.

In 2008, the EU-28 employment rate peaked at 70.3 %, following a period of relatively steady increases (rising by 3.5 percentage points between 2002 and 2008). This pattern was reversed during the financial and economic crisis and the employment rate fell to a relative low of 68.4 % in 2012 and remained unchanged in 2013. There was a rebound in 2014 as the employment rate rose to 69.2 % and this development continued in 2015.

The Europe 2020 strategy has set a target of raising the employment rate among the working-age population (defined here as people aged 20–64) to 75 %. The EU-28 employment rate stood at 70.0 % in 2015, which meant that the distance to the Europe 2020 target had narrowed to 5.0 percentage points.

As part of the Europe 2020 strategy, national targets for the employment rate range from 62.9 % in Croatia to 80.0 % in Denmark, the Netherlands and Sweden. Note that in the event that all of the EU Member States attain their national targets by 2020 this will not be sufficient for an overall employment rate of 75 % in the EU (the target would be missed by about 1 percentage point).

### *There were six EU Member States where the employment rate was above the Europe 2020 target of 75 %*

The performance of individual labour markets varies considerably between the EU Member States and across regions. In 2015, the Netherlands, Estonia, Denmark, the United Kingdom and Germany each recorded employment rates that were above the Europe 2020 target of 75 %, and the employment rate peaked in Sweden, at 80.5 % (see **Figure 1.1**). By contrast, employment rates were less than 65 % in Spain, Croatia and Italy, falling to a low of 54.9 % in Greece.

There were 11 EU Member States where the employment rate rose between 2008 and 2015. The largest changes over this period included an 8.6 percentage point increase in Malta and a 7.4 point increase in Hungary, while the employment rate in Germany rose by 4.0 percentage points. Of the remaining eight Member States, there were five which moved closer to their national Europe 2020 targets during the period 2008–15 — Poland, the Czech Republic, Luxembourg, Romania and Austria. Employment rates also increased in the Lithuania and Sweden (although they were already higher than their national targets) and in the United Kingdom (although there is no target specified in the United Kingdom's national reform programme).

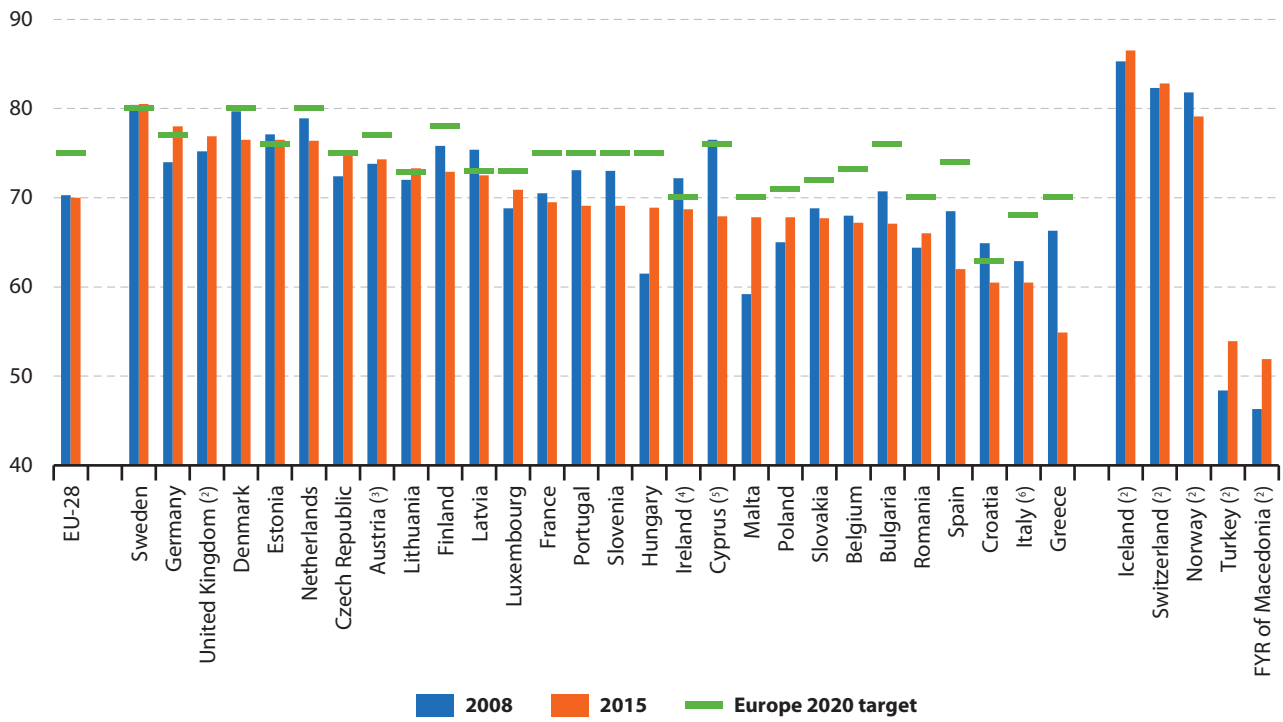
Nevertheless, employment rates fell in a majority of the EU Member States between 2008 and 2015. Some of the largest declines were recorded in those economies most affected by the global financial and economic crisis, for example, reductions of 6.5 percentage points in Spain, 8.6 points in Cyprus and 11.4 points in Greece. Given that some of the southern EU Member States already had some of the lowest employment rates in 2008, these developments have resulted in the disparity between EU Member States widening during the period 2008–15.

### *Four EU Member States had already attained their national targets for the employment rate by 2015*

In 2015, four of the EU Member States had already surpassed their national Europe 2020 targets for the employment rate. In Germany, the employment rate of 78.0 % was 1.0 percentage points higher than its national target, while in Estonia, Lithuania and Sweden, the latest employment rate was 0.5 points above respective national targets. Note also that while the United Kingdom does not have a specific national target, its employment rate was also above the 75 % threshold set as a target for the EU-28 as a whole. By contrast, there were two Member States whose latest employment rates were more than 10 percentage points below their national Europe 2020 targets, namely: Spain (12.0 points) and Greece (15.1 points).

**Figure 1.2** analyses the regional disparities in employment rates: subject to data availability, there were 100 NUTS level 2 regions across the EU where the employment rate in 2015 was greater than or equal to the Europe 2020 target of 75 %. The largest variations in regional employment rates within individual EU Member State were observed in Italy (where the southernmost regions generally recorded much lower employment rates), France (where lower employment rates were often recorded in the départements d'outre mer) and Spain (where the southernmost regions and the autonomous cities recorded lower employment rates). Note the relatively wide disparity in employment rates for Finland may be attributed to a particularly high employment rate in the archipelago of Åland, which reported the highest employment rate among

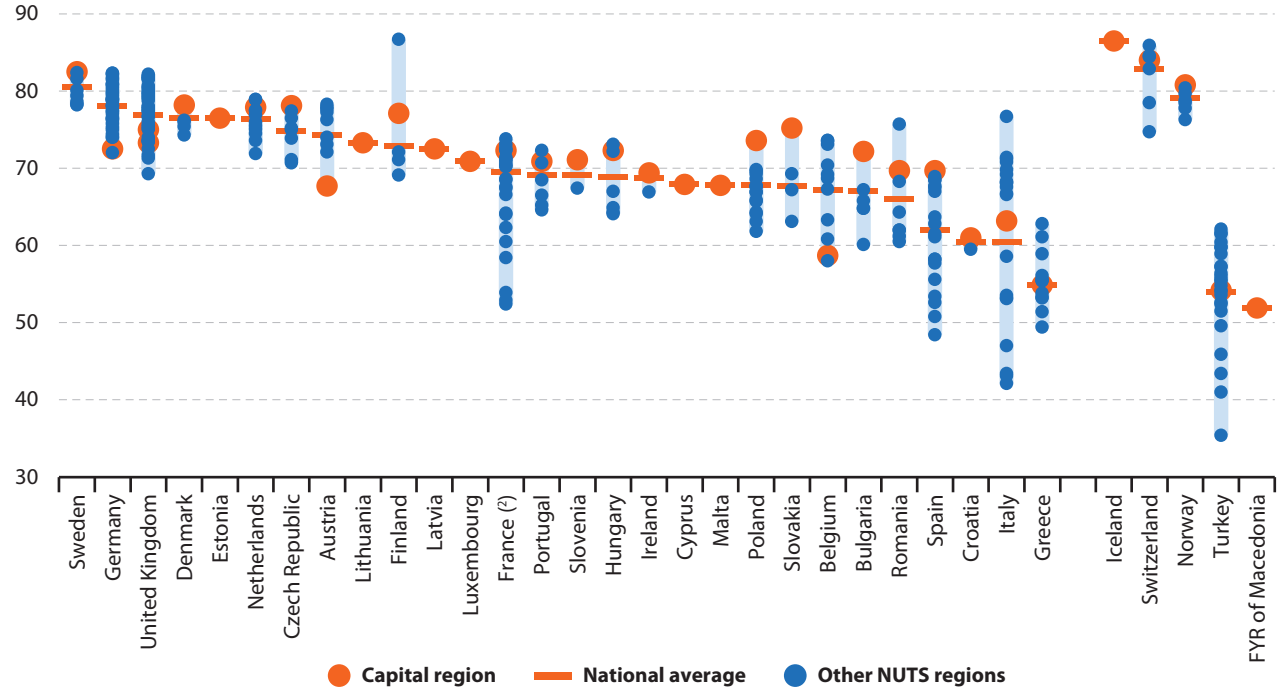
**Figure 1.1:** Employment rate, persons aged 20–64, 2008 and 2015 (1)




(1) Note the y-axis has been cut. Belgium, Bulgaria, the Czech Republic, Germany, Ireland, Greece, France, Cyprus, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia and Turkey: breaks in series between 2008 and 2015.
(2) No target in national reform programme.
(3) Target: 77–78 %.
(4) Target: 69–71 %.
(5) Target: 75–77 %.
(6) Target: 67–69 %.

*Source:* Eurostat (online data code: t2020_10)

**Figure 1.2:** Employment rate, persons aged 20–64, by NUTS 2 regions, 2015 (1)




(1) Note the y-axis has been cut. The light blue shaded area shows the range of the highest to lowest region for each country. The orange bar shows the national average. The orange circle shows the capital city region. The blue circles show the other regions. Liechtenstein, Montenegro, Albania and Serbia: not available.
(2) Mayotte: not available.

*Source:* Eurostat (online data code: lfst_r_lfe2emprt)

any of the NUTS level 2 regions in 2015 (86.7 %). More generally, there was a relatively high degree of variation in regional employment rates in the southern and eastern EU Member States, whereas regional employment rates were usually more homogeneous in western and northern EU Member States.

**For more information**: refer to Chapter 5 on the labour market.

## EUROPE 2020 TARGET: REDUCE THE SHARE OF EARLY LEAVERS FROM EDUCATION AND TRAINING TO LESS THAN 10 %

There is no harmonised concept of compulsory education in the EU Member States. Nevertheless, most people would agree that a basic level of education is desirable, so that everyone has the opportunity to participate in economic and social life, raising their chances of finding employment and reducing their risk of falling into poverty.

The Europe 2020 headline target for education is composed of two parts. The first of these seeks to reduce the proportion of early leavers from education and training (measured as the percentage of the population aged 18–24 without an upper secondary level of education and not in further education or training) to less than 10 %. A majority of the national targets under the Europe 2020 agenda for the proportion of early leavers from education and training were less than or equal to the overall EU-28 target of 10 %. This was particularly true in several eastern EU Member States, as the national target for Croatia was 4.0 % and those for Poland, Slovenia, the Czech Republic and Slovakia were no higher than 6 %. There were only four EU Member States that had national targets above 10.0 %: Bulgaria (11.0 %), Romania (11.3 %), Spain (15.0 %; note the target is based on the school drop-out rate) and Italy (16.0 %); note the United Kingdom does not have a target in its national reform programme.

### *Rapid reduction in the share of young people who were early leavers from education and training*

Having stood at 17.0 % in 2002 (the first year for which data are available), the proportion of young persons (aged 18–24) in the EU-28 who were early leavers from education and training fell each and every year to reach 11.0 % by 2015 (see **Figure 1.3**); if these developments continue the Europe 2020 target of 10 % should be attained.

Young men were more likely than young women to leave education and training early: in 2015, the proportion of early leavers among young men aged 18–24 was, at 12.4 %, some 2.9 percentage points higher than that recorded for young women (9.5 %). However, while the female rate of early leavers from education and training fell by 0.1 percentage points in the EU-28 between 2014 and 2015, there was a more sizeable reduction in the male rate, as it fell by 0.4 percentage points.

## Spotlight on the regions: Kýpros, Cyprus


**Some of the largest reductions in the proportion of early leavers from education and training between 2008 and 2015 were recorded in southern regions of the EU; one of these was Cyprus (a single region at NUTS level 2), where the share of young people who were early leavers fell by 8.4 percentage points.**

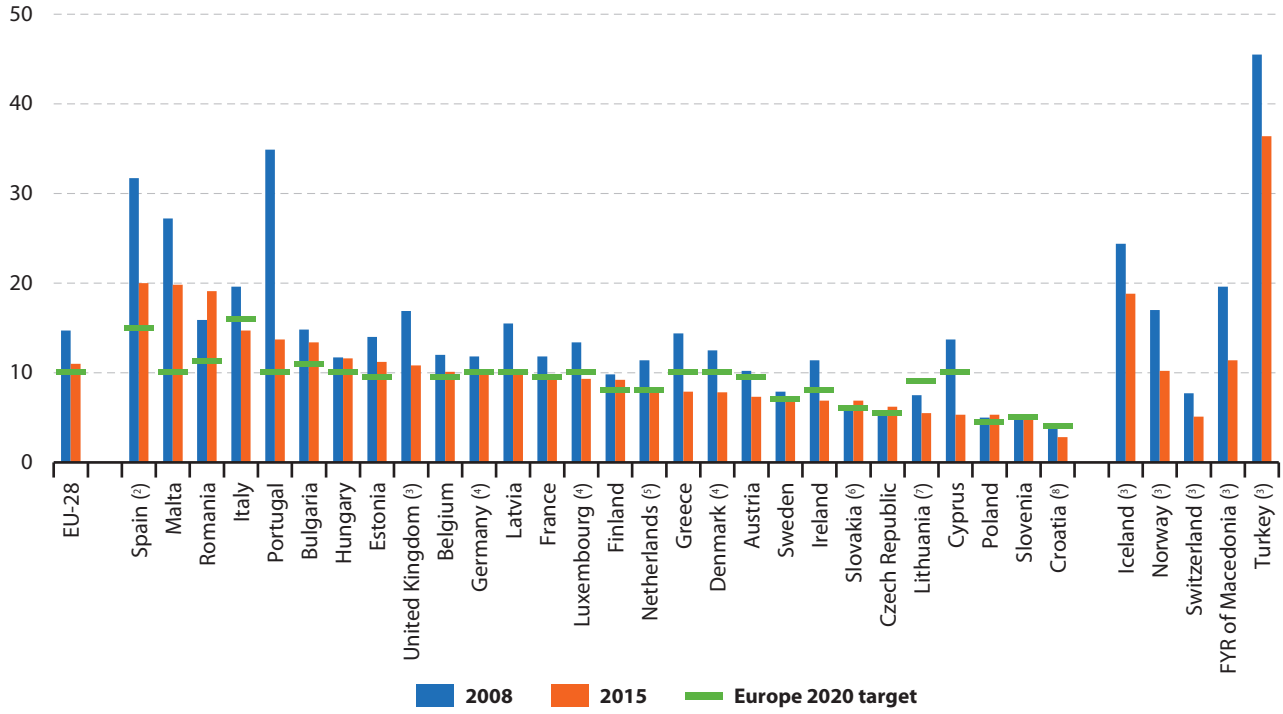
***Photo*: dimitrisvetsikas1969**

### *In several southern EU Member States a relatively high proportion of young people left education and training early*

In 2015, the proportion of early leavers from education and training was particularly high in several southern EU Member States — Spain (20.0 %), Malta (19.8 %), Italy (14.7 %) and Portugal (13.7 %) — while rates were also above the EU-28 average in several eastern Member States including Romania (19.1 %), Bulgaria (13.4 %), Hungary (11.6 %) and Estonia (11.2 %); the share of early leavers was otherwise generally low in the remaining eastern Member States.

Between 2008 and 2015, the biggest reductions in the proportion of early leavers from education and training were registered among some of the southern EU Member States (perhaps unsurprising given their high initial shares in 2008). That said, the share of young people who were early leavers fell by as much as 21.2 percentage points in Portugal, with relatively large reductions also recorded in Spain (11.7 points), Cyprus (8.4 points), Malta (7.4 points) and Greece (6.5 points).

**Figure 1.3:** Share of young people aged 18–24 who were early leavers from education and training, 2008 and 2015 (1)
(%)




(1) Break in series between 2008 and 2015.
(2) Target defined for school drop-out rate.
(3) No target in national reform programme.
(4) Target is less than 10 %.
(5) Target is less than 8 %.
(6) Target is less than 6 %.
(7) Target is less than 9 %.
(8) 2015: low reliability.

*Source:* Eurostat (online data code: t2020_40)

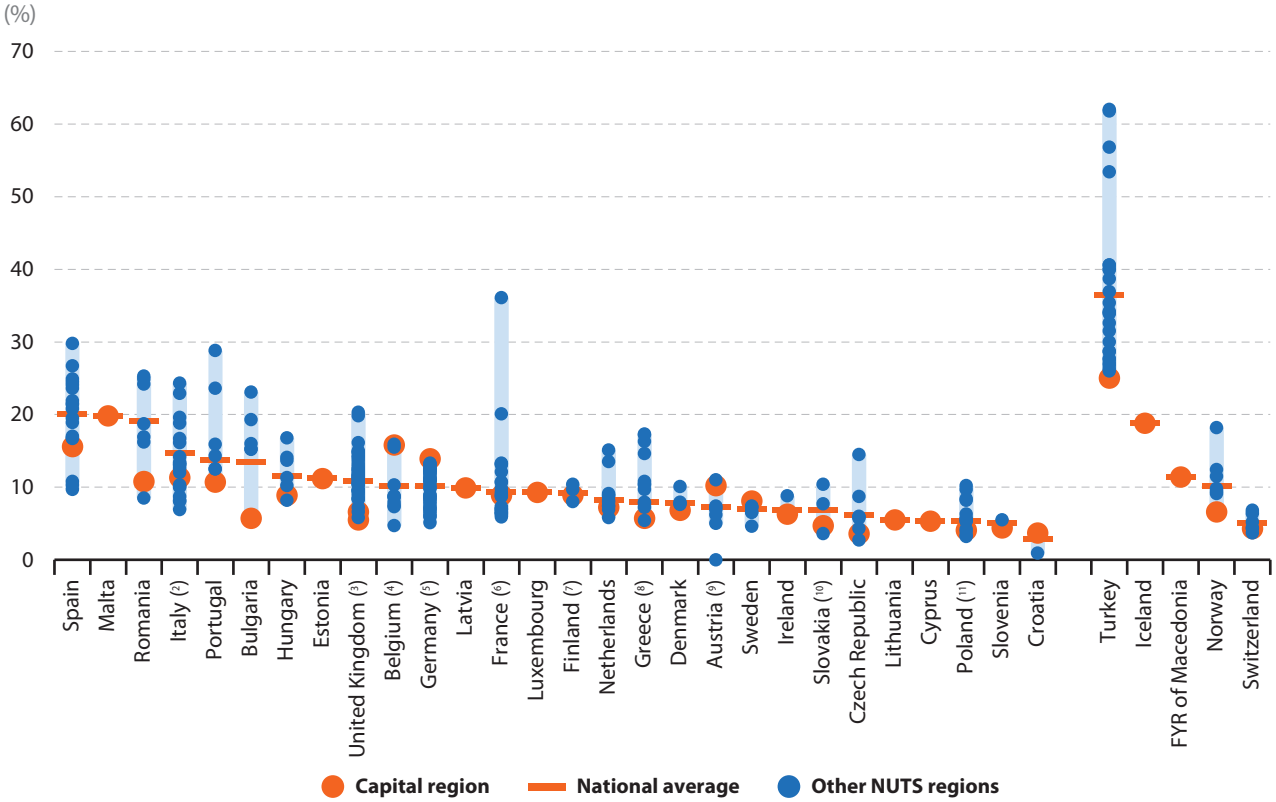
There were 13 EU Member States which had already attained their Europe 2020 national target in relation to the proportion of early leavers from education and training by 2015. Among these, Lithuania and Cyprus recorded early leaver rates that were at least 3.5 percentage points lower than their national targets. Within the group of Member States that had yet to attain their national targets, the majority recorded early leaver rates that were within 3 percentage points of their targets. The gap was however wider in Portugal (3.7 percentage points), Spain (5.0 points) and Romania (7.8 points), rising to a difference of 9.8 points in Malta (see **Figure 1.3**).

There were 158 NUTS level 2 regions in the EU (among those for which data are available; generally data refer to 2015 but for some regions an earlier period was used — see footnotes to **Figure 1.4** for more information concerning the coverage) where the share of early leavers from education and training was below the EU-28 average of 11.0 %; among these, 130 regions reported that their share of early leavers was already below the Europe 2020 target of 10 %. The lowest rate of early leavers from education and training was recorded in Jadranska Hrvatska (Croatia), at just 0.9 %. By contrast, the highest rate was recorded in Guyane (France), at 36.1 %; there were 10 regions in Turkey where the early leavers' rate was higher still.

***The proportion of young people who left education and training early was usually quite low in capital city regions***

**Figure 1.4** provides an analysis of the regional disparities between NUTS level 2 regions for early leavers from education and training. The largest differences between the highest and lowest employment rates across the different regions of a single EU Member State were observed in France, Spain and Portugal. In France, the highest rates of early leavers from education and training were generally recorded in the départements d'outre mer, although there were also relatively high rates in a number of northern and eastern regions, including Champagne-Ardenne, Picardie and Franche-Comté. In Spain, the highest rates of early leavers from education and training were recorded in several southern regions (including the Ciudades Autónomas de Ceuta y Melilla) as well as the Illes Balears, while many of the lowest rates were recorded in more northerly regions, especially the País Vasco (the only Spanish region where the share of early leavers was below 10 %). In Portugal, a similar pattern was observed insofar as the highest proportions of young people who were early leavers from education and training were recorded in the islands of Regiões Autónomas dos Açores e da Madeira, while the lowest rates were recorded in the capital city region (and its surrounding regions of Centro and Alentejo).

**Figure 1.4:** Share of young people aged 18–24 who were early leavers from education and training, by NUTS 2 regions, 2015 (1)




(1) The light blue shaded area shows the range of the highest to lowest region for each country. The orange bar shows the national average. The orange circle shows the capital city region. The blue circles show the other regions. Includes data of low reliability for some regions. Liechtenstein, Montenegro, Albania and Serbia: not available.
(2) Valle d'Aosta/Vallée d'Aoste: 2013
(3) Inner London - West: 2013. Cornwall and Isles of Scilly: 2012.
(4) Prov. Brabant Wallon: 2014.
(5) Oberpfalz: 2013. Trier: 2012.
(6) Limousin: 2014. Corse, Guadeloupe, Martinique and Mayotte: not available.
(7) Åland: not available.
(8) Ionia Nisia: 2014. Ipeiros: 2013.
(9) Kärnten and Vorarlberg: 2012. Burgenland and Salzburg: not available.
(10) Bratislavský kraj: 2013.
(11) Swietokrzyskie: 2012. Podlaskie and Opolskie: not available.

*Source:* Eurostat (online data code: edat_lfse_16)

More generally, some of the lowest shares of early leavers from education and training were often recorded in capital city regions (see **Figure 1.4**). Among the 22 multi-regional EU Member States for which data are available, there were five where the capital city region recorded the lowest regional share — Bulgaria, Denmark, Ireland, Portugal, Slovenia and the United Kingdom (note the capital city covers two Inner London regions; the lowest rate was recorded for Inner London – East (5.5 %)). However, atypical patterns were observed in Belgium, Germany and Austria, and to a lesser degree, Croatia and Sweden, as the capital city region in each of these Member States recorded a rate that was above the national average.

## EUROPE 2020 TARGET: INCREASE THE SHARE OF THE POPULATION AGED 30–34 HAVING COMPLETED TERTIARY EDUCATION TO AT LEAST 40 %

In an increasingly knowledge-based society, many jobs require a relatively high level of educational attainment, qualifications or specific skills and this is reflected in the second part of the Europe 2020 headline target for education, namely, that at least 40 % of those aged 30–34 should have completed tertiary education (as defined by ISCED 2011 levels 5–8).

### *Some 38.7 % of the EU-28 population aged 30–34 had a tertiary level of educational attainment*

Despite considerable pressures on public finances during the global financial and economic crisis, the proportion of young people (aged 30–34) having completed tertiary education in the EU-28 increased rapidly from 23.6 % in 2002 (the first reference year for which data are available) to 38.7 % by 2015, rising each and every year. If this pattern continues then it is likely that the Europe 2020 target of 40 % will be met.

The growth in tertiary educational attainment has been considerably faster among women than men during the last decade and this gender gap between the sexes has widened. Across the whole of the EU-28, the share of young women aged 30–34 with a tertiary level of educational attainment was 43.4 % in 2015, which was 9.4 percentage points higher than the rate for young men (34.0 %).

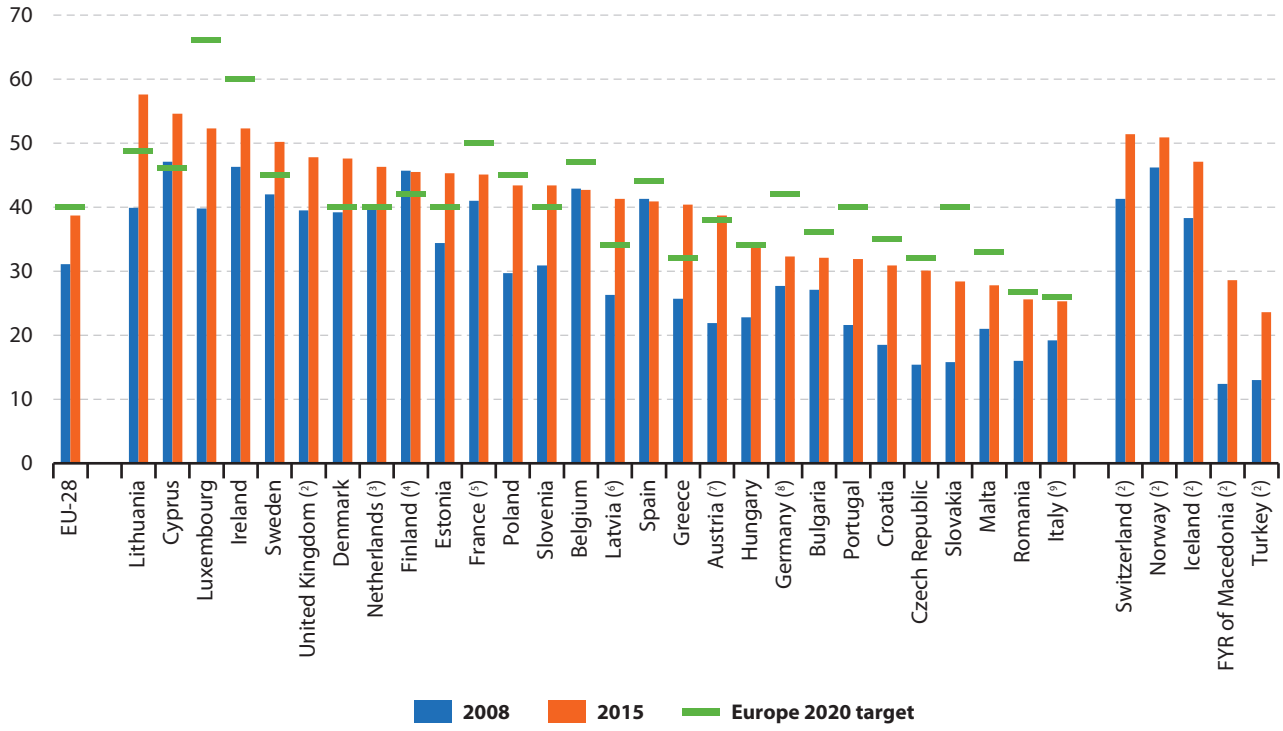
## Spotlight on the regions: Vzhodna Slovenija, Slovenia

**Some of the lowest shares of early leavers from education and training were recorded in capital city regions. Among the 22 multi-regional EU Member States for which data are available, there were five where the capital city region recorded the lowest regional share — Bulgaria, Denmark, Ireland, Portugal and Slovenia.**

***Photo*: Žiga**

In 2015, more than half of all young people (aged 30–34) had attained a tertiary level of educational attainment in Lithuania, Cyprus, Luxembourg, Ireland and Sweden, while the share was at least 40 % in a further 12 EU Member States (see **Figure 1.5**). At the other end of the range, there were four Member States where the proportion of 30–34 year olds that possessed a tertiary level of educational attainment was below 30 %, with the lowest shares recorded in Romania (25.6 %) and Italy (25.3 %). Note that the relatively low share of young people with a tertiary level of education in Slovakia, Germany, Croatia and Hungary as well as the former Yugoslav Republic of Macedonia may, at least in part, be attributed to particularities of their respective education systems that place a relatively high degree of importance on apprenticeships combined with vocational training; such practices are also common in other Member States with somewhat higher rates, such as Austria and Slovenia, as well as in Switzerland.

**Figure 1.5:** Share of persons aged 30–34 with tertiary education (ISCED levels 5–8) attainment, 2008 and 2015 (1)
(%)




(1) Break in series between 2008 and 2015.
(2) No target in national reform programme.
(3) Target is at least 40 %.
(4) Target is based on a narrower national definition.
(5) Target is for persons aged 17–33.
(6) Target is 34–36 %.
(7) Target includes ISCED 1997 level 4a. Level shift resulting from implementation of ISCED 2011.
(8) Target includes ISCED 1997 level 4.
(9) Target is 26–27 %.

*Source:* Eurostat (online data code: t2020_41)

***Several of the Member States that joined the EU in 2004 or more recently recorded a rapid increase in their share of young people with a tertiary level of educational attainment***

Between 2008 and 2015 the proportion of 30–34 year olds having attained a tertiary level of education rose in all but three of the EU Member States; the exceptions were Belgium, Finland and Spain, where the share of young people with a tertiary level of educational attainment remained more or less stable.

There was a relatively rapid increase — upwards of 10 percentage points between 2008 and 2015 — in the proportion of young people having attained a tertiary level of educational attainment in 13 of the EU Member States. These were principally located in eastern Europe and the Baltic Member States, but also included Portugal, Luxembourg, Greece and Austria (note: the change for the latter results from a break in series following the implementation of ISCED 2011). The largest gain (up 17.7 percentage points) was recorded in Lithuania, which also recorded the highest proportion (57.6 %) of young people possessing a tertiary level of educational attainment in 2015.

Within the context of the Europe 2020 strategy, the national targets for the share of young people with a tertiary level of educational attainment vary from 26–27 % in Italy and 26.7 % in Romania up to 60 % in Ireland and 66 % in Luxembourg; there is no Europe 2020 target in the national reform programme for the United Kingdom. There were 12 EU Member States that had, by 2015, already attained their national target under the Europe 2020 strategy. In Lithuania, the target was surpassed by 8.9 percentage points, while there were seven other Member States where the share of young people with a tertiary level of educational attainment was, in 2015, some 5–9 percentage points higher than the national target. Of the 15 Member States that had not yet reached their target, the largest gaps were recorded in Slovakia and Luxembourg, where the shares of young people with a tertiary level of educational attainment were 11.6 and 13.7 percentage points lower than the national target.

***Capital regions act as a magnet for the young, highly qualified and mobile generation …***

In 2015, an analysis by NUTS level 2 regions reveals that the highest proportion of persons aged 30–34 with a tertiary level of educational attainment was recorded in one of the two capital city regions of the United Kingdom: just over four fifths (80.8 %) of all young people from Inner London - West had attained a tertiary level of education. Inner London - East also recorded a very high share of young people with a tertiary level of educational attainment, at 68.2 %, the third highest share among the 271 NUTS level 2 regions for which data are available. There were two other regions from the United Kingdom which recorded very high shares of tertiary educational attainment among their populations aged 30–34: the second highest share in the EU was recorded in Outer London - South (69.3 %), while the fourth highest share was recorded in North Eastern Scotland (66.1 %). Outside of the United Kingdom, the next highest share in the EU was recorded for the Danish capital city region, Hovedstaden (62.7 %).

**Figure 1.6** confirms that capital city regions often recorded the highest shares of 30–34 year olds with a tertiary level of educational attainment. These high levels of tertiary educational attainment recorded in most European capital city regions probably reflect the professional opportunities that are available in many capitals and suggest that capital city regions act as a magnet drawing highly-qualified young people from other regions and possibly further afield (other countries). There were particularly high shares of young people with a tertiary level of educational attainment living in London, Copenhagen, Stockholm, Warsaw and Paris, as well as Oslo.

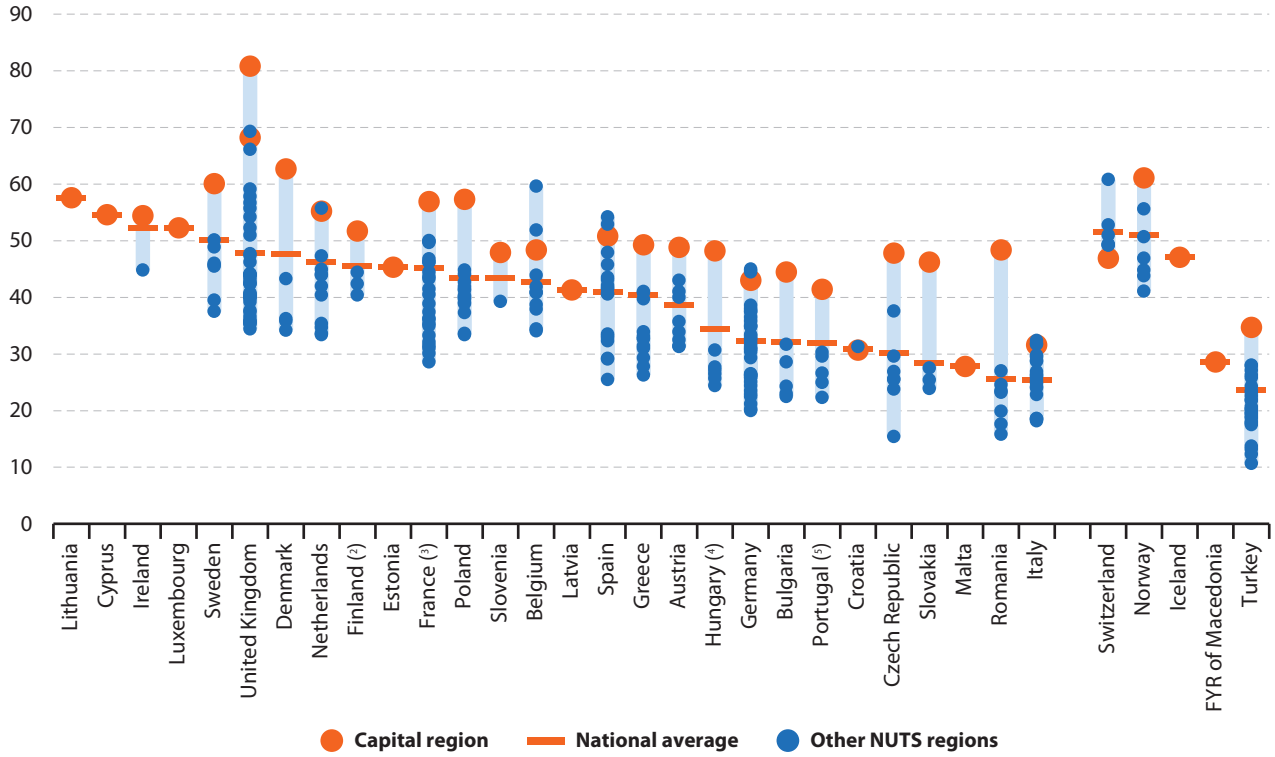
The growing attraction of capital city regions has the potential to create labour market imbalances, whereby an increasing share of graduates decide to move to capital cities in search of work, even if this means (initially) accepting work for which they are over-qualified (thereby displacing the local workforce). These patterns may be of particular concern in those EU Member States which are characterised by a monocentric pattern of economic developments, where a large part of the national economy is concentrated in the capital city and its surrounding regions, as such movements of labour have the potential to result in skills' shortages and lower levels of economic activity in other regions.

Among the 22 multi-regional EU Member States, Croatia was the only one where the capital city region did not record a share that was higher than its national average (note Croatia only has two regions at NUTS level 2); the same pattern was observed in Switzerland, where the capital city region of Espace Mittelland recorded the lowest share of young people with a tertiary level of educational attainment. Of the remaining multi-regional countries shown in **Figure 1.6**, there were only five where the capital city region failed to record the highest level of tertiary educational attainment: the Netherlands, Italy, Germany, Spain and Belgium.

Outside of capital city regions, some of the regions that tended to report high shares of young people with a tertiary level of educational attainment included those characterised by strong links between academia and the private sector, for example, regions with science parks and/or technology clusters, such as Prov. Brabant Wallon (Belgium), Utrecht (the Netherlands), País Vasco (Spain) or Berkshire, Buckinghamshire and Oxfordshire (the United Kingdom).

**For more information**: refer to Chapter 4 on education and training.

**Figure 1.6:** Share of persons aged 30–34 with tertiary education (ISCED levels 5–8) attainment, by NUTS 2 regions, 2015 ([1])
(%)




([1]) The light blue shaded area shows the range of the highest to lowest region for each country. The orange bar shows the national average. The orange circle shows the capital city region. The blue circles show the other regions. Includes data of low reliability for some regions. Liechtenstein, Montenegro, Albania and Serbia: not available.
([2]) Åland: not available.
([3]) Corse, Guyane and Mayotte: not available.
([4]) Közép-Magyarország and Közép-Dunántúl: 2013.
([5]) Região Autónoma dos Açores: not available.

*Source:* Eurostat (online data code: edat_lfse_12)

## EUROPE 2020 TARGET: LIFTING AT LEAST 20 MILLION PEOPLE OUT OF THE RISK OF POVERTY OR SOCIAL EXCLUSION

This Europe 2020 headline target for people at risk of poverty or social exclusion (AROPE) is defined in terms of those people who fulfil at least one of the following three conditions: being at risk of poverty; facing severe material deprivation; or living in a household with very low work intensity. The target is to take at least 20 million people out of the risk of poverty or social exclusion by 2020 and is based on a comparison with the situation in 2008, using the EU-27 aggregate as its baseline.

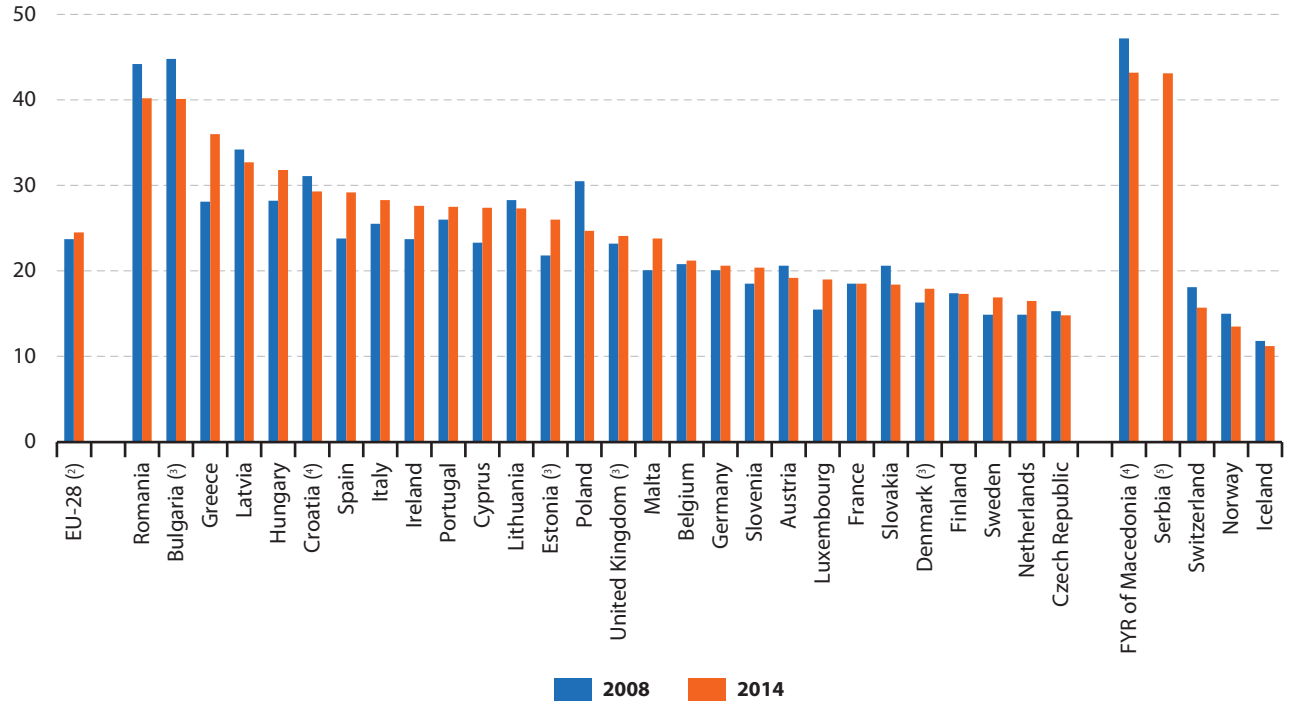
### *Almost one in four of the EU population was at risk of poverty or social exclusion*

Almost one quarter (24.5 %) of the EU-28 population was at risk of poverty or social exclusion in 2014, equivalent to 122.2 million persons. There were 116.2 million persons at risk of poverty or social exclusion in 2008 in the EU-27, and this fell slightly in 2009 before climbing in successive years to reach 122.5 million by 2012. There were subsequently two relatively small reductions in the total number of people at risk of poverty or social exclusion in the EU-27, and in 2014 their number stood at 120.9 million, which was 4.7 million more than in 2008 (the baseline for consideration when assessing the Europe 2020 target).

As such, there has been an increase in the number of people and the proportion of the population in the EU that face the risk of poverty or social exclusion. This increase may be attributed, at least in part, to the global financial and economic crisis and the subsequent downturn in economic activity, although it may also reflect a growing pattern of poverty affecting the 'working poor' (for example, among part-time workers, workers with temporary work contract, workers who are paid at the lower-end of the wage scale, other workers in precarious employment). In this context, it appears very unlikely that the Europe 2020 target — which foresees lowering the number of people in the EU-27 in at risk of poverty and social exclusion by at least 20 million — will be met.

In 2014, around 40 % of the populations of Romania and Bulgaria were facing the risk of poverty or social exclusion (see **Figure 1.7**). The risk was also relatively high — touching at least 30 % of the population — in Greece, Latvia and Hungary. By contrast, there were nine EU Member States where those considered at risk of poverty or social exclusion accounted for less than one in five of the total population, a share that fell to 14.8 % in the Czech Republic.

**Figure 1.7:** Share of people at risk of poverty or social exclusion, 2008 and 2014 (1)
(%)




(1) EU Member States have set national targets in relation to poverty and social exclusion based on different indicators. The Europe 2020 target is to lift 20 million people in the EU out of the risk of poverty and social exclusion by 2020.
(2) 2008: EU-27.
(3) Break in series.
(4) 2010 instead of 2008.
(5) 2008: not available.

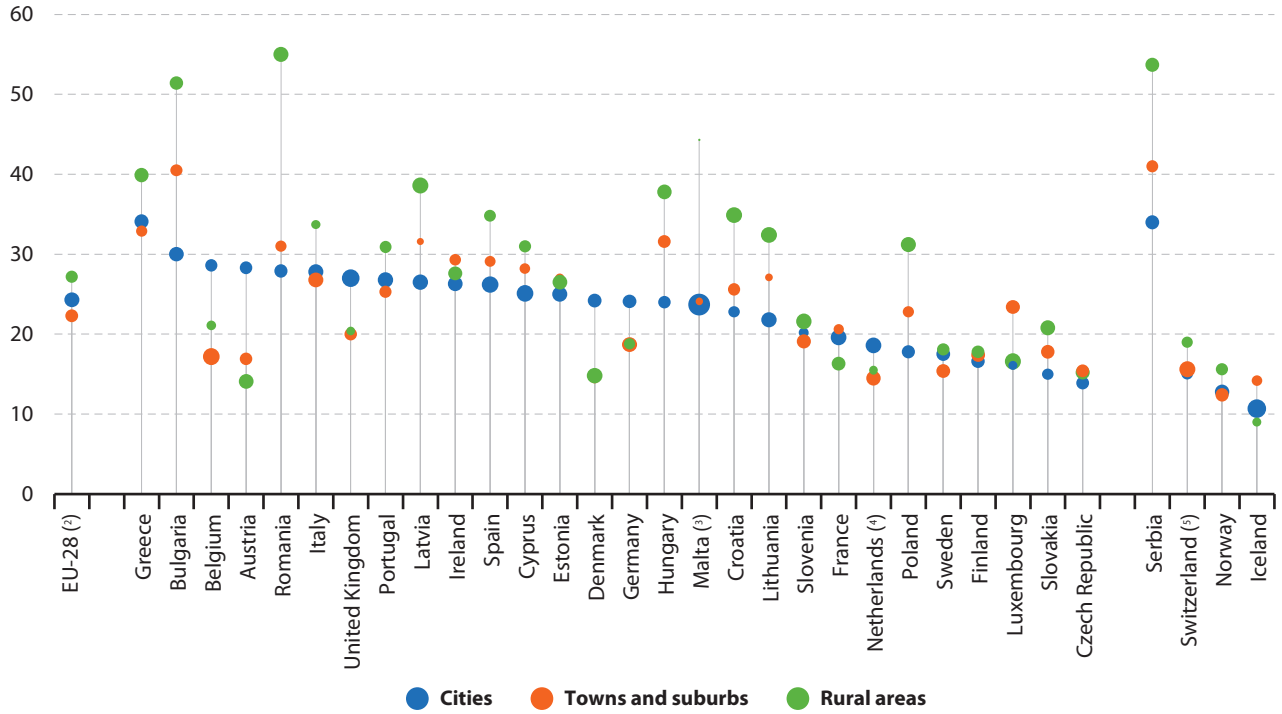
*Source:* Eurostat (online data code: ilc_peps01)

***The risk of poverty or social exclusion fell at its most rapid pace in Romania, Bulgaria and Poland***

Looking at the developments over the period 2008–14, the majority of the EU Member States reported that the share of their population that was at risk of poverty or social exclusion varied by less than +/- 4.0 percentage points. This suggests that there is, at least to some degree, a structural component to poverty. That said, there were quite widespread reductions in the risk of poverty or social exclusion in Romania, Bulgaria and Poland, with the proportion of people at risk of poverty and social exclusion falling between 2008 and 2014 by 4.0 percentage points in Romania, 4.7 points in Bulgaria, and 5.8 points in Poland. Note however that the overall shares of their populations who remained at risk of poverty or social exclusion were still above the EU-28 average in 2014 (only just in the case of Poland). By contrast, there were four Member States where the share of the population at risk of poverty or social exclusion rose by more than 4.0 percentage points between 2008 and 2014, they were: Cyprus, Estonia (where there is a break in series), Spain and Greece.

The proportion of people at risk of poverty or social exclusion, by degree of urbanisation, is shown in **Figure 1.8**. Some of the highest overall proportions were recorded in eastern and southern EU Member States, in particular within their rural areas. For example, more than half of the rural population in Bulgaria (51.4 %) and Romania (55.0 %) faced the risk of poverty or social exclusion in 2014. While the proportion of people at risk of poverty or social exclusion tended to be higher in rural areas (than in cities) for most of the Baltic, eastern and southern Member States, the proportion of people at risk of poverty or social exclusion was often higher for people living in cities in the western Member States. In 2014, a higher proportion of people living in cities (compared with those living in rural areas) were at risk of poverty or social exclusion: the biggest difference was recorded in Austria, where the share of people living in cities who were at risk of poverty or social exclusion was 28.3 %, some 14.2 percentage points higher than the corresponding share for people living in rural areas. The next biggest differences were recorded in Denmark (9.4 percentage points), Belgium (7.5 points), the United Kingdom (6.6 points) and Germany (5.3 points), followed by somewhat lower gaps in France (3.3 points) and the Netherlands (3.1 points). As such, while cities in eastern Europe were often characterised by rapid economic growth and lower levels of poverty and social exclusion, in western Europe they often displayed an urban paradox insofar as they had high levels of wealth creation, but at the same time considerable shares of their populations living at risk of poverty or social

**Figure 1.8:** Share of people at risk of poverty or social exclusion, by degree of urbanisation, 2014 (1)
(%)




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Albania and Turkey: not available.
(2) Rural areas: estimate.
(3) Rural areas: low reliability.
(4) Provisional.
(5) 2013.

*Source:* Eurostat (online data codes: ilc_peps13 and ilc_lvho01)

exclusion. By contrast, in Slovenia, Sweden, Finland and the Czech Republic, the risk of poverty or social exclusion was relatively low and varied little between the three different degrees of urbanisation.

**For more information**: refer to Chapter 14 of the *Eurostat regional yearbook — 2015 edition* .

## EUROPE 2020 TARGET: INCREASE INVESTMENT IN R & D TO AT LEAST 3 % OF GDP

EU-28 intramural research and development expenditure (GERD) as a percentage of GDP reached 2.03 % in 2013. This figure could be compared with a ratio of 1.85 % at the onset of the financial and economic crisis in 2008 and 1.79 % back in 2000. The modest increases in R & D expenditure during this 13-year period suggests that it will be a considerable challenge to meet the headline Europe 2020 target of at least 3 % of GDP by 2020.

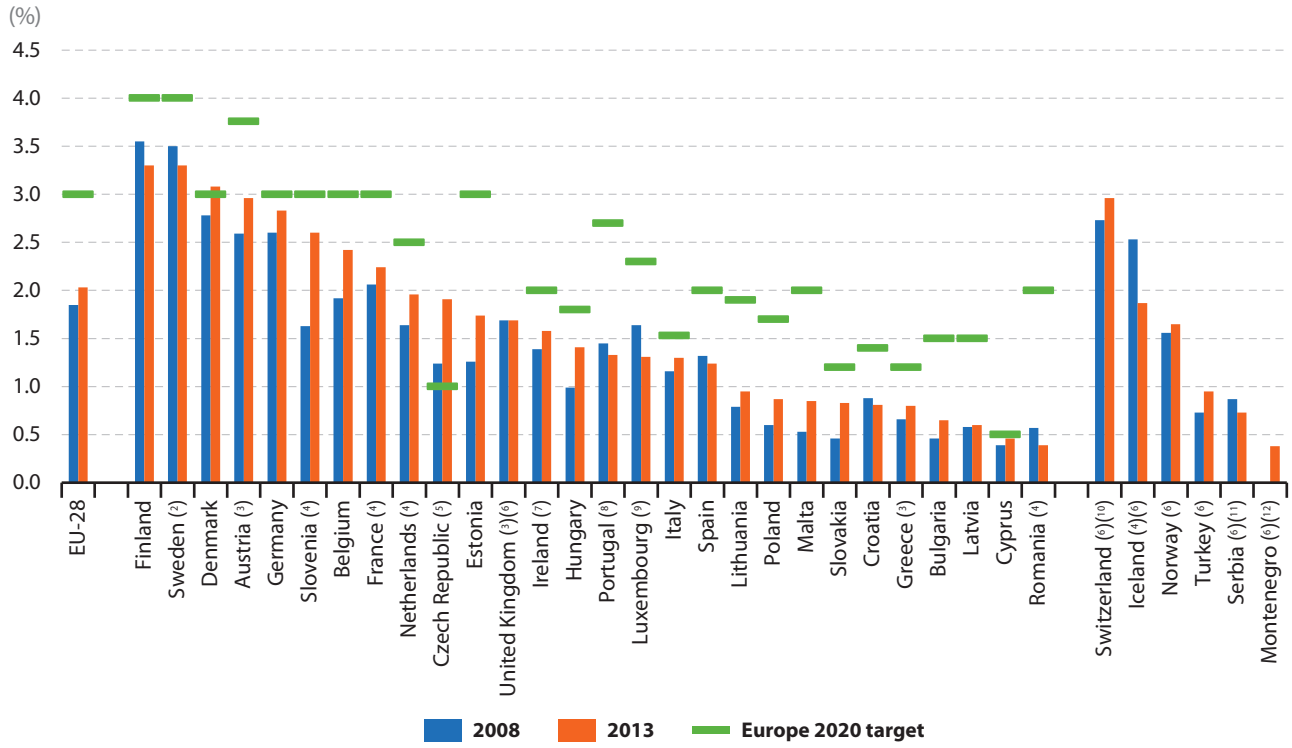
The highest national Europe 2020 targets among the individual EU Member States for R & D intensity are 4.00 % for Finland and Sweden, followed by 3.76 % for Austria and a target of 2.70–3.30 % for Portugal. Otherwise, none of the EU Member States have targets above the 3.00 % set for the EU-28 as a whole. In 2013, all three of the Nordic Member States reported R & D intensity above the overall Europe 2020 target of 3.00 %, although R & D expenditure as a share of GDP fell in both Finland and Sweden between 2008 and 2013, and therefore moved away from their national targets of 4.00 %. By contrast, GERD as a percentage of GDP rose by 0.30 percentage points in Denmark (see **Figure 1.9**).

Between 2008 and 2013, R & D expenditure as a percentage of GDP rose in 20 of the EU Member States, and remained unchanged in the United Kingdom. The highest increases included a gain of 0.97 percentage points in Slovenia (note there is a break in series), followed by the Czech Republic (0.67 points) and Belgium (0.50 points). Aside from Finland and Sweden (mentioned above), there was a decline in the relative share of GERD in GDP in five other Member States: Croatia, Spain, Portugal, Romania (note there is a break in series) and Luxembourg.

### *Only two of the EU Member States had attained their R & D targets by 2013*

By 2013, there were only two EU Member States which had already attained their national Europe 2020 targets in relation to expenditure on R & D: the Czech Republic (note, its target is set with respect to the public sector) and Denmark. By contrast, those Member States that were the furthest away from their national targets — at least 1.00 percentage points — included: Luxembourg, Malta, Estonia, Portugal and Romania.

**Figure 1.9:** R & D intensity — gross domestic expenditure on R & D (GERD) relative to gross domestic product (GDP), 2008 and 2013 (1)




(1) Liechtenstein, the former Yugoslav Republic of Macedonia and Albania: not available.
(2) 2008 and 2013: estimates.
(3) 2008: estimates.
(4) Break in series.
(5) Target is for public sector only.
(6) No Europe 2020 target.
(7) Approximately 2 % (2.5 % of gross national product).
(8) 2.7 % to 3.3 %.
(9) 2.3 % to 2.6 %.
(10) 2012 instead of 2013.
(11) 2009 instead of 2008.
(12) 2008: not available.

*Source:* Eurostat (online data code: rd_e_gerdtot)

### *Considerable regional differences in R & D intensity within each Member States*

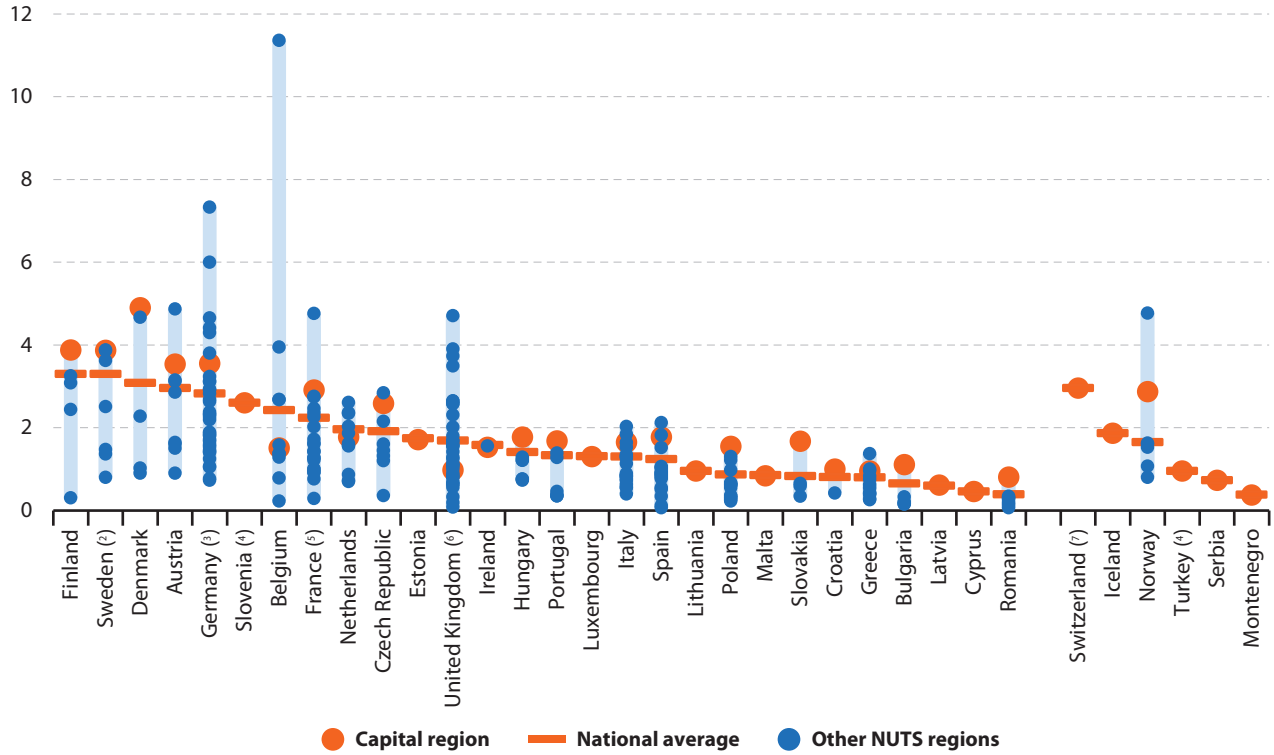
Of the 266 regions at NUTS level 2 for which data are available, there were 30 regions where R & D expenditure as a share of GDP was above the Europe 2020 target of 3.00 % in 2013, although it is important to note that Europe 2020 targets are not set at a regional level and thus regions below the 3.00 % threshold should not be viewed as 'lagging behind'. These 30 regions were spread across eight of the EU Member States and were exclusively located in western and northern regions, with 10 regions in Germany, four each in Austria, Sweden and the United Kingdom, three in Finland, two each in Belgium and Denmark, and a single region in France.

One of the most striking aspects of R & D expenditure is the way that it is scattered over the EU territory. Indeed, there are considerable regional disparities (see **Figure 1.10**), with a small number of regions recording very high levels of R & D intensity and a larger number of regions having relatively low levels of intensity. The biggest regional disparities were observed in those EU Member States that had particular specialisations/clusters of research activities, for example: the Belgian region of Province Brabant Wallon (with its science parks), the German regions of Braunschweig (biotechnology and aerospace) and Stuttgart (engineering and natural sciences), the Danish region of Hovedstaden (health and food), the French region of Midi-Pyrénées (aerospace) or the British region of East Anglia (high-tech, biotechnology and agri-environment).

Capital city regions also recorded some of the highest levels of R & D expenditure as a share of GDP, although this pattern was not repeated systematically across the EU Member States. In 9 of the 21 multi-regional Member States (Slovenia only has national data available), the capital city region recorded the highest regional share of R & D intensity. Belgium, the Netherlands and the United Kingdom were somewhat atypical insofar as their capital city regions recorded R & D expenditure as a percentage of GDP that was lower than their respective national averages.

**For more information**: refer to Chapter 8 on research and innovation .

**Figure 1.10:** R & D intensity — gross domestic expenditure on R & D (GERD) relative to gross domestic product (GDP), by NUTS 2 regions, 2013 (1)
(% of GDP)




(1) The light blue shaded area shows the range of the highest to lowest region for each country. The orange bar shows the national average. The orange circle shows the capital city region. The blue circles show the other regions. Liechtenstein, the former Yugoslav Republic of Macedonia and Albania: not available.
(2) National average: estimate.
(3) Niederbayern and Oberpfalz: not available.
(4) National data.
(5) Départements d'outre-mer: not available.
(6) Estimates. London: NUTS level 1.
(7) National data. 2012.

*Source:* Eurostat (online data codes: rd_e_gerdreg and rd_e_gerdtot)

## CONCLUSIONS: A VARIED PICTURE OF DEVELOPMENT ACROSS THE EU

There are diverse patterns of socio-economic developments across the different EU Member States with respect to the Europe 2020 headline targets. The differences are often considerable, although they are frequently matched by inter-regional differences within individual Member States. The different patterns of development may be summarised as follows:

- while considerable progress has been made with respect to some of the Europe 2020 targets (in particular those linked to education, as well as to climate change and energy, which are not covered in this publication), there are considerable challenges if all of the headline targets are to be met by 2020;
- the success enjoyed in relation to moving towards the Europe 2020 targets for education reflects, at least in part, the strong performance of several eastern EU Member States;
- there are a large number of northern and western EU regions where overall performance is often close to or already exceeding the overall Europe 2020 targets;
- despite some of the highest growth rates for several of the Europe 2020 targets being recorded in regions across eastern Europe and the Baltic Member States, with the exception of their capital city regions, most regions in these Member States are still playing 'catch-up';
- the capital city regions of most EU Member States tend to outperform other regions;
- there remain considerable disparities between regions in the same EU Member State; these are most apparent in the north–south divides that may be observed in Spain, Italy and the United Kingdom, the east–west divide in Germany, or the divide between cities and rural areas in much of eastern Europe.

# Data sources and availability

Background information on the regional accounts that are used to determine the eligibility of regions for cohesion funds may be found in an article (on Statistics Explained), see: http://ec.europa.eu/eurostat/statistics-explained/index.php/GDP_at_regional_level .

Further analyses and background information on most of the data sources and legal requirements for data collection may be found in the specific chapters that cover each of the Europe 2020 indicators:

- Chapter 4 on regional education statistics ; note that data up to 2013 were collected using ISCED 1997 and from 2014 onwards using ISCED 2011 and that the implementation of ISCED 2011 resulted in a level shift for Austria.
- Chapter 5 on regional labour market statistics ;
- Chapter 8 on regional research and innovation statistics .

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. The data concerning regional R & D intensity presented for NUTS level 2 in **Figure 1.10** were converted from NUTS 2010. This conversion has had the following consequences: data for the French départements d'outre-mer are not available, only national data are available for Slovenia, and data for London are shown at NUTS level 1.

# 2 Population

Statistics on regional demography are one of the few areas where detailed NUTS level 3 information is collected and published for each of the EU Member States. At the time of writing, the latest information is available for vital demographic events (live births and deaths) and a range of demographic indicators generally through to the end of 2014, with data on the size and structure of the population available for 1 January 2015.

An analysis of the overall population by degree of urbanisation is available in the introduction to the *Eurostat regional yearbook*. A regional analysis of population projections through to 2050 is presented in Chapter 14.

Demographic changes in the EU are likely be of considerable importance in the coming decades as the vast majority of models concerning future population trends suggest that the EU's population will continue to age, due to consistently low fertility levels and extended longevity.

Although migration plays an important role in the population dynamics of EU Member States, it is unlikely that migration alone will reverse the ongoing trend of population ageing experienced in many parts of the EU.

The social and economic consequences associated with population ageing are likely to have profound implications across Europe, both nationally and regionally. For example, low fertility rates will lead to a reduction in the number of students in education, there will be fewer working age persons to support the remainder of the population, and a higher proportion of elderly persons (some of whom will require additional infrastructure, healthcare services and adapted housing). These structural demographic changes could impact on the capacity of governments to raise tax revenue, balance their own finances, or provide adequate pensions and healthcare services.

Those regions projected to face the greatest demographic challenges include peripheral, rural and post-industrial regions, where the population is likely to decline. The territorial dimension of demographic change is seen most notably through:

- an east–west effect, whereby many of the Member States that have joined the EU since 2004 are still playing catch-up;
- a north–south effect, whereby there are often considerable differences between Mediterranean regions and more temperate regions in the north and west of the EU;
- an urban–rural split, with the majority of urban regions continuing to report population growth, while the number of persons resident in many rural areas is declining;
- a capital region effect, as capitals and some of their surrounding regions (for example, around the EU's two global metropolises of Paris and London) display a 'pull effect' associated with increased employment opportunities;
- several examples of regional disparities at a national level, which have the potential to impact on regional competitiveness and cohesion, for example, in Germany and Turkey (between those regions in the east and the west), or in France, Italy and the United Kingdom (between regions in the north and those in the south).

## Policy development

Concerned by future demographic developments, it is unsurprising that policymakers have addressed a range of issues. The European Commission adopted a Communication titled 'The demographic future of Europe — from challenge to opportunity' (COM(2006) 571 final), which highlighted five key policy responses:

- promoting demographic renewal through better conditions for families and an improvement in the reconciliation of working and family life;
- promoting employment, through more jobs and longer working lives of better quality;
- a more productive and dynamic EU, raising productivity and economic performance through investing in education and research;
- receiving and integrating migrants in the EU;
- ensuring sustainable public finances to guarantee adequate pensions, social security, health and long-term care.

## Europe 2020

Furthermore, most of the seven flagship initiatives of the Europe 2020 strategy also touch upon demographic challenges, and in particular demographic ageing. The innovation union flagship initiative provides an opportunity to bring together public and private actors at various territorial levels to tackle a variety of challenges, and in 2011 a European innovation partnership on active and healthy ageing was launched: its aim is to raise by two years the average healthy lifespan of Europeans by 2020. Another flagship initiative, the digital agenda, promotes digital literacy and accessibility for older members of society, while an EU agenda for new skills and jobs supports longer working lives through lifelong learning and the promotion of healthy and active ageing. Finally, the European platform against poverty and social exclusion addresses the adequacy and sustainability of social protection and pension systems and the need to ensure adequate income support in old age and access to healthcare systems.

## Migration

In May 2015, the European Commission presented a European agenda on migration outlining immediate measures to respond to the influx of migrants and asylum seekers from across the Mediterranean, as well as providing a range of policy options for the longer-term management of migration into the EU. The agenda recognises that there is a need to respond to humanitarian challenges, but seeks to increase the number of returns among irregular migrants, while providing for the continued right to seek asylum.

The agenda sets out four levels of action for EU migration policy, namely:

- a new policy on legal migration — maintaining the EU as an attractive destination for migrants, notably by reprioritising migrant integration policies, managing migration through dialogue and partnerships with non-member countries, and modernising the blue card scheme for highly educated persons from outside the EU;
- reducing incentives for irregular migration — through a strengthening of the role of Frontex, especially in relation to migrant returns;
- border management — helping to strengthen the capacity of non-member countries to manage their borders;
- a strong common asylum policy — to ensure a full and coherent implementation of the common European asylum system.

The migrant crisis during much of 2015 and the first quarter of 2016 resulted in the European Commission announcing in March 2016 proposals for an emergency assistance instrument within the EU. The plan would allocate some EUR 700 million of aid (over a period of three years) to help avert a humanitarian crisis and to be able to deliver more rapidly food, shelter and healthcare, as required by refugees within the EU.

# Main statistical findings

## Life expectancy

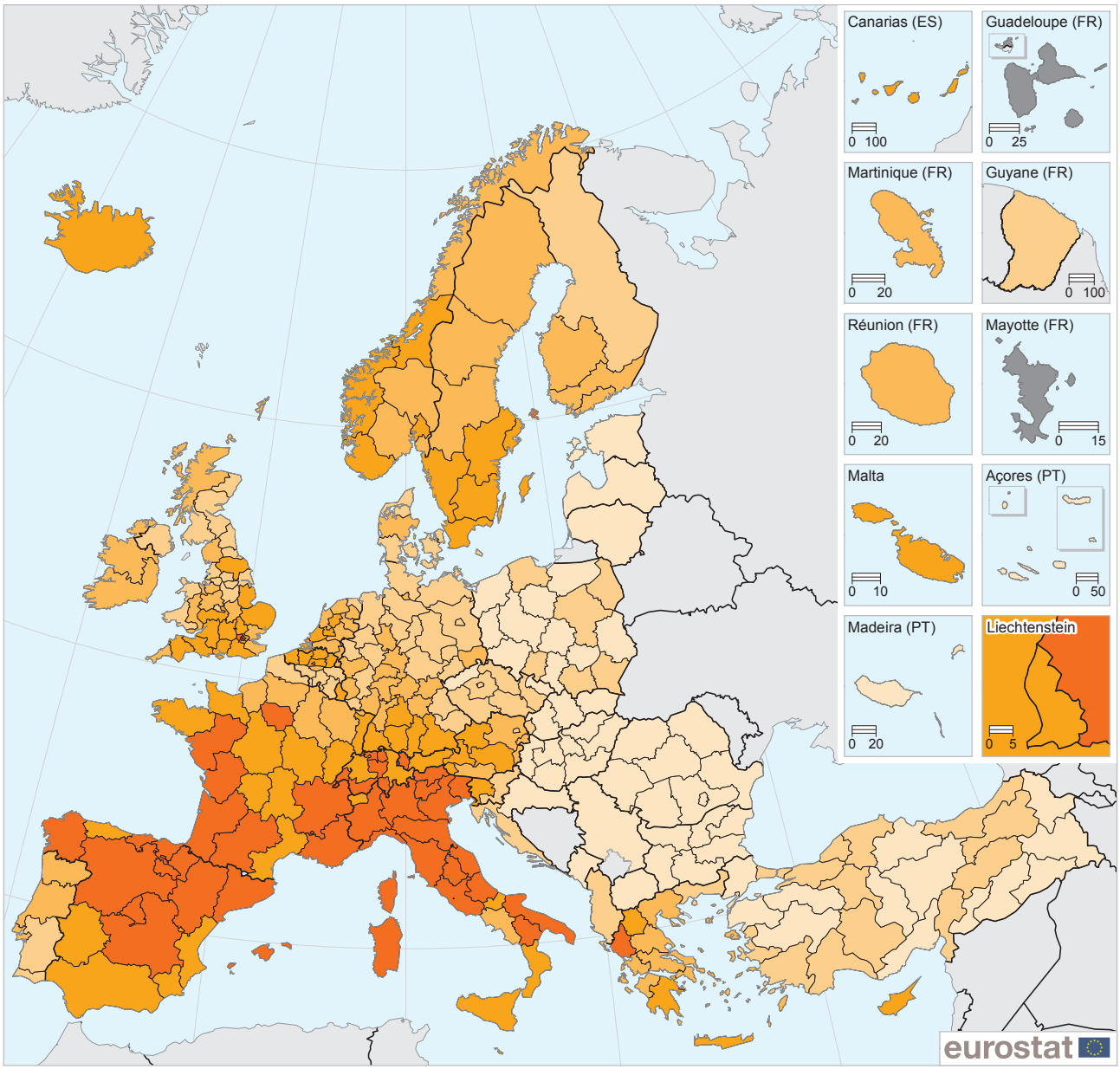
Over the last 50 years, life expectancy at birth has increased by about 10 years on average across the EU, due in large part to improved socio-economic and environmental conditions and better medical treatment and care. **Map 2.1** presents life expectancy at birth for NUTS 2 regions in 2014.

***On average, a European born in 2014 could expect to live 80.9 years***

**Map 2.1** shows that life expectancy at birth averaged 80.9 years across the EU-28 in 2014. There were 45 level 2 regions where life expectancy at birth was 83.0 years or more; these were spread across just seven of the EU Member States, as well as Switzerland: there were 16 Italian regions, 11 Spanish regions, eight French regions, two British regions, one region each from Austria, Greece and Finland, as well as five Swiss regions. The highest life expectancy in 2014 (across level 2 regions) was recorded in the Spanish capital region of the Comunidad de Madrid, at 84.9 years.

At the other end of the range, there were 58 level 2 regions with an average life expectancy of less than 78.0 years (as shown by the lightest shade of orange in **Map 2.1**) and these were predominantly regions in eastern EU Member States — Bulgaria, the Czech Republic, Croatia, Hungary, Poland, Romania and Slovakia — as well as Turkey. The three Baltic Member States (each being a single region at this level of detail), the two Portuguese regiões autónomas da Madeira and dos Açores were the only other regions in the EU-28 to record life expectancy below 78.0 years, as did Montenegro, the former Yugoslav Republic of Macedonia (each being a single region at this level of detail) and Serbia (national data). The lowest life expectancy at birth in 2014 (across level 2 regions) was 73.0 years, recorded in the Bulgarian region of Severozapaden, which was the poorest region in the EU-28 (based on gross domestic product (GDP) per inhabitant in purchasing power standards (PPS)). As such, the difference in life expectancy between Severozapaden and the Comunidad de Madrid was 11.9 years.

**Map 2.1:** Life expectancy at birth, by NUTS 2 regions, 2014 (1)
(years)




(years)

EU-28 = 80.9

- < 78
- 78 – < 81
- 81 – < 82
- 82 – < 83
- >= 83
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

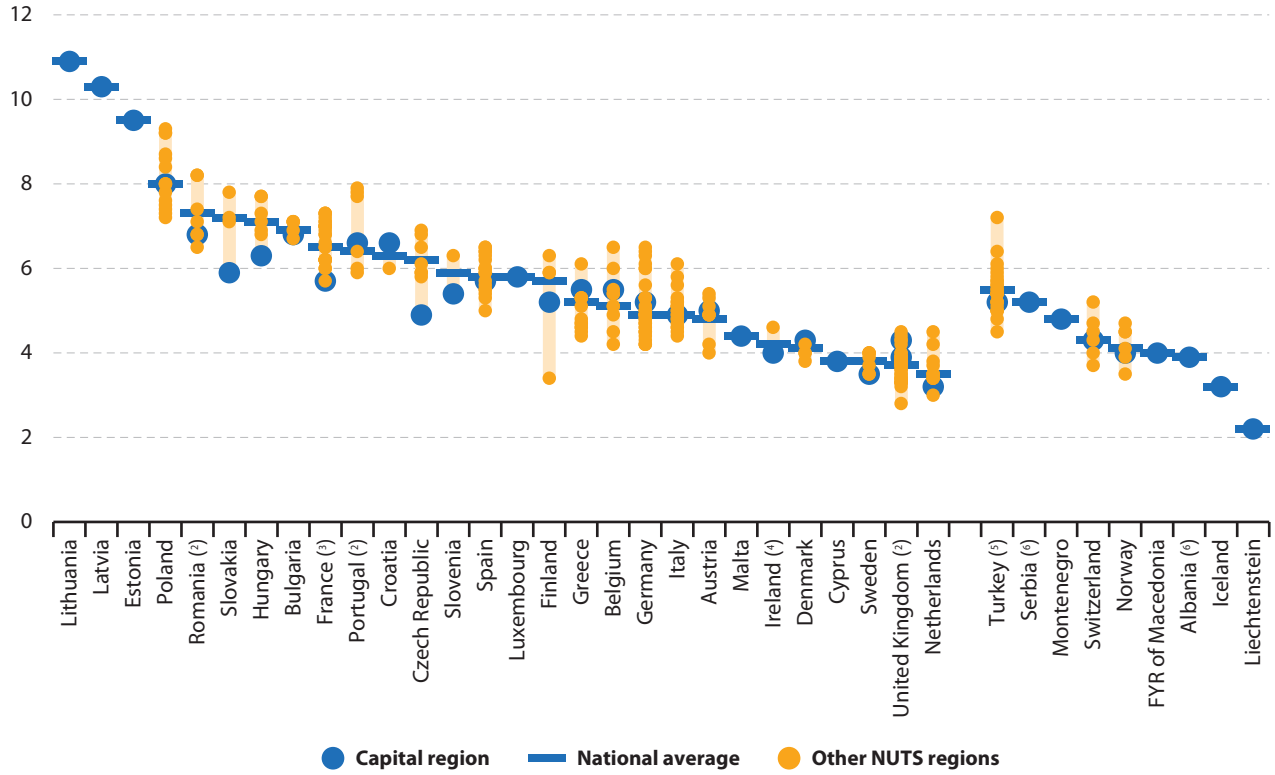
0 200 400 600 800 km

(1) EU-28: provisional. Guyane (France): 2013. Mardin, Batman, Sirnak, Siirt (Turkey): 2011. Albania and Serbia: national data.

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

It is important to note that while **Map 2.1** presents information for the whole population, there remain considerable differences in life expectancy between men and women — despite evidence showing that this disparity between the sexes has been closing gradually in most EU Member States. The gender gap in the EU-28 was 5.5 years, as the life expectancy of women born in 2014 was 83.6 years, while that for men was 78.1 years. **Figure 2.1** illustrates the gender gap across level 2 regions. The range from highest to lowest gender gap was relatively narrow within each country, with the exceptions often caused by a single outlier, such as the relatively low gaps for Åland in Finland, Bratislavský kraj in Slovakia and Praha in the Czech Republic.

**Figure 2.1: Gender gap for life expectancy at birth, by NUTS 2 regions, 2014 (1)**
(difference in years between the life expectancy of women and men)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) National average: estimate.
(3) Guyane: 2013. Guadeloupe and Mayotte: not available.
(4) National average: provisional.
(5) Mardin, Batman, Sirnak, Siirt: 2011.
(6) National data.

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

## Population structure and demographic ageing

There were 508.5 million inhabitants living in the EU-28 at the start of 2015. Across the whole of the EU-28, younger persons (0–19) accounted for 20.9 % of the total population as of 1 January 2015, while people of working age (20–64) accounted for three fifths (60.2 %) of the total (more information on this subgroup may be found in Chapter 5 on the labour market), leaving some 18.9 % of the population as elderly persons (aged 65 and above). Note that these age classes used for an analysis of the structure of the EU-28 population have been adapted (compared with previous editions of the *Eurostat regional yearbook*) to reflect the age group used for the Europe 2020 target relating to the employment rate (20–64 years).

Looking in more detail at the broad age group of the working age population, 12.2 % of the population was aged 20–34 (this age group is used for some indicators in Chapter 4 on education and training), 28.6 % was aged 35–54, and 12.8 % of the population was aged 55–64.

Demographic structures within individual EU Member States often show irregular patterns, which have the potential to impact on regional competitiveness and cohesion. Sometimes these divides are quite apparent, such as in Germany (where there is often a contrast between regions in the east and west), France (north-east and south-west), Italy (north and south) and Turkey (east and west). These differences may be attributed to a wide range of factors including: climatic, landscape, historical, political, social and economic developments.

***Overseas and urban regions tended to have younger populations …***

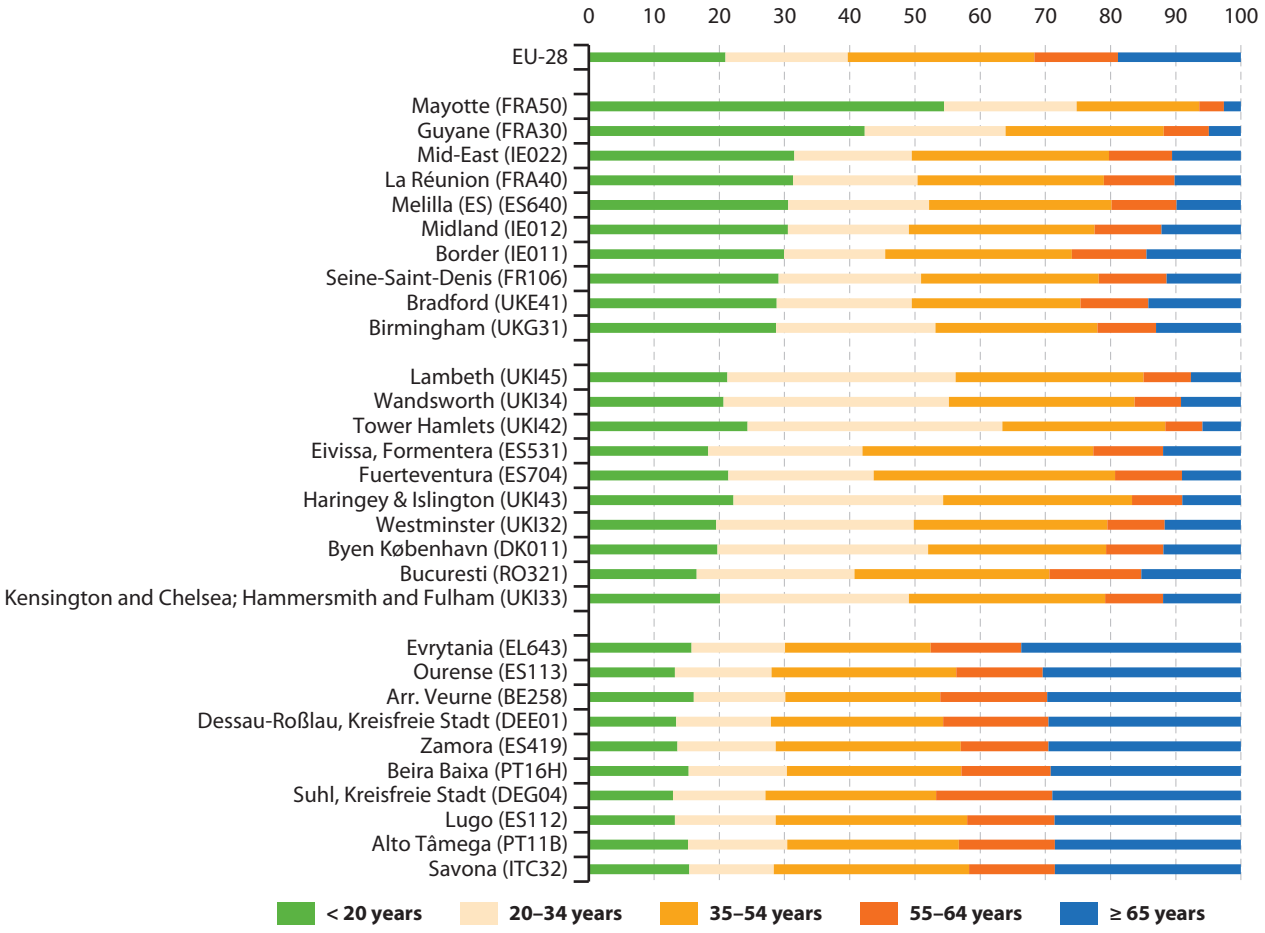
**Figure 2.2** presents information on the 10 NUTS level 3 regions in the EU with the highest shares of younger persons (aged less than 20), the 10 NUTS level 3 regions in the EU with the highest shares of working-age persons (aged 20–64) disaggregated to show those aged 20–34 (including people who might still be in education), 35–54 (including people who are in the process of raising a family) and 55–64 (including people who might have moved into retirement), and; the 10 NUTS level 3 regions in the EU with the highest shares of elderly persons (aged 65 and above); the data are for 1 January 2015.

Those NUTS level 3 regions in the EU with the highest shares of young persons were generally located in those Member States which recorded the highest birth and fertility rates (see **Map 2.5** for fertility rates), thereby boosting the relative importance of younger persons in their total populations. This was particularly the case in several Irish and French regions, for example, the French overseas regions of Guyane and La Réunion or suburban regions around Paris. Age structures of largely urban regions may display a higher proportion of young and working age persons as a result of a 'pull effect' associated with increased employment opportunities attracting both internal migrants (from different regions of the same country) and international migrants (from other Member States and non-member countries).

***… while the relative importance of working age people was particularly high in some capital city regions …***

Most of the top 10 NUTS level 3 regions in the EU with the highest shares of their populations being of working age were capital city regions, six of them in Inner London (the United Kingdom), and one each in Denmark (Byen København) and Romania (Bucureşti). The two remaining regions in the top 10 were Spanish island regions — Eivissa, Formentera (in the Balearic islands) and Fuerteventura (in the Canary islands) — these had relatively low shares of people aged 20–34 (compared with the capital city regions in the list), perhaps due to young people completing their studies on the Spanish mainland, but higher shares of people aged 35–54 and 55–64.

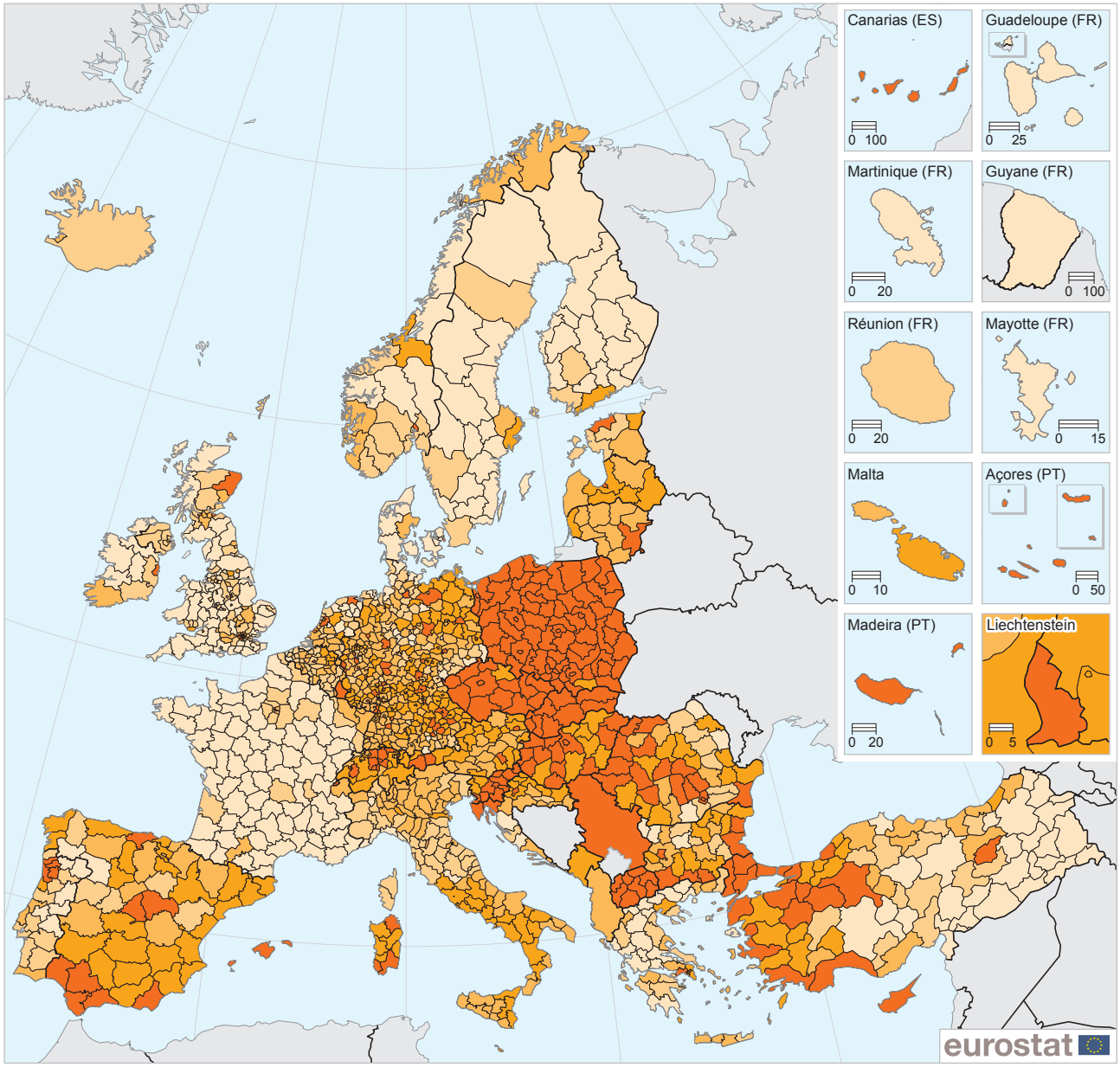
**Figure 2.2: Distribution of the total population by broad age groups, selected NUTS 3 regions, 1 January 2015 (1)**
(%)




(1) The figure shows the 10 EU regions with the highest share of their population in three age groups: less than 20 years; 20–64 years; and 65 years and over. EU-28, Ireland and France: provisional: Portugal, Romania and the United Kingdom: estimates.

*Source:* Eurostat (online data codes: demo_r_pjangrp3 and demo_pjangroup)

**Map 2.2:** Share in the total population of the working age population (aged 20–64), by NUTS 3 regions, 1 January 2015 (1)
(%)




(%)

EU-28 = 60.2

- < 57.5
- 57.5 – < 59.0
- 59.0 – < 60.5
- 60.5 – < 62.0
- >= 62.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU-28, Ireland and France: provisional. Portugal, Romania and the United Kingdom: estimates. Albania and Serbia: national data.

*Source:* Eurostat (online data codes: demo_r_pjangrp3 and demo_pjangroup)

A comprehensive analysis of the share of working age people is provided for level 3 regions in **Map 2.2**. Across the 1 482 regions shown (national data for Albania and Serbia), there were 306 where the working age population reached or exceeded 62 %, among which 61 where this share reached or exceeded 65 %. Many of these regions were in capital or other large cities, mainly in Germany, Poland, Romania, Slovakia and the United Kingdom, but including also Sofia (stolitsa) in Bulgaria and Oslo in Norway. Other regions with relatively high shares included three of the eight statistical regions in the former Yugoslav Republic of Macedonia.

***... and the relative importance of elderly persons has grown in most EU regions***

Most regions in the EU have witnessed the relative share of their elderly populations becoming progressively larger as a result of a significant and continuous increase in life expectancy and the entry into retirement of the post-World War II baby-boom generation. Those regions with the highest shares of elderly persons are often identified as being rural, relatively remote and sparsely populated areas, where a low share of working age persons may, at least in part, be linked to a lack of employment and education opportunities, thereby motivating younger generations to leave in search of work or to pursue further studies.

The elderly accounted for a particularly high share of the total population in several rural and remote regions of Greece, Spain, France and Portugal, as well as a number of regions in eastern Germany. Elderly persons accounted for more than one third (33.7 %) of the total population in the central, inland Greek region of Evrytania as of 1 January 2015 — the highest share in the EU. Ourense in the north-west of Spain was the only other NUTS level 3 region in the EU where elderly persons accounted for upwards of 30 % of the total population, and was one of three Spanish regions among the 10 regions in the EU with the highest shares (28.5 % or higher) of elderly persons in their respective populations.

## Population change

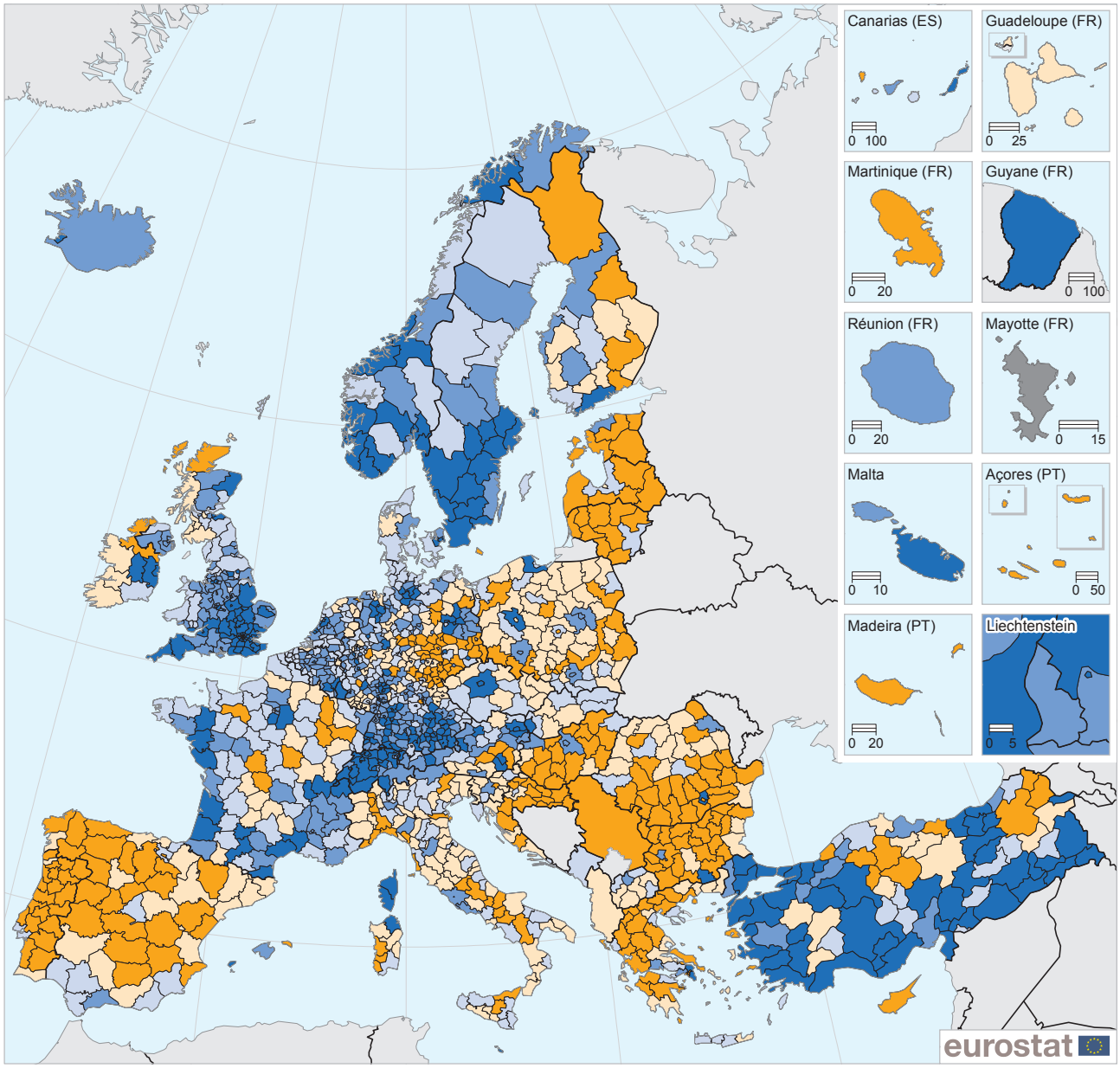
The EU-28's population increased each and every year between 1 January 1960 and 1 January 2015, with overall growth of 101.7 million inhabitants, equivalent to an annualised increase of 0.4 %. Historically, population growth in the EU has largely reflected developments in natural population change (the total number of births minus the total number of deaths), as opposed to migratory patterns. A closer examination shows that natural population growth for an aggregate composed of the EU-28 Member States peaked in 1964, when 3.6 million more births than deaths were recorded. Thereafter, birth rates fell progressively and life expectancy increased gradually, resulting in a slowdown of the natural rate of population growth. By 2003, natural population growth for the EU-28 Member States was almost balanced, as the number of births exceeded the number of deaths by less than 100 000. Subsequently, the birth rate and natural population growth increased again somewhat in several EU Member States, although this pattern was generally reversed with the onset of the financial and economic crisis: between 2008 and 2013, as natural population change fell from an increase of 578 thousand to an increase of 82 thousand, although this rebounded to 191 thousand in 2014.

***Tower Hamlets in eastern London and Ilfov — which surrounds the Romanian capital — recorded the highest population growth during 2014***

**Map 2.3** presents the crude rate of total population change in 2014: these changes result from the combined effects of natural change and net migration between 1 January 2014 and 1 January 2015. The population of the EU-28 rose by 1.3 million during this period, equivalent to 2.5 per 1 000 inhabitants. Among the 1 341 NUTS 3 regions for which data are shown in **Map 2.3** (no data available for Mayotte, France), there were more regions in the EU reporting an increase in their number of inhabitants (806 regions) than those where the population declined (530 regions); there were five regions where the population remained unchanged.

The darkest shade of blue shows the 238 NUTS level 3 regions where the population grew, on average, by at least 8.0 per 1 000 inhabitants during 2014; among these there were 32 regions where population growth was at least 15.0 per 1 000 inhabitants. The highest growth was recorded for Tower Hamlets in London (33.0 per 1 000 inhabitants), followed by Ilfov (30.6 per 1 000 inhabitants), a region which surrounds the Romanian capital of Bucharest. A total of 13 of these 32 regions with the highest crude rates of population growth were in the United Kingdom, with four in Outer London and six in Inner London; nine regions were in Germany, none of which were in the capital city, Berlin, although the list did include Potsdam, Kreisfreie Stadt in neighbouring Brandenburg. Five more regions were in the capital city regions of Denmark, Ireland, Luxembourg, Austria and Sweden. The remaining regions included a second region in Austria (Innsbruck), the French overseas region of Guyane, two Spanish island regions (Fuerteventura and Eivissa, Formentera), as well as Ilfov.

**Map 2.3:** Crude rate of total population change, by NUTS 3 regions, 2014 (1)
(per 1 000 inhabitants)




(per 1 000 inhabitants)

EU-28 = 2.5

- < −4
- −4 – < 0
- 0 – < 4
- 4 – < 8
- >= 8
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU-28, Ireland and France: provisional. Albania and Serbia: national data.

*Source:* Eurostat (online data codes: demo_r_gind3 and demo_gind)

***Many regions with declining populations were in eastern and southern Member States***

There were 17 NUTS level 3 regions where the population fell in 2014 by more than 15.0 per 1 000 inhabitants. These regions were mainly in Bulgaria (seven regions), Croatia (three regions) and Portugal (two regions), with one region each in Germany, Greece, Latvia, Lithuania and Romania. The biggest reduction in population among the NUTS level 3 regions (24.9 per 1 000 inhabitants) was registered in the Greek region of Kentrikos Tomeas Athinon, while Vidin in Bulgaria was the only other region to report that its population had declined by at least 20.0 per 1 000 inhabitants.

More broadly, looking at the 268 NUTS level 3 regions in the EU where the population fell by more than 4.0 per 1 000 inhabitants during 2014 (the darkest shade of orange in **Map 2.3**), these were mainly concentrated in several areas: the Baltic Member States; an arc in south-eastern Europe, starting in Croatia and moving through Hungary, Romania, Bulgaria and down into Greece; several regions on the Iberian peninsula; and many eastern German regions. Several other countries had a few regions where the population fell by more 4.0 per 1 000 inhabitants, including 22 regions that were spread across most of Italy.

***Among the EFTA and candidate country regions, the highest variation in population growth was recorded across Turkish regions***

During 2014, it was generally more common to observe population growth across the level 3 regions of the EFTA and candidate countries (national data for Albania and Serbia), as shown in **Map 2.3**, with a positive development registered in 115 regions, while only 25 regions recorded a decline in their number of inhabitants. Among the EFTA countries, the population grew in every region. In relative terms, the fastest population growth was recorded in Oslo (the capital of Norway) and in Freiburg (western Switzerland).

In the candidate countries there was a more mixed picture, with the population declining in Albania and Serbia (national data), half of the eight regions from the former Yugoslav Republic of Macedonia, and 19 Turkish regions, the majority of which were in central and north-eastern Turkey. Declining population numbers in these regions of Turkey could be contrasted with very high population growth rates in other parts of the country. Indeed, Turkey displayed the highest degree of variation in population change between level 3 regions, with the crude rate of population growth ranging from a low of −39.3 per 1 000 inhabitants in Çankiri (close to the capital of Ankara) to a high of 63.8 per 1 000 inhabitants in Bayburt (in the north-east). The considerable differences in population developments across Turkish regions can often be attributed to internal migratory patterns, with a general flow of migrants from eastern to western regions.

***Since 1985 there has consistently been a net inflow of migrants to the EU-28 Member States***

Overall population change results from the interaction of two components: natural population change and net migration plus statistical adjustment (hereafter simply referred to as net migration). These components can combine to reinforce population growth or population decline or they may cancel each other out to some extent when moving in opposite directions.

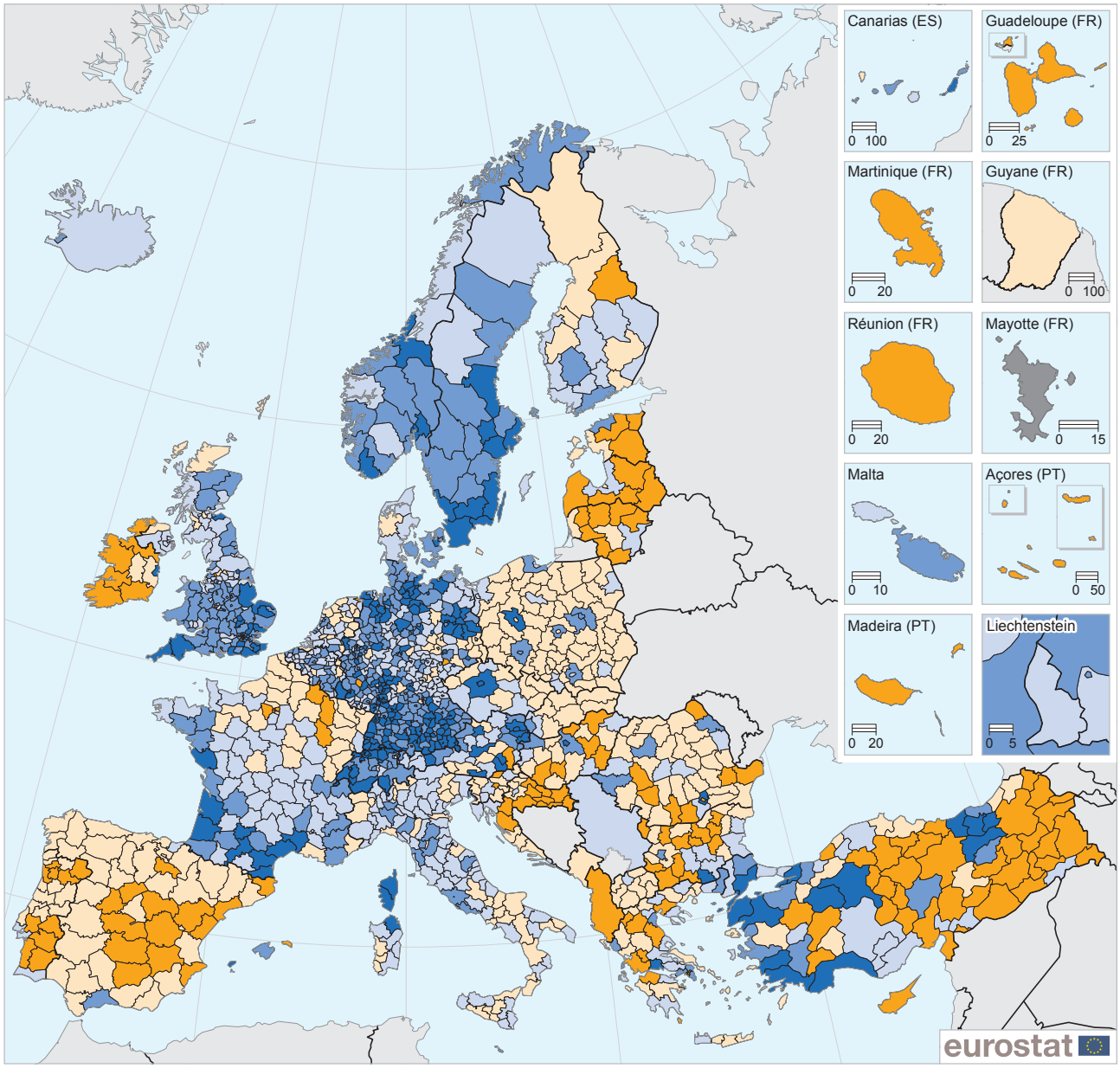
Historically, migratory patterns were relatively balanced during the 1960s and by 1970 there was a net outflow of 707 028 persons from the EU-28 Member States to other destinations around the globe; this was the highest number of net emigrants during the whole of the period 1961–2014. The next time there was a net outflow of migrants leaving the EU-28 Member States was between 1982 and 1984 (a recessionary period); thereafter, there were consistently more immigrants arriving in than emigrants leaving. From 1988 onwards, positive net migration exceeded half a million people each year, with the exceptions of 1991 and 1997, with net migration exceeding one million persons in 10 of the 27 years during the period 1988–2014. Net migration for the EU-28 Member States reached 1.8 million persons in 2003, after which the scale of population increases due to net migration slowed to a low of 712 000 persons in 2011. In 2013, net migration jumped to 1.7 million and remained above one million in 2014.

***Net inward migration particularly high in many regions of Germany***

**Map 2.4** presents the crude rate of net migration for 2014, which averaged 2.2 per 1 000 inhabitants across the EU-28. There is a similarity between **Maps 2.3** and **2.4**, emphasising the close relationship between migratory patterns and overall population change, a development which was enhanced by the rate of natural population change being nearly balanced in many regions of the EU.

In 2014, the net inflow of migrants (from other regions of the same Member State, from other EU regions, or from non-member countries) was particularly concentrated across many parts of Germany. Among the 19 regions with net migration of 15.0 per 1 000 inhabitants or more, 12 were in Germany. Extending this to the 217 regions with net migration of at least 8.0 per 1 000 inhabitants (the darkest shade of blue in **Map 2.4**), the number of German regions increased to 147; while the United Kingdom (26 regions), France (11 regions), Austria (10 regions) and Sweden (9 regions) were also common destinations for migrants.

**Map 2.4:** Crude rate of net migration (plus statistical adjustment), by NUTS 3 regions, 2014 (1)
(per 1 000 inhabitants)




(per 1 000 inhabitants)

EU-28 = 2.2

- < −4
- −4 – < 0
- 0 – < 4
- 4 – < 8
- >= 8
- Data not available

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0 200 400 600 800 km

(1) EU-28, Ireland and France: provisional. Albania and Serbia: national data.

*Source:* Eurostat (online data codes: demo_r_gind3 and demo_gind)

The highest net influx of migrants was registered in Ilfov in Romania, where the crude rate of net migration was 29.8 per 1 000 inhabitants. The next four highest rates of net migration were recorded in German regions — Landshut, Kreisfreie Stadt; Suhl, Kreisfreie Stadt; Leipzig, Kreisfreie Stadt; Gießen, Landkreis — where rates were between 21.8 and 23.9 per 1 000 inhabitants. Tower Hamlets in London was the only other NUTS 3 region with a crude rate of net migration above 20.0 per 1 000 inhabitants, with Luxembourg (19.9) and Frankfurt am Main, Kreisfreie Stadt (19.2) just below this level.

***All four regions that compose the Greek capital experienced net emigration in 2014***

There were 430 NUTS level 3 regions in the EU-28 where net migration in 2014 was negative (in other words, where more people left a region than arrived in it) and in 117 of these the crude rate was below −4.0 per 1 000 inhabitants. These were spread across Slovenia, Croatia, Hungary, Romania, Bulgaria, Greece and Cyprus (one region at this level of detail) in eastern and southern Europe, as well as the Baltic Member States in northern Europe, several regions on the Iberian peninsula, the Île de France and the neighbouring region of Champagne-Ardenne in France, and much of Ireland, as well as a handful of regions elsewhere. In amongst these regions were eight capital city regions, including all four regions that compose the Greek capital of Athens, one of the Inner London regions, Paris, Bucureşti and Cyprus. The biggest negative crude rates of net migration were recorded in the Irish Border region and one of the Greek capital regions, Kentrikos Tomeas Athinon, where the rate of net migration fell to −21.1 per 1 000 inhabitants.

For the EFTA and candidate countries there were contrasting patterns in relation to net migratory patterns in 2014 (only national data available for Albania and Serbia). Nowhere was this more true than in Turkey, as there were 22 level 3 regions which recorded double-digit negative rates of net migration, with the lowest rate of −43.3 per 1 000 inhabitants in Çankiri (to the north-east of Ankara). By contrast, there were 11 Turkish level 3 regions where double-digit positive rates were recorded, peaking at 54.1 per 1 000 inhabitants in Bayburt (north-east Turkey). Otherwise, net migration was positive in each of the EFTA level 3 regions, peaking at 14.6 per 1 000 inhabitants in the western Swiss region of Freiburg.

## Spotlight on the regions: Border, Ireland

**The NUTS level 3 region in the EU with the lowest crude rate of net migration was Border in Ireland; in 2014, it had a crude rate of net migration (the difference between the immigration and emigration rate) of −21.1 per 1 000 inhabitants.**

***Photo*: Scollonp**

## Birth and fertility rates

Women in the EU are having fewer children, contributing to a slowdown of natural growth and even to negative natural change (more deaths than births): see Chapter 14 on population projections for an overview of how demographic developments are projected to impact on the population of the EU's regions.

This section presents information on regional crude birth rates (the ratio of the number of births to the average population, expressed per 1 000 inhabitants) and fertility rates (the mean number of children born per woman). The EU-28 crude birth rate was 10.1 births per 1 000 inhabitants in 2014. Across the EU Member States, the crude birth rate peaked at 14.6 births per 1 000 inhabitants in Ireland and was also relatively high in France (12.4 births), the United Kingdom (12.0 births) and Sweden (11.9 births). At the other end of the range, the crude birth rate was 10.0 births per 1 000 inhabitants or lower across much of eastern Europe (Bulgaria, Croatia, Hungary, Poland and Romania), southern Europe (Greece, Spain, Italy, Malta and Portugal), as well as in Germany and Austria.

***Some of the highest crude birth rates in the EU were recorded in the capital regions of Belgium, Ireland, France and the United Kingdom***

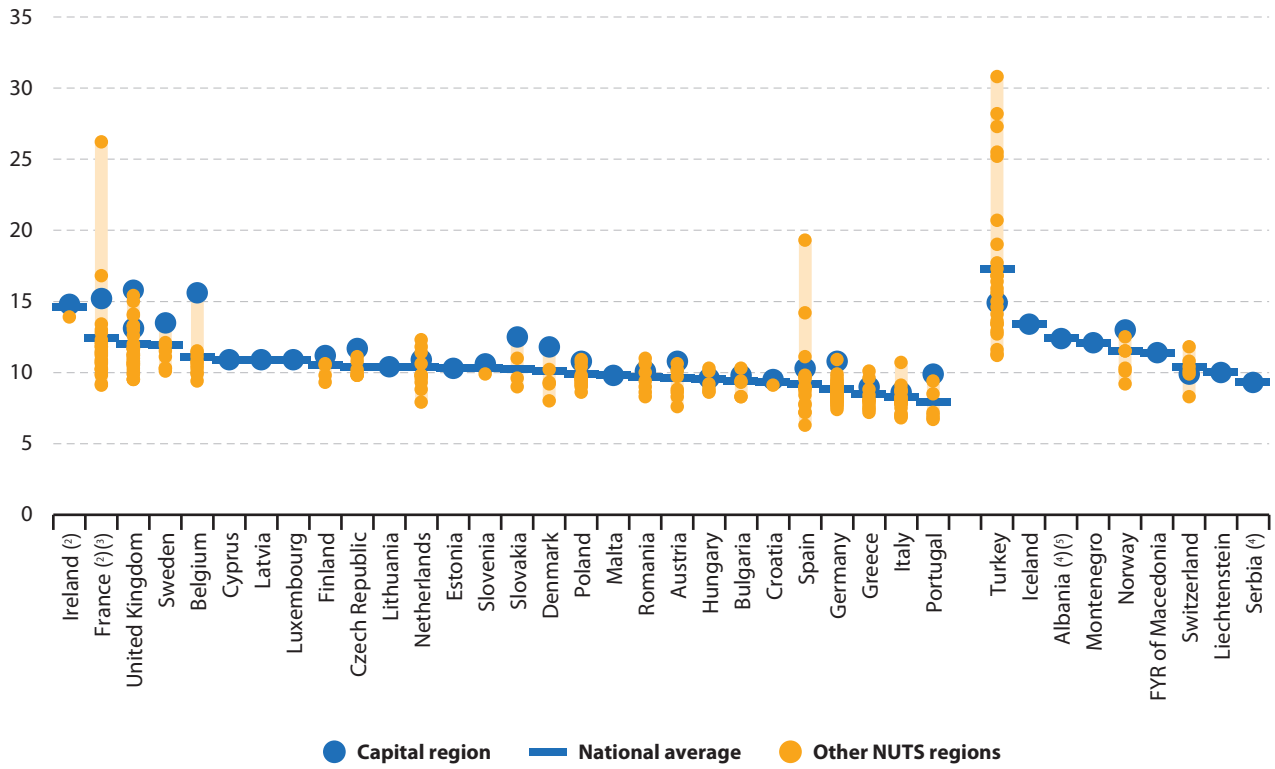
**Figure 2.3** shows crude birth rates for NUTS level 2 regions in 2014. In all of the multi-regional EU Member States and non-member countries shown, the crude birth rate was above the national average in the capital city region. Some Member States reported very homogeneous regional crude birth rates, for example in the Czech Republic, Poland and Hungary. Others were more heterogeneous, often because of just one or a few regions with particularly high rates: in Belgium, the capital city Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest was the only region with a crude birth rate above the national average, while the outlying regions of Ciudad Autónoma de Melilla and Ciudad Autónoma de Ceuta in Spain, and Guyane and La Réunion in France reported rates that were notably higher than those recorded in any of the other regions in these Member States. In fact, the three highest crude birth rates among the EU's regions were registered in Guyane, Ciudad Autónoma de Melilla and La Réunion, followed by three capital city regions: Inner London - East, Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest and Île de France, all of which had rates of 15.0 births per 1 000 inhabitants or higher, as did Outer London - West and North West.

The five lowest crude birth rates (less than 7.0 births per 1 000 inhabitants in 2014) were concentrated in southern Member States, two each in Italy and Portugal and one in Spain. The lowest rate was recorded in north-western Spain in the Principado de Asturias (6.3 births per 1 000 inhabitants).

Across the level 2 regions of the EFTA countries, crude birth rates were generally within the range of 10.0–15.0 births per 1 000 inhabitants in 2014. The only exceptions were Hedmark og Oppland (south-eastern Norway) and three regions from Switzerland — Espace Mittelland, Ostschweiz and Ticino — in all four of these the crude birth rate was below 10.0 births per 1 000 inhabitants.

By contrast, crude birth rates were within the range of 10.0–15.0 births per 1 000 inhabitants in the candidate countries (national data for Albania and Serbia), with the exception of 14 level 2 regions in Turkey where the crude birth rate was higher. The rate peaked at a value of 30.8 births per 1 000 inhabitants in the southern Turkish region of Şanliurfa, Diyarbakir.

**Figure 2.3: Crude birth rate, by NUTS 2 regions, 2014 (1)**
(number of live births per 1 000 inhabitants)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) Provisional.
(3) Mayotte: not available.
(4) National data.
(5) Estimate.

*Source:* Eurostat (online data codes: demo_r_gind3 and demo_gind)

### *Fertility rates fell in the first decade of the 21st century*

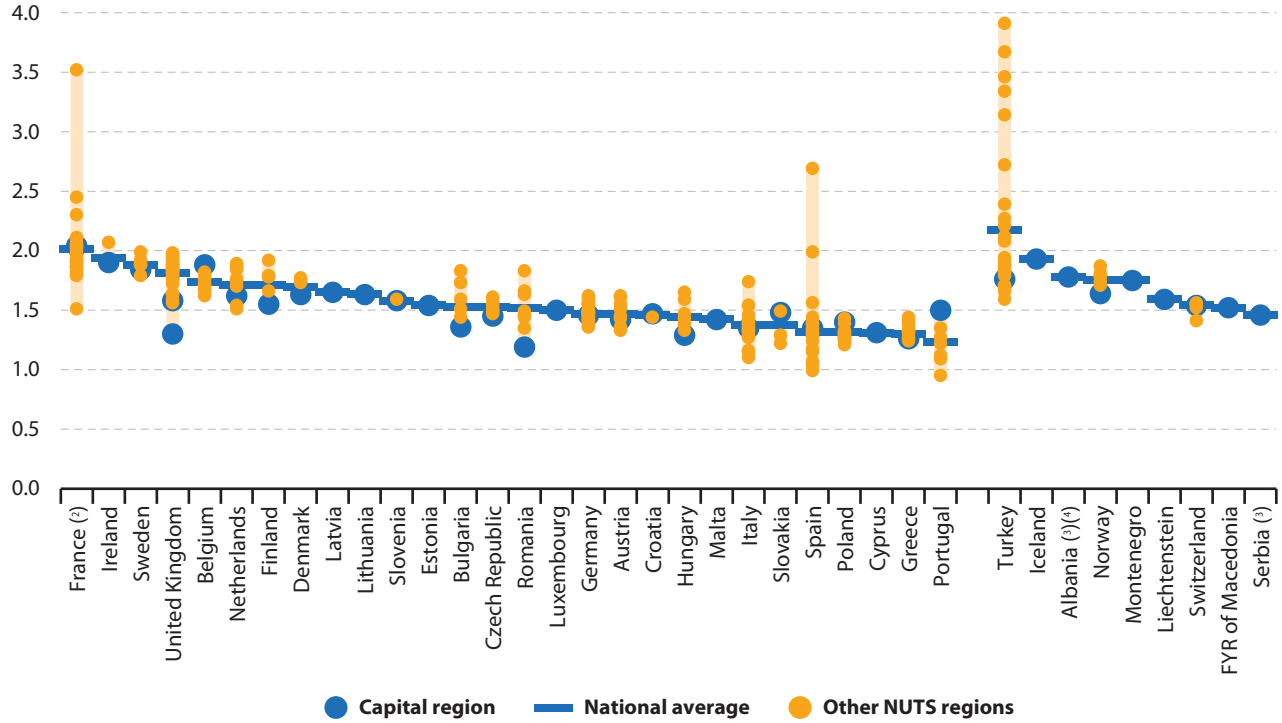
The total fertility rate was decreasing in the EU-28 at the start of the century. In 2001 and 2002, it was 1.46 live births per woman, but it recovered, climbing to 1.62 by 2010, before dipping again to 1.54 by 2013 and recovering to 1.58 in 2014. In developed parts of the world, a total fertility rate of 2.10 live births per woman is considered to be the natural replacement rate, in other words, the level at which the size of the population would remain stable, in the long-run, if there were no inward or outward migration.

The highest fertility rate across the EU Member States in 2014 was recorded in France (2.01 live births per woman), followed by Ireland (1.94), Sweden (1.88) and the United Kingdom (1.81). Fertility rates were often higher in those Member States where the family as a unit was relatively weak (a low proportion of people being married and a high proportion of births outside marriage), couple instability relatively common (relatively high divorce rates), and women's labour market participation was high. Fertility rates were 1.50 live births per woman or lower in 13 of the EU Member States; the lowest rate was recorded in Portugal (1.23 live births per woman).

Differences in regional fertility may be linked to a range of factors, among others: the socio-economic structure of the population (for example, educational attainment, occupational status, income or age); place of residence (for example, the availability of infrastructure, childcare facilities, or the housing market); or cultural factors (for example, religious beliefs and customs, attitudes to giving birth outside of marriage, or attitudes to contraception). The distribution of fertility rates is shown in **Figure 2.4** for level 2 regions: like **Figure 2.3** it appears very homogeneous, as most regions within the same EU Member State rarely displayed rates that were far from their national average in 2014. The exceptions to this rule again included the outlying Spanish region of the Ciudad Autónoma de Melilla, and the French overseas regions of Guyane, La Réunion, Guadeloupe and Martinique; these were the only NUTS level 2 regions in 2014 to record total fertility rates that were above the natural replacement rate of 2.10.

An analysis for EFTA countries confirms that fertility rates for level 2 regions were consistently below the natural replacement rate. The same was true in the candidate countries (national data for Albania and Serbia), except in Turkey. There was a rough divide in Turkey between western regions (with relatively low fertility rates) and eastern regions (with much higher rates): for example, the lowest fertility rate (1.59 live births per woman) was registered for Zonguldak, Karabük, Bartin on the Black Sea coast, while the highest rate was recorded for Şanliurfa, Diyarbakir (3.91 live births per woman) — this region also recorded the highest crude birth rate in Turkey (see above).

**Figure 2.4: Total fertility rate, by NUTS 2 regions, 2014 (1)**
(average number of live births per woman)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) Mayotte: not available.
(3) National data.
(4) Provisional.

*Source:* Eurostat (online data code: demo_r_frate2)

***Highest fertility rates mainly in French and British regions***

**Map 2.5** provides a more detailed analysis of the same indicator, showing the fertility rate for NUTS 3 regions. The French overseas region of Guyane and the Spanish outlying territory of Ciudad Autónoma de Melilla reported the highest rates in 2014, with 3.50 and 2.70 live births per woman respectively. These were followed by Seine-Saint-Denis (near to the French capital) and another French overseas region, La Réunion. A total of 34 NUTS level 3 regions recorded fertility rates in excess of 2.10, with more than half of these (20 in total) in France and more than a quarter (9) in the United Kingdom. A similar picture can be seen for the 186 NUTS level 3 regions with a fertility rate of 1.90 or higher (the darkest shade of orange in **Map 2.5**), as just over three quarters of these regions were in France or the United Kingdom, while this set of regions also included six of the eight Irish regions and 10 of the 21 Swedish regions.

By contrast, the lowest fertility rates (below 1.35) were mainly found in Germany as well as eastern and southern Member States, in particular in Cyprus (one region at this level of detail), Portugal (22 out of 25 regions), Spain (37 out of 59 regions), Slovakia (five out of eight regions) and Poland (42 out of 72 regions), and to a lesser extent in Greece and Italy.

In 2014, none of the level 3 regions in the EFTA countries reported a fertility rate above 2.10, however four Norwegian regions, one Swiss region and one Icelandic region each reporting fertility rates that were above 1.90, with Landsbyggð in Iceland reporting the highest rate (2.03).

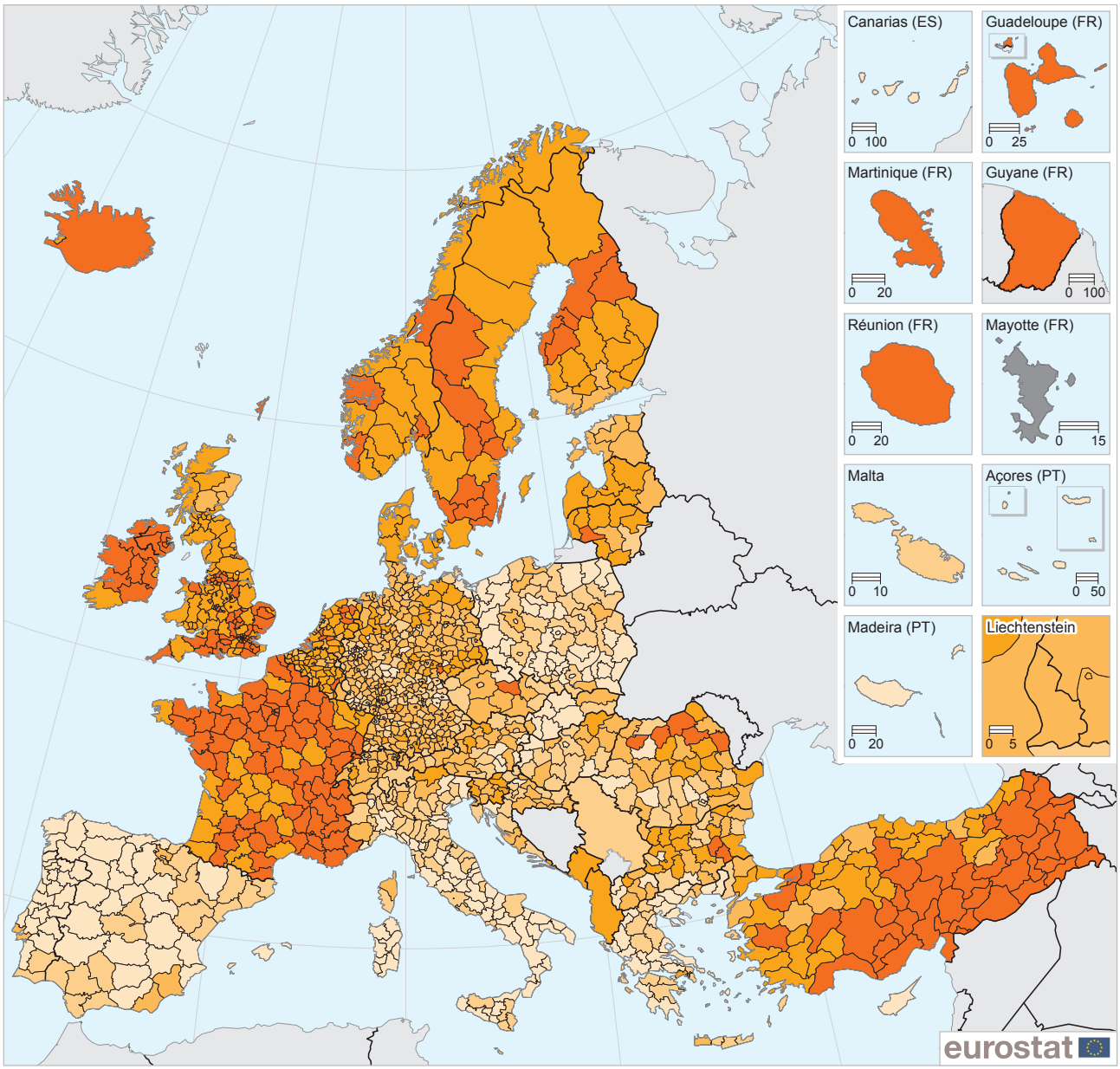
Among the candidate countries (national data for Albania and Serbia), three of the eight regions in the former Yugoslav Republic of Macedonia reported fertility rates below 1.35 in 2014. By contrast, in Turkey there were 29 regions where the fertility rate exceeded 2.10, and a further 13 regions with a rate of 1.90 or higher. The two highest rates in 2014 were recorded in the western Turkish regions of Şanliurfa (4.52) and Sirnak (4.22). There was a sharp contrast between these relatively high fertility rates and those recorded in most of the western Turkish regions, where fertility rates were generally in the range of 1.5–1.9 live births per woman (more in line with the rates recorded across the EU).

## Spotlight on the regions: Douro, Portugal

**A fertility rate of 2.10 live births per woman is considered to be the natural replacement rate in developed world countries; in other words, the level at which the size of the population would remain stable, in the long-run, if there were no inward or outward migration. Fertility rates across EU regions are generally much lower: for example, Douro was one of four NUTS level 3 regions in Portugal to record a fertility rate less than 1.0 live births per woman in 2014.**

***Photo*: Aires Almeida**

**Map 2.5: Total fertility rate, by NUTS 3 regions, 2014 (1)**
(average number of live births per woman)




(average number of live births per woman)

EU-28 = 1.58

- < 1.35
- 1.35 – < 1.50
- 1.50 – < 1.65
- 1.65 – < 1.90
- >= 1.90
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU-28: provisional. Albania: estimate. Albania and Serbia: national data.

*Source:* Eurostat (online data codes: demo_r_frate3 and demo_find)

## Death rates

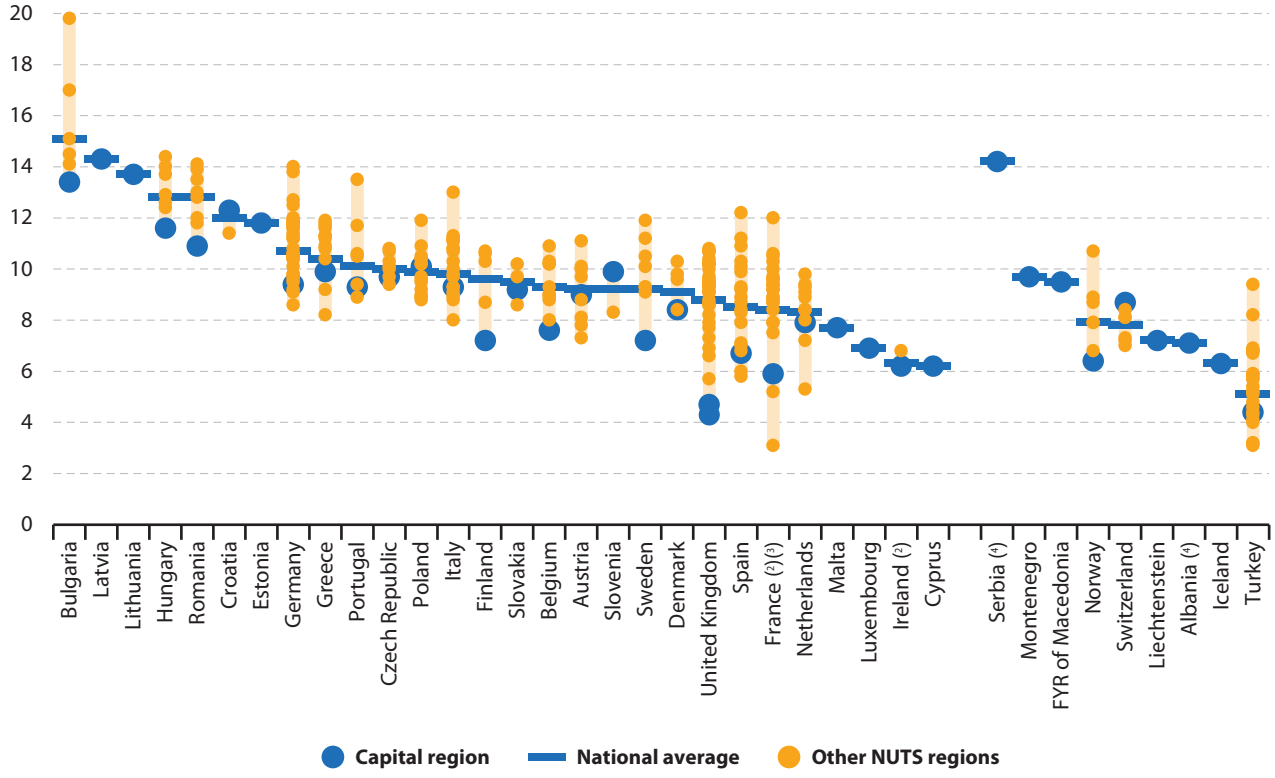
There were 4.94 million deaths across the whole of the EU-28 in 2014, which was 1.1 % fewer than in 2013. The EU-28's crude death rate was 9.7 deaths per 1 000 inhabitants in 2014, ranging from 15.1 in Bulgaria, 14.3 in Latvia and 13.7 in Lithuania, to less than 8.0 deaths per 1 000 inhabitants in Malta, Luxembourg, Ireland and Cyprus.

The crude death rate generally reflects the population structure (elderly persons are more likely to die) as well as the likelihood of catching/contracting a specific illness/disease or dying from an external cause; note that regional statistics on some causes of deaths — from diseases of the circulatory system and from cancer — is provided in Chapter 3 on health.

**Figure 2.5** displays how death rates varied among level 2 regions. This can be compared with **Figure 2.3** which shows a similar analysis for the crude birth rate and it can be seen that, in general, the crude death rate varied more across regions than the crude birth rate. The Czech Republic reported the most homogeneous death rates among its regions, while there was a much wider degree of dispersion in Spain, France and the United Kingdom; death rates in the Turkish regions were also relatively heterogeneous. In nearly all multi-region Member States, the crude death rate of the capital city region was below the national average, with Croatia, Poland and Slovenia the only exceptions to this rule; this was also the case in Switzerland.

In 2014, four Bulgarian regions recorded the highest crude death rates in the EU, ranging from 14.5 to 19.8 deaths per 1 000 inhabitants. The highest crude death rate was recorded in the northern region of Severozapaden, which also recorded the lowest level of life expectancy. The lowest crude death rate was in the French overseas region of Guyana, with a rate of 3.1 deaths per 1 000 inhabitants; an equally low death rate was reported for the Turkish region of Mardin, Batman, Sirnak, Siirt. Other EU regions with low death rates included Inner London - East (4.3) and Inner London - West (4.7). Several other capital city regions had low crude death rates, for example those in France, Ireland, Spain, Luxembourg (one region at this level of detail), Sweden and Finland.

**Figure 2.5: Crude death rate, by NUTS 2 regions, 2014 (1)**
(number of deaths per 1 000 inhabitants)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) Provisional.
(3) Mayotte: not available.
(4) National data.

*Source:* Eurostat (online data codes: demo_r_gind3 and demo_gind)

## Infant mortality

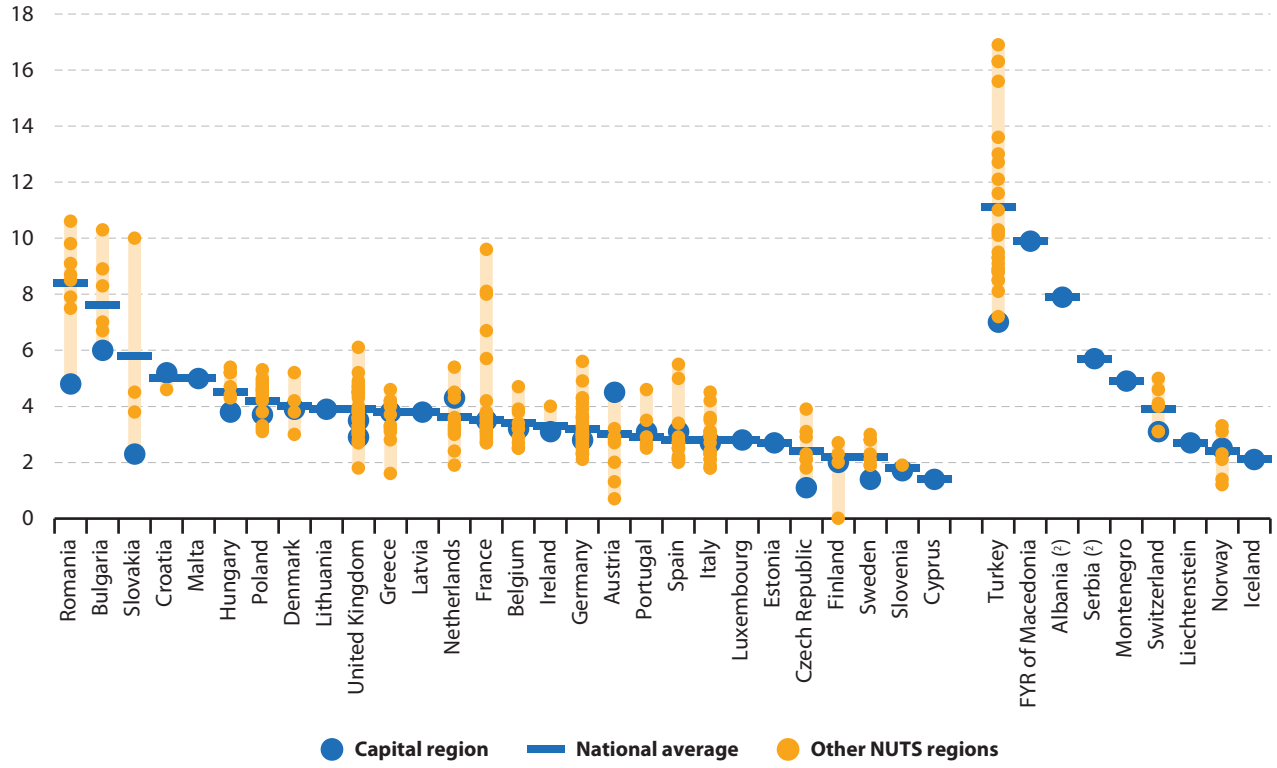
Significant gains in life expectancy across the EU in recent years have not only been due to people living increasingly long lives, but may also be attributed to a reduction in infant mortality rates. Around 19 100 children died before reaching one year of age in the EU-28 in 2014. This was equivalent to an infant mortality rate of 3.7 deaths per 1 000 live births, compared with a rate of 5.3 a decade earlier and 32.8 half a century earlier.

**Figure 2.6** shows the range in infant mortality rates among NUTS level 2 regions in 2014. EU Member States with particularly heterogeneous regional infant mortality rates included Slovakia, Finland, France and Austria; the relatively high heterogeneity in Finland was due to the particular situation in the island region of Åland where no child aged less than one year died (thus, the infant mortality rate was 0.0). Among the EU regions, the lowest rate, apart from that in Åland, was 0.7 in the western Austrian region of Vorarlberg. By contrast, rates of at least 10.0 deaths per 1 000 live births were recorded in three regions in eastern Europe: Sud-Est (Romania), Yugoiztochen (Bulgaria) and Východné Slovensko (Slovakia). Five of the Member States with more than one region reported an infant mortality rate for their capital city region that was above the national average: Croatia, Portugal, Spain, the Netherlands and Austria; this was also the situation in Norway.

In the EFTA countries, infant mortality rates in Iceland, Liechtenstein and all seven level 2 regions in Norway were below the EU-28 average. On average, Switzerland recorded slightly higher infant mortality rates, although the Région lémanique, Espace Mittelland and Ticino also recorded rates that were below the EU-28 average.

Higher infant mortality rates were recorded in the candidate countries (national data for Albania and Serbia), ranging from 4.9 deaths per 1 000 live births in Montenegro (a single region at this level of detail) to 11.1 deaths per 1 000 live births in Turkey. There was a wide range in regional infant mortality rates in Turkey, from a low of 7.0 deaths per 1 000 live births in the capital city region of Ankara, to a high of 16.9 deaths per 1 000 live births in the southern region of Gaziantep, Adiyaman, Kilis.

**Figure 2.6: Infant mortality rate, by NUTS 2 regions, 2014** (1)
(deaths per 1 000 live births)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) National data.

*Source:* Eurostat (online data codes: demo_r_minfind and demo_minfind)

# Data sources and availability

Eurostat collects a wide range of regional demographic statistics: these include data on population numbers and various demographic events which influence the population's size, structure and specific characteristics. This data may be used for a wide range of planning, monitoring and evaluating actions across a number of important socio-economic policy areas, for example, to:

- analyse population ageing and its effects on sustainability and welfare;
- evaluate the economic impact of demographic change;
- calculate per inhabitant ratios and indicators — such as regional gross domestic product per capita, which may be used to allocate structural funds to economically less advantaged regions;
- develop and monitor immigration and asylum systems.

The legal basis for the collection of population statistics is provided by European Parliament and Council Regulation (EU) No 1260/2013 on European demographic statistics and by its implementing Regulation (EU) No 205/2014. European Parliament and Council Regulation (EC) No 862/2007 legislates for the collection of Community statistics on migration and international protection, together with implementing Regulation (EU) No 351/2010.

**For more information**: please refer to the dedicated section on population projections on Eurostat's website.

Statistics on population change and the structure of population are increasingly used to support policymaking and to provide the opportunity to monitor demographic behaviour within a political, economic, social or cultural context. The European Parliament passed a resolution on 'Demographic change and its consequences for the future of the EU's cohesion policy' (2013/C 153 E/02) which underlined that demographic developments in the regions should be statistically measured and stressed that demographic change should be considered as a cross-cutting objective in future cohesion policy.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

## Indicator definitions

Life expectancy at birth is the mean number of years that a new born child can expect to live if subjected throughout his or her life to current mortality conditions.

Population change is the difference in the size of a population between the end and the beginning of a period (for example, one calendar year). A positive population change is referred to as population growth, while a negative population change is referred to as population decline. Population change consists of two components.

- Natural change which is calculated as the difference between the number of live births and the number of deaths. Positive natural change, also known as natural increase, occurs when live births outnumber deaths. Negative natural change, also known as natural decrease, occurs when live births are less numerous than deaths.
- Net migration plus statistical adjustment, which is calculated as the difference between the total change in the population and natural change; the statistics on net migration are therefore affected by all the statistical inaccuracies in the two components of this equation, especially population change. Net migration plus statistical adjustment may cover, besides the difference between inward and outward migration, other changes observed in the population figures between 1 January for two consecutive years which cannot be attributed to births, deaths, immigration or emigration.

Crude rates of change are calculated for total population change, natural population change and net migration plus statistical adjustment. In all cases, the level of change during the year is compared with the average population of the area in question in the same year and the resulting ratio is expressed per 1 000 inhabitants.

Crude rates of vital demographic events (births and deaths) are defined as the ratio of the number of demographic events to the average population of the region in the same year, again expressed per 1 000 inhabitants.

The total fertility rate is defined as the average number of children that would be born to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates that have been measured in a given year.

The infant mortality rate is defined as the ratio of the number of infant (children aged less than one year) deaths to the number of live births of the region in the same year, it is expressed per 1 000 live births.

# 3 Health

This chapter presents recent statistics on health for the regions of the European Union (EU) and provides regional information concerning healthcare services through an analysis of the number of hospital beds and healthcare professionals (physicians). It also presents a range of statistics relating to self-perceived health matters (for example, health status or longstanding health problems) according to the degree of urbanisation, and finishes by addressing some of the most common causes of death, notably cancer and diseases of the circulatory and respiratory systems.

Health is an important priority for Europeans, who expect to be protected against illness and accident and to receive appropriate healthcare services. The competence for the organisation and delivery of healthcare services is largely held by the individual EU Member States.

Within the EU, health issues cut across a range of topics and these generally fall under the remit of the European Commission's Directorate-General for Health and Consumers and the Directorate-General for Employment, Social Affairs and Inclusion. EU actions are concentrated on protecting people from health threats and disease (flu or other epidemics), consumer protection (food safety issues), promoting lifestyle choices (fitness and healthy eating), workplace safety, and helping national authorities cooperate. The European Commission works with EU Member States using an open method of coordination for health issues, a voluntary process based on agreeing common objectives and measuring progress towards these goals.

The legal basis for the EU's third health programme is provided by Regulation (EU) No 282/2014 on the establishment of a third Programme for the Union's action in the field of health (2014–2020). It aims to:

- improve the health of EU citizens and reduce health inequalities;
- make healthcare services more sustainable and encourage innovation in health;
- improve public health, preventing disease and fostering supportive environments for healthy lifestyles;
- protect citizens from cross-border health threats (such as flu epidemics);
- contribute to innovative, efficient and sustainable healthcare systems;
- facilitate access to better and safer healthcare for EU citizens.

In the coming decades, population ageing will be a major challenge for the EU's health sector. The demand for healthcare will increase dramatically as a result of an ageing population and at the same time the proportion of the people in work will probably stagnate or in some cases decline. As a result, there could be staff shortages in certain medical specialisations or geographic areas. In 2012, about one third of all doctors in the EU were aged 55 or over. According to the European Commission's Directorate-General for Health and Food Safety, more than 60 thousand doctors (or 3.2 % of the workforce) are expected to be leaving the profession each year by 2020.

An action plan for the EU health workforce (SWD(2012 093 final) seeks to help EU Member States tackle this challenge, by: improving workforce planning and forecasting; anticipating future skills' needs; improving the recruitment and retention of health professionals; mitigating the negative effects of migration on health systems. The plan is part of the broader strategy 'Towards a job-rich recovery' (COM(2012) 173 final).

# Main statistical findings

## Healthcare resources

**Maps 3.1** and **3.2** as well as **Figure 3.1** present non-expenditure healthcare indicators that provide information concerning healthcare provision.

### HOSPITAL BEDS

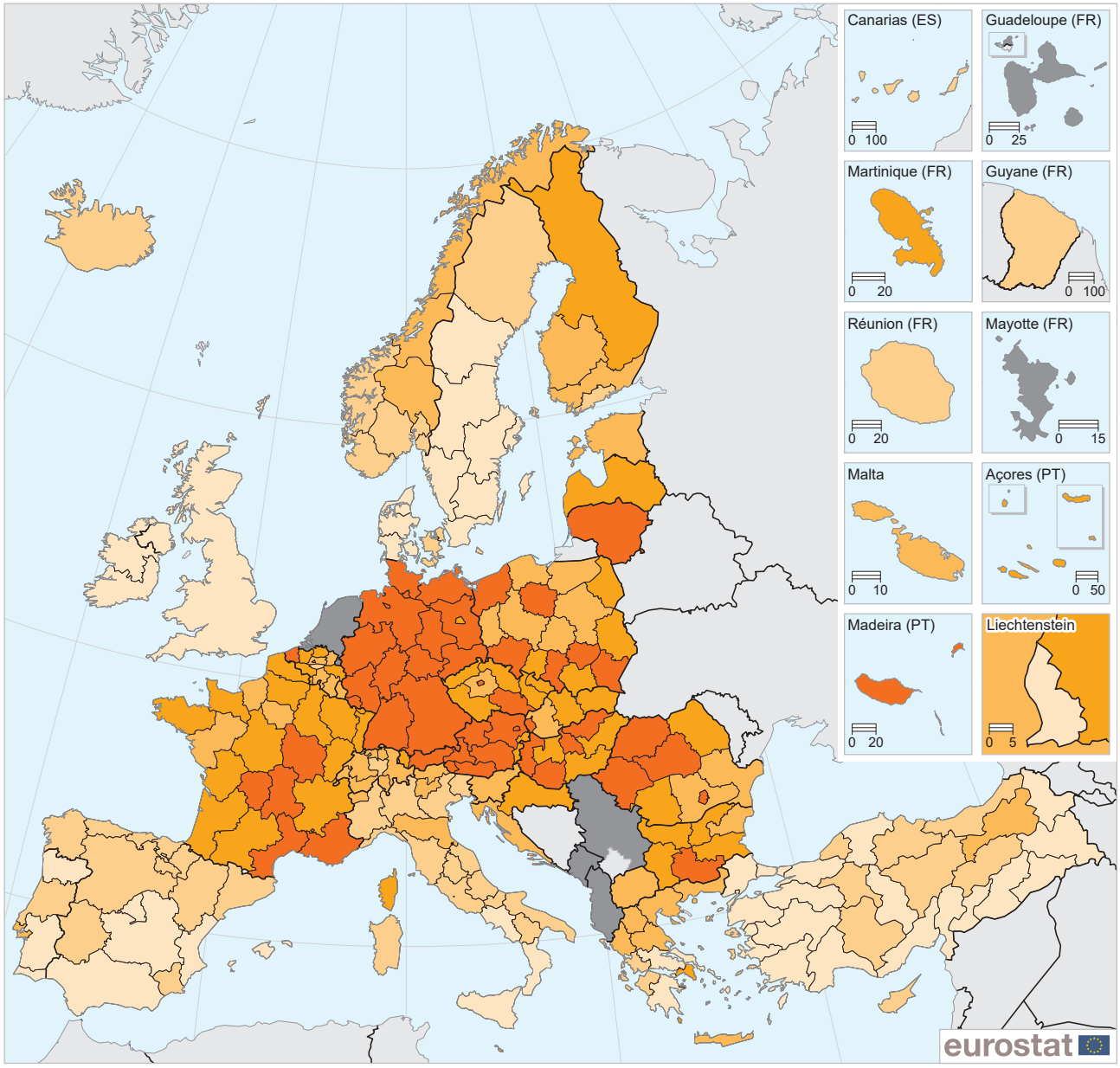
For many years, the number of hospital beds in use across the EU has decreased: this may be linked to a range of factors, including a reduction in the average length of hospital stays, the introduction of minimally invasive surgery and procedures, and an expansion of day care and outpatient care. These two maps reflect country-specific ways of organising health care and the types of service provided to patients.

During the last decade the number of hospital beds in the EU-28 continued to decline: available beds fell from 2.93 million in 2004 to 2.67 million by 2013, a relative decrease of 9.0 %. At the same time the population has grown, and so relative to population size the number of beds per 100 000 inhabitants fell from 592 in 2004 to 526 in 2013, a decline of 11.2 %.

***Germany had the highest number of hospital beds relative to population size***

Germany recorded the highest number of hospital beds (668 thousand) in 2013, and also registered the highest number of beds relative to population, with an average of 820 beds per 100 000 inhabitants; **Map 3.1** shows the high density of available hospital

**Map 3.1:** Number of hospital beds relative to population size, by NUTS 2 regions, 2013 (1)
(number per 100 000 inhabitants)




(number per 100 000 inhabitants)

EU-28 = 526

- < 300
- 300 – < 380
- 380 – < 580
- 580 – < 680
- >= 680
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Germany: NUTS level 1. Slovenia, the United Kingdom and Serbia: national data. Belgium, Italy and Sweden: 2012. Greece and Serbia: 2011. Portugal: estimates.

*Source:* Eurostat (online data codes: hlth_rs_bdsrg and hlth_rs_bds)

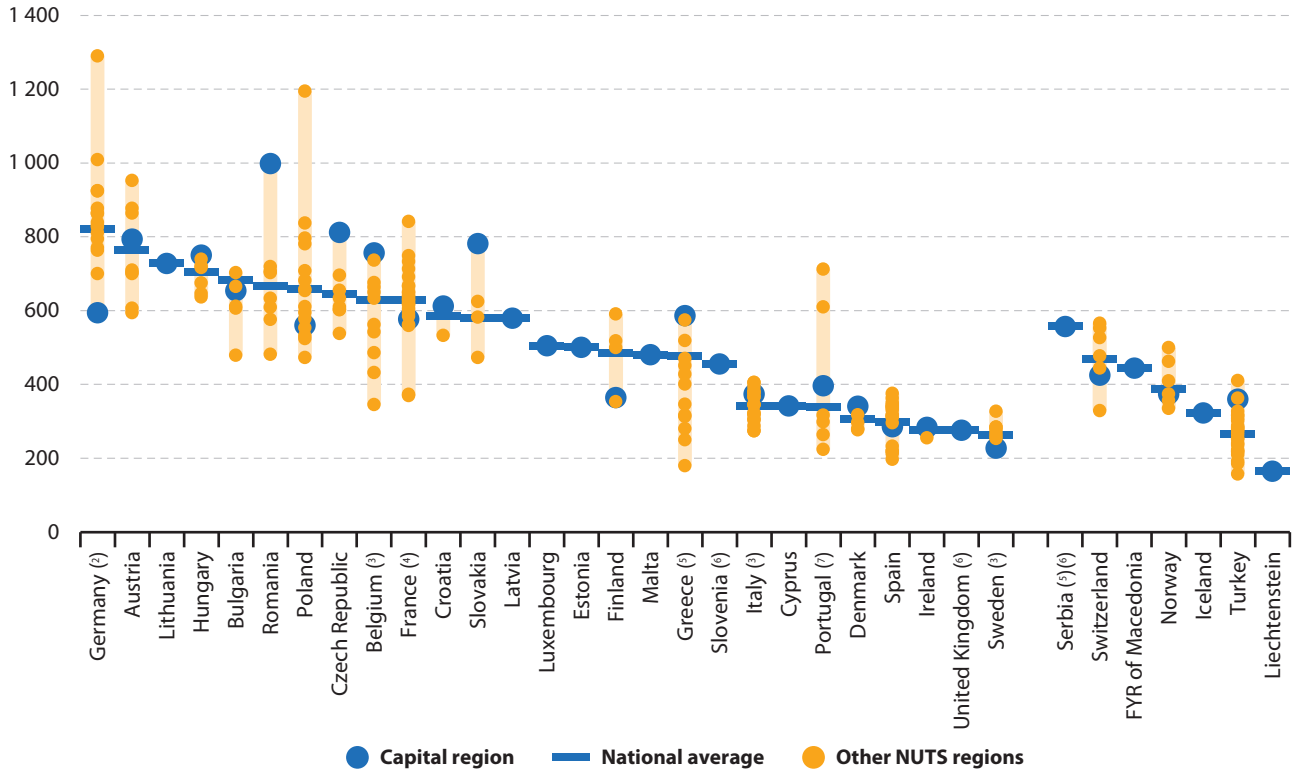
beds across German regions. More generally, there was a high density of hospital beds (at least 680 per 100 000 inhabitants, the darkest shade in **Map 3.1**) running through a central belt of Europe, extending from six regions in France and two in Belgium (2012 data), through 15 of the 16 German NUTS level 1 regions (Berlin being the exception), seven of the nine Austrian regions into the eastern Member States, with two Czech regions, six Polish regions, four from seven Hungarian regions, the Slovakian capital city region, four from eight Romanian regions and one Bulgarian region. The only region in this category from the northern Member States was Lithuania (one region at this level of detail) and the only region from the southern Member States was the Portuguese Região Autónoma da Madeira. The highest density of hospital beds was recorded in the north eastern German (NUTS level 1) region of Mecklenburg-Vorpommern with 1 290 beds per 100 000 inhabitants.

By contrast, the lowest densities of hospital beds — less than 300 per 100 000 inhabitants (as shown by the lightest shade in **Map 3.1**) — were often recorded in the northern and southern EU Member States, as well as in the Irish regions and in the United Kingdom for which only national data are available. Among the northern Member States, low ratios were recorded for seven of the eight regions in Sweden (2012 data, Övre Norrland was the exception) and three of the five Danish regions, while this was also the case in seven Spanish regions and three regions in each of Greece (2011 data), Italy (2012 data) and Portugal. The lowest density of hospital beds was recorded in the Greek region of Sterea Ellada, at 180 hospital beds per 100 000 inhabitants.

**Figure 3.1** provides a similar analysis of the same indicator, highlighting the extent to which the availability of hospital beds varies between regions (both within countries and between EU Member States). Portugal and Greece had the most diverse regional ratios. In the case of Portugal this was due to notably higher ratios recorded in the Região Autónomas dos Açores e da Madeira, while in Greece there was simply a wide range of values across the various regions.

Most EU Member States reported ratios of hospital beds to population size for capital city regions that were above their respective national averages and in eight multi-regional Member States the capital city region reported the highest ratio of all regions, as was most

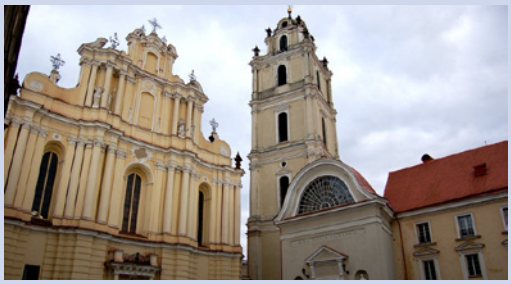
**Figure 3.1: Number of hospital beds relative to population size, by NUTS 2 regions, 2013 ([1])**
(number per 100 000 inhabitants)




([1]) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions. The Netherlands, Montenegro and Albania: not available.
([2]) NUTS level 1.
([3]) 2012.
([4]) Guadeloupe and Mayotte: not available.
([5]) 2011.
([6]) National data.
([7]) Estimates.

*Source:* Eurostat (online data codes: hlth_rs_bdsrg and hlth_rs_bds)

## Spotlight on the regions: Lietuva, Lithuania



**Lithuania (a single region at NUTS level 2) had a high density of hospital beds relative to its population in 2013 and was the only region from northern EU Member States to record a ratio of at least 680 beds per 100 000 inhabitants.**

***Photo*: Mantas Indrašius**

notably the case in Romania and Slovakia. By contrast, in Germany and Sweden the lowest ratio was reported for the capital city region and in five other Member States — Bulgaria, Poland, France, Finland and Spain — the ratio of hospital beds to population size in the capital city region was below the national average.

## HEALTHCARE PROFESSIONALS

Physicians provide services directly to patients as consumers of healthcare. In the context of comparing health care services across EU Member States, Eurostat gives preference to the concept of practising physicians, although data are only available for professionally active or licensed physicians in some Member States (see **Map 3.2** for more details).

### *Germany also recorded the highest number of physicians, although Greece had the highest ratio of physicians per inhabitant*

In 2013, there were approximately 1.7 million physicians in the EU-28. The highest overall number was recorded in Germany (327 thousand), followed at some distance by Italy (235 thousand). On the basis of a comparison relative to population size, Greece recorded the highest number of (professionally active) physicians, at 627 per 100 000 inhabitants, while Lithuania (428), Germany (402) and Sweden (401) were the only other Member States to record in excess of 400 physicians per 100 000 inhabitants.

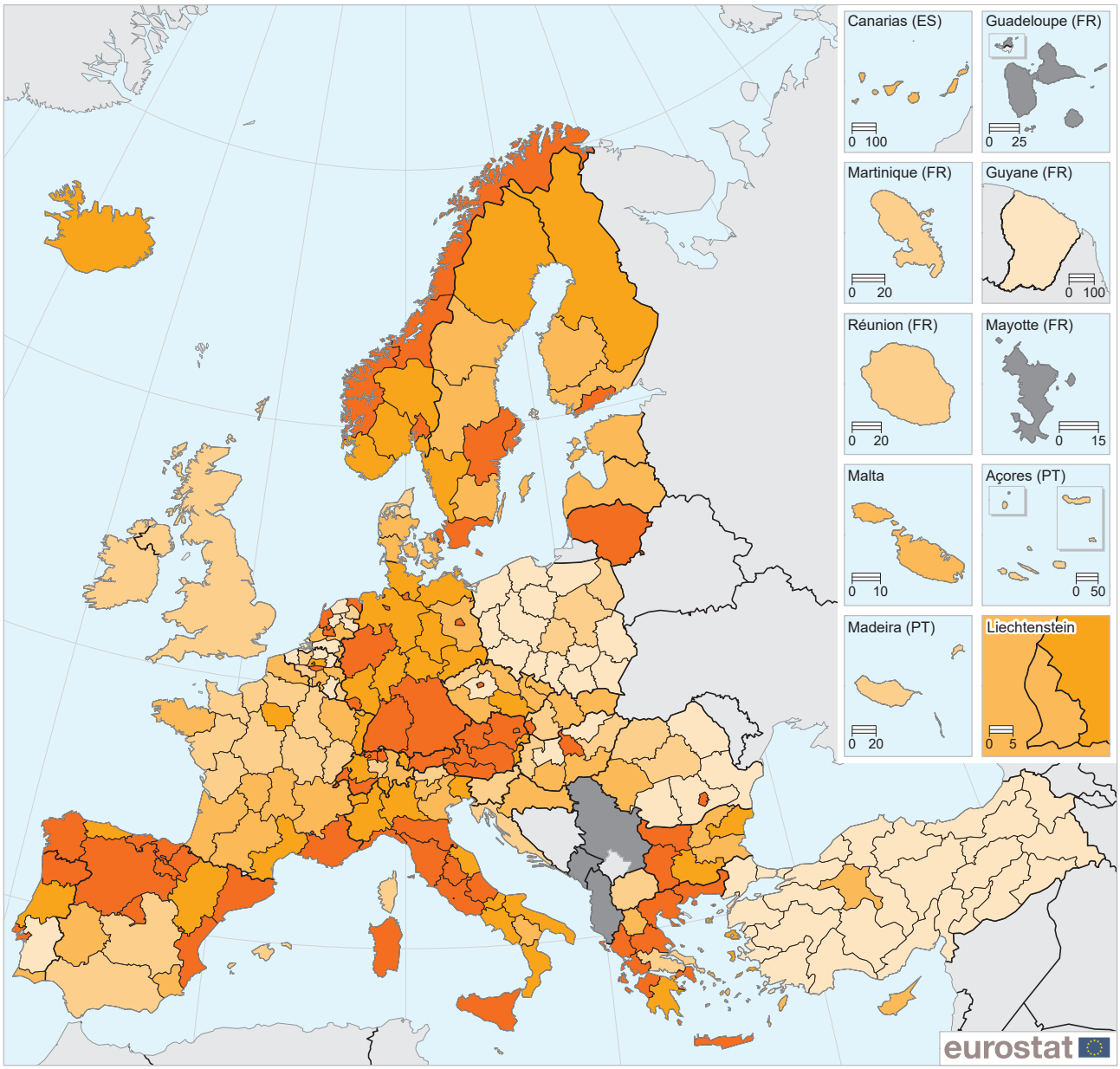
### *There was a particularly high concentration of physicians in capital regions*

**Map 3.2** highlights those regions (shown in the darkest shade) where the density of practising physicians was at least 400 per 100 000 inhabitants; there were 58 of these. Aside from 16 capital city regions, there was a relatively high density of physicians through several southern EU Member States, specifically: the Norte region in Portugal, north-eastern Spain, central Italy and the Italian islands, and much of Greece. There were also a few regions in the Netherlands, Belgium (2012 data) and France, and much of Germany and Austria among the western Member States where the density was high. Furthermore, there were two Bulgarian regions in this category and three Swedish ones (2012 data). A further analysis reveals that in the 19 multi-regional Member States for which data are available at NUTS level 2 (no regional data for Ireland, Slovenia or the United Kingdom), the capital city region had at least 400 physicians per 100 000 inhabitants, with the exceptions of the Île de France, the Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest and Kontinentalna Hrvatska.

The number of physicians per 100 000 inhabitants was particularly high (over 600) in the capital regions of Austria, Slovakia, the Czech Republic and Greece; note that the Greek and Slovakian data relate to professionally active physicians. Aside from these four capital regions, there were only two other NUTS level 2 regions that reported upwards of 600 physicians per 100 000 inhabitants and they were the Greek regions of Kriti and Kentriki Makedonia.

By contrast, the lowest ratios of physicians to population size — below 250 per 100 000 inhabitants — were observed in many regions in Poland, Romania, Belgium (2012 data) and the Netherlands, as well as in two Hungarian regions and one region each from the Czech Republic, France, Portugal and Finland. The lowest rate of all was reported for the Dutch region of Flevoland, at 132.5 physicians per 100 000 inhabitants.

**Map 3.2:** Healthcare personnel — number of (practising) physicians relative to population size, by NUTS 2 regions, 2013 (1)
(number per 100 000 inhabitants)




(number per 100 000 inhabitants)

- < 250
- 250 – < 300
- 300 – < 350
- 350 – < 400
- >= 400
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) In the context of comparing health care services across EU Member States, Eurostat gives preference to the concept of practising physicians. Greece, France, the Netherlands, Slovakia, Finland, the former Yugoslav Republic of Macedonia, Serbia and Turkey: professionally active physicians. Portugal: physicians licensed to practise. Germany: NUTS level 1. Ireland, Slovenia, the United Kingdom and Serbia: national data. Belgium, Denmark and Sweden: 2012. Serbia: 2011. Ireland: estimate.

*Source:* Eurostat (online data code: hlth_rs_prsrg and hlth_rs_prs1)

## Spotlight on the regions: Attiki, Greece

**The highest ratio of (professionally active) physicians per 100 000 inhabitants was recorded in Attiki. The Greek capital city was one of six NUTS level 2 regions across the whole of the EU which recorded more than 600 physicians per 100 000 inhabitants in 2013; these six regions included two further regions from Greece, namely, Kriti and Kentriki Makedonia.**

***Photo*: Nochoje**

## HEALTH STATUS

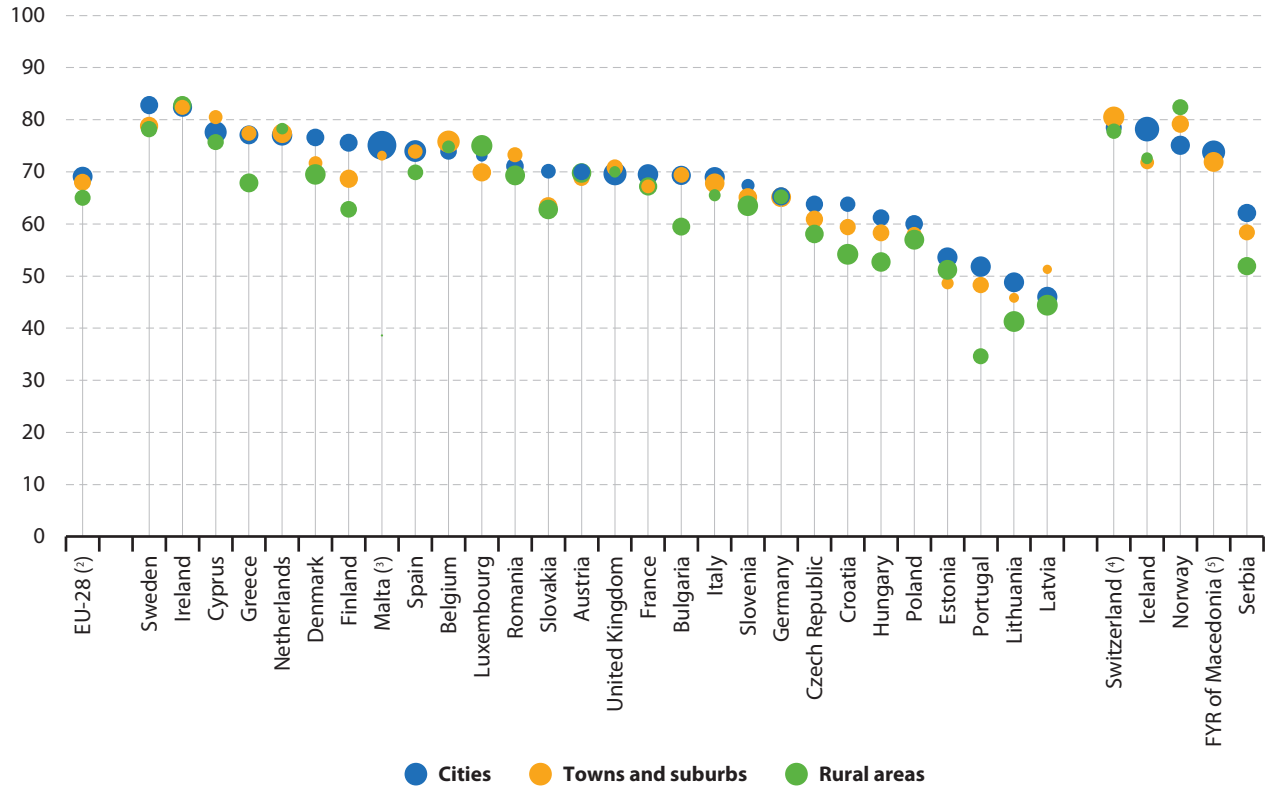
The data presented in **Figures 3.2–3.6** are derived from EU statistics on income and living conditions (EU-SILC), and are analysed according to the degree of urbanisation, with three categories: cities; towns and suburbs; rural areas. These data all relate to self-perceived health matters, namely health status, longstanding health problem or disease (chronic morbidity), activity limitation, and unmet needs for medical or dental examination.

### *The share of the population that perceived their health as very good or good was highest in cities*

In the EU-28, just over two thirds (68 %) of the population aged 16 and over perceived their health as very good or good in 2014, while 23 % perceived it as fair and 10 % as bad or very bad. The share of the population that perceived their health as very good or good was higher in cities (69 %) than it was in rural areas (65 %) as can be seen in **Figure 3.2**. In more than half of the EU Member States, people in cities were most likely to perceive their health as good or very good. The exceptions included the western EU Member States of Ireland, the United Kingdom and the

**Figure 3.2: Proportion of the population aged 16 and over reporting that their health was very good or good, by degree of urbanisation, 2014 (1)**

(%)




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, Albania and Turkey: not available.
(2) Rural areas: estimate.
(3) Rural areas: low reliability.
(4) Population data used to calculate the size of the circles: 2013.
(5) 2011. Rural areas: not applicable.

*Source:* Eurostat (online data codes: hlth_silc_18 and ilc_lvho01)

Benelux Member States, Cyprus and Greece from the south, Bulgaria and Romania from the east, and Latvia from the north. The situation in the Netherlands was the opposite of that observed for the EU-28 as a whole, as the highest proportion of people who perceived their health as very good or good was recorded for those living in rural areas, whereas the lowest rate was recorded for people living in cities; a similar situation was observed in Norway.

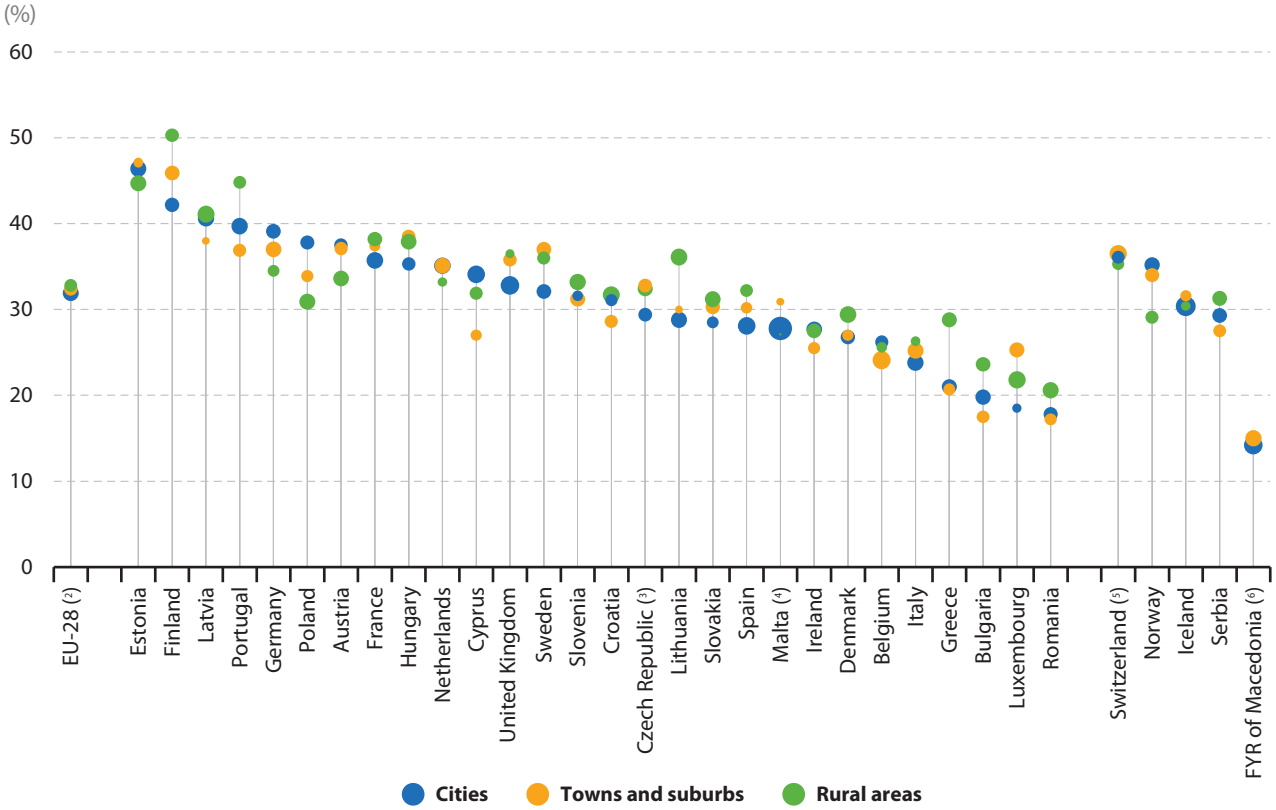
### *There was little difference in the incidence of long-standing illnesses or health problems by degree of urbanisation*

Close to one third (32 %) of the EU-28 population aged 16 and over reported a long-standing illness or health problem in 2014. There was little difference in the incidence of such long-standing illnesses or health problems by degree of urbanisation, with a share of 32 % for those people living in cities as well as in towns and suburbs, and 33 % for those living in rural areas (see **Figure 3.3**). However, a more diverse situation was observed in all of the EU Member States, as even in the Netherlands where the differences by degree of urbanisation were smallest, the gap between the share recorded for people living in rural areas (33 %) and that for people living in cities as well as in towns and suburbs (both 35 %) was greater than in the EU-28 as a whole. Particularly large differences according to the degree of urbanisation were observed in Greece, Finland and Portugal, with the share of people reporting a long-standing illness or health problem highest in rural areas in all three of these Member States. In fact, a small majority of the EU Member States recorded their highest share of people reporting a long-standing illness or health problem in rural areas (which may reflect, to some degree, difficulties related to accessing healthcare services from more remote rural areas).

### *Long-standing limitations in usual activities due to health problems were more common in rural areas*

Long-standing limitations — either some or severe — in usual activities due to health problems were reported by 27 % of the EU-28 population aged 16 and over in 2014: such limitations were more often reported among those people who were living in rural areas (29 %) when compared with those living in towns and suburbs (28 %) or in cities (26 %) — see **Figure 3.4**. In 21 of the 28 EU Member States, people in rural areas were most likely to report long-standing limitations; in Poland, Belgium and Germany the highest proportion

**Figure 3.3: Proportion of the population aged 16 and over having a long-standing illness or health problem, by degree of urbanisation, 2014 (1)**




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, Albania and Turkey: not available.
(2) Estimates.
(3) Low reliability.
(4) Rural areas: low reliability.
(5) Population data used to calculate the size of the circles: 2013.
(6) 2011. Rural areas: not applicable.

*Source:* Eurostat (online data codes: hlth_silc_19 and ilc_lvho01)

of people reporting long-standing limitations were those living in cities, while in Luxembourg, the United Kingdom, Sweden and Estonia the highest shares were recorded among those people living in towns and suburbs. In four of the western Member States — Ireland, Austria, the United Kingdom and Germany — there was only a marginal difference between the shares of people reporting long-standing limitations according to the degree of urbanisation, whereas there was much greater diversity in the rates reported for three southern Member States, Malta, Portugal and Greece.

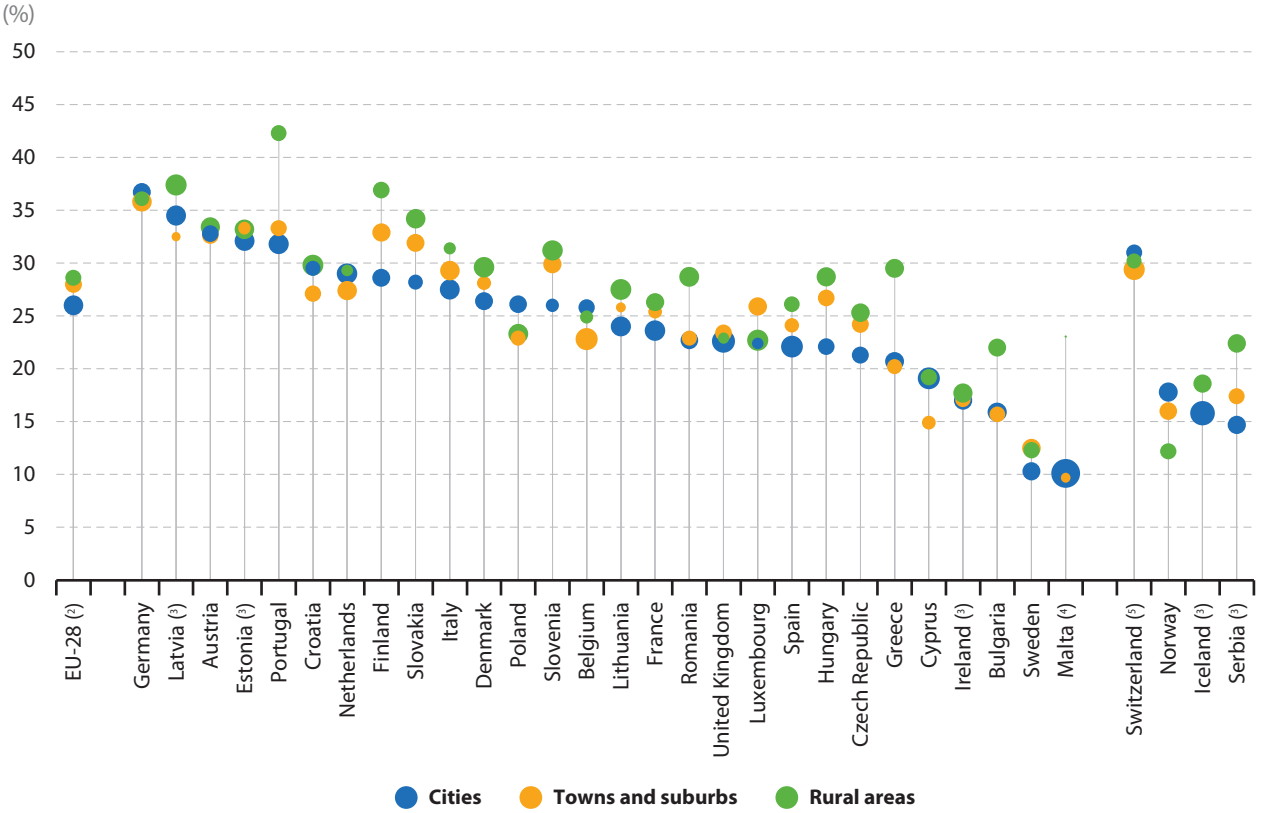
### *Unmet needs due to cost were more common for dental than for medical examinations or treatment*

Unmet needs for medical or dental examinations or treatment may occur for a variety of reasons. Among others, these include cost (too expensive), distance (too far to travel) or waiting lists; the focus of **Figures 3.5** and **3.6** is on unmet needs because of cost.

In 2014, some 6.8 % of the population aged 16 and over in the EU-28 reported that they had unmet needs for medical examinations or treatment. The most common reason for not having a medical examination or treatment was that it was too expensive; this reason alone accounted for one third of all the people who reported an unmet need for medical care, in other words, some 2.4 % of the population. In cities as well as in towns and suburbs 2.3 % of the EU-28 population reported unmet needs for a medical examination due to cost, with this share increasing to 2.7 % in rural areas. Among the EU Member States the situation was less clear cut, with less than half (9) of the Member States reporting that the highest share was clearly in rural areas: each of these was in eastern or southern parts of the EU. In Estonia and Slovenia there was no difference in the share reported for each of the three types of area and similar shares were reported for all three types of area in the United Kingdom, Finland and Sweden. By contrast, the shares by degree of urbanisation varied the most in Romania, Cyprus, Bulgaria and Belgium; there was also a considerable variation in the shares observed in Iceland.

In 2014, some 7.8 % of the population aged 16 and over in the EU-28 reported that they had unmet needs for a dental examination or treatment; as such, the share of the population with unmet needs was greater for dental care than for medical care. The most common reason for unmet needs for dental examination or

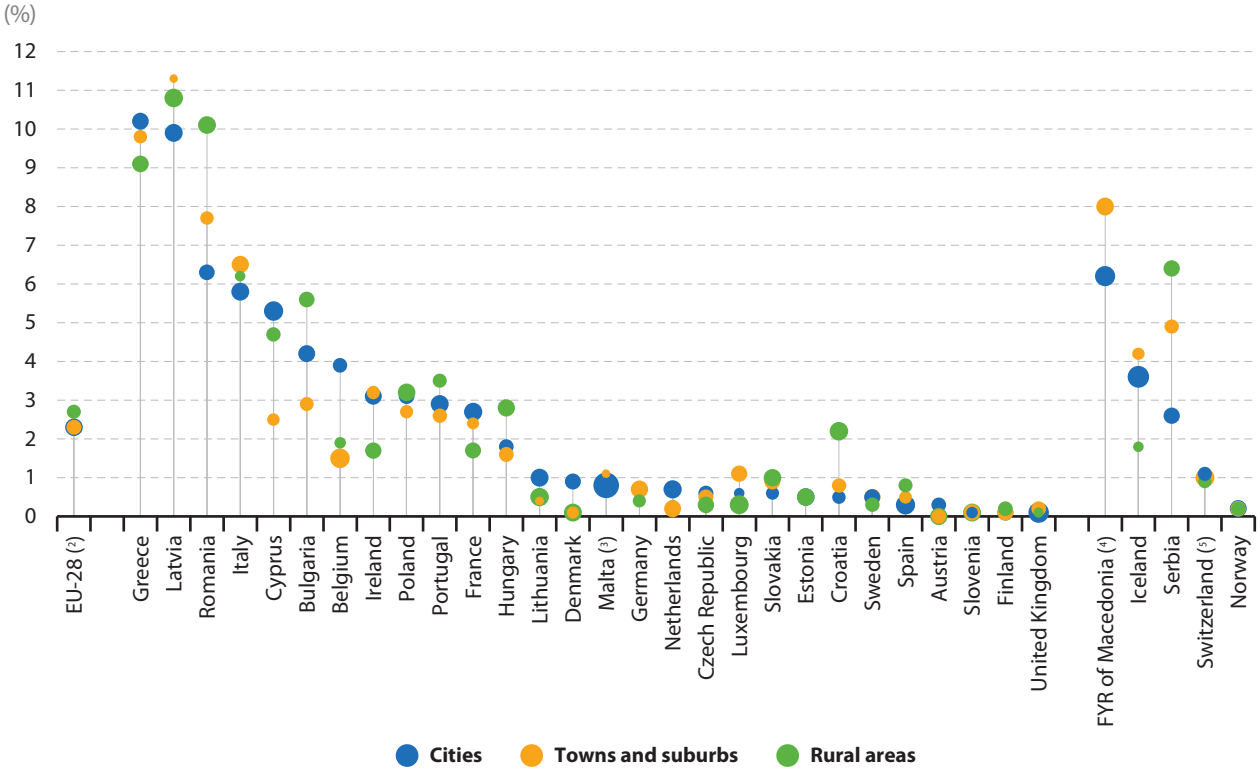
**Figure 3.4: Proportion of the population aged 16 and over reporting (some or severe) long-standing limitations in usual activities due to health problem, by degree of urbanisation, 2014 (1)**




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Albania and Turkey: not available.
(2) Estimates.
(3) 2013.
(4) Rural areas: low reliability.
(5) Population data used to calculate the size of the circles: 2013.

*Source:* Eurostat (online data codes: hlth_silc_20 and ilc_lvho01)

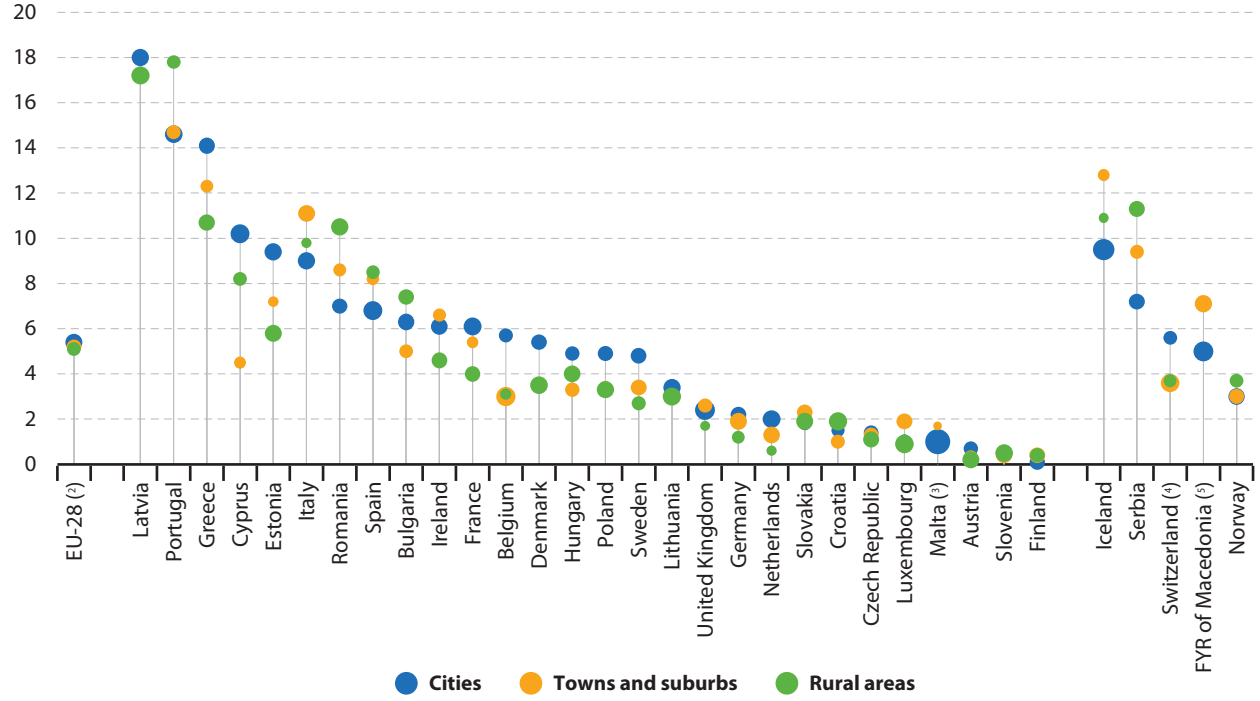
**Figure 3.5:** Proportion of the population aged 16 and over reporting unmet needs for medical examination due to being too expensive, by degree of urbanisation, 2014 (1)




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, Albania and Turkey: not available.
(2) Rural areas: estimate.
(3) Rural areas: low reliability.
(4) 2011. Rural areas: not applicable.
(5) Population data used to calculate the size of the circles: 2013.

*Source:* Eurostat (online data codes: hlth_silc_21 and ilc_lvho01)

**Figure 3.6:** Proportion of the population aged 16 and over reporting unmet needs for dental examination due to being too expensive, by degree of urbanisation, 2014 (1)




(1) The size of each circle reflects the share of that type of area in the national population. Liechtenstein, Montenegro, Albania and Turkey: not available.
(2) Rural areas: estimate.
(3) Rural areas: low reliability.
(4) Population data used to calculate the size of the circles: 2013.
(5) 2011. Rural areas: not applicable.

*Source:* Eurostat (online data codes: hlth_silc_22 and ilc_lvho01)

treatment was the same as it was for unmet medical examinations, namely, that it was too expensive; this reason alone accounted for two thirds of all the people who reported an unmet need for dental examination or treatment, equivalent to 5.3 % of the EU-28 population. In contrast to the situation for medical examinations, the share of people in the EU-28's rural areas with unmet needs for dental examinations due to cost (5.1 %) was slightly lower than in towns and suburbs (5.2 %) and cities (5.4 %). In a small majority of EU Member States, the highest share of people with unmet needs for dental examinations due to cost was recorded among those living in cities, with the remaining Member States fairly evenly split between the two other types of areas. The greatest variations by degree of urbanisation were observed for Cyprus, where the share (10.2 %) of people living in cities with unmet needs for a dental examination or treatment was 5.7 percentage points higher than among those living in towns and suburbs.

## Causes of death

Slightly fewer than five million people died in the EU-28 in 2013, which equates to a crude death rate of 984 deaths per 100 000 inhabitants (or almost 1 % of the population). In the same year (2013), the three leading causes of death in the EU-28 were: diseases of the circulatory system (369 deaths per 100 000 inhabitants); deaths from cancer (255 deaths per 100 000 inhabitants); and diseases of the respiratory system (79 deaths per 100 000 inhabitants).

Many factors determine mortality patterns — intrinsic ones, such as age and sex, as well as extrinsic ones, such as environmental or social factors and living/working conditions — while individual factors, such as lifestyle, smoking, diet, alcohol consumption or driving behaviour, may also play a role.

### DISEASES OF THE CIRCULATORY SYSTEM

There are a range of medical problems that affect the circulatory system (the heart, blood vessels and arteries), often resulting from the abnormal build-up of plaque that is made of, among others, cholesterol or fatty substances, deposited on the inside walls of a person's arteries. Some of the most common diseases that affect the circulatory system include ischaemic heart disease (heart attacks) and cerebrovascular diseases (strokes).

Exercise, diet, smoking and stress can all have a positive or negative impact upon death rates from diseases of the circulatory system. Indeed, diet is thought to play an important role, as death rates tend to be higher in those regions characterised by people consuming large amount of saturated fats, dairy products and (red) meat.

Regional statistics on the causes of death are only available (at the time of drafting) for 2012, when there were 1.9 million deaths resulting from diseases of the circulatory system in the EU-28, which was equivalent to 37.9 % of all deaths and a crude death rate of 375 per 100 000 inhabitants. **Map 3.3** shows there was an east–west split in crude death rates from diseases of the circulatory system across EU regions. The highest death rates were often recorded in regions located in one of the Member States that joined the EU in 2004 or later (with the exception of the Mediterranean islands of Cyprus and Malta).

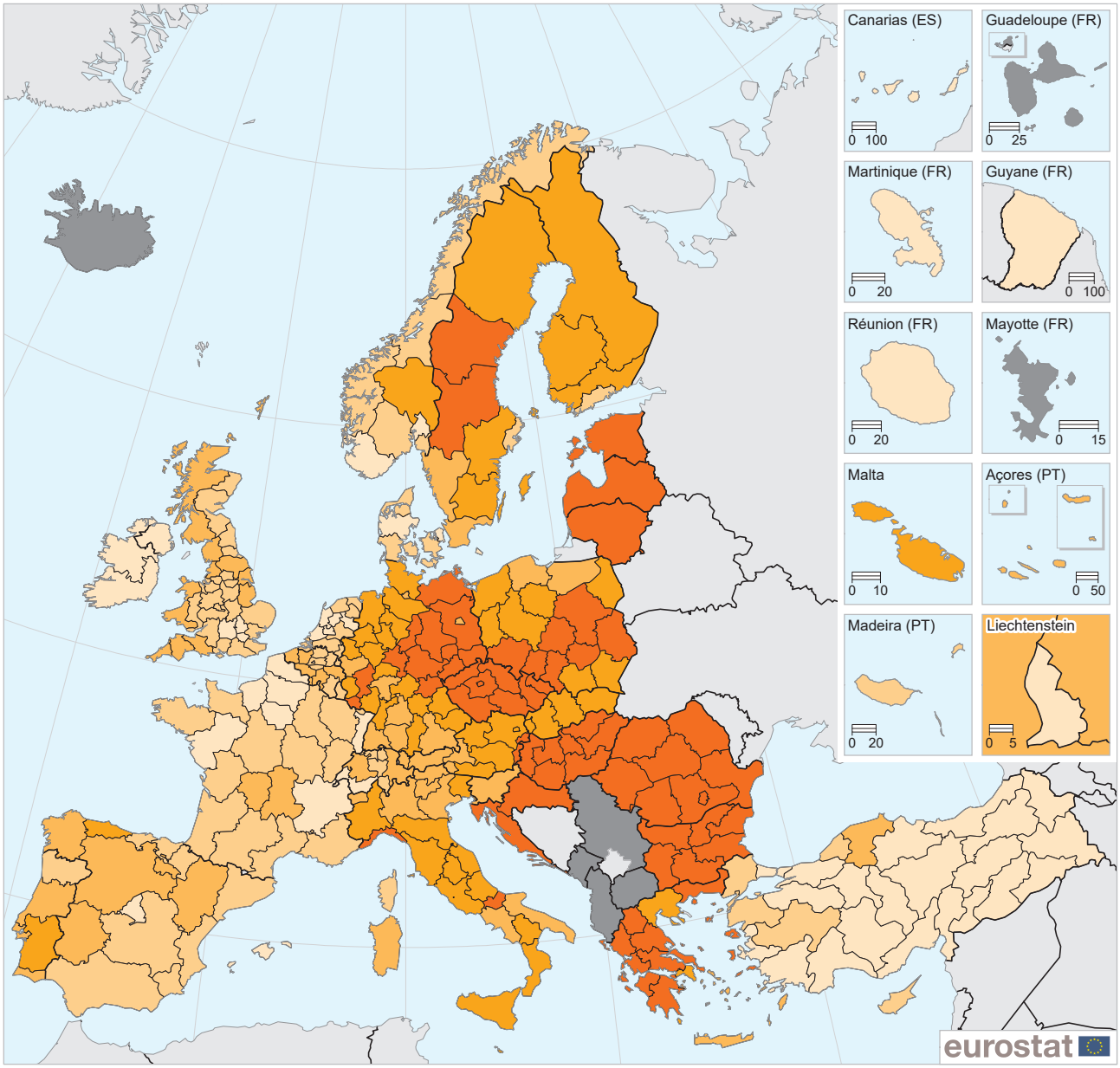
***Bulgarian and Romanian regions had the highest crude death rates attributed to diseases of the circulatory system***

Looking in more detail, there were three NUTS level 2 regions in Bulgaria — Yugoiztochen, Severen tsentralen and Severozapaden — where the crude death rate for diseases of the circulatory system reached over 1 000 deaths per 100 000 inhabitants (in other words, more than 1 % of the population died from these diseases in 2012). All six Bulgarian regions were present among the eight regions in the EU with the highest crude death rates from diseases of the circulatory system. They were joined by the Romanian regions of Sud-Vest Oltenia and Sud - Muntenia which both share a border with Bulgaria. Aside from these eight regions, the next highest crude death rates for diseases of the circulatory system were recorded in: the other six Romanian regions; the Baltic Member States (all single regions at this level of NUTS detail); all seven Hungarian

## Collecting and using statistics on the causes of death

Statistics on causes of death provide information about diseases (and other eventualities, such as suicide or transport accidents) that lead directly to death; they can be used to help plan health services. These statistics refer to 'the underlying disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of an accident or an act of violence which produced a fatal injury'; they are classified according to a European shortlist of 86 different causes of death which is based on the International Statistical Classification of Diseases and Related Health Problems (ICD), developed and maintained by the World Health Organisation (WHO).

**Map 3.3:** Number of deaths from diseases of the circulatory system relative to population size, by NUTS 2 regions, 2012 (1)
(crude death rates per 100 000 inhabitants)




(crude death rates per 100 000 inhabitants)

EU-28 = 375

| | |
|---|---|
| < 230 | 380 – < 480 |
| 230 – < 290 | >= 480 |
| 290 – < 380 | Data not available |

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

(1) In theory a comparison of data across the regions should be done on the basis of standardised death rates since these take into account demographic differences between regions. However, standardised deaths rates might also be more volatile (due to their specific weighting scheme) and hence these data are only published on the basis of a three-year average. With the introduction of new legislation for the data collection exercise for the 2011 reference year, at the time of drafting a three-year time series was not available. As a result, use has been made during this interim period of the crude death rates for the purpose of the analysis presented in this chapter. London (the United Kingdom): NUTS level 1. Slovenia and Serbia: national data.

*Source:* Eurostat (online data code: hlth_cd_acdr2)

regions; the east German regions of Chemnitz and Sachsen-Anhalt; and the Croatian capital city region of Kontinentalna Hrvatska; there were also very high crude death rates for diseases of the circulatory system in Serbia (only national data available).

***Some of the lowest death rates from diseases of the circulatory system were recorded in the French overseas regions***

Two factors other than diet that are often cited as an explanation for patterns of regional death rates from diseases of the circulatory system are access to and the availability of hospital treatment. The lowest death rates from diseases of the circulatory system are often registered in capital city regions and other urban regions, where patients in need of rapid medical assistance — for conditions such as heart attacks or strokes — can expect to travel relatively short distances to receive attention in relatively well-equipped hospitals.

However, across NUTS level 2 regions, the lowest crude death rate from diseases of the circulatory system was recorded in the French overseas region of Guyane (58 deaths per 100 000 inhabitants in 2011). The next lowest rates were also in French départements d'outre-mer: Martinique and La Réunion. Aside from these three French regions, the 10 regions with the lowest rates also included three capital city regions — London (NUTS level 1), the Île de France and the Comunidad de Madrid — the Dutch regions of Flevoland and Utrecht, and the Spanish regions of Canarias and Ciudad Autónoma de Melilla.

There was a considerable difference between the highest and lowest crude death rates from diseases of the circulatory system across NUTS level 2 regions. The highest death rates were recorded in the Bulgarian region of Severozapaden (1 335 deaths per 100 000 inhabitants), which was 10.1 times as high as in the French capital city region (132 deaths per 100 000 inhabitants), where the lowest death rate — excluding the French overseas regions — was recorded.

***Crude death rates for diseases of the circulatory system generally higher for women than for men, particularly in Germany, Austria and Slovenia***

In the EU-28 as a whole, the crude death rate for diseases of the circulatory system in 2012 was 401.1 deaths per 100 000 inhabitants for women while it was 348.6 per 100 000 for men, a difference of 52.6 deaths per 100 000 inhabitants.

**Figure 3.7** shows the regions with the largest gender gaps for the crude death rate for diseases of the circulatory system, both in terms of higher rates for women and higher rates for men. Among the 310 NUTS regions in the EU, EFTA and candidate countries for which data are available, there were 45 where men recorded higher death rates than women, the majority of which were in the United Kingdom or Turkey; this list also included three of the five Danish regions, both Irish regions, Cyprus, Malta, Liechtenstein (each one region at this level of detail) and two of the three French départements d'outre-mer for which data are available.

In the vast majority of regions, crude death rates for diseases of the circulatory system were higher for women. In 46 of the regions, the crude death rate for women for this disease was at least 100.0 deaths per 100 000 inhabitants higher than the rate for men. Nearly half (22) of these 46 regions were in Germany, with five more each in Austria, Hungary and northern Italy, while the three Baltic Member States (each one region at this level of detail) and Slovenia (only national data available) were also in this list. The 10 regions with the largest gender gaps (with higher death rates for women) were all in Germany, Austria and Slovenia, shown in **Figure 3.7**.

## CANCER (MALIGNANT NEOPLASMS)

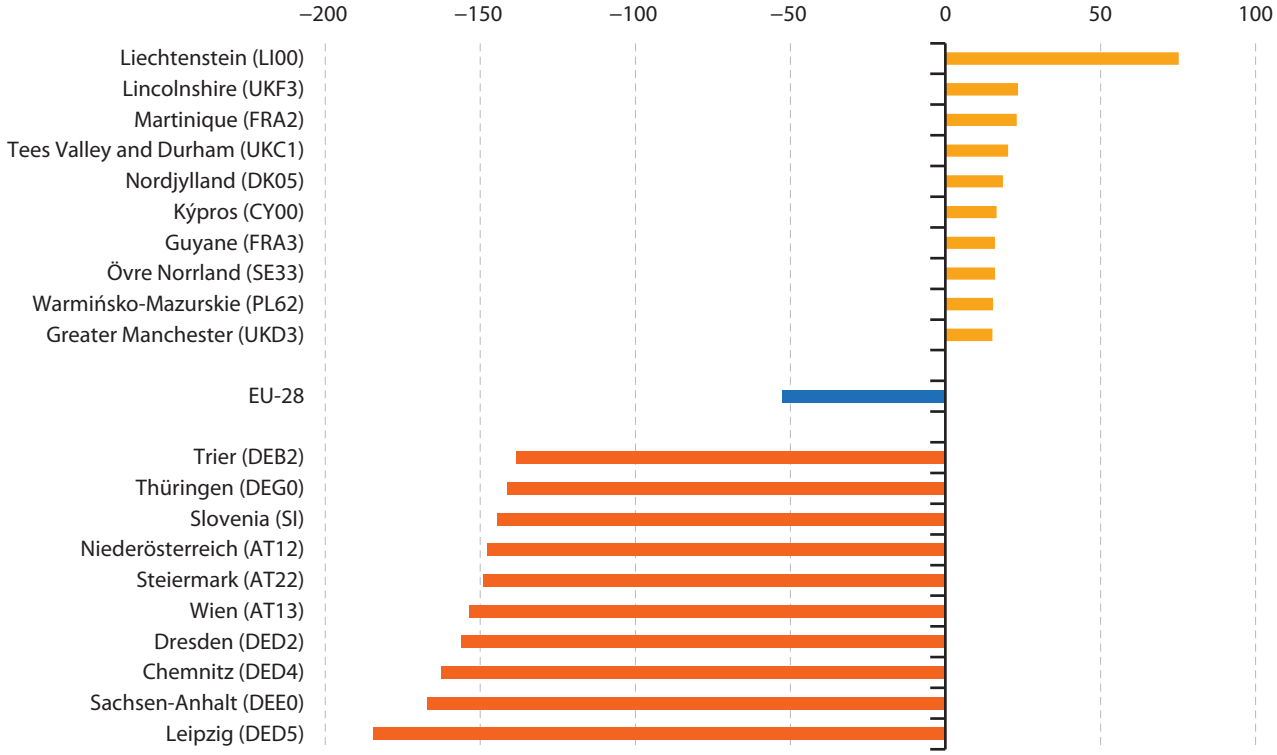
Although significant advances have been made in the fight against cancer, it remains a key public health concern and a considerable burden on societies across the EU. It is the second largest cause of death: in 2012, more than one and a quarter million residents of the EU-28 died from cancer, just over one quarter (26.0 %) of all deaths.

***All of the regions in Croatia and in Hungary recorded very high crude death rates from cancer***

The regional distribution of crude death rates from cancer was more mixed than that for diseases of the circulatory system, both across EU Member States and between regions of the same Member State.

Nevertheless, one of the similarities was that some of the highest crude death rates from cancer were recorded in eastern EU Member States, particularly in Hungary where all seven regions had crude rates that were at least 325 per 100 000 inhabitants, while both Croatian regions recorded rates just below this level.

**Figure 3.7: Gender gap for the crude death rates for diseases of the circulatory system, by NUTS 2 regions, 2012 (1)**
(crude death rate per 100 000 inhabitants for men — crude death rate per 100 000 inhabitants for women)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue). In theory a comparison of data across the regions should be done on the basis of standardised death rates since these take into account demographic differences between regions. However, standardised deaths rates might also be more volatile (due to their specific weighting scheme) and hence these data are only published on the basis of a three-year average. With the introduction of new legislation for the data collection exercise for the 2011 reference year, at the time of drafting a three-year time series was not available. As a result, use has been made during this interim period of the crude death rates for the purpose of the analysis presented in this chapter. London (the United Kingdom): NUTS level 1. Slovenia and Serbia: national data. Guadeloupe and Mayotte (France), Iceland, Montenegro, the former Yugoslav Republic of Macedonia and Albania: not available.

*Source:* Eurostat (online data code: hlth_cd_acdr2)

### *North–south divide in crude death rates from cancer within Spain, Germany and Italy*

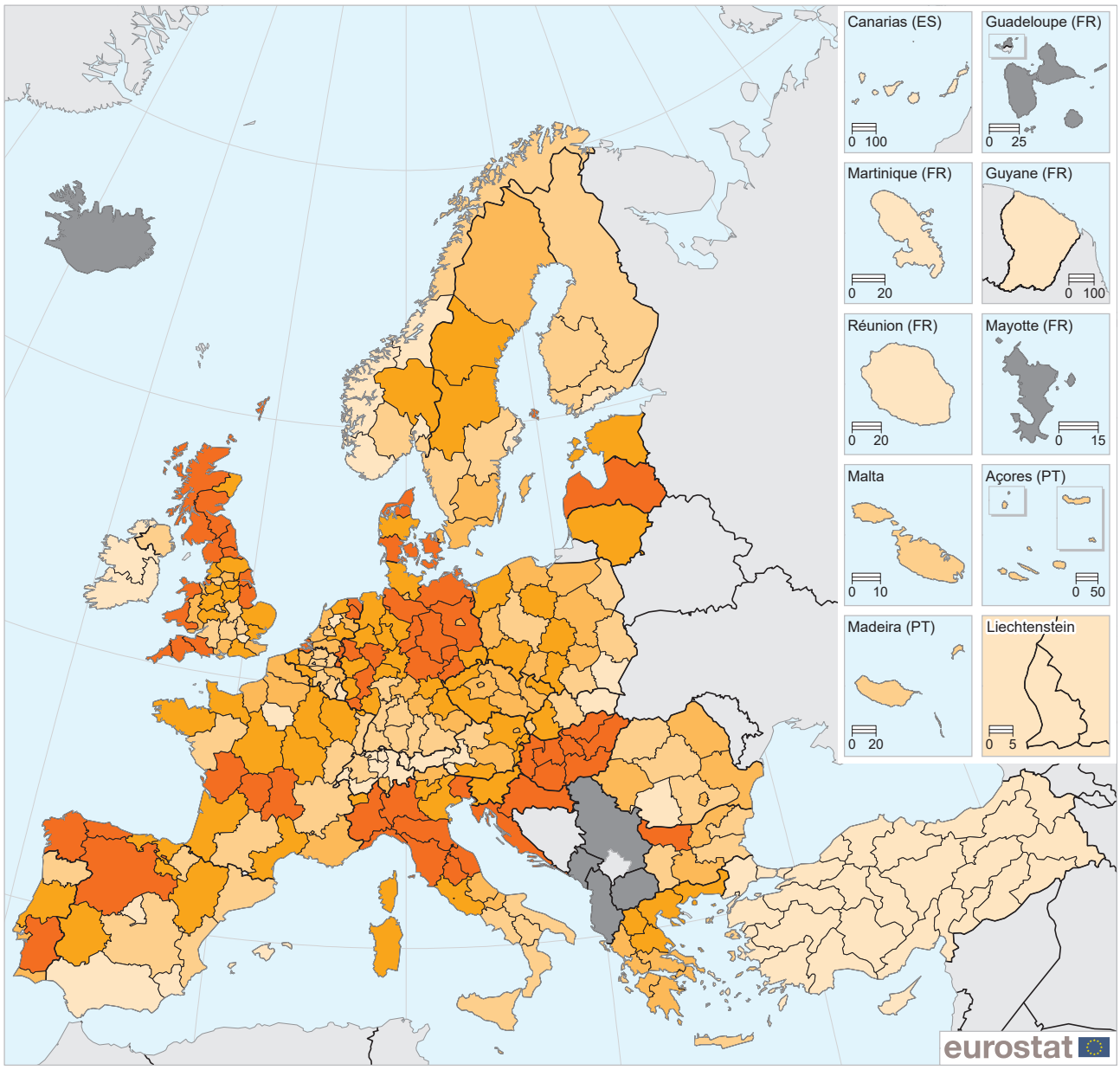
Germany and the United Kingdom had the largest number of regions with crude death rates for cancer that were at least 290 per 100 000 inhabitants (the darkest shade in **Map 3.4**), each with 13 regions in this class, followed by Italy (eight regions), the Netherlands (four regions), Denmark, Spain and France (each with three regions); also in this class were the Portuguese region of Alentejo, the Finnish region of Åland, and Latvia (one region at this level of detail).

It is interesting to note that crude death rates from cancer in the northern halves of Spain, Germany and Italy were considerably higher than the rates that were recorded in southern regions. For example, the highest crude death rate from cancer among any of the NUTS level 2 regions in the EU was recorded in the northern Italian region of Liguria (364 deaths per 100 000 inhabitants in 2012), which could be contrasted with a relatively low crude death rate in the southern Italian region of Calabria (230 deaths per 100 000 inhabitants).

There were also considerable disparities in crude death rates from cancer between the regions of France and those of the United Kingdom. For example, three French regions had crude death rates of at least 300 deaths per 100 000 inhabitants, while the three départements d'outre-mer for which data are available and the capital city region of the Île de France had rates that were below 215 per 100 000 inhabitants (shown in the lightest shade in **Map 3.4**). In the United Kingdom, crude death rates from cancer of at least 290 per 100 000 inhabitants were recorded for many regions in contrast to a rate of just 168 deaths per 100 000 inhabitants in London (NUTS level 1).

Indeed, it was not uncommon to find the lowest regional death rates from cancer reported for capital city regions, as, along with the United Kingdom, this was also the case for Belgium, Denmark, Ireland, Finland and Sweden.

**Map 3.4:** Number of deaths from cancer (malignant neoplasms) relative to population size, by NUTS 2 regions, 2012 (1)
(crude death rates per 100 000 inhabitants)




(crude death rates per 100 000 inhabitants)

EU-28 = 256

| | |
|---|---|
| < 215 | 260 – < 290 |
| 215 – < 245 | >= 290 |
| 245 – < 260 | Data not available |

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

(1) In theory a comparison of data across the regions should be done on the basis of standardised death rates since these take into account demographic differences between regions. However, standardised deaths rates might also be more volatile (due to their specific weighting scheme) and hence these data are only published on the basis of a three-year average. With the introduction of new legislation for the data collection exercise for the 2011 reference year, at the time of drafting a three-year time series was not available. As a result, use has been made during this interim period of the crude death rates for the purpose of the analysis presented in this chapter. London (the United Kingdom): NUTS level 1. Slovenia and Serbia: national data.

*Source:* Eurostat (online data code: hlth_cd_acdr2)

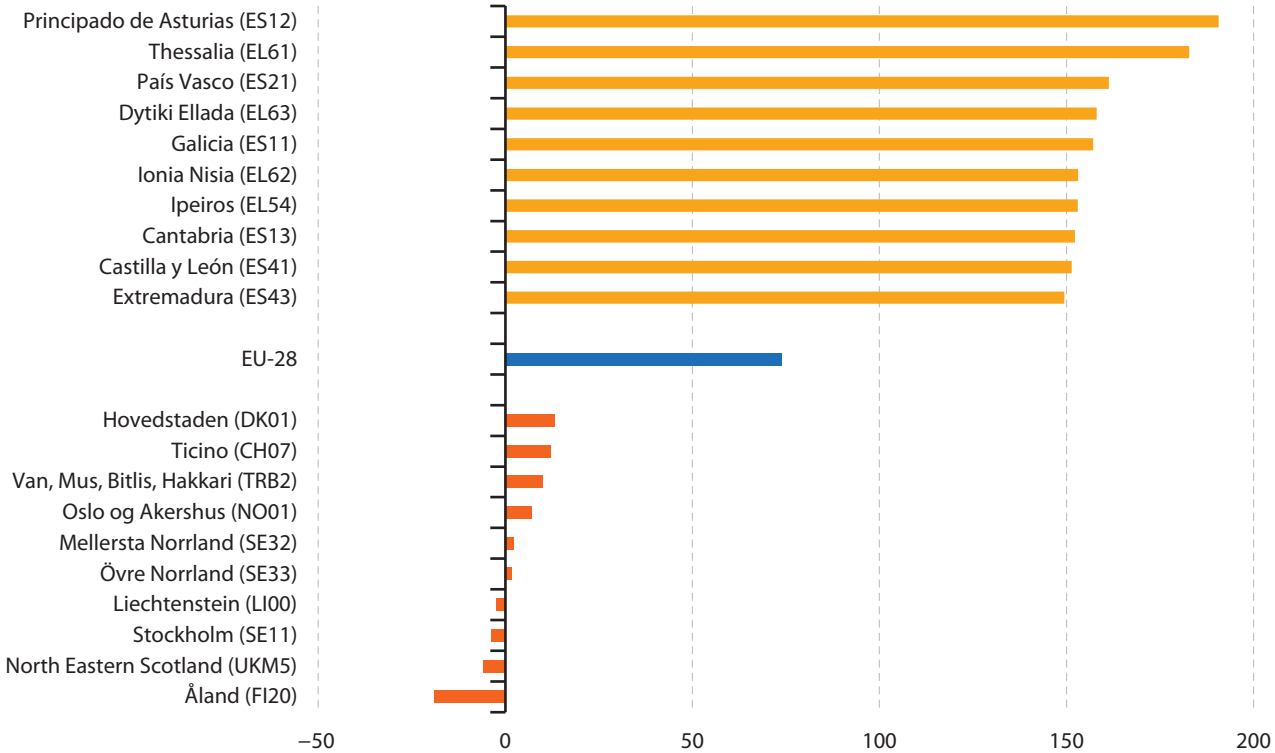
### *Crude death rates for cancer often lower in capital city regions*

In 2012, the crude death rate for cancer in the EU-28 was 293.6 deaths per 100 000 inhabitants for men while it was 219.6 per 100 000 for women, a difference of 74.0 deaths per 100 000 inhabitants.

**Figure 3.8** shows the regions with the largest gender gaps for the crude death rate for cancer among the 310 regions in the EU, EFTA and candidate countries for which data are available. It presents the 10 regions where the rates for men were much higher than for women, as well as the four regions where rates for women were higher than those for men; the latter is complemented by the six regions where the rates for men were only slightly higher than those for women. Among the 10 regions where the rate for women was higher than the rate for men or where the rate for men was only slightly higher than that for women, there were three capital city regions, all in northern Europe: Sweden, Norway and Denmark. In fact, among the 24 multi-regional countries considered for the figure, half of them reported that their capital city region had the lowest gender gap for crude death rates for cancer and in none of them did the capital city region have the highest gender gap.

In 71 of the regions, the crude death rate for men for cancer was at least 100.0 deaths per 100 000 inhabitants higher than the rate for women and these were mainly in France or southern and eastern Europe: 14 of the 25 French regions for which data are available, all 13 Greek regions, 13 of the 19 Spanish regions, six of the seven Portuguese regions, 6 of the 21 Italian regions, six of the seven Hungarian regions, six of the eight Romanian regions, two of the six Bulgarian regions, both Croatian regions, and one Turkish region. Outside these areas, the only other regions in the list were Chemnitz in eastern Germany and Lithuania (one region at this level of detail). The 10 regions with the highest gender gaps (higher crude death rates for men) were all located in Greece or Spain, as can be seen from **Figure 3.8**.

**Figure 3.8: Gender gap for the crude death rates for cancer (malignant neoplasms), by NUTS 2 regions, 2012 (1)**
(crude death rate per 100 000 inhabitants for men — crude death rate per 100 000 inhabitants for women)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue). In theory a comparison of data across the regions should be done on the basis of standardised death rates since these take into account demographic differences between regions. However, standardised deaths rates might also be more volatile (due to their specific weighting scheme) and hence these data are only published on the basis of a three-year average. With the introduction of new legislation for the data collection exercise for the 2011 reference year, at the time of drafting a three-year time series was not available. As a result, use has been made during this interim period of the crude death rates for the purpose of the analysis presented in this chapter. London (the United Kingdom): NUTS level 1. Slovenia and Serbia: national data. Guadeloupe and Mayotte (France), Iceland, Montenegro, the former Yugoslav Republic of Macedonia and Albania: not available.

*Source:* Eurostat (online data code: hlth_cd_acdr2)

# Data sources and availability

## Healthcare resources

Non-expenditure healthcare data, shown here for hospital beds and the number of physicians, are submitted to Eurostat on the basis of a gentlemen's agreement, without a legal obligation, as there is currently no implementing legislation covering statistics on healthcare resources as specified within Regulation (EC) No 1338/2008.

Data on healthcare resources are mainly based on national administrative sources and therefore reflect country-specific ways of organising health care and may not always be completely comparable; a few countries compile their statistics from surveys.

Statistics on the availability of hospital beds should ideally cover all hospitals, including general hospitals, mental health and substance abuse hospitals, and other specialty hospitals. These statistics provide information on healthcare capacities, in other words, the maximum number of patients who can be treated in hospitals. Hospital beds (occupied or unoccupied) are defined as those which are regularly maintained and staffed and immediately available for the care of patients admitted to hospitals.

Information pertaining to healthcare staff, in the form of human resources available for providing healthcare services, is provided irrespective of the sector of employment (in other words, regardless of whether the personnel are independent, employed by a hospital, or any other healthcare provider). Three main concepts are used: practising physicians provide services directly to patients; professionally active physicians include those who practise, as well as those working in administration and research with their medical education being a pre-requisite for the job they carry out; physicians licensed to practise are those entitled to work as physicians plus, for example, those who are retired. Eurostat collects data for all three concepts, but for an analysis of the availability of healthcare resources gives preference to the concept of practising physicians. In **Map 3.2**, data for Greece, France, the Netherlands, Slovakia, Finland, the former Yugoslav Republic of Macedonia, Serbia and Turkey concern professionally active physicians, while the data for Portugal refers to physicians who are licensed to practise.

Within this chapter, non-expenditure healthcare data are generally presented for NUTS level 2 regions, with the exception of Germany (NUTS level 1 regions for both indicators), Ireland (national level for the number of physicians), Slovenia, the United Kingdom and Serbia (each of which has national data for both indicators).

## Health status

The data used in the chapter concerning self-perceived health and chronic morbidity are derived from EU statistics on income and living conditions (EU-SILC). This source is documented in detail in a background article on Statistics Explained which provides information on the scope of the data, its legal basis, the methodology employed, as well as related concepts and definitions (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Health_variables_in_SILC_-_methodology) .

The general coverage of EU-SILC is all private households and their members (who are residents at the time of data collection); it therefore excludes people living in collective households. Data refer to the population aged 16 years or over.

## Causes of death

Up until 2010, the EU Member States provided regional health statistics on the basis of a gentlemen's agreement, in other words, without a legal obligation. Since reference year 2011, these data have been provided under a specific legal basis, Regulation No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on Community statistics on public health and health and safety at work and implementing Regulation No 328/2011 of 5 April 2011 on Community statistics on public health and health and safety at work, as regards statistics on causes of death. At the time of drafting, regional statistics were only available under this new legal basis for two reference periods, 2011 and 2012. Data presented on causes of death are generally available for NUTS level 2 regions, covering the resident population of each territory.

Causes of death statistics are based on two pillars:

- medical information on death certificates, which may be used as a basis for ascertaining the cause of death; and
- the coding of causes of death following the International Statistical Classification of Diseases and Related Health Problems (ICD).

The medical certification of death is an obligation in all EU Member States. The information provided on death certificates is used to code the cause of death: there are 86 diseases (and other causes) that form part of the European shortlist for causes of death (2012), based on the international statistical classification of diseases and related health problems.

The crude death rate describes mortality in relation to the total population (expressed as the number of deaths per 100 000 inhabitants); its calculation is based on annual average population statistics that are available in Eurostat's demography database. Crude death rates can be strongly influenced by population structure, as mortality is generally higher among older age groups; as such, those regions with a relatively old population structure are likely to experience more deaths than regions with younger population structures. Crude death rates can be adjusted to reflect differences in population structures, in the form of standardised death rates. These are expected to be available, at a regional level, once a time series for three consecutive reference periods has been collected; the first such data should therefore cover the period 2011–13.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. The data concerning regional healthcare resources presented for NUTS level 2 in **Maps 3.1** and **3.2** and **Figure 3.1** were converted from NUTS 2010. This conversion has had the following consequences: data for the French region of Guadeloupe are not available, only national data are available for Slovenia. The data concerning regional causes of death presented for NUTS level 2 in **Maps 3.3** and **3.4** and **Figures 3.7** and **3.8** were converted from NUTS 2010. This conversion has had the following consequences: data for the French region of Guadeloupe are not available, only national data are available for Slovenia, and data for London are shown at NUTS level 1.

# 4 Education and training

Education, vocational training and more generally lifelong learning play a vital role in the economic and social strategies of the European Union (EU).

Eurostat compiles and publishes education and training statistics for EU Member States and their regions; in addition, information is available for EFTA and candidate countries. This chapter presents data for: participation rates among four year-olds, students in vocational training, the proportion of early leavers from education and training, the share of young people neither in employment nor in education or training (NEET), and the share of persons aged 30–34 with a tertiary level of educational attainment. These statistics are generally presented for NUTS level 2 regions, although data on participation are only available for NUTS level 1 regions for Germany and the United Kingdom while for Croatia only national data are available.

Education and training are crucial for both economic and social progress, and aligning skills with labour market needs plays a key role in this. This is increasingly important in a globalised and knowledge-driven economy, where a skilled workforce is necessary to compete in terms of productivity, quality, and innovation.

Each EU Member State is largely responsible for its own education and training systems and its content of teaching programmes (curricula). The EU supports national actions and helps Member States to address common challenges through what is known as the 'open method of coordination': it provides a policy forum for discussing topical issues (for example, ageing societies, skills deficits, or global competition) and allows Member States the opportunity to exchange best practices.

## Education and training 2020 (ET 2020)

A strategic framework for European cooperation in education and training (ET 2020) formed a set of Council conclusions (2009/C 119/02) adopted in May 2009. It sets out four strategic objectives for education and training in the EU: making lifelong learning and mobility a reality; improving the quality and efficiency of education and training; promoting equality, social cohesion and active citizenship; and enhancing creativity and innovation (including entrepreneurship) at all levels of education and training. To reach these objectives, ET 2020 set a number of benchmarks which are subject to regular statistical monitoring and reporting, including the following targets to be achieved by 2020, namely that:

- at least 95 % of children between the age of four and the age for starting compulsory primary education should participate in early childhood education;
- the share of 15 year-olds with insufficient abilities in reading, mathematics and science should be less than 15 %;
- the share of early leavers from education and training should be less than 10 %;
- the share of 30–34 year-olds with tertiary educational attainment should be at least 40 %;
- at least 15 % of adults aged 25–64 should participate in lifelong learning;
- at least 20 % of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 European credit transfer and accumulation system (ECTS) credits or lasting a minimum of three months;
- at least 6 % of 18–34 year-olds with an initial vocational education and training qualification should have had an initial vocational education and training (VET) related study or training period (including work placements) abroad lasting a minimum of two weeks;
- the share of graduates (20–34 year-olds) having left education and training no more than three years before the reference year that are in employment should be at least 82 %.

In 2014, the European Commission and the EU Member States engaged in a stocktaking exercise to assess progress made and consider any new priorities for EU-wide cooperation in education. Drawing on this work, the European Commission made a proposal for six new priorities covering the period 2016–20, which was adopted in November 2015 under the title Joint report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020) — New priorities for European cooperation in education and training. The six new priority areas concern:

- relevant and high-quality knowledge, skills and competences developed through lifelong learning, focusing on learning outcomes for employability, innovation, active citizenship and well-being;
- inclusive education, equality, equity, non-discrimination and the promotion of civic competences;
- open and innovative education and training, including by fully embracing the digital era;
- strong support for teachers, trainers, school leaders and other educational staff;
- transparency and recognition of skills and qualifications to facilitate learning and labour mobility;
- sustainable investment, quality and efficiency of education and training systems.

# Main statistical findings

In 2014, figures for the EU-28 indicate that there were approximately 107 million children, pupils and students enrolled across the whole education system, from pre-primary education through to postgraduate studies (ISCED levels 02–8).

## Participation of four year-olds in education

Early childhood and primary education play an essential role in tackling inequalities and raising proficiency in basic competences. Policymakers argue that a higher proportion of young children should be encouraged to attend pre-school education rather than informal, non-professional care. The education and training 2020 (ET 2020) strategic framework has set a headline target, whereby at least 95 % of children between the age of four and the age for starting compulsory primary education should participate in early childhood education. Note the legal age for starting within the education systems of the EU Member States varies somewhat: compulsory education begins at age four in Luxembourg and Northern Ireland (the United Kingdom), while in other EU regions/Member States it starts between five and seven years of age. Enrolment in pre-primary education is generally voluntary across most of the Member States.

In 2014, there were just over five million children aged four who were enrolled in some form of early childhood or primary education (as defined by ISCED levels 0–1); only a very small share of these (52 thousand) attended primary education.

***A large majority of the regions in France and the United Kingdom reported that practically all four year-olds participated in early childhood education or primary education***

The darkest shade of orange in **Map 4.1** shows those NUTS level 2 regions where participation rates of four year-olds were particularly high; note that data for Germany and the United Kingdom are presented for NUTS level 1 regions and that only national data are available for Croatia. Participation rates of four year-olds were at least 98 % in 63 out of the 224 EU regions shown (no data available for Mayotte, France). The highest rates were concentrated across France and the United Kingdom, while there were also high rates in a number of regions in southern Italy, parts of Germany, Spain and Belgium (principally in Flanders), as well as a few regions in mainland Denmark, Ireland (Border, Midland and Western), northern Italy (Provincia Autonoma di Trento and Provincia Autonoma di Bolzano/Bozen), Austria (Burgenland) and Portugal (Alentejo); the two most northerly regions in Norway (Trøndelag and Nord-Norge) also recorded rates of at least 98 %.

***Athens had the lowest participation rate for four year-olds in early childhood education and primary education***

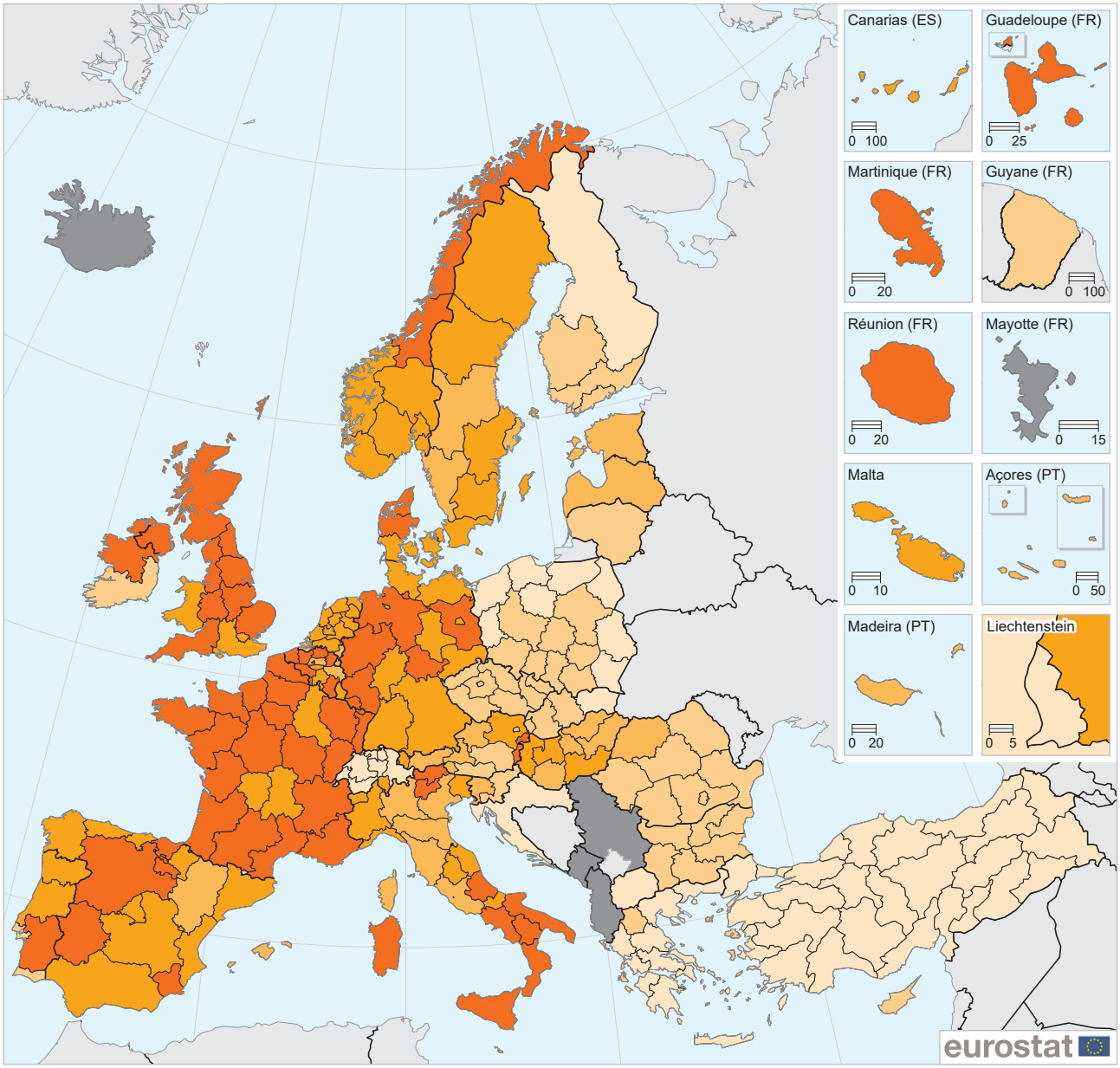
By contrast, **Map 4.1** shows a very clear east–west split as participation rates were generally much lower in most eastern regions of the EU, as well as in the Baltic Member States (each of which is a single region at this level of analysis). Those regions characterised by the

## Defining early childhood and primary education

Early childhood education (ISCED level 0) is typically designed with a holistic approach to support children's early cognitive, physical, social and emotional development and introduce young children to organised instruction outside of the family context. There are two categories of ISCED level 0 programmes: early childhood educational development and pre-primary education. The former has educational content designed for younger children (in the age range of 0–2 years), while the latter is designed for children between the age of three and the start of primary education. Both categories are characterised by learning environments that are visually stimulating and language-rich, with at least two hours of teaching provision per day; in other words, crèches, day-care centres or nurseries are excluded unless they have a specific educational component.

Primary education (ISCED level 1) programmes are typically designed to provide students with fundamental skills in reading, writing and mathematics (literacy and numeracy) and establish a solid foundation for learning and understanding core areas of knowledge, personal and social development. Age is typically the only entry requirement at this educational level.

**Map 4.1: Participation rates of four year-olds in early childhood and primary education (ISCED levels 0–1), by NUTS 2 regions, 2014 (1)**
(% share of all four year-olds)




(% share of all four year-olds)

- < 70
- 70 – < 90
- 90 – < 95
- 95 – < 98
- >= 98
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Germany and the United Kingdom: NUTS level 1. Croatia: national data. Turkey: 2013.

*Source:* Eurostat (online data code: educ_uoe_enra14)

lowest participation rates (below 70 %, as shown by the lightest shade of orange in **Map 4.1**) included Croatia (national data) and most parts of Poland and Greece, while there were also regions in eastern Slovakia (Východné Slovensko) and northern Finland (Pohjois- ja Itä-Suomi); this was also the case in every region of Turkey (2013 data), and all but one region (Ticino being the exception) in Switzerland, as well as Liechtenstein and the former Yugoslav Republic of Macedonia (both single regions at this level of analysis).

Looking in more detail at specific regions, the Greek capital city region (Attiki) had by far the lowest participation rate for four year-olds in early childhood education and primary education, at 28.3 % in 2014. This was considerably lower than in any other region, as all the other regions in the EU reported a majority of their four year-olds participating in early childhood and primary education. The second lowest rate was also recorded in Greece, in the north-eastern region of Anatoliki Makedonia, Thraki (50.9 %); it was one of six Greek regions where the participation rate for four year-olds was in the range of 50–60 %.

## Students in vocational upper secondary education

An estimated 10.6 million (or 48.0 %) of upper secondary (ISCED level 3) students across the EU followed a vocational education programme in 2014, with the remainder following general programmes. Vocational education and training (VET) is considered key to lowering youth unemployment rates and facilitating the transition of young people from education into the labour market. Policymakers across the EU have been looking for ways to increase the attractiveness of vocational programmes and apprenticeships, so these may offer an alternative route to upper secondary and higher education qualifications and better match the skills required by employers.

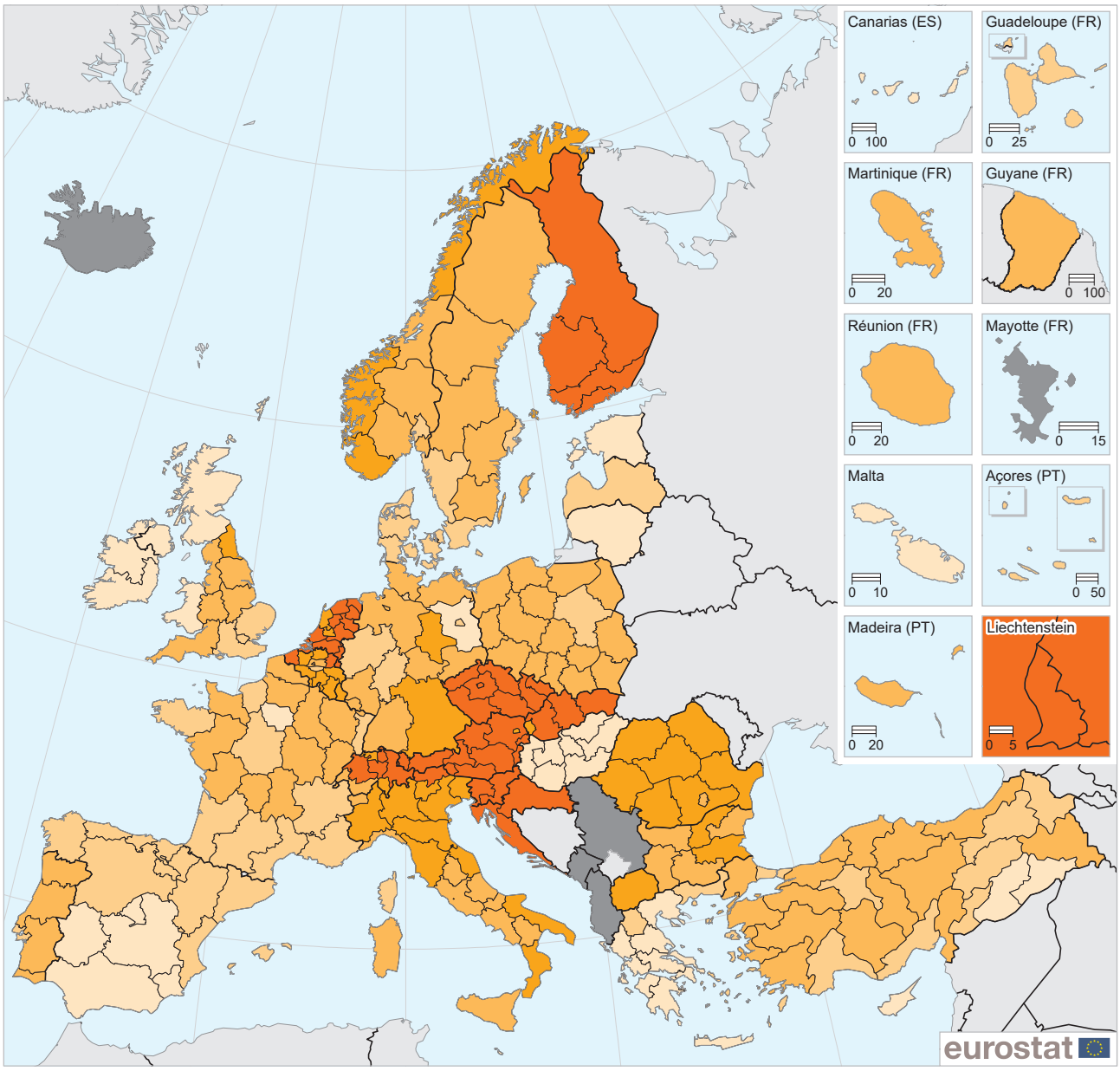
**Map 4.2** shows that the share of students following vocational education programmes varied considerably across the EU Member States, with a particularly high specialisation in vocational education in a cluster of regions covering the Czech Republic, Slovakia, Austria, Slovenia, Croatia and northern Italy, as well as Switzerland; there were also high shares in Finland, the Netherlands and northern regions of Belgium. Some of these differences may be attributed to perceptions concerning vocational education and training: for example, in countries such as the Czech Republic and Austria, vocational education and training is generally considered as an attractive proposition that facilitates an individual's transition into the labour market, whereas in some other EU Member States its role is often less developed, in part due to less positive societal perceptions.

***Vocational education accounted for more than three quarters of upper secondary students in three Czech regions and one Austrian region***

Looking in more detail by NUTS level 2 region, there were 40 regions in the EU where the share of upper secondary students who followed a vocational education programme in 2014 was at least 65 % (as shown by the darkest shade of orange in **Map 4.2**). There were three regions where in excess of three quarters of all upper secondary students were following a vocational education: two of these were in the Czech Republic (Severozápad and Jihozápad), while the third was in Austria (Oberösterreich).

By contrast, the lowest shares of vocational education among those attending upper secondary schooling were recorded in both of the Irish NUTS level 2 regions and in Scotland (data are only available for NUTS level 1 regions in the United Kingdom), where vocational programmes covered less than 1 in 10 students. There were three regions where the share of students following vocational programmes was situated within the range of 10–20 %: the island regions of Malta and Cyprus (both single regions at this level of detail) and the capital city region of Hungary (Közép-Magyarország). The proportion of upper secondary students following vocational education programmes was lower than 35 % (as shown by the lightest shade of orange in **Map 4.2**) in 9 out of 13 regions in Greece, the six remaining Hungarian regions (in stark contrast to the regions surrounding Hungary), six regions in southern Spain, as well as Brandenburg (a NUTS level 1 region that surrounds the German capital city region of Berlin), the French capital city region of Île de France, Northern Ireland and Wales (both NUTS level 1 regions in the United Kingdom), Estonia and Lithuania (both single regions at this level of analysis).

**Map 4.2: Share of students in upper secondary education (ISCED level 3) who were following vocational programmes, by NUTS 2 regions, 2014 (1)**
(% of all students in ISCED level 3)




(% of all students in ISCED level 3)

- < 35
- 35 – < 45
- 45 – < 55
- 55 – < 65
- >= 65
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Germany and the United Kingdom: NUTS level 1. Turkey: 2013.

*Source:* Eurostat (online data code: educ_uoe_enra13)

## Europe 2020: early leavers from education and training

Young people between the ages of 15 and 17 are often faced with a choice: remain in education or training, or looking for a job. Full-time compulsory education lasts, on average, 9 or 10 years in most of the EU Member States and is generally completed at the end of lower secondary education (ISCED level 2).

***Headline target is for the proportion of early leavers to fall to less than 10 % by 2020***

Education is one of five pillars which are central to the Europe 2020 strategy. Two of the targets used to monitor the EU's progress towards becoming a 'smart, sustainable and inclusive economy' concern education. These benchmarks have been set for the EU as a whole and foresee that:

- the share of early leavers from education and training should be under 10 % by 2020; and
- at least 40 % of 30–34 year-olds should have completed a tertiary or equivalent education by 2020.

Note that while both of these objectives have been set across the whole of the EU, they do not specifically apply at a national or a regional level. Indeed, each Europe 2020 benchmark has been translated into national (and sometimes regional) targets, which reflect the different situations and circumstances of each EU Member State.

## Spotlight on the regions: Jadranska Hrvatska, Croatia

**In 2015, the proportion of young people (aged 18–24) in the EU-28 who were early leavers from education and training stood at 11.0 %. In Croatia, a much lower proportion of young people left education and training early, and this was particularly the case along the Adriatic coast and in the Croatian islands, as the share of early leavers from education and training was 0.9 % in Jadranska Hrvatska.**

***Photo*: Nicolas Brignol**

The indicator for early leavers from education and training tracks the proportion of individuals aged 18–24 who had finished no more than a lower secondary level of education, and who were not involved in further education or training (during four weeks prior to the survey from which the data are compiled).

***The share of young people who were early leavers from education and training stood at 11.0 %***

In 2015, an 11.0 % share of 18–24 year-olds in the EU-28 left education and training early, which was 0.1 percentage points lower than the share recorded in 2014. Indeed, there have been consistent reductions in the share of 18–24 year-olds who were early leavers from education and training over the last decade or more. If these patterns continue then the Europe 2020 headline target of moving below 10 % appears to be within reach.

That said, considerable disparities continue to exist both between and within the EU Member States and these are reflected, to some degree, in the national targets — agreed as part of the Europe 2020 strategy — which range from a low of just 4 % in Croatia to a high of 16 % in Italy; there is no target for the United Kingdom.

***Highest proportions of early leavers from education and training frequently recorded in southern Europe, particularly for island regions***

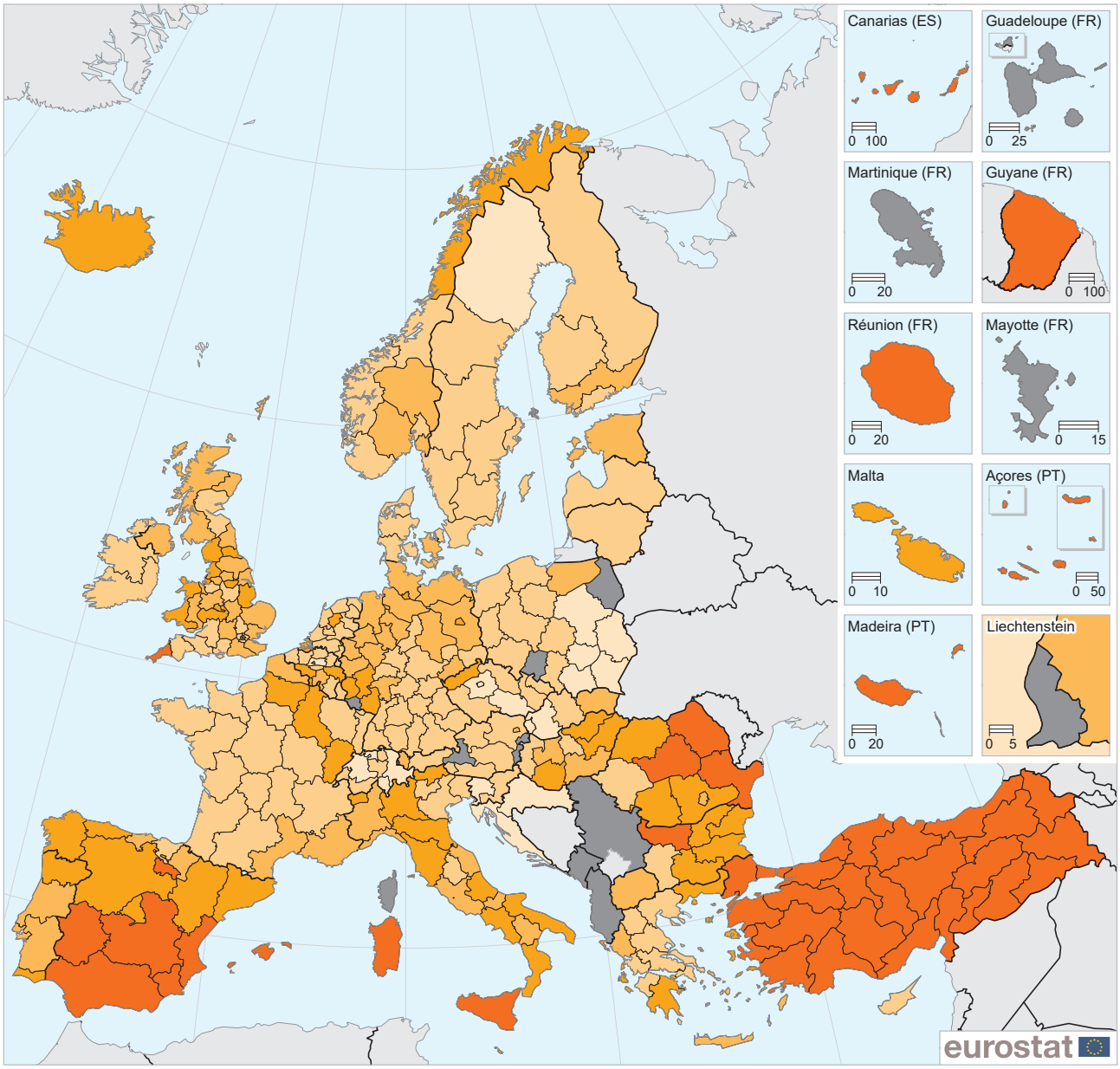
In 2015, the proportion of young people who were early leavers from education and training was less than the Europe 2020 target of 10 % in 130 of the 266 regions for which data are available. **Map 4.3** shows that there was a mixed pattern to the distribution of early leavers across NUTS level 2 regions, with the lowest shares concentrated in a band stretching from Poland down through the Czech Republic and Slovakia, into south-eastern Austria, Slovenia and Croatia. By contrast, the highest proportions of early leavers from education and training were concentrated in southern Spain and the Illes Balears, three Romanian regions, the Portuguese Regiões Autónomas dos Açores e da Madeira, and the Italian islands of Sardegna and Sicilia; very high shares of early leavers were also recorded across the whole of Turkey. Many of the EU regions with the highest shares of early leavers from education and training were characterised as being relatively remote/sparsely populated and it may be the case that students living in these regions have to leave home if they wish to follow a particular specialisation, while those who remain are presented with relatively few opportunities for higher/further education.

***Eastern regions recorded some of the lowest proportions of early leavers from education and training***

In 2015, the lowest proportion of young people who were early leavers from education and training was recorded in the Croatian region of Jadranska Hrvatska

**Map 4.3:** Share of young people aged 18–24 who were early leavers from education and training, by NUTS 2 regions, 2015 (1)

(%)




(%)

EU-28 = 11.0

< 5
5 – < 10
10 – < 13
13 – < 20
>= 20
Data not available

0 200 400 600 800 km

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

(1) Prov. Brabant Wallon (Belgium), Ionia Nisia (Greece) and Limousin (France): 2014. Oberpfalz (Germany), Ipeiros (Greece), Valle d'Aosta/Vallée d'Aoste (Italy), Bratislavský kraj (Slovakia) and Inner London - West (the United Kingdom): 2013. Trier (Germany), Kärnten, Vorarlberg (Austria), Swietokrzyskie (Poland) and Cornwall and Isles of Scilly (the United Kingdom): 2012. Liechtenstein, Montenegro, Albania and Serbia: not available. Includes data of low reliability for some regions.

*Source:* Eurostat (online data code: edat_lfse_16)

(0.9 %). There were 14 additional regions where the share of early leavers was less than 5 % (as shown by the lightest shade of orange in **Map 4.3**) and these were principally located in eastern Europe: five Polish regions, three regions from the Czech Republic, both regions of Croatia, two regions from Slovakia, and a single region from each of Belgium, Slovenia and Sweden.

The capital city regions of the Czech Republic, Croatia, Poland, Slovenia and Slovakia were all present among these 15 regions with the lowest shares of early leavers. Relatively low proportions of early leavers from education and training were also recorded in several other regions characterised as being predominantly urban, for example: the capital city regions of Área Metropolitana de Lisboa (10.7 %) and Inner London - East (5.5 %) recorded the lowest shares of early leavers in Portugal and the United Kingdom; this is perhaps unsurprising considering that higher education and training facilities are more likely to be established in capital cities and other relatively large cities. By contrast, the proportion of young people who were early leavers from education and training was relatively high (compared with national averages) in the Belgian, German and Austrian capital city regions (Bruxelles-Capitale/Brussels Hoofdstedelijk, Berlin and Wien).

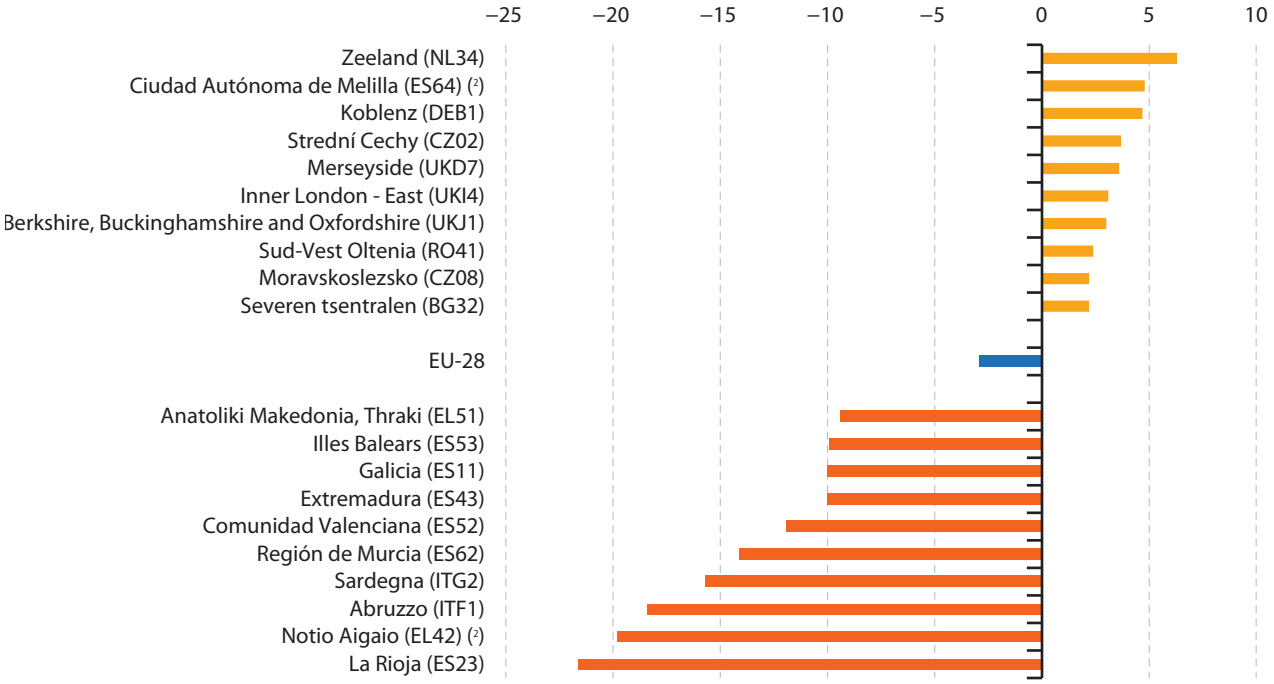
### *Young men were, on average, more likely than young women to leave education and training early*

Information relating to the proportion of early leavers from education and training may be analysed by sex (see **Figure 4.1** for a regional analysis of the gender gap for this indicator). In 2015, the proportion of early leavers from education and training among young men aged 18–24 was, at 12.4 %, some 2.9 percentage points higher than the corresponding share recorded among young women (9.5 %). Note however, that the female rate for early leavers from education and training in the EU-28 remained almost unchanged between 2014 and 2015 (falling 0.1 percentage points), while the male rate fell at a faster pace (by 0.4 percentage points). By doing so, the gender gap closed somewhat — continuing a pattern that has been apparent since the onset of the global financial and economic crisis in 2008 — when in the EU-28 the share of early leavers among young men had been 4.0 percentage points higher than that for young women.

### *Among young men, relatively high early leaver rates were often recorded in those regions characterised as agricultural/rural …*

The rate of early leavers from education and training was lower for young women than it was for young men in 164 out of the 212 regions for which data were available for 2015. There were eight regions — all in the south of Europe — where a double-digit gender gap was recorded; in each case, the share of young men who were early leavers was higher than the corresponding share for young women. The biggest gap was recorded in the Spanish region of La Rioja, where almost one third (32.4 %) of young men were early leavers from education and training, compared with 10.8 % of young women. There were four other Spanish

**Figure 4.1: Gender gap for the share of young people aged 18–24 who were early leavers from education and training, selected NUTS 2 regions in the EU, 2015 (1)**
(percentage points difference, share for men – share for women)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue); based on an analysis of data for 212 of the 276 regions in the EU Member States; data from 2012 to 2014 for some regions. Includes data of low reliability for some regions.
(2) 2013.
*Source:* Eurostat (online data code: edat_lfse_16)

regions among the eight with double-digit gender gaps, namely, the Comunidad Valenciana, Extremadura, Galicia and the Illes Balears. They were joined by two Italian regions (Sardegna and Abruzzo) and the Greek island region of Notio Aigaio (the southern Aegean).

***… by contrast, relatively high early leaver rates among young women were often recorded in metropolitan regions or regions characterised by heavy industry***

In the 43 regions where early leaver rates for young men were lower than those recorded for young women, the gender gap was generally quite narrow (often less than 2.0 percentage points). However, the largest difference was recorded in the Dutch region of Zeeland, where the early leavers' rate for young women was 18.4 %, some 6.3 percentage points higher than that for young men (12.1 %). Among the 10 regions with the largest gender gaps with lower rates for men there were three regions from the United Kingdom (Merseyside; Inner London - East; Berkshire, Buckinghamshire and Oxfordshire), two regions from the Czech Republic (Střední Čechy and Moravskoslezsko), as well as single regions from each of Bulgaria (Severen tsentralen), Spain (the Ciudad Autónoma de Melilla), Germany (Koblenz) and Romania (Sud-Vest Oltenia).

## Young people neither in employment nor in education or training (NEETs)

In 2015, there were 6.2 million people aged 18–24 in the EU-28 who were neither in employment nor in education or training (NEET); when expressed in relation to the population of the same age, the NEET rate for young people was 15.8 %. One of the key determinants that explains differences in NEET rates is low educational attainment; as such, those regions characterised by relatively high rates of early leavers from education and training may also be expected to display relatively high NEET rates.

From a high of 16.9 % in 2003, the EU-28 NEET rate fell in consecutive years to 14.0 % in 2008 (at the onset of the global financial and economic crisis). Thereafter, there were four consecutive increases as the rate rose to 17.2 % by 2012, before falling back again to 15.8 % by 2015. During the last decade, the EU-28 NEET rate has been largely determined/influenced by changes in youth unemployment, as the share of those aged 18–24 who were inactive remained relatively stable (at just less than 8 %).

An analysis across the EU Member States shows that the highest proportion of young people who were neither in employment nor in education or training in 2015 was recorded in Italy (27.9 %), while the NEET rate was within the range of 20–25 % in Spain, Cyprus, Romania, Bulgaria, Greece and Croatia. By contrast, the proportion of young people who were neither in employment nor in education or training was as low as 6.2 % in the Netherlands, and was below 10 % in Luxembourg, Denmark, Germany, Sweden, Austria and the Czech Republic.

***There were four regions in the EU where the proportion of young people neither in employment nor in education or training rose above 40 %***

A more detailed analysis by NUTS level 2 region confirms that in 2015 the highest proportion of young people who were neither in employment nor in education or training was recorded in the Bulgarian region of Severozapaden, where the NEET rate stood at 45.7 %. There were four other regions where this rate was above 40 %: the French overseas region of Guyane, the Greek region of Sterea Ellada, as well as the two southern Italian regions of Calabria and Sicilia.

The five regions with the highest NEET rates were broadly representative of more general patterns observed across the EU, insofar as some of the highest NEET rates were recorded across southern Italy, mainland Greece, parts of Bulgaria and Romania, as well as the French départements et territoires d'outre-mer (as shown by the darkest shade of orange in **Map 4.4**). Indeed, out of the 30 NUTS level 2 regions where the NEET rate was above 25 %, there were only five regions outside of the areas mentioned above: three of these were located in Spain (Andalucía and the Ciudades Autónomas de Ceuta

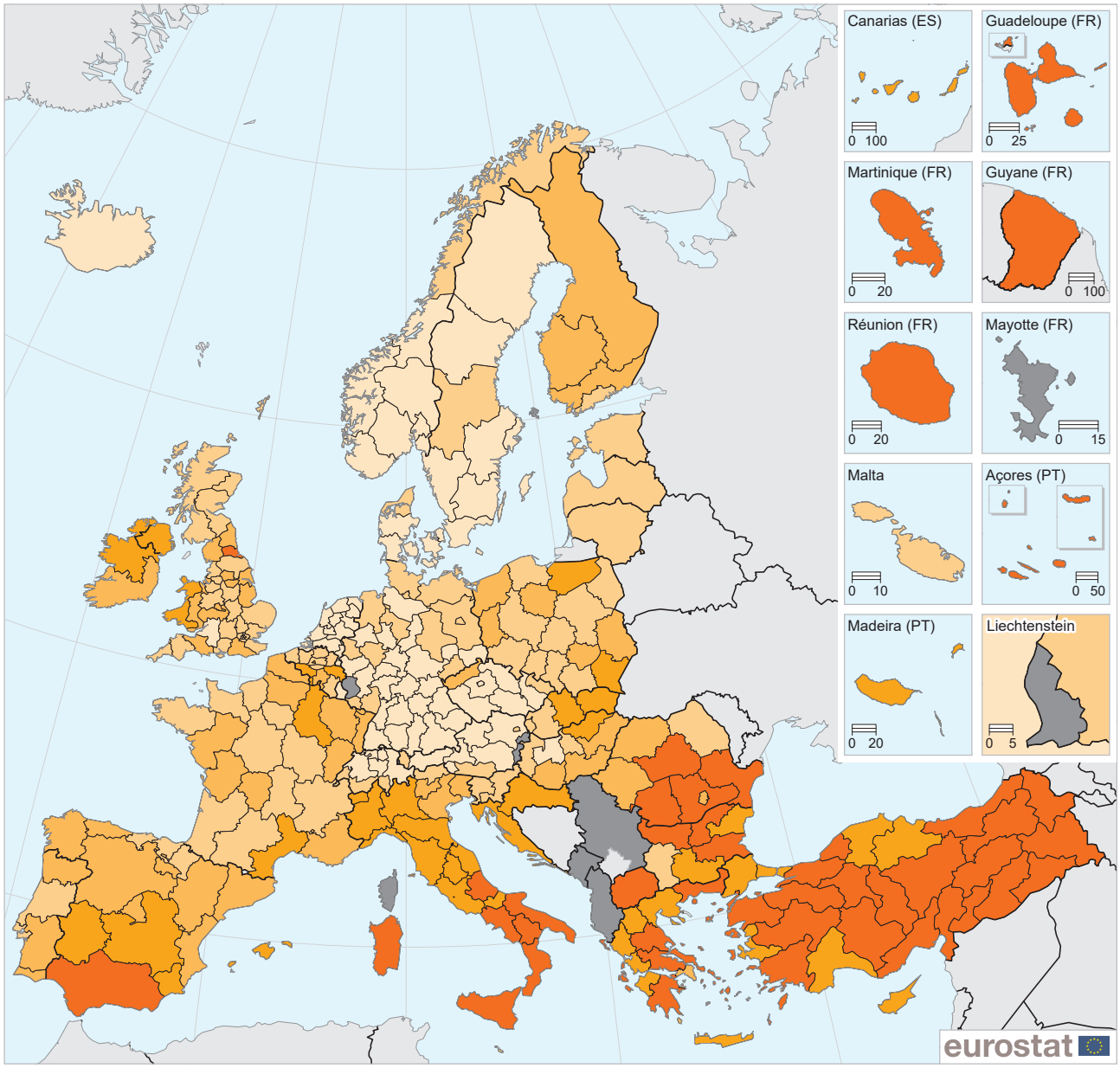
## Comparing youth unemployment and NEETs

Youth unemployment (for more information see Chapter 5) and the proportion of young people who were neither in employment nor in education or training (NEET) are complementary concepts. The unemployment rate is a measure of those who are out of work (but have actively searched for work and are able to start work); it is based on the economically active population — those who are either in work or unemployed — as its denominator.

By contrast, the definition of those who were neither in employment nor in education or training (NEET) excludes those in employment, education or training, but may include some of the economically inactive; it is based on a denominator that covers the whole cohort of 18–24 year-olds.

**Map 4.4:** Share of young people aged 18–24 neither in employment nor in education or training (NEETs), by NUTS 2 regions, 2015 (1)

(%)




(%)

EU-28 = 15.8

- < 10
- 10 – < 15
- 15 – < 20
- 20 – < 25
- >= 25
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Vorarlberg (Austria): 2014. North Eastern Scotland (the United Kingdom): 2013. Oberpfalz (Germany) and Salzburg (Austria): 2012. Includes data of low reliability for some regions.

*Source:* Eurostat (online data code: edat_lfse_22)

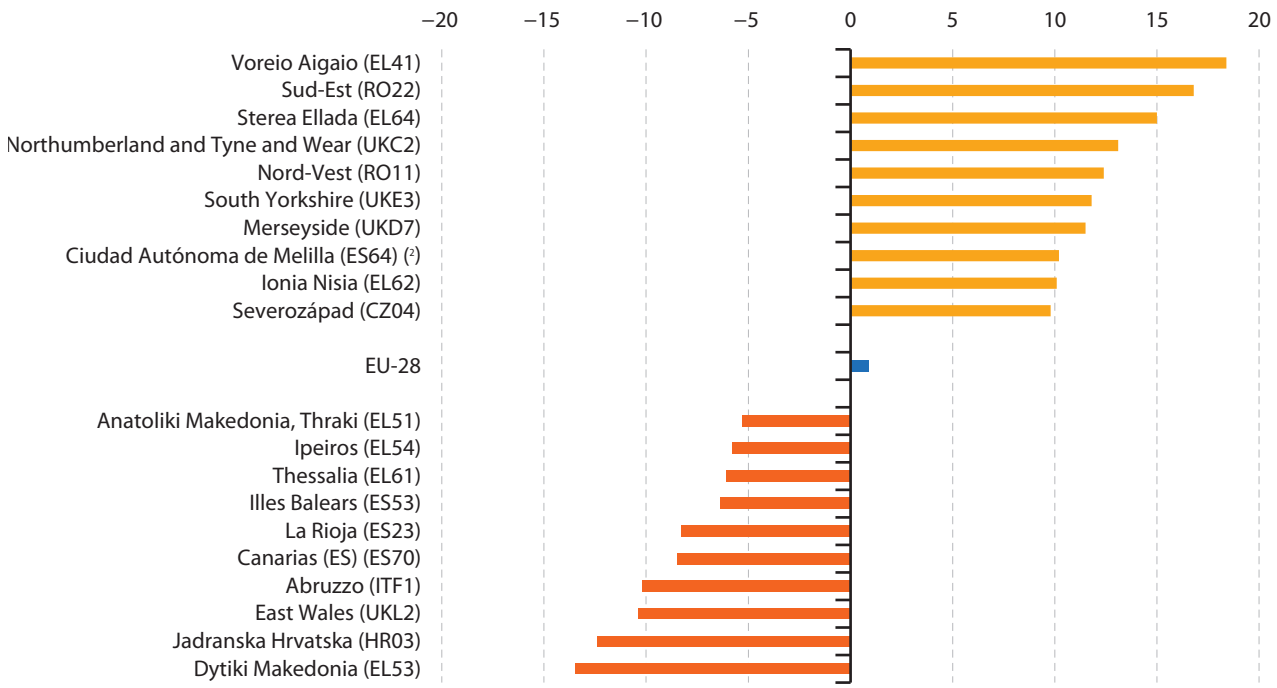
y Melilla), while the other two regions were the Região Autónoma dos Açores (Portugal) and the Tees Valley and Durham (the United Kingdom).

The lowest NEET rate in the EU was recorded in the south-western Bavarian region of Schwaben (4.3 %), while Oberbayern (another Bavarian region) and Overijssel (the Netherlands) were the only other regions to record NEET rates below 5 %. Across the 271 NUTS level 2 regions for which data are available in 2015, there were 61 regions where the NEET rate was less than 10 % (as shown by the lightest shade of orange in **Map 4.4**). These regions were principally concentrated in the Netherlands, Luxembourg (a single region at this level of analysis), Germany, Austria, the Czech Republic, Denmark and Sweden, although there were two additional regions with rates below 10 %, namely, Közép-Dunántúl (Hungary) and Inner London - West (the United Kingdom).

There was a relatively narrow gender gap in relation to NEET rates among those aged 18–24: in 2015, the share of young men who were neither in employment nor in education and training stood at 15.4 %, while the corresponding rate for young women was 0.9 percentage points higher. A decade before, the gender gap had been considerably wider, with the rate for young women in 2005 some 3.3 percentage points higher than that for young men.

**Figure 4.2** shows the 10 regions with the largest gender gaps with higher rates for young men or for young women. An analysis for 238 NUTS level 2 regions shows there were 146 regions where the NEET rate for young men in 2015 was lower than the corresponding rate for young women, while the opposite was true in 90 regions, and there were two regions — Thüringen (Germany) and Inner London - West (the United Kingdom) — with no difference between the sexes. The biggest gender gap was recorded in the Greek region of Voreio Aigaio, where the NEET rate for young men (21.5 %) was 18.4 percentage points lower than corresponding rate for young women. By contrast, the biggest gender gap in favour of young women was also recorded in a Greek region, as the NEET rate for young women in Dytiki Makedonia was 16.7 %, some 13.5 percentage points lower than the rate for young men. This divergent pattern between regions seen in Greece was reproduced among the regions of Spain and the United Kingdom, insofar as regions from both of these EU Member States appeared in both rankings of the largest gender gaps.

**Figure 4.2: Gender gap for the share of young people aged 18–24 neither in employment nor in education or training (NEETs), selected NUTS 2 regions in the EU, 2015** (1)
(percentage points difference, share for men – share for women)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue); based on an analysis of data for 238 of the 276 regions in the EU Member States; data from 2012 to 2014 for some regions. Includes data of low reliability for some regions.
(2) 2013.

*Source:* Eurostat (online data code: edat_lfse_22)

## Europe 2020: tertiary educational attainment

Tertiary education is the level of education offered by universities, vocational universities, institutes of technology and other institutions that award academic degrees or higher professional certificates. EU Member States face four main challenges: broadening access to higher education by increasing participation (especially among disadvantaged groups); reducing the number of students who leave tertiary education without a qualification; reducing the time it takes some individuals to complete their education; improving the quality of higher education by making degree courses more relevant for the world of work.

***The headline target is at least 40 % tertiary education attainment among people aged 30–34 years***

As already noted, the Europe 2020 strategy has a key target on tertiary educational attainment that at least 40 % of 30–34 year-olds should have completed a tertiary or equivalent education by 2020.

Tertiary educational attainment in the EU-28 rose rapidly from 23.6 % in 2002 (the start of the time series for the EU-28), with gains being made each and every year. By 2015, some 38.7 % of the population aged 30–34 years had attained a tertiary level of education, which was 0.8 percentage points higher than in 2014.

***A high proportion of highly-qualified young people move to capital city regions***

Capital cities are often chosen by large organisations (in both the public and private sectors) as the location for their headquarters, either as a matter of prestige or to benefit from economies of scale which may be present in some of the EU's largest cities. This relatively high concentration of business activity — with its associated job opportunities — may, at least in part, explain the considerable number of graduates who move to live in capital city regions.

Given that most persons aged 30–34 will have completed their tertiary education prior to the age of 30, this indicator may be used to assess the attractiveness (or 'pull effects') of regions with respect to the employment opportunities they offer graduates. **Map 4.5** shows tertiary educational attainment by NUTS level 2 region for 2015: the darkest shade of orange highlights those regions where at least half of the population aged 30–34 had attained a tertiary level of education. By far the highest share was recorded in one of the two capital city regions of the United Kingdom — Inner London - West — where more than four fifths (80.8 %) of the population aged 30–34 possessed a tertiary level of educational attainment. The second, third and fourth highest shares were also recorded in the United Kingdom, namely in: Outer London - South (69.3 %), the other capital city region of Inner London - East (68.2 %), and North Eastern Scotland (66.1 %); note that all four regions in Scotland recorded shares above 50 %.

A large proportion of the remaining regions in the EU with relatively high levels of tertiary educational attainment were capital city regions, including: Hovedstaden (Denmark), Southern and Eastern (Ireland), Île de France (France), Noord-Holland (the Netherlands), Mazowieckie (Poland), Helsinki-Uusimaa (Finland) and Stockholm (Sweden), as well as Cyprus, Lithuania and Luxembourg (all single regions at this level of analysis). Elsewhere, the regions with the highest shares of 30–34 year-olds with a tertiary level of educational attainment were often characterised as regions associated with research and/or technology, for example: the Province Brabant Wallon and the Provincie Vlaams-Brabant in Belgium, the País Vasco region of Spain, the Rhône-Alpes region of France, Utrecht in the Netherlands, Västsverige in Sweden, or Berkshire, Buckinghamshire and Oxfordshire in the United Kingdom.

***Lower levels of tertiary educational attainment may be linked to an emphasis being placed on vocational education***

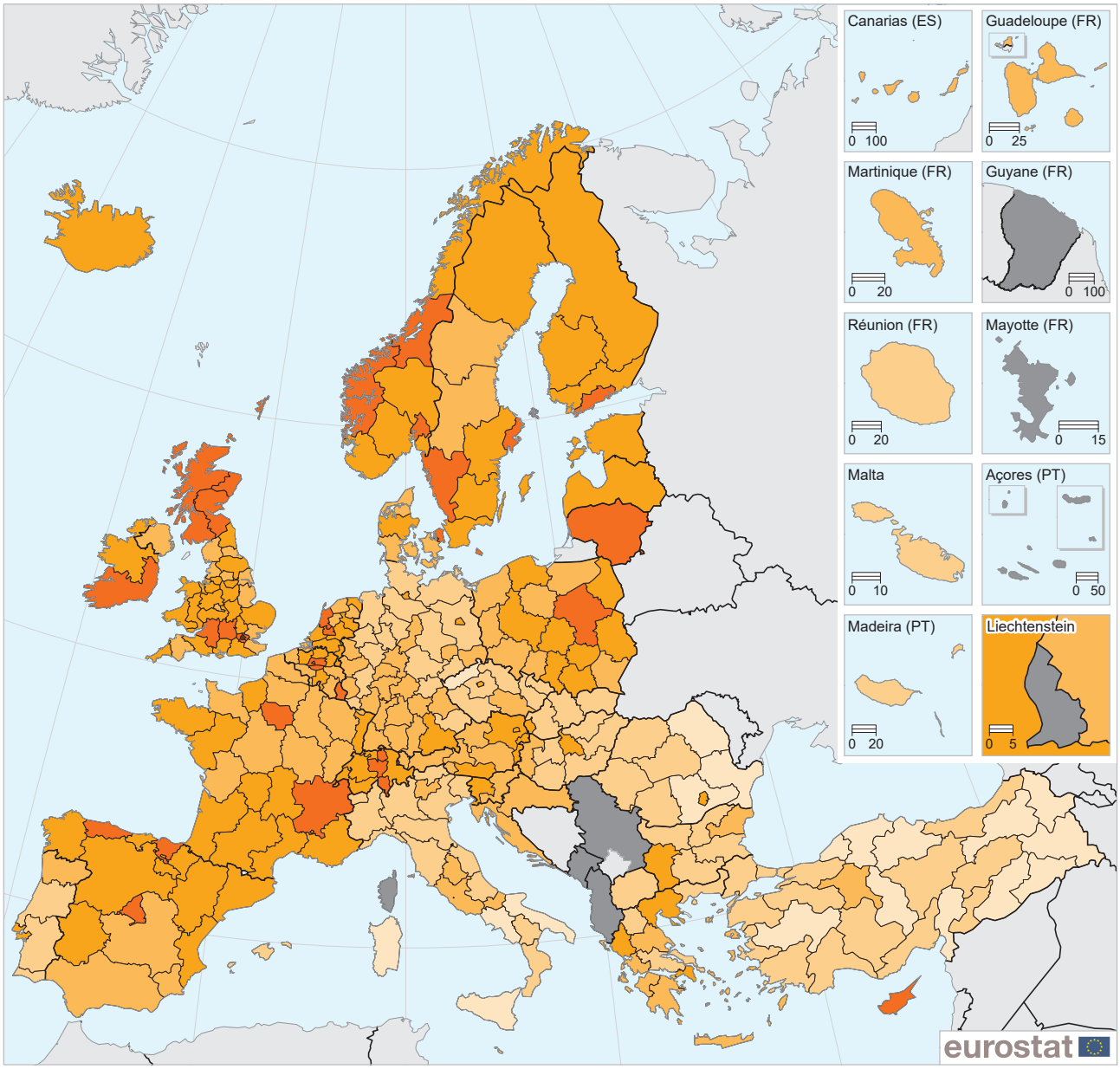
The share of tertiary educational attainment was below 20 % (as shown by the lightest shade of orange in **Map 4.5**) in eight regions that were located in southern

## Spotlight on the regions: Inner London - West, United Kingdom


**The high concentration of business activity and associated job opportunities may, at least in part, explain the considerable number of graduates who move to live in capital city regions. This was particularly true in Inner London - West, as more than four fifths of its population aged 30–34 possessed a tertiary level (ISCED levels 5–8) of educational attainment in 2015.**

***Photo*: Kevin Judson**

**Map 4.5:** Share of persons aged 30–34 with tertiary education (ISCED levels 5–8) attainment, by NUTS 2 regions, 2015 (1)
(%)




(%)

EU-28 = 38.7

- < 20
- 20 – < 30
- 30 – < 40
- 40 – < 50
- >= 50
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Região Autónoma da Madeira (Portugal): 2013. Ciudad Autónoma de Ceuta, Ciudad Autónoma de Melilla (Spain), Guadeloupe, Martinique (France), Valle d'Aosta/Vallée d'Aoste (Italy), Cumbria, and Cornwall and Isles of Scilly (the United Kingdom): low reliability.

*Source:* Eurostat (online data code: edat_lfse_12)

or eastern regions of the EU. They were characterised by their traditional reliance on primary activities — heavy industries (for example, mining or iron and steel) or agriculture — within their economic fabric. Four of the eight regions were spread across the south of Italy (Puglia, Sardegna, Campania and Sicilia), three were from the east of Romania (Sud-Est, Sud - Muntenia and Nord-Est), and the final region was Severozápad in the north-west of the Czech Republic, where the lowest share of tertiary educational attainment was recorded, at 15.4 %; furthermore, there were 11 level 2 regions in Turkey where fewer than one in five persons aged 30–34 had a tertiary level of educational attainment.

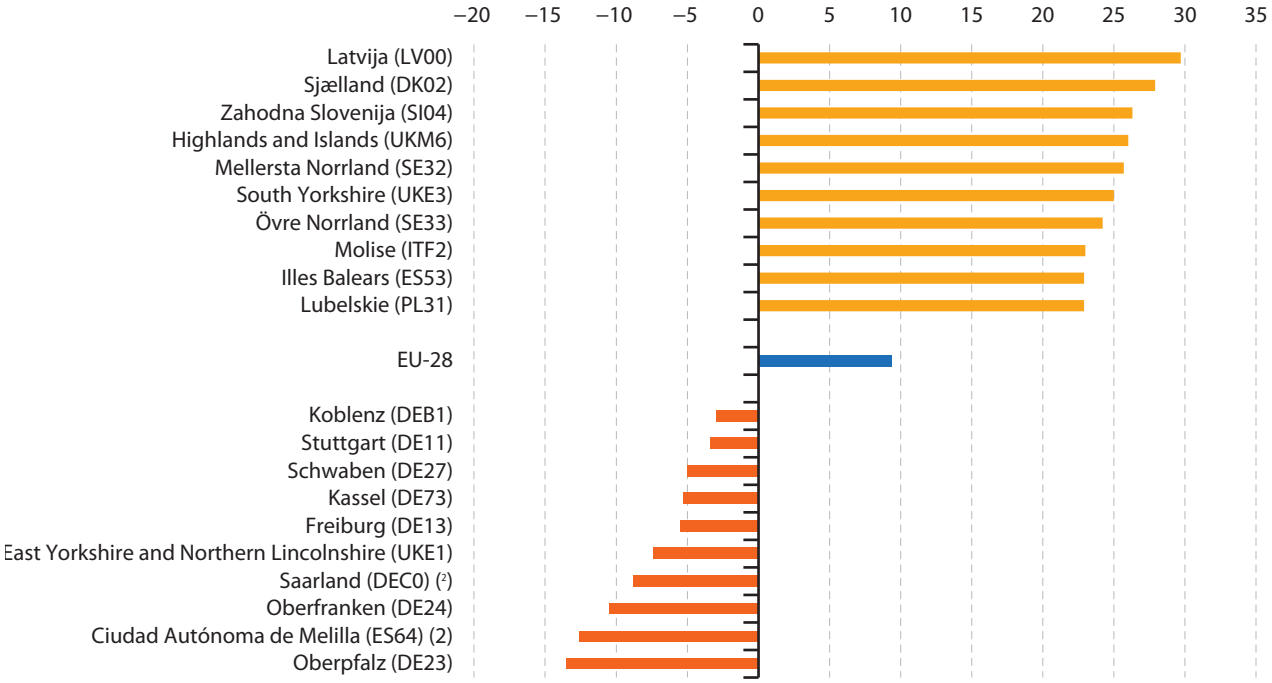
Aside from these regions, the level of tertiary educational attainment was also relatively low in many regions across Austria and the Czech Republic. This may, at least in part, be attributed to a particular emphasis placed on vocational education in these EU Member States (see **Map 4.2** for more information), where emphasis is placed on professional qualifications rather than academic ones.

***The proportion of young women aged 30–34 with a tertiary level of educational attainment was 9.4 percentage points higher than that for young men***

In 2015, the share of young women aged 30–34 living in the EU-28 who had attained a tertiary level of education was 43.4 %; this was considerably higher than the corresponding share recorded among young men of the same age, which stood at just over one third (34.0 %). During the last decade, the proportion of women aged 30–34 with a tertiary level of educational attainment rose at a faster pace than the corresponding rate for young men, with the gender gap for this indicator widening.

A large majority (230 out of 261) of the NUTS level 2 regions for which data are available reported a higher proportion of women aged 30–34 having attained a tertiary level of education in 2015. There were 29 regions where the share of young men with a tertiary level of educational attainment was higher, and two regions — Münster in Germany and the Austrian capital city region of Wien — where there was no difference between the sexes.

**Figure 4.3: Gender gap for the share of persons aged 30–34 with tertiary education (ISCED levels 5–8) attainment, selected NUTS 2 regions in the EU, 2015 (1)**
(percentage points difference, share for men – share for women)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue). Saarland (Germany) and Ciudad Autónoma de Melilla (Spain): 2014. Severozapaden (Bulgaria) and Cornwall and Isles of Scilly (the United Kingdom): 2013. Trier (Germany), Ionia Nisia (Greece), Ciudad Autónoma de Ceuta (Spain), Corse, Guadeloupe, Martinique, Guyane, Mayotte (France), Valle d'Aosta/Vallée d'Aoste (Italy), Algarve, Alentejo, Região Autónoma dos Açores, Região Autónoma da Madeira (Portugal), Åland (Finland) and Cumbria (the United Kingdom): not available. Includes data of low reliability for some regions.
(2) 2014.

*Source:* Eurostat (online data code: edat_lfse_12)

***Women had higher tertiary education attainment where the gender gaps were largest***

The largest gender gap in educational attainment was in Latvia (a single region at this level of analysis), where the share for women was 29.7 percentage points higher than for men. More generally, some of the biggest gender gaps were recorded in the Baltic Member States, Belgium, Denmark, Spain, Italy, Sweden and the United Kingdom, where among the multi-regional EU Member States there were at least two regions which reported a gender gap of at least 20.0 percentage points with higher shares reported for women. Some of these regions were characterised as relatively rural or sparsely-populated, where the gap between the sexes was often a reflection of lower levels of tertiary educational attainment among young men, rather than higher levels of attainment among young women. Examples of such relatively rural or sparsely-populated regions include the Provincie Limburg in Belgium, Sjælland in Denmark, Molise in Italy, Övre Norrland and Mellersta Norrland in Sweden, and North Yorkshire or the Highlands and Islands in the United Kingdom. This pattern could be due to a number of reasons, including: a higher tendency for young men with a tertiary level of education to leave rural regions in search of work elsewhere, or a higher proportion of men choosing to leave the education system relatively early (perhaps to work in agriculture).

Among the 29 regions where the share of young men with a tertiary level of educational attainment was higher than the share recorded among young women, 19 were located in Germany. Among these was the eastern Bavarian region of Oberpfalz which had the largest gender gap where the share for men was higher than for women. Half of the remaining 10 regions with higher shares of tertiary educational attainment among young men were located in the United Kingdom, with two regions from the Netherlands, and one each from Spain, France and Romania.

# Data sources and availability

Education statistics provide, among others, data on participation in education and training, learning mobility, education personnel, education finance and knowledge of (foreign) languages. This domain also provides information on education and training outcomes, such as the number of graduates, levels of educational attainment and the transition from education to work.

## Main sources

### UNESCO/OECD/EUROSTAT (UOE) STATISTICS

Most European education statistics are collected as part of a jointly administered exercise that involves the UNESCO Institute for Statistics (UNESCO-UIS), the Organisation for Economic Cooperation and Development (OECD) and Eurostat; this is often referred to as the UOE data collection exercise. Data on regional enrolments and foreign language learning are collected separately by Eurostat.

The UOE data collection is principally based on administrative sources provided by education ministries or national statistical authorities on the basis of commonly agreed definitions. The statistical unit for regional education statistics is the student. Reference periods are the calendar year for data on graduates and the school/academic year for all other non-monetary data (for example, data published for 2014 cover the academic year of 2013/14).

As the structure of education systems varies from one country to another, a framework for assembling, compiling and presenting regional, national and international education statistics and indicators is a prerequisite for the comparability of data. This is provided by the international standard classification of education (ISCED).

### The international standard classification of education (ISCED)

The ISCED framework is occasionally updated in order to capture new developments in education systems worldwide. ISCED 2011 was adopted by the UNESCO General Conference in November 2011 and is the basis for the statistics presented in this chapter, although the data for reference years prior to 2014 were collected using the previous version, ISCED-97.

In the 2011 version of this classification new categories have been added in recognition of the expansion of early childhood education and the restructuring of tertiary education. ISCED classifies all educational programmes and qualifications by level:

- Early childhood education/less than primary education (level 0);
- Primary education (level 1);
- Lower secondary education (level 2);
- Upper secondary education (level 3);
- Post-secondary non-tertiary education (level 4);
- Short-cycle tertiary education (level 5);
- Bachelor's or equivalent level (level 6);
- Master's or equivalent level (level 7);
- Doctoral or equivalent level (level 8).

A full description is available on the UNESCO-UIS website.

## LABOUR FORCE SURVEY

Data on early leavers from education and training, on NEETs, and on tertiary educational attainment presented in this chapter are derived from the EU's labour force survey (LFS). The LFS is based on a survey of individuals living in private households. It covers the total population usually residing in the EU Member States, except for persons living in collective or institutional households. Educational data from the LFS are updated twice a year in the spring (including data for a new reference year) and in the autumn.

Note that up to and including reference year 2013 these data are classified according to ISCED-97, while data from 2014 onwards are classified according to ISCED 2011. Eurostat's online tables and databases present data on educational attainment for three aggregates (low, medium and high levels of education), and at this level of aggregation the statistics are comparable over time for each of the EU Member States (with the exception of data for Austria). There is a level shift break in Austria due to the reclassification of a programme spanning different levels of educational attainment: the qualification acquired upon successful completion of higher technical and vocational colleges is allocated in ISCED 2011 to ISCED level 5, whereas under ISCED-97 the same qualification was allocated to ISCED level 4, but footnoted as equivalent to tertiary education. In the online tables and databases, time series for ISCED-97 and ISCED 2011 are presented in a single table with labels based on the ISCED 2011 classification; the classification change between 2013 and 2014 is indicated through the use of a 'b' flag (to denote a break in time series).

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

## Indicator definitions

Statistics on the proportion of four year-olds who are enrolled in early childhood and primary education (ISCED 2011 levels 0–1) cover those institutions which provide education-oriented care to young children; these must have staff with specialised qualifications in education. Note that this ratio is calculated on the basis of data from two distinct sources (education and demography statistics) and that some pupils enrolled in educational institutions might not be registered as residents in the demographic data (thereby ratios may potentially be in excess of 100 %).

Vocational education is designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation or trade. Vocational education may have work-based components (for example, apprenticeships or dual-system education programmes). The vocational education indicator presented in this chapter shows the proportion of students following vocational programmes among the total number of students enrolled in upper secondary level of education (as defined by ISCED 2011 level 3).

The early leavers from education and training indicator is defined as the proportion of individuals aged 18–24 who have at most a lower secondary education (ISCED-97 levels 0, 1, 2 or 3c short for the period up to and including 2013 and ISCED 2011 levels 0–2 for 2014 and 2015), and who were not engaged in further education and training (during the four weeks preceding the labour force survey). This indicator is the basis for a Europe 2020 target, namely, to reduce the proportion of early leavers in the EU to below 10 %.

The indicator of young people neither in employment nor in education and training (NEET) corresponds to the percentage of the population aged 18–24 who are not employed and not involved in further education or training.

The tertiary educational attainment indicator is defined as the percentage of the population aged 30–34 who have successfully completed tertiary studies (for example, at a university or higher technical institution). The age range of 30–34 year-olds is used as this generally refers to the first five-year age span where the vast majority of students have already completed their studies. Tertiary education refers to ISCED 1997 levels 5–6 for data up to 2013 and to ISCED 2011 levels 5–8 for 2014 and 2015. This indicator is the basis for a Europe 2020 target, namely, to ensure that, by 2020, at least 40 % of 30–34 year-olds have completed a tertiary level of education.

# 5 Labour market

This chapter analyses the situation in European Union (EU) labour markets, providing an overview of regional employment and unemployment. It focuses on two principal concerns of policymakers — youth unemployment and long-term (structural) unemployment. Furthermore, it also presents information on employment rates for immigrants, as well as analysing unemployment rates according to the level of educational attainment of the claimant's parents.

Generating employment and providing jobs is generally considered a key factor in combating social exclusion and the most effective way of giving people their independence, financial security and a sense of belonging. The EU seeks to promote the integration of all people within society, in particular those on the margins. Nevertheless, labour markets continue to be subject to discrimination as various groups are under-represented or excluded.

Although the overall success of labour market policies may be judged by analysing employment and unemployment rates, it is also revealing to extend any such analyses to include additional indicators. Indeed, even in regions that are characterised by relatively high employment rates and relatively low unemployment rates, there may be a high number of job vacancies that remain unfilled. This may, at least in part, be due to: unemployed applicants lacking the required skills or experience for certain posts; a lack of workforce mobility, with job vacancies being available in one region, while the unemployed look for work in another; a lack of decent and affordable housing that prevents people moving into a region to take-up job vacancies; a relatively low level of pay for some job vacancies (particularly in affluent and expensive regions), which makes it difficult to recruit people to certain occupations. The impact of labour market imperfections such as these may constrain economic growth in a region, insofar as unfilled job vacancies will likely result in lower levels of economic output than might otherwise be attainable.

## Europe 2020

Employment issues are integrated into the Europe 2020 strategy as one of five headline targets, namely that 75 % of the 20–64 year-olds in the EU-28 should be employed by 2020. Individual agreements exist with each EU Member State and national targets range from employment rates of 80 % or more in Denmark, the Netherlands and Sweden down to 70 % or less in Ireland, Greece, Croatia, Italy, Malta and Romania; there is no target in the national reform programme for the United Kingdom.

**For more information**: please refer to Chapter 1, which provides a more detailed analysis of regional labour market performance in relation to the Europe 2020 targets.

Progress towards the overall 75 % target is analysed through the EU's annual growth survey, which promotes close coordination by national governments of their economic and fiscal policies and leads, among others, to a set of common employment guidelines in the form of a joint employment report. The latest of these reports from late 2015 pointed out that, although there were some encouraging signs of an upturn in some European labour markets, marked disparities continued to persist, especially in relation to long-term structural unemployment, youth unemployment and poverty. With this in mind, the employment guidelines for 2016 focus support on, among others:

- well-functioning and inclusive labour markets with more attention to job creation and job quality;
- further efforts to address youth and long-term unemployment;
- addressing gender gap in labour markets;
- investing in people;
- promoting adequate and sustainable social protection systems with an emphasis on social investment and social inclusion.

## Europe 2020 flagship initiatives linked to labour markets

While almost all of the Europe 2020 flagship initiatives have some relevance for labour markets, two are directly aimed at improving the employability of the workforce.

### AN AGENDA FOR NEW SKILLS AND JOBS

This Europe 2020 flagship initiative sets out, in 13 key actions with accompanying and preparatory measures, to promote a substantial increase in employment rates, particularly those for women, young and older workers, through action in four priority areas:

- improving the flexibility and functioning of labour markets (flexicurity) to reduce chronically high structural unemployment;
- equipping people with the right skills for the jobs available in the labour market, in particular by ensuring the labour force can benefit from technological changes and adapt to new patterns of work organisation, while ensuring that skills mismatches are eliminated, for example, by promoting intra-EU mobility and non-member migrant inflows;
- increasing the quality of jobs and ensuring better working conditions, in an attempt to promote labour productivity gains and higher employment participation;
- promoting policies which encourage job creation, in particular, among those enterprises which require high skills and R & D-intensive business models.

### YOUTH ON THE MOVE

This flagship initiative came to an end as of December 2014. Its aim was to help young people gain the knowledge, skills and experience they needed to make their first job a reality. The initiative proposed 28 actions aimed at making education and training more relevant, increasing young people's employability and access to the labour market, as well as ensuring that young people had the right skills for the jobs of tomorrow.

**For more information**: An agenda for new skills and jobs (COM(2010) 682 final); Youth on the move (COM(2010) 477 final)

## Employment package

In April 2012, the European Commission launched the so-called employment package, as detailed in its Communication titled 'Towards a job-rich recovery' (COM(2012) 173 final). This focused on the potential for structural, labour market reforms promoting job creation through to 2020 and detailed some of the challenges which will need to be faced in order to maintain the EU's competitiveness, for example: addressing demographic ageing and migrant population flows; moving towards a low-carbon and resource-efficient economy; embracing rapid technological change; and competing with emerging economies.

The employment package builds on the Europe 2020 agenda for new skills and jobs. It identifies areas where there is a high potential for future job creation and details how the EU Member States might create more jobs, through:

- supporting job creation — for example, reducing the tax on labour while ensuring fiscal sustainability; promoting and supporting self-employment, social enterprises and business start-ups; transforming informal or undeclared work into regular employment; boosting take home pay;
- harnessing the potential of job-rich sectors — such as information and communication technologies, the 'green' economy or healthcare;
- mobilising EU funds for job creation — through the European Social Fund (ESF);
- reforming labour markets — for example, encouraging decent and sustainable wages; developing lifelong learning and active labour market policies; delivering youth opportunities;
- investing in skills — for example, to cope with a skills mismatch or to ensure better recognition of skills and qualifications; and,
- moving towards a European labour market — for example, by matching jobs and job-seekers across borders, through a Europe-wide jobs portal, EURES.

At the start of 2016, the European Commission released a review of Employment and social developments in Europe 2015. This highlighted a number of issues, including:

- the contribution of entrepreneurship and self-employment to job creation and growth;
- striking a balance in labour market legislation between flexibility and protection;
- actions to avoid unemployment turning into long-term unemployment and inactivity;
- actions to increase employment levels and increase productivity — through increased labour market mobility and participation (especially of older workers and women);
- promoting social dialogue and the involvement of social partners in the development of employment and social policies.

## Youth employment package

The youth employment package was launched in December 2012, with a youth guarantee at its core. The EU Member States established the principle of a youth guarantee in April 2013 through a Council Recommendation (2013/C 120/01). This aims to ensure that all young people under 25 years, whether registered with employment services or not, should get a good-quality offer within four months of them leaving formal education or becoming unemployed; such an offer may relate to a job, an apprenticeship, a traineeship, or continued education.

In February 2013, the European Council agreed on a youth employment initiative with a budget of around EUR 6 billion for the period 2014–20, largely to support young people not in education, employment or training; this initiative is open to any region that has a youth unemployment rate that is over 25 %.

In a Communication titled Working together for Europe's young people — A call to action on youth unemployment (COM(2013) 447 final), the European Commission proposed a series of changes to accelerate the implementation of the youth guarantee and investment in young people. As part of this drive, EU Member States have developed a series of national youth guarantee implementation plans: while national budgets prioritise youth employment measures to avoid higher costs in the future, the EU tops-up national spending through the European Social Fund (ESF) and the EUR 6 billion youth employment initiative.

# Main statistical findings

Eurostat compiles and publishes labour market statistics for EU regions, the individual EU Member States, as well as the EU-28 aggregate; in addition, data are also available for a subset of EFTA and candidate countries. These regional statistics are presented for NUTS level 2 regions.

## Europe 2020: employment rates

The economically active population in the EU-28 — also called the labour force — was composed of 243.6 million persons in 2015, among whom 220.7 million were employed and 22.9 million were unemployed (in search of and available to work).

***The headline target is to have at least 75 % of people aged 20–64 in employment by 2020***

The employment rate in the EU-28 (for people aged 20–64) peaked at 70.3 % in 2008. However, in the aftermath of the financial and economic crisis, there was a period of falling employment and rising unemployment from 2009–13. Indeed, the impact of the crisis was considerable: in 2009, the employment rate fell by 1.3 percentage points and there were further reductions through to 2013 when it stabilised at 68.4 %. Against a background of developments in gross domestic product (GDP) turning positive, the first signs of labour market improvements for the EU-28 occurred towards the end of 2013 and this pattern was confirmed in 2014 and 2015. The employment rate was 70.1 % in 2015, which meant is remained 0.2 percentage points below its pre-crisis level.

With the Europe 2020 target set at 75 %, average growth of almost 1.0 percentage points will be necessary in each of the coming five years if this goal is to be achieved. In order to boost employment rates, policymakers have focused on increasing employment rates for women, young people and older workers.

***Some of the highest regional employment rates were recorded across Germany, Sweden and the United Kingdom***

**Map 5.1** presents employment rates for people aged 20–64 for NUTS level 2 regions. The highest employment rates — above the Europe 2020 target of 75 % — are shown in the two darkest shades of orange. There were 100 regions out of the 275 regions for which data are available (no information for the French region of Mayotte) where the latest employment rate was equal to or above the Europe 2020 target.

The highest regional employment rate in the EU-28 was recorded in the archipelago of Åland (Finland), where 86.7 % of the population aged 20–64 were in employment, while the second and third highest regional employment rates were registered in neighbouring Sweden in the capital city region of Stockholm (82.5 %) and south-eastern region of Småland med öarna (82.4 %).

In 2015, there were 22 additional regions which reported that at least four fifths of their populations aged 20–64 were in employment. Two of these were other regions from Sweden (Västsverige and Mellersta Norrland), while the remainder were equally divided between Germany and the United Kingdom (10 regions from each of these EU Member States). The highest employment rates in Germany tended to be recorded in the southern regions (aside from in Lüneburg which is located between Bremen, Hamburg and Hannover), with particularly high rates in Freiburg, Oberbayern and Tübingen. In the United Kingdom, the highest employment rates were more dispersed across the territory, in regions as far apart as North Eastern Scotland on one hand and Cornwall and Isles of Scilly on the other, while the remainder of the regions with relatively high rates were spread across much of England.

## Defining the employment target

The Europe 2020 target for the employment rate (the ratio of employed persons compared with the population of the same age group) is to ensure that 75 % of 20–64 year-olds are employed by 2020.

The 20–64 age group was selected to ensure compatibility at the lower end of the age range, given that an increasing proportion of young people remain within educational systems. At the upper age limit, employment rates are usually set to a maximum of 64 years, taking into account (statutory) retirement or pension ages across Europe. Note that several governments have legislated to gradually increase the retirement or pension age over the coming years and it is likely that an increasing proportion of older persons will remain in employment beyond the age of 64.

The other regions which reported employment rates that were equal to or above the Europe 2020 target of 75 % were largely concentrated in the Czech Republic, Denmark, Germany, the Netherlands, Austria, Sweden and the United Kingdom, as well as Estonia (a single region at this level of detail). There were, however, four other separate regions where the latest employment rate was also equal to or above 75 %: the capital city region of Finland (Helsinki-Uusimaa), the northern Italian region of the Provincia Autonoma di Bolzano/Bozen (Italy), the Nord-Est region of Romania, and the Slovakian capital city region of Bratislavský kraj.

The information presented has already alluded to relatively high employment rates in some of the regions in the Nordic Member States; this pattern was repeated in neighbouring Norway and in Iceland, while there were also relatively high employment rates in most of the Swiss regions (Ticino being the only exception).

***The lowest employment rates were recorded in EU Member States that were strongly affected by the sovereign debt crisis, in particular, Greece, Spain and Italy***

**Map 5.1** also identifies the regions with the lowest employment rates (as shown by the lightest shade of orange): these were largely concentrated in southern Europe, particularly in those EU Member States that had experienced considerable difficulties in relation to the sovereign debt crisis. In 2015, there were six regions where the employment rate (among those aged 20–64) was below 50 % (in other words, less than half of the working-age population was in work). The lowest rates were recorded in the south of Italy — Calabria (42.1 %), Campania (43.1 %), Sicilia (43.4 %) and Puglia (47.0 %) — while the other two regions were the Ciudad Autónoma de Melilla (Spain) and Dytiki Makedonia (Greece).

More generally, there were 34 regions in the EU where the employment rate for people aged 20–64 was less than 60 % in 2015. The vast majority of these were concentrated in Greece, Spain and Italy; the only exceptions being the French départements et territoires d'outre-mer (Guyane, La Réunion, Guadeloupe and Martinique), two Belgian regions (Province Hainaut and the capital city Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest), and the Croatian Adriatic coastal region (Jadranska Hrvatska).

There were considerable labour market disparities between the individual regions of Spain and Italy, with higher employment rates in more northerly regions and particularly low employment rates in the south. In mainland Spain, the highest employment rate was recorded in the capital city region of the Comunidad de Madrid (69.7 %), while the lowest rate was in Andalucía (52.6 %), a gap of 17.1 percentage points. The gap for Italian regions was even wider (34.6 points), from a high of 76.7 % in the Provincia Autonoma di Bolzano/Bozen to a low of 42.1 % in Calabria.

***Male employment rates were higher than female rates in every region of the EU***

There are often considerable differences between the sexes in relation to regional employment rates. Gender differences may occur for a number of reasons, including: differences in levels of participation in education or educational attainment, or different patterns of economic structures and industrial specialisation (which may favour job creation for specific occupations). Nevertheless, family responsibilities — maternity, caring for children and/or other family members — are frequently recognised as being one of the main reasons for lower levels of (economic) activity among women.

The Europe 2020 strategy does not make a distinction between the sexes with respect to its 75 % target for the employment rate. In 2015, the EU-28 male employment rate was slightly higher than the Europe 2020 target, as it reached 75.9 %, while the female rate was 11.6 percentage points lower (at 64.3 %). There was a relatively strong link between female employment rates and overall employment rates, insofar as those regions with some of the lowest female employment rates were generally the same regions that had some of the lowest overall employment rates.

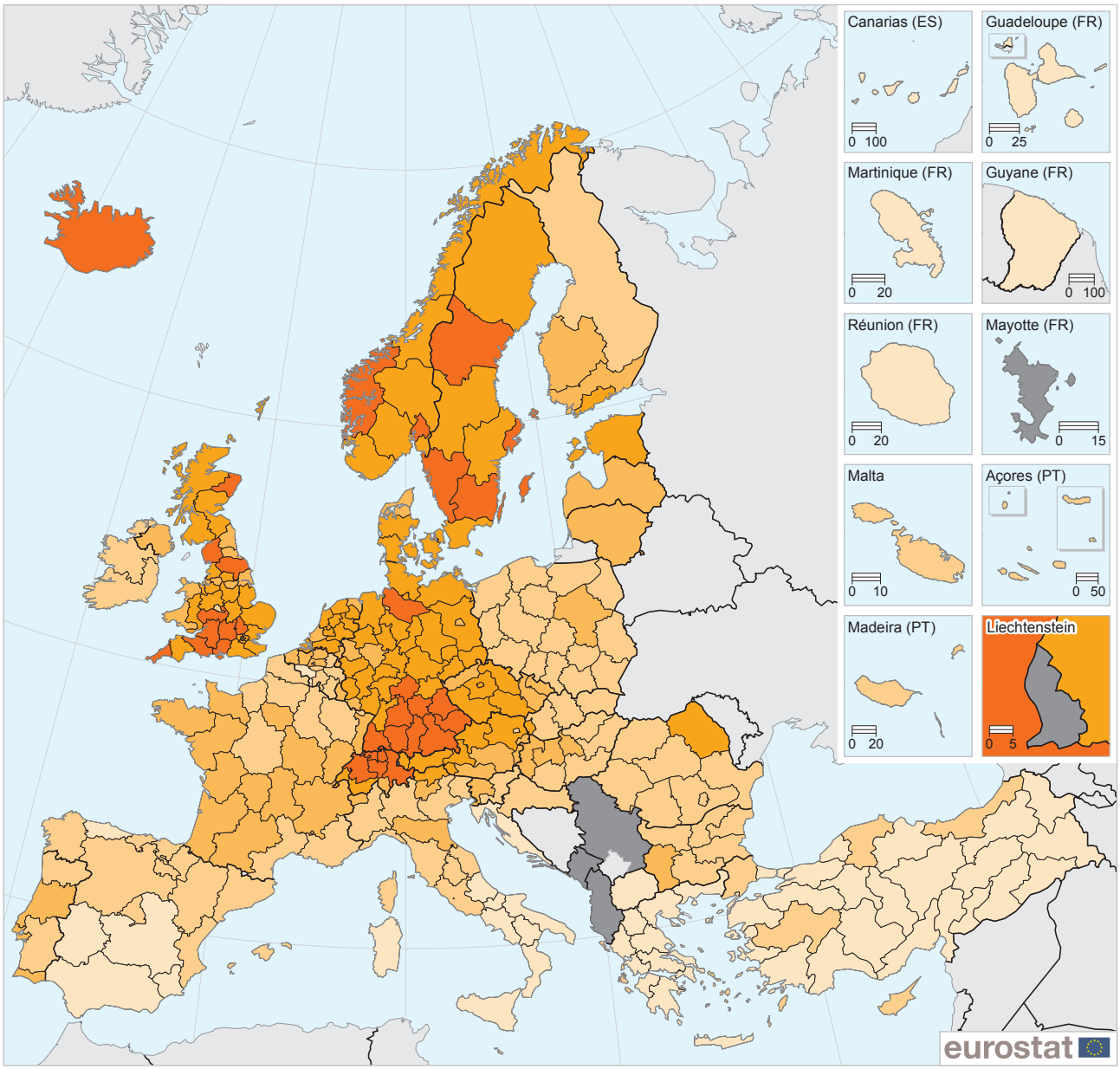
In 2015, every NUTS level 2 region in the EU (no data for the French region of Mayotte) reported that its male employment rate (for those aged 20–64) exceeded the corresponding rate for women. Female employment rates were relatively close to male rates in most of the Nordic and Baltic Member States, as well as in several

## Spotlight on the regions: Pohjois- ja Itä-Suomi, Finland

**In 2015, every NUTS level 2 region in the EU reported that its male employment rate (for those aged 20–64) exceeded the corresponding rate for women (of the same age). The narrowest gender gap —with an employment rate that was 1.4 percentage points higher among men — was recorded in Pohjois- ja Itä-Suomi (northern Finland).**

***Photo*: tpsdave**

**Map 5.1:** Employment rate, persons aged 20–64, by NUTS 2 regions, 2015
(%)




(%)

EU-28 = 70.0

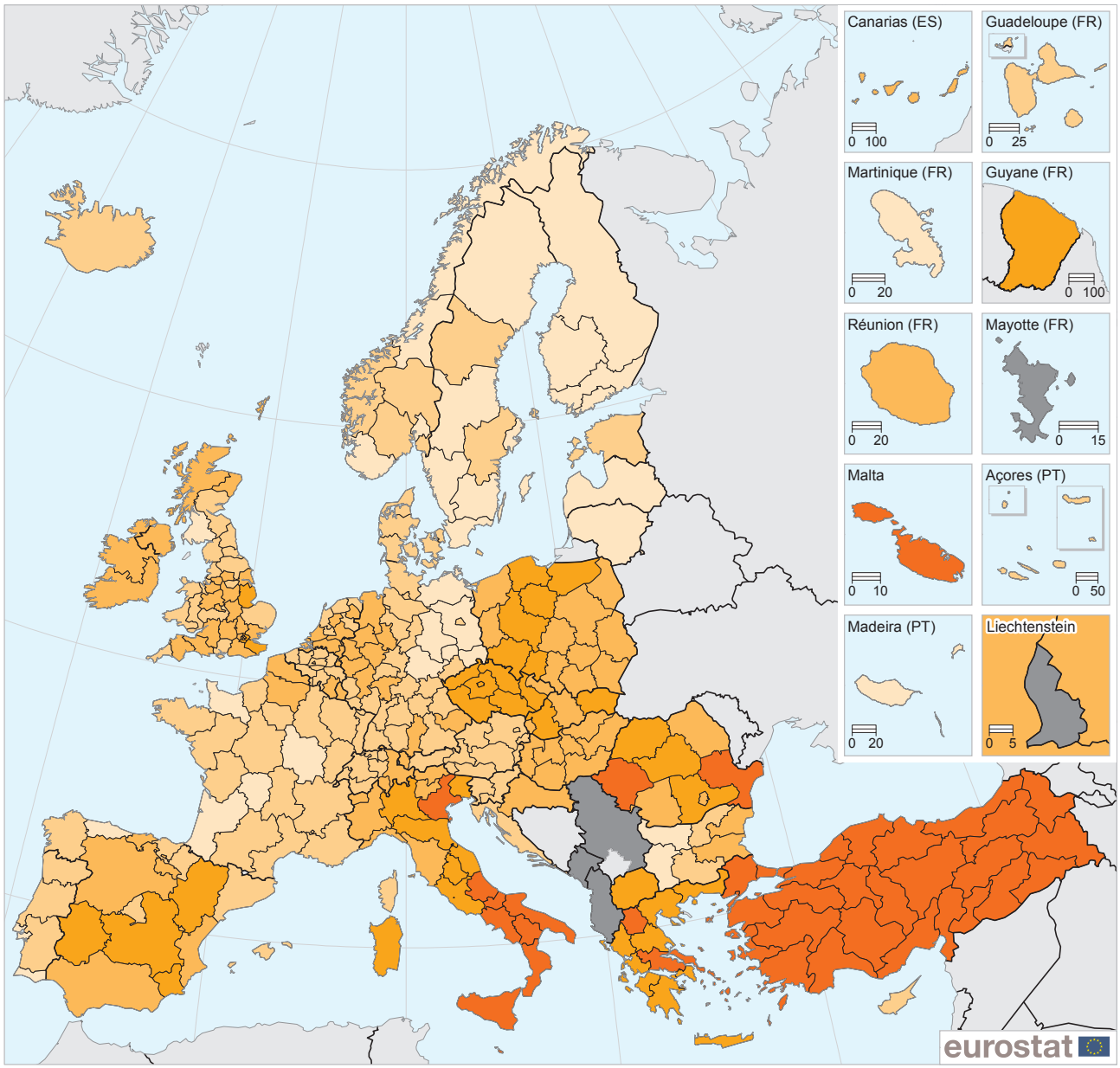
- < 60
- 60 – < 70
- 70 – < 75
- 75 – < 80
- >= 80
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 05/2016

0 200 400 600 800 km

*Source:* Eurostat (online data code: lfst_r_lfe2emprt)

**Map 5.2: Gender gap for the employment rate of persons aged 20–64, by NUTS 2 regions, 2015**
(percentage points difference between employment rates for men and employment rates for women)




(percentage points difference between employment rates for men and employment rates for women)

EU-28 = 11.6

- < 5
- 5 – < 10
- 10 – < 15
- 15 – < 20
- >= 20
- Data not available

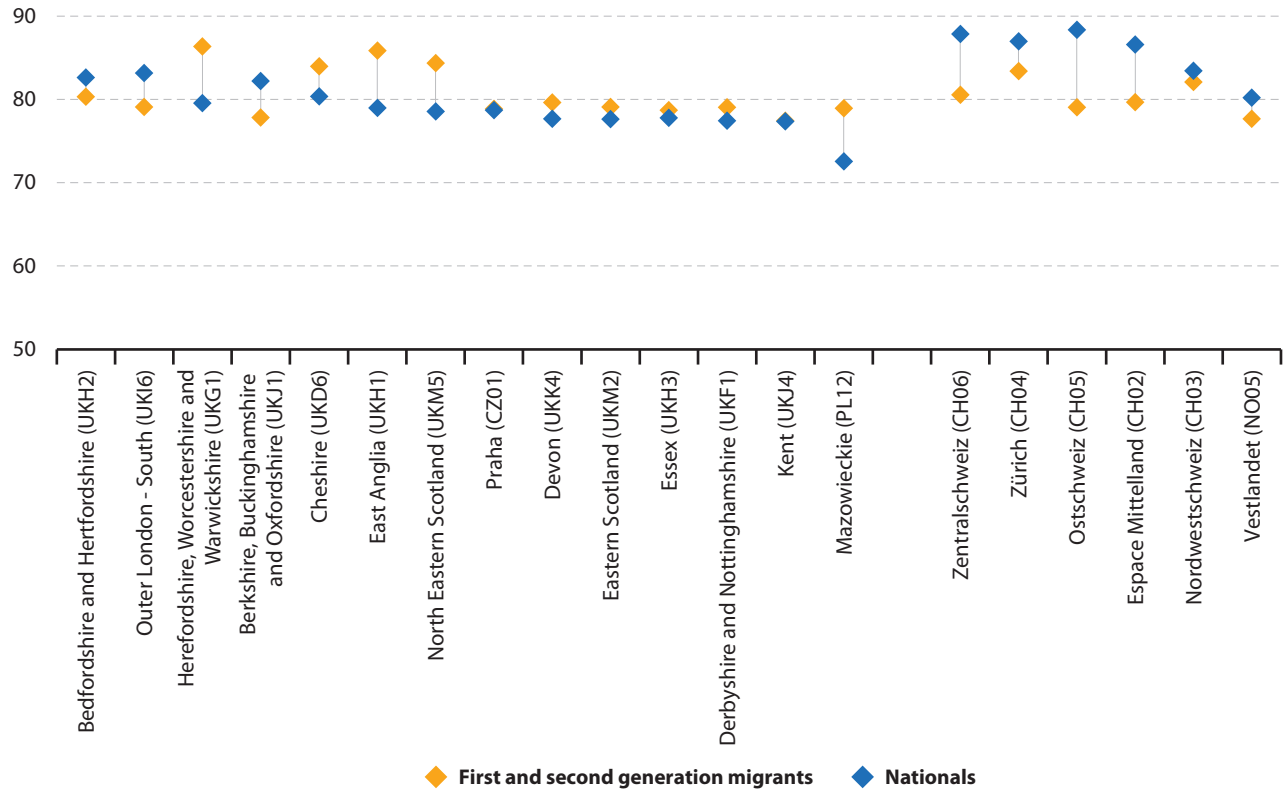
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 05/2016

0 200 400 600 800 km

*Source:* Eurostat (online data code: lfst_r_lfe2emprt)

**Figure 5.1:** Employment rates by migration status, persons aged 20–64, top 20 NUTS 2 regions with the highest employment rates for migrants, 2014 ([1])

(%)




([1]) Note the y-axis has been cut. Ranked on the total employment rate (for nationals and migrants) among persons aged 20–64. Denmark, Germany, Ireland and the Netherlands: not available. Based on an analysis of those level 2 regions in the EU Member States, Norway and Switzerland for which data are available: data for 18 regions are either unreliable or confidential and hence are not shown; data of low reliability for some regions.

*Source:* Eurostat (Labour force survey)

regions of Bulgaria, Germany and France. The lowest gender gaps — no more than 2.0 percentage points — were recorded in the predominantly rural regions of Limousin (central France), Övre Norrland (northern Sweden) and Pohjois- ja Itä-Suomi (northern Finland). This pattern of small gender gaps in some relatively remote and/or rural regions characterised many of the other regions with low gender gaps, although there were a number of exceptions, such as the capital city regions of Bulgaria (Yugozapaden), Portugal (Área Metropolitana de Lisboa), Finland (Helsinki-Uusimaa) and Sweden (Stockholm), or the predominantly urban regions of Dresden and Leipzig (both in Germany).

### *Female employment rates were particularly low in southern Italy and Greece, as well as across Turkey*

In 2015, there were 17 regions in the EU where the female employment rate was at least 20 percentage points lower than the corresponding rate recorded for men (as shown by the darkest shade of orange in **Map 5.2**). Eight of these regions were located in Italy (primarily in the south, with the exception of the north-eastern region of Veneto), four were in Greece, two each in Spain and Romania, and the final one was Malta (a single region at this level of analysis).

The biggest gender gap was recorded in the Greek region of Voreio Aigaio (the northern Aegean islands, which includes the island of Lesbos), where the male employment rate was 29.5 percentage points higher than that recorded for women. The map also provides confirmation that all 26 of the level 2 regions in Turkey recorded considerably higher male employment rates; the gender gap in Turkish regions ranged from 29.9—53.6 percentage points, the latter being recorded in the southern region of Gaziantep, Adıyaman, Kilis (which borders onto Syria).

## Employment rates for migrants

**Figure 5.1** shows the top 20 European level 2 regions with the highest total employment rates among persons aged 20–64, a large majority of which were in the United Kingdom or Switzerland. The information is based on the results of an ad-hoc module added to the labour force survey (LFS) conducted in 2014 which provides an analysis of labour market indicators for nationals, as well as first and second generation migrants; note there is no information available for Denmark, Germany, Ireland or the Netherlands.

It was relatively common to find employment rates for first and second generation migrants that were higher than those for nationals. Indeed, this was the case for 10 out of the 14 EU regions shown in **Figure 5.1**, while employment rates for migrants and nationals were identical in Kent (the United Kingdom). The gaps between migrant employment rates and national employment rates were at their widest in two predominantly rural regions of the United Kingdom — East Anglia (where the migrant employment rate was 6.9 percentage points higher) and Herefordshire, Worcestershire and Warwickshire (where there was a 6.8 points difference). Migrant employment rates were also more than six percentage points higher than those for nationals in Mazowieckie (the capital city region of Poland).

## Unemployment rates

The unemployment rate is defined as the number of people who are unemployed expressed in relation to the total labour force (persons who are employed or unemployed). At the start of the financial and economic crisis in 2008 there were 16.8 million unemployed persons in the EU-28, which gave an unemployment rate of 7.0 %. Five years later — in 2013 — this figure had risen to 26.3 million unemployed persons, an overall increase of 9.5 million. The number of unemployed persons in the EU-28 fell in both 2014 and 2015, to 22.9 million (or a rate of 9.4 %). As such, the total number of people who were out of work in 2015 was more than one third (36.5 %) higher than at the onset of the crisis, while the unemployment rate was 2.4 percentage points higher.

***The highest unemployment rates were concentrated in Greek and Spanish regions …***

**Map 5.3** provides information on the distribution of unemployment rates across NUTS level 2 regions in 2015; the darkest shade of orange shows those regions with particularly high unemployment rates (equal to or above 15 %). Such high regional unemployment rates were concentrated across: all but one of the regions in Greece (the exception being Notio Aigaio, the southern Aegean islands); all but two of the Spanish regions (the exceptions being the two northern regions of the Comunidad Foral de Navarra and País Vasco); five southern Italian regions (Calabria, Sicilia, Campania, Puglia and Sardegna); four of the French départements et territoires d'outre-mer (note there are no data available for Mayotte); both Croatian regions; the Belgian capital Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest; Cyprus (a single region at this level of detail), and; the eastern Slovakian region of Východné Slovensko.

***… while the lowest rates were predominantly recorded in German regions***

While the 13 highest regional unemployment rates in the EU were concentrated either in Greece or Spain, 9 out of the 11 lowest regional unemployment rates were located in Germany — the only exceptions were the Czech capital city region of Praha (with an unemployment rate of 2.8 % in 2015) and the Austrian region of Tirol (3.0 %).

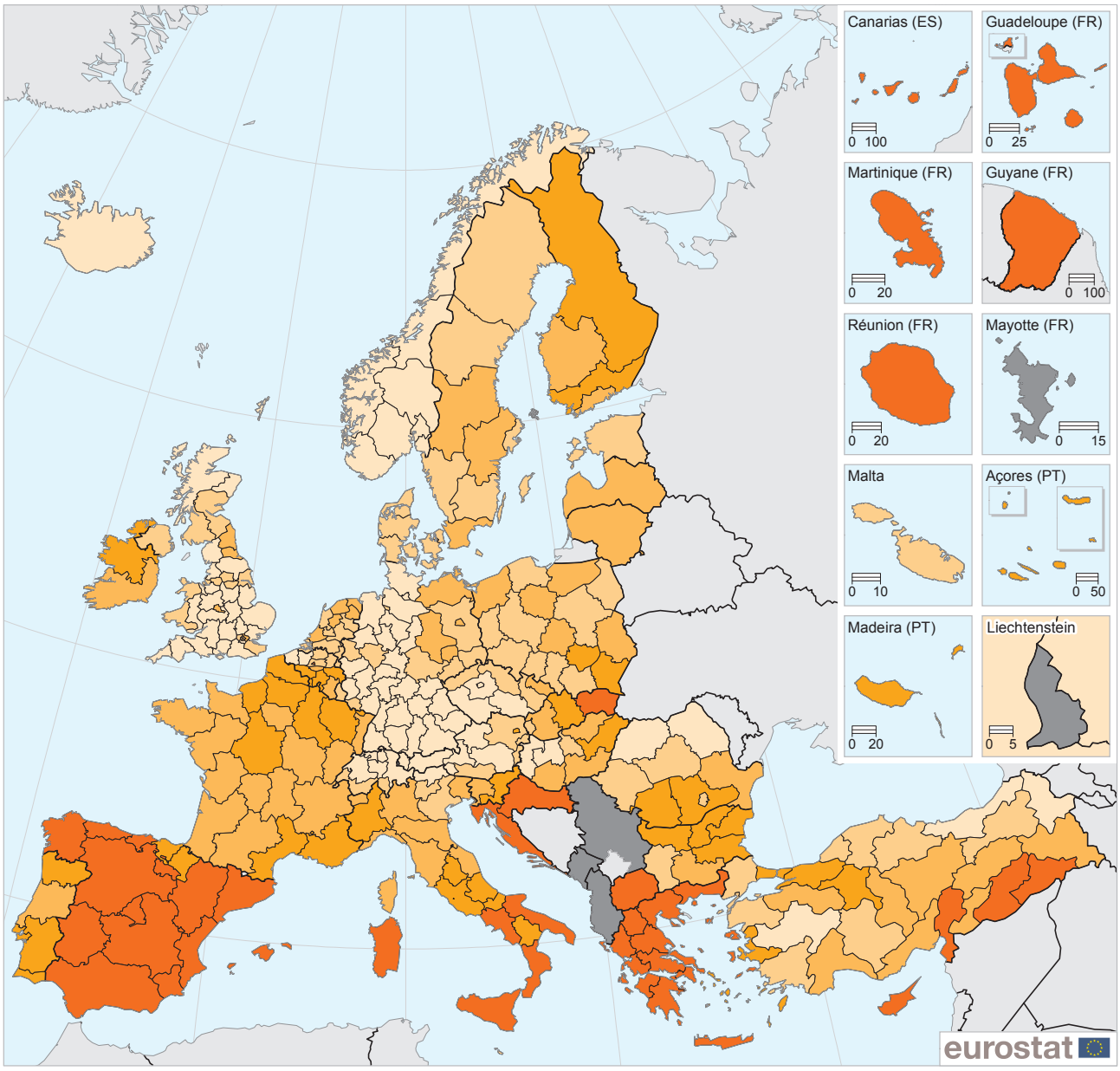
The lowest regional unemployment rates in the EU were recorded in the Bavarian region of Niederbayern and the south-west German region of Freiburg (both 2.5 %), while unemployment rates that were no higher than 3 % were recorded in seven more German regions: Oberpfalz, Oberbayern, Schwaben, Mittelfranken and Unterfranken (all in Bavaria), Tübingen (which is to the south of Stuttgart) and Trier (which is in the extreme west of Germany). Both Freiburg and Trier are on international borders and many workers commute daily across these borders to work in neighbouring Switzerland and Luxembourg (more information may be found in Chapter 13).

### Spotlight on the regions: Freiburg, Germany

**In 2015, the unemployment rate in the EU-28 (among people aged 15–74) stood at 9.4 %. The unemployment rate in Berlin was the same as the EU-28 average, making it the only German NUTS level 2 region that did not record a rate below the EU-28 average. By contrast, the lowest regional unemployment rates across the regions of the EU were recorded in the southern German regions of Freiburg and Niederbayern (both 2.5 %).**

***Photo*: Luidger**

**Map 5.3:** Unemployment rate, persons aged 15–74, by NUTS 2 regions, 2015 (1)
(%)




(%)

EU-28 = 9.4

- < 5.0
- 5.0 – < 7.5
- 7.5 – < 10.0
- 10.0 – < 15.0
- >= 15.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 05/2016

0 200 400 600 800 km

(1) Corse (France) and North Eastern Scotland (the United Kingdom): low reliability.

*Source:* Eurostat (online data code: lfst_r_lfu3rt)

***Unemployment rates were higher in cities (than in rural areas) in most of the western EU Member States …***

**Figure 5.2** presents information for unemployment rates, by degree of urbanisation; background information on the degree of urbanisation is provided within the 'Data sources and availability' section below.

In 2015, the highest unemployment rate (10.0 %) in the EU-28 was recorded for people living in cities, while somewhat lower rates were registered for those living in rural areas (9.1 %) and in towns and suburbs (9.0 %); note these results are based on population-weighted averages.

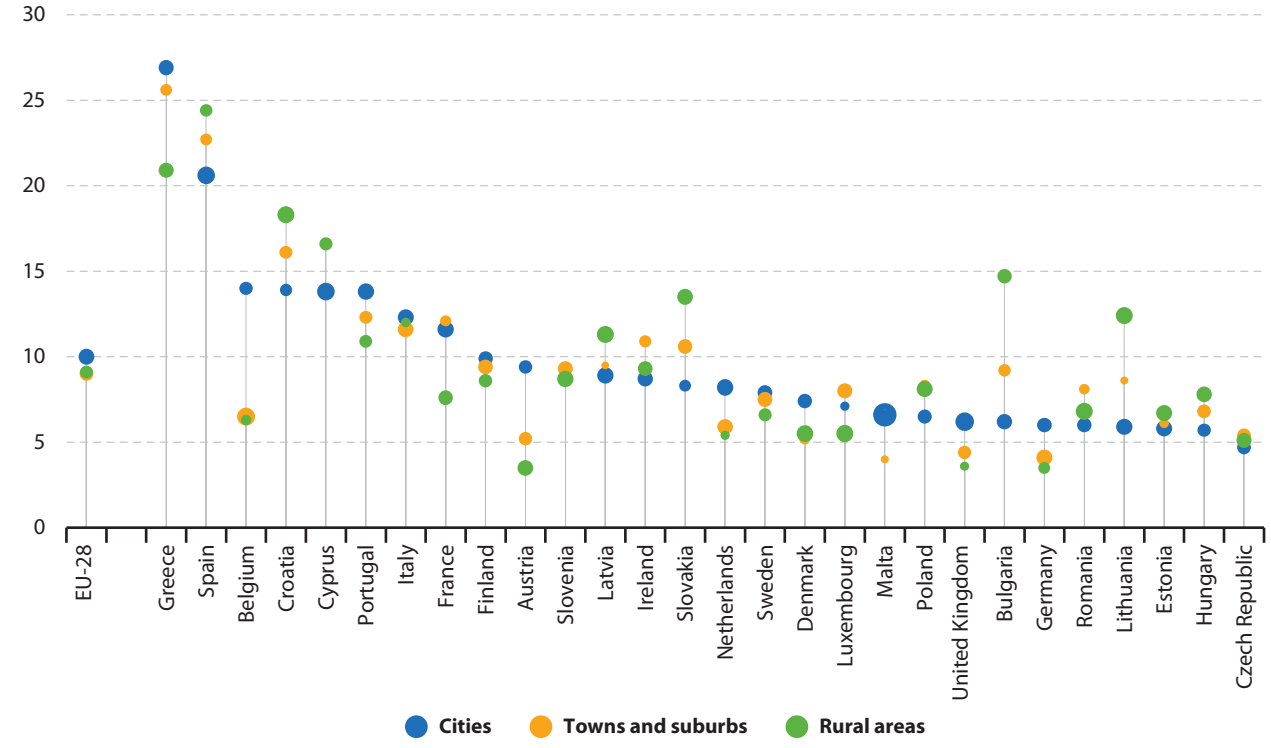
Some of the largest EU Member States (in population terms) recorded their lowest unemployment rates among people living in rural areas (thereby impacting on the overall EU-28 figures). Half — 14 out of 28 — of the Member States recorded higher unemployment rates among people living in cities. This was particularly true in Belgium, where the unemployment rate among people living in cities was 7.7 percentage points higher than for people living in rural areas.

Relatively large differences between cities and rural areas were also apparent in Greece (6.0 points), Austria (5.9 points) and France (4.0 points), while the same was true — although to a lesser degree — in Portugal, the Netherlands, the United Kingdom and Germany.

***… whereas the opposite was true in all but one of the eastern EU Member States***

There were 14 EU Member States where the unemployment rate was higher among people living in rural areas. These included all three Baltic Member States (each of which is a single region at this level of detail), the island regions of Cyprus and Malta (also single regions at this level of detail), seven of the eastern Member States (Slovenia being the only exception), as well as Ireland and Spain. The biggest difference in unemployment rates between rural areas and cities was recorded in Bulgaria where the rate for people living in rural areas was 8.5 percentage points higher than for people living in cities, while relatively large differences were also recorded in Lithuania, Slovakia, Croatia and Spain.

**Figure 5.2: Unemployment rate, persons aged 15–74, by degree of urbanisation, 2015 (1)**
(%)




(1) The size of each circle reflects the share of that type of area in the national population. Population data used to calculate the size of the circles: 2014.

*Source:* Eurostat (online data codes: lfst_r_urgau and ilc_lvho01)

## Youth unemployment

In recent years, young people (aged 15–24) were disproportionately affected by the downturn in economic fortunes and a shrinking European labour market, with the financial and economic crisis making it harder for young Europeans to find and/or keep a job.

***There were 4.6 million young people in the EU-28 without work in 2015***

The overall number of youths (aged 15–24) in the EU-28 who were unemployed rose from 4.2 million in 2008 to peak at 5.6 million in 2013, before falling back to 5.1 million in 2014 and 4.6 million in 2015. As such, unemployed persons under the age of 25 accounted for approximately one in five (20.3 %) of the total number of unemployed persons in the whole of the EU-28 in 2015.

The youth unemployment rate increased from 15.7 % in 2008 to peak at 23.8 % in 2013, before returning to 22.2 % in 2014 and 20.4 % a year later. The youth unemployment rate therefore fluctuated more than the overall unemployment rate which may be attributed, at least in part, to: a higher number of youths being unemployed; a decrease in the number of economically active persons aged 15–24 due to demographic shifts; a growing proportion of young people remaining in education (or returning to education to study), thereby deferring their entry into or removing themselves from the labour force.

***The lowest regional youth unemployment rates in the EU were recorded in Germany***

The regional distribution of youth unemployment rates in 2015 (see **Map 5.4**) closely resembles that for the total unemployment rate (see **Map 5.3**). Of the 265 NUTS level 2 regions for which data are available, the lowest youth unemployment rates in the EU — all less than 6 % — were recorded in seven German regions: Oberbayern, Schwaben (2013 data), Freiburg, Mittelfranken, Weser-Ems, Karlsruhe and Niederbayern (2012 data). With the exception of Weser-Ems and Karlsruhe, the remaining five German regions also reported very low total unemployment rates (not higher than 3 %). The youth unemployment rate was also less than 6 % in Zentralschweiz and Zürich (Switzerland).

Youth unemployment rates were less than 10 % (as shown by the lightest shade of orange in **Map 5.4**) in: 28 out of the 38 German regions (note the latest information for seven of these regions refers to 2012, 2013 or 2014); three Austrian regions (Tirol (2014 data), Oberösterreich and Steiermark); two Dutch regions (Zeeland and Noord-Holland); as well as the Czech region of Jihozápad, the Hungarian region of Közép-Dunántúl and the Nord-Est region of Romania. Youth unemployment rates were also below 10 % in Iceland (a single region at this level of analysis), as well as five out of the seven regions in each of Norway and Switzerland, and the far north-eastern Turkish region of Agri, Kars, Iğdır, Ardahan.

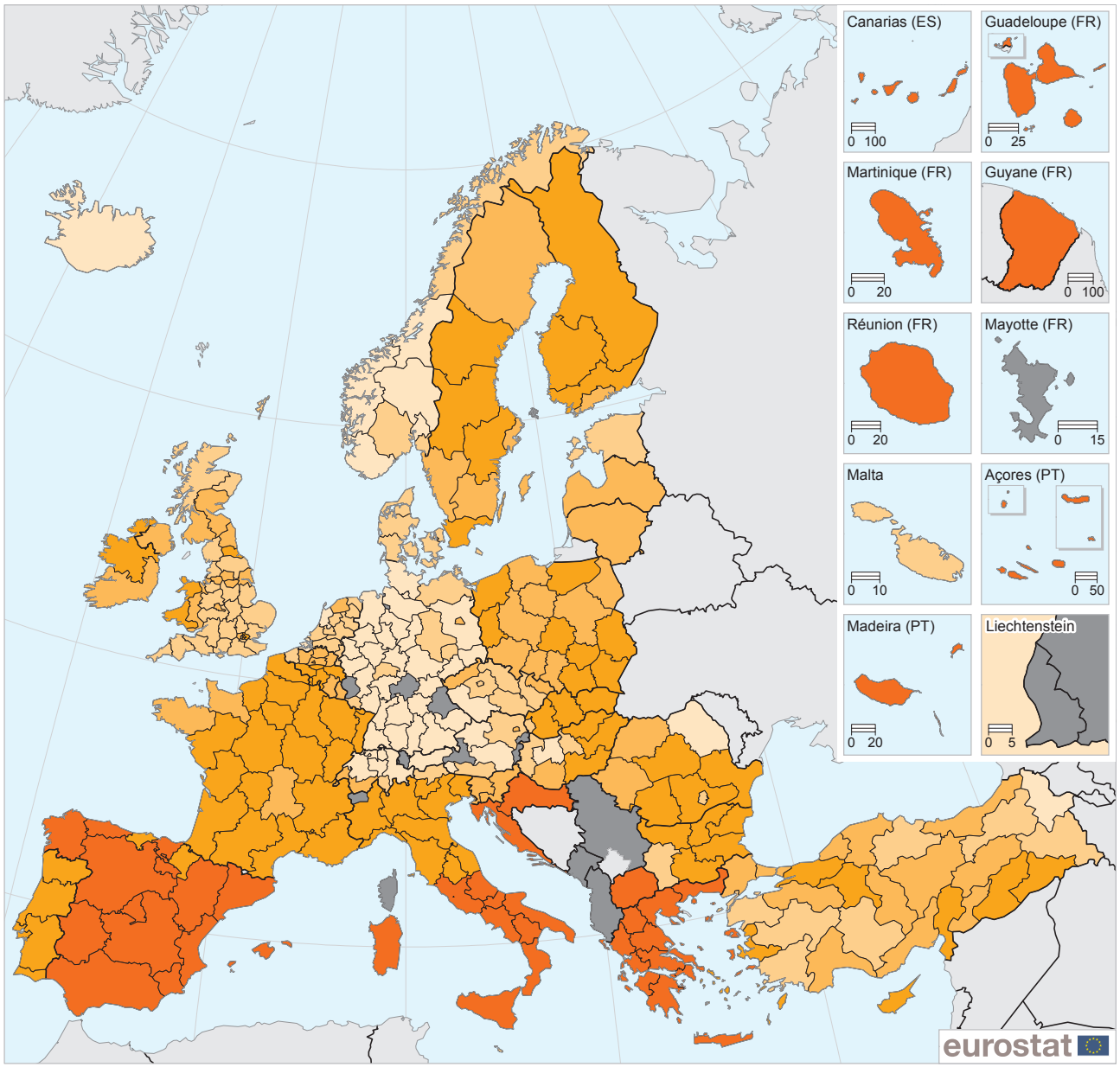
***Youth unemployment was often concentrated in those regions which experienced relatively high overall levels of unemployment***

In 2015, the highest regional youth unemployment rates were recorded in the Spanish Ciudades Autónomas de Ceuta y Melilla (79.2 % and 72.0 %). There were 24 southern and peripheral regions of the EU that reported more than half of their economically active young persons were unemployed, located in: Greece (eight regions), central and southern Spain (seven regions including Ceuta y Melilla), southern Italy (five regions), the French départements et territoires d'outre-mer (three of four regions for which data are available), and the Portuguese islands of the Região Autónoma da Madeira. Another 22 regions recorded youth unemployment rates that were within the range of 40–50 %; these were principally located in the same southern EU Member States, while the list also included both of the Croatian regions. Together, these 46 regions with youth unemployment rates of at least 40 % are shown in the darkest shade of orange in **Map 5.4**; the former Yugoslav Republic of Macedonia (a single region at this level of analysis) was the only non-EU region shown on the map to record such a high level of youth unemployment as its rate was 47.3 % in 2015.

## Defining the youth unemployment rate

The youth unemployment rate is defined as the number of unemployed persons aged 15–24 divided by the economically active population for the same age group. It should be noted that not every young person actively participates in the labour market (for example, because of full-time education) and that the youth unemployment rate concerns only those young people who are unemployed as a proportion of those young people who are active, which means who are working or actively seeking and available to work.

**Map 5.4:** Youth unemployment rate, persons aged 15–24, by NUTS 2 regions, 2015 (1)
(%)




(%)

EU-28 = 20.4

- < 10
- 10 – < 15
- 15 – < 20
- 20 – < 40
- >= 40
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 05/2016

0 200 400 600 800 km

(1) Gießen, Kassel, Braunschweig, Koblenz (Germany), Martinique (France), Tirol (Austria), Lubuskie (Poland), Região Autónoma dos Açores, Região Autónoma da Madeira (Portugal), Cumbria and Highlands and Islands (the United Kingdom): 2014. Oberfranken, Schwaben, Saarland, Chemnitz, Leipzig (Germany) and Guyane (France): 2013. Niederbayern (Germany) and North Eastern Scotland (the United Kingdom): 2012. Includes data of low reliability for many regions.

*Source:* Eurostat (online data code: lfst_r_lfu3rt)

***Some capital city regions in western Europe recorded relatively high youth unemployment rates***

There was a wide variation in regional youth unemployment rates in Italy, Spain and France. For example, in Italy, the youth unemployment rate peaked at a high of 65.1 % in the southern region of Calabria, but was as low as 11.9 % in the northern region of the Provincia Autonoma di Bolzano/Bozen. By contrast, there was a low level of variation between regional youth unemployment rates in the Netherlands and the Nordic Member States, as well as in Ireland, Croatia and Slovenia (although these three EU Member States are only composed of two regions each at this level of detail).

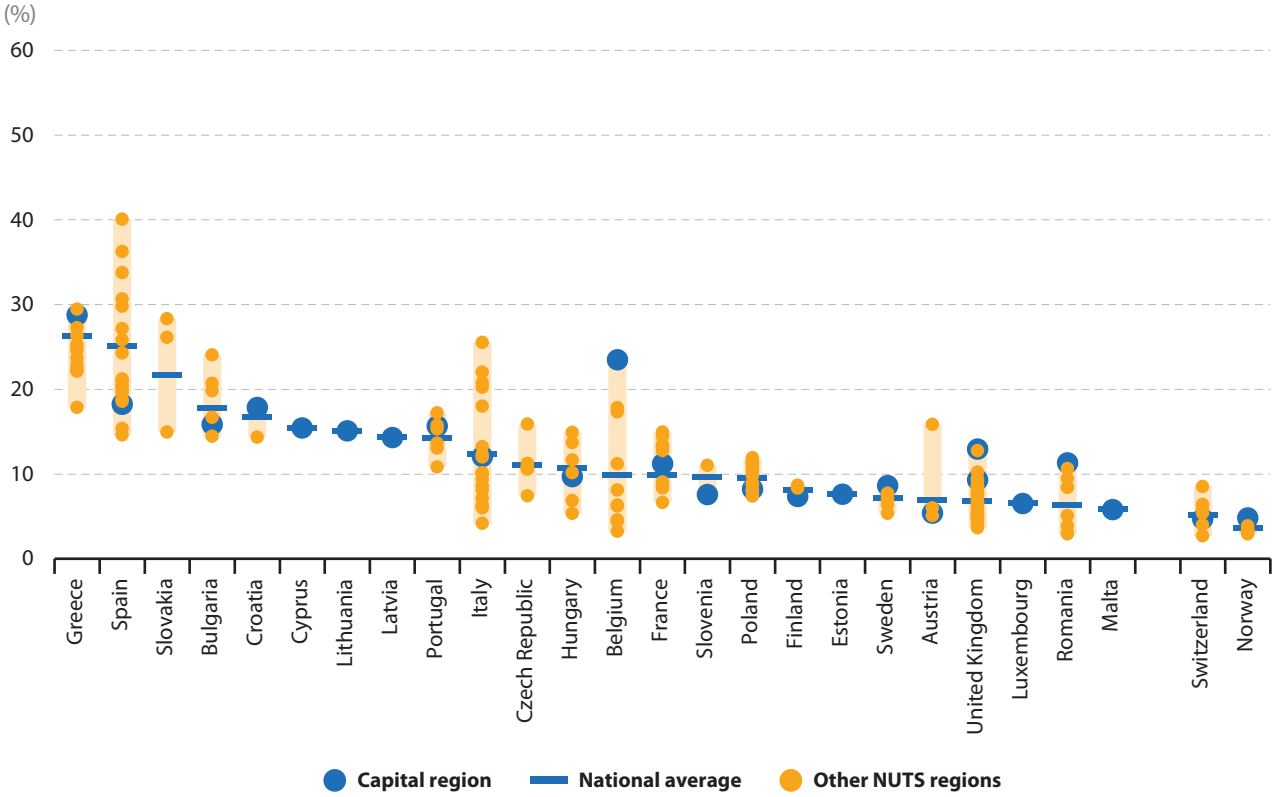
A comparison between the highest and lowest regional youth unemployment rates reveals that the former were at least three times as high as the latter in Italy, Germany, Romania, Belgium and Austria. The regional disparities in Italy are largely due to differences between the southern and northern regions (with the former recording higher youth unemployment rates). In Romania, a similar geographic split was observed, insofar as the highest rates were principally recorded in the south, other than the capital city region of Bucuresti - Ilfov. Both Germany and Austria were characterised by relatively low regional youth unemployment rates:, although there were pockets of higher rates in Berlin and Wien, their capital city regions. The regional disparities in Belgium were a mix of the two patterns described above, with higher rates generally recorded in the southern Walloon regions, while there was a pocket of relatively high youth unemployment in the capital city Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (36.2 %).

## Unemployment rates of people analysed according to the level of educational attainment of their parents

In 2014, the EU-28 unemployment rate was 10.2 %, rising to 18.5 % for those people with a low level of educational attainment (ISCED levels 0–2), and falling to 6.1 % among those with a high (tertiary) level of educational attainment (ISCED levels 5–8). As such, people who invest in a higher education face, to some degree, a lower risk of unemployment.

**Figures 5.3** and **5.4** also make use of the ad-hoc module of the labour force survey (LFS) that was conducted in 2014. They provide information on

**Figure 5.3: Unemployment rate of people whose parents have a low educational attainment, persons aged 15–74, by NUTS 2 regions, 2014 (1)**




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions. Denmark, Germany, Ireland, the Netherlands, Liechtenstein, Montenegro, Albania and Serbia: not available. Among the remaining countries: data for 69 regions are either unreliable or confidential and hence are not shown (including the capital regions of the Czech Republic and Slovakia); data of low reliability for some regions.

*Source:* Eurostat (Labour force survey)

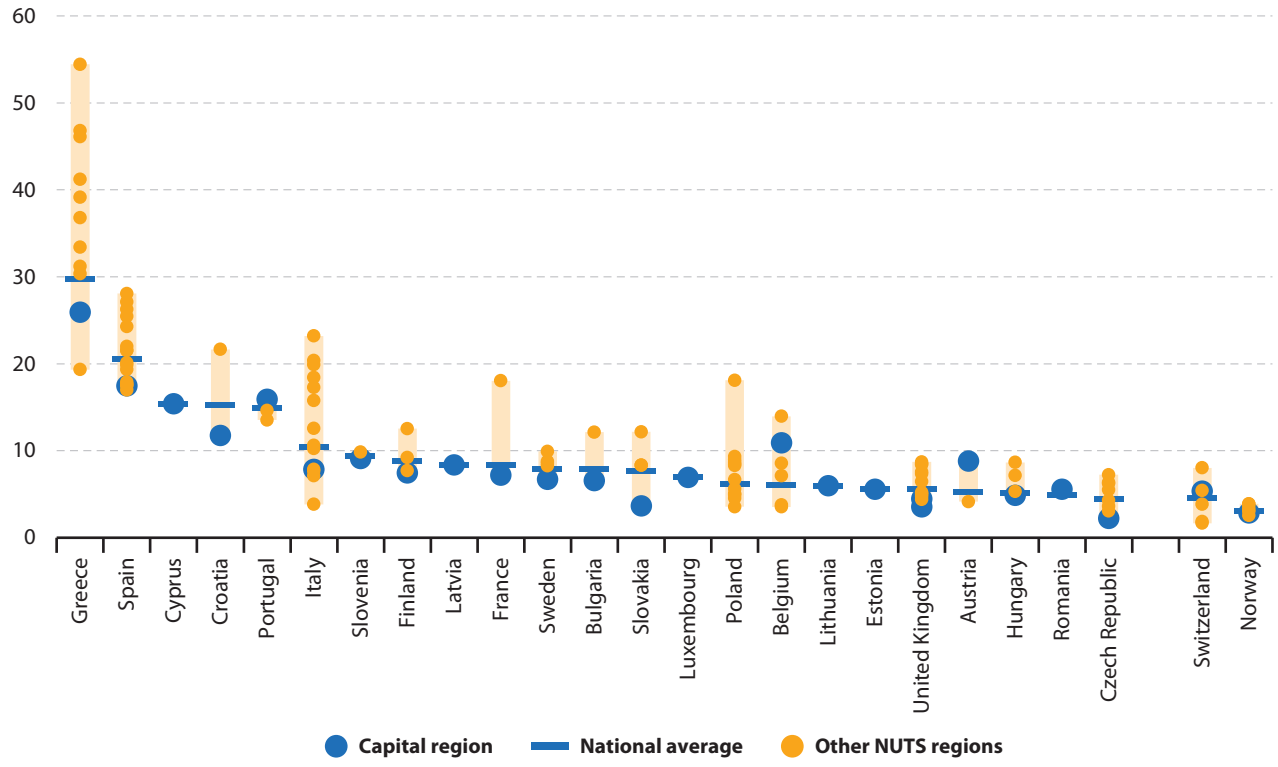
regional unemployment rates analysed according to the level of educational attainment obtained by the parents of the unemployed person. Note that among the EU Member States there are no data available for Denmark, Germany, Ireland, Malta or the Netherlands.

An analysis at the national level suggests that unemployment rates were often lower in 2014 for people whose parents had a relatively high level of educational attainment. This was particularly true in the eastern EU Member States and the Baltic Member States, while the same pattern was also repeated in most of the western Member States (despite differences between the two subpopulations being generally less pronounced). There were however some exceptions, as unemployment rates in Greece were lower among those people whose parents had a relatively low level of educational attainment; this was also true, although with relatively small differences, in Portugal, Sweden, Finland and Luxembourg.

An analysis for the 18 multi-regional EU Member States reveals that in Spain, Italy and Belgium there was a high degree of regional variation in unemployment rates for people whose parents had a relatively low level of educational attainment. By contrast, the biggest regional variations in unemployment rates for people whose parents had a relatively high level of educational attainment were recorded in Greece, Italy and Poland.

**Figure 5.4: Unemployment rate of people whose parents have a high educational attainment, persons aged 15–74, by NUTS 2 regions, 2014 (1)**

(%)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions. Denmark, Germany, Ireland, Malta, the Netherlands, Liechtenstein, Montenegro, Albania and Serbia: not available. Among the remaining countries: data for 91 regions are either unreliable or confidential and hence are not shown (including the capital region of Poland); data of low reliability for some regions.

*Source:* Eurostat (Labour force survey)

## Long-term unemployment

The long-term unemployment ratio is defined as the number of people (aged 15–74) who have been without work for at least 12 months, expressed as a share of the total number of unemployed people.

One third (33.3 %) of the unemployed in the EU-28 had been without work for at least a year in 2009 and this share increased each year through to 2014 as the full impact of the financial and economic crisis took hold of labour markets. The long-term unemployment ratio climbed steadily to 49.6 % in 2014, after which there was a slight reduction to 48.3 %, highlighting the structural nature of a large part of unemployment.

***The long-term unemployed accounted for a relatively low share of total unemployment in the Nordic Member States***

In 2015, the lowest long-term unemployment ratios among the EU Member States were recorded in the Nordic Member States, Sweden (20.6 %), Finland (24.6 %) and Denmark (26.9 %), while Luxembourg, Austria and the United Kingdom were the only other Member States where the long-term unemployed accounted for less than one third of those who were out of work. Among the non-member countries for which data are available, the long-term unemployment ratio was less than one quarter in Norway and Turkey, and fell as low as 12.4 % in Iceland.

There were 24 regions in the EU where the long-term unemployed accounted for less than one quarter of the total number of unemployed persons in 2015 (as shown by the lightest shade of orange in **Map 5.5**). These regions were particularly concentrated in the southern half of the United Kingdom (nine regions), Sweden (all eight regions) and Finland (three of the four regions for which data are available; no data for Åland), while there were also single regions from Denmark (Midtjylland), Austria (Oberösterreich), Poland (Lubuskie) and Romania (the capital city region, Bucuresti - Ilfov).

***In four Greek regions, more than three quarters of the unemployed had been out of work for at least 12 months***

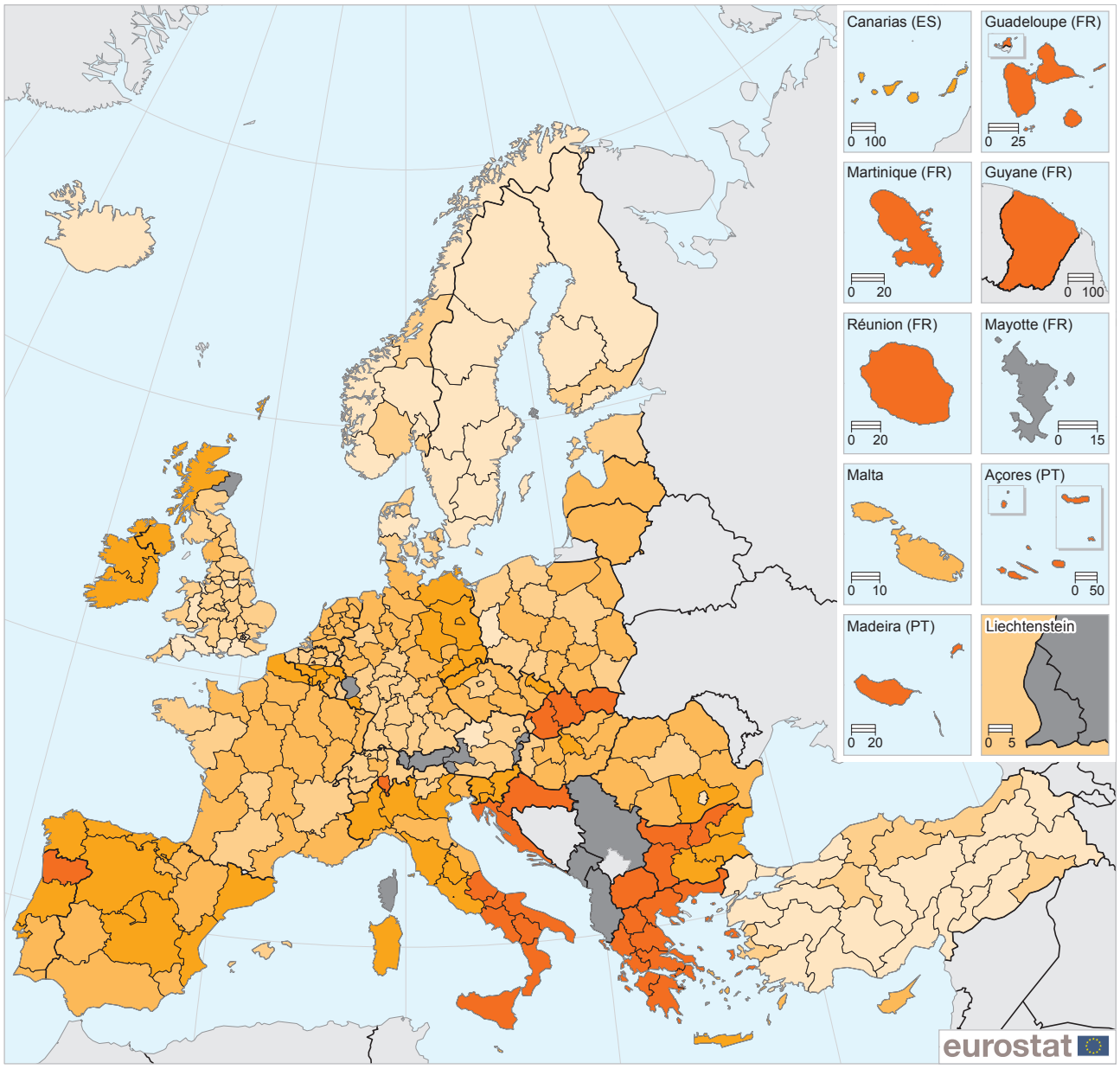
By contrast, the long-term unemployment ratio peaked at 73.1 % in Greece, while more than half of the unemployed population had been without work for at least a year in Spain, Belgium, Slovenia, Portugal, Ireland, Italy, Bulgaria, Croatia and Slovakia. Among the non-member countries for which data are available, more than four out of every five unemployed persons in the former Yugoslav Republic of Macedonia had been without work for at least a year.

In 2015, there were 36 regions in the EU where the long-term unemployed accounted for at least 60 % of the total unemployed population; these regions are shown by the darkest shade of orange in **Map 5.5**. The highest long-term unemployment ratios were principally concentrated in southern and peripheral regions of the EU. There were 11 Greek regions, seven Italian regions (including the island of Sicilia), four French départements et territoires d'outre-mer (no data available for Mayotte), three regions from each of Bulgaria, Portugal (including the islands of Madeira and the Açores) and Slovakia, the two autonomous Spanish cities, both of the Croatian regions, and the Belgian capital city Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest.

Looking in more detail, the highest long-term unemployment ratios were recorded in four Greek regions — Peloponnisos, Attiki, Sterea Ellada and Dytiki Ellada — which were the only regions in the EU to report, in 2015, that more than three quarters of their unemployed had been without work for at least a year. There were six other regions where the long-term unemployment ratio was in the range of 70–75 %: four additional Greek regions (Kentriki Makedonia, Thessalia, Ipeiros and Voreio Aigaio), as well as the Bulgarian region of Severozapaden and the French region of Guadeloupe.

It is interesting to note that, although some of the lowest unemployment rates in the EU were recorded in German regions, at least half of the unemployed remained without work for at least a year in several (principally eastern) German regions, namely Berlin, Saarland, Dresden, Brandenburg, Sachsen-Anhalt, Mecklenburg-Vorpommern and most notably Chemnitz where the highest long-term unemployment ratio among German regions was recorded, at 58.9 %.

**Map 5.5:** Share within all unemployed of long-term unemployed, persons aged 15–74, by NUTS 2 regions, 2015 ([1])
(%)




(%)

EU-28 = 48.3

- < 25
- 25 – < 40
- 40 – < 50
- 50 – < 60
- >= 60
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 05/2016

0 200 400 600 800 km

([1]) Unterfranken (Germany), North Yorkshire, vvLincolnshire, and Highlands and Islands (the United Kingdom): 2014. Cornwall and Isles of Scilly (the United Kingdom): 2013. Includes data of low reliability for some regions.

*Source:* Eurostat (online data code: lfst_r_lfu2ltu)

# Data sources and availability

The information presented in this chapter mainly pertains to annual averages derived from the labour force survey (LFS). The LFS covers 33 participating countries, comprising the 28 EU Member States, three EFTA countries (Iceland, Norway and Switzerland) and two candidate countries (the former Yugoslav Republic of Macedonia and Turkey).

The LFS population generally covers those persons aged 15 and over, living in private households; it excludes those living in collective households, such as residential homes, boarding houses, hospitals, religious institutions, prisons or workers' hostels; persons on compulsory military service are also excluded. It comprises all persons surveyed during the reference week and also includes persons who were absent for a short period due, for example, to studies, holidays, illness or business trips. The survey follows the definitions and recommendations of the International Labour Organisation (ILO).

Note that the LFS data presented concerning employment rates for migrants and unemployment rates of people analysed according to their parents' level of educational attainment are derived from a special ad-hoc module that was conducted in 2014 in relation to the labour market situation of migrants and their immediate descendants. It was designed to compare the labour market situation for first generation immigrants, second generation immigrants, and nationals, and further to analyse the factors affecting the integration in and adaptation to the labour market.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

## Indicator definitions

The economically active population, also called the labour force, is defined as the sum of the employed population and the unemployed population (in other words, those already in work and those actively seeking and available for work).

Employed persons are persons aged 15 years and over who during the reference week performed work, even for just one hour, for pay, profit or family gain or were not at work but had a job or business from which they were temporarily absent, for example, due to illness, holidays, industrial dispute or education and training. The following exceptions apply to the age range used: in Spain and the United Kingdom the data cover those aged 16 and over; in Denmark, Estonia, Finland, Hungary, Latvia and Sweden (from 2001 onwards) the data cover those aged 15–74; and in Iceland and Norway they cover those aged 16–74.

Unemployed persons are defined on the basis of guidelines provided by the ILO as:

- someone aged 15–74 (in Spain, Italy, the United Kingdom, Iceland and Norway the data cover those aged 16–74);
- without work during the reference week;
- available to start work within the next two weeks (or has already found a job to start within the next three months); and,
- actively having sought employment at some time during the previous four weeks.

Note that unemployment takes into account people who would like to (or have to) work after the age of 64 but are unable to find a job. As such, the upper age limit for the unemployment rate is usually set to 74 years, while the upper age range for the employment rate is generally set to 64 years.

The youth unemployment rate is defined as the number of unemployed persons aged 15–24 divided by the economically active population for the same age group. It should be noted that the youth unemployment rate does not reflect the proportion of all young people who are unemployed, as not every young person participates in the labour market (because of full-time education, for example).

The long-term unemployed are those who remain unemployed for 12 months or more. The longer somebody remains unemployed, the less attractive they are likely to be for potential employers, as their specific skills depreciate. Equally, long-term unemployment may have a significant impact on self-esteem and disillusionment, thereby increasing the risk of remaining even longer outside of employment. The long-term unemployment ratio is the share of those who have been without work for at least 12 months in the total unemployed population. This may be contrasted with the long-term unemployment rate, which is the number of people who remained unemployed for a period of 12 months or longer as a percentage of the total labour force.

**For more information**: detailed definitions of labour market indicators are provided in http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_-_methodology.

# 6 Economy

This chapter uses a set of regional economic accounts to analyse economic developments within the European Union (EU): the first section is based on gross domestic product (GDP), the principal aggregate for measuring economic developments/growth; the second provides a brief analysis of labour productivity (defined here as gross value added per person employed); while, the chapter closes with a regional analysis of private household income and disposable income.

Regional accounts serve as the basis for the allocation of expenditure under the EU's cohesion policy. Every region of the EU is covered: however, most structural funds are directed to NUTS level 2 regions where GDP per capita is less than 75 % of the EU-28 average. The allocation of cohesion funds is currently based on a decision referring to average GDP per capita during the three-year period from 2007 to 2009; a mid-term review of cohesion policy allocations is taking place during the course of 2016 and will likely result in some changes to the system — more information is provided in Chapter 1.

## Measuring economic development

Economic development is commonly expressed in terms of GDP, which in the regional context may be used to measure macroeconomic activity and growth, as well as providing the basis for comparisons between regions. GDP is also an important indicator from the policy perspective, as it is crucial in determining the extent to which each EU Member State should contribute to the EU's budget and three-year averages of GDP are used to decide which regions should be eligible to receive support from the EU's structural funds.

GDP per capita is often regarded as a proxy indicator for overall living standards. However, as a single source of information it should not be relied upon to inform policy debates, as it does not take account of externalities such as environmental sustainability or social inclusion, which are increasingly considered as important drivers for the quality of life.

A number of international initiatives have focused on this issue and in August 2009, the European Commission adopted a communication titled GDP and beyond: measuring progress in a changing world (COM(2009) 433 final), which outlined a range of actions to improve and complement GDP measures. This noted that there was a clear case for complementing GDP with statistics covering other economic, social and environmental issues, on which individuals' well-being critically depends. Recent developments on these complementary indicators are detailed in a staff working paper called Progress on 'GDP and beyond' actions (SWD(2013) 303 final), in which public interest in broader measures of GDP is confirmed, including at regional and local levels.

**For more information**: see Chapter 14 on the quality of life from the *Eurostat regional yearbook* — 2015 edition.

## Economic policies

Regional inequalities can be due to many factors, including: geographic remoteness or sparse population, social and economic change, or the legacy of former economic systems. These inequalities may manifest themselves, among others, in the form of social deprivation, poor-quality housing, healthcare or education, higher levels of unemployment, or inadequate infrastructure.

The EU's regional policy aims to support the broader Europe 2020 agenda. It is designed to foster solidarity and cohesion, such that each region may achieve its full potential, improving competitiveness and employment, and bringing living standards in 'poorer' regions up to the EU average as quickly as possible.

## Cohesion policy

More than one third of the EU's budget is devoted to cohesion policy, which aims to remove economic, social and territorial disparities across the EU, for example, by helping restructure declining industrial areas or diversify rural areas. In doing so, EU regional policy seeks to make regions more competitive, foster economic growth and create new jobs. The EU's regional policy is an investment policy supporting job creation, competitiveness, economic growth, improved quality of life and sustainable development.

For the period 2014–20, the EU's cohesion policy has been refocused with the objective of having maximum impact on growth and jobs. During this period, a total of EUR 351 billion will be invested in the EU's regions. Investment will continue across all regions, but policy reforms have been adopted changing the levels of support according to the following classification:

- less developed regions (GDP < 75 % of the EU-27 average);
- transition regions (GDP 75 % – 90 % of the EU-27 average); and,
- more developed regions (GDP > 90 % of EU-27 average).

The EU's regional policy seeks to help every region achieve its full potential, through improving competitiveness and raising the living standards of the

poorest regions towards the EU average (convergence). Regional economic policy seeks to stimulate investment in the regions by improving accessibility, providing quality services and preserving the environment, thereby encouraging innovation and entrepreneurship and the creation of jobs, while overcoming inequalities that may be manifest in social deprivation, poor housing, education and healthcare, higher unemployment or inadequate infrastructure provisions.

## Boosting jobs, growth and investment

In 2014, the European Commission set its top priority as 'boosting jobs, growth and investment'. This is a major new initiative that aims to unlock public and private investment by targeting infrastructure developments, such as broadband internet, energy networks and transport. In its Communication titled an investment plan for Europe (COM(2014) 903 final), the European Commission underlined the role that EU Member States and regional authorities should play to get the maximum impact from structural funds by capitalising on a variety of financial instruments in the form of loans, equity and guarantees. In January 2015, the European Commission adopted a Communication on making the best use of the flexibility within the existing rules of the stability and growth pact (COM(2015) 12 final). This Communication aims to strengthen the link between investment, structural reforms and fiscal responsibility.

# Main statistical findings

GDP at market prices in the EU-28 was valued at EUR 14.0 trillion in 2014, which equated to an average level of approximately 27.5 thousand purchasing power standards (PPS) per capita.

## Regional GDP per capita

**Map 6.1** shows GDP per capita in 2014 for NUTS level 2 regions, with the value for each region first calculated in purchasing power standards (PPS) and then expressed as a percentage of the EU-28 average (set to equal 100 %). As such, it portrays relatively 'rich' regions (shown in blue) where GDP per capita was above the EU-28 average and relatively 'poor' regions (shown in purple); the use of PPSs makes it possible to compare purchasing power across the regions of EU Member States that use different currencies and where price levels are different. The map reveals a clear east–west divide. However, this pattern is less pronounced than it was just over a decade ago— when the EU underwent its largest expansion with the accession of 10 new Member States — as a result of two principal factors:

- a gradual process of economic convergence, resulting from relatively rapid growth among less developed regions;
- the financial and economic crisis, which had a considerable impact on the economic performance of most EU Member States.

## Economic activity — defining GDP

GDP is the central measure of national accounts, summarising the economic position of a country or region. It can be calculated using different approaches: the output approach; the expenditure approach; and the income approach.

GDP is used to analyse economic performance and cycles (such as recessions, recoveries and booms). Data in diverse currencies can be converted into a common currency to make it more easily comparable — for example, converting into euros or dollars. However, exchange rates do not reflect all the differences in price levels between countries or regions. To compensate for this, GDP can be converted using conversion factors known as purchasing power parities (PPPs). By using PPPs (rather than market exchange rates) these indicators are converted into an artificial common currency called a purchasing power standard (PPS); the use of a PPS makes it possible to compare purchasing power across the regions of EU Member States that use different currencies and where price levels are different.

In broad terms, the use of PPS series rather than a euro-based series tends to have a levelling effect, as those regions with very high GDP per capita in euro terms also tend to have relatively high price levels (for example, the cost of living in central Paris or London is generally higher than the cost of living in rural areas of Bulgaria or Romania).

Indeed, many regions in eastern parts of the EU, especially capital city regions, have seen their GDP per capita (adjusted for price level differences) rise in absolute terms and in relation to the EU-28 average. By contrast, the impact of the financial and economic crisis resulted in GDP per capita in 2014 being below the EU-28 average in several NUTS 2 regions where it had previously (in 2008) been above it: this was the case in four British regions, three Dutch regions, two regions in each of Greece, Italy and Finland, and one region each in Spain, Cyprus (which is one region at this level of detail), Slovenia and Sweden. By contrast, three regions in Germany and one each in France and Poland moved from below the EU-28 average in 2008 to above it by 2014.

***The highwhewst level of GDP per capita in the EU was recorded in Inner London - West***

There were five regions where GDP per capita in 2014 was more than double the EU-28 average, namely: Inner London - West, Luxembourg (a single region at this level of analysis), the Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest, Hamburg and Inner London - East. All five of these regions with the highest levels of GDP per capita in 2014 were characterised by considerable commuter inflows: for example, many people travel large distances into central London each day for work, while the Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest is relatively small in size (covering just over 160 km$^2$) and also attracts a considerable number of commuters from its surrounding regions. While the highest absolute numbers were usually recorded for national flows of commuters into regions containing some of Europe's largest cities, it is also interesting to note that in some regions there was a relatively high share of international commuters. For example, a high proportion of those who work in Luxembourg travel across national borders coming to work from neighbouring Belgium, Germany and France.

**For more information**: please refer to Chapter 13.

In 2014, approximately 15 % of the 276 NUTS level 2 regions for which data are available (see **Map 6.1** for coverage) reported that their GDP per capita was at least 25 % higher than the EU-28 average; they are shown in the darkest shade of blue. Many of them were capital city regions or a cluster of regions that neighboured capital city regions, while the vast majority of the others were grouped together in the centre of the map, covering western and southern Germany, western Austria and northern Italy, as well as Switzerland. The remaining regions were the Finnish island region of Åland and two regions associated with North Sea oil and gas production, namely Groningen in the Netherlands and North Eastern Scotland in the United Kingdom. Despite having the largest number of regions with GDP per capita at least 25 % higher than the EU-28 average, the German capital city region — Berlin — was not among them.

***Nearly all of the 21 regions in the EU where GDP per capita was less than half the EU-28 average were located in eastern Europe***

Those regions which are targeted the most by cohesion funds have an average GDP per capita that is less than 75 % of the EU-28 average; these regions are shown in a dark shade of purple in **Map 6.1**. There were 78 NUTS level 2 regions which fell into this category in 2014. It should be noted that the basis of funding for the 2014–20 programming period has been fixed with respect to average GDP per capita during the three-year period 2007–09.

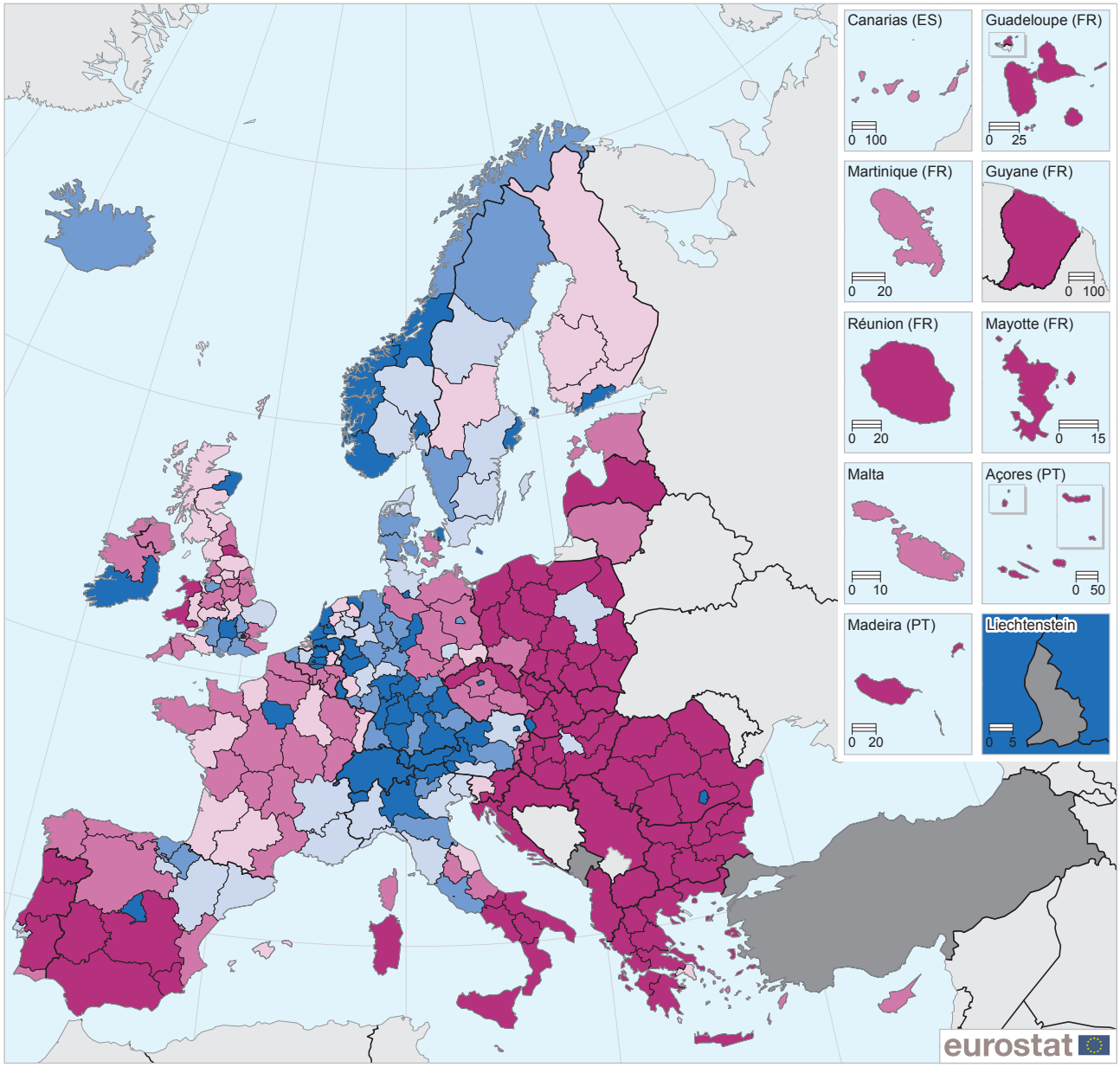
More than a quarter (21 regions) of the 78 regions with relatively low levels of GDP per capita had a level of economic output per capita that was less than half the EU-28 average. Among these 21 regions, 19 were located in eastern Europe and were spread across four of the EU Member States, with five regions from each of Bulgaria, Poland and Romania, and four regions from Hungary. The two remaining regions were the French

## Measuring wealth and income by place of residence or place of work?

Average GDP per capita does not provide an indication as to the distribution of wealth between different population groups in the same region, nor does it measure the income ultimately available to private households in a region, as commuter flows may result in employees contributing to the GDP of one region (where they work), and to household income in another region (where they live).

This drawback is particularly relevant when there are significant net commuter flows into or out of a region. Areas that are characterised by a considerable number of inflowing commuters often display regional GDP per capita that is extremely high (when compared with surrounding regions). This pattern is seen in many metropolitan regions of the EU, but principally in capital cities. Because of this anomaly, high levels of GDP per capita that are recorded for some regions with net commuter inflows do not necessarily translate into correspondingly high levels of income for the people living in the same region.

**Map 6.1: Gross domestic product (GDP) per inhabitant in purchasing power standard (PPS) in relation to the EU-28 average, by NUTS 2 regions, 2014 (1)**
(% of the EU-28 average, EU-28 = 100)




(% of the EU-28 average, EU-28 = 100)

EU-28 = 100
- < 75
- 75 – < 90
- 90 – < 100
- 100 – < 110
- 110 – < 125
- >= 125
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) Norway: 2013. Switzerland, Albania and Serbia: national data. Switzerland and Albania: provisional.

*Source:* Eurostat (online data codes: nama_10r_2gdp and nama_10_pc)

overseas region of Mayotte and the Greek region of Anatoliki Makedonia, Thraki. The two Bulgarian regions of Severozapaden and Yuzhen tsentralen and the French island region of Mayotte reported the lowest levels of average GDP per capita in the EU, with each of these regions having a level of output per capita that was less than one third of the EU-28 average.

***In Inner London - West, GDP per capita was 18 times as high as in Severozapaden***

In 2014, average GDP per capita for Inner London - West (539 % of the EU-28 average) was 18 times as high — having taken account of differences in price levels — as in Severozapaden (Bulgaria), where the lowest average GDP per capita was recorded (30 % of the EU-28 average).

***GDP per capita was higher than the EU-28 average in every region of Norway***

In all of the multi-regional EU Member States there was at least one NUTS level 2 region that had an average level of GDP per capita that was below the EU-28 average in 2014, although this was not the case for the level 2 regions in Norway, as all seven recorded values above the EU-28 average. GDP per capita was above the EU-28 average in only one of the EU Member States that are single regions at this level of analysis, namely Luxembourg; this was also the case in Iceland as well as in Switzerland (for which only national data are available).

## Spotlight on the regions: Mazowieckie, Poland

**The fastest growing region, as measured by the change in GDP per inhabitant during the period 2008–14, was Mazowieckie (the Polish capital city region). It also recorded the highest increase among NUTS level 2 regions for disposable income per inhabitant between 2008 and 2013.**

***Photo*: skitterphoto.com**

In the Czech Republic, Ireland, Hungary, Poland, Portugal, Romania and Slovakia the capital city region was the only region where GDP per capita was above the EU-28 average. Bulgaria, Greece, Croatia and Slovenia were the only multi-regional EU Member States where all NUTS level 2 regions had average GDP per capita below the EU-28 average. GDP per capita was also below the EU-28 average in the five other EU Member States that are single regions at this level of analysis: the Baltic Member States, Cyprus and Malta; this was also the case in the former Yugoslav Republic of Macedonia as well as in Albania and Serbia (only national data are available for both of these countries).

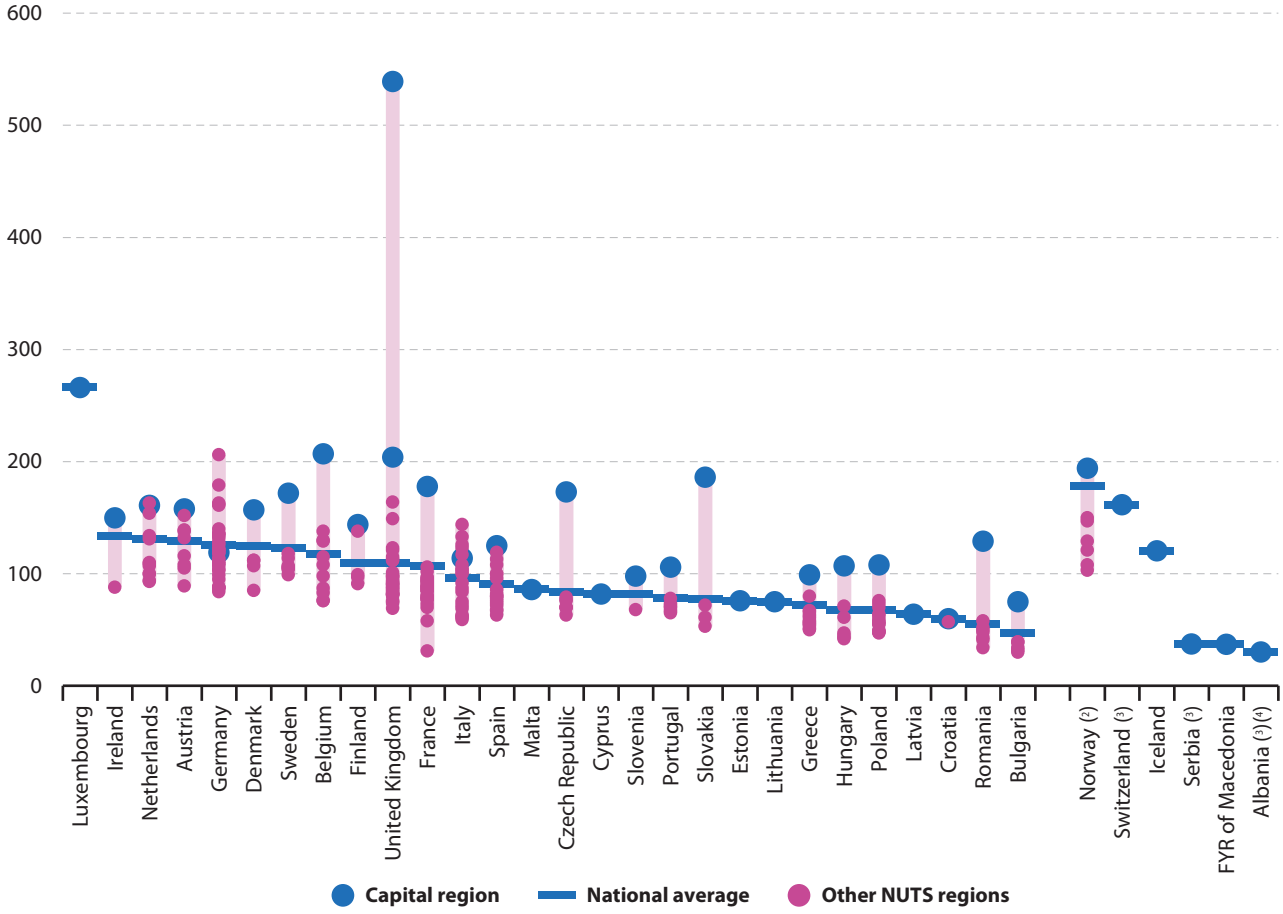
***Capital city regions were generally those with the highest average GDP per capita within most Member States***

**Figure 6.1** presents an alternative analysis of the regional distribution of GDP per capita in 2014. It shows that in a majority of the multi-regional EU Member States, capital city regions were generally those with the highest average GDP per capita; the only exceptions to this rule were Germany, Italy and the Netherlands. In Germany, the highest average GDP per capita was recorded in Hamburg, while Berlin was the only capital city region that recorded GDP per capita below its national average. The Italian capital city region of Lazio had the sixth highest level of GDP per capita among Italian regions, with higher levels recorded in most of the more northerly regions, peaking in the Provincia Autonoma di Bolzano/Bozen. In the Netherlands, Groningen was the only region to record average GDP per capita that was higher than in the capital city region of Noord-Holland.

The capital city regions of Bulgaria, the Czech Republic, Denmark, Ireland, France, Croatia, Portugal, Slovenia, Slovakia and Sweden were the only regions from each of these EU Member States where GDP per capita was higher than the national average in 2014.

An analysis for those EU Member States with more than two regions shows that the widest disparities in wealth creation between regions from the same country were recorded within the United Kingdom, as GDP per capita in Inner London - West was almost eight times as high as in West Wales and the Valleys. There were also considerable differences in levels of GDP per capita between the regions of France, Romania and Slovakia. By contrast, wealth creation was relatively evenly spread across Croatia, Slovenia, the Nordic Member States, Portugal, Ireland, the Netherlands, Austria, Spain and Greece. In each of these EU Member States, average GDP per capita in the region with the highest value was never more than double that recorded in the region with the lowest value; this was also the case in Norway.

**Figure 6.1: Gross domestic product (GDP) per inhabitant in purchasing power standard (PPS) in relation to the EU-28 average, by NUTS 2 regions, 2014 (1)**
(% of the EU-28 average, EU-28 = 100)




(1) The light lilac shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The lilac circles show the other regions. Liechtenstein, Montenegro and Turkey: not available.
(2) 2013.
(3) National data.
(4) Provisional.

*Source:* Eurostat (online data codes: nama_10r_2gdp and nama_10_pc)

## Analysis of regional economic development over time

During the financial and economic crisis, GDP per capita in the EU-28 peaked in 2008 at 26.0 thousand PPS. There was a rapid reduction in activity in 2009 and it was not until 2011 that the average level of GDP per capita had returned (slightly) above its pre-crisis peak. The pace at which GDP per capita was increasing slowed in 2012 and 2013 when an average of 26.7 thousand PPS of GDP was generated per capita, before accelerating again in 2014 to 27.5 thousand PPS per capita.

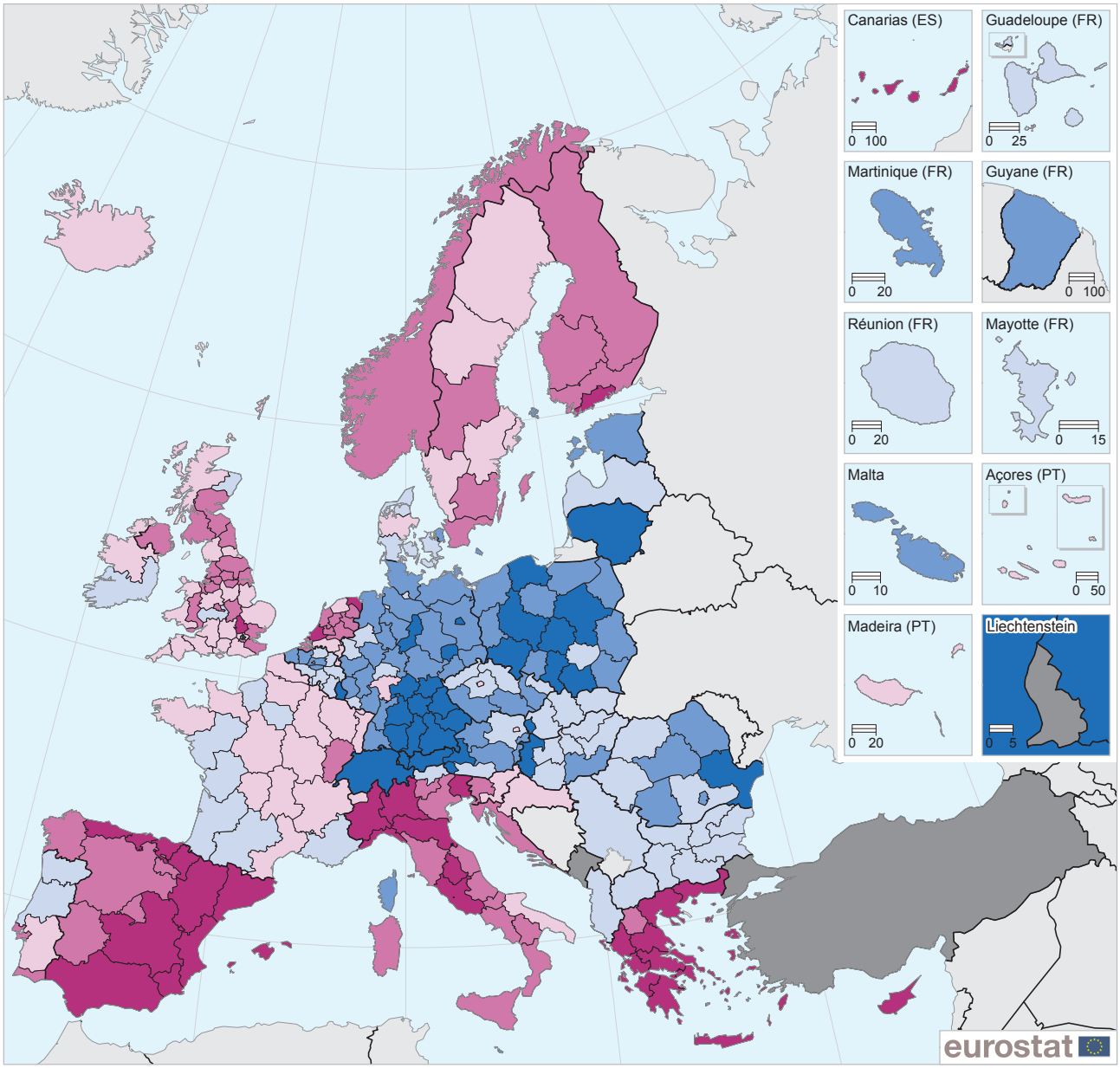
### *GDP per capita increased at a rapid pace in several Polish, German and Austrian regions, Lithuania and Luxembourg*

**Map 6.2** shows the effects of the financial and economic crisis, detailing regional performance for NUTS level 2 regions between 2008 and 2014. Those regions that expanded at a fast pace — as shown by the darkest shade of blue — were principally located in Poland (7 of its 16 regions), Austria (three of its nine regions), Germany (12 of its 38 regions), Lithuania and Luxembourg (both single regions at this level of detail), while — as a percentage of the EU-28 average — GDP per capita also increased by more than 10.0 percentage points in Nyugat-Dunántúl (Hungary), Sud-Est (Romania), Bratislavský kraj (Slovakia), and Inner London - East.

The most rapid economic growth relative to the EU-28 average during the period 2008–14 across NUTS level 2 regions of the EU was recorded in the Polish region of Mazowieckie, which includes the capital of Warsaw. GDP per capita in Mazowieckie was 17.1 % below the EU-28 average in 2008, but rose to be 8.4 % higher than the EU-28 average by 2014.

At the other end of the range, a total of 38 regions recorded a fall of at least 10.0 percentage points between 2008 and 2014 in their GDP per capita relative to the EU-28 average, (as shown by the darkest shade of purple in **Map 6.2**). The impact of the financial and

**Map 6.2: Change of gross domestic product (GDP) per inhabitant in purchasing power standard (PPS) in relation to the EU-28 average, by NUTS 2 regions, 2008–14 (1)**
(percentage points difference between 2008 and 2014)




(percentage points difference between 2008 and 2014)

EU-28 = 0
- < -10
- -10 – < -5
- -5 – < 0
- 0 – < 5
- 5 – < 10
- >= 10
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) Norway, Switzerland, Albania and Serbia: national data. Switzerland and Albania: provisional.

*Source:* Eurostat (online data codes: nama_10r_2gdp and nama_10_pc)

economic crisis on the Greek and Spanish economies was widespread, as 12 of these regions were Greek and 14 Spanish; Cyprus (a single region at this level of analysis) was also in this group of regions, as were seven mainly northern Italian regions, two Dutch regions and one region each from Finland (the capital city region) and the United Kingdom (Bedfordshire and Hertfordshire). The most rapid economic decline relative to the EU-28 average during the period 2008–14 across NUTS level 2 regions of the EU was recorded in three Greek regions (Attiki, Notio Aigaio and Ionia Nisia), where GDP per capita fell by more than 26.0 percentage points relative to the EU-28 average. For example, in the capital city region of Attiki, it fell from 25.4 % above the EU-28 average to 1.2 % below it.

***National economic fortunes appear to play a significant role in determining regional economic performance, with widespread growth in several eastern Member States***

It can be noted that, despite wide variations in average levels of GDP per capita between the regions of some EU Member States, there was a relatively uniform pattern to changes in economic activity over the period from 2008 to 2014. Among the multi-regional EU Member States, GDP per capita grew at a faster pace than the EU-28 average in every region of Bulgaria, Hungary, Poland, Romania and Slovakia, as well as every region except for the capital city region in Belgium, the Czech Republic and Austria, and every region except for one (not the capital city region) in Denmark and Germany. By contrast, every region in Greece, Spain, Croatia, Italy, the Netherlands, Slovenia, Finland (with the exception of Åland) and Sweden saw their average GDP per capita grow at a slower pace than the EU-28 average (usually as a result of slow growth, rather than an absolute decline in GDP per capita). In Ireland, one region grew faster than the EU-28 average and one slower, while only in France, Portugal and the United Kingdom was the situation more mixed, with a majority of regions growing slower than the EU-28 average.

## Labour productivity

Within regional accounts, labour productivity is defined as gross value added in euros at basic prices per person employed; **Map 6.3** presents this indicator for NUTS level 2 regions in 2014 with the results shown as a percentage of the EU-28 average. Regional labour productivity would ideally take account of the total number of hours worked (rather than a simple count of persons employed), however, this measure is currently incomplete for a number of EU Member States.

If there are significant flows of commuters between regions, then it is likely that those regions characterised as having net inflows of commuters will display lower levels of gross value added per person employed than their corresponding ratios for GDP per capita, if the employment data relate to the region of employment rather than residence. In other words, the gap between regions may be narrower when analysing labour productivity than when analysing GDP per capita. That said, the highest level of gross value added per person employed in 2014 was recorded in Luxembourg which had one of the highest levels of GDP per capita; note that data for London are not available.

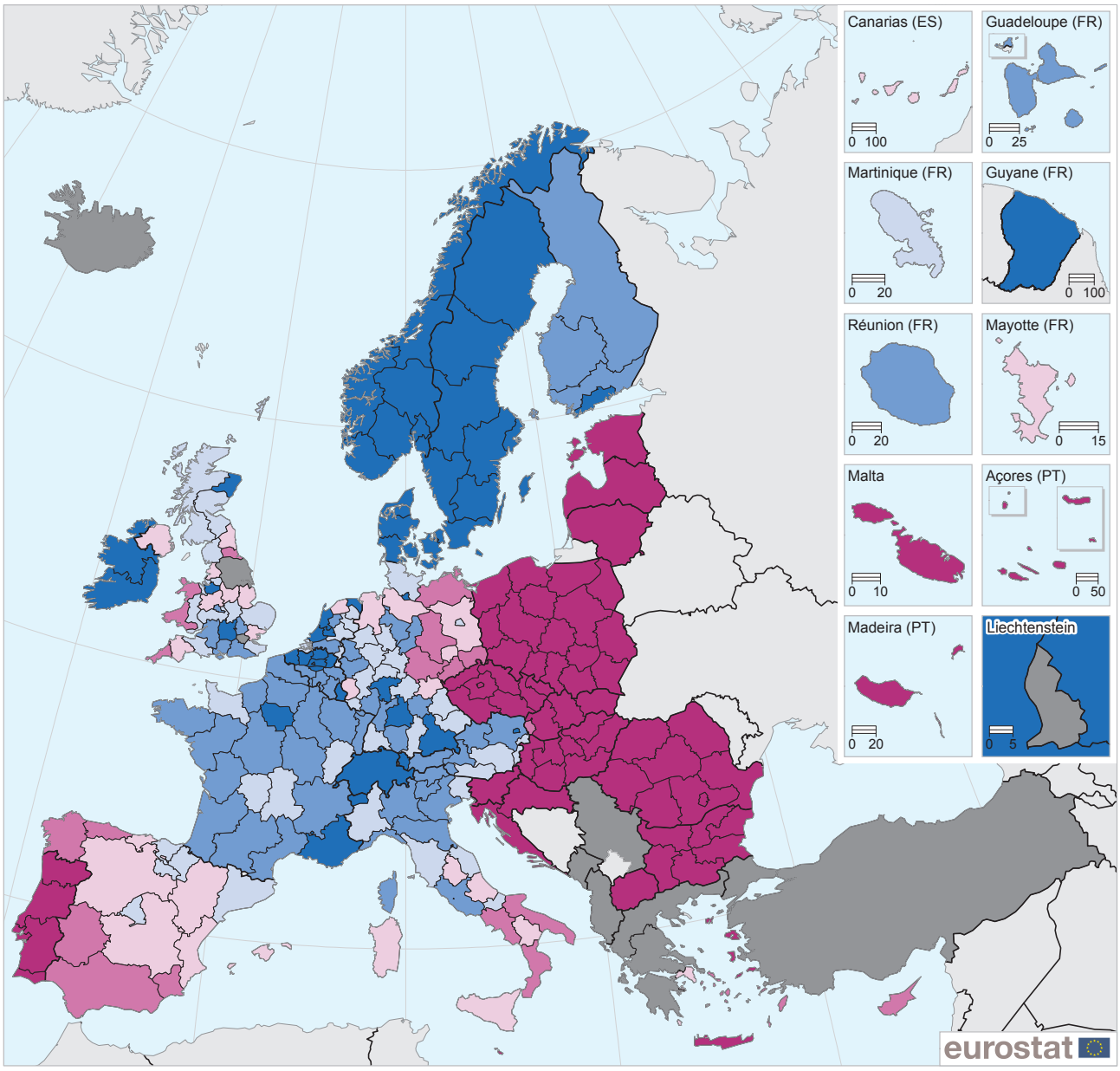
Relatively high levels of labour productivity may be linked to the efficient use of labour (without using more inputs), or may result from the mix of activities that make-up a particular economy (as some activities have higher levels of labour productivity than others). For example, the financial services sector plays a particularly important role in the economy of Luxembourg and this activity is characterised as having particularly high levels of productivity. Southern and Eastern Ireland (which includes Dublin) — which also specialises in financial services — was also present among the top three regions with the highest levels of labour productivity. The remainder of the top 10 was constituted by three Belgian regions (the capital city region and its neighbouring regions), the Danish, French and Swedish capital city regions, as well as two regions associated with North Sea oil and gas production (which were already noted as having high GDP per capita), namely Groningen and North Eastern Scotland.

### Spotlight on the regions: Luxembourg, Luxembourg

**In 2014, Luxembourg had the highest level of gross value added per person employed among NUTS level 2 regions in the EU, its labour productivity was twice as high as the EU-28 average. Luxembourg also recorded the second highest level of GDP per inhabitant (behind Inner London - West). Note that GDP per capita does not necessarily provide a clear indication as to the income that is ultimately available for private households, as commuter flows may result in employees contributing to the GDP of one region (where they work), and to household income in another region (where they live).**

***Photo*: nicrob 77**

**Map 6.3:** Gross value added per person employed in relation to the EU-28 average, by NUTS 2 regions, 2014 (1)
(% of the EU-28 average, EU-28 = 100)




(% of the EU-28 average, EU-28 = 100)

EU-28 = 100
- < 75
- 75 – < 90
- 90 – < 100
- 100 – < 110
- 110 – < 125
- >= 125
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) Slovenia and Switzerland: national data. Croatia, Hungary, Finland and Norway: 2013. Portugal: 2012. Switzerland: provisional.

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

***Labour productivity lower in those EU Member States that joined the EU in 2004 or more recently***

There was not a single region from the Member States that joined the EU in 2004 or more recently that had a level of gross value added per person employed above the EU-28 average. The Slovakian capital region of Bratislavský kraj recorded the highest level of gross value added per person employed among the NUTS 2 regions from these 13 Member States (subject to data availability), at just over 80 % of the EU-28 average in 2014.

There were 64 NUTS level 2 regions where gross value added per person employed was less than three quarters the EU-28 average in 2014 (as shown by the darkest shade of purple in **Map 6.3**). Among these, there were 46 regions where this ratio was less than half the EU-28 average: they were spread across two of the Baltic Member States (Latvia and Lithuania, each one region at this level of detail) and eastern regions of the EU, with low labour productivity ratios in every region of Bulgaria, Croatia and Hungary, all but two of the regions in the Czech Republic and in Poland, all but one of the regions in Romania, and one region in Slovakia. The only southern region with labour productivity below half the EU-28 average in 2014 was Norte in Portugal.

## Primary household income

In recent years there has been growing discussion over the quality of life in Europe, with many people of the opinion that their overall standard of living has deteriorated since the onset of the financial and economic crisis, in particular as a result of falling real wages, increased unemployment, additional burdens of taxes or social charges, lower levels of benefits, or rising prices.

**Map 6.4** provides an overview of primary income per inhabitant in NUTS level 2 regions for 26 of the EU Member States: there are no data available for Luxembourg or Malta. Data are presented in purchasing power consumption standards (PPCS) which adjust for price differences between regions. In 2013, primary income ranged from a high of 51.2 thousand PPCS per inhabitant in Inner London - West down to 4.8 thousand PPCS in Severozapaden, a factor of 10.6 to 1; as such, the highest and lowest values were recorded in the same regions that reported the highest and lowest levels of GDP per capita.

***High levels of primary income in many German regions and more generally in and around capital cities***

There were 52 regions which recorded primary income per inhabitant that was at least 22.5 thousand PPCS in 2013. The majority (27) of these regions were located in Germany, including the second, third and fourth highest figures which were recorded in Oberbayern, Stuttgart and Hamburg. Aside from Inner London - West, there were seven other British regions, mainly in the south-east of England with one region in Scotland (North Eastern Scotland). Other EU Member States with multiple regions in this group were Austria (five regions) Belgium (four regions, clustered around but not including the capital city region), Italy, the Netherlands and Finland (two regions each), while there was one French and one Swedish region. As with the information already shown for GDP per capita, one of the most striking features of **Map 6.4** is the relatively high level of primary income per inhabitant that is registered in regions either containing or surrounding capital cities.

At the other end of the range, there were 36 NUTS level 2 regions that reported primary income per inhabitant that was less than 10 thousand PPCS. These regions were mainly located in Latvia (one region at this level of detail), Greece and eastern EU Member States, specifically Bulgaria (all six regions), Croatia (both regions), Hungary (six of seven regions), Romania (six of eight regions), Poland (8 of 16 regions) and Slovakia (one of four regions); in addition there was one French region.

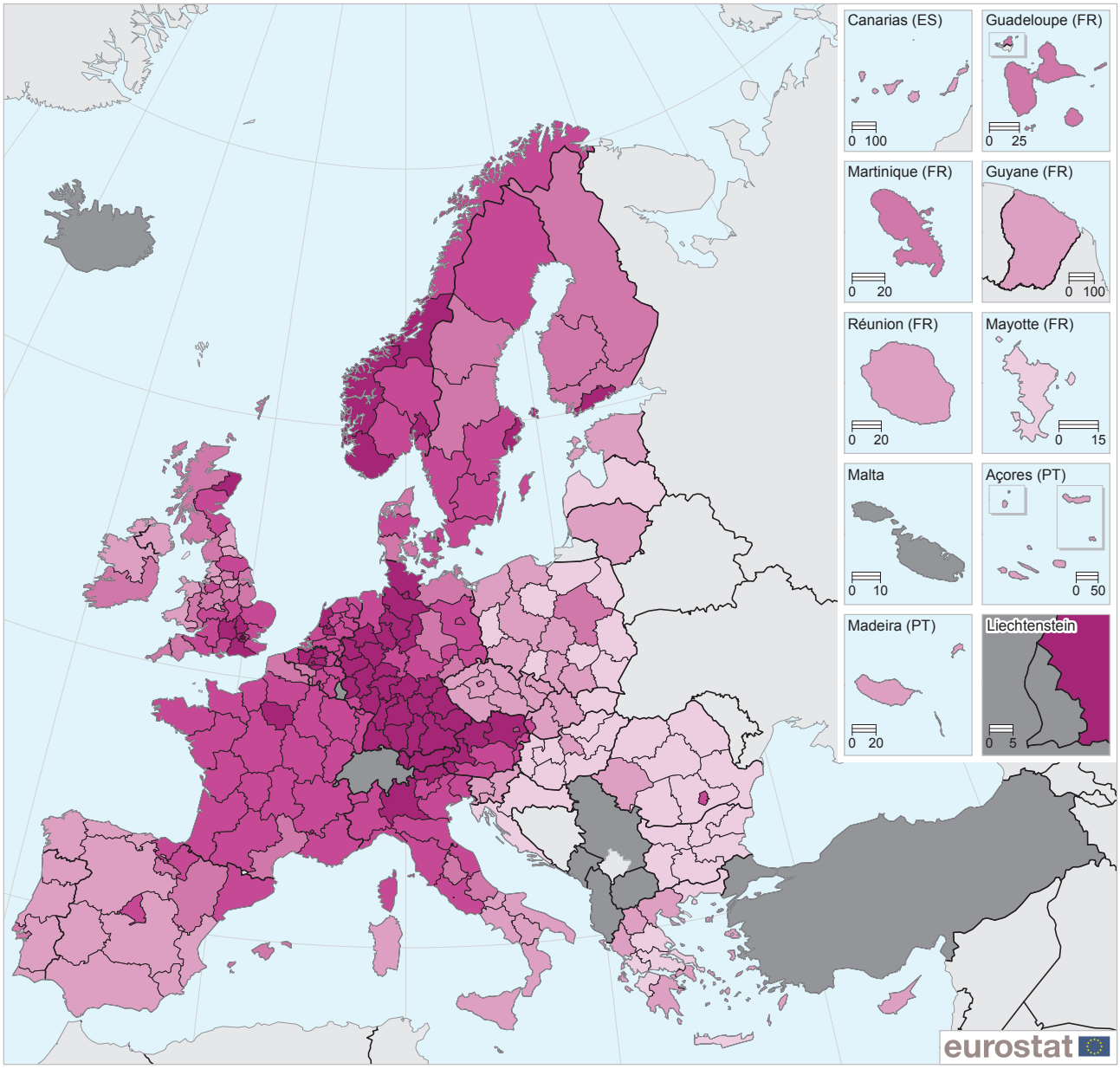
## Disposable income

**Figure 6.2** and **Map 6.5** present information on disposable incomes of private households, in other words, 'in-pocket' income that people can spend or save (once they have paid their taxes and social security contributions and after they have received their social benefits). The highest disposable income per inhabitant in 2013 was recorded in Inner London - West, at 37.9 thousand PPCS; note that no data are available for Luxembourg or Malta. The other 9 regions in the top 10 were all located in Germany, the highest level of disposable income being recorded in the Bavarian region of Oberbayern (which includes München).

The highest level of disposable income per inhabitant in Inner London - West was 7.7 times as high as that in the French overseas region of Mayotte (4.9 thousand PPCS); as such, when compared with the same ratio for primary income (10.6 to 1), the range between highest and lowest region narrowed considerably. Indeed, the disposable income per inhabitant of most regions is generally lower than the corresponding figure for primary income per inhabitant as a result of state intervention (redistribution). This is particularly true in regions which are characterised as having some of the highest earners (often capital city regions), as tax and social security contributions usually increase as a function of income.

**Figure 6.2** shows that capital city regions often accounted for the highest levels of disposable income, although this pattern was less apparent among a few of the EU Member States with the highest levels of disposable income: in Belgium, Germany and Austria, disposable income

**Map 6.4: Primary income of private households relative to population size, by NUTS 2 regions, 2013**
(purchasing power consumption standard (PPCS) per inhabitant)




(purchasing power consumption standard (PPCS) per inhabitant)

EU-28 = 17 654

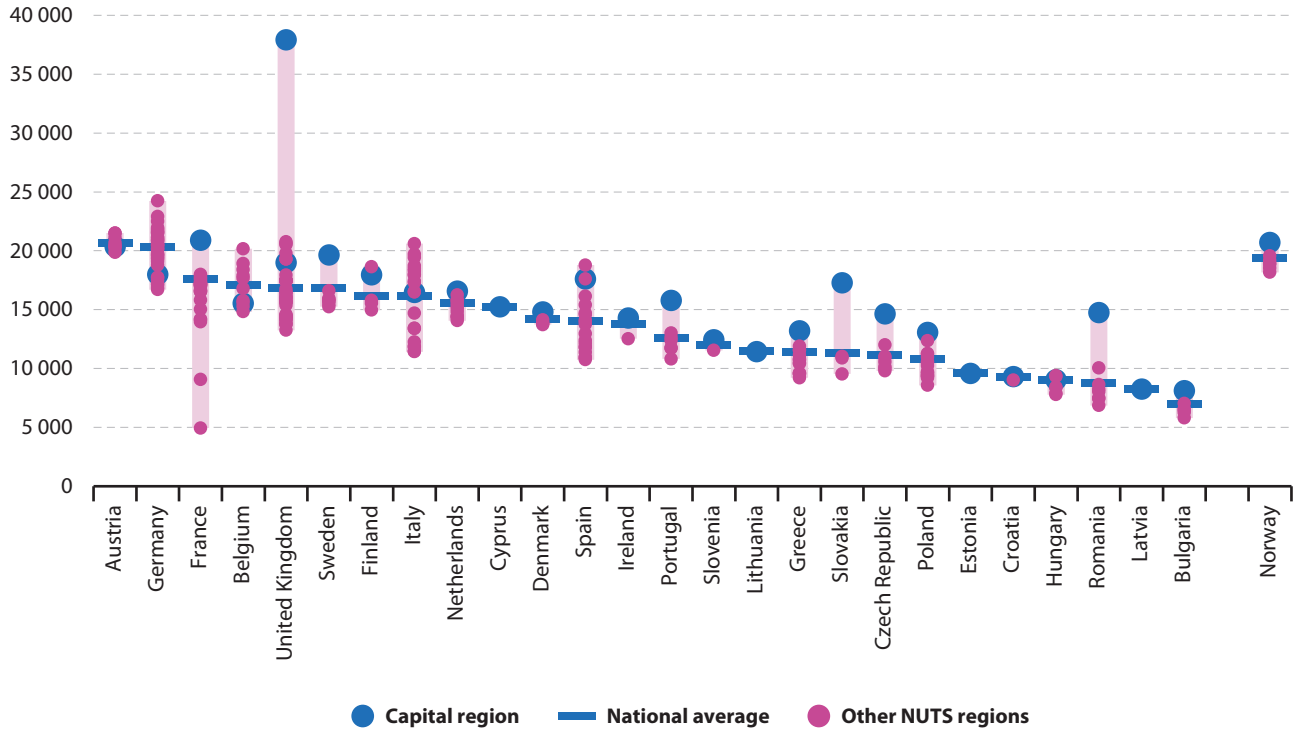
- < 10 000
- 10 000 – < 15 000
- 15 000 – < 17 500
- 17 500 – < 22 500
- >= 22 500
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

*Source:* Eurostat (online data code: nama_10r_2hhinc)

**Figure 6.2: Disposable income of private households relative to population size, by NUTS 2 regions, 2013 (1)**
(purchasing power consumption standard (PPCS) per inhabitant)




(1) The light lilac shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The lilac circles show the other regions. Luxembourg, Malta, Iceland, Liechtenstein, Switzerland, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (online data code: nama_10r_2hhinc)

per inhabitant for the capital city region was below the national average. The capital city regions of Spain, Italy, Hungary and Finland recorded disposable income per inhabitant that was above their respective national averages, although there was at least one other region in each of these EU Member States which recorded a higher level of disposable income per inhabitant.

### *Other than in capital city regions, there was a relatively uniform distribution to disposable income across the regions of most EU Member States*

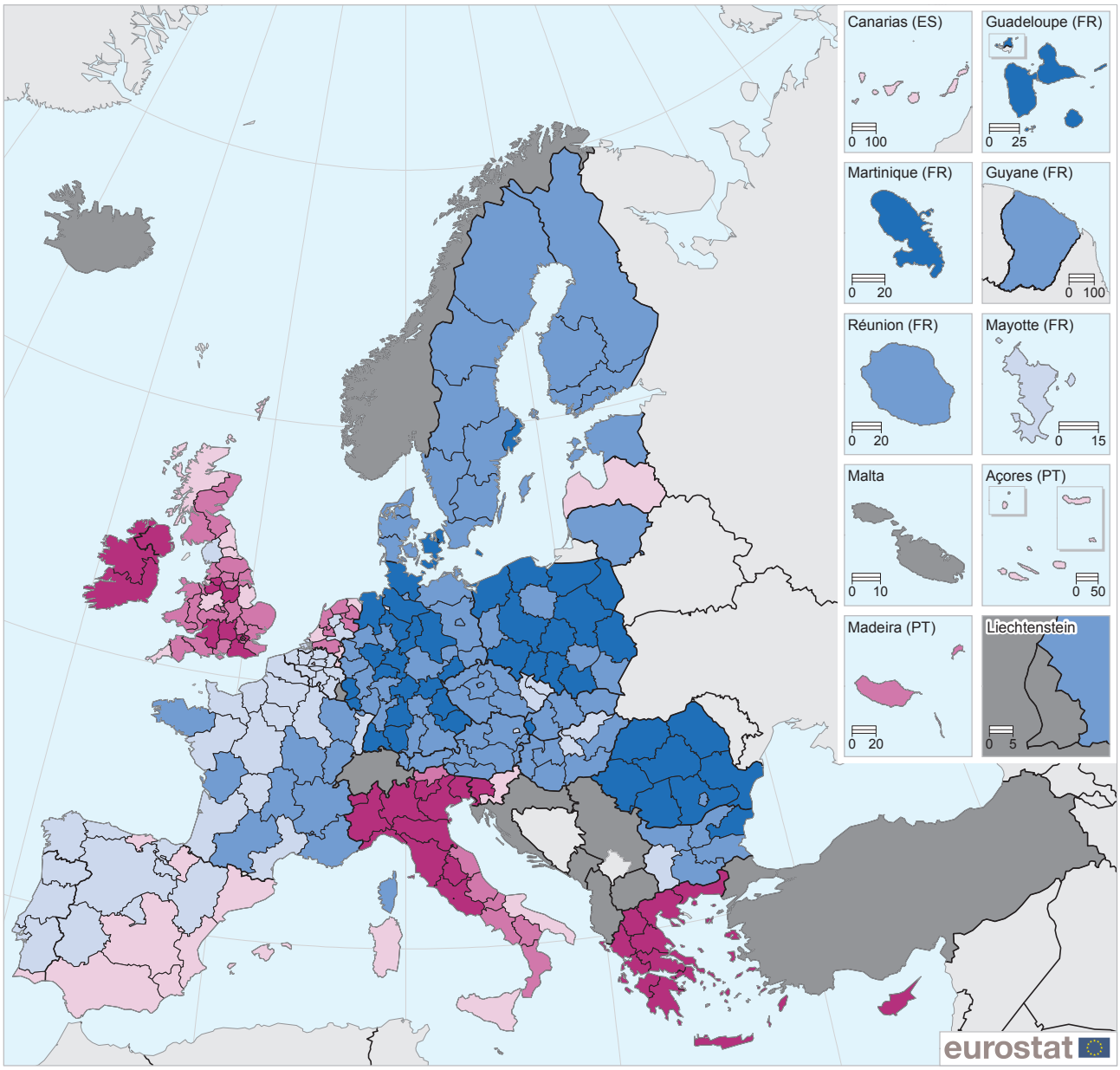
Aside from capital city regions, the distribution of disposable income per inhabitant was often within a relatively narrow range across the remaining regions in most of the EU Member State. This was particularly true in Denmark, Sweden and Austria, which displayed quite uniform distributions. By contrast, and again excluding capital city regions, the largest variations in disposable income per inhabitant across regions of the same EU Member State were recorded in Italy, France and Spain; in France this was in large part due to relatively low values for some of its overseas regions, while in Italy and Spain the differences reflected north–south divides (with higher levels of disposable income in northern regions).

Although most NUTS level 2 regions reported that disposable income per inhabitant was lower than primary income per inhabitant, there were 46 regions which benefitted from social benefits and other transfers to such a degree that their disposable income per inhabitant was higher than their primary income. Such a situation occurred in 10 of the 13 Greek regions, all six Bulgarian regions, five of the eight Romanian regions, five of the seven Portuguese regions, four of the seven Hungarian regions, three regions each from Spain, Italy and the United Kingdom, two regions from Poland and one region each from Germany, France, Croatia and Slovakia, as well as in Cyprus (which is one region at this level of detail).

### *Highest gains in disposable income were recorded in many regions of Germany, Poland and Romania*

**Map 6.5** shows the change in disposable income per inhabitant across NUTS level 2 regions between 2008 and 2013; note that the data for Spain refer to the change between 2010 and 2013 and that there is no information available for Croatia, Luxembourg and Malta. The most visible pattern in the map is the relatively high gains made in disposable incomes across Germany, Poland and Romania during the period under consideration. The highest increases in disposable income across any of the NUTS level 2 regions for which data are available were recorded for the Polish capital city region of Mazowieckie and the Romanian region of Vest. Polish and Romanian regions, along with the Slovakian capital city region, filled all of the top 10 places.

**Map 6.5: Change in disposable income of private households relative to population size, by NUTS 2 regions, 2008–13 (1)**
(overall difference in purchasing power consumption standard (PPCS) per inhabitant between 2008 and 2013)




(overall difference in purchasing power consumption standard (PPCS) per inhabitant between 2008 and 2013)

EU-28 = 592

- < −1 000
- −1 000 – < −500
- −500 – < 0
- 0 – < 1 000
- 1 000 – < 2 000
- >= 2 000
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU-28 and Spain: 2010–13.

*Source:* Eurostat (online data code: nama_10r_2hhinc)

***Disposable income fell by more than one thousand PPCS in all Greek regions***

The biggest contractions in disposable income were felt in some of the EU Member States most affected by the financial and economic crisis. There were 38 regions across the EU-28 where disposable income per inhabitant fell by more than one thousand PPCS between 2008 and 2013 (as shown by the darkest shade of purple in **Map 6.5**). All 13 Greek regions were among this group and the nine regions with the largest falls across the whole of the EU-28 were all Greek, with the single largest reduction in the Greek capital city region (Attiki). Elsewhere, this group of 38 regions was otherwise composed of 11 regions from Italy, 10 from the United Kingdom and both Irish regions, as well as one of the two Slovenian regions and Cyprus( which is one region at this level of detail).

# Data sources and availability

## ESA 2010

The European system of national and regional accounts (ESA) provides the methodology for national accounts in the EU. The current version, ESA 2010, was adopted in May 2013 and has been implemented since September 2014.

ESA 2010 provides a harmonised methodology that should be used for the production of national and regional accounts in the EU. It ensures that economic statistics on the economies of EU Member State are compiled in a consistent, comparable, reliable and up-to-date way. The legal basis for these statistics is a Regulation of the European Parliament and of the Council on the European system of national and regional accounts in the European Union (No 549/2013).

Further information on the transition from ESA 95 to ESA 2010 is presented on Eurostat's website.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

### COVERAGE

Statistics from regional economic accounts are largely shown for NUTS level 2 regions. Data for Switzerland, Albania and Serbia are only available at a national level. The latest statistics available for Norwegian regions refer to 2013, although 2014 national data are available.

Note that a full time series is not available for all regions: special care should therefore be taken when analysing maps that show developments over time; footnotes are provided specifying any deviations from the standard coverage.

## Indicator definitions

Gross domestic product (GDP) is a basic measure of a country's overall economic health. It is an aggregate measure of production, equal to the sum of the gross value added of all resident institutional units engaged in production, plus any taxes, and minus any subsidies, on products not included in the value of their outputs. Gross value added is the difference between output and intermediate consumption.

GDP per person employed is intended to give an overall impression of the competitiveness and the productivity of a national/regional economy. It depends, to some degree, on the structure of total employment and may, for instance, be lowered by a shift from full-time to part-time work.

Gross value added at basic prices is a balancing item of the national accounts' production account, defined as output at basic prices minus intermediate consumption at purchaser prices. The basic price is the amount receivable by the producer from the purchaser for a unit of a product minus any tax on the product plus any subsidy on the product. Gross value added can be analysed by activity: the sum of gross value added at basic prices over all activities plus taxes on products minus subsidies on products gives GDP.

The primary income of private households is that generated directly from market transactions. This generally includes income from paid work and self-employment, as well as income received in the form of interest, dividends and rents; interest and rents payable are recorded as negative items.

Disposable income is derived from primary income by adding all social benefits and monetary transfers (from state redistribution) and subtracting taxes on income and wealth as well as social contributions and similar transfers; as such, it reflects 'in-pocket' income.

# 7 Structural business statistics

Presented according to the activity classification, NACE, a set of structural business statistics (SBS) are used to describe the structure and specialisation of the businesses economy across the regions of the European Union (EU). The second half of the chapter provides information relating to regional business demography statistics, detailing enterprise birth, survival and death rates.

The European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs is responsible, among others, for policies related to:

- completing the internal market for goods and services;
- improving the range, quality, and competitiveness of products and services;
- strengthening the EU's industrial base;
- helping turn the EU into a 'smart, sustainable, and inclusive economy' by implementing the industrial and sectorial policies of the Europe 2020 initiative;
- providing sector-specific and business-friendly policies;
- supporting the internationalisation of EU businesses;
- promoting industrial innovation to generate new sources of growth;
- encouraging the growth of SMEs, in particular through facilitating their access to finance;
- and promoting an entrepreneurial culture by reducing the administrative burden on small businesses; facilitating access to funding for small and medium-sized enterprises (SMEs); and supporting access to global markets for EU companies.

## Small Business Act

Adopted in June 2008, the Small Business Act for Europe (COM(2008) 394 final) reflects the European Commission's recognition of the central role that SMEs play in the EU economy. It put in place a policy framework for SMEs, aiming to promote entrepreneurship, help SMEs tackle problems which hamper their development and implant a 'think small first' principle in policymaking. In February 2011, a review of the Small Business Act (COM(2011) 78 final) was conducted: this presented an overview of the progress achieved and set out new actions to respond to challenges resulting from the financial and economic crisis.

## Entrepreneurship 2020

The European Commission adopted an Entrepreneurship 2020 Action Plan (COM(2012) 795 final) at the start of 2013, designed to stimulate and reignite entrepreneurial spirit across the EU and to remove obstacles so that more entrepreneurs are encouraged to start a business. The plan is built on three main pillars:

- entrepreneurial education and training to support growth and business creation;
- the creation of an environment where entrepreneurs can flourish and grow, removing existing administrative barriers and supporting entrepreneurs in crucial phases of the business life-cycle; and,
- reigniting the culture of entrepreneurship in the EU and nurturing the new generation of entrepreneurs, developing role models and reaching out to specific groups whose entrepreneurial potential is not being fully tapped (for example, some ethnic minorities).

The action plan also seeks to remove the stigma attached to business failure and to make it easier for entrepreneurs to attract investors.

## European industrial renaissance

The effects of the financial and economic crisis were particularly harsh in the industrial economy, with the relative weight of the EU's manufacturing sector declining during the recession. Nevertheless, industrial activities continue to account for the lion's share of EU exports, research and innovation, and also provide a range of high-skilled jobs.

The latest information available from national accounts suggests that gross value added from the EU-28's manufacturing sector accounted for 15.5 % of total gross value added in 2015. In its communication (COM(2014) 14 final), titled, 'For a European Industrial Renaissance', the European Commission set a target of taking the share of manufacturing back to 20 % of GDP by 2020, calling on EU and national decision-makers to recognise the central importance of modernising the industrial base, raising industrial competitiveness, and promoting production and investment as key drivers of economic growth and jobs. The communication also called, among others, for:

- mainstreaming industrial competitiveness in other policy areas;
- maximising the potential of the internal market;
- implementing the instruments of regional development in support of innovation, skills, and entrepreneurship;
- promoting access to critical inputs in order to encourage investment.

# Main statistical findings

## Patterns of employment specialisation in the non-financial business economy

Structural business statistics (SBS) cover industry, construction and non-financial services, collectively referred to as the non-financial business economy, defined here as NACE Sections B to J and L to N and NACE Division 95.

SBS can be analysed at a very detailed sectoral level (several hundred economic activities), by enterprise size class and, as here, by region. These statistics provide information on regional business economies, with harmonised data for the number of local units and persons employed, as well as the monetary value of wages and salaries, and investment.

The analysis of regional SBS presented here is exclusively based upon the number of persons employed. While regional SBS are not collected for value added, this information is available from regional accounts (although the level of activity detail is not as fine).

***Almost 133 million persons were employed in the EU-28's non-financial business economy***

According to estimates made using national SBS, there were 22.6 million enterprises active in the EU-28's non-financial business economy in 2013. Together, they generated EUR 6 235 billion of gross value added and employed some 133 million persons.

While some activities — such as retail trade — ubiquitously appear across all regions, many others exhibit a considerable variation in their level of concentration, often with only a few regions having a particularly high degree of specialisation. The share of a specific NACE activity within the non-financial business economy gives an idea as to which regions are the most or least specialised, regardless of whether the region or the activity considered are large or small. These characteristics are presented for the industrial economy (NACE Sections B to E) and for non-financial services (NACE Sections G to J and L to N and Division 95) in **Maps 7.1** and **7.2**.

The reasons for such specialisation are varied and include: the availability of natural resources (for example, for mining and quarrying or forest-based manufacturing); access to skilled employees (for example, for scientific research and development); the level of production costs (for example, wages and other labour costs, or the cost and availability of other inputs); adequate provision of infrastructure (for example, transport or telecommunications); climatic and topographic conditions (particularly relevant in relation to tourism activities); proximity or access to markets; and legislative constraints. All of these may impact upon the considerable disparities that exist between EU regions as regards the importance of different activities within their respective business economies.

***Industry accounted for almost one quarter of the EU's non-financial business economy workforce***

Across the whole of the EU-28, industrial activities (NACE Sections B to E) accounted for just less than one quarter (24.9 %) of the total workforce in the non-financial business economy in 2012. **Map 7.1** shows that there was a fairly clear east–west split in the relative contribution of industrial activities to non-financial business economy employment in 2013, with industry generally recording a higher share of employment in the easternmost regions.

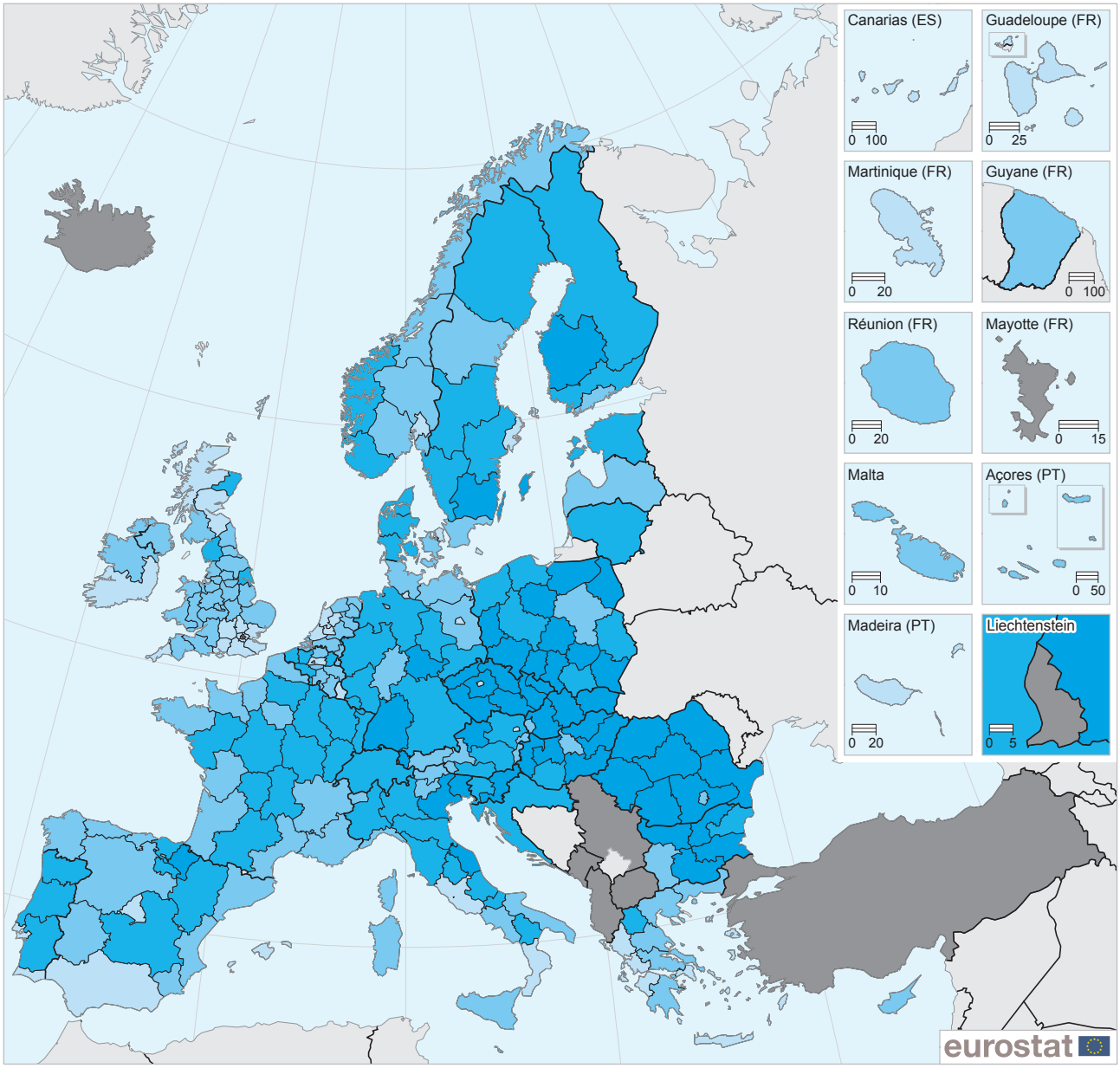
There were 47 NUTS level 2 regions where the industrial workforce accounted for at least 35 % of those working in the non-financial business economy in 2013 (as shown by the darkest shade of blue in **Map 7.1**). The weight of the industrial economy in the non-financial business

### Spotlight on the regions: Severovýchod, Czech Republic

**The industrial workforce accounted for 48.2 % of non-financial business economy employment in the Czech region of Severovýchod in 2013, with the manufacture of motor vehicles, trailers and semi-trailers its largest industrial employer — this was the highest share for the industrial workforce among any of the NUTS level 2 regions in the EU.**

***Photo*: Karelj**

**Map 7.1: Employment share of the industrial economy (NACE Sections B–E), by NUTS 2 regions, 2013 (1)**
(% of the non-financial business economy)




(1) Germany: NUTS level 1. Croatia and Switzerland: national data. EU-28 and Ireland: estimates; 2012.

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

economy workforce was most concentrated in a band of regions that ran from Bulgaria up through Romania into Hungary before splitting to the south into Slovenia and northern Italy, and to the north into Slovakia, the Czech Republic and Poland. In addition there were two regions each in Germany (NUTS level 1) and Austria and single regions in Spain, Finland and Sweden.

The relatively high degree of specialisation for industrial activities in eastern regions of the EU may reflect, to some degree, relatively low labour costs, outsourcing and foreign direct investment strategies, as well as natural resource endowments. By contrast, the industrial sectors of the German and Austrian economies are often characterised by engineering, producing products that are particularly successful in export markets (for example, machinery and electrical equipment).

Looking in more detail at the NUTS level 2 regions, the industrial workforce accounted for 48.2 % of non-financial business economy employment in the Czech region of Severovýchod in 2013, with the manufacture of motor vehicles, trailers and semi-trailers its largest industrial employer. The industrial economy also accounted for more than 45 % of the non-financial business economy workforce in the Romanian region of Vest, another Czech region (Střední Morava), two Bulgarian regions (Severozapaden and Severen tsentralen) and the Hungarian region of Közép-Dunántúl. Outside of these eastern regions of the EU, the central Italian region of Marche (which was the most specialised region in the EU for the manufacture of leather and leather products) recorded the highest share of its non-financial business economy workforce employed within the industrial economy, 39.3 %.

The EU regions with the lowest shares of employment in industrial activities are shown in the lightest shade of blue in **Map 7.1**: in these regions industrial activities accounted for less than 15 % of non-financial business economy employment. Among these 50 regions were the capital city regions of half of the EU Member States, and the Norwegian capital city region also recorded a share below 15 %. The lowest share of all was 1.6 % in Inner London - West.

### *Almost two out of three persons working in the EU's non-financial business economy were employed in non-financial services*

Non-financial services accounted for almost two thirds (65.6 %) of the EU-28's non-financial business economy workforce in 2012. **Map 7.2** shows that there was a high propensity for the most service-oriented workforces to be located in major urban areas and especially in capital city regions. Aside from these, the other pattern apparent when looking at **Map 7.2** is the relatively high share of the workforce employed within non-financial services in several regions that are characterised as tourist destinations.

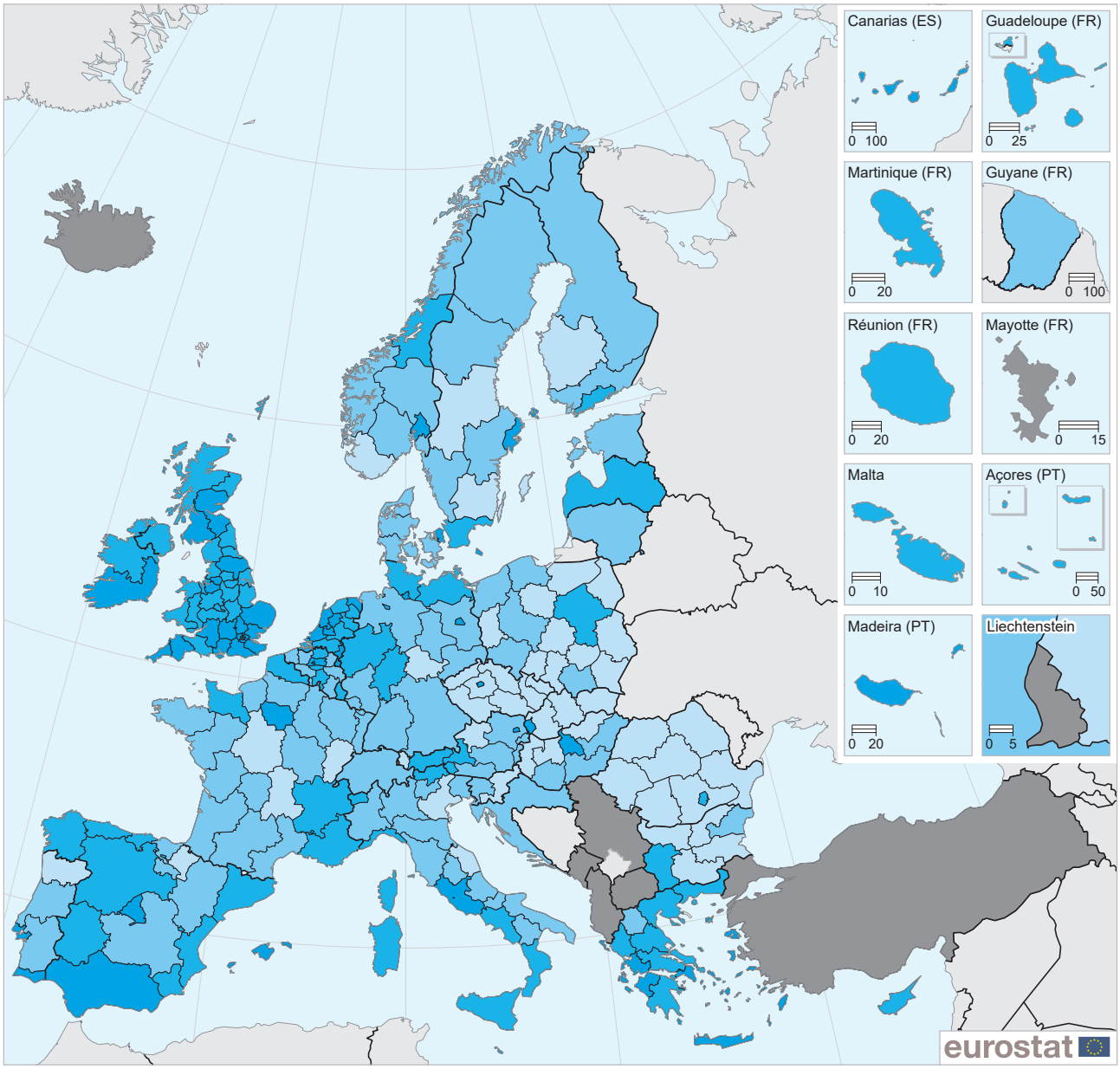
### *Relative importance of the non-financial services workforce was highest in Inner London*

In the capital city regions of the United Kingdom — the western and eastern regions of Inner London — non-financial services accounted for 95.4 % and 92.2 % of the non-financial business economy workforce. Inner London - West was the most specialised region in the EU for multimedia publishing, real estate activities, legal and accounting activities, activities of head offices, and advertising and market research. Note the service orientation of the two Inner London regions would be even greater if financial services were included, given its position as one of the world's leading financial centres.

There were 15 other capital city regions where the share of non-financial services employment was at least 75 % (as shown by the darkest shade of blue in **Map 7.2**). Their shares rose to at least 80 % in the following capital city regions: Southern and Eastern (Ireland; 2012 data), the Área Metropolitana de Lisboa (Portugal), the Comunidad de Madrid (Spain), and Noord-Holland (the Netherlands), as well as Oslo og Akershus (Norway); note that the data for the Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest (Belgium), Praha (the Czech Republic), Berlin (Germany; NUTS level 1) and Wien (Austria) are confidential and as such their precise values may not be disclosed, although it is clear that non-financial services accounted for at least three quarters of the non-financial business economy workforce in each of these regions. The other regions where the employment share of non-financial services reached 80 % or more were the Dutch regions of Utrecht and Flevoland, six British regions in the south-east of England including the three Outer London regions, and the tourist destinations of Ionia Nisia and Notio Aigaio (Greece) and the Canarias (Spain).

In 2013, non-financial services accounted for less than half of non-financial business economy employment in 22 regions across Bulgaria, Romania, Slovenia, Hungary, Slovakia, the Czech Republic and Poland, with the lowest shares (below 44 %) in the Czech regions of Severozápad, Střední Morava and Severovýchod.

**Map 7.2: Employment share of the non-financial services economy (NACE Sections G–N and Division 95, excluding Section K), by NUTS 2 regions, 2013 (1)**
(% of the non-financial business economy)




(% of the non-financial business economy)

EU-28 = 65.6

- < 55
- 55 – < 65
- 65 – < 75
- >= 75
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Germany: NUTS level 1. Croatia and Switzerland: national data. EU-28 and Ireland: estimates; 2012.

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

## Regional employment specialisation and concentration measures

**Table 7.1** presents a more detailed activity analysis, at the level of NACE divisions. The table indicates the average shares (median and mean) for each NACE division in the non-financial business economy workforce, calculated across all level 2 regions of the EU (excluding Ireland and Croatia) and Norway. The final two columns of the table show which region was the most specialised, in terms of employment shares in the non-financial business economy total; note that some of the data are confidential although the names of the regions with the highest shares (not their values) are presented.

### *Śląskie and North Eastern Scotland were specialised in the extraction of fossil fuels*

Mining and quarrying activities of energy-producing and metallic minerals tend to be very concentrated as a consequence of the geographical location of deposits, and therefore only a small number of regions were highly specialised in these activities; these characteristics mean that a handful of regions can account for a relatively high share of sectoral employment in some of these activities. The most notable examples include the mining of coal and lignite in Śląskie (Poland) or the extraction of crude petroleum and natural gas off the coast of North Eastern Scotland (the United Kingdom).

### *Nordic and Baltic regions had a high degree of specialisation in forest-based industries*

Manufacturing activities that involve the primary processing stages of agricultural, fishing or forestry products tend to be concentrated in areas close to the source of their raw materials. The region most specialised in food manufacturing (NACE Division 10) was rural and coastal Bretagne (in the north west of France). Heavily forested and mountainous Nordic and Baltic regions were among the most specialised for the manufacture of wood and wood products (NACE Division 16) and for the related manufacturing of paper and paper products (NACE Division 17).

### *Production of chemicals and pharmaceuticals specialised in Germany and Belgium*

Several German and Belgian regions were relatively specialised in the production of chemicals and pharmaceuticals, with Rheinhessen-Pfalz the most specialised region for chemicals manufacturing and the Prov. Brabant Wallon for pharmaceutical products and preparations. The highest regional specialisation for the manufacture of rubber and plastics was in the Auvergne region of France, with these activities centred on Clermont-Ferrand.

### *Island and capital city regions were some of the most specialised regions for transport services*

Transport services are influenced by location, with water transport (NACE Division 50) naturally being important for coastal regions and islands, while air transport (NACE Division 51) is generally important in those regions which are close to major cities, as well as some island regions (especially those focused on tourism). The small island region of Åland (Finland) is a centre for ferry services between Sweden and Finland and other Baltic Sea traffic — it was very highly specialised in water transport, which accounted for 31.8 % of the total number of persons employed in this region's non-financial business economy in 2013. Outer London - West and North West was the region most specialised in air transport — it includes London Heathrow airport.

### *Traditional holiday destinations are some of the most specialised regions for accommodation services*

Regions traditionally associated with tourism, for example, many regions in Greece, Italy, Portugal and Spain, were among the most specialised in accommodation services (NACE Division 55) and food and beverage service activities (NACE Division 56). The highest shares of non-financial business economy employment from accommodation services and food and beverage service activities were recorded in the Greek region of Ionia Nisia (which includes, among others, the islands of Corfu, Zakynthos and Kefalonia).

### *Capital city regions often specialised in information and communication services, as well as professional, scientific, technical, administrative and support service activities*

Capital city regions were the most specialised regions in many of the information and communication and business services. As already noted, Inner London - West was the most specialised region in the EU for multimedia publishing, real estate activities, legal and accounting activities, activities of head offices, and advertising and market research. Among the remaining information and communication and business services divisions, the most specialised regions included the capital city regions of Belgium, the Czech Republic, Austria, Portugal and Romania.

**Table 7.1: Average share of non-financial business economy employment and most specialised regions by activity and by NUTS 2 regions (1)**
(% of non-financial business economy employment)

| Activity (NACE code) | Average share across EU regions and Norway (% of non-financial business economy employment) | | Most specialised region within EU and Norway | |
|---|---|---|---|---|
| | Median | Mean | Region name (NUTS level 2) | Share in regional non-financial business economy employment (%) |
| Mining of coal & lignite (05) | 0.0 | 0.1 | Śląskie (PL22) | c |
| Extraction of crude petroleum & natural gas (06) | 0.0 | 0.1 | North Eastern Scotland (UKM5) | 4.4 |
| Mining of metal ores (07) | 0.0 | 0.1 | Övre Norrland (SE33) | c |
| Other mining & quarrying (08) | 0.1 | 0.2 | Świętokrzyskie (PL33) | 1.5 |
| Mining support service activities (09) | 0.0 | 0.1 | Agder og Rogaland (NO04) | 10.7 |
| Manuf. of food (10) | 3.2 | 3.3 | Bretagne (FR52) | 11.7 |
| Manuf. of beverages (11) | 0.3 | 0.4 | Corse (FR83) | 3.9 |
| Manuf. of tobacco products (12) | 0.0 | 0.0 | Trier (DEB2) | c |
| Manuf. of textiles (13) | 0.3 | 0.4 | Norte (PT11) | 3.4 |
| Manuf. of wearing apparel (14) | 0.2 | 0.7 | Severozapaden (BG31) | 10.6 |
| Manuf. of leather & leather products (15) | 0.0 | 0.3 | Marche (ITI3) | 6.5 |
| Manuf. of wood & wood products (16) | 0.6 | 0.9 | Latvija (LV00) | 4.2 |
| Manuf. of paper & paper products (17) | 0.4 | 0.5 | Norra Mellansverige (SE31) | 3.7 |
| Printing & reproduction of recorded media (18) | 0.5 | 0.5 | Limousin (FR63) | 1.5 |
| Manuf. of coke & refined petroleum products (19) | 0.0 | 0.1 | Peloponnisos (EL65) | 1.2 |
| Manuf. of chemicals & chemical products (20) | 0.6 | 0.8 | Rheinhessen-Pfalz (DEB3) | 8.7 |
| Manuf. of pharmaceutical products & preparations (21) | 0.2 | 0.4 | Prov. Brabant Wallon (BE31) | c |
| Manuf. of rubber & plastic products (22) | 1.1 | 1.3 | Auvergne (FR72) | 11.2 |
| Manuf. of other non-metallic mineral products (23) | 0.9 | 1.0 | Świętokrzyskie (PL33) | 4.8 |
| Manuf. of basic metals (24) | 0.5 | 0.8 | Norra Mellansverige (SE31) | 9.2 |
| Manuf. of fabricated metal products (25) | 2.3 | 2.7 | Střední Morava (CZ07) | 8.4 |
| Manuf. of computer, electronic & optical products (26) | 0.6 | 0.8 | Észak-Magyarország (HU31) | 5.5 |
| Manuf. of electrical equipment (27) | 0.7 | 1.0 | Oberpfalz (DE23) | 8.3 |
| Manuf. of other machinery & equipment (28) | 1.5 | 2.1 | Tübingen (DE14) | 11.5 |
| Manuf. of motor vehicles, trailers & semi-trailers (29) | 0.8 | 1.6 | Braunschweig (DE91) | c |
| Manuf. of other transport equipment (30) | 0.3 | 0.5 | Midi-Pyrénées (FR62) | 6.7 |
| Manuf. of furniture (31) | 0.5 | 0.7 | Warmińsko-Mazurskie (PL62) | 7.9 |
| Other manufacturing (32) | 0.5 | 0.6 | Kassel (DE73) | 2.7 |
| Repair & installation of machinery (33) | 0.9 | 0.9 | Pomorskie (PL63) | 3.1 |
| Electricity, gas, steam, & air conditioning supply (35) | 0.7 | 0.9 | Dytiki Makedonia (EL53) | 11.6 |
| Water supply (36) | 0.2 | 0.3 | Severozapaden (BG31) | 1.8 |
| Sewerage (37) | 0.1 | 0.1 | Trier (DEB2) | c |
| Waste management (38) | 0.6 | 0.7 | Ciudad Autónoma de Ceuta (ES63) | c |
| Remediation (39) | 0.0 | 0.0 | Centre (FR24) | c |

(1) Non-financial business economy: NACE Rev. 2 Sections B–N (excluding Section K) and Division 95. Excluding Croatia (only national data available) and Ireland.

*Source:* Eurostat (online data code: sbs_r_nuts06_r2)

**Table 7.1 (continued): Average share of non-financial business economy employment and most specialised regions by activity and by NUTS 2 regions (1)**
(% of non-financial business economy employment)

| Activity (NACE code) | Average share across EU regions and Norway (% of non-financial business economy employment) | | Most specialised region within EU and Norway | |
|---|---|---|---|---|
| | Median | Mean | Region name (NUTS level 2) | Share in regional non-financial business economy employment (%) |
| Construction of buildings (41) | 2.5 | 2.8 | Região Autónoma dos Açores (PT20) | 8.5 |
| Civil engineering (42) | 1.1 | 1.2 | Lubelskie (PL31) | 4.6 |
| Specialised construction activities (43) | 5.6 | 6.2 | Poitou-Charentes (FR53) | 16.6 |
| Motor trades & repair (45) | 3.1 | 3.0 | Sjælland (DK02) | 4.9 |
| Wholesale trade (46) | 7.3 | 7.5 | Flevoland (NL23) | 15.7 |
| Retail trade (47) | 14.2 | 14.8 | Nord - Pas-de-Calais (FR30) | 31.4 |
| Land transport & pipelines (49) | 4.3 | 4.3 | Dytiki Makedonia (EL53) | 10.6 |
| Water transport (50) | 0.0 | 0.3 | Åland (FI20) | 31.8 |
| Air transport (51) | 0.0 | 0.2 | Outer London - West and North West (UKI7) | 5.0 |
| Supporting transport activities (52) | 1.7 | 1.9 | Bremen (DE50) | c |
| Postal & courier activities (53) | 1.1 | 1.1 | Köln (DEA2) | 10.9 |
| Accommodation (55) | 1.6 | 2.4 | Ionia Nisia (EL62) | 14.6 |
| Food & beverage service activities (56) | 6.0 | 6.3 | Ionia Nisia (EL62) | 20.0 |
| Publishing activities (58) | 0.4 | 0.5 | Oslo og Akershus (NO01) | 2.7 |
| Multimedia publishing (59) | 0.1 | 0.2 | Inner London - West (UKI3) | 3.1 |
| Programming & broadcasting (60) | 0.1 | 0.1 | Outer London - West and North West (UKI7) | 2.4 |
| Telecommunications (61) | 0.4 | 0.6 | Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE10) | 3.5 |
| Computer activities (62) | 1.2 | 1.7 | Utrecht (NL31) | 8.0 |
| Information service activities (63) | 0.2 | 0.3 | Wien (AT13) | 1.6 |
| Real estate activities (68) | 2.0 | 1.9 | Inner London - West (UKI3) | 5.4 |
| Legal & accounting activities (69) | 2.3 | 2.4 | Inner London - West (UKI3) | 9.6 |
| Activities of head offices (70) | 1.2 | 1.6 | Inner London - West (UKI3) | 10.5 |
| Architectural & engineering activities (71) | 2.1 | 2.2 | North Eastern Scotland (UKM5) | 12.6 |
| Scientific research & development (72) | 0.2 | 0.4 | Oberbayern (DE21) | 2.0 |
| Advertising & market research (73) | 0.5 | 0.7 | Inner London - West (UKI3) | 3.9 |
| Other professional, scientific & technical activities (74) | 0.6 | 0.7 | Praha (CZ01) | 2.0 |
| Veterinary activities (75) | 0.2 | 0.2 | North Yorkshire (UKE2) | 0.8 |
| Rental & leasing activities (77) | 0.4 | 0.5 | North Eastern Scotland (UKM5) | 2.0 |
| Employment activities (78) | 2.0 | 2.8 | Groningen (NL11) | 14.3 |
| Travel agency & related activities (79) | 0.3 | 0.4 | Illes Balears (ES53) | 1.8 |
| Security & investigation (80) | 0.7 | 1.0 | Bucureşti - Ilfov (RO32) | 5.7 |
| Service to buildings & landscape activities (81) | 2.8 | 3.0 | Ciudad Autónoma de Melilla (ES64) | 15.0 |
| Other administrative & business activities (82) | 1.3 | 1.4 | Área Metropolitana de Lisboa (PT17) | 8.4 |
| Repair of computers & personal & household goods (95) | 0.3 | 0.3 | Limousin (FR63) | 1.0 |

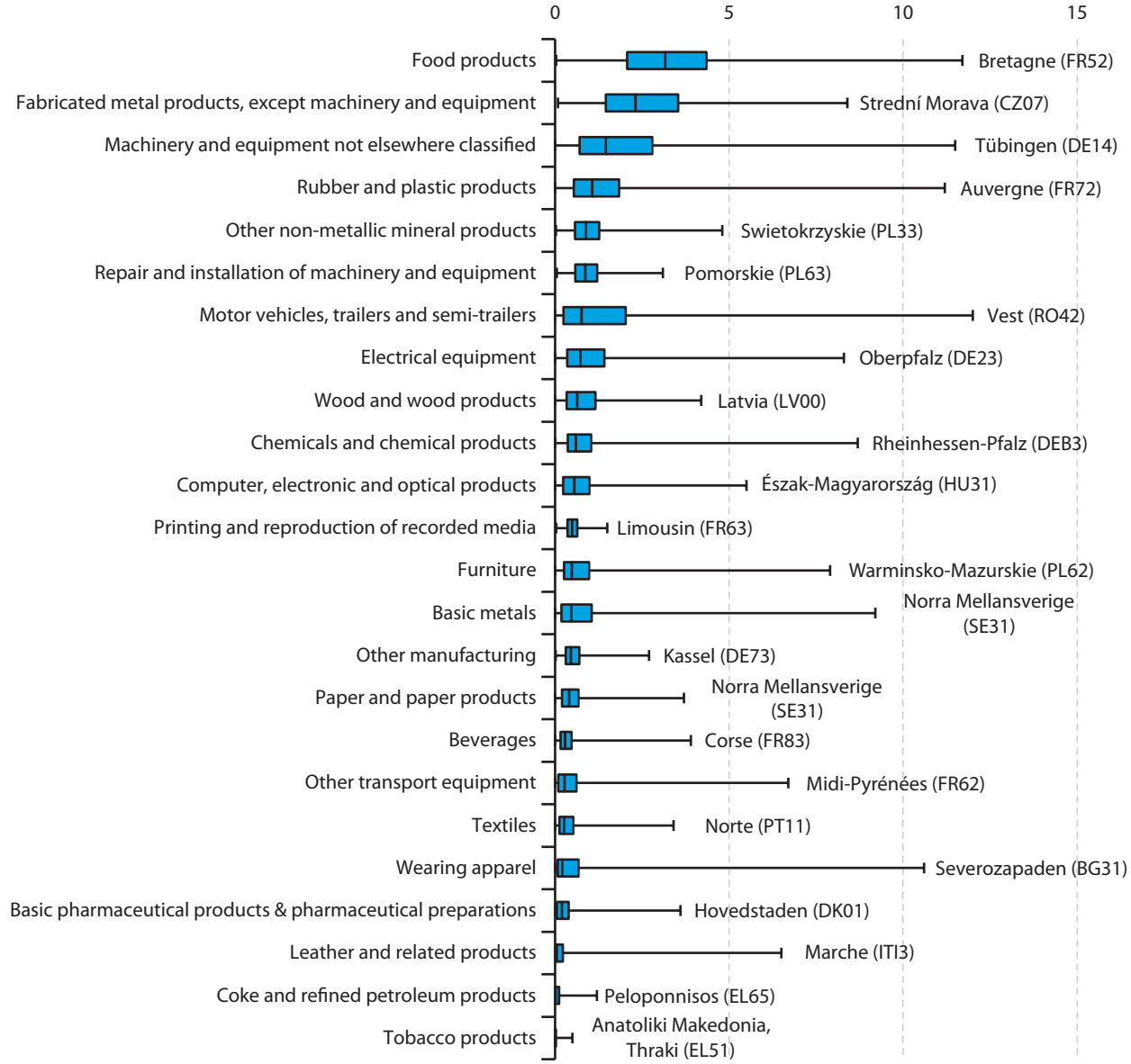
(1) Non-financial business economy: NACE Rev. 2 Sections B–N (excluding Section K) and Division 95. Excluding Croatia (only national data available) and Ireland.

*Source:* Eurostat (online data code: sbs_r_nuts06_r2)

**Figures 7.1** and **7.2** provide an overview of the relative importance of economic activities at the NACE division level in the non-financial business economy workforce: **Figure 7.1** concerns manufacturing divisions and **Figure 7.2** non-financial services divisions. For each activity, the horizontal lines indicate the spread from the region with the lowest share of that activity in its non-financial business economy workforce to the region with the highest share; the region with the highest share is also named in the figure. The extremes of the highest and lowest shares can be influenced by a single region, and the coloured box shows a narrower range, defined to cover half of the regions (the inter-quartile range), with one quarter of all regions having a higher employment share in that activity and one quarter of the regions having a lower share. The central bar within the coloured box shows the value of the median region. The activities are ranked from the largest employer — food products manufacturing in **Figure 7.1** and retail trade in **Figure 7.2** — to the smallest — tobacco products manufacturing and air transport.

One of the particularities of **Figure 7.1** is that there are several manufacturing divisions where the value for the most specialised region is many times greater than the median value, whereas for the non-financial services

**Figure 7.1: Regional specialisation within the EU-28 and Norway's manufacturing economy (NACE Section C), by NUTS 2 regions, 2013 (1)**
(% share of regional non-financial business economy employment)




(1) The minimum and maximum values are shown by the vertical lines (at the extremes); the inter-quartile range is shown by the shaded box, with the median share the vertical line within the box; the figure is ranked on the median share for each activity; the name of the region with the highest share is also shown.

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

divisions this is less common, aside from the specific cases of water and air transport.

Looking more closely at **Figure 7.1**, a few activities can be identified where not only the range from largest to smallest is broad, but so is the interquartile range (the width of the box in the figure), for example, the manufacture of: motor vehicles, trailers and semi-trailers; machinery and equipment not elsewhere classified; rubber and plastic products; wearing apparel; food products; basic metals food products. This reflects a relatively wide range of shares across a large number of regions, indicating activities where the level of specialisation is quite diverse. By contrast, activities where the interquartile range is narrow — such as printing and reproduction of recorded media — have a relatively similar share of non-financial business economy employment across a large number of regions, indicating that many regions are not particularly specialised or non-specialised in these activities.

The employment spread for large, basic services, like motor, wholesale and retail trade, which tend to serve more local clients, was relatively narrow, both in terms of the ratio between the maximum and median values and in terms of the breadth of the inter-quartile range:

**Figure 7.2: Regional specialisation within the EU-28 and Norway's non-financial services economy (NACE Sections G–N and Division 95, excluding Section K), by NUTS 2 regions, 2013 (1)**
(% share of regional non-financial business economy employment)


(1) The minimum and maximum values are shown by the vertical lines (at the extremes); the inter-quartile range is shown by the shaded box, with the median share the vertical line within the box; the figure is ranked on the median share for each activity; the name of the region with the highest share is also shown.

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

for these three trade activities, the ratio between the third quartile (the right-hand end of the box) and the first quartile (the left-hand end of the box), was 1.4 : 1, narrower than for any of the other non-financial services. The two divisions of accommodation and food and beverage services also displayed relatively little regional specialisation.

For transport and storage activities, the extent of specialisation varies greatly between the activities. A relatively small number of regions tend to be specialised in water and air transport activities, resulting in some particularly high ratios between the maximum value and the median and also between the third and first quartiles (the interquartile range). By contrast, there is much less regional specialisation in land transport (and transport via pipelines). Equally, within professional, scientific and technical service activities there was greater regional specialisation in scientific research and development activities than in architectural and engineering activities, technical testing and analysis or in legal and accounting activities.

## Enterprise demography: births, deaths and survival

Business demography statistics describe the characteristics of enterprises within the business population: they cover, among others, 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 can provide an important insight into business dynamics, as new enterprises/fast-growing enterprises tend to be innovators that achieve efficiency gains and improve the overall competitiveness of an economy, while relatively high death rates may indicate economic activities that are no longer profitable.

The statistics presented in this section cover industry, construction and services except holding companies (NACE Sections B to S excluding Group 64.2). Note that business demography statistics are not available for Greece.

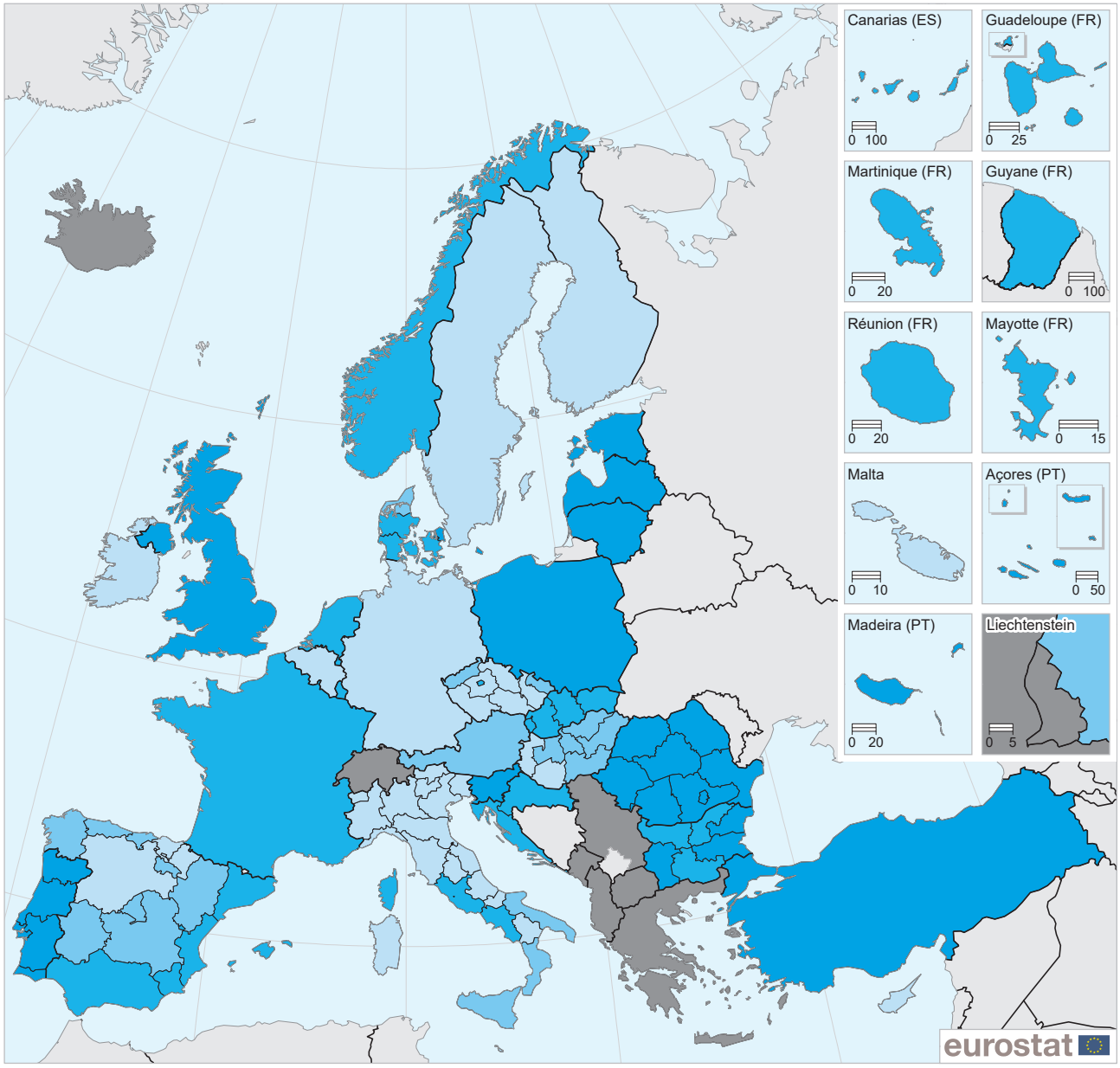
### *Relatively high enterprise birth rates in Lithuania and Romania*

The enterprise birth rate measures the number of new enterprises in relation to the total population of active enterprises. The EU's birth rate for new enterprises in the business economy is estimated at just below 10 % for 2013, but was considerably higher in Lithuania (a single region at this level of analysis) where it reached 23.6 % and in all eight Romanian regions where it ranged from 20.9 % to 24.5 %; the birth rate was also high in Turkey (only national data available for 2011) at 23.3 %. Birth rates of 11 % or higher (the darkest shade of blue in **Map 7.3**) were also recorded for all Portuguese regions, three Bulgarian regions, the Danish capital city region and the two other Baltic Member States; only national data are available for some EU Member States, and among these Poland, Slovenia and the United Kingdom also had enterprise birth rates of 11 % or higher.

The lowest enterprise birth rates (below 8 %, shown by the lightest shade of blue in **Map 7.3**) were recorded in 16 Italian regions (some of which were NUTS level 1 regions), five Czech regions, three Spanish regions and two Hungarian regions, as well as in Cyprus and Malta (each one region at this level of detail); equally low levels were also reported for enterprise birth rates in Belgium, Germany, Ireland, Finland and Sweden, for which only national data are available.

Business demography statistics at a national level can hide substantial differences between regions. Among those multi-regional EU Member States for which regional data are available, the largest differences between the highest and lowest regional enterprise birth rates were recorded in Italy, from a high of 9.5 % recorded in Campania down to a low of 5.0 % in Valle d'Aosta/Vallée d'Aoste.

**Map 7.3:** Enterprise birth rate in the business economy, by NUTS 2 regions, 2013 ([1])
(% of active enterprises)




(% of active enterprises)

- < 8
- 8 – < 9
- 9 – < 11
- >= 11
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

([1]) Belgium, Germany, Ireland, France, the Netherlands, Austria, Poland, Slovenia, Finland, Sweden, the United Kingdom, Norway and Turkey: national data. Ireland: 2012. Turkey: 2011. Ireland and Poland: excluding NACE Sections P to S. Germany and Ireland: estimates.

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

### *Capital city regions often recorded some of the highest enterprise birth rates*

In 2013, enterprise birth rates tended to be higher than average in capital city regions. This may reflect a range of factors, for example, capital city regions generally offer the largest potential market (but also the highest number of competitors), they are often characterised by more highly-educated workforces and studies show that graduates are more likely to start a new business, and they generally have a high proportion of service-based enterprises (where barriers to entry are often quite low).

In Bulgaria, the Czech Republic, Denmark, Croatia and Slovakia, the highest enterprise birth rates were registered for the capital city region, while in Italy the capital city region had the second highest enterprise birth rate and in Portugal the third highest rate. The two exceptions to this situation were Spain and Romania, as enterprise birth rates in their capital city regions were low compared with their other regions.

### *All Portuguese and Hungarian regions had enterprise death rates of 12 % or higher in 2012*

The enterprise death rate for industry, construction and services except holding companies in the EU is estimated at about 9 % for 2012. Among the NUTS level 2 regions of the EU, the highest enterprise death rates were recorded in three Portuguese regions: the autonomous regions of Açores (20.2 %), Madeira (19.9 %) and the Área Metropolitana de Lisboa (19.7 %). In total, there were 25 regions (as shown by the darkest shade of blue in **Map 7.4**) where the enterprise death rate was at least 12 % in 2012. Among these were the remaining four Portuguese regions, all seven Hungarian regions, three of the four Slovakian regions, half of the eight Romanian regions, one region each from Bulgaria and Denmark, as well as Latvia and Lithuania (each one region at this level of detail).

The lowest enterprise death rates, by far, were in Belgium (only national data are available) and Malta (a single region at this level of detail), where rates of 2.4 % and 2.8 % were recorded. A total of 13 Italian regions (some of which were NUTS level 1 regions) and one Spanish region reported enterprise death rates below 8 % (the lightest shade of blue in **Map 7.4**), along with Luxembourg (one region at this level of detail), as well as France, Austria and Finland for which only national data are available; a low enterprise death rate was also reported for Norway (only national data available).

### *Business churn: regions with relatively high enterprise birth and death rates*

Several of the regions that recorded relatively high enterprise birth rates were also characterised by relatively high enterprise death rates. This is perhaps not surprising, as dynamic and innovative enterprises entering a market may be in a position to drive incumbents out of the market. Relatively high enterprise birth and death rates were observed in all of the Portuguese regions and Severoiztochen in the north east of Bulgaria, with enterprise death rates higher than birth rates; in half of the Romanian regions, the Danish capital city region, as well as in Latvia and Lithuania (both single regions at this level of detail), enterprise birth rates were higher than death rates.

### *High three-year survival rates in Romania, Sweden and Belgium*

One of the areas of interest in business demography data is to provide information about the life cycle of newly-born enterprises, in particular, their ability to survive and potentially expand so they are in a position to offer employment. **Map 7.5** looks at three-year survival rates, and shows the proportion of enterprises born in 2010 that had survived until 2013.

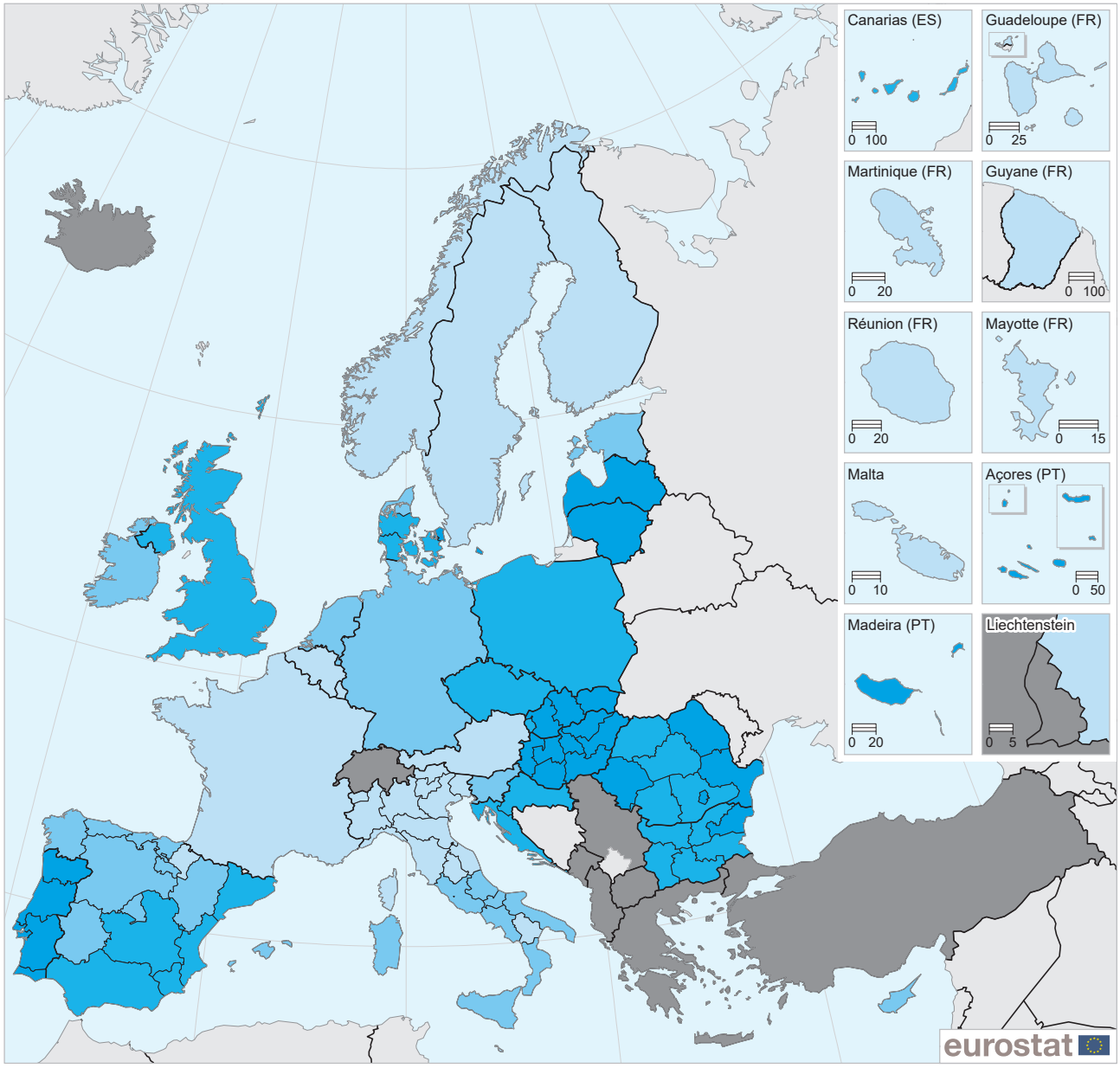
The EU's three-year survival rate for the business economy is estimated to be roughly 55 %, in other words, just over half of the enterprises born in 2010 had survived into 2013. Sweden and Belgium (only national data available) had high three-year survival rates, just below 75 %. Other regions where three-year survival rates were at least 60 % (and therefore shown with the darkest shade of blue in **Map 7.5**) were located in Italy (nine regions), the Czech capital city region, Cyprus and Luxembourg (each one region at this level of detail), as well as in Ireland, the Netherlands, Austria and Slovenia

## Spotlight on the regions: Centru, Romania

**In 2013, the EU's three-year survival rate for newly-born enterprises in the business economy was approximately 55 %; in other words, just over half of the enterprises born in 2010 had survived into 2013. The Romanian Centru region had a higher three-year survival rate (77.3 %), although it is important to note that its latest data relate to the period 2008–11.**

***Photo*: BerndGehrmann at the German language Wikipedia**

**Map 7.4:** Enterprise death rate in the business economy, by NUTS 2 regions, 2012 (1)
(% of active enterprises)




(% of active enterprises)

- < 8
- 8 – < 10
- 10 – < 12
- >= 12
- Data not available

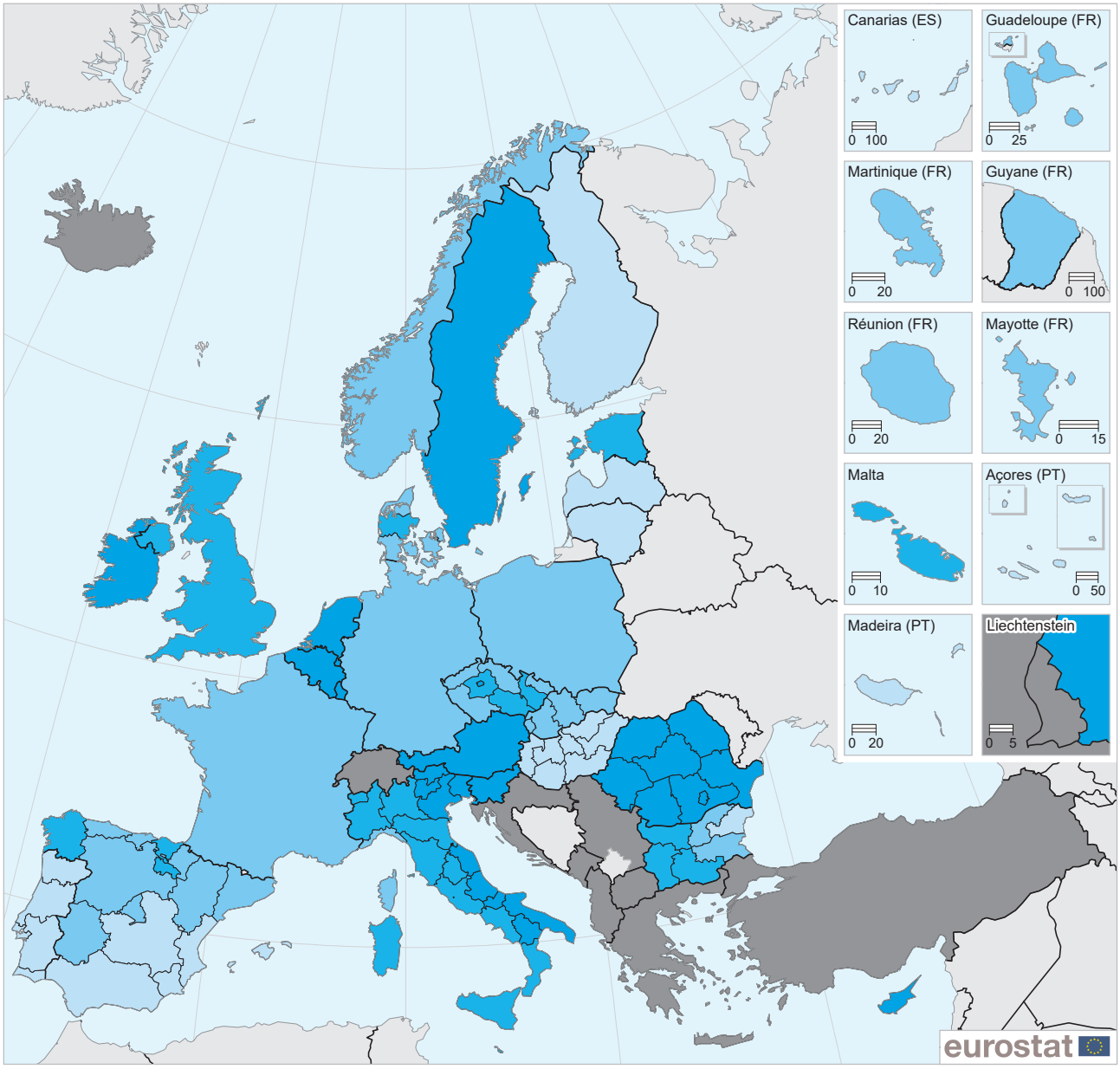
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Belgium, the Czech Republic, Germany, Ireland, France, the Netherlands, Austria, Poland, Slovenia, Finland, Sweden, the United Kingdom and Norway: national data. Ireland and Poland: excluding NACE Sections P to S. Ireland, France and Poland: 2011. Germany: estimates. The Czech Republic, Ireland, France, Italy, Lithuania, Hungary, Portugal, Slovakia and Norway: provisional.

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

**Map 7.5: Three-year survival rate for enterprises in the business economy, by NUTS 2 regions, 2013 (1)**
(% of enterprises newly-born in 2010 having survived to 2013)




(1) Belgium, Germany, Ireland, France, the Netherlands, Austria, Poland, Slovenia, Finland, Sweden, the United Kingdom and Norway: national data. Ireland, Poland and Sweden: excluding NACE Sections P to S. Estonia and Ireland: enterprises newly-born in 2009 having survived to 2012. Romania: enterprises newly-born in 2008 having survived to 2011. Germany and Ireland: estimates.

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

(only national data are available). All of the Romanian regions reported relatively high survival rates too, although their latest available data covers the period 2008–11.

The lowest three-year survival rates, where less than half of the enterprises born in 2010 had survived until 2013 (shown with the lightest shade of blue in **Map 7.5**) were located in all seven regions of Portugal and Hungary, seven (out of 19) regions in Spain, one region in Bulgaria, Latvia and Lithuania (each one region at this level of detail) as well as in Finland (only national data are available).

# Data sources and availability

## Structural business statistics

A recast SBS Regulation 295/2008 and its implementing regulations provide the legal basis for the annual collection of SBS. Regional statistics are compiled for wages and salaries and the number of persons employed. They are provided for NACE divisions and for NUTS level 2 regions; note that Croatian statistics are currently available at a national level. Regional SBS are also available for Norway, while data are presented at a national level for Switzerland.

The regional SBS presented in this chapter are restricted to the non-financial business economy, which includes NACE Sections B (mining and quarrying), C (manufacturing), D (electricity, gas, steam and air conditioning supply), E (water supply, sewerage and waste management), F (construction), G (distributive trades), H (transport and storage), I (accommodation and food service activities), J (information and communication), L (real estate activities), M (professional, scientific and technical activities) and N (administrative and support service activities), as well as NACE Division 95 (repair of computers and personal and household goods). The aggregate for the non-financial business economy therefore excludes agricultural, forestry and fishing activities and public administration and other services (such as defence, education and health), which are not covered by SBS, and also excludes financial services (NACE Section K).

The statistical unit used for regional SBS is generally the local unit, which is an enterprise or part of an enterprise situated in a geographically identified place. Local units are usually classified under NACE according to their main activity (in some EU Member States the activity code is assigned on the basis of the principal activity of the enterprise to which the local unit belongs).

The nature of detailed regional SBS is such that some data cells are not disclosed for reasons of statistical confidentiality, following common principles and guidelines. In these cases, data are flagged as being confidential and individual values/cells are not published. Given that choropleth maps are compiled using a range of values for each colour shade, it has been possible to assign confidential cells to a specific class while respecting non-disclosure procedures.

## Business demography

While the recast SBS Regulation 295/2008 and its implementing regulations provide the legal basis for the annual collection of SBS, regional business demography statistics remain outside of this remit. A pilot data collection for regional business demography statistics was launched in 2012 by Eurostat with the support of the European Commission's Directorate-General for Regional and Urban Policy. This voluntary exercise was supported by a number of grants provided to national statistical authorities. Development work in this area is on-going and another survey was launched in 2015, covering the reference periods of 2011–13. These statistics will continue to be delivered on a voluntary basis until the legal requirements of the Framework Regulation Integrating Business Statistics (FRIBS) are in force, after which regional data on business demography will become part of the regular annual collection of structural business statistics.

A substantial share of cohesion policy funding has been dedicated to improving entrepreneurship and the business environment, targeting newly born enterprises and small and medium-sized enterprises (SMEs). As such, the latest data collection exercise was designed to support regional cohesion policy (2014–20), providing important information for monitoring both the Europe 2020 strategy and regional cohesion policy.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

# 8 Research and innovation

This chapter presents statistical information analysing regional developments for a range of research and innovation-related indicators within the European Union (EU), including the following issues: research and development (R & D) expenditure, the number of R & D researchers, human resources in science and technology (HRST), employment in high technology sectors and intellectual property rights.

Innovation in its broadest sense covers new growth opportunities that come from providing new products and services derived from technological breakthroughs, new processes and business models, non-technological innovation and innovation in the services sector, combined with creativity, flair and talent.

Europe has a long tradition of excellence in the fields of R & D and innovation. An innovative society may help businesses to maintain a competitive advantage, develop products with higher added value, stimulate economic activity and thereby safeguard or create jobs. At the same time, research and innovation may contribute to finding solutions to some of society's main challenges, such as the ageing population, energy security, climate change, disaster risk management, or social inclusion. Indeed, the influence of new research and innovation extends well beyond the economic sphere, as it can lead to solutions that directly impact on the daily lives of the population, for example, ensuring safer food, developing new medicines to fight illness and disease, or alleviating environmental pressures.

Regional research, knowledge and innovative capacity depends on a range of factors — business culture, workforce skills, education and training institutions, innovation support services, technology transfer mechanisms, regional infrastructure, the mobility of researchers, sources of finance and creative potential. Education, training and lifelong learning are considered vital to developing a region's capacity to innovate, with universities across the EU increasingly implicated in the commercialisation of research, collaboration with regional businesses.

## Europe 2020

The Europe 2020 strategy is the EU's growth strategy to become a 'smart, sustainable and inclusive economy'. It is composed of five headline targets, one of which covers research expenditure, namely, that R & D expenditure should be equivalent to 3.00 % or more of the EU's GDP by 2020.

### INNOVATION UNION — A FLAGSHIP EUROPE 2020 INITIATIVE

In 2010, the European Commission adopted a communication launching a flagship initiative titled 'Innovation union' (COM(2010) 546 final); this sets out a strategic approach to a range of challenges like climate change, energy and food security, health and an ageing population. It is hoped that the promotion of innovation in these areas will lead to innovative ideas being transformed into new economic activities and products, which in turn will generate jobs, green growth and social progress.

The innovation union seeks to use public sector intervention to stimulate the private sector, removing bottlenecks which may prevent ideas from reaching market, such as access to finance, a lack of venture capital, fragmented research systems, the under-use of public procurement for innovation, and speeding-up harmonised standards and technical specifications.

To achieve these goals more than 30 separate actions have been identified, including a range of European innovation partnerships (EIPs), designed to act as a framework to address major societal challenges.

**For more information**: Innovation union — a Europe 2020 initiative.

The innovation union is supplemented by a Communication from the European Commission on 'Regional policy contributing to smart growth in Europe 2020' (COM(2010) 553 final) which explores ways in which regional policy can be used to unlock the growth potential of the EU. The communication calls for the development of smart specialisation strategies across the EU's regions in order to identify those activities that offer the best chance of strengthening a region's competitiveness, while encouraging interaction between businesses, research centres and universities on the one hand and local, regional and national administrations on the other.

Under the EU's flagship innovation union, the European Commission undertakes to create an innovation-friendly environment, with a comprehensive intellectual property rights strategy, as detailed in its 2011 Communication titled 'A single market for intellectual property rights: boosting creativity and innovation to provide economic growth, high quality jobs and first class products and services in Europe' (COM(2011) 287 final) which seeks to establish a single market for intellectual property.

The innovation union scoreboard tracks a broad range of innovation indicators, including educational standards, R & D expenditure, patent production and business innovation. The results are used in the annual growth survey, helping EU Member States to determine their strengths and the areas they need to focus more on.

In 2014, the European Commission adopted a Communication on 'Research and innovation as sources of renewed growth' (COM(2014) 339 final) which proposes that EU Member States should seek to actively support growth enhancing policies, notably through research and innovation, so as to benefit from the largest internal market in the world, many of the world's leading innovative companies, and the highly-educated European workforce. Proposals were made to explore how the impact of research and innovation could be maximised, through:

- improving the quality of strategy development and the policymaking process;
- improving the quality of programmes, focusing of resources and funding mechanisms;
- optimising the quality of public institutions performing research and innovation.

## Framework programmes

Since their launch in 1984, the EU's framework programmes for research have played a leading role in multidisciplinary research activities. Regulation (EU) No 1291/2013 of the European Parliament and of the Council established Horizon 2020 — the Framework Programme for research and innovation (2014–20). By coupling research and innovation, it aims to ensure Europe produces world-class science, removes barriers to innovation, bridges the gap between research and the market so technological breakthroughs are transformed into viable products, and makes it easier for the public and private sectors to work together. Horizon 2020 has a budget of almost EUR 80 billion, in addition to the private expenditure that it is expected this funding will attract.

While EU funding seeks to target all regions, the innovation divide across Europe's regions reflects a pattern whereby the majority of EU regions are low absorbers of framework programme funding and structural funds that are designed to raise their modest levels of research and innovation. Indeed, there appears to be a paradox, whereby those regions characterised by established innovative activity attract the most qualified personnel and new business ventures, thereby maintaining their position as innovative leaders, while those that trail behind fail to catch-up, despite efforts to target funding and policy prescriptions specifically to these regions.

## European research area (ERA)

In order to pool talent and achieve a necessary scale, policymakers seek to encourage transnational cooperation within the European research area (ERA). The EU's research efforts have often been described as being fragmented along national and institutional lines. The ERA was launched at the Lisbon European Council in March 2000 and aims to ensure open and transparent trade in scientific and technical skills, ideas and know-how; it sets out to create a unified research area that is open to the world that promotes the free movement of researchers, knowledge and technology.

In July 2012, the European Commission adopted a Communication titled 'A reinforced European research area partnership for excellence and growth' (COM(2012) 392 final), focusing on five key priority areas for reforming the ERA: more effective national research systems; optimal transnational cooperation and competition; an open labour market for researchers; gender equality and gender mainstreaming in research; and optimal circulation and transfer of scientific knowledge.

# Main statistical findings

Gross domestic expenditure on R & D (GERD) includes expenditure on R & D by business enterprises, higher education institutions, as well as government and private non-profit organisations. It was estimated to be EUR 283.9 billion across the EU-28 in 2014; this equated to an average of EUR 560 of R & D expenditure per inhabitant.

## Europe 2020: research and development intensity

Both the Europe 2020 strategy and its predecessor the Lisbon agenda (launched in 2000) set similar targets in relation to R & D expenditure, namely that expenditure on R & D should be equivalent to at least 3.00 % of the EU's gross domestic product (GDP). This overall target is divided into a range of national targets, reflecting the position of each EU Member State and commitments agreed between the European Commission and national administrations through a series of reform programmes. These national targets for R & D expenditure vary considerably between EU Member States and ranged from 0.50 % of GDP in Cyprus to 3.76 % of GDP in Austria and 4.00 % of GDP in the traditionally R & D-intensive Member States of Finland and Sweden; there is no national target for the United Kingdom.

### Spotlight on the regions: Prov. Brabant Wallon, Belgium

**In 2013, R & D intensity in the EU-28 averaged 2.03 %, considerably lower than its Europe 2020 target of 3.00 %. Among NUTS level 2 regions there was a wide diversity in R & D intensities, which tends to reflect clusters of research activity. For example, the NUTS level 2 region with the highest R & D intensity (11.36 %) was the Prov. Brabant Wallon (Belgium), which could be contrasted with two neighbouring Belgian regions — the Prov. Namur and the Prov. Luxembourg — where R & D intensities were below 1.00 %.**

***Photo*: Jonathan Nélis**

From a level of 1.79 % of GDP in 2000 (which is the start of the series for the EU-28) there was little or no change in the EU's R & D intensity during the period 2000–07. In 2008, there was a modest increase, as R & D expenditure relative to GDP rose to 1.85 % and this was followed by a further increase to 1.94 % in 2009 (resulting from the level of R & D expenditure falling at a slower pace than GDP as the full impact of the financial and economic crisis was felt). There was a rebound in economic growth and R & D expenditure in the following years, with further modest gains in the EU-28's R & D intensity, which reached 2.03 % in 2013, a level that was repeated in 2014.

#### *High R & D intensity in many Nordic and German regions*

The nature of R & D is such that there are clusters of activity, in other words, specific geographical areas where R & D activity appears to be concentrated. These regions are often developed around academic institutions or specific high-technology industrial activities and knowledge-based services, which foster a favourable environment, thereby attracting new start-ups and highly qualified personnel such that the competitive advantage of these regions is further intensified.

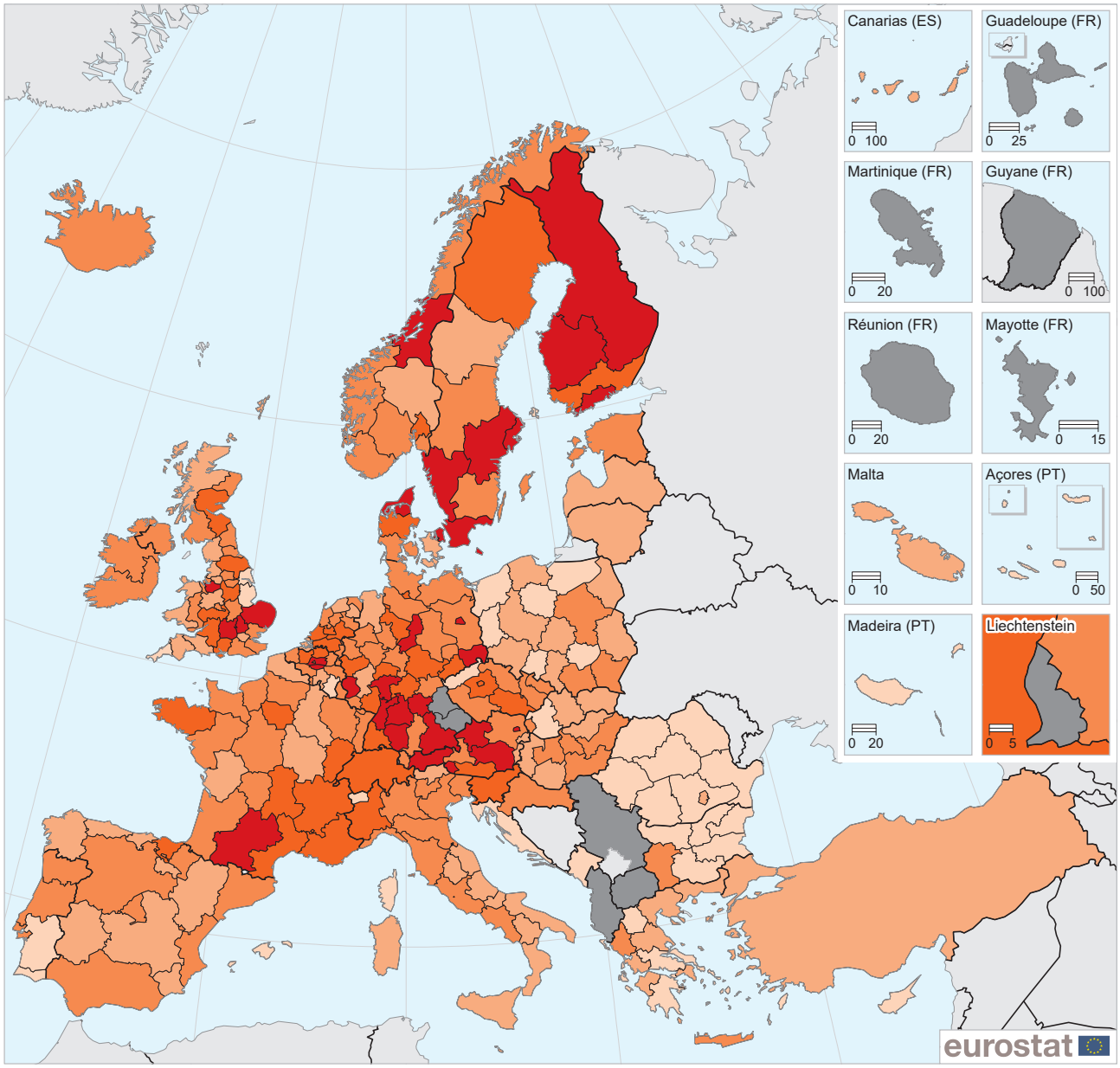
**Map 8.1** presents the regional distribution of R & D expenditure relative to GDP for NUTS level 2 regions for 2013. It shows the most concentrated areas of research activity. Just over 1 in 10 (11.4 %) of the 264 NUTS level 2 regions in the EU for which data are available reported R & D intensity that had reached the Europe 2020 target of at least 3.00 % (as shown by the darkest shade of orange in **Map 8.1**); together these regions accounted for more than one third (34.9 %) of the EU-28's total R & D expenditure in 2013. Note that the Europe 2020 targets have not been set at a regional level and that each EU Member State may choose how to reach their national target (either by general measures across the territory or by encouraging specific regional concentrations/clusters of research activity).

#### *The Province Brabant Wallon had the highest R & D intensity in the EU*

There were three NUTS level 2 regions in the EU where the level of R & D intensity was particularly pronounced. Two of these were in Germany, Stuttgart and Braunschweig, where R & D expenditure relative to GDP rose to 6.00 % and 7.33 % respectively in 2013. However, R & D intensity peaked in the Belgian region of the Province Brabant Wallon, at 11.36 %; as such, its research intensity was almost six times as high as the EU-28 average.

**Map 8.1:** R & D intensity — gross domestic expenditure on R & D (GERD) relative to gross domestic product (GDP), by NUTS 2 regions, 2013 (1)

(%)




(%)

EU-28 = 2.03

- < 0.5
- 0.5 – < 1.0
- 1.0 – < 2.0
- 2.0 – < 3.0
- >= 3.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Slovenia, Switzerland, Serbia and Turkey: national data. Switzerland: 2012. The United Kingdom: estimates.

*Source:* Eurostat (online data code: rd_e_gerdreg)

Research activity was otherwise often focussed on capital city regions, for example, the Nordic capitals of Hovedstaden, Helsinki-Uusimaa and Stockholm, or the German and Austrian capitals of Berlin and Wien. There were also a number of other regions with R & D intensity of at least 3.00 %, many of which have a tradition of research excellence, including, for example: the Provincie Vlaams-Brabant in Belgium; Tübingen and Oberbayern in Germany; the Midi-Pyrénées in France; or East Anglia in the United Kingdom.

***Most southern and eastern regions had relatively low levels of R & D intensity***

Outside of these clusters, R & D expenditure relative to GDP was generally modest in the remaining western and northern regions of the EU and low in most southern and eastern regions of the EU. Indeed, the Spanish region of País Vasco (2.12 %) and the Italian region of Piemonte (2.03 %) were the only southern EU regions to report R & D intensity above 2.00 % in 2013, while the only eastern regions of the EU to record intensities above 2.00 % were: the Czech regions of Jihovýchod (2.84 %), Praha (2.59 %) and Střední Čechy (2.15 %), as well as Slovenia (2.60 %, no regional data available).

## Researchers

Researchers are directly employed within R & D activities and are defined as 'professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and in the management of the projects concerned'.

There were an estimated 2.71 million researchers active across the EU-28 in 2013. Their number has grown at a steady pace in recent years, rising from 1.80 million in 2003. An alternative unit of measure for labour input adjusts the number of researchers to take account of different working hours and working patterns. Based on this measure, there were 1.73 million full-time equivalent (FTE) researchers in the EU-28 in 2013, a figure which rose to 1.76 million in 2014.

***The distribution of researchers across the EU was particularly clustered in capital city regions …***

The distribution of researchers was relatively concentrated in a few clusters, principally in those regions where R & D intensity was high. The main difference is that researchers tended to be somewhat higher in regions characterised as having higher education establishments and research institutes (often capital city regions). Furthermore, there was a relatively high share of researchers among persons employed in a number of southern regions, principally located across Spain (for example, País Vasco) and Greece (for example, Kriti).

Like R & D intensity, the share of researchers among persons employed was skewed (see **Figure 8.1**), as just under one third (31.1 %) of the regions for which data are available for 2013 reported a share of researchers that was above the EU-28 value of 0.8 %, while the median share across all NUTS level 2 regions was 0.6 %.

In all multi-regional EU Member States the share of researchers among persons employed in the capital city region was above the national share. In fact, in 14 of the 21 multi-regional Member States for which data are available, the share in the capital city region was higher than in any other region, the exceptions being Belgium, Germany, Greece, Spain, Italy, the Netherlands and the United Kingdom (data for London is only available at NUTS level 1). In some Member States (for example, Denmark and Finland), the capital city region was the only region with a share of researchers in the number of persons employed that was above the national share.

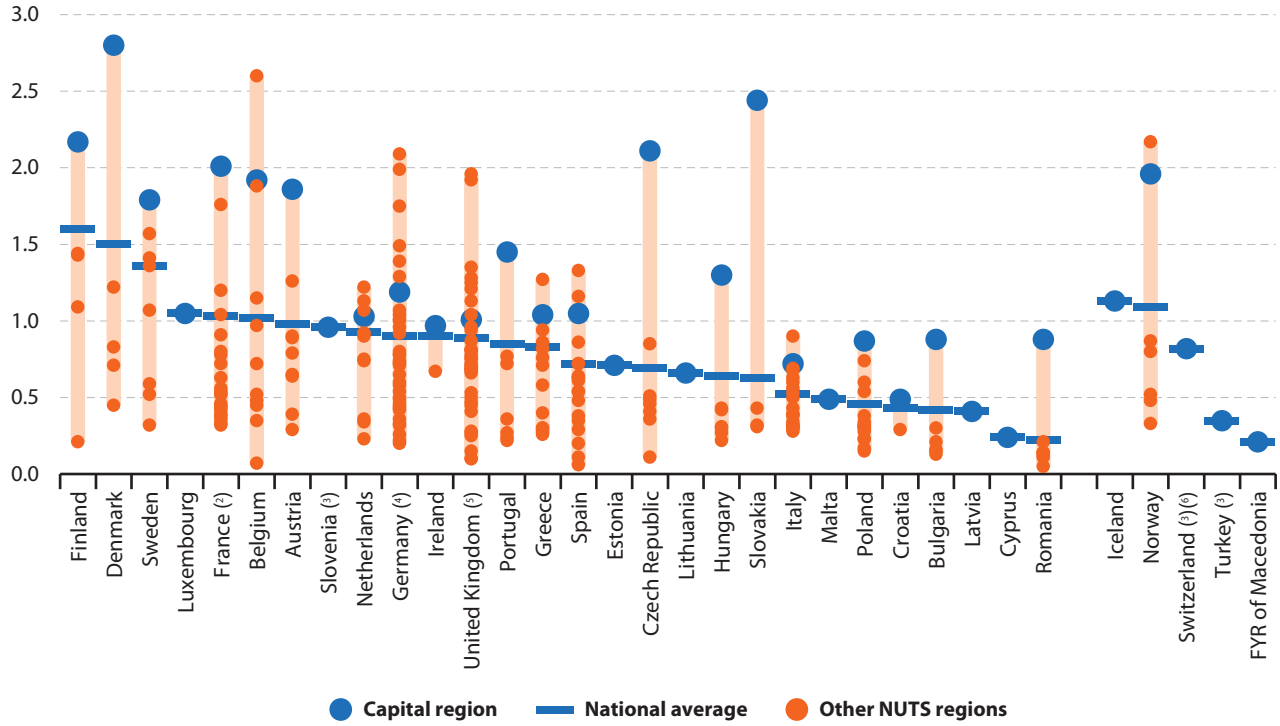
Looking at all EU regions, only seven reported that researchers made-up at least 2.0 % of their total number of persons employed in 2013, the highest share being 2.8 % in the Danish capital city region of Hovedstaden. By contrast, 112 regions reported shares that were below 0.5 %.

## Spotlight on the regions: Stockholm, Sweden

**Stockholm, the Swedish capital city region, recorded the highest regional share of human resources in science and technology within its total population (52.8 %). It was one of only four regions to report a majority of its population employed in science and technology; the other three included the neighbouring Nordic capital region of Helsinki-Uusimaa (Finland) and two regions from the south of the United Kingdom (London (NUTS level 1) and Berkshire, Buckinghamshire and Oxfordshire).**

***Photo*: Hackspett**

**Figure 8.1:** Share of R & D researchers in the number of persons employed, by NUTS 2 regions, 2013 (1)
(%)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions. Liechtenstein, Montenegro, Albania and Serbia: not available.
(2) Départements d'outre-mer: not available.
(3) National data.
(4) Niederbayern and Oberpfalz: not available.
(5) Estimates. London: NUTS level 1.
(6) 2012.

*Source:* Eurostat (online data code: rd_p_persreg)

## Human resources in science and technology

An alternative measure for highly qualified personnel is provided by statistics relating to human resources in science and technology (HRST), defined as those persons who have completed a tertiary level of education and/or are employed in a science and technology occupation. A more restricted definition is applied for those persons who meet both of these criteria, referred to as core human resources in science and technology (HRSTC).

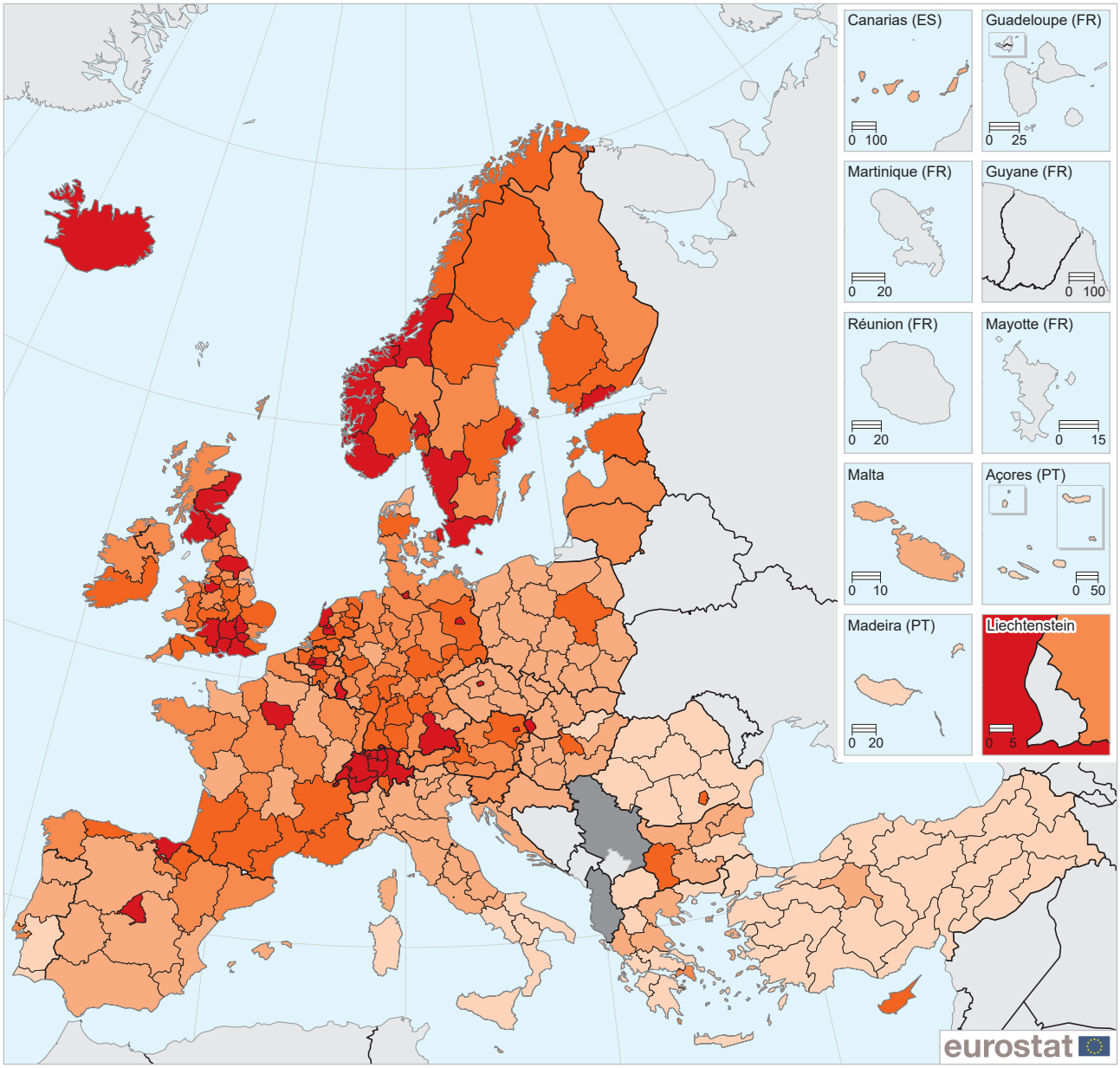
### *Human resources in science and technology: just over 30 % of the EU's working-age population*

Human resources in science and technology contributed 120 million persons to the EU-28 workforce in 2014, of which 47 million were categorised as core HRST. In 2008, HRST accounted for slightly more than one quarter (27.3 %) of the EU-28's population aged 15–74 (hereafter referred to as the working-age population); this share rose in successive years to reach 31.8 % by 2014.

Among the EU Member States, HRST accounted for 16.6 % of the working-age population in Romania, the only Member State in 2014 to record a share that was less than one fifth. At the other end of the range, upwards of 40 % of the working-age population in Finland, Sweden and Luxembourg were classified as HRST.

**Map 8.2** shows the regional distribution of HRST for NUTS level 2 regions, with the darkest shade of orange highlighting those regions where the share of HRST in the working-age population was at least 40 %. Approximately 12 % of the 266 regions for which data are available in 2014 met this criterion, with HRST accounting for at least two fifths of their working-age population. Many of the regions with high shares of HRST were also characterised as having a high degree of R & D intensity (see above). Indeed, the main clusters of HRST were located in the United Kingdom (11 regions), the Nordic Member States, the Benelux Member States and Germany. The proportion of the working-age population classified as HRST also rose to over 40 % in two regions from Spain, and the capital city regions of the Czech Republic, France, Austria and Slovakia.

**Map 8.2:** Share of human resources in science and technology (HRST) within the total population, by NUTS 2 regions, 2014 (1)
(%)




(%)

EU-28 = 31.8

- < 20
- 20 – < 30
- 30 – < 35
- 35 – < 40
- >= 40
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Slovenia: national data.

*Source:* Eurostat (online data codes: hrst_st_rcat and hrst_st_ncat)

***At least half of the working-age population in Stockholm, Helsinki-Uusimaa, London and Berkshire, Buckinghamshire and Oxfordshire was classified as HRST***

There were three capital city regions where at least half of the working-age population was classified as HRST in 2014 —Stockholm (52.8 %), Helsinki-Uusimaa (51.7 %) and London (51.1 %, NUTS level 1) — and one other region, Berkshire, Buckinghamshire and Oxfordshire to the west of London.

There were also relatively high shares of HRST in the working-age population in several other regions close to capital cities — for example: the Province Brabant Wallon and the Provincie Vlaams-Brabant around the Belgian capital; Utrecht near to Amsterdam in the Netherlands; and several other regions around London (Bedfordshire and Hertfordshire; Surrey, East and West Sussex). High shares of HRST in regions away from capital city regions were observed in Oberbayern and Hamburg in Germany, País Vasco in Spain, Sydsverige and Västsverige in Sweden, and several British regions in south-western and northern England and in Scotland.

For 28 NUTS level 2 regions HRST accounted for less than one in five of their working-age population in 2014 (as shown by the lightest shade of orange in **Map 8.2**). These regions were all located in southern and eastern parts of the EU, with eight from Greece, seven from Romania, six from southern Italy, four from Portugal, and a single region each from Bulgaria, Spain and Hungary.

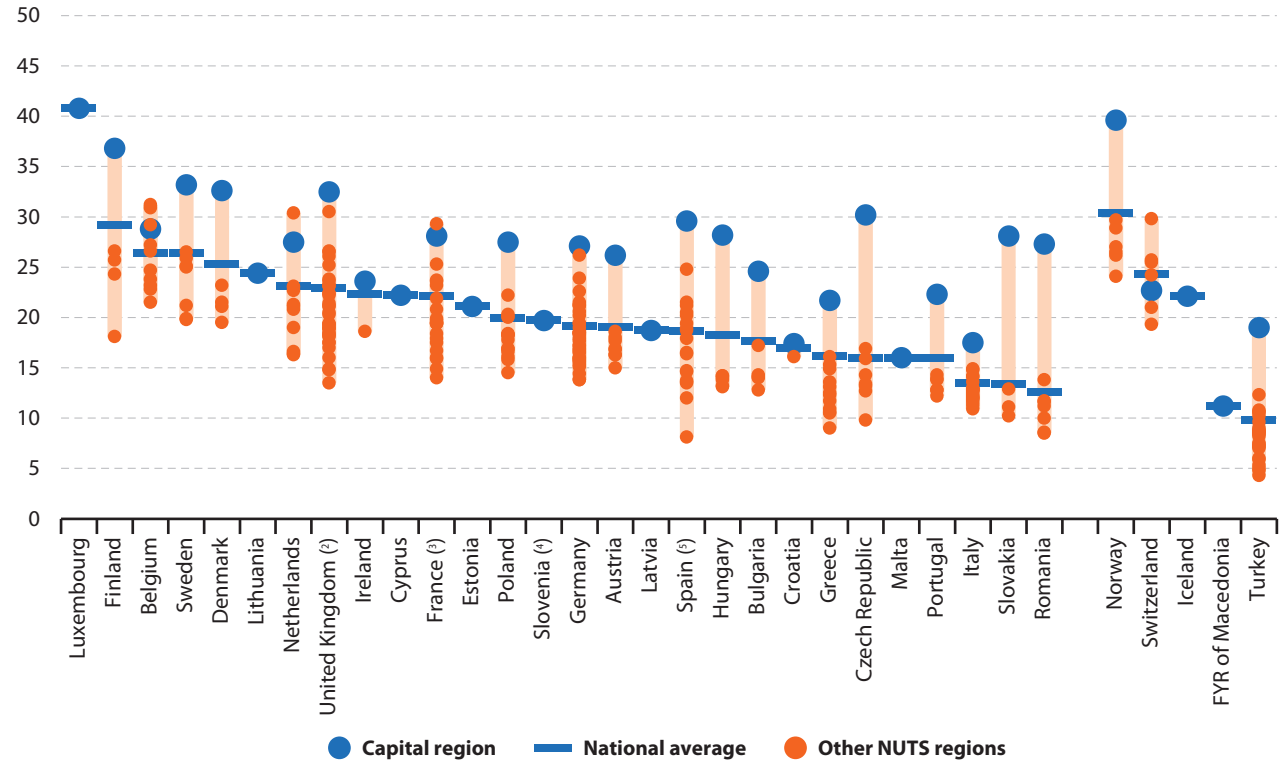
***The share of core HRST in the active working-age population was approximately twice as high as the EU-28 average in Luxembourg***

**Figure 8.2** shows the distribution of core HRST as a share of the economically active population aged 15–74 in 2014, ranked by national averages. Core HRST accounted for 16.3 % of the EU-28's economically active population in 2008 and saw its share rise each year through to 2014, when it stood at 19.6 %.

Across all of the NUTS level 2 regions of the EU, the highest share of core HRST in the economically active population aged 15–74 in 2014 was 40.8 % in Luxembourg (a single region at this level of analysis).

**Figure 8.2: Share within the economically active population of human resources in science and technology core (HRSTC), by NUTS 2 regions, 2014 (1)**

(%)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions. Liechtenstein, Montenegro, Albania and Serbia: not available.

(2) London: NUTS level 1.
(3) Départements d'outre-mer: not available. Corse: low reliability.
(4) National data.
(5) Ciudad Autónoma de Ceuta and Ciudad Autónoma de Melilla: low reliability.

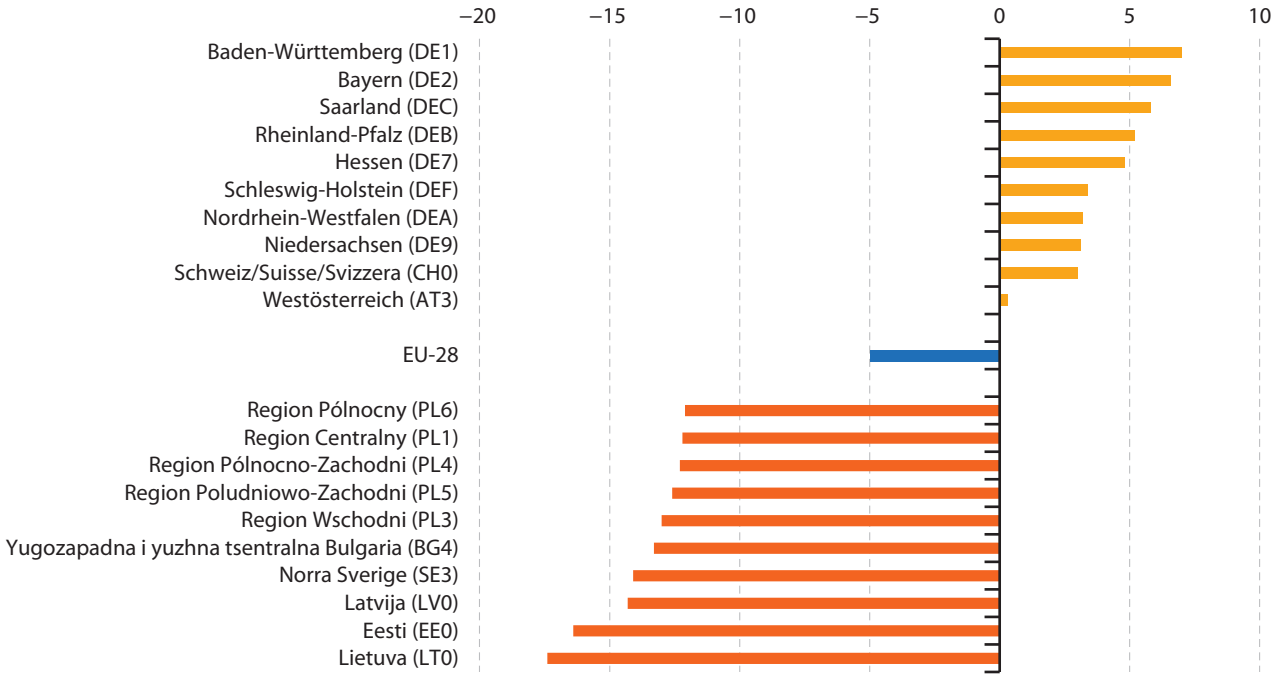
*Source:* Eurostat (online data codes: hrst_st_rcat and hrst_st_ncat)

Capital city regions often recorded the highest shares of core HRST, while a majority of the other regions saw their shares of core HRST fall below the national average; this skewed distribution is clearly apparent in **Figure 8.2**. Among those EU Member States with more than two NUTS level 2 regions, the capital city regions of the Nordic Member States, Austria, Hungary, Bulgaria, Portugal and Slovakia were noteworthy insofar as they were the only regions in each of these Member States to record a share of core HRST that was above the national average. Belgium, France and the Netherlands displayed an atypical pattern among the multi-regional EU Member States, insofar as their capital city regions did not register the highest share of core HRST, but all had values above their national averages. Turning to the non-member countries shown in **Figure 8.2**, Switzerland was a greater exception, as not only was the share of core HRST in the capital city region (Espace Mitteland) not the highest among the Swiss regions, it was also below the national average.

***The share of core HRST in the active working-age population was higher among women than among men, except in Germany***

In the EU-28 as a whole, the share of core HRST in the economically active population was 5.0 percentage points higher for women than for men in 2014, as the share for women was 22.3 % and that for men 17.3 %. Among the EU Member States, Germany was the only one where the share of core HRST in the economically active population was higher for men than for women. By contrast, the female share was more than 10.0 percentage points higher than the male share in all three Baltic Member States, Bulgaria, Poland, Sweden and Slovenia, as it also was in Norway and Iceland. These national averages are reflected in the regional data presented in **Figure 8.3** which shows the NUTS level 2 regions where the gender gap for the share of core HRST in the economically active population was greatest. In fact, there were only 10 regions (in the EU, Iceland, Norway, Switzerland, the former Yugoslav Republic of Macedonia and Turkey) where the share was higher for men than for women, and the top eight of these were in Germany, the other two being in Austria and Switzerland (for which only national data are available). Every other region recorded a higher share for women, with a particularly large gender gap in several Polish regions, one region each in Bulgaria and Sweden, and especially the three Baltic Member States (each one region at this level of detail).

**Figure 8.3: Gender gap for the share within the economically active population of human resources in science and technology core (HRSTC), by NUTS 1 regions, 2014 (1)**
(percentage points difference, share for men – share for women)




(1) Reading note: the figure shows the 10 NUTS 1 regions with the widest gender gaps for men (in yellow) and women (in orange), as well as the EU-28 average (in blue). Voreia Ellada and Kentriki Ellada (Greece), Départements d'outre-mer (France), Åland (Finland), Liechtenstein, Montenegro, Albania and Serbia: not available.

*Source:* Eurostat (online data codes: hrst_st_rsex and hrst_st_ncat)

## Employment in high-technology sectors

There were approximately 8.5 million persons employed across the EU-28 within high-tech sectors in 2014; between 2009 and 2014 the total number of persons working in high-tech sectors increased by 389 thousand. In relative terms, those working in high-tech sectors accounted for 3.7 % of the total number of persons employed in the EU-28 in 2009. There was a modest increase in their share which climbed to 3.9 % in 2012 and remained at the same level in 2013 and 2014.

Across the EU-28, those employed in high-tech sectors — both high-tech manufacturing and high-tech knowledge-intensive services — accounted for approximately 3.9 % of persons aged 15–74 in employment. In 2014, the highest share of employment in high-tech sectors among the EU Member States was recorded in Ireland, at 7.3 %, followed by Malta at 6.2 % and Finland at 5.9 %.

The share of employment in high-tech sectors was at least 4.5 % in 59 of the 252 NUTS level 2 regions for which data are available (as indicated by the darkest shade of orange in **Map 8.3**), while 20 regions reported a share of employment in high-tech sectors that was less than 1.5 % (as indicated by the lightest shade).

***People working in high-tech sectors accounted for at least 7.5 % of total employment in 11 regions in 11 different Member States***

In 2014, the highest share of people working in high-tech sectors was 11.0 %, as recorded in Berkshire, Buckinghamshire and Oxfordshire, a region with a high density of enterprises in information and communications technology and life sciences located in the infrastructure-rich area to the west of London. Nearly all of the 10 other NUTS level 2 regions with shares in excess of 7.5 % were capital city regions, from Ireland and Austria in the west, Denmark, Finland and Sweden in the north, the Czech Republic, Hungary and Slovakia in the east, and Spain in the south. The one exception was Prov. Brabant Wallon to the south of the Belgian capital. Apart from Belgium and the United Kingdom, the only other EU Member States where the capital city region did not record the highest share of people working in high-tech sectors were Germany and the Netherlands, and this was also the case in Switzerland.

Germany and the United Kingdom recorded a relatively high number of regions where the employment share of high-tech sectors was above 4.5 % (the darkest shade in **Map 8.3**), with 12 such regions in Germany and 10 in the United Kingdom. In Belgium, four regions in and around the capital city region recorded shares of employment in high-tech sectors that were above 4.5 %, as did a cluster of three regions in and around the Czech capital city region.

## Defining high-tech sectors

High-tech sectors include high-tech manufacturing industries and knowledge-intensive services, which are defined according to technological intensity and based on the activity classification NACE. Note that the statistics on employment in high-tech sectors cover all persons (including support staff) who work in these enterprises, and as such will overstate the number of highly-qualified staff.

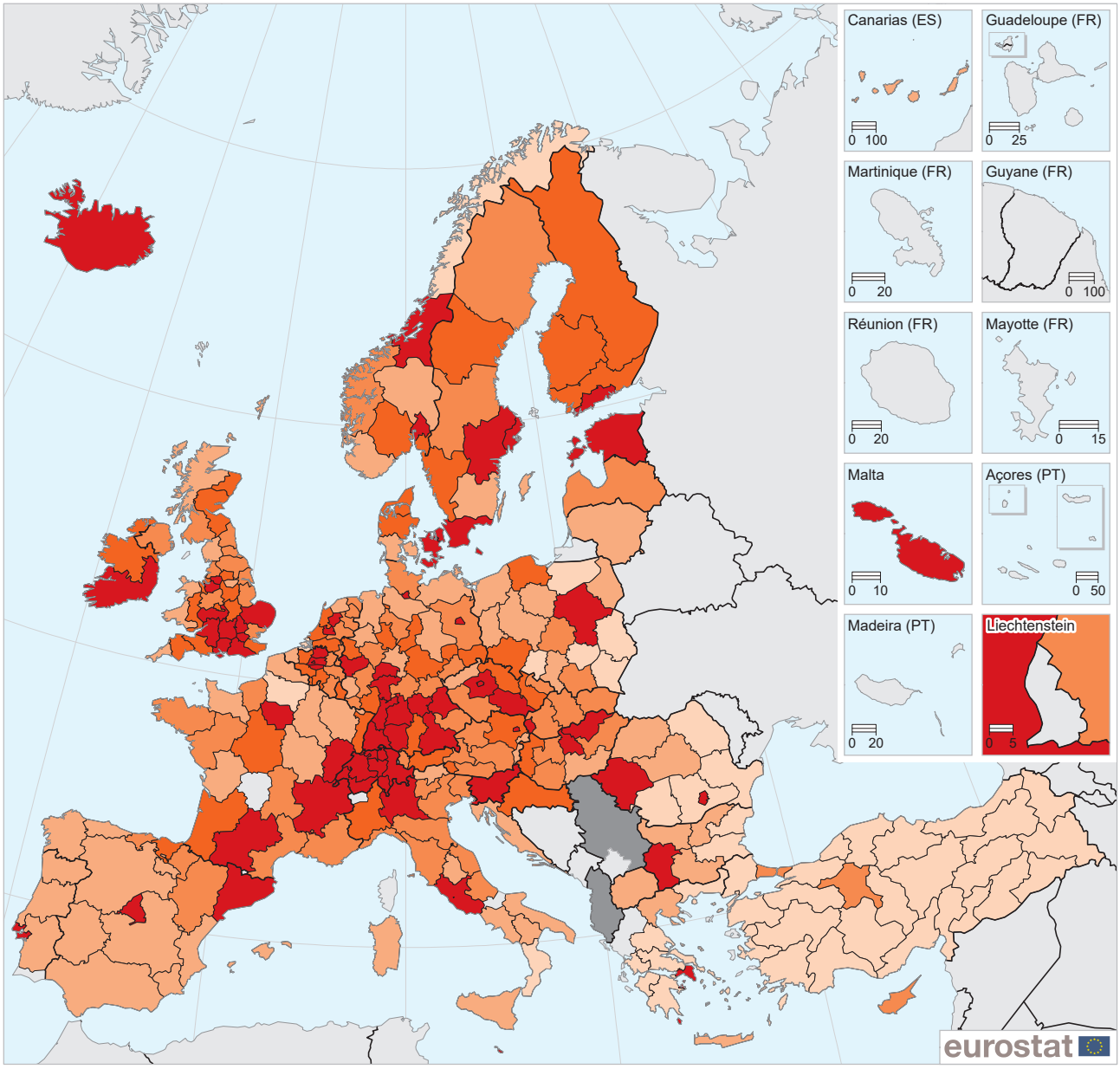
The distinction between manufacturing and services is made due to the existence of two different methodologies. While R & D intensities are used to distinguish between high, medium-high, medium-low and low-technology manufacturing industries, for services the proportion of the workforce that has completed a tertiary education is used to distinguish between knowledge-intensive services and less knowledge-intensive services.

High-technology manufacturing covers the manufacture of: basic pharmaceutical products and pharmaceutical preparations; computer, electronic and optical products; and air and spacecraft and related machinery.

High-tech knowledge-intensive services include: motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting; telecommunications; computer programming, consultancy and related activities; information service activities; and research and development services.

More information on the aggregation of data for high-tech industries and knowledge-intensive services is provided on Eurostat's website.

**Map 8.3:** Share within total employment of employment in high-tech sectors, by NUTS 2 regions, 2014 (1)
(%)




(1) London (the United Kingdom): NUTS level 1. Slovenia: national data. Thessalia, Sterea Ellada (Greece), Warmińsko-Mazurskie (Poland) and Kastamonu, Çankırı, Sinop (Turkey): 2013. Notio Aigaio (Greece) and Sud-Est (Romanian): 2012. Prov. Luxembourg (Belgium), Severozapaden, Severen tsentralen, Severoiztochen, Yugoiztochen (Bulgaria), Notio Aigaio, Kriti, Anatoliki Makedonia, Thraki, Thessalia, Dytiki Ellada, Sterea Ellada, Peloponnisos (Greece), La Rioja (Spain), Champagne-Ardenne, Picardie (France), Jadranska Hrvatska (Croatia), Zeeland (the Netherlands), Burgenland, Vorarlberg (Austria), Lubelskie, Podkarpackie, Świętokrzyskie, Podlaskie, Zachodniopomorskie, Lubuskie, Opolskie, Kujawsko-Pomorskie, Warmińsko-Mazurskie (Poland), Sud-Est, Sud-Vest Oltenia (Romania), Cumbria, Lincolnshire, Cornwall and Isles of Scilly, Highlands and Islands (the United Kingdom), Balikesir, Çanakkale, Kirikkale, Aksaray, Nigde, Nevsehir, Kirsehir, Zonguldak, Karabük, Bartin, Kastamonu, Çankiri, Sinop, Erzurum, Erzincan, Bayburt, Agri, Kars, Igdir, Ardahan, Malatya, Elazig, Bingöl, Tunceli, Van, Mus, Bitlis, Hakkari, Sanliurfa, Diyarbakir, and Mardin, Batman, Sirnak, Siirt (Turkey): low reliability.

*Source:* Eurostat (online data codes: htec_emp_reg2 and htec_emp_nat2)

## Intellectual property rights

The term intellectual property rights is used to cover the granting of different kinds of protection through the issuing of patents, copyrights and trademarks. The protection of intellectual property allows the holder to exercise a monopoly on the use of the item in question for a set period, as imitation and duplication are restricted. By doing so, enterprises may be encouraged to invest more in research and creative activity.

The number of patent applications from the EU-28 to the European Patent Office (EPO) rose at a relatively fast pace through to 1999, when an average of more than 100 applications per million inhabitants was passed for the first time. Thereafter, modest increases followed up until 2006 when a relative peak of 117 applications per million inhabitants was registered. From this relative high, the number of EPO patent applications per million inhabitants in the EU-28 fell slowly to 112 applications per million inhabitants in 2010, and stabilised at 113 applications per million inhabitants between 2011 and 2013 during which time the total number of applications was just over 57 thousand.

The average number of patent applications per million inhabitants in the EU-28 stood at 113.2 in 2011, the latest year for which complete regional information is available. As with the other research and innovation indicators, patent applications tend to be clustered geographically in a limited number of regions; this is especially true for high-tech patents. Indeed, **Map 8.4** shows that technological activity in the form of patent applications was very much concentrated in the centre of the EU and in particular in southern Germany and in Switzerland.

This relatively high degree of concentration of patent activity is demonstrated by the fact that across the 1 126 NUTS level 3 regions for which recent data are available, around three fifths reported their ratio of patent applications per million inhabitants below the EU-28 ratio, while the median value for all NUTS level 3 regions was 83 patent applications per million inhabitants.

The darkest shade of orange in **Map 8.4** indicates those regions where this ratio reached at least 250 patent applications per million inhabitants. Among these 210 regions, the overwhelming majority (165 of them) were located in Germany. The remainder were mainly from western and northern EU Member States, including: nine French regions, eight Austrian regions, six Swedish regions, five British regions, and four regions each from Belgium, Denmark, the Netherlands and Finland. The one region from a southern Member State was Pordenone within the Friuli-Venezia Giulia region (north-east Italy).

The highest number of patent applications per million inhabitants in 2011 was 2 467 in Erlangen, Kreisfreie Stadt, while the neighbouring region of Erlangen-Höchstadt had the third highest ratio (1 471); Erlangen is home to a number of research institutes and a university, with much of its research activity based on optics, engineering, technology and computer science. These two regions were split by Zuidoost-Noord-Brabant in the Netherlands with 1 924 patent application per million inhabitants. Two other German regions also reported more than 1 000 patent applications per million inhabitants: Heidenheim and Ludwigsburg, both near Stuttgart in southern Germany. Among the non-member regions shown in **Map 8.4**, the highest ratio was recorded for the Swiss region of Basel-Stadt (873 patent application per million inhabitants).

By contrast, 174 of the NUTS level 3 regions in the EU for which data are available reported that they had less than 10.0 patent application per million inhabitants in 2011 (as

## Defining patents

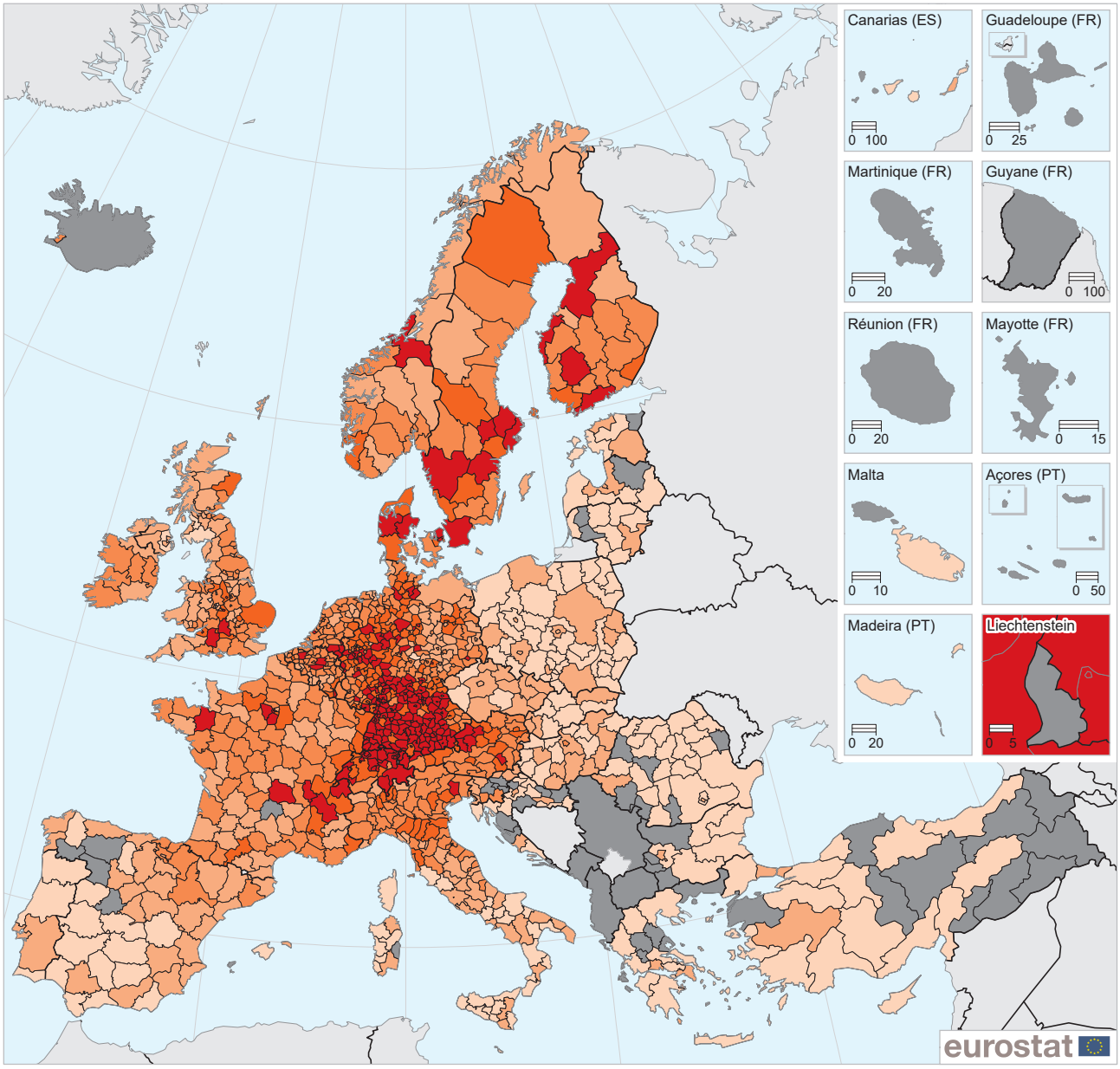
Patent counts can provide a measure of invention and innovation. A patent is an intellectual property right that gives its owner the exclusive right to use his/her invention in a particular technical field for a limited number of years.

A patent application should be based on a new solution to a technical problem which satisfies three criteria: novelty; inventiveness; and industrial applicability. A patent may be granted to an enterprise, a public body, or an individual. Patents remain valid for a given country or area for a limited period of time.

Regional statistics for patent applications to the EPO build on information from the addresses of inventors, which is not always the place (region) of invention as inventors do not necessarily live in the same region as the one in which they work; the impact of this discrepancy is likely to be higher when smaller geographical units are being analysed.

Care should be taken interpreting this data as not all inventions are patented and patent propensities vary across activities and enterprises. Furthermore, patented inventions vary in technical and economic value.

**Map 8.4:** Patent applications to the EPO relative to the population size, by NUTS 3 regions, 2011 (1)
(number per million inhabitants)




(number per million inhabitants)

EU-28 = 113.2

- < 10
- 10 – < 50
- 50 – < 150
- 150 – < 250
- >= 250
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 04/2016

0 200 400 600 800 km

(1) Severna i yugoiztochna Bulgaria, Yuzhen tsentralen (Bulgaria), Mecklenburg-Vorpommern (Germany), Attiki, Voreia Ellada, Dytiki Ellada, Peloponnisos (Greece), Corse (France), Mazowieckie, Małopolskie, Zachodniopomorskie, Opolskie, Kujawsko-Pomorskie, Pomorskie (Poland), Portugal, Sud-Est, Sud - Muntenia (Romania), Greater Manchester, Lancashire, East Anglia, Essex, London, Surrey, East and West Sussex, Hampshire and Isle of Wight, Kent (the United Kingdom) and Turkey: NUTS level 2. Nisia Aigaiou, Kriti (Greece): NUTS level 1. Earlier years (2009 and 2010) for many regions.

*Source:* Eurostat (online data codes: pat_ep_rtot and pat_ep_ntot)

shown by the lightest shade of orange in **Map 8.4**; note that some of the information relates to earlier reference periods). Most of these regions were located in the Baltic Member States, in eastern parts of the EU, in Greece, in the southern half of Italy or across the Iberian Peninsula, although there were a handful of regions in Germany, France and the United Kingdom too.

### *The French capital city region of Paris had the highest number of EU trademark and Community design applications*

Trademarks can be an essential part of the identity of goods and services, as they help to deliver brand recognition and play a role in marketing and communication. A design is the outward appearance of a product or part of it, resulting from the lines, contours, colours, shape, texture, materials and/or its ornamentation.

**Table 8.1** provides information on the application for and granting of EU trademarks and Community designs. The top 10 regions in 2014 are shown for each of these, with the highest number of applications and registrations for EU trademarks and Community designs made in the French capital city region of the Paris. For each part of **Table 8.1**, the top 10 regions accounted for a 13–21 % share of the EU-28 total, with each ranking dominated by some of the most populous regions in the EU, either capital city regions or other regions with large cities. The top 10 list for Community design registrations stands out as it includes Varna (Bulgaria) — the only region from the eastern EU Member States to feature in any of the rankings presented in **Table 8.1**.

**Table 8.1:** Top 10 regions for EU trademarks and Community designs, by NUTS 3 regions, 2014

| EU trademark applications | | | | EU trademark registrations | | | |
|---|---|---|---|---|---|---|---|
| | (number) | (per million inhabitants) | Share of EU-28 (%) | | (number) | (per million inhabitants) | Share of EU-28 (%) |
| **EU-28** | 66 601 | 131.2 | - | **EU-28** | 75 460 | 148.6 | - |
| Paris (FR101) | 2 083 | 937.8 | 3.1 | Paris (FR101) | 1 931 | 869.4 | 2.6 |
| Barcelona (ES511) | 2 022 | 371.7 | 3.0 | Barcelona (ES511) | 1 762 | 323.9 | 2.3 |
| Madrid (ES300) | 1 843 | 288.8 | 2.8 | Madrid (ES300) | 1 645 | 257.8 | 2.2 |
| Milano (ITC4C) | 1 484 | 465.7 | 2.2 | Milano (ITC4C) | 1 314 | 412.4 | 1.7 |
| Berlin (DE300) | 1 275 | 370.0 | 1.9 | Luxembourg (LU000) | 1 193 | 2 144.5 | 1.6 |
| Luxembourg (LU000) | 1 253 | 2 252.3 | 1.9 | Hamburg (DE600) | 1 104 | 629.2 | 1.5 |
| Stockholms län (SE110) | 1 112 | 510.0 | 1.7 | Berlin (DE300) | 1 088 | 315.7 | 1.4 |
| München, Kreisfreie Stadt (DE212) | 1 097 | 773.2 | 1.6 | Westminster (UKI32) | 1 020 | 4 417.4 | 1.4 |
| Hamburg (DE600) | 1 052 | 599.6 | 1.6 | München, Kreisfreie Stadt (DE212) | 980 | 690.8 | 1.3 |
| Groot-Amsterdam (NL326) | 827 | 629.9 | 1.2 | Stockholms län (SE110) | 968 | 443.9 | 1.3 |
| **Community design applications** | | | | **Community design registrations** | | | |
| | (number) | (per million inhabitants) | Share of EU-28 (%) | | (number) | (per million inhabitants) | Share of EU-28 (%) |
| **EU-28** | 14 643 | 28.8 | - | **EU-28** | 57 364 | 113.0 | - |
| Paris (FR101) | 325 | 146.3 | 2.2 | Paris (FR101) | 1 607 | 723.5 | 2.8 |
| Milano (ITC4C) | 234 | 73.4 | 1.6 | Milano (ITC4C) | 1 164 | 365.3 | 2.0 |
| Barcelona (ES511) | 221 | 40.6 | 1.5 | Stuttgart, Stadtkreis (DE111) | 869 | 1 428.4 | 1.5 |
| Hauts-de-Seine (FR105) | 186 | 116.2 | 1.3 | München, Kreisfreie Stadt (DE212) | 859 | 605.5 | 1.5 |
| Stuttgart, Stadtkreis (DE111) | 172 | 282.7 | 1.2 | Barcelona (ES511) | 784 | 144.1 | 1.4 |
| München, Kreisfreie Stadt (DE212) | 163 | 114.9 | 1.1 | Udine (ITH42) | 599 | 1 115.3 | 1.0 |
| Helsinki-Uusimaa (FI1B1) | 157 | 98.5 | 1.1 | Varna (BG331) | 597 | 1 259.7 | 1.0 |
| Zuidoost-Noord-Brabant (NL414) | 149 | 198.6 | 1.0 | Treviso (ITH34) | 585 | 659.1 | 1.0 |
| Stockholms län (SE110) | 146 | 67.0 | 1.0 | Luxembourg (LU000) | 562 | 1 010.2 | 1.0 |
| Hamburg (DE600) | 144 | 82.1 | 1.0 | Alicante / Alacant (ES521) | 546 | 295.7 | 1.0 |

*Source:* Eurostat (online data codes: ipr_ta_reg, ipr_tr_reg, ipr_da_reg, ipr_dfa_reg and demo_r_pjanaggr3)

# Data sources and availability

## Methodology

The methodology for R & D statistics is laid down in the 'Frascati manual: proposed standard practice for surveys on research and experimental development' (OECD, 2002), which is also used by many non-member countries.

The methodology for statistics on human resources in science and technology (HRST) is laid down in the Canberra manual (OECD, 1995), which lists all HRST concepts.

## Legal basis

Commission Regulation 995/2012 concerning the production and development of Community statistics on science and technology provides the legal requirements and determines the datasets, analysis (breakdowns), frequency and transmission delays to be respected by the EU Member States for these statistics.

## Sources

Many of the statistics that are used to analyse research and innovation are derived from other statistical domains within Eurostat and a range of international databases provided by other organisations, including:

- statistics on human resources in science and technology (HRST) which are compiled annually based on microdata from the EU's labour force survey (LFS);
- data on high-technology manufacturing industries and knowledge-intensive services are compiled annually, based on data collected from a number of official sources (such as the EU's labour force survey and structural business statistics (SBS));
- data on patent applications to the European Patent Office (EPO) are compiled on the basis of microdata from the EPO which is located in Munich, Germany;
- the European Union Intellectual Property Office (EUIPO) registers European Union trademarks and Community designs and is located in Alicante, Spain.

Patent applications filed at the EPO are classified by the inventor's residence and in accordance with the international patents classification of applications (IPC). Patent data are regionalised using procedures linking postcodes and/or place names to NUTS level 1, NUTS level 2 and NUTS level 3 regions. Patent statistics published by Eurostat are almost exclusively based on the EPO worldwide statistical patent database, Patstat.

Data on Community trademarks and designs refer to trademark and design protections throughout the EU. Trademarks have to be represented graphically and must be capable of distinguishing products or services from those belonging to competitors, as defined in Directive 2008/95/EC. A Community design is 'the appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation', as defined by Council Regulation (EC) No 6/2002 on Community designs.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Nearly all of the regional data in this chapter have been converted from NUTS 2010, the exceptions being the data on Community trademark and designs presented in **Table 8.1**. The conversion of the other data has generally had the following consequences at NUTS level 1: data for the French départements d'outre-mer and for the Greek regions of Voreia Ellada and Kentriki Ellada are not available. The conversion of the data has had the following consequences at NUTS level 2: data for the French départements d'outre-mer are not available, only national data are available for Slovenia, and data for London are shown at NUTS level 1. The conversion of the data has had the following consequences at NUTS level 3: data for a number of regions are not available and for several regions in Germany, Greece, Poland, Portugal and the United Kingdom data are shown at NUTS level 2.

# 9 Information society

This chapter emphasises the geographic aspects of the digital divide by presenting statistical data for a range of issues linked to the use of the internet across the regions of the European Union (EU).

The diffusion of ICTs across the EU is considered by many as fundamental for improving both productivity levels and the competitiveness of regions. ICTs are credited with delivering greater flexibility in the working environment (for example, working from home or other remote locations). These developments have created new dimensions of not only economic, but also social and political participation for individuals and groups. Indeed, the presence and reach of ICTs has had a profound effect on transforming society, allowing completely new ways of working, socialising and sharing information, irrespective of geographical location.

Although the internet is an almost constant part of the daily lives of many Europeans, some parts of the population continue to be excluded from the digital world. As an increasing share of our daily tasks are carried out online, digital skills become increasingly important as a means of allowing everyone to participate in society.

A fast connection to the internet (coupled with knowledge and relevant skills) makes it easy to carry out a range of activities online: for example, obtaining information about almost any topic; communicating via message, chat or video services; accessing work files; consuming media; buying or selling goods and services. These activities can be carried out through a growing range of devices (such as smart phones, tablets and computers), while technological development continues apace, for example, in the development of wearable connected devices such as smart watches or augmented reality devices.

The digital agenda for Europe is one of seven flagship initiatives under the Europe 2020 strategy. It aims to take advantage of the potential of information and communication technologies (ICTs), through the development of an inclusive digital society and digital single market, designed to foster innovation, thereby helping to generate 'smart, sustainable and inclusive growth'.

The digital agenda presents the European Commission's strategy for promoting a thriving digital economy in the EU by 2020, with particular importance given to policy measures which may bridge the digital divide so that all EU inhabitants may profit from accessing and using ICTs. The digital agenda contains 101 specific policy actions: 78 to be taken by the European Commission (including 31 legal proposals) and 23 for EU Member States.

## The digital agenda scoreboard — benchmarking ICT developments across the EU

The digital agenda scoreboard identifies 13 key performance targets for measuring the progress of the digital agenda initiative. The scoreboard with these key indicators — supported by a wide range of additional indicators — is released on an annual basis. The 13 key targets foresee:

- the entire EU to be covered by broadband by 2013;
- the entire EU to be covered by broadband above 30 Mbps by 2020;
- at least 50 % of the EU to subscribe to broadband above 100 Mbps by 2020;
- at least 50 % of the population to buy online by 2015;
- at least 20 % of the population to buy online and cross-border by 2015;
- at least 33 % of small and medium-sized enterprises to make online sales by 2015;
- the difference between roaming and national tariffs to approach zero by 2015;
- an increase in regular internet usage from 60 % to 75 % by 2015, and from 41 % to 60 % among disadvantaged people;
- the proportion of the population that has never used the internet to halve from 30 % to 15 % by 2015;
- at least 50 % of the EU's population using eGovernment services by 2015, with more than half of these returning completed forms;
- key cross-border public services to be available online by 2015;
- a doubling of public investment in ICT research and development to EUR 11 billion by 2020;
- a reduction in the energy use of lighting by 20 % by 2020.

**For more information**: digital agenda for Europe — scoreboard.

The European Commission reviewed the digital agenda in 2015, by when close to half (45 %) of the 101 policy actions had been completed. While the full implementation of the original 101 specific actions remains a priority, several new initiatives linked to the digital economy were also identified for their potential to deliver an economic stimulus.

In May 2015, the European Commission adopted a digital single market strategy (COM(2015) 192 final), which is one of its top priorities. This strategy covers three areas:

- promoting better online access to goods and services across Europe;
- designing an optimal environment for digital networks and services to develop;
- ensuring that the European economy and industry takes full advantage of the digital economy as a potential driver for growth.

At the end of 2015 the European Commission published a framework called Monitoring the Digital Economy and Society 2016–2021. This document describes the main policy developments and outlines the main data requirements to monitor European digital policies, information and communication technologies as well as their impact on the economy and society in the period 2016-2021. It reviews existing data sources and lists new areas and data sources to be made use of in the future.

# Main statistical findings

## Broadband connections

Policymakers have made efforts to expand both the geographic reach and the speed of broadband internet. In 2015, four fifths of all households (with at least one member being aged 16–74) in the EU-28 had a broadband connection. In some regions, broadband connection rates have approached saturation.

***Highest share of households with broadband connectivity recorded in the Netherlands***

**Map 9.1** shows the proportion of households with a fixed and/or mobile broadband connection in 2015. There was a high share of broadband access across many regions in northern and western parts of the EU, particularly in the United Kingdom, the Netherlands, Luxembourg, the Nordic Member States and Germany. There were 24 regions in the EU-28 (note that data for Germany, Greece, Austria, Poland and the United Kingdom are only available for NUTS level 1 regions), as shown by the darkest shade of blue in **Map 9.1**, where broadband connection rates were at least 90 % in 2015, including all 12 Dutch regions, five British regions, four German regions and Luxembourg (one region at this level of detail), as well as one region each from Finland and Sweden. Among the EFTA countries, seven regions — Iceland (one region at this level of detail; 2014 data), Zürich in Switzerland (2014 data), and five Norwegian regions — also reported that at least 90 % of their households had a broadband connection in 2015.

***Less than 50 % of the households in the Bulgarian region of Severozapaden had a broadband connection***

Broadband connectivity rates were particularly low in some eastern and southern regions of the EU. This was especially the case for the Bulgarian region of Severozapaden, the only NUTS level 2 region to report a connection rate of less than 50 %. There were 34 additional regions with rates of less than 70 % (as depicted by the two lightest shades of blue in **Map 9.1**), including seven from France, five each from Bulgaria and Romania, four each from Italy and Portugal, three each from Greece and Hungary, Lithuania (one region at this level of detail) and one each from the Czech Republic and Poland.

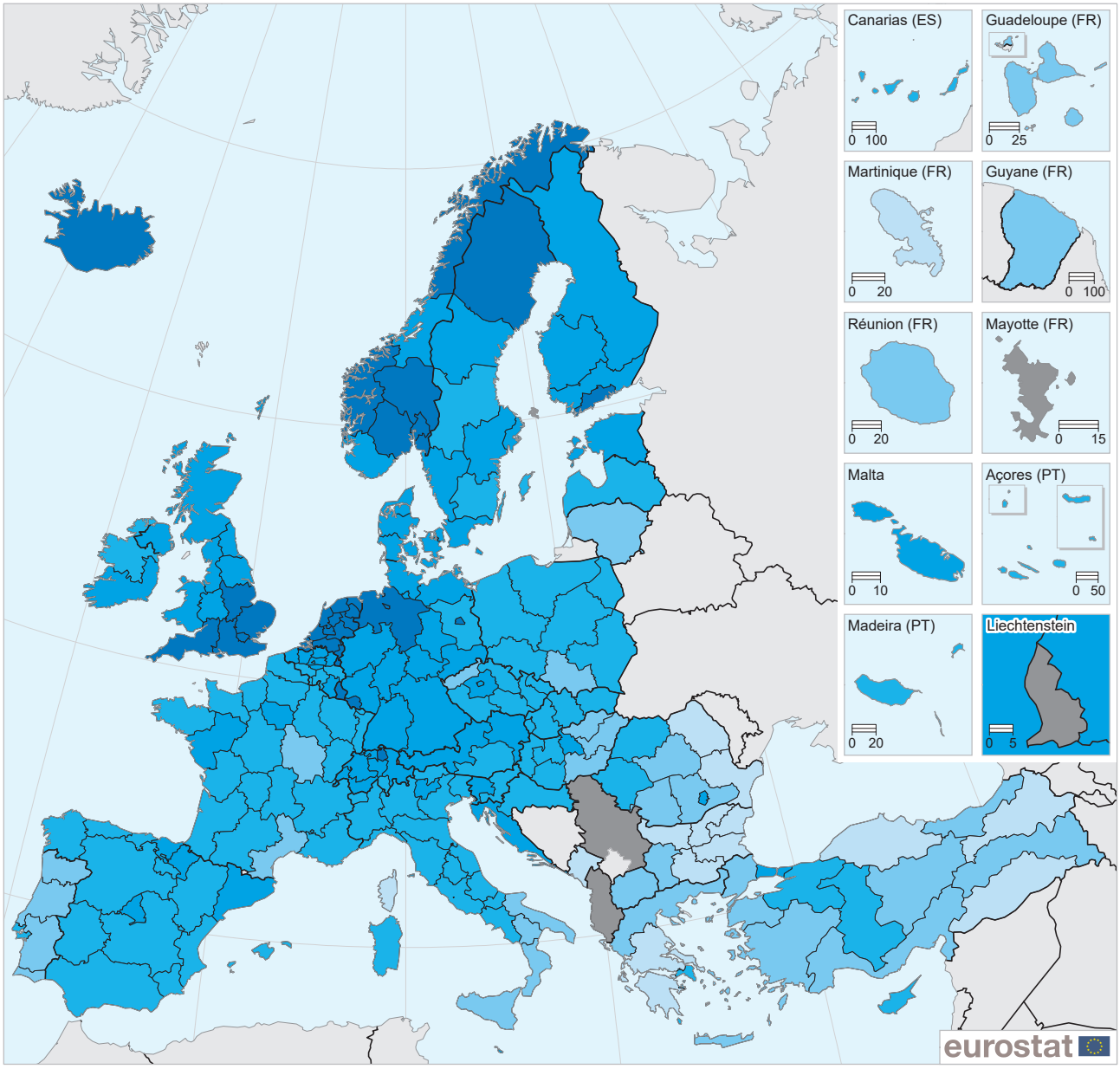
Relatively low broadband connection rates were also recorded in Montenegro (2012 data) and the former Yugoslav Republic of Macedonia (each one region at this level of detail) and across most regions in Turkey (data are only available for NUTS level 1 regions); note, however, that the proportion of households with a broadband connection rose above 70 % in the Turkish regions of İstanbul, Bati Anadolu and Doğu Marmara.

### Spotlight on the regions: Overijssel, the Netherlands

**Overijssel in the east of the Netherlands was the NUTS level 2 region with the highest proportion (97 %) of households possessing a broadband internet connection in 2015; its share was 17 percentage points higher than the EU-28 average (80 %).**

***Photo*: Gouwenaar**

**Map 9.1:** Proportion of households with broadband connections, by NUTS 2 regions, 2015 ([1])
(%)




(%)

EU-28 = 80

- < 60
- 60 – < 70
- 70 – < 80
- 80 – < 90
- >= 90
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

([1]) Germany, Greece, Austria, Poland, the United Kingdom and Turkey: NUTS level 1. Iceland and Switzerland: 2014. Montenegro: 2012. Corse (France): low reliability.

*Source:* Eurostat (online data codes: isoc_r_broad_h and isoc_ci_eu_h)

## Internet use

At the start of the digital revolution, access to the internet was restricted to those who worked with or owned a desktop computer. Thereafter, a number of technological (and commercial) developments occurred, such that a wider range of alternative devices can now be used to go online, particularly when people are on the move. Possibly, the introduction of smartphones and tablet computers has helped bridge some of the digital divide, providing internet access to a variety of groups who previously had difficulties in accessing the internet, for example, those with low educational attainment, or those with low incomes.

***Almost one in six Europeans has never used the internet***

The digital agenda had a target for 2015 that the proportion of the EU-28 population that had never used the internet should be down to 15 %. The latest information available for 2015 shows that some 16 % of the population (aged 16–74) had never used the internet, just 1 percentage point above the target and 11 percentage points lower than five years earlier (2010).

In 2015, the share of the population who had never used the internet remained above one third in 17 different EU regions that were located in eastern (exclusively in Bulgaria and Romania) and southern (exclusively in Greece and Italy) Member States. In a further 31 regions the share of the population who had never used the internet was equal to or above one quarter (but less than one third), with some of these regions again in Italy and Romania, while the others were located principally in Poland, Portugal, Hungary, Spain, France, while there were also single regions from Bulgaria, Greece, Croatia and Slovenia, as well as Cyprus and Lithuania (both one region at this level of detail). These 48 regions are shown by the two darkest shades of blue in **Map 9.2**.

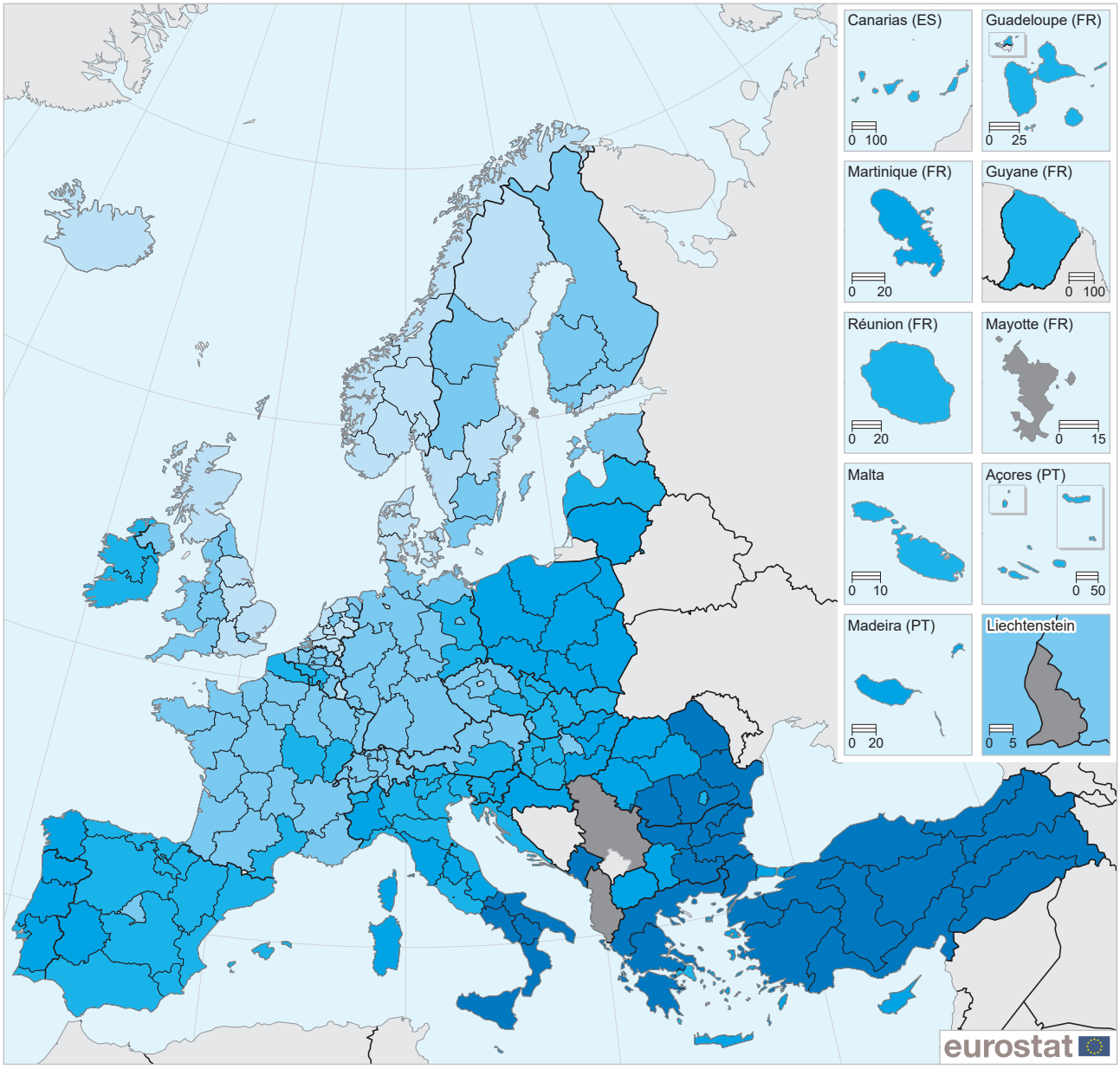
The highest share of the population never having used the internet was recorded in the north-western Bulgarian region of Severozapaden, where almost half (49 %) of the population had never used the internet. The north-eastern Bulgarian region of Severoiztochen was the only other EU region where this share reached 40 %. By contrast, there were 26 mainly northern and western regions where at most 1 out of every 20 residents had never used the internet, with the only eastern region being the Czech capital city region of Praha: these regions are shown with the lightest shade of blue in **Map 9.2**. The share of the population never having used the internet fell to 2 % in the capital city regions of Denmark and Finland, and in Luxembourg (one region at this level of detail). Even lower shares were recorded in the EFTA countries, as the proportion of the population never having used the internet was 1 % in three of the level 2 Norwegian regions and in Iceland (2014 data, one region at this level of detail), while the whole of the population (aged 16–74) in the western Norwegian region of Vestlandet had used the internet.

### Spotlight on the regions: Hovedstaden, Denmark

**The digital agenda scoreboard identifies 13 key performance targets for measuring the progress of the digital agenda initiative; one of these is for the proportion of the population that has never used the internet to halve from 30 % to 15 % by 2015. There were three capital city regions where the share of the population having never used the internet fell to 2 %, Hovedstaden in Denmark, Luxembourg (a single region at NUTS level 2) and Helsinki-Uusimaa (Finland).**

***Photo*: saskiakoopmans0**

**Map 9.2:** Proportion of people who never used the internet, by NUTS 2 regions, 2015 ([1])
(%)




(%)

EU-28 = 16

| | |
|---|---|
| < 6 | 25 – < 34 |
| 6 – < 15 | >= 34 |
| 15 – < 25 | Data not available |

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

([1]) Germany, Greece, Austria, Poland, the United Kingdom and Turkey: NUTS level 1. Iceland and Switzerland: 2014. Montenegro: 2012. Corse (France): low reliability.

*Source:* Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_eu_i)

## Regular use of the internet

The digital agenda for Europe set a target of increasing the regular use of the internet by individuals (defined here as at least once a week) to 75 % by 2015. This target was reached with a year to spare, as three quarters of the EU-28's population were using the internet on a regular basis in 2014; by 2015 this share rose marginally to 76 %. Although the proportion of individuals making regular use of the internet has continued to rise in recent years, its rate of increase has slowed from 4–5 percentage points between 2008 and 2010, to 2–3 percentage points between 2011 and 2014, to just 1 percentage point in 2015, suggesting that it was close to saturation.

Looking in more detail at the regional results, there were 112 regions out of the 199 in the EU for which data are available, where at least 75 % of the population made regular use of the internet in 2015, thereby meeting the digital agenda target (as shown by the darkest three shades of blue in **Map 9.3**).

***Particularly high proportions of regular internet use in British, Dutch and Danish regions, as well as in Luxembourg***

The share of the population making regular use of the internet reached 95 % in the Finnish capital city region and in South East (England), and was two percentage points higher in Luxembourg (one region at this level of detail). These three regions were joined by a further 27 EU regions where the share of regular internet users reached or surpassed 90 %; they are shown in the darkest shade of blue in **Map 9.3** and were concentrated in western (mainly British and Dutch) and northern (Danish, Finnish and Swedish) regions, with the Czech capital city region the only exception.

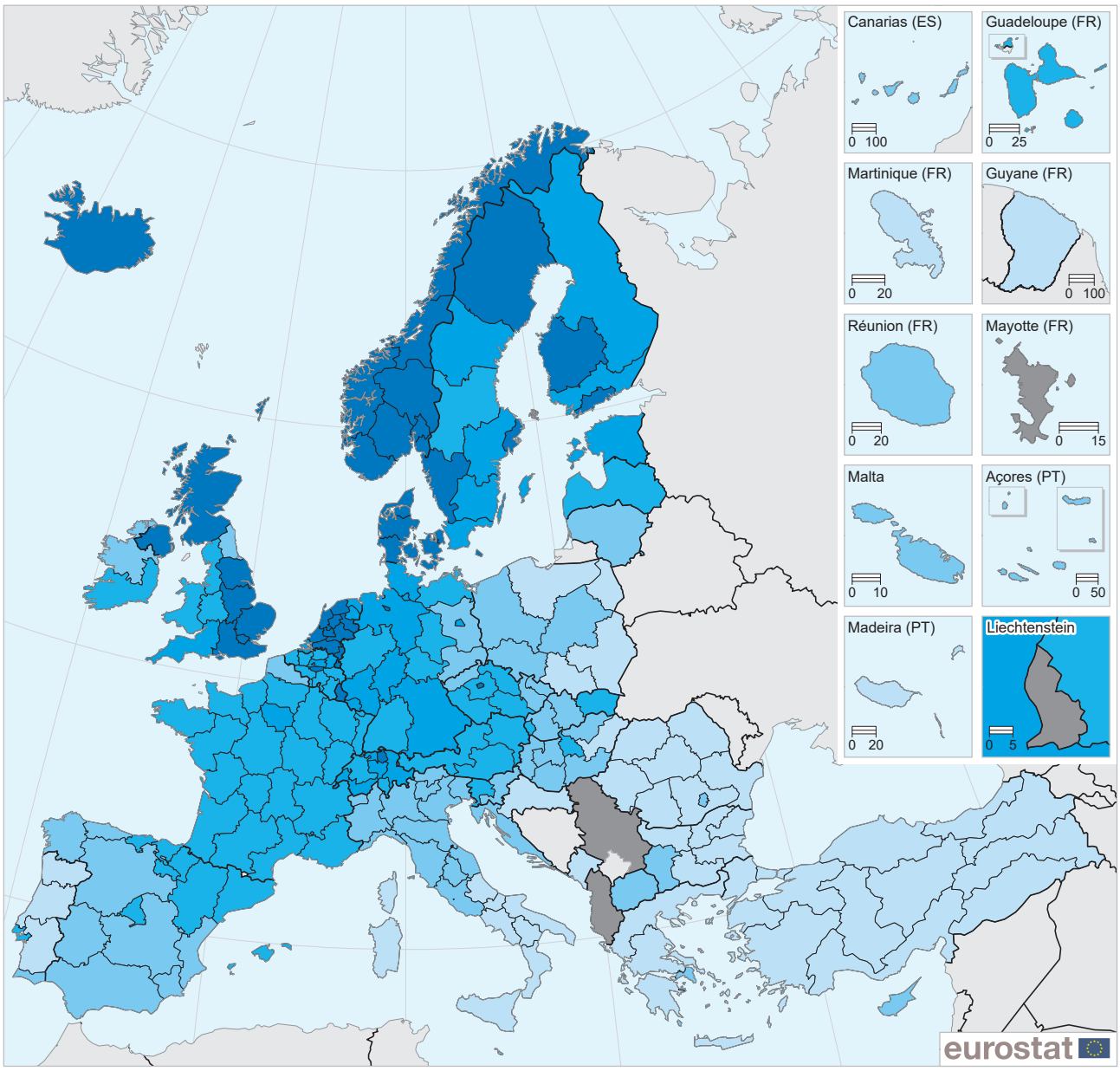
***Less than half the population used the internet on a regular basis in one Bulgarian and four Romanian regions***

By contrast, there were five regions across the EU where less than half of the population made regular use of the internet in 2015. Among these were four of the eight NUTS level 2 regions that compose Romania and one region in north-western Bulgaria. Looking more broadly, the 35 regions where regular internet use was below 65 % (those depicted with the lightest shade of blue in **Map 9.3**), were mainly in southern and eastern parts of the EU, with three French regions (Corse, Guyane and Martinique) the only exceptions.

In a majority of EU Member States, the capital city region recorded the highest regional share of regular internet users, although among the multi-regional Member States this was not the case in Belgium, Germany, Italy, the Netherlands, Poland or the United Kingdom; in Denmark, Syddanmark and Hovedstaden (the capital city region) recorded joint highest shares.

**Map 9.3:** Proportion of people who were regular users of the internet (accessed the internet on average at least once every week), by NUTS 2 regions, 2015 (1)

(%)




(%)

EU-28 = 76

| | |
|---|---|
| < 65 | 85 – < 90 |
| 65 – < 75 | >= 90 |
| 75 – < 85 | Data not available |

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

(1) Germany, Greece, Austria, Poland, the United Kingdom and Turkey: NUTS level 1. Iceland and Switzerland: 2014. Montenegro: 2012. Corse (France): low reliability.

*Source:* Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_eu_i)

## Mobile internet use

The use of mobile (or smart) phones to access the internet has increased greatly within the EU-28: while almost four out of every five (79 %) individuals used the internet during a three-month period prior to the 2015 survey, more than half (52 %) of the people surveyed had accessed the internet from a mobile phone. The use of mobile devices (not just phones) to access the internet has developed to complement or supplement more traditional fixed connections (usually at home, work, in a place of study or in an internet café).

There were significant differences between countries in mobile phone (or smart phone) internet usage as can be seen from **Figure 9.1**. On average, the share of individuals who used the internet through a mobile phone/smart phone was above 70 % in Denmark, Sweden, Luxembourg, the United Kingdom and the Netherlands, as well as in Norway. By contrast, it was as low as 25 % in Italy.

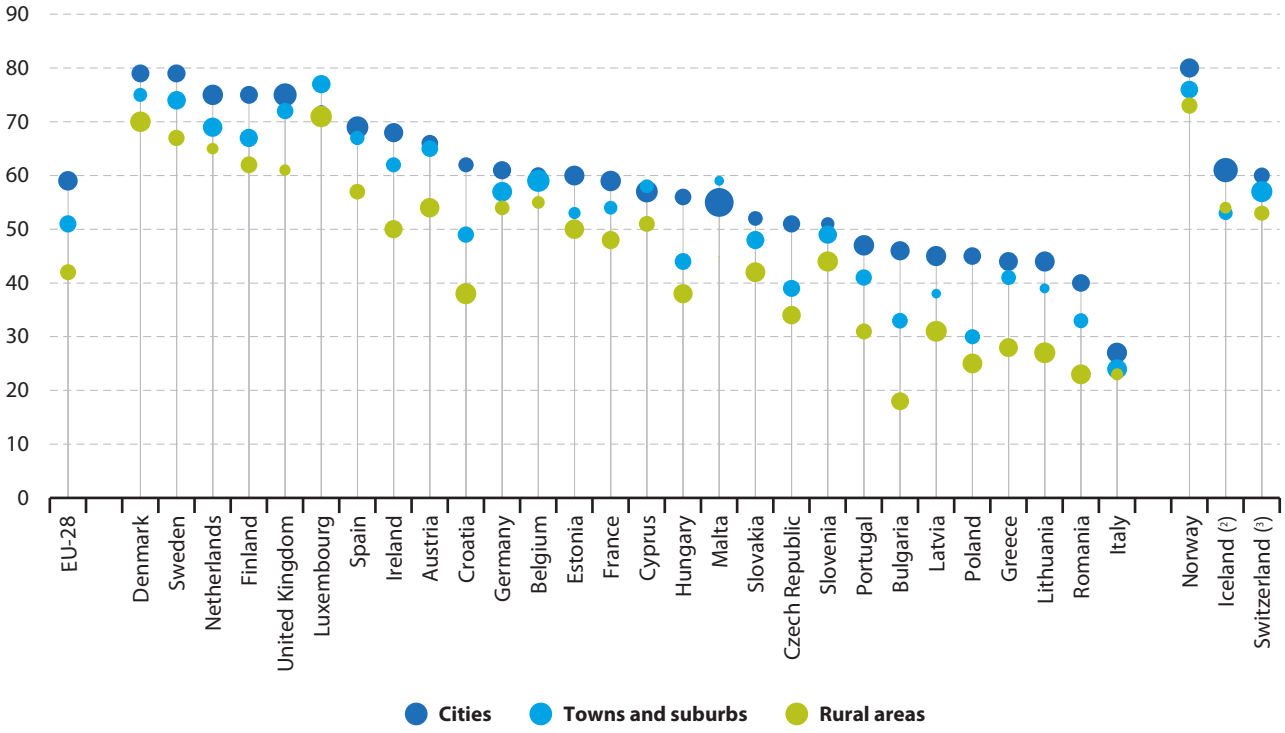
An analysis by degree of urbanisation shows that the use of mobile phones/smart phones to access the internet was greater among people in urban regions (59 %) of the EU-28 in 2015, than it was among people living in towns and suburbs (51 %) and rural areas (42 %). This pattern was observed in almost every EU Member State, the exceptions being Luxembourg and the islands of Malta and Cyprus where the share of people who used a mobile phone/smart phone to access the internet peaked in towns and suburbs. While Norway and Switzerland also displayed the basic pattern seen for the EU-28 and most of the Member States, the situation in Iceland (2014 data) was different as the lowest share of people using mobile phones/smart phones to access the internet was in towns and suburbs.

## E-commerce

***More than half of the EU's population made online purchases of goods and services in 2015***

In 2015, 53 % of individuals in the EU-28 reported that they had made online purchases of goods and services (at least once within the 12 months prior to the survey date); this figure has grown from 30 % in 2007 and from 40 % in 2010. As such, the proportion of people ordering goods or services over the internet in 2015 was just above the target of 50 % set for 2015 by the digital agenda for Europe.

**Figure 9.1: Proportion of people who used a mobile phone (or smart phone) to access the internet, by degree of urbanisation, 2015 (1)**
(%)




(1) The size of each circle reflects the share of that type of area in the national population. Population data used to calculate the size of the circles: 2014. Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

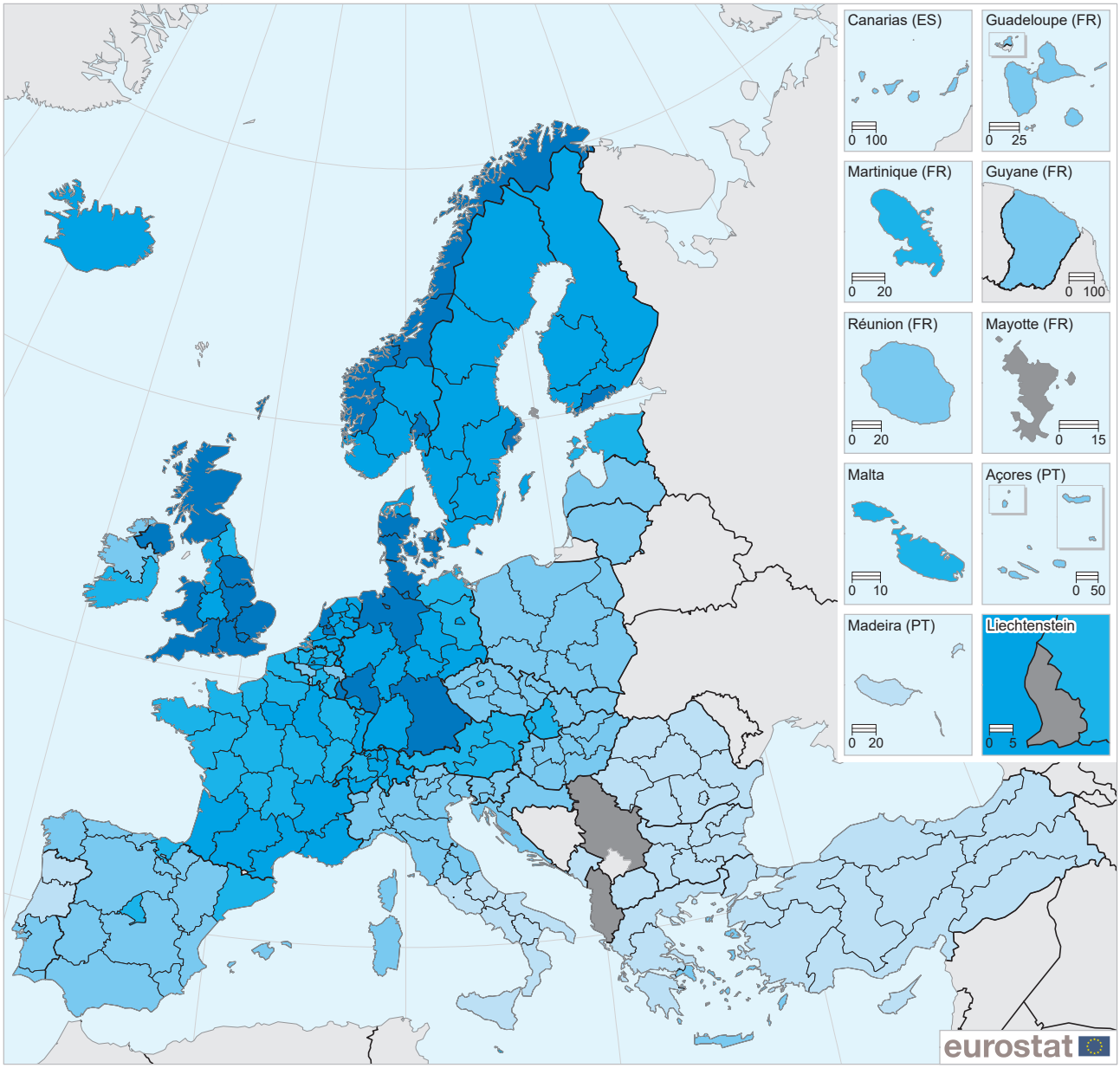
(2) All data: 2014.

(3) Proportion of people who used a mobile phone (or smart phone) to access the internet: 2014. Population data used to calculate the size of the circles: 2013.

*Source:* Eurostat (online data codes: isoc_bde15b_i and ilc_lvho01)

**Map 9.4:** Proportion of individuals who bought goods or services over the internet for private use, by NUTS 2 regions, 2015 (1)

(%)




(%)

EU-28 = 53

| | |
|---|---|
| < 30 | 65 – < 75 |
| 30 – < 50 | >= 75 |
| 50 – < 65 | Data not available |

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 06/2016

0 200 400 600 800 km

(1) Germany, Greece, Austria, Poland, the United Kingdom and Turkey: NUTS level 1. Iceland and Switzerland: 2014. Montenegro: 2012. Corse (France): low reliability.

*Source:* Eurostat (online data codes: isoc_r_blt12_i and isoc_ec_ibuy)

In 2015, the proportion of individuals making online purchases ranged from a high of 88 % in two southern regions of the United Kingdom (East of England and South East (England)) down to 7 % in the Sud-Est region of Romania. The difference between these two regions with the highest and lowest propensity to make online purchases was far greater than for any of the other ICT indicators covered within this chapter.

All of the regions for which data are available (see **Map 9.4**) in Denmark, Germany (NUTS level 1), Estonia, Luxembourg, Malta, the Netherlands, Austria (NUTS level 1), Finland, Sweden and the United Kingdom (NUTS level 1) reported a majority of their populations making online purchases in 2015; as such they had all exceeded the digital agenda target.

### *Divide between north and west on one hand and east and south on the other concerning purchasing of goods and services over the internet*

In 2015, the highest proportions of regional populations making use of e-commerce by purchasing over the internet tended to be reported across northern and western Europe. This was particularly the case in Denmark (four out of five regions), the United Kingdom (9 out of 12 NUTS level 1 regions), Germany (6 out of 16 NUTS level 1 regions) and Luxembourg (one region at this level of detail), where rates of 75 % and above were recorded (as shown by the darkest shade of blue in **Map 9.4**); the same was also true in two Dutch regions and the Finnish and Swedish capital city regions of Helsinki-Uusimaa and Stockholm. By contrast, less than 30 % of the population made online purchases of goods and services (as shown by the lightest shade of blue in **Map 9.4**) in all eight Romanian regions and all six Bulgarian regions, as was also the case in eight Italian regions, three Portuguese regions, two Greek regions (NUTS level 1) and Cyprus (one region at this level of detail).

**Figure 9.2** looks in more detail at online purchases of three categories of goods and services with the analysis based on the degree of urbanisation. Differences by degree of urbanisation in the online purchase of goods and services may reflect not only fluctuations in the use of the internet overall or willingness to use the internet for purchases, but also underlying differences in the need or wish for particular types of goods and services.

Among the three types of goods and services shown in **Figure 9.2**, the one for which the EU-28 as a whole had the greatest diversity by degree of urbanisation was travel and holiday accommodation: 19 % of people living in rural areas purchased such services online in 2015, compared with 33 % in cities, a range of 14 percentage points. For clothes and sports goods as well as for household goods the range was about half this size; people living in rural areas again recorded the lowest propensity to purchase these goods online, while the highest shares were recorded among those living in cities.

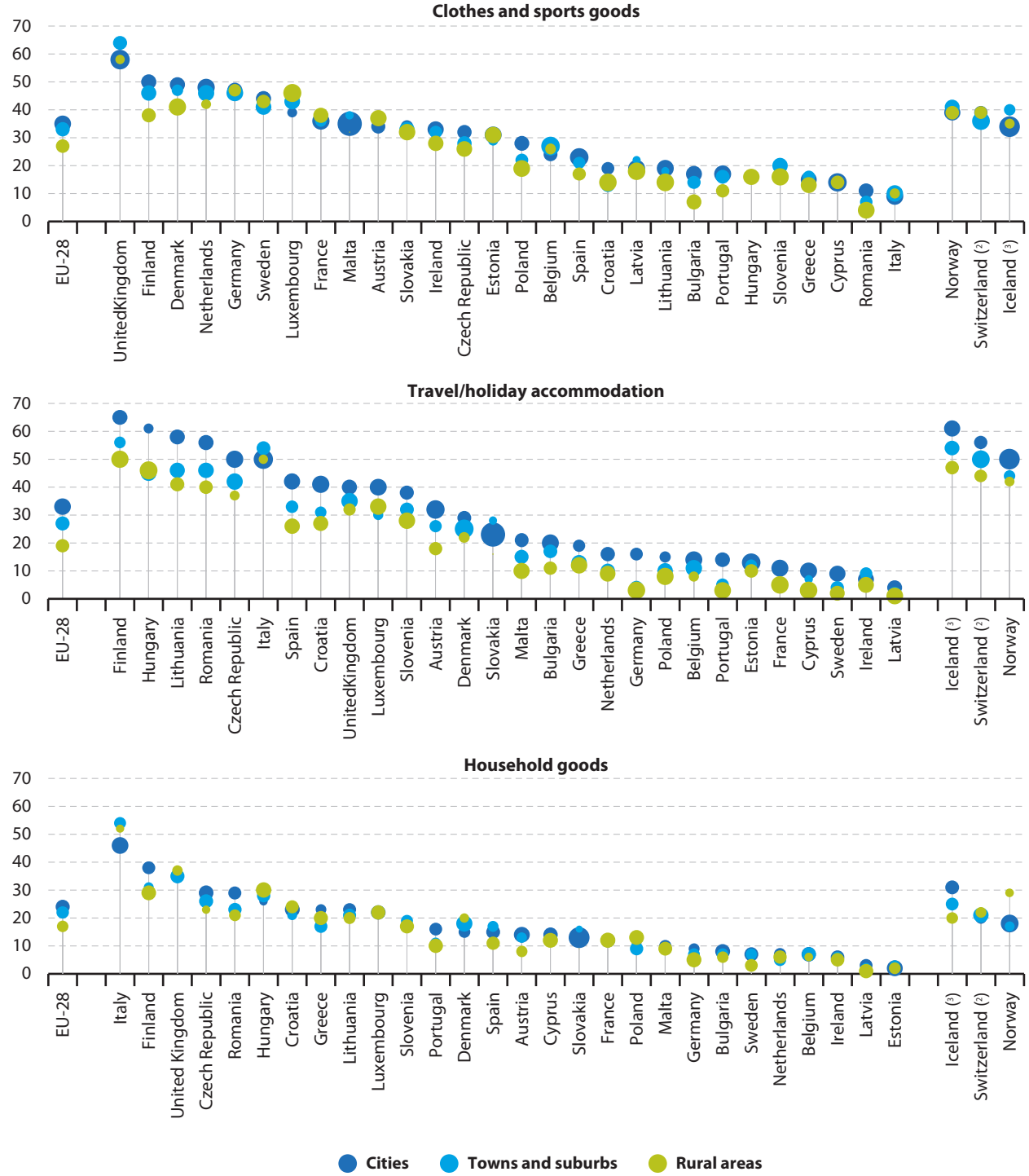
A closer analysis for online purchases of clothes and sports goods reveals that about half of the EU Member States reported a similar pattern to that observed for the EU-28 as a whole, namely the highest shares of individuals making purchases of these goods over the internet in 2015 were recorded for those people living in cities and the lowest shares for people living in rural areas. Two of the exceptions were France and Luxembourg, where the share was highest in rural areas. In Cyprus, Hungary, Germany, Estonia, Italy and Austria rural areas reported the highest share, equal with at least one (if not both) of the other two types of areas. In Romania and Bulgaria, the range in values between the different types of areas was particularly large, with the propensity of people living in cities to make purchases of clothes and sports goods over the internet being more than double that recorded for people living in rural areas.

For the online purchase of travel or holiday accommodation, the pattern of a higher proportion of people living in cities and a lower share of those living in rural areas was almost universally observed. A very large range in values between cities and rural areas was reported for Latvia, Lithuania and several eastern EU Member States (Croatia, Poland, Bulgaria, Romania and Hungary), with the proportion of people living in cities and making purchases of travel or holiday accommodation over the internet at least double that recorded for people living in rural areas, and sometimes several times greater — as was the case, for example, in Croatia.

Concerning household goods the situation was quite similar to that for clothes and sports goods, with around half of the EU Member States reporting that a higher share of people living in cities and a lower share of people living in rural areas made purchases over the internet in 2015. In Bulgaria and Romania although the overall shares of people making purchases over the internet were generally very low, the proportion of city-dwellers making purchases was at least twice as high as for those living in rural areas. By contrast, in Belgium, Luxembourg and the United Kingdom, the lowest share of people making purchases of household goods over the internet was recorded among those living in cities, as was also the case in Switzerland (2014 data), while in several other Member States those living in cities had the equal lowest share with one (or both) of the other types of areas.

**Figure 9.2:** Proportion of individuals who bought goods or services over the internet for private use, by degree of urbanisation, 2015 (1)

(%)




(1) The size of each circle reflects the share of that type of area in the national population. Population data used to calculate the size of the circles: 2014. Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

(2) Proportion of people who bought goods and services over the internet: 2014. Population data used to calculate the size of the circles: 2013.

(3) All data: 2014.

*Source:* Eurostat (online data codes: isoc_ec_ibuy and ilc_lvho01)

# Data sources and availability

Regional statistics on ICT for the EU Member States are generally available for NUTS level 2 regions. However, the latest information for Germany, Greece, Austria, Poland and the United Kingdom is only provided for NUTS level 1 regions. ICT statistics are also presented for Iceland (2014), Norway, Switzerland (2014), the former Yugoslav Republic of Macedonia, Montenegro (2012) and Turkey; of these, only Norway, Switzerland and Turkey are multi-regional and provide a regional breakdown (the latter only for NUTS level 1 regions).

EU statistics on the use of ICT are based on Regulation (EC) No 808/2004 concerning Community statistics on the information society. The regulation concerns statistics on the use of ICT in enterprises and statistics on ICT use in households and by individuals — only the latter are presented in this chapter. Since 2005, European Commission implementing regulations have been passed annually, specifying particular areas of interest for data collection, thereby allowing policymakers to compile data that aim to measure the impact of new technologies and services in this rapidly changing domain. The majority of the data shown in this chapter is based on implementing Regulation 1196/2014 concerning Community statistics on the information society.

European ICT surveys aim to provide timely statistics on individuals and households relating to their use of ICTs. Many of these statistics are used in the benchmarking framework associated with Europe's digital agenda. Selected ICT data are also used for monitoring other EU policies, for example, on cohesion or consumer conditions.

The statistical unit for regional data on ICTs is either the household or the individual. The population of households consists of all households having at least one member in the age group 16–74 years. The population of individuals consists of all individuals aged 16–74. Questions on access to ICTs are addressed to households, while questions on the use of ICTs are answered by individuals within the household. As well as a core part of the questionnaire (which is repeated each year), the questionnaire includes special focus areas which are changed each year. Questions may be adapted to ensure that all developments concerning the use of ICTs are captured and the main policy needs are met; as a result, some indicators have relatively short time series.

In general, the data presented were collected in the second quarter of the survey year (2015). EU-28 aggregates are compiled when the information available for EU Member States represents at least 60 % of the EU's population and at least 55 % of the 28 Member States that make-up the EU aggregate. If additional national data become available, these are included in revised aggregates or they are used to construct aggregates which were previously not available (due to poor coverage). As such, ICT statistics are revised on a regular basis to reflect the supply of additional statistics.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Data are not available for the French region of Mayotte and the Finnish region of Åland.

## Indicator definitions

The ICT survey of individuals asks those aged 16–74 when they last used the internet. This question is asked to all respondents, irrespective of whether they have used a computer (as it is possible to access the internet through a variety of other devices). An internet user, in this context, is defined as a person 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 (computer, laptop, netbook or tablet, smart phone, games console or e-book reader) or type of connection being used. Regular internet users are those who used the internet, on average, at least once a week within the first three months of the calendar year (the reference period used for the survey).

E-commerce can be defined generally as the sale or purchase of goods or services, whether between businesses, households, individuals or private organisations, through electronic transactions conducted via the internet or other computer-mediated (online communication) networks. For the survey on ICT usage in households and by individuals it is defined more specifically as the placing of orders for goods or services via the internet (payment and the ultimate delivery of the goods or service may be conducted either online or offline). This may include, among others: buying financial investments like stocks and shares; confirming reservations for accommodation and travel; buying lottery tickets; subscribing to paid information services from the internet; buying via online auctions. Orders via manually typed e-mails are excluded.

# 10 Tourism

This chapter presents regional patterns of tourism across the European Union (EU); its main focus is tourist accommodation occupancy, as measured by the number of nights spent in tourist accommodation establishments. The data is presented for different regions across the EU, with a special focus on coastal, city and rural tourism. The chapter closes with some information on tourist accommodation capacity, as measured by bedroom occupancy rates in hotels and similar establishments.

Tourism cuts across many economic activities: services to tourists include the provision of accommodation, gastronomy (for example, restaurants, cafés or bars), transport, and a wide range of cultural and recreational facilities (for example, theatres, museums, leisure parks or swimming pools). It therefore has the potential to play a significant role in the economy of EU regions, contributing to employment and wealth creation, sustainable development, enhanced cultural heritage, and the overall shaping of European identity. Indeed, tourism can be particularly important in remote, peripheral regions, where it can often be one of the main sources of income for the local population; this especially applies in many of the EU's island states and regions, as well as in coastal and Alpine regions.

However, the competitiveness of tourism is closely linked to its sustainability, as the quality of tourist destinations is strongly influenced by their natural and cultural environment and their integration into the local community. Sustainable tourism involves the preservation and enhancement of cultural and natural heritage, including the arts, gastronomy or the preservation of biodiversity. Other competitiveness-related issues include the seasonality of demand in many regions, availability of skilled staff, and regulatory and administrative burdens. Technology also has had an impact on tourism, with IT developments changing the way many tourists book and review transport, accommodation, restaurants and cultural activities.

## Policies

Tourism impacts on a wide range of policy areas, including regional policy, the diversification of rural economies, maritime policy, sustainability and competitiveness, social policy and inclusion (tourism for all). The EU's tourism policy — which is one of support and coordination — aims to maintain Europe's position as the world's leading tourist destination, while maximising the tourism industry's contribution to growth and employment. To do so, there are a wide range of EU funds made available for developing the tourism sector during the period 2014–20.

A European Commission communication titled 'Europe, the world's No. 1 tourist destination — a new political framework for tourism in Europe' (COM(2010) 352 final) was adopted in June 2010. It encourages a coordinated approach for initiatives linked to tourism and defined a new framework for action to increase the competitiveness of tourism and its capacity for sustainable growth. Four priorities for action were identified in order to: stimulate competitiveness; promote sustainable and responsible tourism; consolidate Europe's image as a collection of sustainable, high-quality destinations; and maximise the potential of EU policies and financial instruments for developing tourism.

Coastal and maritime tourism is the largest maritime activity in the EU and closely linked to other parts of the economy; it employs almost 3.2 million people, while almost half (47.4 %) of all nights spent in EU accommodation establishments in 2014 were in coastal localities. In a communication on maritime and coastal tourism titled 'A European strategy for more growth and jobs in coastal and maritime tourism' (COM(2014) 86 final), the European Commission reflected on the diversity of the EU's coastal regions and their capacity to generate wealth and jobs, in line with the EU's 'Blue growth strategy' (COM(2012) 494 final).

The continued globalisation of tourism opens up new opportunities and creates increased competition. The European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs has focused efforts on encouraging the diversification of the European tourism offer through initiatives in the areas of maritime and coastal tourism, sustainable tourism, cultural tourism, tourism for all, accessible tourism and low-season tourism. It helps promote the visibility of, among other, European cultural routes and emerging and lesser-known destinations, through a commitment to social, cultural and environmental sustainability.

Furthermore the Virtual Tourism Observatory (VTO) has explicitly been positioned by the European Commission as a tool to help stimulate the competitiveness of European tourism through an improved knowledge base about tourism; this was relaunched in September 2015. Since 2009, the European Commission has carried out an annual Flash Eurobarometer on the travel intentions of EU citizens. Its results provide valuable information to the Virtual Tourism Observatory about European tourists' preferences and trends in consumers' opinions concerning the consumption of tourism products.

The European Commission also provide ad-hoc grants to the European Travel Commission (ETC), a non-profit organisation responsible for promoting Europe as an international tourist destination. This has resulted in the Destination Europe 2020 strategy (designed to increase the visibility of Europe as a destination in long-haul markets) and in the creation and maintenance of websites such as visiteurope.com and tastingeurope.com.

# Main statistical findings

According to the United Nations World Tourism Organisation (UNWTO), Europe was the most frequently visited region in the world in 2015, accounting for over half (51.4 %) of all international tourist arrivals, equivalent to some 609 million persons. The wealth of European cultures, the variety of its landscapes and the quality of its tourist infrastructure are likely to be among the varied reasons why tourists choose to take their holidays in Europe.

## Number of overnight stays

The number of overnight stays in tourist accommodation, which reflects both the length of stay and the number of visitors, is considered a key indicator for tourism statistics. In 2014, there were 2.68 billion nights spent in EU-28 tourist accommodation. This figure marked a 1.5 % increase when compared with 2013 (with similar rates of change for both residents and non-residents).

***The highest numbers of overnight stays were recorded in coastal and Alpine regions, as well as in some of the EU's major cities***

**Map 10.1** provides the regional distribution of the total number of overnight stays of domestic (by residents of the country) and inbound (by non-residents of the country) tourists in all types of tourist accommodation in 2014. The map shows that tourism in the EU was often concentrated in coastal regions (principally in the Mediterranean), Alpine regions and some of the EU's major cities.

Among the NUTS level 2 regions of the EU, the highest number of nights spent by residents and non-residents in tourist accommodation establishments was recorded in the Spanish island region of the Canarias (94.3 million nights); two other Spanish regions featured among the top five EU tourist regions in 2014, Cataluña (72.7 million nights) and the Illes Balears (63.0 million nights). Completing the list of the five most popular destinations were the capital city region of France (Île de France, 77.7 million nights) and the coastal region of Croatia (Jadranska Hrvatska, 63.3 million nights).

A total of 59 NUTS level 2 regions in the EU-28 recorded at least 11.5 million nights spent in tourist accommodation (as shown by the darkest shade of blue in **Map 10.1**), among which 31 recorded at least 20.0 million nights. This list of 31 regions included seven regions in France, six regions in each of Spain and Italy, four regions in Germany, two regions in each of Greece and Austria, and a single region in each of Ireland, Croatia, the Netherlands and the United Kingdom (note that data for London are presented for 2012 and refer to a NUTS level 1 region). Among the 31 regions that were spread across 10 EU Member States, there were eight capital city regions.

## Defining the scope of tourism

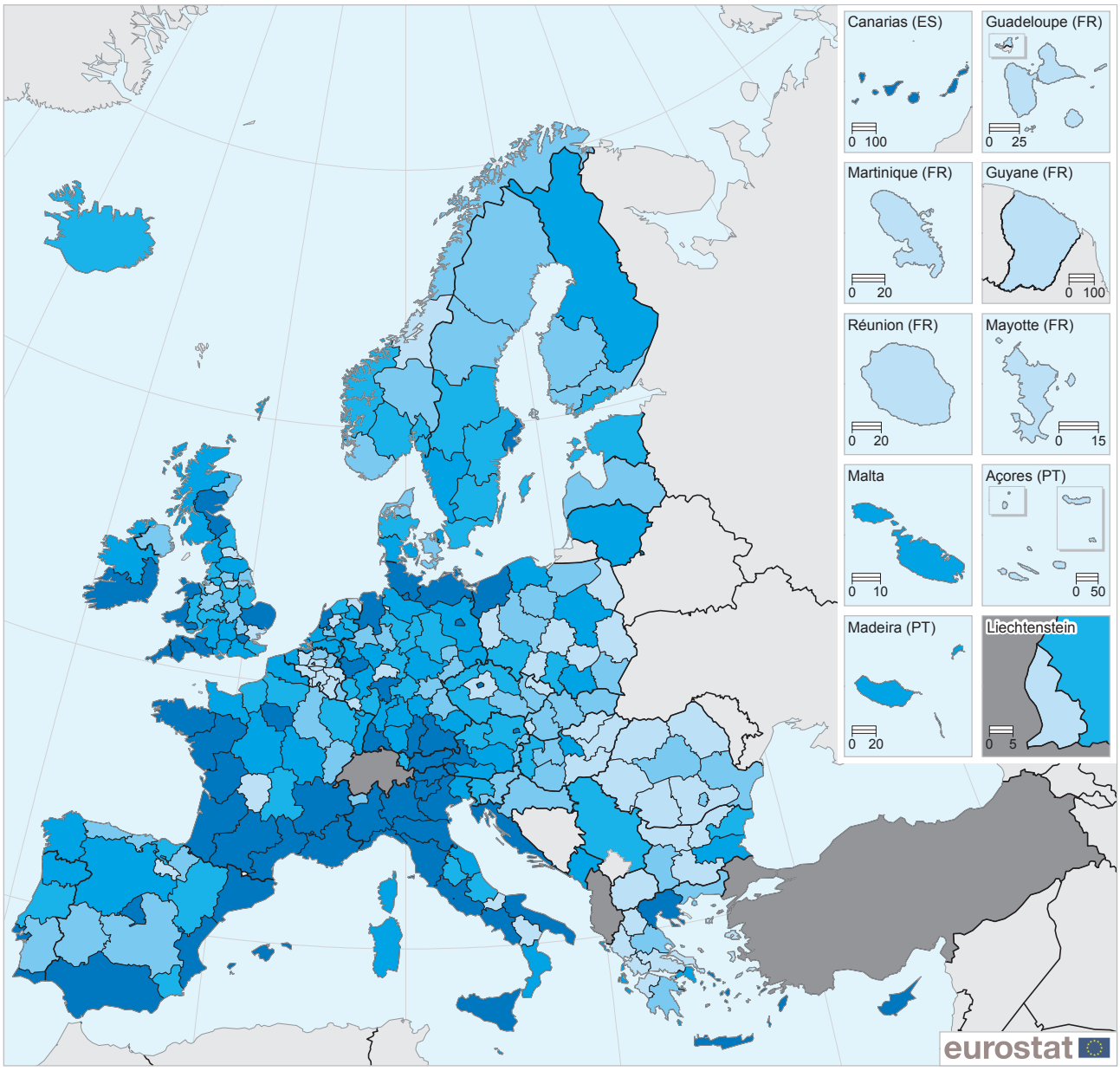
The statistical definition of tourism is broader than the common definition employed on an everyday basis, as it encompasses not only private trips but also business trips. This is primarily because tourism is viewed from an economic perspective, whereby private visitors on holiday and visitors making business trips have broadly similar consumption patterns (transport, accommodation and restaurant/catering services). As such, it may be of secondary interest to providers of tourism services whether their customers are private tourists on holiday or visitors on a business trip.

Tourist accommodation establishments are defined according to the activity classification, NACE. They are units providing, as a paid service, short-term or short-stay accommodation services, as defined by NACE Groups 55.1–55.3:

- hotels and similar accommodation (NACE Group 55.1);
- holiday and other short-stay accommodation (NACE Group 55.2); and,
- camping grounds, recreational vehicle parks and trailer parks (NACE Group 55.3).

The number of nights spent (or overnight stays) is the principal indicator used for analysis, covering each night a guest/tourist actually spends (sleeps or stays) in a tourist accommodation establishment. No regional statistics are available for nights spent in non-rented accommodation or for same-day visits.

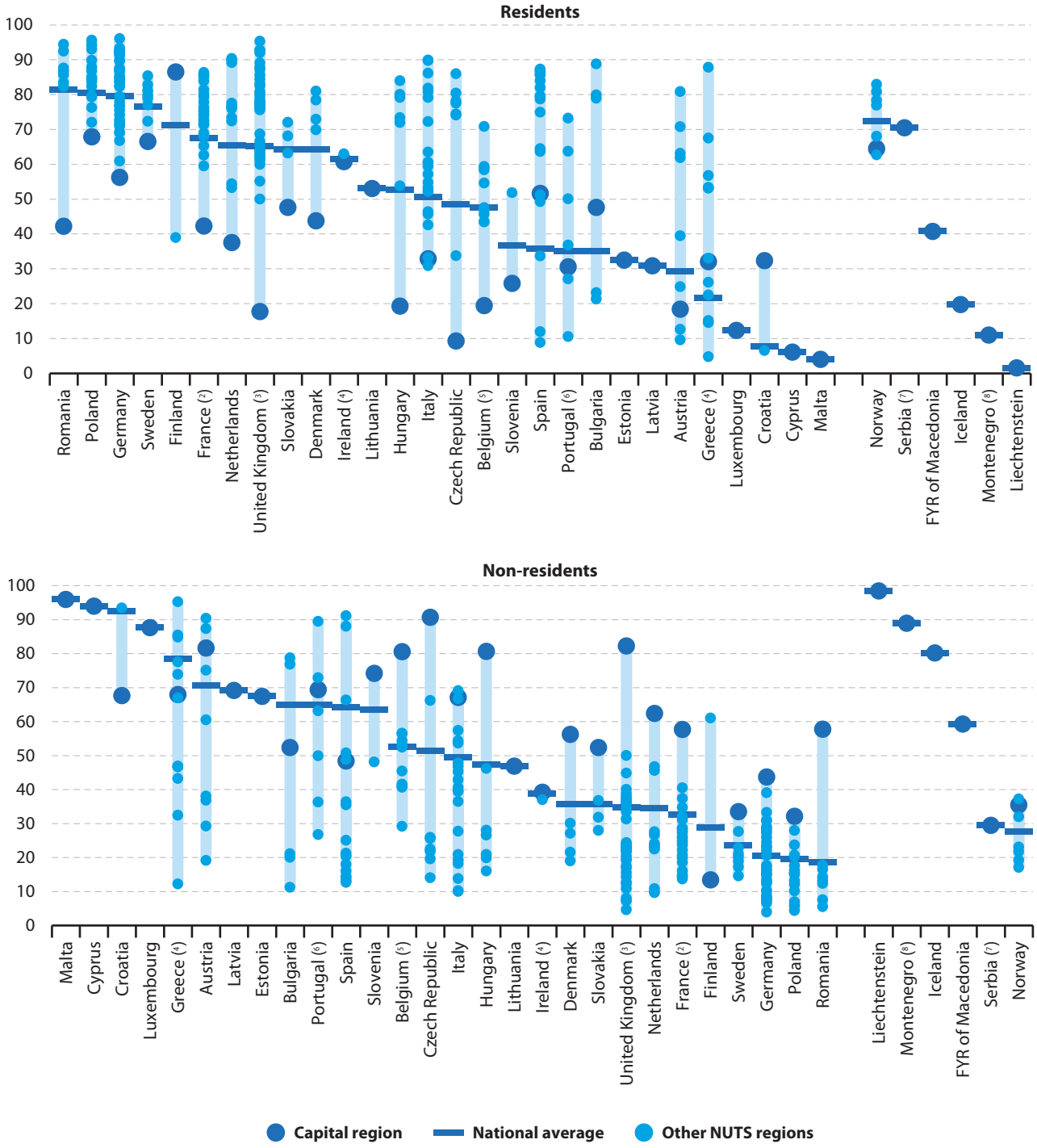
**Map 10.1: Nights spent in tourist accommodation establishments, by NUTS 2 regions, 2014 (1)**
(million nights spent by residents and non-residents)




(1) London (the United Kingdom): NUTS level 1. Serbia: national data. Belgium and Serbia: 2013. The United Kingdom and Montenegro: 2012. EU-28, Ireland and Greece: estimates.

*Source:* Eurostat (online data code: tour_occ_nin2)

**Figure 10.1:** Share of nights spent by residents and non-residents in tourist accommodation establishments, by NUTS 2 regions, 2014 (1)
(% of total nights spent)




(1) The light turquoise shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The turquoise circles show the other regions. Switzerland, Albania and Turkey: not available.
(2) Mayotte: not available.
(3) London: NUTS level 1. 2012.
(4) Estimates.
(5) 2013.
(6) Região Autónoma dos Açores and Região Autónoma da Madeira: 2013.
(7) National data. 2013.
(8) 2012.

*Source:* Eurostat (online data code: tour_occ_nin2)

## Spotlight on the regions: Canarias, Spain

**Among NUTS level 2 regions, the Spanish islands of the Canarias recorded the highest number of nights spent (by residents and non-residents) in tourist accommodation establishments in 2014, at 94.3 million; this was equal to 3.5 % of the total nights spent in the whole of the EU-28.**

***Photo*: Frode CJ**

***Capital city regions were of particular appeal to inbound tourists***

There were considerable regional disparities between the number of nights spent by domestic tourists and inbound tourists (see **Figure 10.1**). For example, while close to 80 % of the total nights spent in tourist accommodation establishments in Romania, Poland and Germany in 2014 were accounted for by domestic tourists, the share of inbound tourists in the total number of nights spent in the traditional tourist destinations of Malta, Cyprus and Croatia exceeded 90 %.

At a more detailed level, there were wide disparities with respect to the origin of tourists between regions within some of the EU Member States. For example, across Greek regions, inbound tourists accounted for 95 % of the nights spent in Kriti, while they only accounted for 12 % of the nights spent in Dytiki Makedonia. A particularly large range in the regional shares of inbound tourists was also observed in Spain, the United Kingdom and the Czech Republic. In the case of the Czech Republic and the United Kingdom, the relatively large range was due, in large part, to the atypical values for the capital city region, for which the share of non-residents was considerably higher than in any other region.

More generally, a feature of **Figure 10.1** is the popularity of capital city regions for inbound tourists (note that this may be driven by business travel, as well as personal travel). In most multi-regional Member States — the exceptions were Finland, Spain, Bulgaria, Greece and Croatia — the proportion of nights spent by non-residents in capital city regions was above the national average. Furthermore, in 14 of these EU Member States the capital city region registered the highest proportion of overnight stays by non-residents; the reverse was true in Finland and Croatia where the lowest proportion of overnight stays by non-residents was in the capital city.

***Outside of capital city regions, residents accounted for more than 50 % of the overnight stays in every region of several EU Member States***

Domestic tourists generally spent a higher share of their total nights outside of the capital city region. Indeed, residents accounted for a majority of the overnight stays in every region outside of the capital city regions of Denmark, France, Hungary, the Netherlands, Romania, Slovakia, Slovenia and the United Kingdom. In Poland, Germany, Sweden and Ireland, residents accounted for a majority of the overnight stays in every region, including the capital city region, as was also the case in Lithuania (which is only one region at this level of detail). By contrast, overnight stays by non-residents outnumbered those made by residents in both Croatian regions, as well as in all other mono-regional EU Member States: Estonia, Latvia, Luxembourg, Cyprus and Malta.

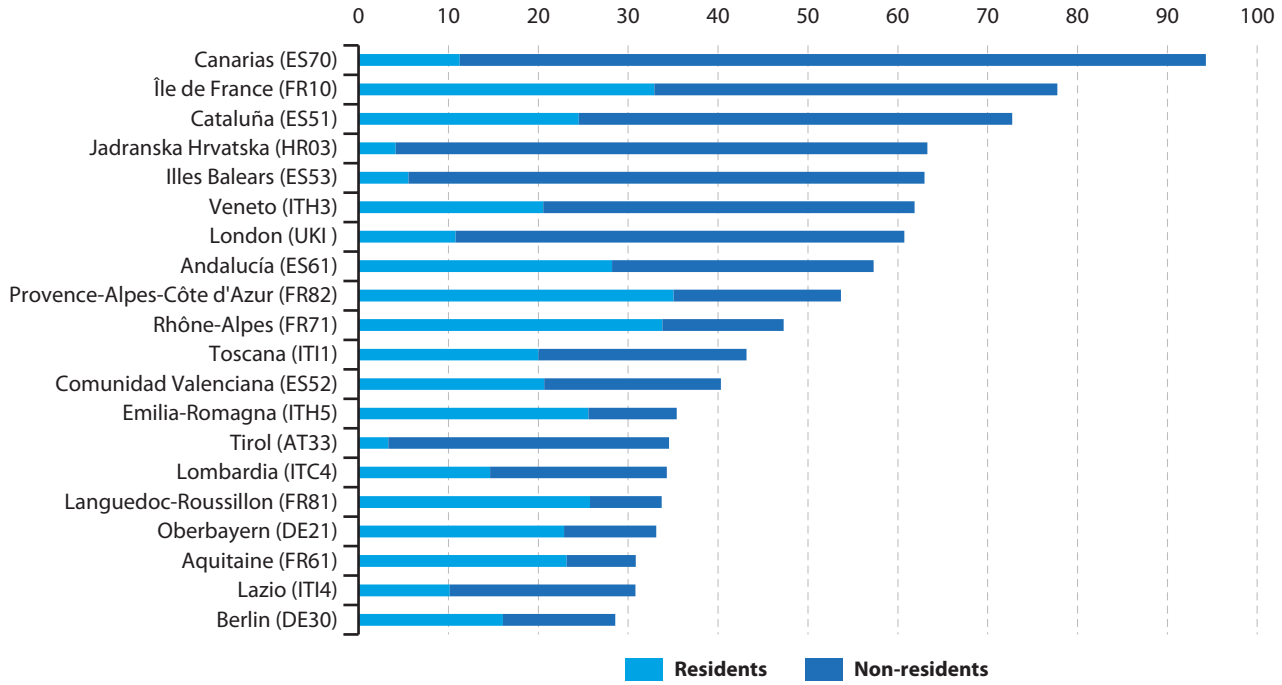
## Most popular tourist regions

The top 20 tourist regions — in terms of nights spent by domestic and inbound tourists in all types of tourist accommodation — are shown in **Figure 10.2**. These 20 regions together accounted for more than one third (37.2 %) of the total number of nights spent in the EU-28 in 2014.

As already noted, in 2014, the Spanish island region of the Canarias had the highest number (94.3 million nights) of overnight stays in tourist accommodation among any of the NUTS level 2 regions of the EU. A closer analysis reveals that 83.1 million nights were accounted for by non-residents, a share of 88.1 %. Three of the top 20 regions with the highest number of overnight stays reported particularly high shares of their total nights spent being made by non-residents: Jadranska Hrvatska (93.5 %), Illes Balears (91.2 %) and Tirol in Austria (90.4 %). A small majority (12 out of the top 20 destinations) registered more overnight stays by non-residents than by residents.

The highest number of overnight stays made by residents was recorded in the southern French region of Provence-Alpes-Côte d'Azur, with 35.0 million, equivalent to a 65.3 % share of its total number of overnight stays. Seven more of the top 20 destinations recorded higher shares of domestic compared with non-resident overnight stays: there were three additional southern French regions, Rhône-Alpes (71.5 %), Aquitaine (75.0 %) and Languedoc-Roussillon (76.3 %); two German regions, Berlin (56.3 %) and Oberbayern (69.1 %); and single regions from each of Spain (Comunidad Valenciana, 51.2 %) and Italy (Emilia-Romagna, 72.2 %).

**Figure 10.2: Number of nights spent in tourist accommodation establishments in the top 20 EU-28 tourist regions, by NUTS 2 regions, 2014 (1)**
(million nights spent)




(1) London (the United Kingdom): NUTS level 1. Belgium and Serbia: 2013. The United Kingdom: 2012. Ireland and Greece: estimates.
*Source:* Eurostat (online data code: tour_occ_nin2)

### *Capital city regions were rarely the most popular among domestic tourists*

**Table 10.1** shows separately for domestic and inbound tourists, which regions had the most overnight stays in tourist accommodation in 2014. As already seen, many tourists have a preference for visiting regions with a coastline. This is, by definition, the case for the 10 EU Member States which are characterised by all of their NUTS 2 regions having a coastline. Half of these have more than one region and for these a north–south divide was apparent insofar as inbound tourists were most likely to visit the capital city regions of Denmark, Ireland, Finland and Sweden, while in Portugal the most popular destination for inbound tourists was the Algarve. Among residents, regions other than the capital city region were generally more popular, except in Ireland.

Among the four landlocked EU Member States with more than one region, the most popular regions for inbound tourists were also capital city regions in the Czech Republic, Hungary and Slovakia, whereas foreigners spent a higher number of nights in the Tirol compared with the Austrian capital city region of Wien; this may, at least in part, be due to winter skiing or summer hiking holidays often lasting a week or more, whereas tourist trips to cities are often shorter (for business meetings or for a weekend). Among residents, regions other than the capital city region were again the most popular.

Of the remaining 13 EU Member States (that were neither landlocked nor completely coastal) the most visited region was generally different for domestic tourists and for inbound tourists, the only exceptions being the Black Sea coastal region of Yugoiztochen (Bulgaria) and the Adriatic coastline and islands of Jadranska Hrvatska (Croatia). Among inbound tourists, the capital city regions of Belgium, Germany, France, the Netherlands, Romania, Slovenia and the United Kingdom attracted more non-resident tourists than any other region. By contrast, the most popular regions for inbound tourists in Bulgaria (Yugoiztochen), Greece (Kriti), Spain (the Canarias), Croatia (Jadranska Hrvatska) and Italy (Veneto) were all coastal regions. A somewhat different pattern was observed in Poland, as the most popular region for inbound tourists was neither the capital city region, nor a coastal region, but rather the southern region of Małopolskie (which includes the city of Kraków). Among domestic tourists, the most popular region in each of these 13 Member States was a coastal region, except in the Netherlands where the central region of Gelderland was the most popular and in Slovenia where the eastern region of Vzhodna Slovenija was most popular.

**Table 10.1:** Nights spent in tourist accommodation establishments in the most popular tourist regions, by NUTS 2 regions, 2014

| | Residents | | | Non-residents | | |
|---|---|---|---|---|---|---|
| | Total nights spent in country (million nights) | Most popular region (NUTS level 2 regions) | Share of most popular region in national total (%) | Total nights spent in country (million nights) | Most popular region (NUTS level 2 regions) | Share of most popular region in national total (%) |
| **Countries where all regions are coastal** | | | | | | |
| Denmark | 19.0 | Syddanmark (DK03) | 30.6 | 10.6 | Hovedstaden (DK01) | 51.0 |
| Estonia | 1.9 | | - | 3.9 | | - |
| Ireland | *17.9* | Southern and Eastern (IE02) | *73.9* | *11.3* | Southern and Eastern (IE02) | *75.7* |
| Cyprus | 0.8 | | - | 12.9 | | - |
| Latvia | 1.3 | | - | 2.9 | | - |
| Lithuania | 3.4 | | - | 3.0 | | - |
| Malta | 0.4 | | - | 8.4 | | - |
| Portugal (1) | 19.3 | Algarve (PT15) | 25.6 | 35.6 | Algarve (PT15) | 37.4 |
| Finland | 14.1 | Pohjois- ja Itä-Suomi (FI1D) | 38.4 | 5.7 | Helsinki-Uusimaa (FI1B) | 41.1 |
| Sweden | 40.0 | Västsverige (SE23) | 21.9 | 12.3 | Stockholm (SE11) | 32.2 |
| Iceland | 1.1 | | - | 4.4 | | - |
| Montenegro (2) | 1.0 | | - | 8.1 | | - |
| **Countries with coastal and non-coastal regions** | | | | | | |
| Belgium (3) | 14.9 | Prov. West-Vlaanderen (BE25) | 30.3 | 16.5 | Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE10) | 30.6 |
| Bulgaria | 7.6 | Yugoiztochen (BG34) | 26.0 | 14.1 | Yugoiztochen (BG34) | 46.7 |
| Germany | 291.7 | Mecklenburg-Vorpommern (DE80) | 8.4 | 74.8 | Berlin (DE30) | 16.7 |
| Greece | *20.4* | Kentriki Makedonia (EL52) | *17.4* | *74.7* | Kriti (EL43) | *28.9* |
| Spain | 144.3 | Andalucía (ES61) | 19.5 | 259.6 | Canarias (ES) (ES70) | 32.0 |
| France | 271.4 | Provence-Alpes-Côte d'Azur (FR82) | 12.9 | 130.9 | Île de France (FR10) | 34.3 |
| Croatia | 5.1 | Jadranska Hrvatska (HR03) | 81.8 | 61.1 | Jadranska Hrvatska (HR03) | 96.9 |
| Italy | 191.0 | Emilia-Romagna (ITH5) | 13.4 | 186.8 | Veneto (ITH3) | 22.1 |
| Netherlands | 65.3 | Gelderland (NL22) | 14.6 | 34.4 | Noord-Holland (NL32) | 44.5 |
| Poland | 53.6 | Zachodniopomorskie (PL42) | 17.0 | 13.0 | Małopolskie (PL21) | 21.9 |
| Romania | 16.5 | Sud-Est (RO22) | 24.1 | 3.8 | Bucuresti - Ilfov (RO32) | 40.9 |
| Slovenia | 3.5 | Vzhodna Slovenija (SI03) | 58.7 | 6.0 | Zahodna Slovenija (SI04) | 68.6 |
| United Kingdom (4) | 198.1 | West Wales and The Valleys (UKL1) | 8.1 | 105.5 | London (UKI ) | 47.4 |
| Norway | 22.2 | Sør-Østlandet (NO03) | 21.0 | 8.5 | Oslo og Akershus (NO01) | 26.5 |
| **Landlocked countries** | | | | | | |
| Czech Republic | 20.8 | Severovýchod (CZ05) | 23.7 | 22.1 | Praha (CZ01) | 60.5 |
| Luxembourg | 0.4 | | - | 2.5 | | - |
| Hungary | 13.7 | Nyugat-Dunántúl (HU22) | 18.7 | 12.4 | Közép-Magyarország (HU10) | 60.3 |
| Austria | 32.3 | Steiermark (AT22) | 19.0 | 78.1 | Tirol (AT33) | 40.0 |
| Slovakia | 6.9 | Stredné Slovensko (SK03) | 35.3 | 3.9 | Bratislavský kraj (SK01) | 27.5 |
| Liechtenstein | 0.0 | | - | 0.1 | | - |
| FYR of Macedonia | 0.6 | | - | 0.9 | | - |
| Serbia (2) | 4.5 | | - | 1.9 | | - |

(1) Região Autónoma dos Açores and Região Autónoma da Madeira: 2013.
(2) 2012.
(3) 2013.
(4) 2012. London: NUTS level 1.

*Source:* Eurostat (online data code: tour_occ_nin2)

Norway is the only non-member country shown in **Table 10.1** that has more than one region and these are also a mix of coastal and non-coastal regions. The Norwegian capital city region was the most popular destination for non-residents in 2014 (overtaking the Norwegian Sea and North Sea coastal region of Vestlandet which had been most popular in 2013), whereas the most popular region for residents was Sør-Østlandet on the coast of the Skagerrak.

## Coastal, city and rural tourism

Many coastal regions are characterised by considerable building activity as more of the population chooses to live near the sea and mass-market tourism continues to expand. Coastal regions are characterised by a range of economic activities, covering among others: shipping and ports, fisheries, energy and tourism-related activities such as construction, food and accommodation services, distributive trades and transport services. Such activity can potentially have serious implications in relation to sustainable development.

### *The pull of coastal localities as tourist destinations*

**Map 10.2** presents regional tourism statistics analysed according to whether or not tourist accommodation establishments are in coastal localities (defined as those localities that border the sea or have more than half of their territory within 10 km of the coastline). It shows, for each NUTS level 2 region, the proportion of total nights spent in tourist accommodation in coastal localities. In 138 of the 272 EU regions there were no coastal tourists as these regions simply had no coastal area.

Among the remaining 134 regions — in other words those that had a coastline — there were 20 where coastal localities accounted for each and every night spent in such establishments. These covered a range of different coastal regions: from largely urban regions such as Bremen or Hamburg in Germany, through well-known island destinations such as the Canarias, the Illes Balears, Açores, Madeira, Greek islands (Voreio Aigaio, Ionia Nisia and Notio Aigaio), French overseas islands (Guadeloupe, Martinique and Mayotte) or Cyprus and Malta (single regions at this level of analysis), to less well-known coastal destinations: Åland (in Finland), East Yorkshire and Northern Lincolnshire, and Cornwall and Isles of Scilly (in the United Kingdom).

By contrast, 36 of these 134 regions that had a coastline reported that less than three fifths of total nights spent in tourist accommodation establishments were in coastal localities (the second lightest shade of blue in **Map 10.2**). These were mainly in western and northern EU Member States: seven regions were located in the United Kingdom, five in Sweden, four each in France and the Netherlands, three in Finland, two in Germany and one in Latvia (one region at this level of detail). In addition, there were a handful of such regions from southern and eastern Member States: three of these were located in each of Spain and Italy, two in Portugal, and one each in Poland and Slovenia. In general these regions with relatively low shares of coastal tourism often had quite short coastlines and major inland cities, for example, Picardie in the north of France, the Noord Brabant region of the Netherlands, Warmińsko-Mazurskie in Poland, or Cheshire in the United Kingdom.

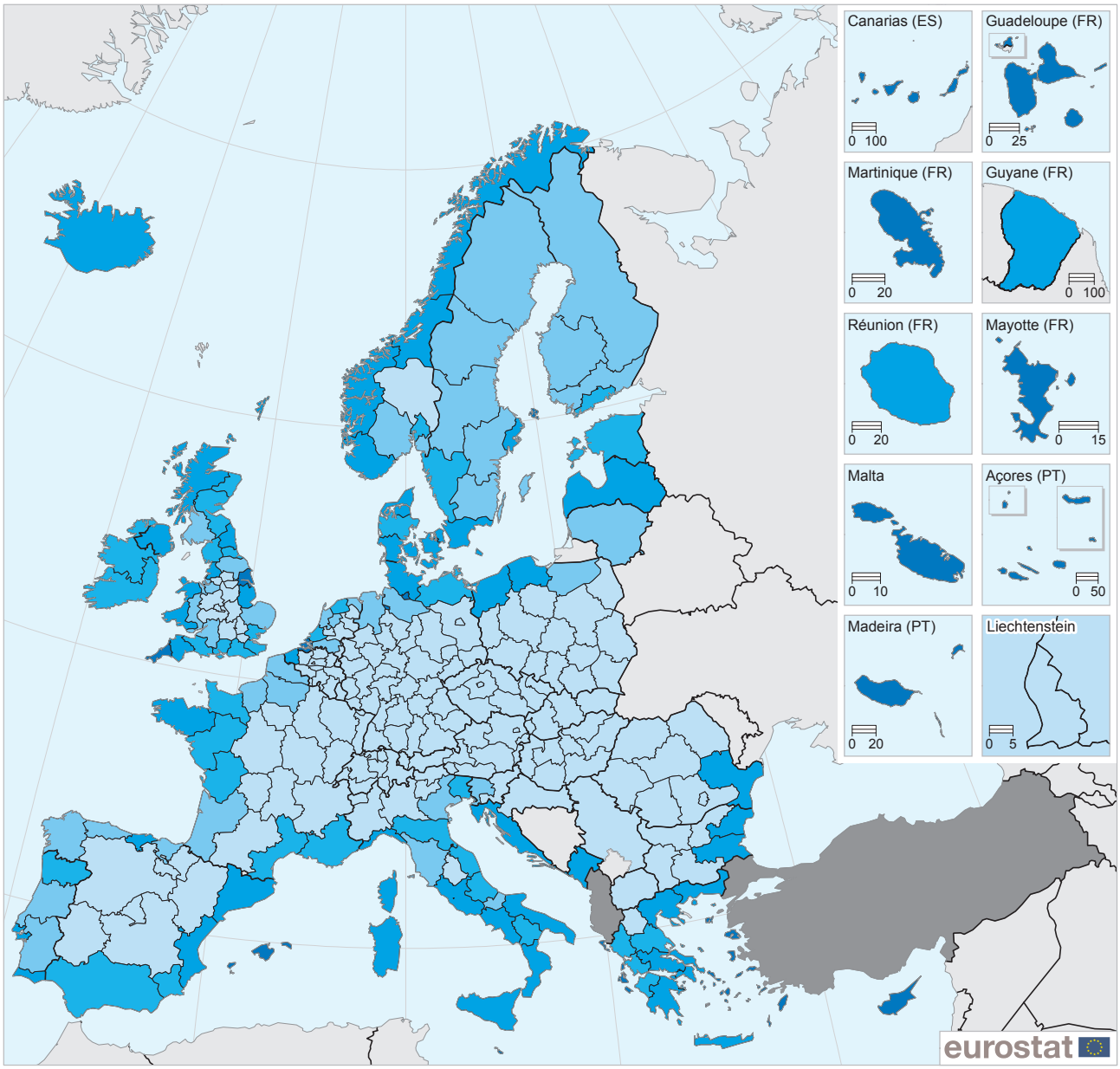
### *Rural localities accounted for close to 45 % of the total nights spent by tourists in the EU*

**Maps 10.3** and **10.4** present a similar analysis, based on the degree of urbanisation (defined in terms of cities, towns and suburbs, and rural areas) of different parts of each NUTS level 2 region. The maps show separately the shares of city and rural tourism. Across the EU-28 as a whole, the total number of nights spent in tourist accommodation establishments was relatively evenly spread according to the degree of urbanisation: slightly more than one third of all overnight stays were in rural areas (36.1 %) and in cities (33.8 %), while towns and suburbs accounted for a somewhat lower share (30.1 %).

In absolute terms, the French capital city region of the Île de France recorded the highest number of overnight stays in city localities in 2014 (62.0 million), followed by London (60.7 million in 2012; NUTS level 1) and Berlin (28.6 million). Relative to the overall number of overnight stays in tourist accommodation establishments in each region, the share accounted for by city localities was less than half in the vast majority of regions, 218 out of a total of 269 NUTS level 2 regions for which data are available. Among the 51 regions where more than half of the overnight stays were in city localities, 13 regions reported that all overnight stays were in cities: five of these were capital city regions (those from Belgium, the Czech Republic, Germany, Austria and the United Kingdom), while the list also included Hamburg in Germany, five other British regions (including two each from the north-west of England and from Yorkshire, as well as the West Midlands), and the two Spanish Ciudades Autónomas de Ceuta y Melilla.

The highest number of overnight stays in rural localities in 2014 was recorded in Jadranska Hrvatska (43.3 million), followed by the Illes Balears (39.8 million). Looking in more detail at rural areas in 2014 (see **Map 10.4**), there were five NUTS level 2 regions across the EU where more than 90 % of overnight stays were spent in rural localities: the southernmost Belgian region of the Province Luxembourg (2013 data), the westernmost Dutch region of Zeeland, the easternmost Austrian region of Burgenland, and two sparsely-populated regions from the United Kingdom (2012 data), namely, Cumbria (in north-west England) and the Highlands and Islands (of Scotland).

**Map 10.2: Coastal tourism — share of nights spent in tourist accommodation establishments in coastal localities, by NUTS 2 regions, 2014 (1)**
(% of total nights spent in the regions' tourist accommodation establishments)




(% of total nights spent in the regions' tourist accommodation establishments)

EU-28 = 47.4

- = 0.0
- 0.1 – < 60.0
- 60.0 – < 80.0
- 80.0 – < 100.0
- = 100.0
- Data not available

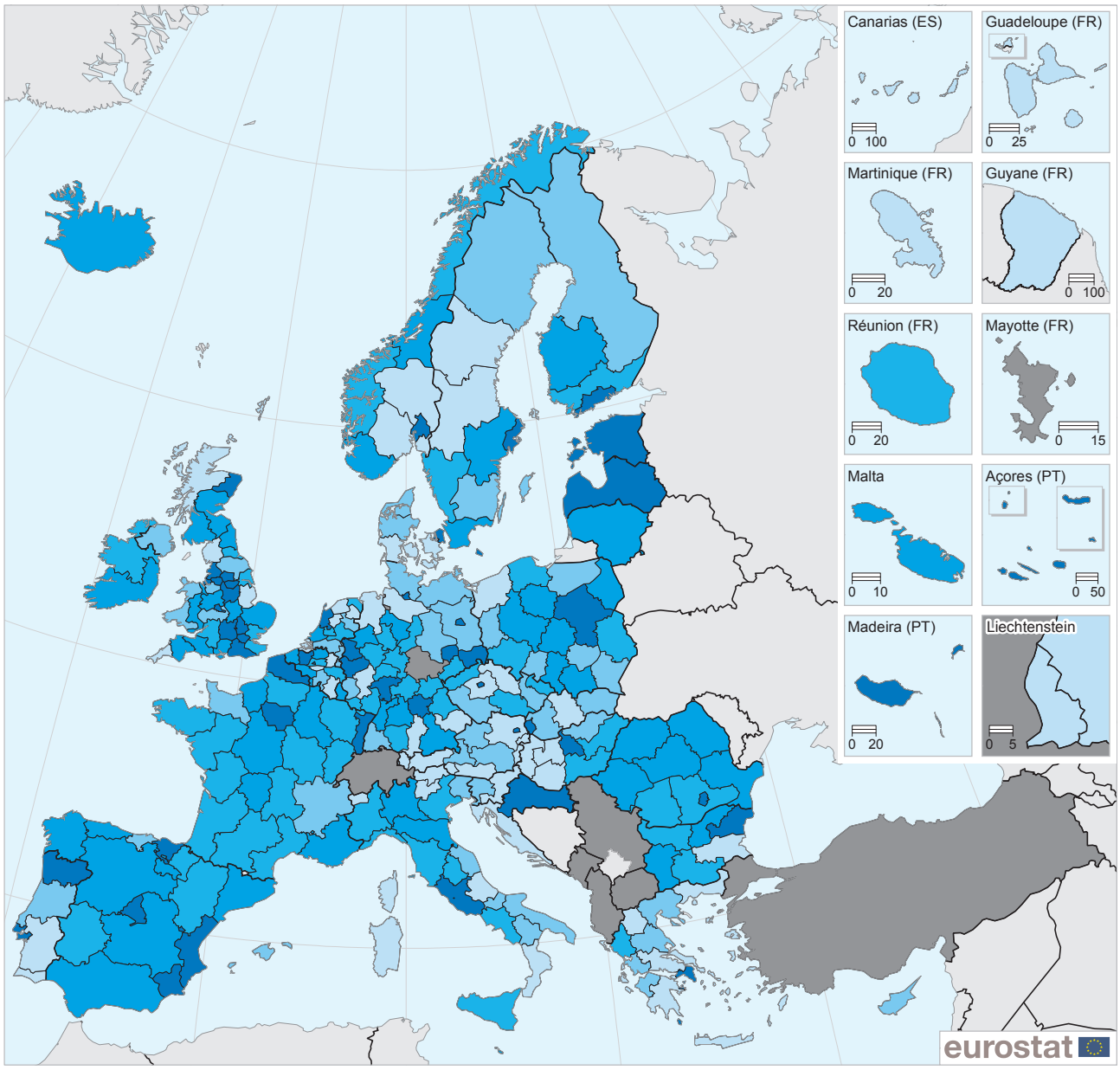
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Serbia: national data. Belgium: 2013. The United Kingdom and Montenegro: 2012. EU-28, Ireland and Greece: estimates.

*Source:* Eurostat (online data code: tour_occ_nin2c)

**Map 10.3:** City tourism — share of nights spent in tourist accommodation establishments in cities, by NUTS 2 regions, 2014 (1)
(% of total nights spent in the regions' tourist accommodation establishments)




(% of total nights spent in the regions' tourist accommodation establishments)

EU-28 = 33.8

- < 10
- 10 – < 20
- 20 – < 35
- 35 – < 50
- >= 50
- Data not available

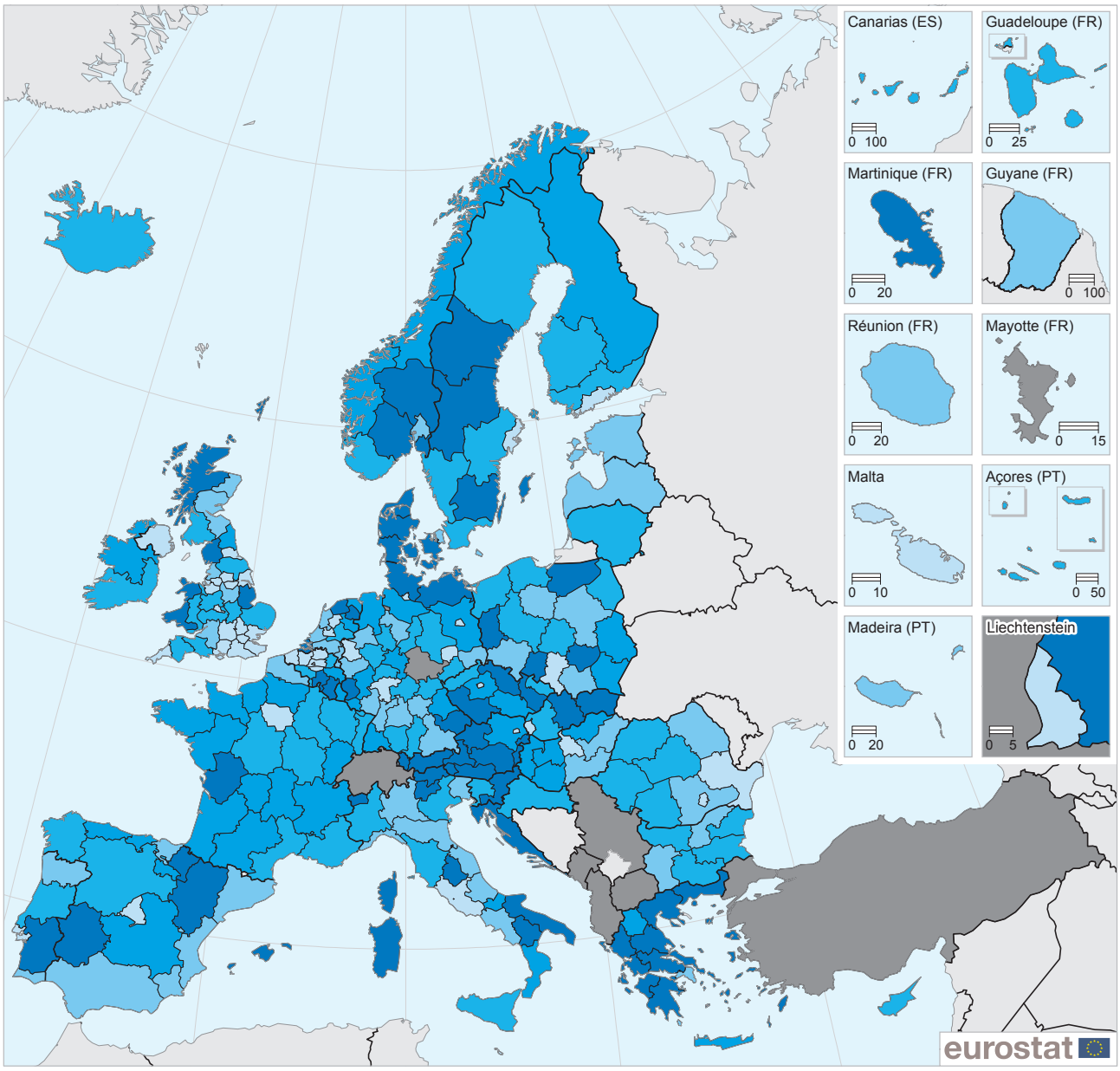
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Belgium: 2013. The United Kingdom: 2012. EU-28, Ireland and Greece: estimates.

*Source:* Eurostat (online data code: tour_occ_nin2d)

**Map 10.4:** Rural tourism — share of nights spent in tourist accommodation estavblishments in rural areas, by NUTS 2 regions, 2014 (1)
(% of total nights spent in the regions' tourist accommodation establishments)




(% of total nights spent in the regions' tourist accommodation establishments)

EU-28 = 36.1

- < 10
- 10 – < 25
- 25 – < 45
- 45 – < 60
- >= 60
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Belgium: 2013. The United Kingdom: 2012. EU-28, Ireland and Greece: estimates.

*Source:* Eurostat (online data code: tour_occ_nin2d)

More broadly, there were 63 regions where overnight stays in rural localities made up 60 % or more of total overnight stays (as shown by the darkest shade of blue in **Map 10.4**). Although these were spread across 17 different EU Member States there was a concentration in Denmark (four of five Danish regions), Greece (10 of 13 regions) and Austria (seven of nine regions). Alongside the 13 regions identified in **Map 10.3** as having all of their overnight stays in city localities, there were five additional British regions that were spread across England with no overnight stays in rural localities (they were split between cities and towns and suburbs); this was also the case in Liechtenstein.

## Accommodation capacity in hotels and similar establishments

Of the estimated 570 thousand tourist accommodation establishments in the EU-28 in 2014, just over one third (35.5 %) were hotels and similar establishments. They provided a total of 6.6 million bedrooms and 13.7 million bed places, equivalent to an average of 33 bedrooms and 68 bed places per establishment; note these ratios are likely to be overstated as many national statistical institutes apply a threshold (for example, only collecting data from establishments with at least 10 bed places) and therefore exclude smaller establishments.

While a count of the total number of bed places may be of interest in relation to the capacity of different regions to respond to tourism demand, those providing accommodation services are more likely to be interested in net occupancy rates for bedrooms (room rates are often considered the preferred measure insofar as the turnover of a double room is often similar irrespective of whether the room is occupied by one or two persons).

The occupancy of hotels and similar establishments may vary according to the characteristics of each region. Urban regions are more likely to be characterised by large numbers of visitors who tend to stay for a relatively short period of time, with tourist trips to cities often spread throughout the year. Visitors to these regions may also be travelling for professional reasons, in which case demand for rooms will probably be spread throughout the working week, supplemented by private trips during weekends and holiday periods.

By contrast, the average length of stays is substantially longer in more traditional holiday regions which are visited chiefly for recreational purposes. Nevertheless, tourism demand for trips to these regions is often concentrated in the summer months (especially for those regions with coastlines), while there is a secondary peak in demand during the winter months, most apparent in Alpine regions and smaller peaks that often coincide with other school holiday periods.

### *Bedroom occupancy rates in hotels and similar establishments highest in London*

**Map 10.5** provides a regional analysis of bedroom occupancy rates in hotels and similar establishments in 2014. Note that data for London in the United Kingdom are only available for the NUTS level 1 region, while there are no data available for Austria and some data are from earlier reference years.

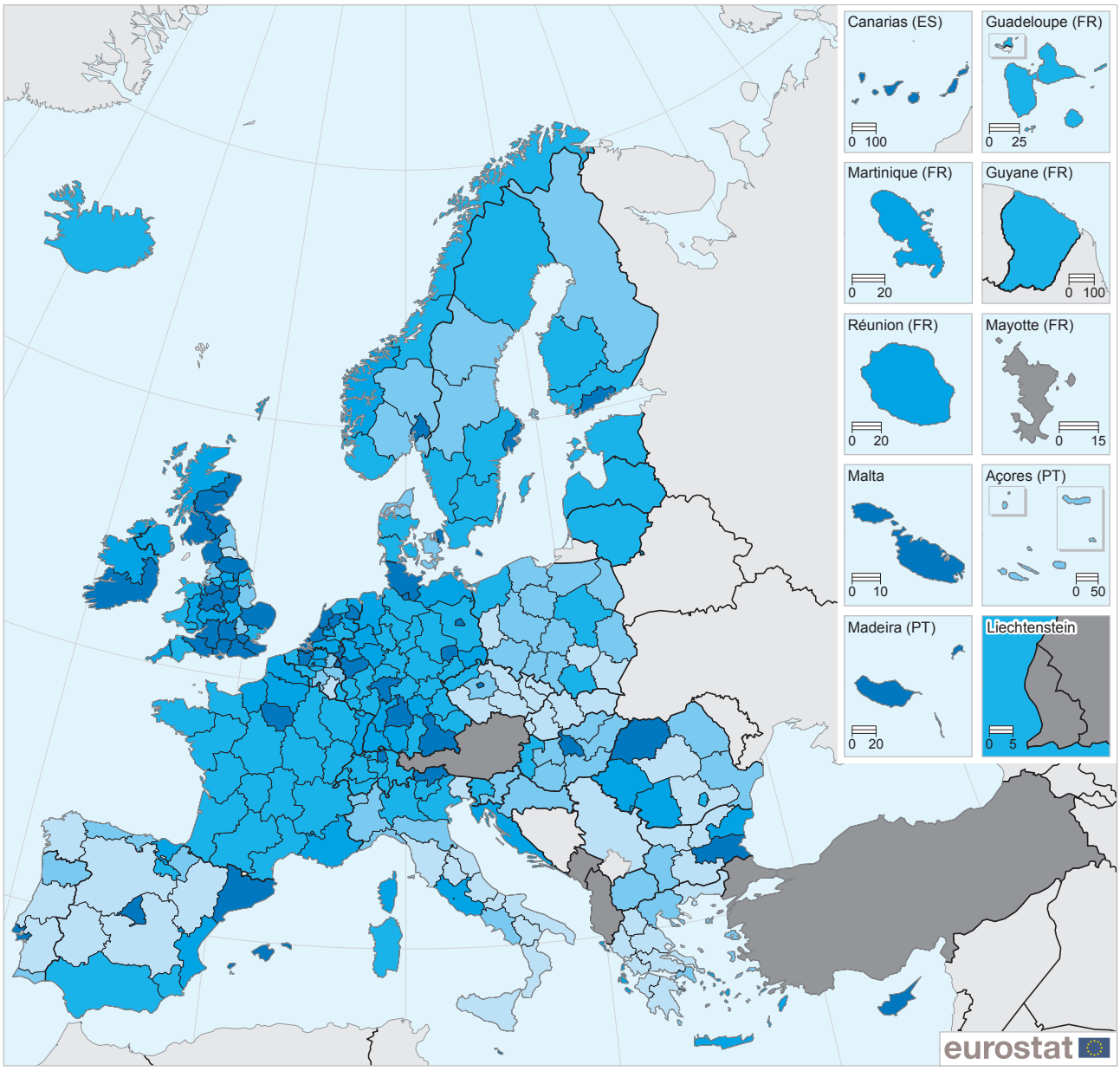
Bedroom occupancy rates in hotels and similar establishments were particularly high in many capital city regions, including those of the Czech Republic, Denmark, France, Hungary, Finland and Sweden: in each of these EU Member States the capital city region was the only one where the occupancy rate reached or exceeded 60 % (as shown by the darkest shade of blue in **Map 10.5**). Occupancy rates were also relatively high in numerous regions across western parts of the EU, with particularly high rates in several regions (including the capital city regions) of Belgium, Germany, the Netherlands, Ireland and particularly the United Kingdom. Further south, there were several traditional holiday destinations which recorded relatively high occupancy rates, principally the capital city and island regions of Spain as well as Cataluña, the capital city region and the island region of Madeira in Portugal, as well as the islands of Cyprus and Malta (both one region at this level of detail). In addition, there were three Member States where a single region (which was not the capital city region) recorded an occupancy rate of at least 60 %: Yugoiztochen in Bulgaria, the Provincia Autonoma di Bolzano/Bozen in Italy, and the Nord-Vest region of Romania.

## Spotlight on the regions: Közép-Magyarország, Hungary

**Bedroom occupancy rates in hotels and similar establishments tend to be particularly high in capital city regions. This was true in the Czech Republic, Denmark, France, Hungary, Finland and Sweden, as their capital city regions were alone in recording occupancy rates of at least 60 % in 2014; in Közép-Magyarország (Hungary), the occupancy rate was 60.4 %.**

***Photo*: Andrew Bossi**

**Map 10.5:** Bedroom occupancy rates in hotels and similar establishments, by NUTS 2 regions, 2014 (1)
(%)




(%)

- < 35
- 35 – < 45
- 45 – < 55
- 55 – < 60
- >= 60
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) London (the United Kingdom): NUTS level 1. Serbia: national data. Belgium, the United Kingdom and Serbia: 2013. Ireland: estimates. The Netherlands: low reliability.

*Source:* Eurostat (online data code: tour_occ_anor2)

***Around one in six regions in the EU had occupancy rates that were below 35 %***

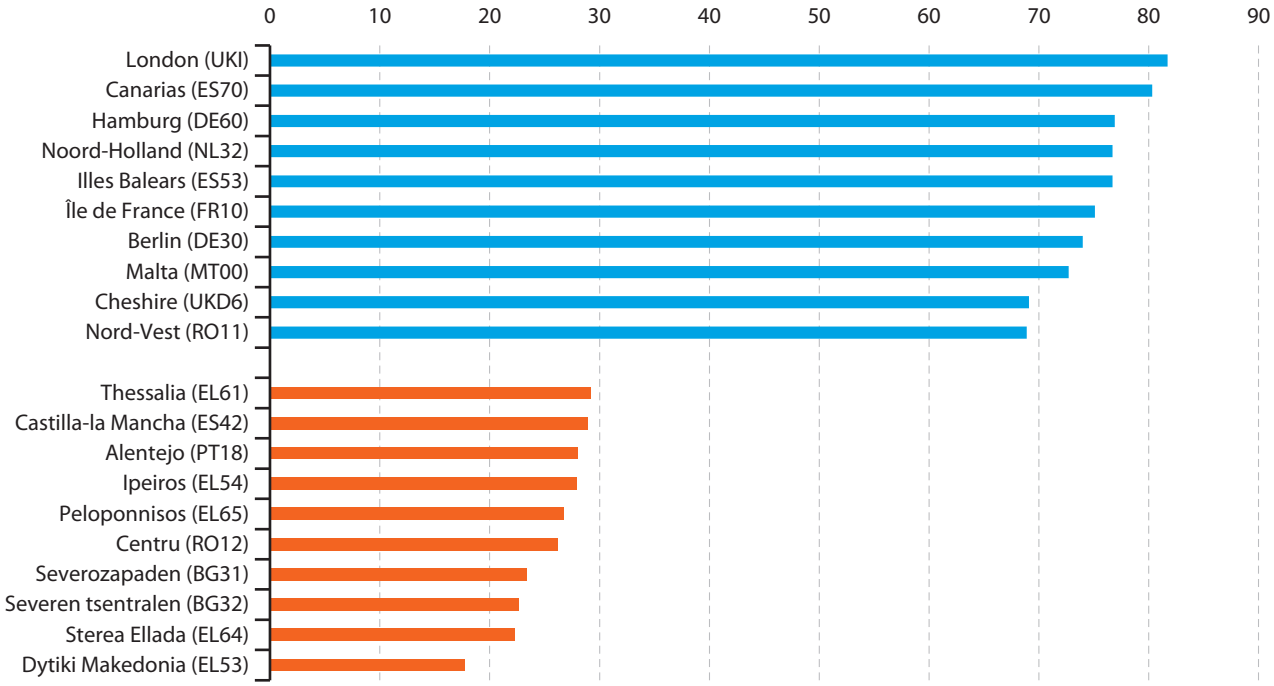
In 2014, bedroom occupancy rates in hotels and similar establishments were below 35 % in approximately one in six (or 43 out of a total of 262) EU-28 regions for which data are available, as shown by the lightest shade of blue in **Map 10.5**. These were concentrated in southern and eastern EU Member States, with one region each in Belgium (Province Luxembourg) and the United Kingdom (Tees Valley and Durham).

The highest net occupancy rate was recorded in London (NUTS level 1; 2013 data), where just over four out of every five (81.7 %) bedrooms in hotels and similar establishments were occupied on any given day, as was also the case in the Canarias, where an occupancy rate of 80.3 % was recorded in 2014 (see **Figure 10.3**). In 2014, there were six other NUTS level 2 regions with occupancy rates of at least 70 %: three of these were the capital city regions of Noord-Holland, Île de France and Berlin, and they were joined by one additional German (metropolitan) region, that of Hamburg, while the other two regions were the island destinations of the Illes Balears and Malta (a single region at this level of analysis); note that some hotels and similar establishments in these holiday destinations may close during the off-season, while others seek to keep their occupancy rates high through special offers which may, for example, encourage pensioners (typically from northern and western EU Member States) to spend longer periods on vacation during the winter months.

The lowest occupancy rate among all of the EU-28 regions for which data are available was recorded in the northern, inland Greek region of Dytiki Makedonia, at 17.7 %, the only region to post a rate that was under 20 %. As it accounted for 1.6 % of the total nights spent by domestic tourists in the whole of Greece, and for 0.1 % of the total nights spent by non-residents in Greece, this region had a relatively low level of tourism activity in terms of overnight stays (indeed, it is more popular as a destination for day visitors staying in nearby Vergina or Meteora).

**Figure 10.3: Top 10 and bottom 10 EU tourist regions in terms of bedroom occupancy rates in hotels and similar establishments, by NUTS 2 regions, 2014 (1)**

(%)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the highest (in blue) and lowest (in orange) bedroom occupancy rates. Mayotte (France) and Austria: not available. London (the United Kingdom): NUTS level 1. Belgium, the United Kingdom and Serbia: 2013. Ireland: estimates. The Netherlands: low reliability.

*Source:* Eurostat (online data code: tour_occ_anor2)

# Data sources and availability

## Legal basis

As of reference year 2012, the legal basis for the collection of tourism statistics is a Regulation of the European Parliament and of the Council concerning European statistics on tourism ((EU) no 692/2011) and a European Commission implementing regulation ((EU) no 1051/2011). Data are collected from all of the EU Member States, as well as from EFTA and candidate countries.

Regional tourism statistics are only available from suppliers of tourism services; they are collected via surveys filled in by tourist accommodation establishments. The information collected covers accommodation capacity (counts of establishments, room and bed places) and occupancy (the number of arrivals and overnight stays).

## Regional and sub-national breakdowns

Regulation (EU) 692/2011 foresees the collection of regional tourism statistics for NUTS level 2. The regulation also introduced two new analyses for sub-national statistics relating to accommodation statistics, namely, by degree of urbanisation (rural areas, towns and suburbs, cities) and by coastal or non-coastal locality (coastal localities are defined as those that border the sea or have more than half of their territory within 10 km of the coastline).

## Statistical units and activity classification

A tourist accommodation establishment is a local kind-of-activity unit. It includes all establishments providing, as a paid service, accommodation for tourists, regardless of whether or not the provision of tourist accommodation is the main or a secondary activity of the enterprise to which the establishment belongs. As such, all establishments providing accommodation are covered, even if a major part of their turnover comes from restaurant/catering services or other services.

Tourism accommodation establishments are classified, as:

- NACE Group 55.1: hotels and similar accommodation (this includes accommodation provided by hotels, resort hotels, suite/apartment hotels, motels);
- NACE Group 55.2: holiday and other short-stay accommodation (this includes holiday homes, visitor flats and bungalows, cottages and cabins without housekeeping services, youth hostels and mountain refuges);
- NACE Group 55.3: camping grounds, recreational vehicle parks and trailer parks — otherwise referred to as campsites (this includes the provision of accommodation in campgrounds, trailer parks, recreational camps and fishing and hunting camps for short stay visitors, and the provision of space and facilities for recreational vehicles, protective shelters or plain bivouac facilities for placing tents and/or sleeping bags).

## Residents and non-residents

Domestic tourism comprises the activities of residents of a given country travelling to and staying in their own country, but outside their usual environment; this information may be contrasted with similar information on inbound tourists (also referred to as international or non-resident tourists). Domestic and inbound tourists are classified according to their country of residence, not their citizenship.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Nearly all of the regional data in this chapter were available in NUTS 2013, and only data for London have been converted from NUTS 2010 with the consequence that data for London are shown at NUTS level 1 instead of NUTS level 2.

# 11 Transport

This chapter focuses on road transport statistics, including information on vehicle equipment rates, road freight and road safety.

The EU's transport policy endeavours to foster clean, safe and efficient travel throughout Europe, underpinning the right of citizens to move freely (for both work and pleasure) and for goods to circulate easily within the internal single market (from their place of production to their place of consumption). Transport and mobility play a fundamental role in the EU and by joining regions together, transport policy can be used to reduce regional inequality and improve cohesion.

## Jobs, growth and investment

The European Commission's jobs, growth and investment package highlights a range of transport projects including: infrastructure in industrial centres; transport links between EU Member States; the expansion and upgrading of freight and passenger capacities in ports and airports; dedicated rail connections between important airports and urban centres; 'green' projects in the area of maritime transport; or the promotion of alternative fuel-infrastructures along major roads. 'An investment plan for Europe' (COM(2014) 903 final) underlines the need for structural reforms to reap the benefits of the single market by resolving barriers to investment, notably those with a cross-border dimension, the European Single Sky and the Fourth Railway Package.

## Transport policy in the EU

The European Commission's Directorate-General for Mobility and Transport is responsible for developing transport policy within the EU. Its remit is to ensure mobility in a single European transport area, integrating the needs of the population and the economy at large, while minimising adverse environmental effects.

In March 2011, the European Commission adopted a White paper titled 'Roadmap to a single European transport area — Towards a competitive and resource efficient transport system' (COM(2011) 144 final). This comprehensive strategy contained 40 specific initiatives, designed to build a competitive transport system. The proposals also sought to reduce dramatically Europe's dependence on imported oil and to cut carbon emissions, with a set of goals to be achieved for 2050, including:

- no more conventionally-fuelled cars in cities;
- 40 % of the fuel being used in the aviation sector to come from sustainable low-carbon fuels;
- a reduction of at least 40 % in shipping emissions;
- a 50 % shift in medium-distance inter-city passenger and freight journeys away from roads to either rail or waterborne transport;
- all of which should contribute to a 60 % cut in transport emissions by the middle of the century.

One recent development in the area of road transport was the adoption in April 2015 of Directive (EU) 2015/719. This amended the existing legislation concerning the design of lorries, with the aim to improve environmental performance and road safety, reduce operational costs and reduce road damage.

## Trans-European Transport Networks (TEN-T)

At the beginning of the 1990s, the EU agreed to set up an infrastructure policy at Community level in order to support the functioning of the internal market through continuous and efficient networks in the fields of transport, energy and telecommunications.

A substantial policy review was launched in 2009 and this led to a new legislative framework that came into force in January 2014 when the EU agreed on a new transport infrastructure policy: Union guidelines for the development of the trans-European transport network (Regulation (EU) No 1315/2013) which set out objectives, priorities and measures for establishing and developing networks, so as to create a framework for identifying projects of common interest. It seeks to create a core network which will connect 94 main European ports with rail and road links, 38 key airports with rail connections into major cities, upgrade 15 000 km of railway line to high speed track, and establish 35 cross-border projects to reduce bottlenecks. Work is foreseen over nine implementing corridors on this core network, two north–south corridors (the North Sea–Mediterranean and Scandinavian–Mediterranean corridors) and seven with an east–west dimension (the Baltic–Adriatic, North Sea–Baltic, Mediterranean, Orient/East–Med, Rhine–Alpine, Atlantic, and Rhine–Danube corridors). The core network is due to be completed by 2030, with a comprehensive regional and national network feeding into it. At the start of 2015, the European Commission published nine detailed studies on the development needs of each of the nine corridors and identified a need for approximately EUR 700 billion of financial investment through to 2030. These studies are being taken into account when deciding on the allocation of EU funds for the period 2014–20 under the Connecting Europe Facility (which governs EU funding in the transport, energy and telecommunications sectors during the period 2014–20) and the European investment plan.

# Main statistical findings

Transport statistics are collected for a range of indicators, for example, in relation to transport infrastructure (the length of transport networks) and equipment rates (the number of vehicles per inhabitant). Regional transport statistics also aim to quantify the flows of passengers and freight between, within and through regions; differences between regions are often closely related to levels of economic activity.

## Equipment rates

This chapter starts with an analysis of the availability of various types of transport equipment: passenger cars; motor coaches, buses and trolley buses; utility vehicles (lorries, road tractors and special vehicles). A separate article (on Statistics Explained) looks at regional statistics on the stock of vehicles in more detail (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Stock_of_vehicles_at_regional_level).

The availability of these three categories of vehicles varies greatly between the regions of the European Union (EU) as can be seen from **Figure 11.1** (note the different scales used for the axes in the three different parts of the figure). Relative to population size, the availability of passenger cars in Valle d'Aosta/Vallée d'Aoste (Italy) was 6.5 times greater than in Nord-Est Romania, while the ratio for the equipment rate of motor coaches, buses and trolley buses was 46.7 : 1 between Malta and Flevoland in the Netherlands, and that for utility vehicles was 24.8 : 1 between Valle d'Aosta/Vallée d'Aoste and Portugal (for which only national data are available).

These regional rates are often linked to the economic situation and structure, but they can also be affected by specific circumstances: the highest equipment rates within the EU for passenger cars and for utility vehicles were recorded in Valle d'Aosta/Vallée d'Aoste, which may be linked to specific tax arrangements and does not reflect the actual number of vehicles per inhabitant in the region.

## Motorisation rate for passenger cars

The number of passenger cars per inhabitant — also referred to as the motorisation rate — is calculated on the basis of the stock of vehicles as of 31 December and population figures as of 1 January of the following year. There were slightly fewer than 250 million passenger cars circulating on the roads of the EU-28 in 2013, with the largest stocks of vehicles in Germany (43.4 million) and Italy (36.9 million). At the end of 2013, there was an average of 487 passenger cars per 1 000 inhabitants in the EU.

***Valle d'Aosta/Vallée d'Aoste recorded the highest motorisation rate in the EU***

The first part of **Figure 11.1** emphasises the generally high level of motorisation rates across Italy, as 6 out of the 10 NUTS level 2 regions with the highest rates were Italian. The single highest regional value was recorded in the northern, Alpine region of Valle d'Aosta/Vallée d'Aoste, where, on average, there was more than one vehicle for each member of the population (1 147 passenger cars per 1 000 inhabitants). As noted earlier, the data for this region are influenced by a specific tax arrangement and therefore do not necessarily reflect the actual number of passenger cars per inhabitant in the region. Romania recorded 6 out of the 10 lowest motorisation rates in the EU, while three of the lowest rates were recorded in Greek regions, and Hungary was the only other EU Member State with a region in the bottom 10.

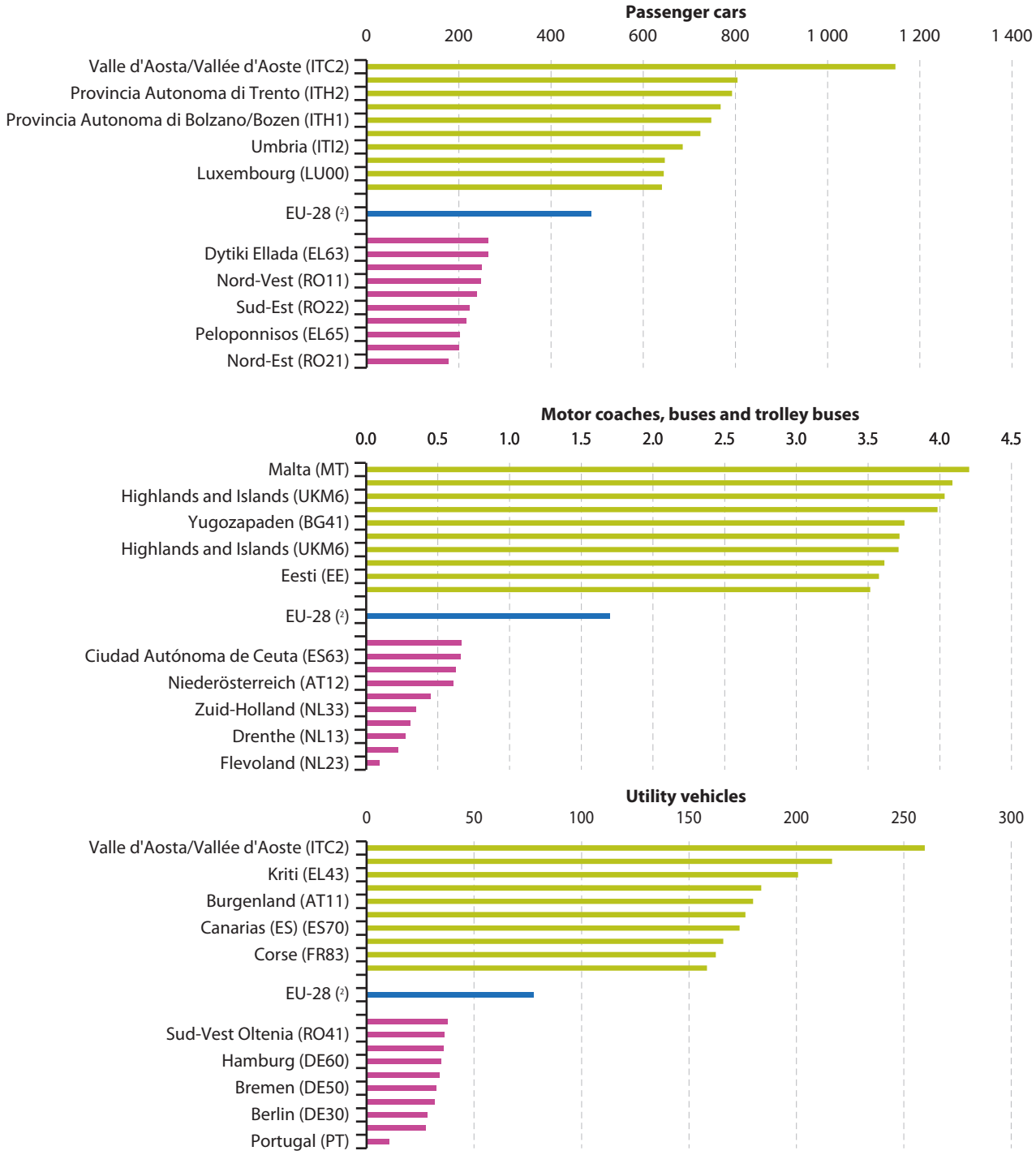
### Spotlight on the regions: Valle d'Aosta/Vallée d'Aoste, Italy

**High motorisation rates were present across much of Italy in 2014, as Italian regions accounted for 6 out of the top 10 rates recorded in the NUTS level 2 regions of the EU. The highest regional value was recorded in the northern, Alpine region of Valle d'Aosta/Vallée d'Aoste, where, on average, there was more than one vehicle per person (1 147 passenger cars per 1 000 inhabitants). Note, the data for this region are influenced by a specific tax arrangement and therefore do not necessarily reflect the actual number of passenger cars per inhabitant in the region.**

***Photo*: David Merrett**

The number of passenger cars per 1 000 inhabitants is shown in **Map 11.1** for all NUTS level 2 regions. At the end of 2014, the highest regional motorisation rates in the EU — those of at least 575 passenger cars per 1 000 inhabitants, as shown by the darkest shade of green in **Map 11.1** — were generally registered in regions from those Member States which joined the EU before 2004. A particularly high concentration of passenger cars relative to the population was recorded in most Italian regions, eastern and southern parts of Austria (with the exception of the capital Wien), many parts of Germany, most of Finland, as well as in Luxembourg (a single

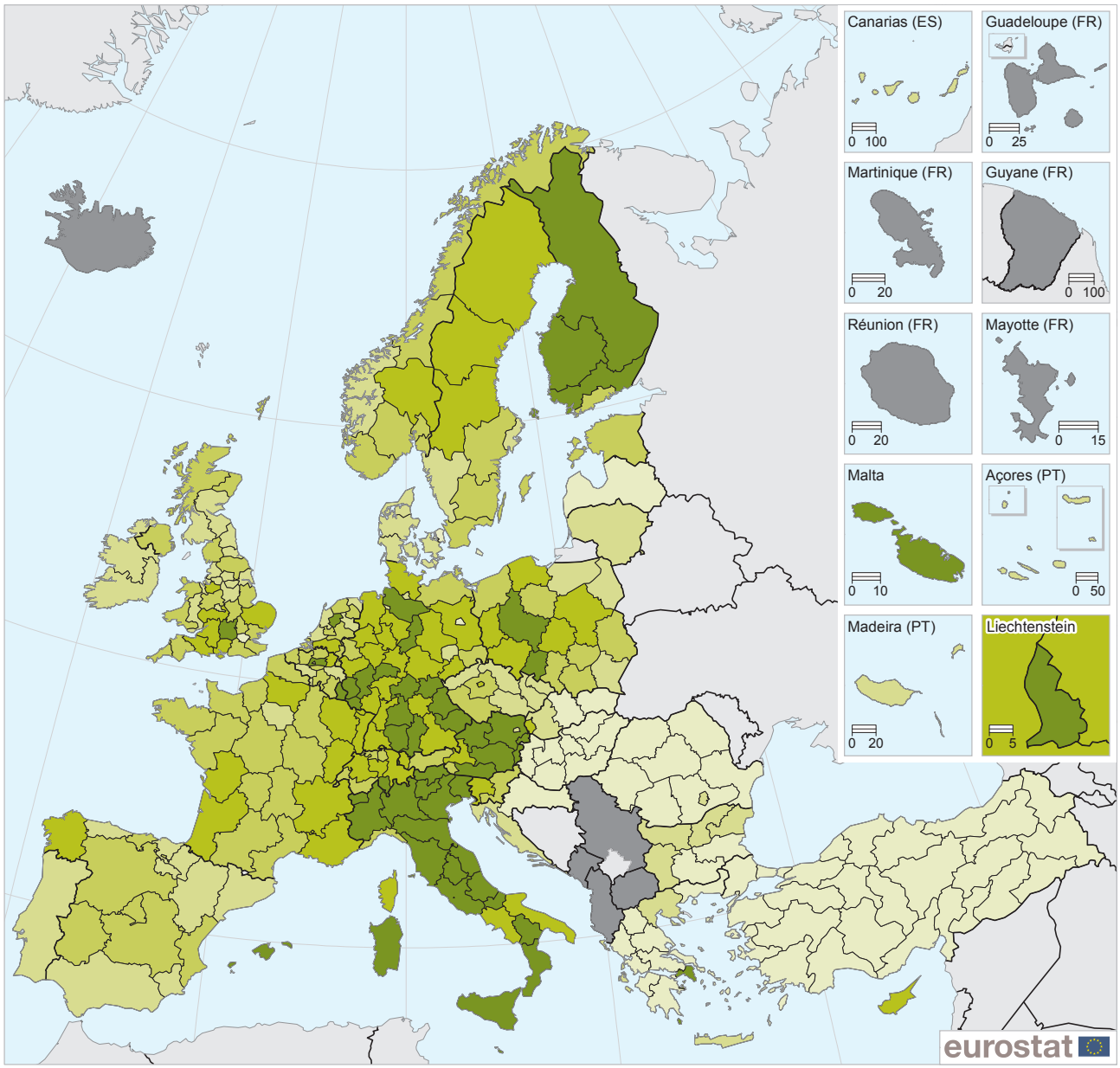
**Figure 11.1: Top and bottom 10 EU regions in terms of road transport equipment rates, by NUTS 2 regions, 2014 (1)**
(number of vehicles per 1 000 inhabitants)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the highest (in lime green) and the lowest (in magenta) equipment rates, as well as the EU-28 average (in blue). See Maps 1, 2 and 3 for detailed information on data availability.
(2) 2013. Excluding Départements d'outre-mer (France). Estimates made for the purpose of this publication.

*Source:* Eurostat (online data codes: tran_r_vehst and demo_r_d2jan)

**Map 11.1:** Motorisation rate, by NUTS 2 regions, 2014 (1)
(number of passenger cars per 1 000 inhabitants)




(number of passenger cars per 1 000 inhabitants)

EU-28 = 487

- < 375
- 375 – < 475
- 475 – < 525
- 525 – < 575
- >= 575
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU-28, France and Portugal: 2013. Portugal: national data. London (the United Kingdom): NUTS level 1. EU-28: excluding Départements d'outre-mer (France); estimate made for the purpose of this publication. Spain: estimates.

*Source:* Eurostat (online data code: tran_r_vehst)

region at this level of analysis) and a handful of other regions. Malta (also a single region at this level of detail) and Wielkopolskie and Opolskie in Poland were the only regions from the Member States that joined the EU in 2004 or 2007 that had motorisation rates of at least 575 passenger cars per 1 000 inhabitants.

***High motorisation rates in island regions with few alternative modes of transport***

Several island regions also reported relatively high motorisation rates, including Åland in Finland (which had the fourth highest regional motorisation rate), Sicilia and Sardegna in Italy, the French départements d'outre-mer (most of which are islands), the Illes Balears in Spain and Malta. These relatively high figures may, in part, be explained by a lack of alternative modes of transport for inland travel; for example, most of these islands had relatively underdeveloped rail infrastructures or no rail services at all.

***Low motorisation rates in several Greek, Hungarian and Romanian regions***

At the other end of the ranking, the lowest motorisation rates — less than 375 passenger cars per 1 000 inhabitants — were mainly recorded in Greece and a high number of eastern regions, including: all seven Hungarian regions; all but one of the eight regions in Romania (the exception being the capital city region of Bucureşti - Ilfov); 9 of the 13 regions in Greece; the two eastern regions of Slovakia; two south-eastern regions of Bulgaria; and the capital city region of Croatia. This list also included the capital city regions of Germany, Denmark and the United Kingdom (NUTS level 1) as well as Latvia (one region at this level of detail).

***Capital city regions of older Member States often characterised by low motorisation rates …***

The relatively low motorisation rate in some western and northern capital city regions may be linked to issues such as congestion or having difficulties to find a place to park, with an increasing share of people living in some of the EU's largest cities choosing not to own a car and instead to rely on public transport. Along with the capital city regions of Germany, Denmark and the United Kingdom (mentioned above), the capital regions of most of the other Member States which joined the EU before 2004 also had relatively low motorisation rates compared with their national averages; the most notable exceptions were Attiki in Greece and the Comunidad de Madrid in Spain, while the motorisation rates of Lazio in Italy and Southern and Eastern in Ireland were only slightly above their national averages.

By contrast, in regions that were adjacent to those containing capitals, it was quite common to find relatively high motorisation rates. This suggests that these regions were characterised by large numbers of people commuting to work (in neighbouring regions). Examples include: Flevoland in the Netherlands; Niederösterreich in Austria; Berkshire, Buckinghamshire and Oxfordshire in the United Kingdom; and the rather special case of Trier in Germany, which neighbours the capital city region of Luxembourg (rather than Berlin) with many commuters crossing the border to work each day; more information on regional commuting patterns may be found in Chapter 13 .

***… while capital city regions of newer Member States were often characterised by relatively high motorisation rates***

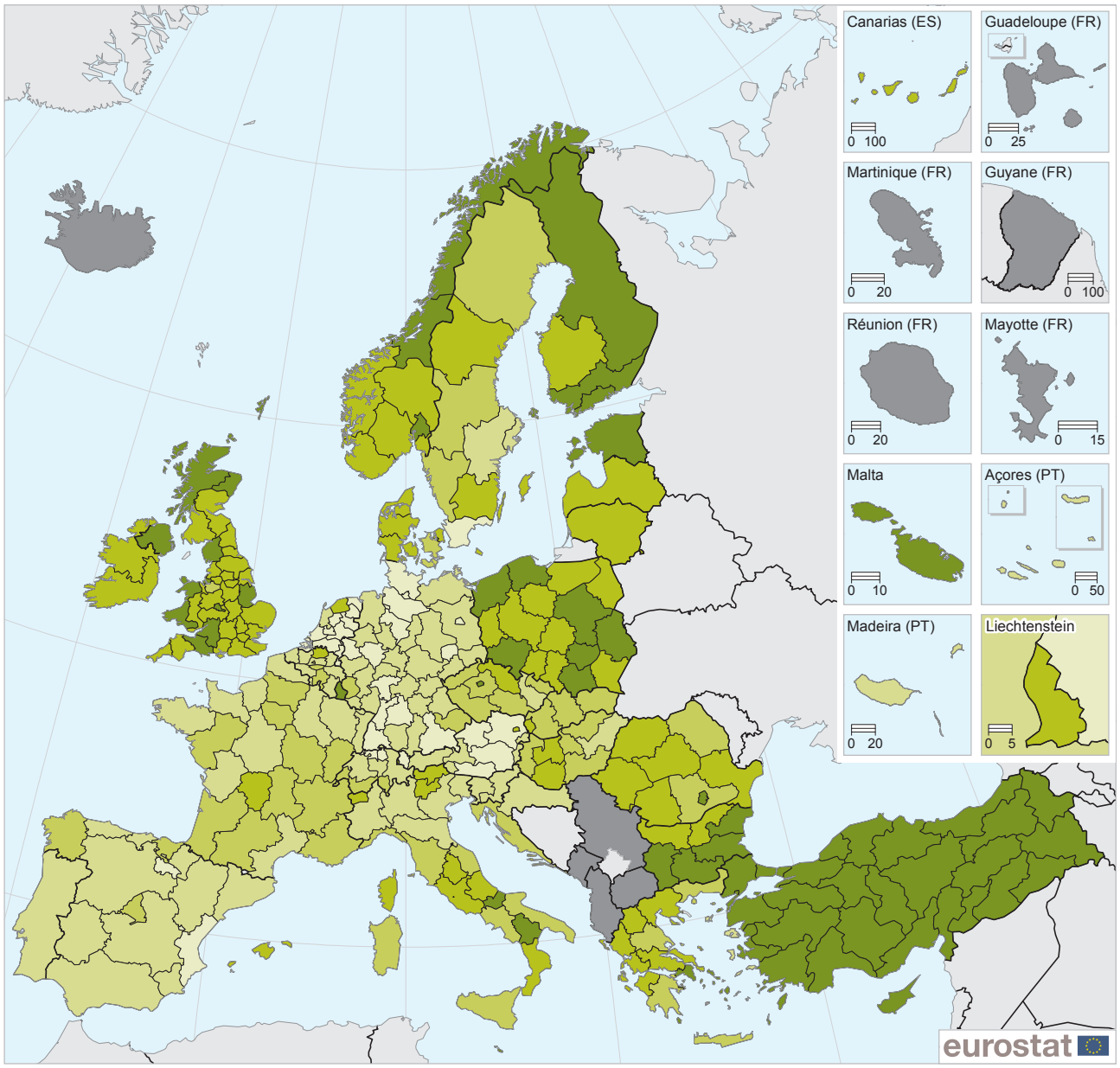
Among those Member States that joined the EU in 2004 or 2007 a different pattern was often observed, as in multi-regional countries the capital city region frequently recorded a regional motorisation rate that was above the national average and in some cases a level of car ownership that was also above the EU-28 average. This was the case in Zahodna Slovenija (525 passenger cars per 1 000 inhabitants), Bratislavský kraj (549), Praha (574) and Mazowieckie (573). The only multi-regional country among the newer Member States where the capital city region had a motorisation rate below the national average was Croatia.

## Equipment rates for public road transport passenger vehicles

There are a range of barriers to the improvement and development of public transportation systems in remote and rural areas, as these regions are characterised by dwellings being distributed over large areas, with a low density of potential passengers, and a level of demand that is often unpredictable; this may result in limited services, as the provision of frequent and widespread commercial services may be financially unviable. As a result, some governments and regional/local authorities choose to subsidise public transport services in remote and rural areas, or alternatively to bundle minimal service provisions on such routes with the operation of more lucrative services. In particularly remote and rural areas, the provision of public transport services is considered to be of even greater importance to disadvantaged groups (such as the young, the elderly, those at risk of poverty, or the disabled), as a well-organised public transport can stimulate economic growth and social inclusion through improving accessibility and mobility.

To some extent the information that is shown in **Map 11.2** for the equipment rate of public road transport passenger vehicles (motor coaches, buses and trolleybuses) mirrors that shown in **Map 11.1** for passenger cars; in those regions where car ownership is relatively low there is likely to be a higher demand for public transport as a means of ensuring mobility.

**Map 11.2:** Equipment rate for public transport vehicles (motor coaches, buses and trolleybuses), by NUTS 2 regions, 2014 ([1])
(number of public transport vehicles per 1 000 inhabitants)




(number of public transport vehicles per 1 000 inhabitants)

EU-28 = 1.7

- < 1.0
- 1.0 – < 1.5
- 1.5 – < 2.0
- 2.0 – < 3.0
- >= 3.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

([1]) EU-28, France and Portugal: 2013. Portugal: national data. London (the United Kingdom): NUTS level 1. EU-28: excluding Départements d'outre-mer (France); estimate made for the purpose of this publication. Spain: estimates.

*Source:* Eurostat (online data codes: tran_r_vehst and demo_r_d2jan)

However, it should be noted that the statistics presented only concern public transport services on roads and are therefore influenced, to some degree, by the availability of alternative means of public transport, principally the provision of rail, metro and ferry services, the supply of which is often widespread in many of the EU's larger cities.

The equipment rate for public road transport passenger vehicles is calculated in the same manner as for passenger cars, based on the stock of vehicles as of 31 December and population figures as of 1 January of the following year. There were 878 thousand public road transport passenger vehicles circulating on the roads of the EU-28 at the end of 2013, with the largest stocks of vehicles in the United Kingdom (168 thousand) and Poland (103 thousand). At the end of 2013, there was an average of 1.7 public road transport passenger vehicles per 1 000 inhabitants in the EU-28.

The second part of **Figure 11.1** shows equipment rates for public road transport passenger vehicles. At the end of 2014, the top 10 regions with the highest equipment rates included four from the United Kingdom, three of which were located in Scotland, while the six other regions were all from the newer Member States: two from Bulgaria, one each from Poland and Romania, as well as Malta and Estonia (both one region at this level of detail). The densely populated holiday destination of Malta, famous for its diverse and often customised buses, had the highest motorisation rate among all of the regions in the EU, with an average of 4.2 public roadv transport passenger vehicles per 1 000 inhabitants. The six lowest regional equipment rates for public road transport passenger vehicles were all in the Netherlands, with the bottom 10 regions completed by two largely urban German regions — Bremen and Berlin — the Spanish Ciudad Autónoma de Ceuta, and Niederösterreich (which is the region surrounding the Austrian capital city).

**Map 11.2** presents the equipment rates for public road transport passenger vehicles for all NUTS level 2 regions in 2014. Equipment rates of less than 1.0 vehicle per 1 000 inhabitants (as shown by the lightest shade of green in **Map 11.2**) were found across much of Germany, Austria and the Netherlands, as well as in four Spanish regions and one Swedish region; two Swiss regions also reported rates below 1.0 vehicle per 1 000 inhabitants.

The darkest shade of green in **Map 11.2** shows those regions where the equipment rate for public road transport passenger vehicles was at least 3.0 per 1 000 inhabitants. There were 35 regions from 12 different EU Member States which reported equipment rates at this level: Finland and Estonia in the north; Poland, the Czech Republic, Romania and Bulgaria in the east; Cyprus, Greece, Malta and Italy in the south; and Luxembourg and the United Kingdom in the west. There were also three regions in Norway with relatively high equipment rates for public road transport passenger vehicles as was the case for all 26 Turkish regions, where particularly high rates — exceeding 10.0 vehicles per 1 000 inhabitants — were recorded in three regions, peaking at a rate of 14.2 in the eastern Black Sea region of Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane.

## Spotlight on the regions: Malta, Malta

**Malta (a single region at NUTS level 2) is famous for its diverse and often customised buses, and had an equipment rate of 4.2 public road transport passenger vehicles (defined as motor coaches, buses and trolleybuses) per 1 000 inhabitants. This was the highest rate among NUTS level 2 regions in the EU; such figures may be attributed, at least in part, to few alternative modes of transport (for example, there are no railways in Malta).**

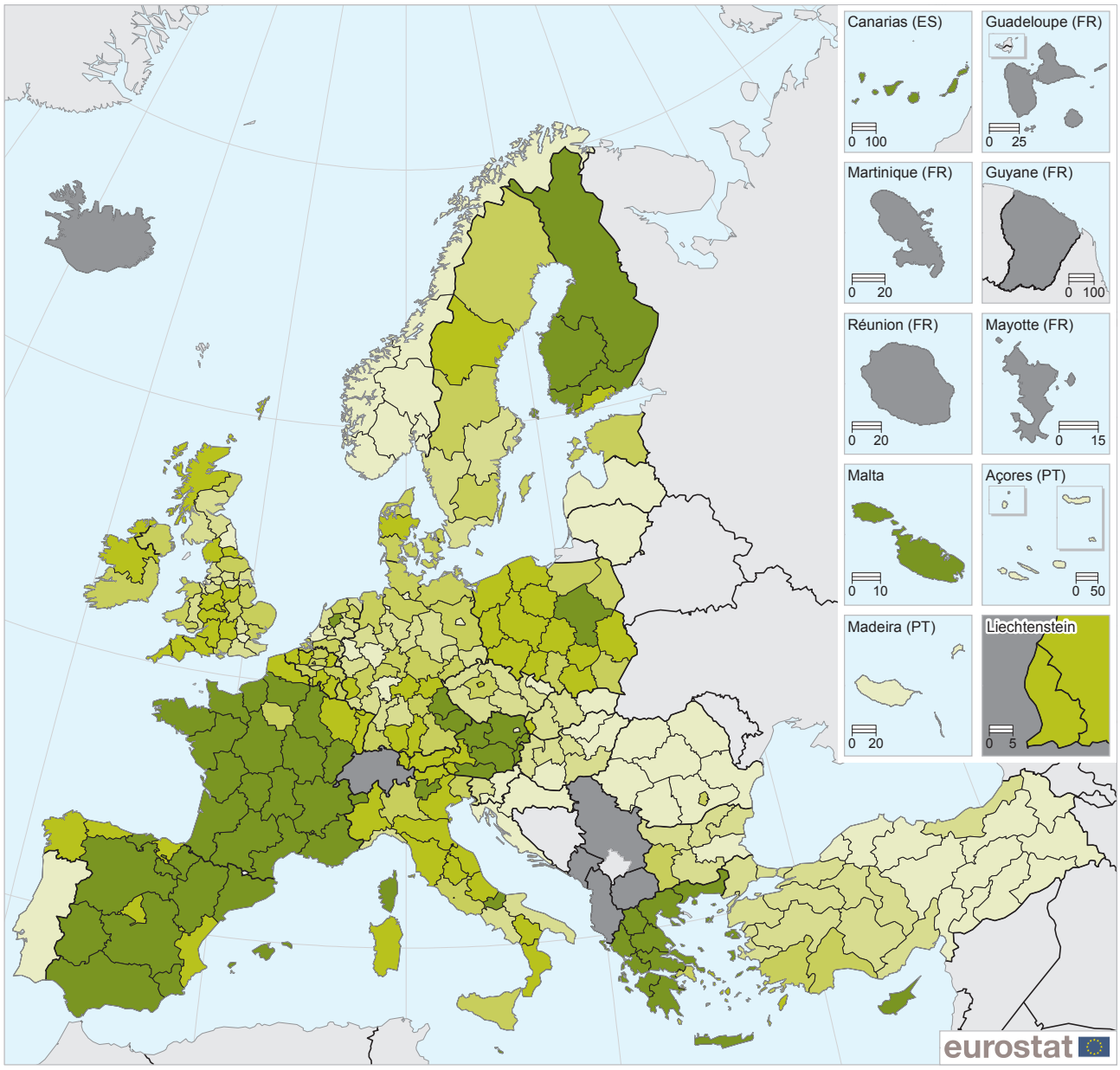
***Photo*: foxypar4**

## Equipment rate for road freight and other utility vehicles

There were an estimated 39 million utility vehicles circulating on the roads of the EU-28 at the end of 2013, with the largest stocks of vehicles in France (7.0 million) and Spain (5.5 million). The equipment rate in the EU-28 at the end of 2013 averaged 77.8 utility vehicles per 1 000 inhabitants.

The equipment rate for utility vehicles depends on a number of different factors. Among these are the regional transport systems and its infrastructure for different modes of freight transport, such as the capacity of motorways, railway lines, ports and airports. The economic characteristics of the region also play a role, for example whether the regional economy is dominated by agriculture, manufacturing, construction or services, and whether the region is located on key European freight corridors or contains congested urban areas.

**Map 11.3:** Equipment rate for utility vehicles (lorries, road tractors and special vehicles), by NUTS 2 regions, 2014 ([1])
(number of road freight vehicles per 1 000 inhabitants)




(number of road freight vehicles per 1 000 inhabitants)

EU-28 = 77.8

- < 50
- 50 – < 65
- 65 – < 80
- 80 – < 110
- >= 110
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

([1]) EU-28, Estonia, France and Portugal: 2013. Portugal: national data. London (the United Kingdom): NUTS level 1. EU-28: excluding Départements d'outre-mer (France); estimate made for the purpose of this publication. Greece and Spain: estimates.

*Source:* Eurostat (online data codes: tran_r_vehst and demo_r_d2jan)

Although Valle d'Aosta/Vallée d'Aoste (Italy) had the highest equipment rate for utility vehicles at the end of 2014, as it had for passenger cars, the only other similarity in the top 10 for these two types of vehicles was the presence of the Finnish island region of Åland. Four of the other regions in the top 10 with the highest equipment rates for utility vehicles were Greek and two were from Spain, with Burgenland in eastern Austria and the French island of Corse (data for the end of 2013) completing the list. As such, the majority of the top 10 regions with the highest equipment rates were located in southern Europe. At the other end of the ranking, the 10 regions with the lowest equipment rates for utility vehicles contained three predominantly urban regions from Germany (Berlin, Bremen and Hamburg) and three Romanian regions, as well as the Croatian and British capital city regions (NUTS level 1 for London), Lithuania (which is one region at this level of detail) and Portugal (for which only national data for the end of 2013 are available).

**Map 11.3** provides a regional breakdown of the equipment rate for utility vehicles across all NUTS level 2 regions. There were 60 regions in the EU-28 which had more than 110.0 utility vehicles per 1 000 inhabitants at the end of 2014 (as shown by the darkest shade of green in **Map 11.3**), with this rate exceeding 200.0 per 1 000 inhabitants in Valle d'Aosta/Vallée d'Aoste, Åland and the Greek island region of Kriti. A majority of these 60 regions were concentrated in just three of the EU Member States: 18 regions were located in France, 13 in Spain and 11 in Greece. The remainder of the 60 regions included four of the five Finnish regions, five of the nine Austrian regions, Cyprus and Malta (both single regions at this level of detail), as well as three Italian regions, two German regions and one region each from the Netherlands and Poland.

A total of 30 regions recorded equipment rates for utility vehicles that were below 50.0 vehicles per 1 000 inhabitants at the end of 2014 and these are shown in the lightest shade of green in **Map 11.3**. Mirroring the situation for the passenger car motorisation rate, all of the Romanian regions except for the capital city region figured in this list along with several (three out of seven) Hungarian regions. The list of regions with low equipment rates also included the capital city regions of Germany and the United Kingdom along with a number of predominantly urban regions from both of these Member States, for example, Hamburg and Düsseldorf in Germany, or Merseyside and Northumberland and Tyne and Wear in the United Kingdom.

Reflecting its mountainous terrain and reliance on short sea shipping, the equipment rate for utility vehicles was generally low in Norway: all seven regions recorded equipment rates that were lower than that recorded in London. Equipment rates for utility vehicles were also relatively low in Turkey, with 12 out of 26 regions recording rates below 50.0 vehicles per 1 000 inhabitants.

## Road freight

The ability to move goods safely, quickly and cost-efficiently to markets is important for international trade, national distributive trades and economic development. Strains on transport infrastructure (such as congestion) and the environmental impact of transport are two of the issues faced by road freight service providers.

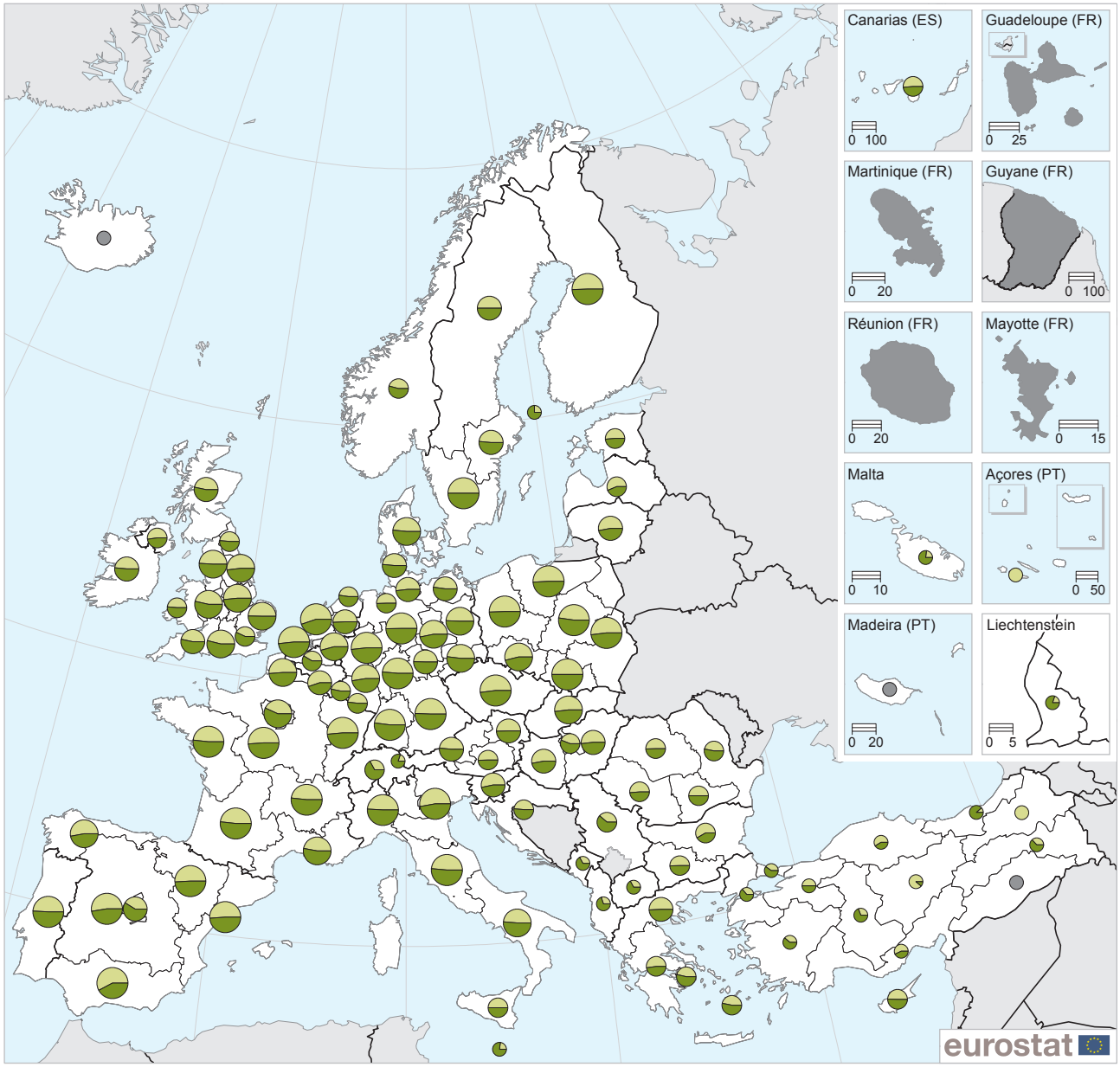
Two types of information are provided in **Map 11.4**. Firstly, the size of the pie chart shown for each NUTS level 1 region is determined by the overall level of road freight transported (loaded and unloaded, expressed in million tonne-kilometres (tkm)), with five different sizes used to display the different amounts of freight. It should be noted that the amount of freight is determined, to some extent, by the size of each region, with regions characterised by a large area normally transporting more freight. Secondly, the split within the pie chart shows whether more road freight was loaded or unloaded in the region. Note that all loading and unloading of freight is included, regardless of whether the goods were transported within the region, to or from another region in the same country, or crossed international borders; the tkm are calculated based on the total kilometres transported within the EU-28 between loading and unloading, not just the kilometres transported within the region.

In 2014, the NUTS level 1 region with the highest level of road freight loaded and unloaded was Nordrhein-Westfalen in Germany, 151 billion tkm. Among the 97 regions for which data are available, 28 reported at least 45 billion tkm of road freight (as shown by the largest pie charts in **Map 11.4**). These 28 regions were mainly concentrated in the largest EU Member States, with the notable exception of the United Kingdom (perhaps reflecting, at least in part, that the United Kingdom is not part of mainland Europe), and were spread across Germany, Spain, France, Italy and Poland, with one region each from Belgium, the Czech Republic (which is only one region at this level of detail), the Netherlands, Portugal, Finland and Sweden.

The four EU regions with less than 1.0 billion tkm of road freight (as shown by the smallest pie charts) were all relatively small island regions, namely: Malta, Åland in Finland and the two Portuguese autonomous regions of Madeira and Açores. Most of the regions from the non-member countries shown in **Map 11.4** also had relatively low levels of road freight transport, but it should be borne in mind that the indicator used concerns the amount of freight within the EU-28, and so by definition excludes national road freight transport and freight transport with other non-member countries.

The division of road freight between that loaded and unloaded also identified a number of smaller regions as having particular situations. Malta relies heavily on imports of goods and so unsurprisingly the share of

**Map 11.4:** Road freight transport within the EU-28 according to region of loading/unloading, by NUTS 1 regions, 2014 (1)
(million tkm and %)




(million tkm and %)

EU-28 = 50.3 % loaded; 49.7 % unloaded.

- Loaded
- Unloaded
- Data not available

- < 1 000
- 1 000 – < 15 000
- 15 000 – < 30 000
- 30 000 – < 45 000
- >= 45 000

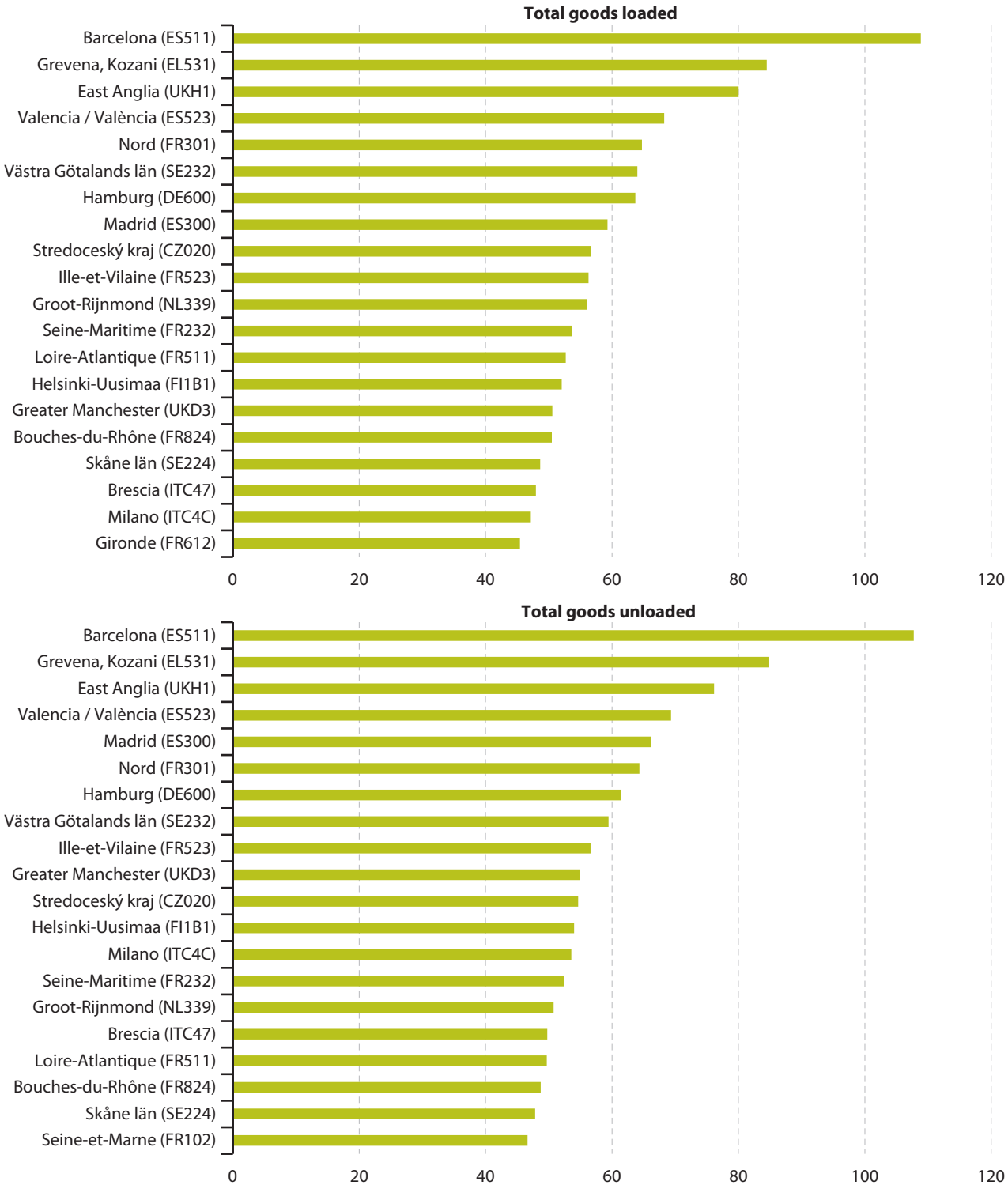
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Serbia: national data. Região Autónoma da Madeira (Portugal), Iceland and Güneydoğu Anadolu (Turkey): total is 0 and therefore shares can not be calculated. EU-28: estimate made for the purpose of this publication.

*Source:* Eurostat (online data code: road_go_ta_ru)

**Figure 11.2:** National road freight transport, 20 largest NUTS 3 regions in the EU, 2014 (1)
(million tonnes)




(1) It is important to note that whereas Map 4 is based on the combination of the quantity of road freight and the distance (producing a value in tkm), Figure 2 looks at just the quantity of road freight loaded and unloaded (in tonnes); furthermore, the data in Figure 2 concern only road freight within national borders whereas Map 4 concerns all road freight within the EU-28. Greater Manchester and East Anglia (the United Kingdom): NUTS level 2. Départements d'outre-mer (France) and Malta: not available.

*Source:* Eurostat (online data codes: road_go_na_rl3g and road_go_na_ru3g)

unloaded road freight was high, 76.9 %, more than in any other NUTS level 1 region. Åland reported only a slightly lower share for unloaded road freight, 75.0 %, followed by six capital city regions — from Germany, Spain, Belgium, France, the United Kingdom and Hungary — where shares of unloaded road freight ranged between 59.3 % and 55.7 %. The share of unloaded road freight was greater than 50 % in 10 further German regions, eight additional regions from the United Kingdom, four more regions from each of France and Italy, two regions from Greece, as well as Ireland, Croatia, Cyprus and Luxembourg (which are each one region at this level of detail), the capital city regions from Poland, Portugal and Sweden and one non-capital city region in each of the Netherlands, Austria and Romania.

Six regions reported that the share of loaded road freight was higher than the share of unloaded road freight by at least 10 percentage points: the Região Autónoma dos Açores in Portugal, Severna i yugoiztochna Bulgaria, Sur in Spain (which has a number of large coastal ports), Latvia (one region at this level of detail), West-Nederland (which includes the port city of Rotterdam) and the Belgian Région Wallonne.

It is important to note that whereas **Map 11.4** is based on the combination of the quantity of road freight and the distance (producing a value in tkm), **Figure 11.2** looks at just the quantity of road freight loaded and unloaded (in tonnes) and is based on a finer regional analysis, at NUTS level 3. Furthermore, the data in **Figure 11.2** concern only road freight within national borders whereas **Map 11.4** concerns all road freight within the EU-28.

The lists of regions with the highest quantities of loaded and unloaded road freight were almost the same: both were headed by Barcelona (Spain), with a total of close to 110 million tonnes. In fact, there were 19 regions which appeared in both lists with the only exceptions being the French regions of Gironde (for total goods loaded) and Seine-et-Marne (for total goods unloaded), both ranked in 20th place. Of the 21 regions appearing in one or other of the lists, 13 were coastal regions, with many of these important points for loading and unloading sea freight, notably Groot-Rijnmond in the Netherlands which includes the EU's largest sea port, Rotterdam. Among the eight remaining regions that were located inland, Hamburg has a sea port and other regions had significant inland waterways/ports (such as Seine-et-Marne, next to the French capital city region). Also included in these rankings were: the Spanish and Finnish capital city regions; Stredoceský kraj next to the Czech capital city region; large cities like Milano in Italy or Greater Manchester in the United Kingdom; and the Greek region of Grevena, Kozani (Kozani is a major transport node between Kentriki Makedonia, Ipeiros and Thessalia).

## Road safety

This chapter concludes with an analysis of data relating to road safety: a separate article (on Statistics Explained) looks at regional road safety statistics in more detail (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Road_safety_statistics_at_regional_level).

The likelihood of a road accident can be linked to a number of factors, such as: the extent of vehicle ownership (motorisation rate), the number of kilometres driven, the extent and quality of the road infrastructure, the characteristics of the vehicle stock (such as the average age and engine size, as well as the presence/absence of safety features), climatic and geographic conditions, population density, and national regulations that apply to vehicles and drivers. Driver behaviour can also be linked to the number of road accidents, for example, inadequate training or experience, a lack of concentration, dangerous driving, speeding or drink-driving.

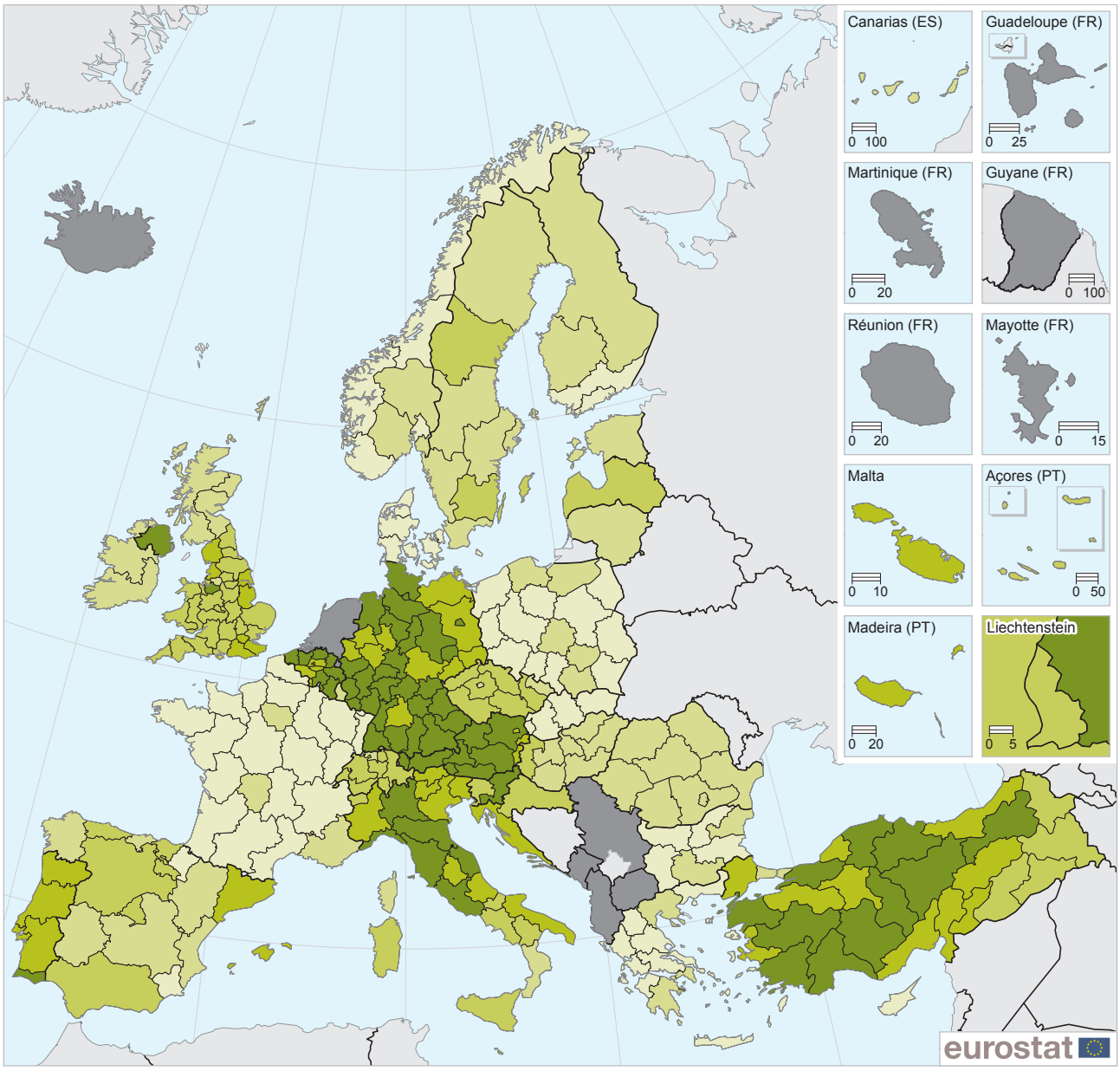
The total number of people injured in road traffic accidents in the EU-28 was around 1.4 million in 2014 (excluding the Netherlands, older data for Ireland and Slovakia). The number of road traffic injuries in the EU has been on a downward track since 2000, when the number of injuries (excluding Bulgaria and Portugal) was over 1.9 million.

### *Lowest incidences of road traffic injuries were in Greek and Danish regions*

The number of persons injured in road traffic accidents per million inhabitants in 2014 is shown in **Map 11.5**. Note that no data are available for the Netherlands; data for Slovakia are from 2013 and for Ireland from 2012. The results should be interpreted with care as, for example, road accidents may involve non-residents travelling through a region or staying in a region on holiday, or vehicles which are in transit through a region. As such, and other things being equal, regions that have transit corridors or regions with high numbers of tourists may well experience a higher frequency of injuries and fatalities.

The lowest incidence of road traffic injuries relative to population size was in the Greek region of Kriti, where there were 344 persons injured per million inhabitants in 2014. Two other Greek regions (Thessalia and Dytiki Makedonia) and two Danish regions (Sjælland and Hovedstaden) also reported less than 500 persons injured per million inhabitants. More generally, injury rates below 1.25 thousand per million inhabitants (the lightest shade of green in **Map 11.5**) were reported for each of the regions of Denmark and Slovakia, most of rural France, many of the regions in Poland, Bulgaria and Greece, as well as two regions each in Spain and Finland, and Cyprus (one region at this level of detail).

**Map 11.5:** Persons injured in road accidents, by NUTS 2 regions, 2014 ([1])
(per million inhabitants)




(per million inhabitants)

- < 1 250
- 1 250 – < 2 250
- 2 250 – < 3 500
- 3 500 – < 4 500
- >= 4 500
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

([1]) Slovakia: 2013. Ireland: 2012. London (the United Kingdom): NUTS level 1. Estonia, Luxembourg and Switzerland: definition differs.
*Source:* Eurostat (online data code: tran_r_acci)

Capital city regions tended to report somewhat lower ratios of road traffic injuries to population, as 16 of the 27 capital city regions for which data are available reported less than 2.25 thousand injuries per million inhabitants (as covered by the two lightest shades of green in **Map 11.5**). There were seven capital city regions with 3.5 thousand or more injuries per million inhabitants (as shown by the two darkest shades of green in **Map 11.5**).

### *Many German, Austrian and Belgian regions had relatively high ratios of road traffic injuries to population*

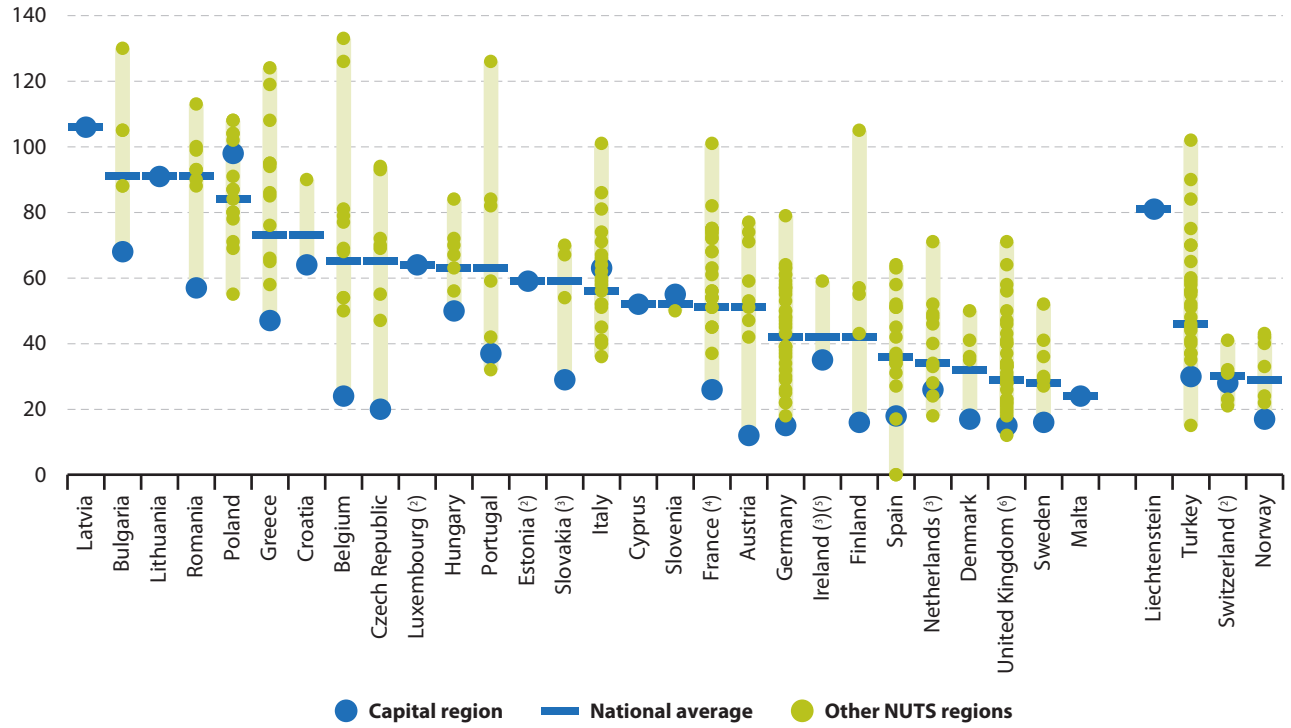
More than half of the 54 regions with the highest ratios of road traffic injuries to population (4.5 thousand injuries or more per million inhabitants) were in Germany (28 regions), with seven of the nine Austrian regions (the exceptions were the capital city region and the relatively flat easternmost region of Burgenland) also in this list, along with 7 of the 11 Belgian regions. The remaining regions with relatively high ratios of road traffic accidents were located in Italy, Spain, the United Kingdom, Portugal and Slovenia. The highest incidences of road traffic injuries across all EU regions were recorded in the Ciudad Autónoma de Melilla, Liguria in Italy, and five Austrian regions.

### *Just over 26 thousand deaths on the EU's roads in 2013*

The total death toll on the EU-28's roads has approximately halved over the last two decades and stood at an estimated 26 thousand fatalities in 2013. **Figure 11.3** presents data on road traffic fatalities relative to population size. As was the case for the data on injuries shown in **Map 11.5**, capital city regions tended to have relatively low ratios for road fatalities: Italy, Poland and Slovenia were the only multi-regional EU Member States where the value for this ratio in the capital city region was above the national average. In fact, in many Member States, the lowest regional ratio of road traffic fatalities to population size was recorded in the capital city region.

Another characteristic of the regional incidence of road traffic fatalities is the great range in values across regions within individual EU Member States. Finland, Portugal and Spain had particularly diverse ratios, often magnified by one high rate as was the case in Åland in Finland and Alentejo in Portugal or one low rate as was the case in the Ciudad Autónoma de Melilla in Spain. Some of these particularly high or low rates in small regions may be exceptional results, as the absolute number of road traffic fatalities may be low and quite

**Figure 11.3: Fatal road accidents, by NUTS 2 regions, 2014 (1)**
(per million inhabitants)




(1) The light green shaded area shows the range of the highest to lowest region for each country. The blue bar shows the national average. The blue circle shows the capital city region. The green circles show the other regions. Iceland, Montenegro, the former Yugoslav Republic of Macedonia, Albania and Serbia: not available.
(2) Definition differs.
(3) 2013.
(4) Guadeloupe and Mayotte: not available. Départements d'outre-mer: 2011.
(5) Provisional.
(6) London: NUTS level 1.

*Source:* Eurostat (online data code: tran_r_acci)

volatile. For example, Åland had a population of just 28.9 thousand at the beginning of 2015 and there was just one road traffic fatality in each of 2011 and 2012, followed by three fatalities in 2013 and four in 2014, resulting in a volatile ratio of fatalities to population size. The range between the regions with the highest and lowest ratios of road traffic fatalities to population was particularly high in Belgium: with a high of 133 fatalities per million inhabitants in the Prov. Namur, which was some 109 fatalities per million inhabitants higher than in the Belgian capital city region.

Overall, the regions with the highest number of road fatalities per million inhabitants tended to be located in the Baltic Member States, eastern Europe and Greece. There were also a small number of regions with high ratios in western Europe (Belgium, Luxembourg and France), southern Europe (Portugal and Italy), and northern Europe (Finland).

# Data sources and availability

## Legal basis

Regional data on vehicle stocks are currently collected by EU Member States, EFTA and candidate countries on a voluntary basis. The legal basis for road transport statistics is Regulation (EU) No 70/2012 of the European Parliament and of the Council of 18 January 2012.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Nearly all of the regional data in this chapter were available in NUTS 2013 with only a small amount of data converted from NUTS 2010. The conversion of the data has had the following consequences at NUTS level 1: data for the French départements d'outre-mer are not available. The conversion of the data has had the following consequences at NUTS level 2: data for London are shown at NUTS level 1. The conversion of the data has had the following consequences at NUTS level 3: data for a number of regions are not available and data for Greater Manchester and East Anglia (the United Kingdom) are shown at NUTS level 2.

## Indicator definitions

### ROAD TRANSPORT VEHICLES

Passenger cars are road motor vehicles, other than mopeds or motor cycles, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). The term passenger cars also covers microcars (small cars which, depending on individual EU Member State legislation, may need no permit to be driven and/or benefit from lower vehicle taxation), taxis and other hired passenger hire cars, provided that they have fewer than 10 seats in total. This category may also include vans designed and used primarily for the transport of passengers, as well as ambulances and motor homes. Excluded are light goods road vehicles, as well as motor coaches, buses and mini-buses/mini-coaches.

The term public transport road passenger vehicle is used to cover minibuses, mini-coaches, buses, motor coaches and trolleybuses used to convey passengers by road. A minibus/mini-coach is a road motor vehicle designed to carry 10–23 passengers (including the driver); it may carry seated passengers or both seated and standing passengers. A bus is a road motor

vehicle designed to carry more than 24 passengers (including the driver); it may be constructed with areas for standing passengers, to allow frequent passenger movement, or designed to allow the carriage of standing passengers in the gangway. A motor coach is a road motor vehicle designed to seat 24 or more passengers (including the driver) and constructed exclusively for the carriage of seated passengers. A trolleybus is a road vehicle designed to seat more than nine passengers (including the driver), which is connected to electric conductors and which is not rail-borne; this term covers vehicles which may be used either as trolleybuses or as buses, if they have a motor independent of the main electric power supply.

Utility vehicles correspond to the sum of lorries, road tractors and special vehicles. Trailers and semi-trailers are excluded. Included are: light goods road vehicles with a gross vehicle weight of not more than 3 500 kg, designed exclusively or primarily, to carry goods (for example, vans and pick-up); heavy goods road vehicles with a gross vehicle weight above 3 500 kg, designed, exclusively or primarily, to carry goods; road tractors (road motor vehicle designed, exclusively or primarily, to haul other road vehicles which are not power-driven (mainly semi-trailers); special purpose road motor vehicles designed for purposes other than the carriage of passengers or goods. The latter category includes: fire brigade vehicles; mobile cranes; self-propelled rollers; bulldozers with metallic wheels or tracks; vehicles for recording film, radio and TV broadcasting; mobile library vehicles; towing vehicles for vehicles in need of repair; other special purpose road motor vehicles.

## ROAD FREIGHT TRANSPORT

National road freight transport is defined as road transport between two places (a place of loading and a place of unloading) located in the same country by a vehicle registered in that country.

International road freight transport is composed of four categories:

- international loaded, where the place of the loading of goods is in the reporting country (in other words the country in which the vehicle performing the transport is registered) and the place of unloading is in a different country;
- international unloaded, where the place of the unloading of goods is in the reporting country and the place of loading is in a different country;
- cross-trade, where the places of loading and unloading are two different countries, neither of which are the one where the vehicle is registered;
- cabotage, where the places of loading and unloading are the same country, and this is not the one where the vehicle is registered.

Total international road freight transport therefore includes transport performed, completely or partially, outside of the country where a vehicle is registered.

## ROAD SAFETY

Two types of casualties are distinguished: persons killed and persons injured. A person who has been killed is any person killed immediately or dying within 30 days as a result of an injury accident, excluding suicides. An injured person is any person who, as result of an injury accident, was not killed immediately or did not die within 30 days, but sustained an injury, normally needing medical treatment, excluding attempted suicides. Persons with lesser wounds, such as minor cuts and bruises are not normally recorded as injured.

# 12 Agriculture

This chapter presents regional agricultural statistics within the European Union (EU) and provides a selection of Eurostat's data within this domain, including information covering economic agricultural accounts, livestock numbers, milk production, the agricultural census and an agri-environmental indicator on soil erosion.

Although the economic significance of agriculture within the EU economy has been in almost perpetual decline over the last 50 years, it remains a vital sector. Agricultural products form a major part of Europe'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: food and drink for human consumption; animal feed; and inputs used in a variety of non-food manufacturing processes.

The links between the richness of the natural environment and farming practices are complex. Many valuable habitats in Europe are maintained by extensive farming, and a wide range of wild species rely on this for their survival. By contrast, inappropriate agricultural practices and land use can also have an adverse impact on natural resources, for example, soil, water and air pollution, the fragmentation of natural habitats and the loss of wildlife. The sustainable development of rural areas is one of the key objectives of the EU's common agricultural policy (CAP).

## Common agricultural policy (CAP)

Launched in 1962, the CAP sets conditions for farmers to fulfil multiple functions, including their principal aim of producing high-quality, safe food. Significant reforms of the CAP have taken place in recent years, most notably in 2003, 2008 and 2013. These have sought to make the EU's agricultural sector more market-oriented, ensure that safe and affordable food continues to be produced, while respecting environmental and sustainability concerns.

In December 2013, the latest reform of the CAP was formally adopted by the European Parliament and the Council. It is based on four new legislative instruments that aim to simplify the rules of the CAP and which cover:

- support for rural development, Regulation (EU) No 1305/2013;
- financing, management and monitoring of the CAP, Regulation (EU) No 1306/2013;
- direct payments, Regulation (EU) No 1307/2013;
- measures linked to agricultural products, Regulation (EU) No 1308/2013.

The main elements of the CAP post-2013 concern: a fairer distribution of direct payments (with targeted support and convergence goals); strengthening the position of farmers within the food production chain (such as through: the promotion of professional and inter-professional organisations; changes to the organisation of the sugar and wine sectors; revisions to public intervention and private storage aid; and new crisis management tools); and continued support for rural development, safeguarding the environment and biodiversity.

The CAP is financed by two funds: on the one hand, the European Agricultural Guarantee Fund (EAGF) finances direct payments to farmers, as well as measures to respond to market disturbances; on the other, the European Agricultural Fund for Rural Development (EAFRD) finances the rural development programme (see below for more details).

Almost one third (30 %) of direct payments in the post-2013 CAP are linked to sustainable and environmentally-friendly practices, such as crop diversification, the maintenance of permanent grassland, or the protection of ecological areas on farms; there is also specific aid for organic farming. Furthermore, the CAP helps farmers by aiming to stimulate employment, entrepreneurship and the diversification of farms beyond food production. Specific schemes are in place, for example, providing support to young farmers during their first five years in the sector.

These changes to the CAP are designed to make it more effective in delivering a competitive and sustainable agriculture sector. The reforms may also be seen within the context of helping the EU attain its targets within the Europe 2020 strategy, while taking account of the wealth and diversity of the agricultural sector across EU regions. For more information on the Europe 2020 strategy within a regional context, please refer to Chapter 1.

### GREEN PAYMENTS

As part of the reform of the CAP and with the aim of moving towards a fairer and more targeted distribution of support, the schemes for direct payments to farmers have been changed. As from 2015, agricultural holdings will have access to at least three schemes in all EU Member States, one of which is green payments. Under the green payment, each (active) holding will receive a payment per hectare for respecting certain agricultural practices beneficial for the climate and the environment. The basic measures foreseen are maintaining permanent grassland, crop diversification, and maintaining a so-called ecological focus area of at least 5 % of the holding's arable area for farms with an area larger than 15 hectares.

### SOIL EROSION

In the EU, one of the main policy instruments to promote a more environmentally-friendly agriculture was introduced by the 2003 CAP reform, through so-

called cross-compliance. According to this mechanism, the support payments were linked to the respect of environmental, animal welfare and food safety standards. This led to the definition of good agricultural and environmental conditions, of which two concerned the prevention of soil erosion and the maintenance of soil organic matter.

## Rural development

As noted above, Regulation (EU) No 1305/2013 provides for the reform of rural development policy post-2013; it is the latest in a series of policy developments aimed at developing Europe's rural areas. Three long-term strategic objectives have been identified in relation to EU rural development policy during the period 2014–20, in line with Europe 2020 and CAP objectives: improving the competitiveness of agriculture; safeguarding the sustainable management of natural resources and climate action; and ensuring that the territorial development of rural areas is balanced. The European Agricultural Fund for Rural Development (EAFRD) is designed to help: foster the competitiveness of agriculture and ensure the sustainable management of natural resources; support action related to the climate; and achieve a balanced territorial development of rural economies and communities, including the creation and maintenance of employment. The policy will be implemented through national and/or regional rural development programmes (RDPs), which should be constructed so as to: strengthen the content of rural development measures; simplify rules and/or reduce related administrative burdens; and link rural development policy more closely to other funds.

Aside from the EAFRD, several other EU funds provide support for rural areas, namely: the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund. All of these European structural and investments funds (ESIF) are coordinated with a set of common provisions that include the requirement to establish clear links to the Europe 2020 strategy, concentrating support on achieving the Europe 2020 headline targets. ESIF funding for rural development amounts to almost EUR 96 billion for the programming period of 2014–20.

# Main statistical findings

## Economic accounts for agriculture

In 2015, agriculture in the EU-28 generated around EUR 164 billion of value added, some 1.3 % of the added value for the whole economy. The contribution of agriculture fell from 1.5 % a decade earlier (2005), to a low of 1.2 % in 2009, before increasing to 1.4 % in 2011 where it remained in 2012 and 2013; in 2014 it dropped back to 1.3 %. The regional analysis of agricultural accounts presented in **Figure 12.1** and **Map 12.1** is based on data for the reference periods of 2013 and 2014 (as the regional data takes somewhat longer to collect and process), when agricultural value added was EUR 172 billion and EUR 166 billion respectively.

The output of the agricultural industry can be analysed according to four components, as shown in **Figure 12.1**:

- output from crop growing including market gardening and horticulture;
- output from the farming of animals;
- agricultural services such as contract work;
- inseparable non-agricultural secondary activities, such as processing, grading or packaging of agricultural products, or activities using the means of agricultural production (for example agro-tourism, recreation activities and landscaping services).

In 2014, half of the output of the agricultural industry in the EU-28 was crop output (50.6 %), with animal output (41.0 %) accounting for most of the rest. Agricultural services generated 4.8 % of the total and inseparable secondary activities the remaining 3.7 %.

***Andalucía had the highest agricultural output in the EU***

The 20 NUTS level 2 regions shown in **Figure 12.1** had a combined agricultural output of EUR 112.8 billion, approximately two thirds of the total output for all regions in the EU-28. Eleven of these regions were in western EU Member States — France, the Netherlands (2012 data), Germany (2013 data) and Ireland — and the remaining nine in southern Member States — Spain (2013 data) and Italy. The two regions with the highest levels of output, Andalucía in Spain and Bretagne in France, each accounted for 5–6 % of the total agricultural output of the EU-28.

Four fifths (80.2 %) of agricultural output in Andalucía came from crops, a greater share than in any of the other 20 regions with the highest levels of agricultural output. Eight of these regions recorded more than half of their agricultural output from crops, with this share falling below one quarter in the Southern and Eastern region of Ireland and in Bretagne. Unsurprisingly, the two regions with the lowest contribution from crops had the highest contributions from animal output: in the Southern and Eastern region of Ireland the share

from animal output was 71.1 %, while in Bretagne it was 68.5 %. Among the remaining regions shown in **Figure 12.1**, there were five others where more than half of agricultural output came from animal farming, they were: Weser-Ems (Germany), Cataluña (Spain), Lombardia (Italy), Pays de la Loire (France) and Noord-Brabant (the Netherlands).

The share of total agricultural output that was derived from agricultural services was highest in the Italian island region of Sicilia, which was the only one of these 20 regions to record a share that exceeded 10 %, and in the two Dutch regions (Zuid-Holland and Noord-Brabant) where the relative weight of agricultural services was slightly less than one tenth of the total. At the other end of the range, the lowest shares (less than 2 %) of total agricultural output from agricultural services were recorded in four Spanish regions (Andalucía, Cataluña, Castilla-la Mancha and Castilla y León).

Secondary activities also contributed less than 10 % of total agricultural output in most regions, the exceptions being two French regions: Poitou-Charentes (21.8 %) and Champagne-Ardenne (13.6 %). By contrast, in 6 of the 20 regions the share of secondary activities was less than 1 % and these included three other French regions (Aquitaine, Bretagne and Pays de la Loire), as well as Weser-Ems (Germany), Southern and Eastern (Ireland) and Zuid-Holland (the Netherlands).

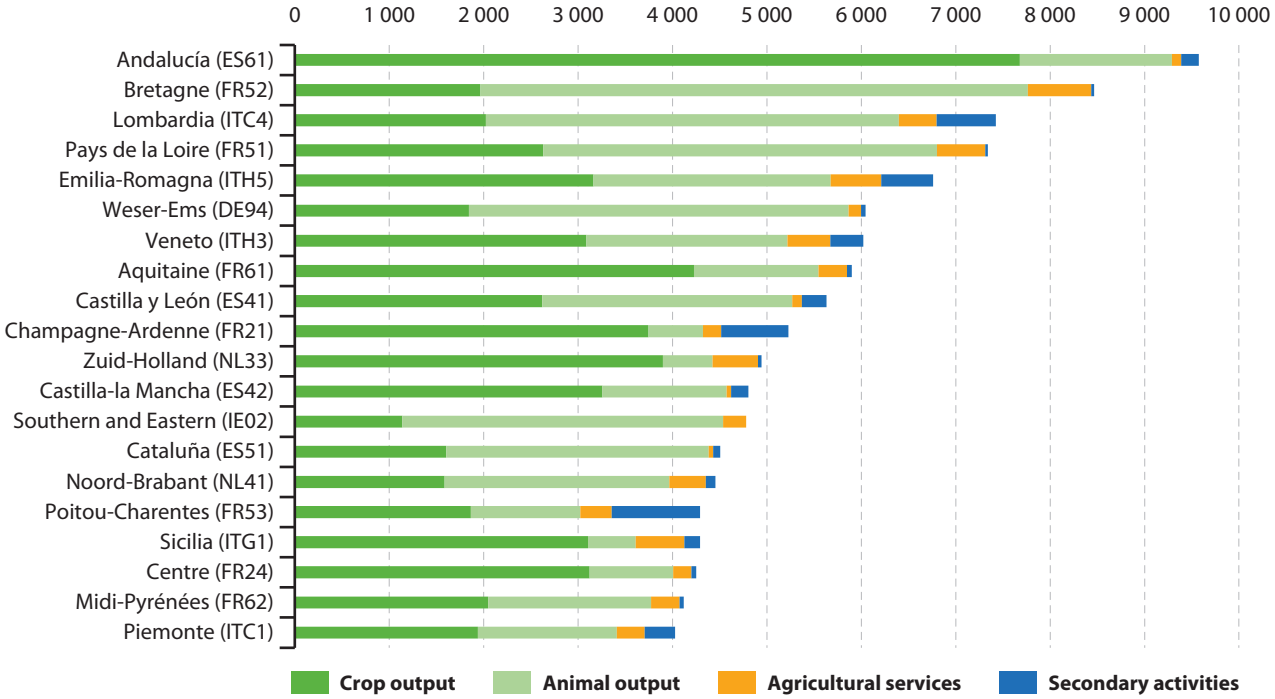
***East–west divide for agricultural labour productivity***

The labour productivity data presented in **Map 12.1** have been compiled using employment data based on annual work units (AWUs), in other words adjusted to take account of part-time and seasonal work. Across the EU-28, value added per annual work unit was EUR 17.3 thousand in 2013.

The relationship between labour input and value added for agriculture varies greatly between EU Member States and also between regions. An example of this can be seen in the United Kingdom: the highest labour productivity of all EU regions was reported for Greater Manchester, at EUR 192.5 thousand per annual work unit, while the ratio in the neighbouring region of Lancashire was EUR 2.9 thousand per annual work unit, the eighth lowest level of labour productivity among the 231 EU regions shown in **Map 12.1**. Although the range between the highest and lowest regional values for agricultural labour productivity was much less than in the United Kingdom, Slovakia and Ireland both showed an even higher regional diversity, while the regions in Hungary, the Czech Republic and Romania were more homogeneous.

Agricultural labour productivity was at least EUR 45.0 thousand per annual work unit in 42 of the NUTS level 2 regions in the EU shown in the darkest shade of green

**Figure 12.1: Main output components for the top 20 NUTS 2 regions with the highest output of the agricultural industry, 2014 (1)**
(EUR million)




(1) The figure shows the 20 regions in the EU-28, EFTA and candidate countries with the highest levels of ouptut for the agricultural industry. Bulgaria, Denmark, Germany, Greece, Spain, Hungary, Austria, Slovakia, the United Kingdom and Switzerland: 2013. The Czech Republic, Croatia, the Netherlands, Romania, Finland and Sweden: 2012. Estonia: 2011. Belgium, Poland, Slovenia and Norway: national data. Belgium, Poland, Iceland, Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (online data codes: agr_r_accts and aact_eaa01)

in **Map 12.1**, with these regions primarily situated in western Member States: 11 British regions, nine Dutch regions, seven French regions and three (NUTS level 1) German regions. The remainder of the 42 regions with relatively high agricultural labour productivity were located at opposite ends of the EU, with four Danish regions and the Swedish capital city region in the north and five northern Italian regions and two north-eastern Spanish regions in the south.

A similar number (44) of regions are shown in **Map 12.1** with the lightest shade of green and these had labour productivity that was below EUR 7.0 thousand per annual work unit. They were mainly in eastern EU Member States and included: all eight Romanian regions, 14 of the 16 Polish regions, five of the seven Hungarian regions, three of the six Bulgarian regions and two of the four Slovakian regions, as well as single regions from each of the Czech Republic and Slovenia (for which only national data are available). Elsewhere in the EU, such low levels of labour productivity in agriculture were also observed in four of the Greek regions, two regions from each of Portugal and the United Kingdom, one of the two regions in Ireland, and Latvia (which is one region at this level of detail).

## Livestock: cattle

The regional data presented in **Map 12.2** come from the multi-yearly farm structure survey (FSS) and show the change in cattle numbers between 2003 and 2013; note that shorter time series are presented for some regions. Changes in the number of cattle have an impact on milk and meat production and may also result in environmental impacts, for example, in terms of land use (for fodder or pasture) and methane production.

The overall number of cattle in the EU (excluding Croatia) was more than 92 million in 2003, but fell in each successive farm structure survey over the last decade to a low of 86.9 million by 2013; as such, the average change in the number of cattle was −0.6 % per annum.

In 2013, only 60 of the 233 NUTS regions of the EU shown in **Map 12.2** had at least as many cattle as some 10 years earlier (shown by the darkest shade of green). While these were spread across 17 different EU Member States, they were concentrated in the Netherlands, France (10 regions each), Poland (eight regions) and Hungary (five regions), and to a lesser extent in Spain, the United Kingdom (four regions each), Italy, Austria and Portugal (three regions each). Apart from Poland, these were all western and southern EU Member States, although there were also more isolated increases recorded in numbers of cattle in the north of the EU (Syddanmark and Nordjylland in Denmark, Latvia and Åland in Finland) and some eastern regions of the EU (Yuzhen tsentralen in Bulgaria and Jadranska Hrvatska in Croatia).

***Large numbers of cattle in the Irish regions***

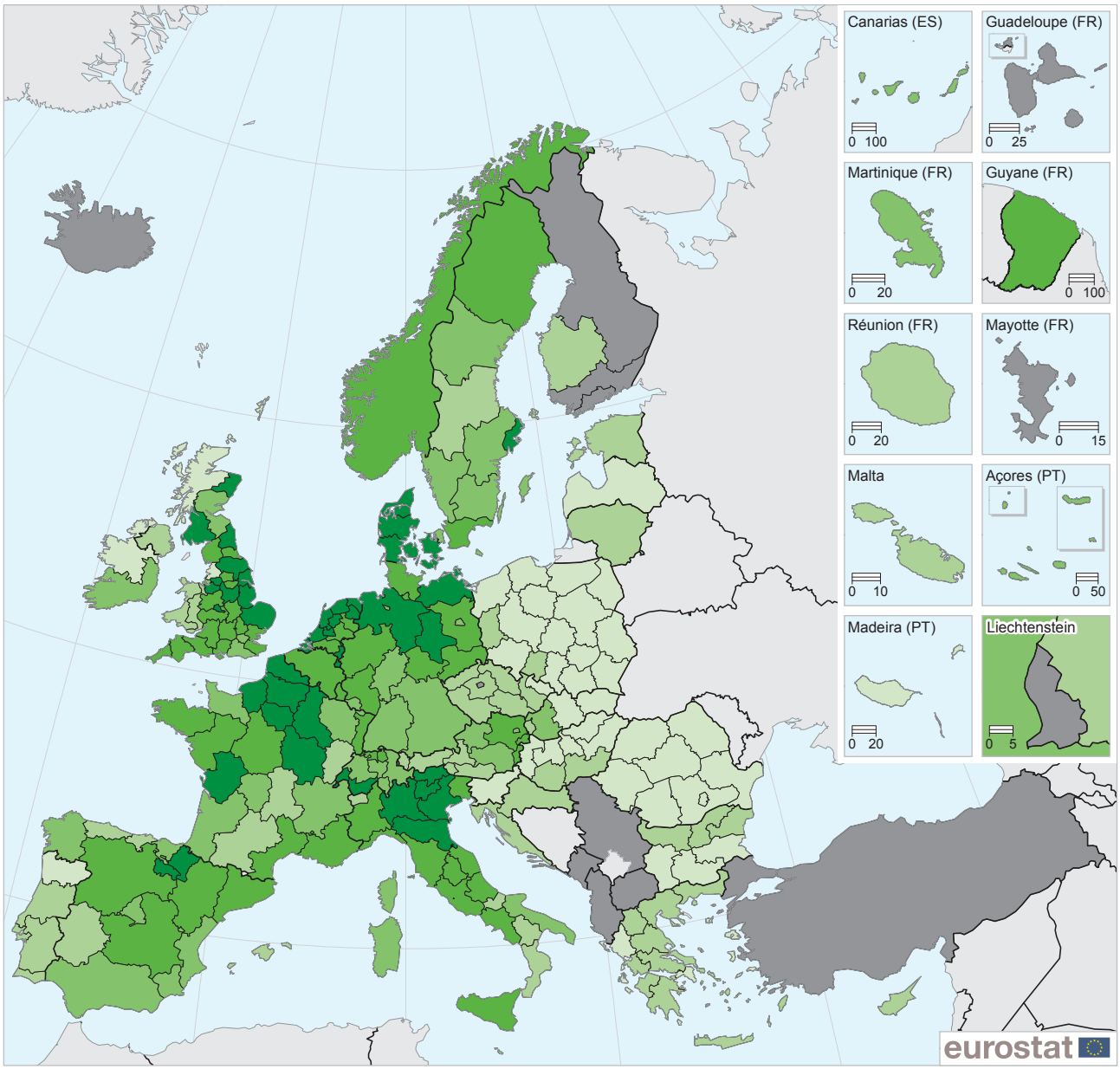
Among the NUTS regions of the EU (as shown in **Map 12.2**), the Irish region of Southern and Eastern had the highest number of cattle (4.3 million) in 2013; it recorded a modest increase in its number of head of cattle during the period 2003–13, rising, on average, 0.2 % per annum. To give some idea of the number of cattle in the Southern and Eastern region of Ireland, there were only six EU Member States with higher numbers at a national level; for comparison, the number of cattle in Southern and Eastern Ireland was more than a quarter of a million above that recorded for the whole of the Netherlands.

In 2013, the southern German region of Bayern (3.3 million head; note this is a NUTS level 1 region) recorded the second highest number of cattle among those EU regions shown in **Map 12.2**. It was followed by the other Irish region — Border, Midland and Western — where there were 2.6 million head. The only other regions in the EU with at least two million head of cattle were the German region of Niedersachsen (2.6 million; also a NUTS level 1 region) and the French regions of the Pays de la Loire (2.5 million) and Bretagne (2.0 million).

An analysis of those regions with relatively large cattle populations — more than one million head of cattle in 2013 — shows there were only four which also recorded any significant increase in their number of cattle between 2003 and 2013, they were: Southern and Eastern Ireland, Basse-Normandie and Rhône-Alpes in France and the Polish capital city region of Mazowieckie. There was no change or relatively modest declines in cattle numbers for the remainder of the regions in the EU with in excess of one million head of cattle in 2013. Among these and over the period 2003–13, Lombardia (Italy) and Northern Ireland (the United Kingdom) were the only regions to record average reductions in their number of head of cattle (both −0.9 % per annum) that were larger in size than the average reduction experienced across the whole of the EU (−0.6 % per annum).

The sharpest regional declines in cattle numbers are shown with the lightest shade of green in **Map 12.2** which presents the 45 regions where the number of head of cattle fell, on average, by more than 2.2 % per year. Unsurprisingly, the sharpest falls were in some regions with very low numbers of cattle, such as the capital city regions of the Czech Republic, Greece, Romania and the United Kingdom. However, among these 45 regions there were several where cattle numbers were quite large, for example: in Veneto (north-eastern Italy) there were still more than three quarters of a million cattle in 2013; the Romanian regions of Nord-Est, Nord-Vest, Sud - Muntenia and Sud-Est each had more than 200 thousand head of cattle in 2013.

**Map 12.1:** Gross value added at basic prices in agriculture, per annual work unit, by NUTS 2 regions, 2013 (1)
(EUR thousand)




(EUR thousand)

EU-28 = 17.3

- < 7
- 7 – < 20
- 20 – < 30
- 30 – < 45
- >= 45
- Data not available

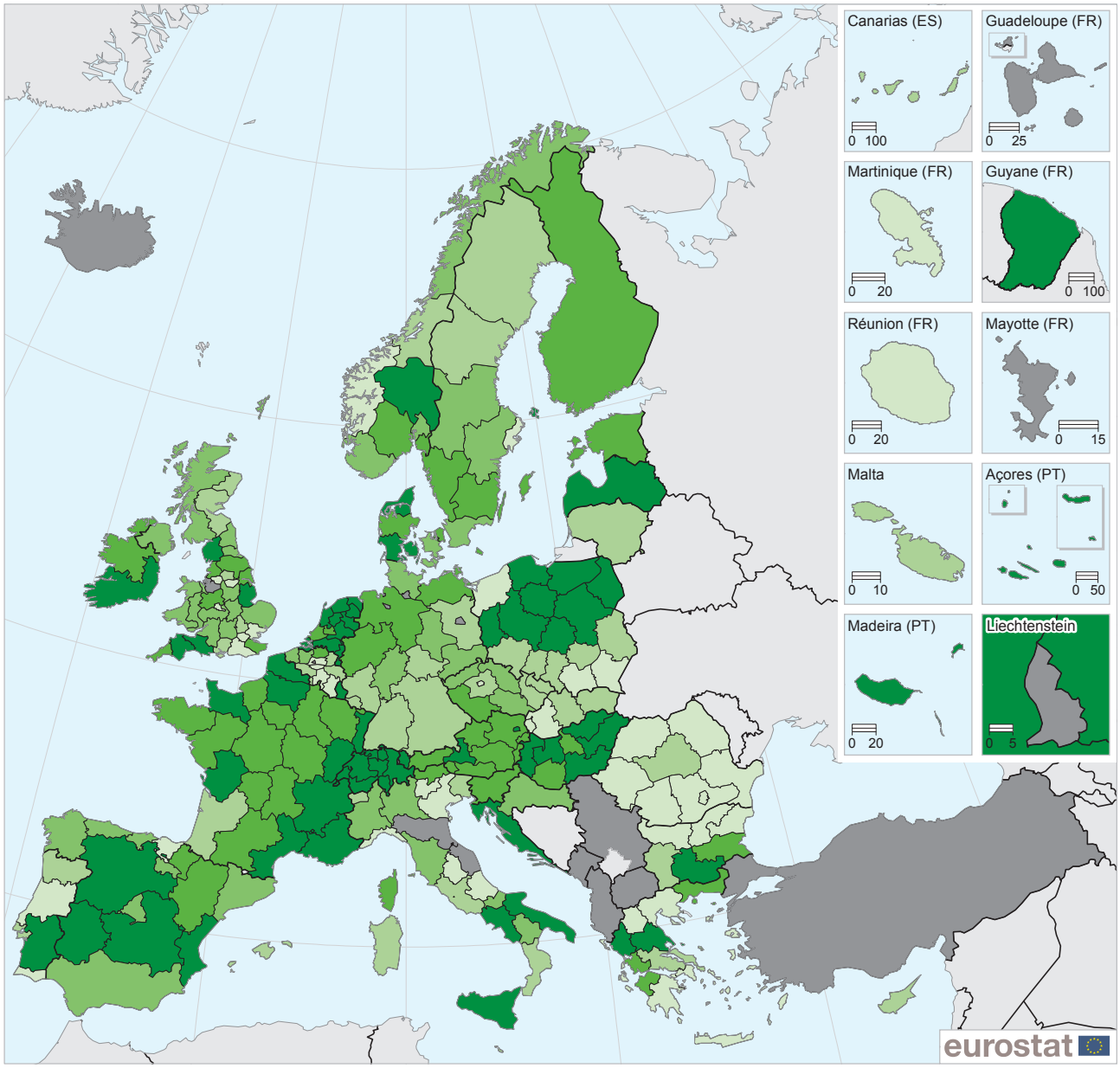
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) Belgium, Slovenia and Norway: national data. Germany and London (the United Kingdom): NUTS level 1. The Czech Republic, Estonia, Croatia, the Netherlands, Poland, Romania, Finland, Sweden and Switzerland: 2010.

*Source:* Eurostat (online data codes: agr_r_accts, aact_eaa01, ef_olfreg and aact_ali01)

**Map 12.2:** Average change in the number of cattle, by NUTS 2 regions, 2003–13 (1)
(% per annum)




(% per annum)

EU-28 = -0.6

- < −2.2
- −2.2 – < −1.2
- −1.2 – < −0.6
- −0.6 – < 0.0
- >= 0.0
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) EU: excluding Croatia. Belgium, Denmark, Départements d'outre-mer (France), the Netherlands, Austria, Finland and the United Kingdom (except for Northern Ireland): 2005–13. Croatia: 2007–13. Switzerland: 2005–10. Germany, Sur (Spain), Finland and London (the United Kingdom): NUTS level 1. Slovenia: national data.

*Source:* Eurostat (online data codes: ef_ls_ovaareg, ef_olsaareg, ef_ls_gzcatl and ef_olslsuft)

## Spotlight on the regions: Latvija, Latvia

**Only 60 of the 233 NUTS regions in the EU for which data are available reported that they had as many cattle in 2013 as had been the case a decade earlier; these regions were spread across 17 different EU Member States and included Latvia (a single region at NUTS level 2), where the number of cattle rose, on average, by 0.9 % per annum from 2003 to 2013.**

***Photo*: Ingii**

## Agricultural products: cows' milk production

In 1984, following years of significant overproduction of milk and milk products, the common agricultural policy (CAP) introduced milk quotas, replacing guaranteed milk prices. In 2009, a decision was taken to prepare for the end of milk quotas by increasing the quotas by 1 % every year over five consecutive years. In April 2015, 31 years after being put into place, dairy quotas were abolished. A separate article (on Statistics Explained) provides more information about the production of milk and milk products during the era of milk quotas (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Milk_and_milk_products_-_30_years_of_quotas).

The diversity of landscapes and climatic conditions within some EU Member States often helps explain regional specialisations as regards dairy farming pasture, which is generally grown in lowland areas with a temperate climate and a relatively high degree of rainfall. This was particularly the case in the Benelux Member States, Denmark, Germany, Ireland, much of France, central Poland, many Alpine regions and western England. In those regions where grassland is rarer (for example, around the Mediterranean or in south-eastern EU regions) dairy farming tends to be relatively uncommon. Indeed, dairy farming is often substituted by sheep (or goat) farming when livestock farmers are confronted with relatively arid landscapes and less favourable climatic conditions; this is also true to some degree in upland regions.

The vast majority of the milk produced within the EU comes from cows. There are, however, significant quantities of milk produced from sheep, goats and buffaloes; this pattern is particularly prevalent in some of the more southern EU Member States. In 2014, the total production of milk was 164.9 billion tonnes, of which 97 % was from cows. About 8 % of this milk was used directly on farms and the remainder was delivered to dairies from which various products could be obtained, such as drinking milk, whey, cheese, milk powder and butter.

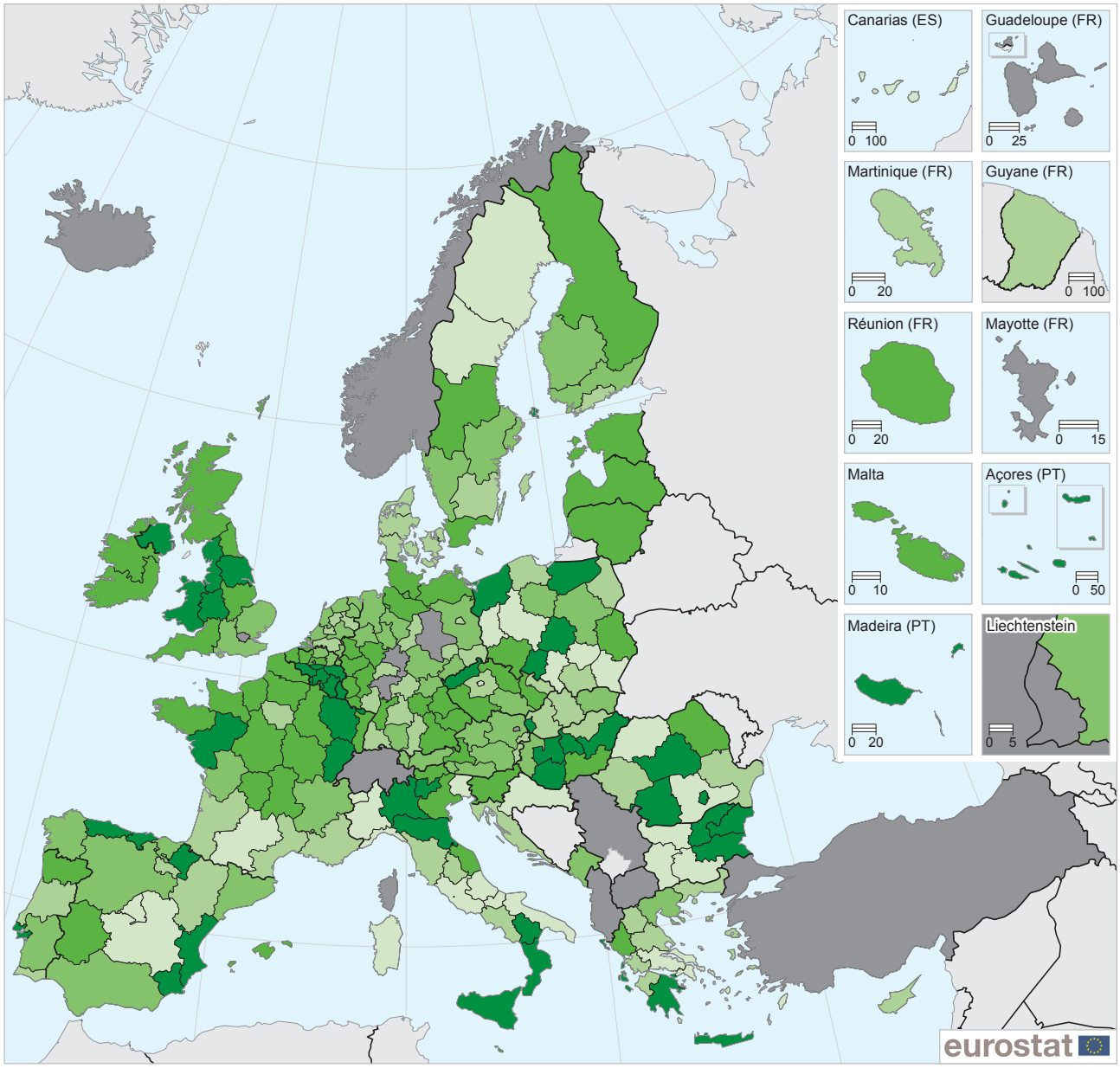
***The vast majority of regions in the EU recorded an increase in cows' milk production***

Regional statistics on the change in the production of cows' milk between 2013 and 2014 are presented at NUTS level 2 in **Map 12.3**. The vast majority of the 236 regions in the EU for which data are available recorded an increase in cows' milk production, with only 30 regions recording a fall. These 30 regions were nearly all in southern and eastern EU Member States with just one region in France and two in Sweden. Particularly large reductions in cows' milk production were recorded in the Greek and Bulgarian capital city regions (where production is relatively low). Reductions in excess of 10 % were also recorded in the Italian regions of Abruzzo and Liguria and the Spanish island region of Canarias, each of these also had relatively low levels of production, and in Yuzhen tsentralen which was the Bulgarian region with the highest regional level of cows' milk production in 2014, at 288 thousand tonnes. Five of the regions where cows' milk production declined between 2013 and 2014 were relatively large producers — more than 500 thousand tonnes — they were: Wielkopolskie in Poland, Piemonte in Italy, Midi-Pyrénées in France, Nord-Vest in Romania and Kontinentalna Hrvatska in Croatia.

Increases in cows' milk production of 6.5 % or more between 2013 and 2014 were reported in 48 regions (the darkest shade of green in **Map 12.3**), with gains rising to 10 % or more in 19 of these regions. Most of these regions with double-digit increases were in southern parts of the EU (Greece, Spain, Italy and Portugal) or eastern parts (Bulgaria, Romania, and Poland), but there were also two Belgian regions (Prov. Luxembourg and Prov. Namur) and one British region (Northern Ireland; NUTS level 1). The largest increases in production were recorded in the Greek regions of Kriti and Peloponnisos, but their absolute levels of cows' milk production were extremely low.

The largest producing regions among those where milk production rose by 10 % or more in 2014 were Lombardia (which produced 4.6 million tonnes of cows' milk), Northern Ireland (2.5 million tonnes) and the Polish regions of Lódzkie and Warminsko-Mazurskie (both with production around 1.0 million tonnes). A more detailed analysis for these four regions reveals that the number of dairy cows rose by as much as 8.5 %

**Map 12.3:** Change in cows' milk production, by NUTS 2 regions, 2013–14 (1)
(%)




(%)

EU-28 = 3.8

- < 0.0
- 0.0 – < 2.0
- 2.0 – < 3.5
- 3.5 – < 6.5
- >= 6.5
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) The United Kingdom: NUTS level 1. Denmark, Spain, Italy and Latvia: provisional.

*Source:* Eurostat (online data codes: agr_r_milkpr and apro_mk_farm)

between 2013 and 2014 in Northern Ireland, while there were also increases in the number of dairy cows in Lombardia (5.9 %) and Lódzkie (1.3 %). However, although milk production in Warminsko-Mazurskie rose by 10.2 % between 2013 and 2014, this increase in output was achieved with 4.6 % fewer dairy cows.

***The six EU regions with the highest numbers of dairy cows each recorded a rise in their level of milk production between 2013 and 2014***

Based on the same regional coverage as **Map 12.3**, there were six regions in the EU where the number of dairy cows was above half a million in 2014. The highest numbers were recorded in Bayern (1.2 million; NUTS level 1), Southern and Eastern Ireland (896 thousand), Niedersachsen (845 thousand; also NUTS level 1), Bretagne (751 thousand), Nord-Est Romania (569 thousand) and the Pays de la Loire (532 thousand). Among these six regions, the number of dairy cows in the two German regions was relatively unchanged between 2013 and 2014, with an increase of 0.8 % in Niedersachsen and a slight fall of 0.2 % in Bayern; their level of milk production rose (over the same period) by 3.6 % and 3.1 % respectively. Milk production expanded at a faster pace between 2013 and 2014 in the other four regions: in the Irish region of Southern and Eastern, it rose by 3.8 % alongside a 4.1 % increase in the number of dairy cows, while the output of milk in Bretagne and the Pays de la Loire rose by 5.3 % and 6.6 % on the back of relatively modest increases in the number of dairy cows (up 0.4 % and 1.1 %). The situation in Nord-Est Romania was quite different, as although the number of dairy cows fell by 11.7 % there was a 5.7 % increase in milk production.

## Agricultural land use: permanent grassland and plants harvested green from arable land

Historically, grasslands covered a considerable area of the land in the EU. Their role has declined over time as land use has intensified and some agricultural land has been converted to other uses or been left abandoned. Today, grasslands are more commonly found in regions where it is difficult to farm intensively and where livestock production remains the traditional form of agriculture. At the same time, livestock production systems which exploit grasslands are challenged to produce more milk and meat to satisfy increasing demand and to achieve this by using fewer resources.

The reduction in grassland areas in the EU places increased pressures on biodiversity and related ecosystem functions. Grasslands are considered important for the preservation of habitats, while they also accumulate greenhouse gas emissions and thus contribute to the mitigation of climate change impacts. Indeed, grasslands act as a carbon sink, with their organic carbon increasing over time; grasslands can also mitigate soil erosion and pollution. However, many of these benefits can be rapidly destroyed, for example, by ploughing up land.

There are different kinds of agricultural land covered by grasses and other types of plants which are harvested green. Permanent grassland refers to any land that that been left as pasture for five years or more; this includes land that has been reseeded from grass straight back into grass and includes herbaceous and non-herbaceous permanent pastures which provide essential forage in many extensive livestock systems (for example, lucerne, sainfoin and clovers); most of these grasslands are maintained through grazing or cutting. Grasslands and meadows that are used for less than five consecutive years are referred to as temporary grasslands. Plants that are harvested green are defined as arable crops intended for animal feed or renewable energy; they are grown in rotation with other plants and include green maize (by far the most important crop), leguminous plants and temporary grasses.

## 'Greening' the EU's agriculture sector

The 2013 reform of the common agricultural policy (CAP) reinforced the link between the support to farmers and environmentally-friendly farming practices. 'Greening' is a term that has been coined in relation to making the farm payments system more environment-friendly, whereby farmers who use the land more sustainably and care for natural resources as part of their everyday work benefit financially.

The 'green payment' is an integral part of CAP compulsory schemes that have targeted farmers since 2015. Green direct payments account for 30 % of the payments budget, with farmers having to make use of various practices that benefit the environment and the climate, these include: diversifying crops; maintaining permanent grassland; dedicating 5 % of arable land to ecologically beneficial elements/ecological focus areas.

Under the greening rules, national (or regional) governments must maintain the ratio of permanent grassland to the total utilised agricultural area (UAA). This must not fall by more than 5 % compared with the reference year (2014) in order to preserve this agricultural resource. If the ratio passes the 5 % threshold, then EU Member States are obliged to take action — for example, farmers who have previously converted permanent grassland to other uses must reverse the conversion and restrictions on further conversions are issued.

If successful, these greening incentives are likely to change the structure of agriculture in the EU and may influence the types of farming that are practised. It is however important to consider other potential impacts from different changes in agricultural policy, for example,

the abolition of dairy quotas in April 2015 is also likely to have had an impact upon some farmers' decisions as to which type of farming they would pursue.

***More than 90 % of the utilised agricultural area in Ireland was devoted to permanent grassland and plants harvested green***

In the EU-28 almost 45 % of utilised agricultural area is covered by permanent and temporary grasslands and other plants that are harvested green (see **Map 12.4**). Note that the latest data available (at the time of writing) are for 2014 — the reference period for the greening rules; as such, no information is currently available as regards the change in agricultural land use that took place during the first year of these rules being applied.

More than 70 % of the utilised agricultural area was used for permanent grassland and plants harvested green in 36 of the 221 NUTS regions in the EU for which data are available (as shown by the darkest shade of green in **Map 12.4**). Shares in excess of 90 % were recorded in 14 regions and of 99 % or more in Vorarlberg, Tirol and Salzburg (Austria), as well as Cantabria (Spain). The majority of the regions where the share of the utilised agricultural area used for permanent grassland and plants harvested green was 70 % or more were in western EU Member States (22 regions) and southern ones (nine regions); only two regions were situated in eastern Member States (Centru in Romania and Jadranska Hrvatska in Croatia), while there were also three northern regions, all of which were in Sweden (Småland med öarna, Övre Norrland and Mellersta Norrland). Many of these regions were characterised as being mountainous regions, where farming is often characterised by relatively small-scale holdings.

Less than one quarter of the utilised agricultural area was used for permanent grassland and plants harvested green in 52 of the NUTS level 2 regions (the lightest shade of green in **Map 12.4**), with this share falling below one tenth in eight of them. Many of these regions are characterised as being either arable regions or lowland regions where the competition for land use is high. Nearly half of them were in eastern EU Member States mainly on the plains of Bulgaria, Hungary and Poland, while there were also several capital city regions (where the utilised agricultural area was generally small, and devoted to alternative uses, for example, kitchen gardening).

As may be expected, those regions which were specialised in dairy farming often recorded relatively high shares of permanent grassland and plants harvested green in their total utilised agricultural area. The following list is based on those regions already identified above as having the highest levels of milk production or the largest numbers of dairy cows, for each region, the share of permanent grassland and plants harvested green is presented for 2014: the Belgian regions of Prov. Luxembourg (89.0 %) and Prov. Namur (51.0 %); the NUTS level 1 German regions of Bayern (51.9 %) and Niedersachsen (50.1 %); Southern and Eastern Ireland (88.7 %); the French regions of Bretagne (56.6 %) and Pays de la Loire (58.2 %); the Italian region of Lombardia (51.7 %); the Polish regions of Lódzkie (21.6 %) and Warminsko-Mazurskie (42.6 %); the Romanian region of Nord-Est (45.9 %); and the NUTS level 1 United Kingdom region of Northern Ireland (95.6 %). For the majority of these, the share of permanent grassland and plants harvested green in the total utilised agricultural area was higher than the EU-28 average (44.9 %); this was particularly the case in Northern Ireland, the Prov. Luxembourg and Southern and Eastern Ireland. By contrast, the two Polish regions recorded shares that were below the EU-28 average. In Lódzkie, a relatively high share of the agricultural area was devoted to the production of rye, potatoes, sugar beet, vegetables and fruit, while Warminsko-Mazurskie was relatively specialised in the production of cereals, potatoes and rapeseed.

## Spotlight on the regions: Vorarlberg, Austria

**More than 90 % of the utilised agricultural area was used for permanent grassland and plants harvested green in 14 NUTS regions across the EU, with shares rising to at least 99 % or more in three Austrian regions — Vorarlberg, Tirol and Salzburg — as well as the Spanish region Cantabria. Each of these regions is characterised as being mountainous, with the structure of its farming dominated by relatively small-scale holdings.**

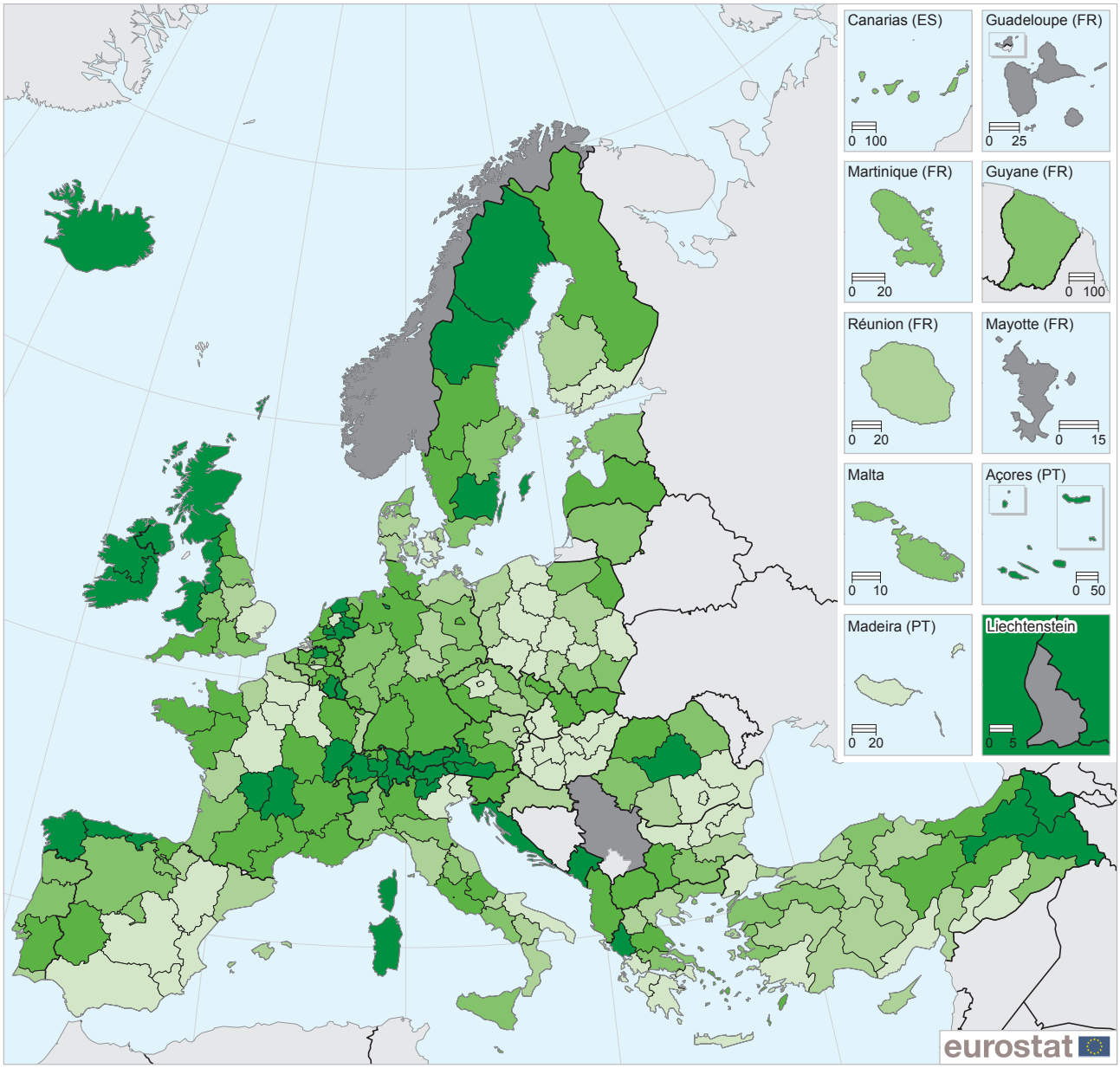
***Photo*: böhringer friedrich**

## Agricultural regions

The EU-28's utilised agricultural area was 178.1 million hectares in 2014, which corresponded to an estimated 41 % of its total land area ([1]). A majority of the agricultural area within the EU-28 was given over to arable land (60.3 %), while almost one third

([1]) For some countries the land area is not available and the total surface area is used instead, potentially underestimating the ratio.

**Map 12.4:** Share of permanent grassland and plants harvested green in the total utilised agricultural area, by NUTS 2 regions, 2014 (1)
(%)




(%)

EU-28 = 44.9

- < 25
- 25 – < 35
- 35 – < 50
- 50 – < 70
- >= 70
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

(1) Slovenia and Albania: national data. Germany and the United Kingdom: NUTS level 1. Albania: 2012.

*Source:* Eurostat (online data code: agr_r_acs)

(32.8 %) was devoted to permanent grassland, some 1.7 % was accounted for by fruit and berry plantations, with a residual share of 5.3 % devoted to other uses (principally grapes, citrus fruits and olives).

As already noted, there are considerable differences in the scale and types of farming that are practised across the regions of the EU-28. Among the 269 regions within the EU, EFTA (apart from Norway) and candidate countries (apart from Serbia) for which the ratio of the utilised agricultural area to the total land area can be calculated, there were 93 regions where the utilised agricultural area made up at least half of the total. The top 20 regions with the highest ratios are shown in **Figure 12.2**, with the relative importance of four different types of farming for each.

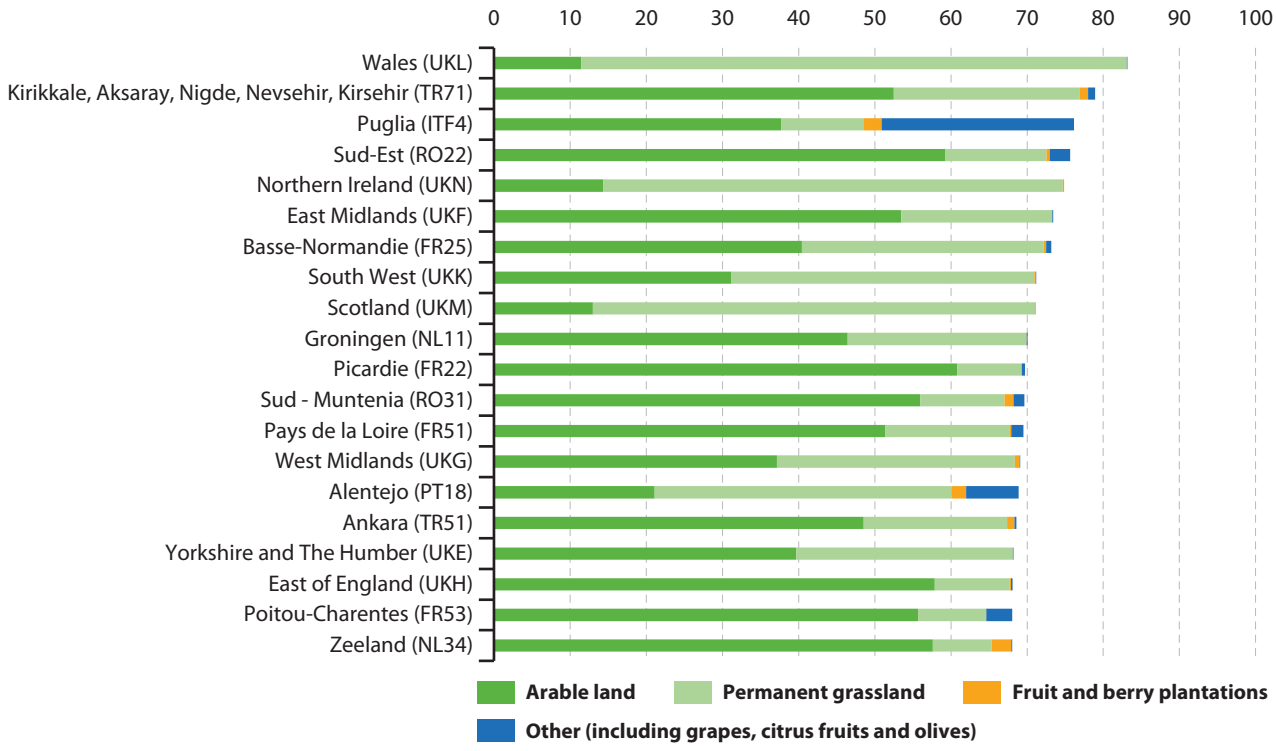
Decisions to specialise in a particular type of farming are based upon a wide range of factors, including physical, economic and environmental issues. For example, physical factors may include the climate, relief or soil type, economic factors may include land tenure, the availability of labour, access to markets or capital, and environmental factors may include restrictions on the use of pesticides or price support systems for encouraging sustainable production methods.

Across the top 20 regions identified in **Figure 12.2**, arable land accounted for more than half of the total land area in 2014 for nine of the top 20 regions, peaking at 60.8 % in Picardie (France), while this share fell to a low of 11.5 % in Wales (the United Kingdom; NUTS level 1).

There were five regions (among the top 20) where a higher share of the total land area was given over to permanent grassland than to arable land, these included Alentejo (Portugal) and the four British regions of South West, Northern Ireland, Scotland, and Wales (all NUTS level 1). Wales recorded the highest share of permanent grassland in its total land area, at 71.6 %, while shares of more than 50 % were also recorded in Northern Ireland (60.3 %) and Scotland (58.0 %). By contrast, the share of permanent grassland in total land area was less than 10 % in the Poitou-Charentes, Picardie (both France), East of England (the United Kingdom) and Zeeland (the Netherlands).

Fruit and berry plantations covered less than 1 % of the total land area in all of the British and French regions in the top 20 ranking, and this was also the case for a single region from each of the Netherlands and Romania. The share of these crops in the total land area reached or passed 1 % in both Turkish regions, Sud - Muntenia (Romania) and Alentejo and peaked at 2.3 % in Puglia (Italy) and 2.6 % in Zeeland.

**Figure 12.2: Top 20 NUTS 2 regions by utilised agricultural area, 2014 (1)**
(% of land area)




(1) The figure shows the 20 regions in the EU-28, EFTA and candidate countries with the highest ratio of utilised agricultural area to land area. The residual category of 'Other' has been computed by subtracting the shares of arable land, permanent grassland and fruit and berry plantations from the share of the utilised agricultural area in the total land area (it is primarily composed of grapes, citrus fruits and olives). Germany and the United Kingdom: NUTS level 1. Slovenia and Albania: national data. Albania: 2012. Germany, France, Emilia-Romagna (Italy) Hungary, Portugal and Montenegro: based on ratio to total area instead of land area. Italy: ratio based on 2012 land area data. Slovakia and Liechtenstein: based on 2013 land area data. Albania: based on 2012 utilised agricultural area. Guadeloupe, Mayotte (France), Marche (Italy), Norway and Serbia: not available.

*Source:* Eurostat (online data codes: agr_r_acs and demo_r_d3area)

Other agricultural uses of land also accounted for a relatively small share of the total land area in these 20 regions, aside from a few notable exceptions: in Puglia and Alentejo a relatively large part of the total land area was given over to the cultivation of grapes and olives with a smaller amount of citrus fruit production as well, while in Poitou-Charentes in France and the Sud-Est region of Romania the cultivation of grapes made up most of this category.

## Soil erosion

Soil is the top layer of the earth's crust, formed by mineral particles, organic matter, water, air and living organisms. It performs a variety of functions: healthy soil is the basis for high-quality food production; soil supports biodiversity; soil can help to combat climate change as it plays a key role in the carbon cycle; soil can store and filter water. Soil formation is a very slow process and as a result soil can be considered essentially as a non-renewable resource.

Erosion can be defined as the wearing away of the land surface by physical forces such as rainfall, flowing water, wind, ice, temperature change, gravity or other natural or anthropogenic agents that abrade, detach and remove soil or geological material from one point on the earth's surface to be deposited elsewhere. When used in the context of pressures on soil, erosion refers to accelerated loss of soil as a result of human activity, in excess of the accepted rates of natural soil formation.

Soil erosion by water is one of the most widespread forms of soil degradation in Europe. **Map 12.5** shows the susceptibility of soil to erosion by water: the data are outputs of a modelling exercise by the Joint Research Centre (JRC) and are estimates rather than measured values. The map presents the mean level of soil water erosion in each NUTS level 3 region.

Approximately 11.4 % of the EU-28's territory is estimated to be affected by moderate to high levels of soil erosion by water (at least 5 tonnes per hectare per year). Mean rates of soil erosion by water amounted to 2.46 tonnes per hectare per year, while the total annual soil loss for the EU-28 is estimated at 970 million tonnes. Note that these values refer to long-term averages that are estimates on the basis of an empirical computer model, rather than event-based observations.

***Higher soil erosion rates estimated mainly in Alpine regions, the Pyrenees and a few coastal areas***

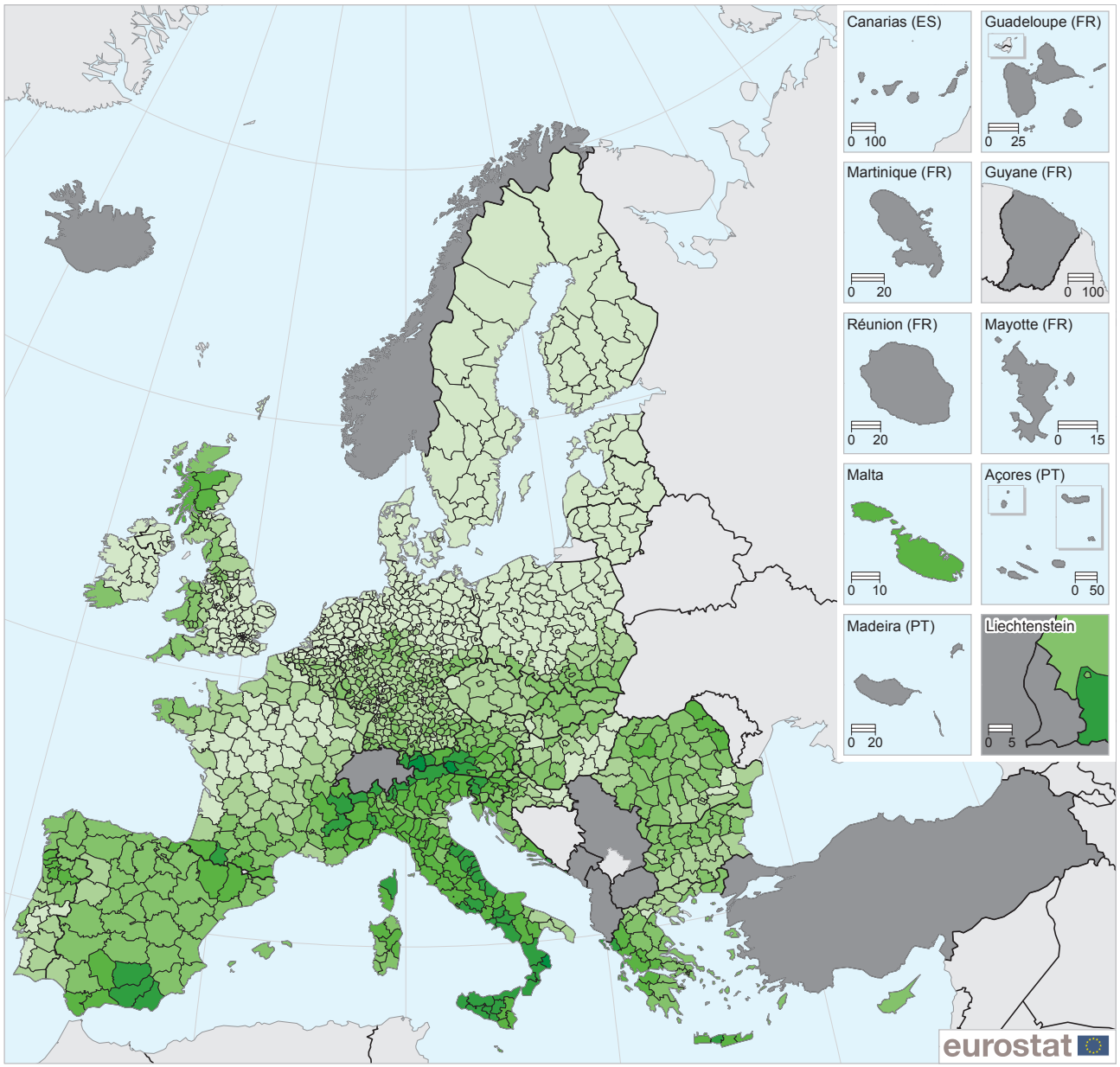
Very low soil erosion rates by water were estimated for all of the regions in the northern EU Member States. This was also the case for many of the more northerly regions of eastern and western Member States, while low or moderate rates of soil erosion by water were recorded for most of the remaining regions in the eastern and western Member States. There were a few exceptions, mainly mountainous, regions: some parts of northern and eastern Scotland (in the United Kingdom), Alpine regions of France, Croatia, Austria and Slovenia, the Pyrenees and Corse in France, some coastal areas of Croatia, a mountainous region in north-western Romania and three regions in north-eastern Romania. In these regions, the estimates indicate mainly moderate or moderate high rates of soil erosion from water, rising to high rates in two of the Tirolean regions in Austria.

The situation in the southern EU Member States was much more varied. At most, moderate rates of soil erosion from water were estimated for Portuguese regions with several having very low rates: the only other very low rate among the regions in the southern Member States was for Imathia in Greece. Rates for Cyprus were moderate low and for Malta they were moderate. In Spain, moderate and moderate high rates were recorded in several regions bordering those already mentioned in the Pyrenean regions. Moderate and moderate high rates were also estimated for regions on the south coast of Spain, the Greek Adriatic and Ionian coast and on Kriti. In Italy, moderate and higher rates were not limited to the Alpine regions but covered instead nearly all of the country, with a high rate recorded in Crotone in Calabria.

## Categorisation of soil erosion

The following categories and ranges are used for categorising soil erosion.
**Very low**: < 1 tonne per hectare per year
**Low**: 1 – < 2 tonnes per hectare per year
**Moderate low**: 2 – < 5 tonnes per hectare per year
**Moderate**: 5 – < 10 tonnes per hectare per year
**Moderate high**: 10 – < 20 tonnes per hectare per year
**High**: ≥ 20 tonnes per hectare per year

**Map 12.5:** Soil erosion by water, by NUTS 3 regions, 2010
(tonnes per hectare)




(tonnes per hectare)

- < 1
- 1 – < 2
- 2 – < 5
- 5 – < 10
- 10 – < 20
- >= 20
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 04/2016

0 200 400 600 800 km

*Source:* Eurostat (online data code: aei_pr_soiler)

# Data sources and availability

## Economic accounts for agriculture

Economic accounts for agriculture (EAA) provide data at a regional level for the value of output, intermediate consumption and income. The EAA are a satellite account of the European system of national and regional accounts (ESA 2010).

Eurostat has been collecting, processing and publishing data on the EAA in the form of a regional analysis for more than 15 years. The legal basis for the calculation of EAA is a regulation on economic accounts for agriculture in the Community (EC) No 138/2004, which has been subsequently amended on five separate occasions, the last of which was Regulation (EU) No 1350/2013 in December 2013; the regional EAA are supplied to Eurostat on the basis of a gentleman's agreement.

The purpose of EAA is to analyse the production process of the agricultural industry and the primary income generated by this production. Information pertaining to the agricultural industry in the EAA corresponds to NACE Rev. 2 Division 01: crop and animal production, hunting and related service activities.

Regional agricultural accounts for output items are often used as building blocks for results at the national level, while regional data for intermediate consumption (direct input of goods and services in production) are often compiled by analysis of national figures using other information (a top-down approach). Regional EAA may, therefore, be less accurate than data presented at the national level. The compilation of regional accounts generally takes place at the NUTS level 2. Data are only collected in current prices, and there is no regional analysis for labour input data or unit values.

## Farm structure survey

The farm structure survey (FSS) is a major source of agricultural statistics. A comprehensive survey is carried out by EU Member States every 10 years and is referred to as the agricultural census. This is complemented by intermediate sample surveys which are carried out three times between each census.

Under the guidance of the Food and Agriculture Organisation (FAO) the ninth round of the world agricultural census took place in 2010. The census was used to collect information about all agricultural holdings in order to present an updated picture of the structure of agricultural activities, covering: land use; livestock numbers; rural development (for example, activities other than agriculture); irrigable and irrigated areas; farm management and farm labour input.

The legal basis for the survey in 2010 was provided by a regulation of the European Parliament and of the Council on farm structure surveys and the survey on agricultural production methods (EC) No 1166/2008, while the definitions to be used in the survey are set out in an implementing Regulation (EC) No 1200/2009. These survey data are used to collect information on agricultural holdings at different geographic levels and over different periods.

## Milk statistics

Animal production statistics are based on legislation and related gentlemen's agreements. Milk and milk product statistics are collected under Decision 97/80/EC implementing Directive 96/16/EC on statistical surveys of milk and milk products. Regional milk statistics are compiled for NUTS level 1 and NUTS level 2 regions.

The data presented in this chapter cover the farm production of milk from cows. A distinction is made between milk collected by dairies and milk production on the farm: milk collection is only a part of the total use of milk production on the farm, the remainder generally includes own consumption, direct sale and cattle feed. Eurostat also collects milk and milk product statistics relating to milk from sheep, goats and buffaloes, the utilisation of milk (products obtained), as well as the collection and production activities of dairies.

## Agricultural land use

The legal basis for crop statistics was revised in 2015 with the adoption of a new Regulation and is supplemented by an ESS agreement. Crop statistics relate to: harvested production; harvested or production area or the area under cultivation; and the main area. For some crops other indicators are also collected.

The utilised agricultural area (UAA) describes the area actually used for farming. It includes the land categories: arable land; permanent grassland; permanent crops; other agricultural land such as kitchen gardens. UAA does not include unused agricultural land, woodland and land occupied by buildings, farmyards, tracks, ponds, etc.

The concept of main area corresponds, in general, to the area of the land parcel, and the crop/occupation linked to that area is the unique or main crop having occupied the parcel during the crop year. The use of the main area concept avoids double counting areas which support more than one harvest per year. From 2013, EU statistics include common land in the utilised agricultural area: a background article (on Statistics Explained) for common land statistics provides more information (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Common_land_statistics_-_background).

## Soil erosion

The data on soil erosion used in this chapter have been produced on the basis of an empirical computer model. The data are predicted estimates and not observed values and are derived from an enhanced version of the Revised Universal Soil Loss Equation (RUSLE) model which was developed to evaluate soil erosion by water at a regional scale. The model structure has been adapted in order to take into account conservation planning, inventory erosion rates and estimate sediment delivery on the basis of accepted scientific knowledge and technical judgment. More information is available (on Statistics Explained) in an article titled Agri-environmental indicator — soil erosion (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_soil_erosion).

Only soil erosion resulting from rainsplash, overland flow (also known as sheetwash) and rill formation are considered. These are some of the most effective processes to detach and remove soil by water. In most situations, erosion by concentrated flow (rills and gullies) is the main agent of erosion by water. Due to the limitations of the available classifications and data, the results provide an estimation of soil erosion rates. The soil loss rates are long-term averages and should not be compared with event-based observations, given the large seasonal variability of rainfall erosivity and cover management.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Nearly all of the regional data in this chapter have been converted from NUTS 2010, the exceptions being the data on economic accounts in **Figure 12.1** and **Map 12.1**, the data from the Farm Structure Survey used in **Maps 12.1** and **12.2** and the data on soil erosion in **Map 12.5**. The conversion of the other data has generally had the following consequences at NUTS level 2: data for the French region of Guadeloupe are not available, only national data are available for Slovenia, and data for London are shown at NUTS level 1.

# 13 Focus on commuting patterns

This chapter describes commuting patterns across the European Union (EU): it starts with an analysis of the NUTS level 2 regions with the highest shares of outbound commuters, defined for the purpose of this chapter as those people who travel — at least once a week — from the region where they have their permanent residence to a different region in order to be at their place of work. The chapter develops by analysing commuter flows within the same country — with a special focus on London, the EU region with the highest number of commuters — before analysing cross-border commuter flows — with a special focus on Luxembourg, which has the highest proportion of its workforce commuting from neighbouring countries. The chapter concludes with some information on the socio-demographic characteristics of commuters.

Under the Treaty on the Functioning of the European Union (TFEU), individuals are entitled to move freely for work reasons from one EU Member State to another without suffering discrimination as regards employment, remuneration or other conditions of work and employment. Someone who works in one EU Member State but lives in another and returns there at least once a week is considered to be a cross-border commuter under EU law. During their everyday life they are subject to the laws of both countries, with the laws for their place of work determining employment and income taxes as well as most social security rights, while the laws for their place of residence determine property and most other taxes, as well as residence formalities.

## Labour market mobility

In its efforts to enhance the EU's competitiveness and foster job creation, the European Council identified mobility as a key element for achieving the goals of the European Employment Strategy (EES), which now constitutes part of the Europe 2020 strategy. Notwithstanding the efforts undertaken to facilitate mobility, in both geographic and labour market terms, the current mobility rates of workers in the EU remain relatively low.

EUROPEANMOBILITYWEEK
16-22 SEPTEMBER 2016

EUROPEANMOBILITYWEEK is supported by the European Commission's (EC's) Directorate-General for Mobility and Transport. It is designed to encourage urban mobility solutions, which help contribute to the EU's climate change objectives — for example, by encouraging people to walk, cycle, or use public transport more; the promotion of more sustainable modes of transport should help reduce emissions, pollution, congestion, noise and accidents.

In 2016, the EUROPEANMOBILITYWEEK campaign will examine some of the close ties between transport and economics, under the heading of 'Smart and sustainable mobility — an investment for Europe', providing an opportunity to present sustainable mobility alternatives and to explain the challenges being faced to induce behavioural change and make progress towards creating a more sustainable transport strategy for Europe.

**For more information**: http://www.mobilityweek.eu/.

# Main statistical findings

In 2015, the total number of persons in employment reached 220.7 million across the whole of the EU-28. The vast majority (91.9 %) of the workforce lived in the same region (defined here at NUTS level 2) as where they worked, a share which includes those people who work from home. The remainder of the workforce (8.1 %) commuted to work in a different region. Outbound commuter flows in the EU-28 can be divided into two separate groups: national commuters accounted for 7.2 % of the total number of persons employed, while less than 1 in 100 people (0.9 % of the EU-28 workforce) commuted across borders.

The highest rate of commuting in 2015 was recorded in Belgium, where more than one in five (21.9 %) persons commuted to work in a different NUTS level 2 region.

Commuting was also relatively common in the United Kingdom, the Netherlands, Austria and Slovakia, where some 10–20 % of the workforce commuted to work in a different region. Unsurprisingly, there were low levels of commuting in many isolated, peripheral and sparsely populated regions, for example, the Greek, Spanish or Portuguese island regions or Cyprus and Malta (both considered as single regions at this level of analysis). There were also low rates of commuting in several of the eastern and Baltic Member States, for example, Bulgaria, Latvia (also a single region at this level of analysis) or Romania.

# Developments in commuting patterns

The commute to work has been driven by changes in the organisation of production, as employers experienced increased geographic flexibility, while developing transport and communications infrastructure has made it possible for goods and services to be moved more easily to customers and for employed persons to consider making longer journeys to go to work. The shift towards post-industrial economies and the rapid pace of change for information technologies has greatly reduced coordination costs and led to the potential for greater flexibility and dispersion in the workplace, redefining the relationship between home and work, such that the physical presence of (some) employees is no longer required for them to be able to carry out a day's work. As a result, it has become more commonplace for people to work (at least some of the time) from home.

## Which regions have the highest shares of outbound commuters?

**Map 13.1** presents an analysis of total commuter outflows for NUTS level 2 regions; it shows the share of persons living in one region and commuting to work in another (either in the same EU Member State or across a border). Among the 162 regions for which data are available (see footnote to **Map 13.1** for more information), the highest share of commuter outflows was recorded for the capital city region of the United Kingdom, London, where almost half (48.6 %) of the workforce commuted to work in another region. Note that the data pertaining to London is presented at NUTS level 1, although these statistics were collected for NUTS level 2 regions. Therefore the data for London include commuter flows between the five different NUTS level 2 regions that compose London (two Inner London regions and three Outer London regions) as well as commuter flows from these five regions to regions outside the capital.

### *Commuting rates were generally high across Belgium and around several EU capital cities*

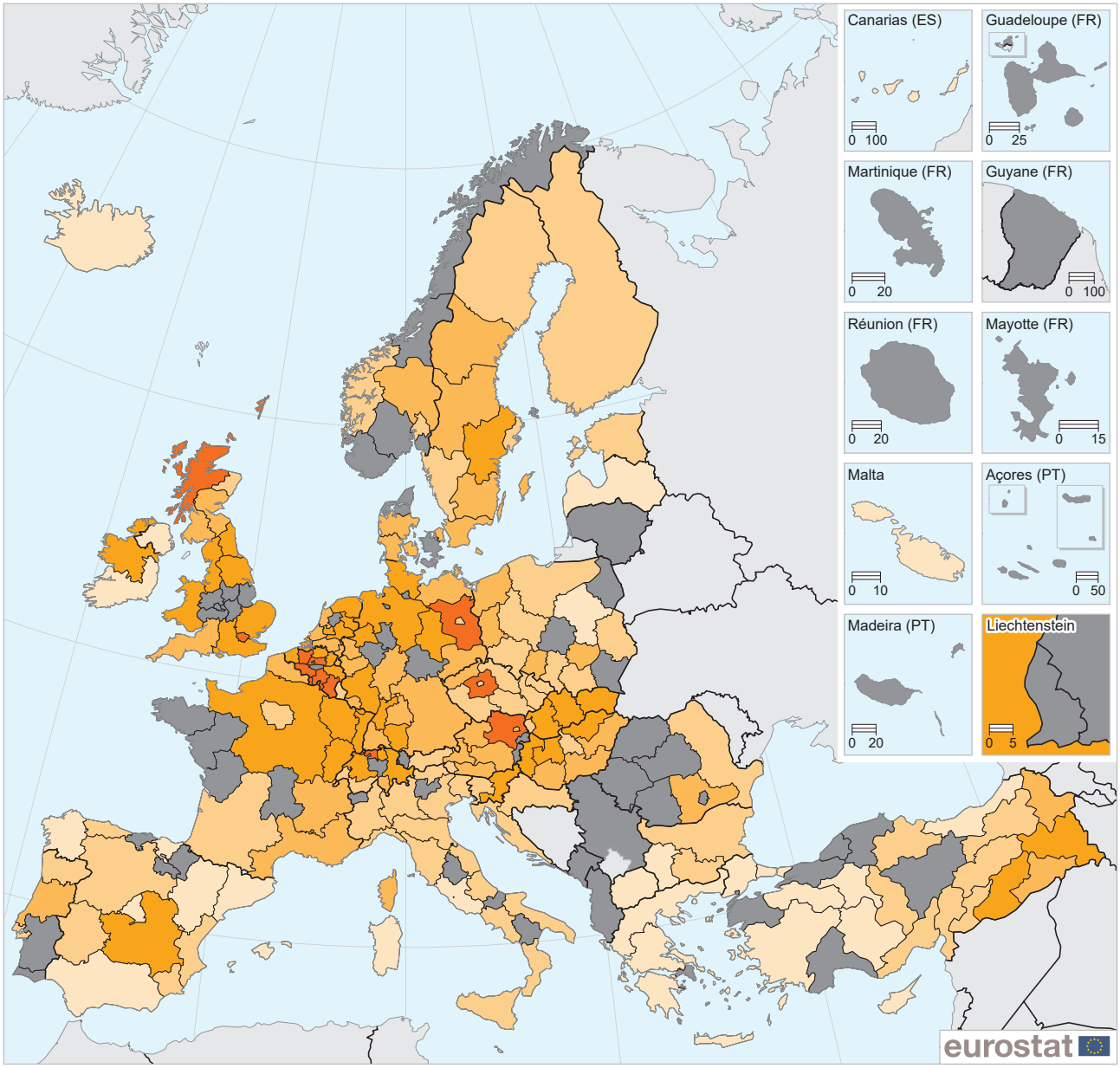
Having established that London had the highest number of commuters in 2015, the next highest shares of commuter outflows were recorded across several regions in Belgium. Among the 10 Belgian regions for which data are available (note there are no data available for the Province Brabant Wallon where the commuting rate was also likely to be high, given this region is located close to the capital city Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest), the share of commuter outflows in the number of people in the region who were employed was consistently in double figures, peaking at 41.3 % in the Provincie Vlaams-Brabant (a region that surrounds the capital). Besides regions in Belgium and the United Kingdom, the top 10 regions in the EU with the highest shares of outbound commuters were completed by: Niederösterreich (28.1 %), which surrounds the Austrian capital city region of Wien; Brandenburg (24.3 %), which surrounds the German capital city region of Berlin; and Střední Čechy (21.5 %), which surrounds the Czech capital city region of Praha.

By contrast, there were 22 regions in the EU where commuter outflows accounted for less than 2 % of the number of people in a region who were employed (as shown by the lightest shade of orange in **Map 13.1**). These were largely concentrated in southern Europe and included: eight Spanish regions (including the capital city region and the island regions of Canarias and the Illes Balears); five Greek regions (including the island regions of Voreio Aigaio, Notio Aigaio and Kriti); two Italian regions (the capital city region and the island of Sardegna (2014 data)); as well as the islands of Cyprus and Malta (both single regions at this level of analysis). Commuter outflows also accounted for less than 1 in 50 of the total available workforce in five additional regions: three capital city regions that were relatively large in size/area — Yugozapaden (Bulgaria), Southern and Eastern (Ireland) and Mazowieckie (Poland); Latvia (a single region at this level of analysis); and Northern Ireland (the United Kingdom).

**Figure 13.1** presents a more detailed analysis for the top 20 regions with the highest shares of commuter outflows in the number of persons in a region who were employed; the information is broken down (subject to data availability) to show whether commuters were destined for another region in the same EU Member State or were commuting across a border. Note that the coverage differs from that presented in **Map 13.1** — as the criteria for inclusion in **Figure 13.1** is the sum of available data (even if information pertaining to commuting to a foreign country is not available).

The high share of commuters in and around the United Kingdom capital was confirmed as the four regions with the highest shares of commuting were all in Inner and Outer London, while the fifth London region was in 15th place; note that a high proportion of the commuters that arrive in London each day work in Inner London – West. There were a number of other regions from the United Kingdom that are present in **Figure 13.1**, with high commuting rates

**Map 13.1: Commuter outflows, by NUTS 2 regions, 2015 (1)**
(% of total employment)




(% of total employment)

EU-28 = 8.1

< 2 | 2 – < 5 | 5 – < 10 | 10 – < 20 | >= 20 | Data not available

0 200 400 600 800 km

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

(1) Severna i yugoiztochna (Bulgaria), Bayern, Hessen, Niedersachsen, Rheinland-Pfalz, Sachsen (Germany), Voreia Ellada, Kentriki Ellada (Greece), Bassin Parisien, Sud-Ouest, Méditerranée (France), Noord-Nederland (the Netherlands), Region Północny (Poland), Macroregiunea doi (Romania), Manner-Suomi (Finland), North East, North West, Yorkshire and The Humber, East of England, London, South East, South West, Wales (the United Kingdom) and Ege (Turkey): NUTS level 1. Note that when data are shown for NUTS level 1 regions, commuter outflows still concern outflows from NUTS level 2 regions and so some of the commuter outflows reported for NUTS level 1 regions may be flows between NUTS level 2 regions within the same NUTS level 1 region. Yugozapaden (Bulgaria), Calabria, Sardegna, Marche (Italy), East of England, North Eastern Scotland, Highlands and Islands (the United Kingdom), Région lémanique and Espace Mittelland (Switzerland): 2014. Mecklenburg-Vorpommern (Germany), Utrecht (the Netherlands), Kärnten (Austria) and Eastern Scotland (the United Kingdom): 2013. Prov. Namur (Belgium), Wales and South Western Scotland (the United Kingdom): 2012. Includes data of low reliability for some regions.

*Source:* Eurostat (online data codes: lfst_r_lfe2ecomm and lfst_r_lfe2emp)

## The size of regions impacts on their commuting rates

The results on commuting patterns in the EU that are shown in this chapter reflect a wide range of factors, including: population density, the size of each region, the geographical location of cities or major employers close to regional boundaries, the existence of language barriers, efficient transport infrastructures between regions, the availability of housing, and the availability of work.

The nature of the NUTS classification can play an important role, despite its aim to ensure that comparable regions appear at the same NUTS level of each classification. For example, the physical size (or area) of a region has a clear impact on its (potential) commuting rates: a journey from one end to the other of the central Spanish region of Castilla y León is approximately the same length as travelling from Luxembourg to Amsterdam, which would be a journey that includes nine different regions. It is therefore unlikely that regions with a large area will display high rates of commuting.

The location of a region can also play an important role, for example, it is unlikely that many people living in the Spanish island regions of the Canarias or Illes Balears will commute, as this would involve either a trip by air or a relatively time-consuming sea journey. In a similar vein, mainland regions with lengthy coastlines are also less likely to have high numbers of commuters insofar as the topography of the region reduces the possibilities for commuting (the same pattern may be observed in mountainous regions if they do not have good transport networks). As such, islands, isolated/peripheral regions and sparsely populated regions will tend to record relatively low commuting rates.

The NUTS classification also aims to ensure that regions are of comparable size in terms of population. However, in 2015 the largest NUTS level 2 regions across the EU-28 were the French capital city region of Île-de-France (with just over 12 million inhabitants) and the Italian region of Lombardia (with just over 10 million inhabitants), which may be contrasted with the archipelago of Åland in Finland that had almost 29 thousand inhabitants. The Île-de-France region is characterised by considerable congestion and there are frequent traffic jams on the main road arteries that lead into and out of the French capital, as well as those that encircle it. However, the definition of this region is such that it extends well beyond the city limits of Paris (as defined by the confines of the périphérique ring road) to include its surrounding agglomeration and many suburban/peri-urban developments where a large proportion of the workers travelling on the region's road and rail networks live. As such, the statistics collected for NUTS level 2 regions consider most of the workers who live close to the French capital as not being commuters.

By contrast, regions with a small area, regions that are densely populated, and regions that border onto others in close proximity of a large agglomeration, are more likely to record high commuting rates. For example, level 2 of the NUTS classification defines the capital city regions of London, Bruxelles/Brussel, Berlin, Praha or Wien as relatively small areas, which results in higher commuting rates for their surrounding regions.

for the workforces of: Bedfordshire and Hertfordshire, and Essex (from both of which a high number of people commute to London); Cheshire (from which a high number of people commute to Manchester); Herefordshire, Worcestershire and Warwickshire (from which a high number of people commute to the West Midlands).

There was also a relatively high share of commuting in several of the densely-populated Benelux countries. Among the Belgian regions, it is interesting to contrast the high proportion (44.2 %) of commuters in the Province Brabant Wallon who mainly commuted to the capital city region with the high share (27.3 %) of commuters in the Province Luxembourg who mainly commuted across the border to Luxembourg.

The increased data coverage in **Figure 13.1** also highlights two additional regions, namely, the relatively high proportion of commuters in the eastern Danish island region of Sjælland and the Dutch region of Flevoland (which mainly stands on reclaimed land); both of these regions border onto their respective capital city regions — Hovedstaden and Noord-Holland — to which many of their residents commute.

***While London dominated commuting patterns in the United Kingdom, there were high numbers of commuters into several of Germany's largest cities***

**Table 13.1** develops the analysis by looking at three main commuting destinations for those regions with the highest number of outbound commuters; note this

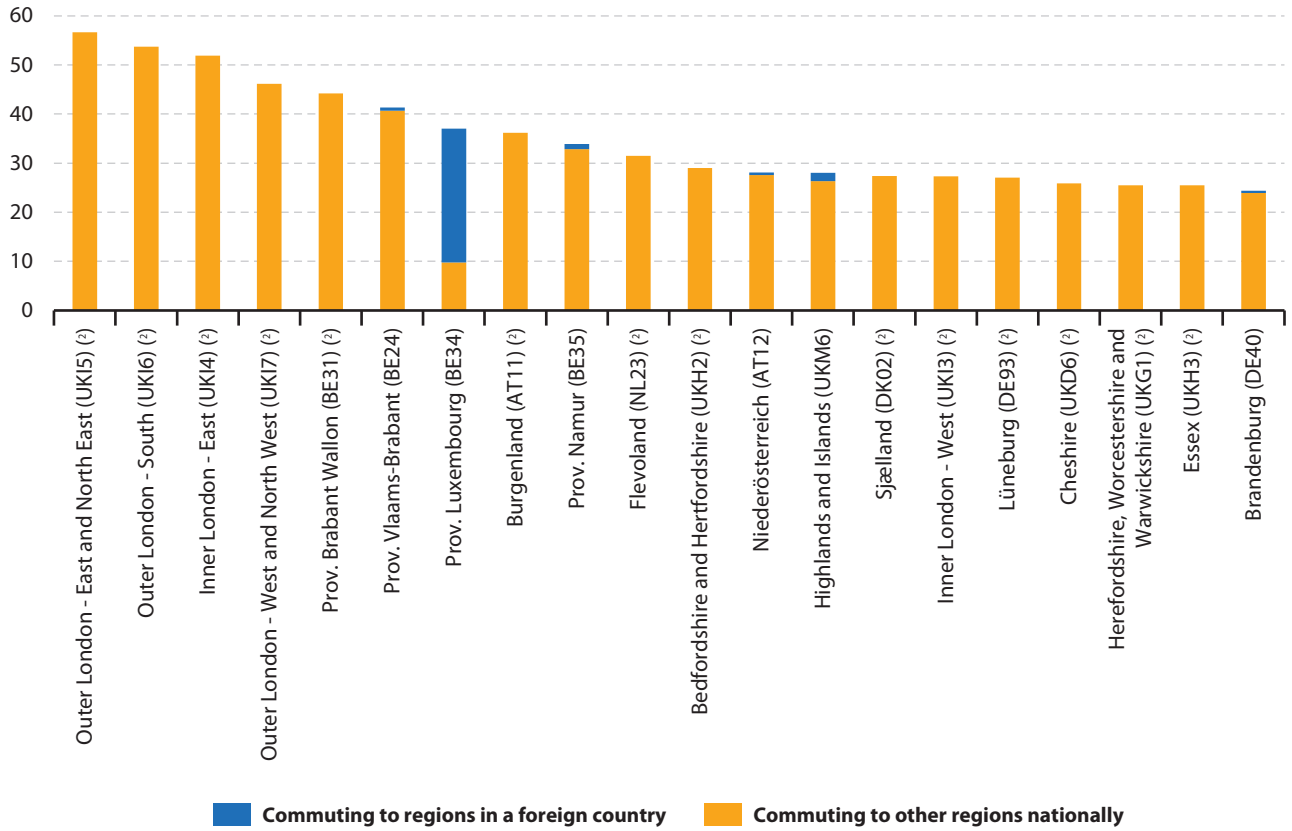
ranking is based on the absolute number of commuters from each of these regions (in contrast to the relative shares of commuters, as presented in **Map 13.1** and **Figure 13.1**).

Of the 635 thousand commuters living in Inner London - East, three quarters commuted to work in Inner London - West. More generally, commuting in the United Kingdom displayed a monocentric pattern and was highly concentrated on the capital city; in fact, Inner London - West was the main commuting destination for six of the seven regions in the EU with the highest number of commuters.

As might be expected, the principal destinations for commuters were often some of Europe's largest urban agglomerations — besides London these included the capital city regions of Germany, the Netherlands, Austria and Belgium. However, while the highest number of commuters in Germany flowed from the surrounding region of Brandenburg into Berlin, commuting patterns over the remainder of the German territory generally had a more polycentric form, as there were also high numbers of commuters flowing into Hamburg, Bremen, Arnsberg (a region which includes the cities of Bochum and Dortmund), Düsseldorf, Köln and Karlsruhe.

The only French region present among the top 20 regions with the highest absolute number of outbound commuters was the south-eastern region of Rhône-Alpes, whose regional capital is Lyon; the principal destination for its commuters was cross-border into the Swiss Région lémanique (which includes the city of Geneva).

**Figure 13.1: Analysis of commuting destination for the top 20 regions with the largest shares of commuter outflows, by NUTS 2 regions, 2015 (1)**
(% of total employment)




(1) Based on data available for 289 regions in the EU, Iceland, Norway, Switzerland, the former Yugoslav Republic of Macedonia and Turkey. Based on the sum of available data (commuter flows to a foreign country often not available). Includes data of low reliability for some regions.
(2) Only data for commuting to other regions nationally is available. As such, the total share of commuter outflows could be somewhat higher.

*Source:* Eurostat (online data codes: lfst_r_lfe2ecomm and lfst_r_lfe2emp)

**Table 13.1: Top 20 regions with the largest number of commuter outflows and their three main destinations, by NUTS 2 regions, 2015 (1)**
(% of commuters)

| | Largest destination | | Second largest destination | | Third largest destination | |
|---|---|---|---|---|---|---|
| | Region | Share | Region | Share | Region | Share |
| Inner London - East (UKI4) | Inner London - West (UKI3) | 75.3 | Outer London - East and North East (UKI5) | 6.9 | Outer London - West and North West (UKI7) | 5.6 |
| Outer London - East and North East (UKI5) | Inner London - West (UKI3) | 44.3 | Inner London - East (UKI4) | 34.9 | Essex (UKH3) | 5.9 |
| Outer London - West and North West (UKI7) | Inner London - West (UKI3) | 53.7 | Inner London - East (UKI4) | 16.5 | Outer London - South (UKI6) | 6.8 |
| Outer London - South (UKI6) | Inner London - West (UKI3) | 41.3 | Inner London - East (UKI4) | 28.2 | Surrey, East and West Sussex (UKJ2) | 11.1 |
| Brandenburg (DE40) | Berlin (DE30) | 81.2 | Dresden (DED2) | 3.3 | Sachsen-Anhalt (DEE0) | 1.9 |
| Surrey, East and West Sussex (UKJ2) | Inner London - West (UKI3) | 25.5 | Outer London - West and North West (UKI7) | 16.8 | Outer London - South (UKI6) | 13.5 |
| Bedfordshire and Hertfordshire (UKH2) | Inner London - West (UKI3) | 28.9 | Inner London - East (UKI4) | 17.3 | Berkshire, Buckinghamshire and Oxfordshire (UKJ1) | 15.2 |
| Rhône-Alpes (FR71) | Région lémanique (CH01) | 44.2 | Provence-Alpes-Côte d'Azur (FR82) | 15.2 | Île de France (FR10) | 14.8 |
| Lüneburg (DE93) | Hamburg (DE60) | 44.8 | Bremen (DE50) | 29.4 | Hannover (DE92) | 9.7 |
| Zuid-Holland (NL33) | Noord-Holland (NL32) | 31.9 | Utrecht (NL31) | 15.8 | Noord-Brabant (NL41) | 13.4 |
| Berkshire, Buckinghamshire and Oxfordshire (UKJ1) | Outer London - West and North West (UKI7) | 23.2 | Inner London - West (UKI3) | 21.1 | Surrey, East and West Sussex (UKJ2) | 10.2 |
| Niederösterreich (AT12) | Wien (AT13) | 84.7 | Oberösterreich (AT31) | 9.1 | Burgenland (AT11) | 2.2 |
| Essex (UKH3) | Inner London - West (UKI3) | 33.3 | Inner London - East (UKI4) | 19.5 | Outer London - East and North East (UKI5) | 19.1 |
| Münster (DEA3) | Arnsberg (DEA5) | 34.6 | Düsseldorf (DEA1) | 32.3 | Weser-Ems (DE94) | 9.0 |
| Schleswig-Holstein (DEF0) | Hamburg (DE60) | 86.5 | Mecklenburg-Vorpommern (DE80) | 1.9 | Lüneburg (DE93) | 1.3 |
| Düsseldorf (DEA1) | Köln (DEA2) | 35.0 | Arnsberg (DEA5) | 17.0 | Münster (DEA3) | 15.5 |
| Prov. Vlaams-Brabant (BE24) | Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE10) | 63.5 | Prov. Antwerpen (BE21) | 17.7 | Prov. Oost-Vlaanderen (BE23) | 5.9 |
| Arnsberg (DEA5) | Düsseldorf (DEA1) | 36.9 | Münster (DEA3) | 21.4 | Detmold (DEA4) | 8.3 |
| Gelderland (NL22) | Utrecht (NL31) | 27.3 | Overijssel (NL21) | 15.0 | Noord-Brabant (NL41) | 14.0 |
| Rheinhessen-Pfalz (DEB3) | Karlsruhe (DE12) | 37.0 | Darmstadt (DE71) | 31.9 | Saarland (DEC0) | 9.7 |

(1) Based on data available for 266 regions in the EU, Iceland, Norway, Switzerland, the former Yugoslav Republic of Macedonia and Turkey.

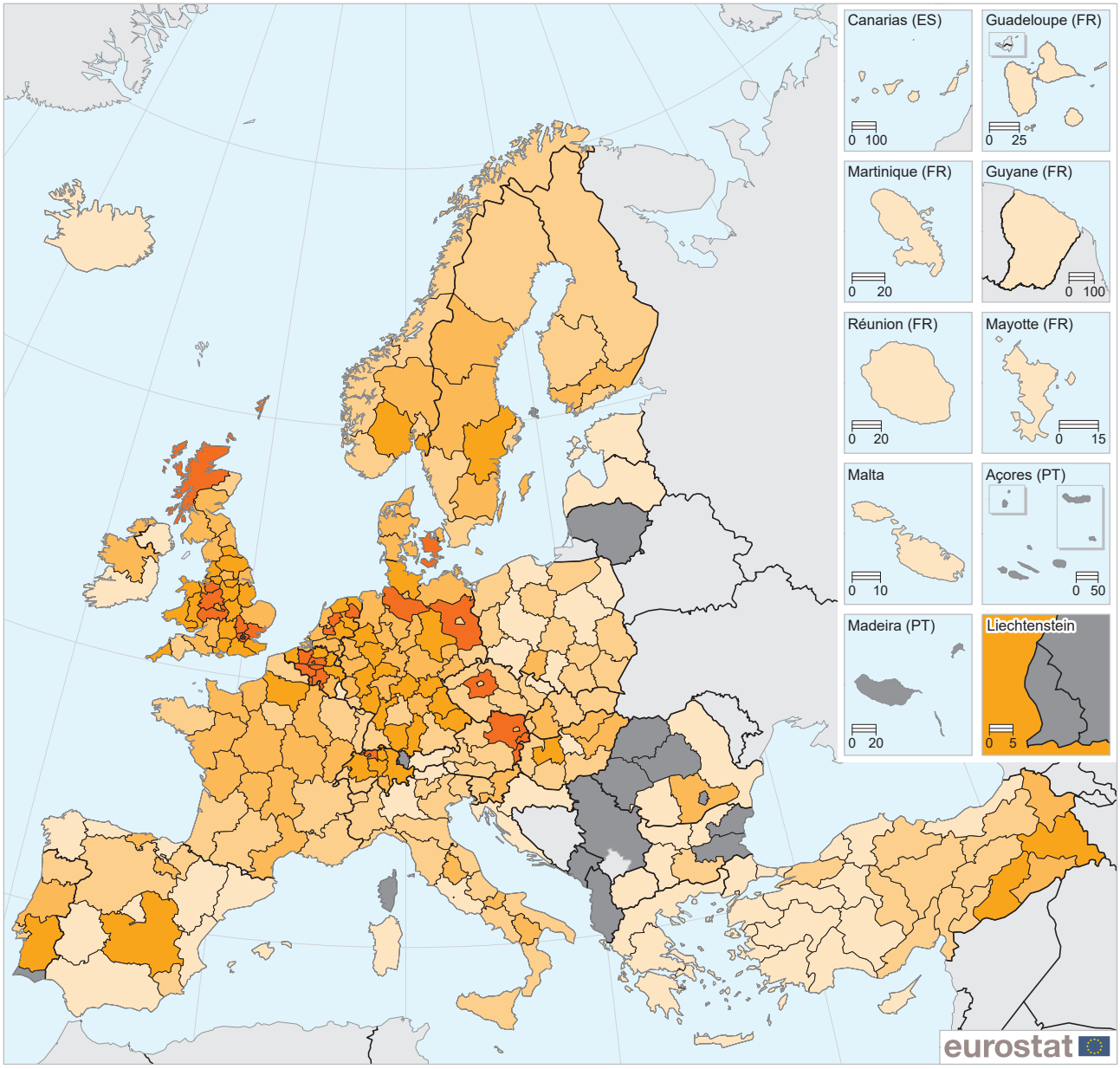
*Source:* Eurostat (Labour force survey)

## National commuting patterns

In 2015, approximately 1 in 14 people in the EU-28's workforce commuted between different NUTS level 2 regions in the same country. This pattern of national commuting was most developed in Belgium, where almost one in five (19.6 %) of the total workforce crossed a regional boundary to go to work. The United Kingdom also had a high share (18.4 %), while there were four EU Member States — Germany, Denmark, Austria and the Netherlands — where 9.0–12.0 % of the working population commuted nationally. In absolute terms, national commuting was most common in the United Kingdom (5.9 million outbound commuters), Germany (4.3 million), France (1.4 million), the Netherlands (1.3 million) and Belgium (893 thousand); together they accounted for approximately 80 % of all national commuters in the EU.

**Map 13.2** shows the highest concentrations of national commuter outflows among 249 NUTS level 2 regions for 2015; given that the vast majority of commuting takes place nationally, it is not surprising that the results presented are quite similar to those shown in **Map 13.1** (which covered all commuting flows, in other words, national and cross-border). The darkest orange shade

**Map 13.2: Share of total employment commuting nationally, by NUTS 2 regions, 2015 (1)**
(% of total employment)




(% of total employment)

EU-28 = 7.2

- < 2
- 2 – < 5
- 5 – < 10
- 10 – < 20
- >= 20
- Data not available

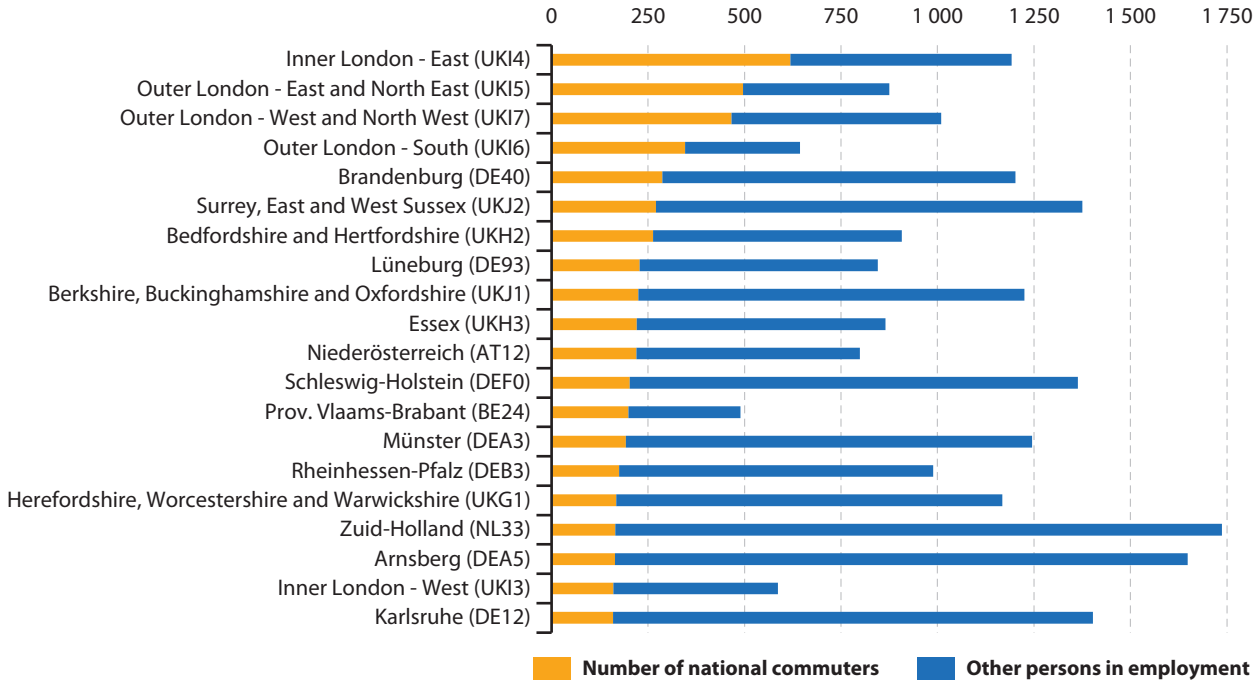
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Anatoliki Makedonia, Thraki, Kentriki Ellada (Greece), Départements d'outre-mer (France) and Macroregiunea doi (Romania): NUTS level 1. Attiki: 2014. Includes data of low reliability for some regions.

*Source:* Eurostat (online data codes: lfst_r_lfe2ecomm and lfst_r_lfe2emp)

**Figure 13.2: Top 20 regions with the largest number of national commuter outflows, by NUTS 2 regions, 2015 (1)**
(thousands)




(1) Based on data available for 289 regions in the EU, Iceland, Norway, Switzerland, the former Yugoslav Republic of Macedonia and Turkey.
*Source:* Eurostat (online data codes: lfst_r_lfe2ecomm and lfst_r_lfe2emp)

identifies the 25 regions in the EU-28 where national commuter outflows accounted for at least 20 % of the workforce. National commuting was concentrated in: the United Kingdom (11 regions), Belgium (five regions), the Netherlands (three regions), Germany and Austria (two regions each), as well as single regions from the Czech Republic and Denmark. The map emphasises that commuting patterns are closely linked to population density and the size of regions, while also alluding to a high propensity for commuting around a number of capital city regions.

The information presented in **Figure 13.2** is based on absolute numbers of national commuters. In 2015, Inner London - East had the highest number of national outbound commuters, some 619 thousand. It was followed by three Outer London regions, where the number of national outbound commuters was between 346 and 496 thousand; all of the other regions in the top 20 reported less than 300 thousand national commuters. In each of these four London regions, approximately half of the available regional workforce was composed of national outbound commuters — a share that peaked at 56.7 % in Outer London - East and North East. By contrast, the 165 thousand national commuters in the Dutch region of Zuid-Holland and the German region of Arnsberg accounted for no more than 1 in 10 of the workforce available in their regions, where a large majority of the workforce worked in the region where they lived.

## Cross-border commuting

This section switches the focus of analysis away from national commuting patterns towards cross-border commuting, in other words, it focuses on those persons who live in one country but work in another. In the majority of cases, patterns of cross-border commuting are asymmetrical: the greater the difference in average earnings or the availability of job vacancies between two regions, the more likely the region with more favourable labour market conditions will attract a higher number of cross-border commuters.

### *There were 438 thousand cross-border outbound commuters living in France*

Although the freedom of movement may have encouraged cross-border commuting in the EU, it accounted for just 0.9 % of the EU-28 workforce in 2015. Higher shares were recorded for some of the smaller and less peripheral EU Member States, for example, 6.1 % of the Slovakian workforce commuted across a border (principally to work in Austria or the Czech Republic or Germany). In absolute terms, the highest number of cross-border commuters originated from: France (438 thousand), Germany (286 thousand), Poland (155 thousand), Slovakia (147 thousand), Italy (122 thousand), Romania (122 thousand), Hungary (111 thousand) and Belgium (107 thousand); together they provided about three quarters of all cross-border commuters in the EU.

## Commuting in and around London

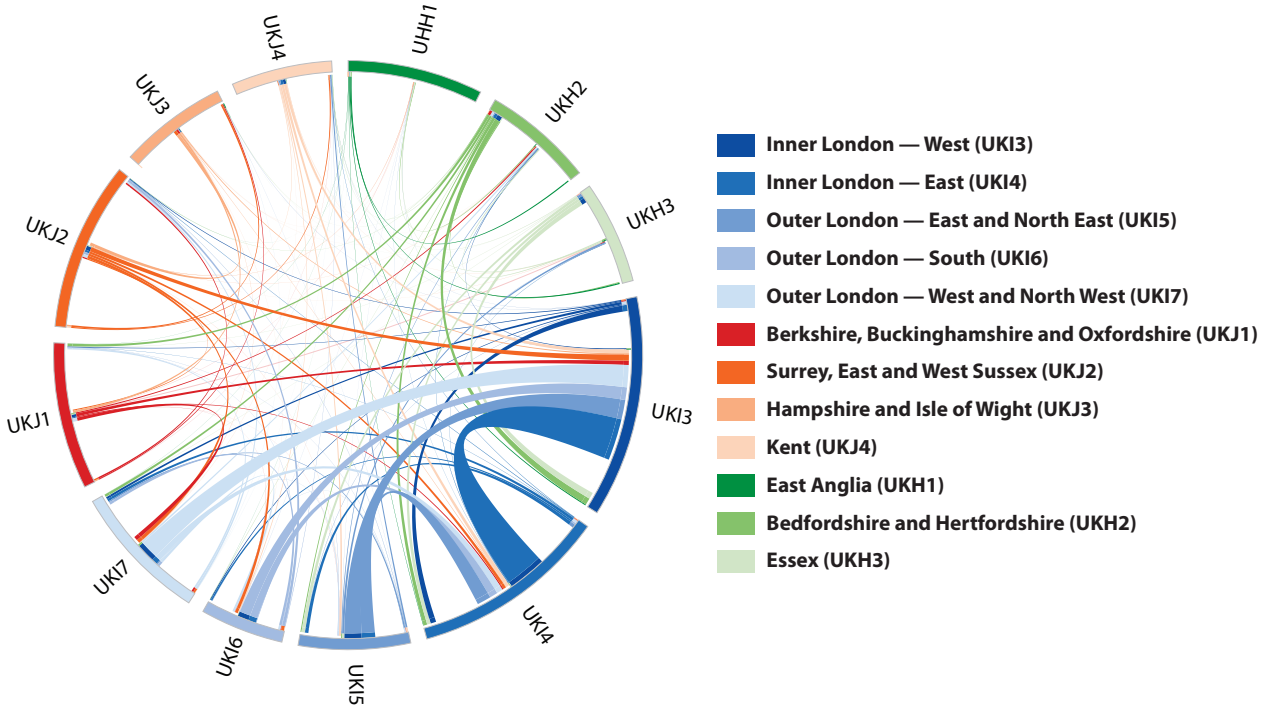
Commuters who work in London are somewhat atypical when compared with other commuters in the United Kingdom. Those commuting into London are more likely to spend longer on their daily commute to/from work, while a higher proportion of commuters in and around London make use of public transport (in particular, train and underground services); in most other parts of the United Kingdom, by far the most popular means of transport for commuting to work was the passenger car.

Commuting patterns into London are closely linked to the rail network, insofar as there is a radial pattern to the share of commuters that follows mainline rail services to towns and cities such as Harlow, Chelmsford, Dartford, Tunbridge Wells, Crawley, Guildford, Reading or St. Albans; indeed, many commuters choose to live in these places so they may be in close proximity of a railway station for commuting to work.

**Figure 13.3** (see footnote for information on how to read the information presented) shows national commuter flows between a number of regions in the south-east of England. Although commuting is highly developed in the south-east of England, it is important to stress that a majority of the regional workforce worked in the same region as the one where they lived in each of the regions outside of Inner and Outer London. By contrast, commuters accounted for a majority of the regional workforce in Inner London - East, Outer London - East and North East, and Outer London - South.

Inner London - West was, by far the most popular destination for commuters in the United Kingdom, with almost 1.5 million persons commuting into this region; the second most popular destination was Inner London - East with 635 thousand commuter inflows. The three regions (from outside London) with the highest numbers of commuters flowing into Inner London - West were: Bedfordshire and Hertfordshire; Essex and; Surrey, East and West Sussex. The three regions (from outside London) with the highest numbers of commuters flowing into Inner London - East were: Bedfordshire and Hertfordshire; Essex and; Kent.

**Figure 13.3: Commuter flows within, into and out of London, by NUTS 2 regions, 2015 (1)**
(based on number of persons in employment)




(1) Reading note: the size of the solid outer segments are proportional to the total inflows plus the outflows of each region, where the non-commuters are considered as both an inflow and an outflow. The number of people employed in each region is composed of: commuters leaving to work in other regions (chords in the same colour as the segment); commuters arriving to work in that region from a different region (chords in different colours to the segment); people who live and work in the same region (an invisible white chord connecting the two white areas for each segment). Note that the whole figure is based on double-counting, insofar as those people leaving one region and commuting to work in another are shown for both the region where they live and the region where they work; in a similar vein those who are not commuting (the invisible white chord for each segment) are counted twice and as such, the true proportion of non-commuters living and working in the same region is equal to the size of just one of these white areas.

*Source:* Eurostat (Labour force survey)

The relative importance of cross-border commuting was, unsurprisingly, generally highest among NUTS level 2 regions that share a border with a neighbouring country. **Map 13.3** shows information for 168 regions across the EU, with 36 of these reporting that cross-border outbound commuters accounted for at least 2 % of people in their region who were employed (as shown by the darkest shade of orange); many of these regions were located in the middle of the European land mass. Indeed, a cluster of regions with relatively high shares of cross-border outbound commuters runs from the Nord - Pas-de-Calais (northern France), through the Benelux countries into Rheinland-Pfalz, Lorraine, Alsace, Freiburg, Franche-Comté and Rhône-Alpes, while another covers much of Slovakia and Hungary and then runs into Slovenia and Croatia. The share of cross-border outbound commuting was also quite high in: three regions on the western edge of Poland (Opolskie, Lubuskie and Zachodniopomorskie); two regions in the west of the Czech Republic (Jihozápad and Severozápad); the southern Swedish region of Sydsverige (which is linked to the Danish capital city region of Hovedstaden by the Øresund bridge); the Nord-Est region of Romania (which shares a border with both Moldova and Ukraine); the north-eastern Bulgarian region of Severoiztochen (which shares a border with Romania), and; Estonia (which shares a border with Latvia and Russia, and where more than half the cross-border commuters went to work in Finland).

### *More than a quarter of the working residents in the Belgian region of the Province Luxembourg were cross-border commuters*

Cross-border outbound commuters accounted for more than one quarter (27.3 %) of people in the south-eastern Belgian region of the Province Luxembourg (which borders France and Luxembourg) who were employed. The second highest share (12.2 %) of cross-border commuting was recorded in the north-eastern French region of Lorraine (which borders Belgium, Germany and Luxembourg). These were the only regions in the EU (at the level of detail shown in **Map 13.3**) where more than 10 % of the regional workforce commuted cross-border. The third highest share (9.9 %) of cross-border outbound commuters was recorded in the western Austrian region of Vorarlberg (which borders Germany, Lichtenstein and Switzerland).

### *The eastern flank of France was characterised by a high number of cross-border outbound commuters*

The information shown in **Figure 13.4** is based on the top 20 European regions with the highest absolute number of cross-border outbound commuters (in contrast to **Map 13.3** which is based on the relative share of cross-border outbound commuters in the total number of employed persons). Note also that the coverage of NUTS regions is somewhat different, as **Map 13.3** presents some information for NUTS level 1 regions in order to maximise the number of regions that could be displayed.

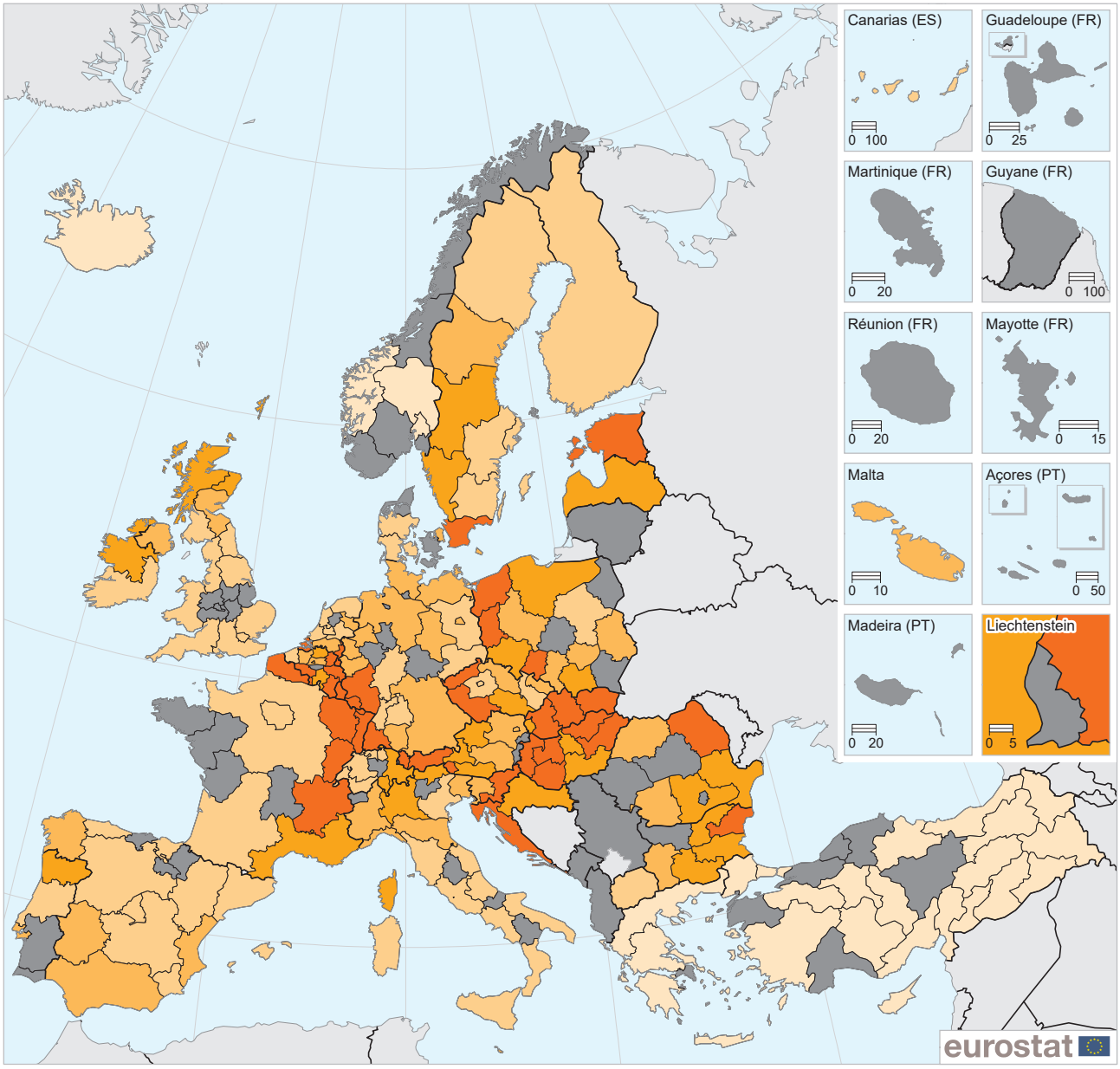
In 2015, the south-eastern French region of Rhône-Alpes had the highest number of cross-border outbound commuters (114 thousand), although in relative terms their share of persons in the region who were employed was quite low (4.2 %). The north-eastern French region of Lorraine was the only other region in the EU to report in excess of 100 thousand cross-border outbound commuters, while the relative share of cross-border outbound commuters from Lorraine was considerably higher, at 12.2 %. There were a total of six French regions present within the top 20 regions with the highest numbers of cross-border outbound commuters; besides Rhône-Alpes and Lorraine, they included Alsace (67 thousand), Provence-Alpes Côte d'Azur (45 thousand), Franche-Comté (38 thousand) and Nord - Pas-de-Calais (30 thousand). These figures reflect, at least in part, the relatively long international border that runs down the eastern side of the French territory, as well as the large area and high population numbers covered by most NUTS level 2 regions in France.

## Spotlight on the regions: Eesti, Estonia

**In 2015, a 3.2 % share of total employment in Estonia (a single region at NUTS level 2) was accounted for by residents who commuted across a border to work; this was more than three times the EU-28 average (0.9 %). Estonia shares a land border with two countries — Latvia and Russia — however, more than half of its cross-border commuters were destined for Finland (regular ferry services link the Estonian and Finnish capital cities of Tallinn and Helsinki, which are approximately 80 km apart).**

***Photo*: Diego Delso, Wikimedia Commons, License CC-BY-SA 3.0**

**Map 13.3: Share of total employment commuting across national borders, by NUTS 2 regions, 2015 (1)**
(% of total employment)




(% of total employment)

EU-28 = 0.9

= 0.0
0.1 – < 0.5
0.5 – < 1.0
1.0 – < 2.0
>= 2.0
Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Bayern, Hessen, Niedersachsen, Rheinland-Pfalz, Sachsen (Germany), Voreia Ellada, Kentriki Ellada (Greece), Bassin Parisien, Sud-Ouest, Méditerranée (France), Noord-Nederland (the Netherlands), Region Pólnocny (Poland), Manner-Suomi (Finland), North East, North West, Yorkshire and The Humber, East of England, London, South East, South West, Wales (the United Kingdom) and Ege (Turkey): NUTS level 1. Yugozapaden (Bulgaria), Calabria, Sardegna, Marche (Italy), Sud_vest Oltenia (Romania), East of England, North Eastern Scotland, Highlands and Islands (the United Kingdom), Région lémanique and Espace Mittelland (Switzerland): 2014. Mecklenburg-Vorpommern (Germany), Utrecht (the Netherlands), Kärnten (Austria) and Eastern Scotland (the United Kingdom): 2013. Prov. Namur (Belgium), Wales and South Western Scotland (the United Kingdom): 2012. Includes data of low reliability for some regions.

*Source:* Eurostat (online data codes: lfst_r_lfe2ecomm and lfst_r_lfe2emp)

## Spotlight on the regions: Rhône-Alpes, France

**In 2015, two eastern French regions — Rhône-Alpes and Lorraine — recorded the highest numbers of cross-border commuters among NUTS level 2 regions in the EU, with 114 thousand and 110 thousand respectively. The majority of the cross-border commuters from the former region worked in Switzerland, while the majority of the cross-border commuters from the latter worked in Luxembourg.**

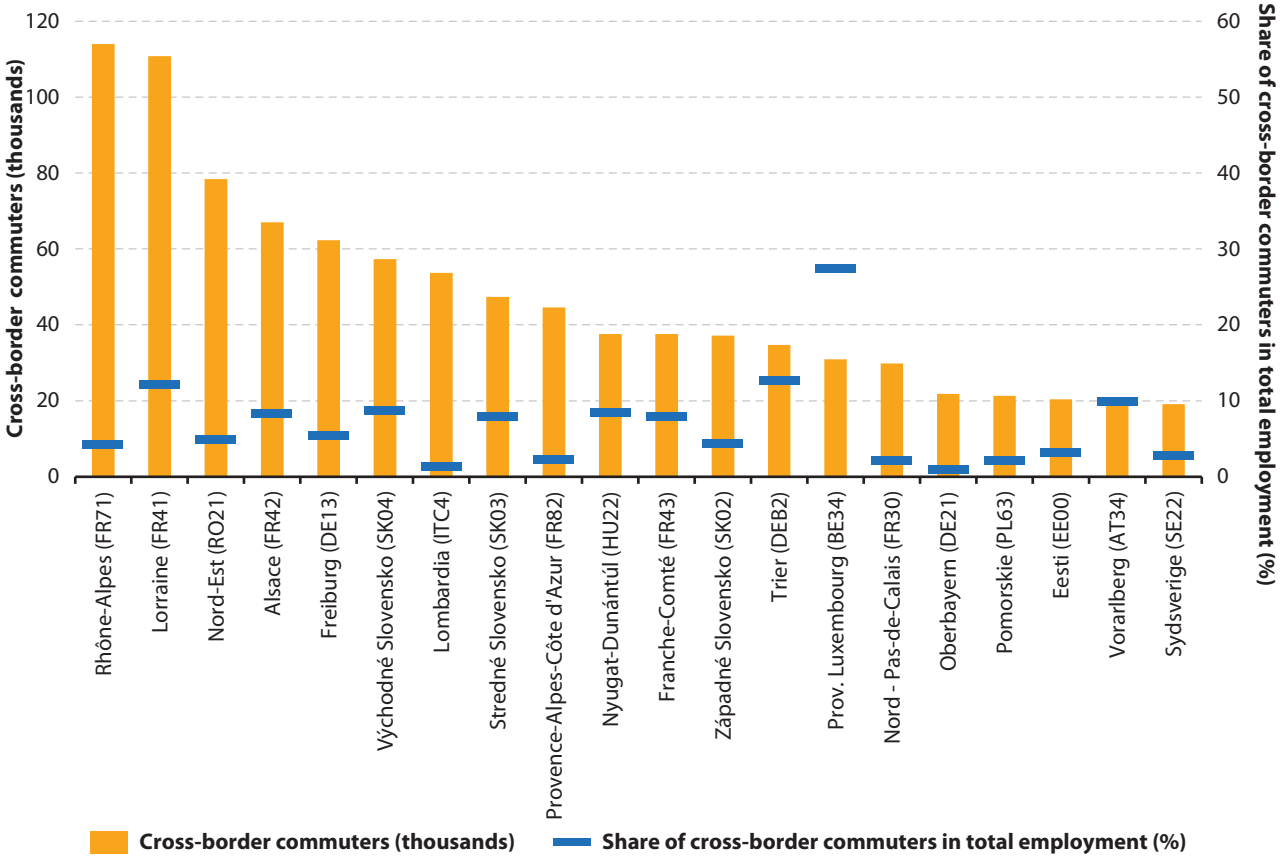
***Photo*: Tabl-trai**

The change in the coverage of NUTS regions in **Figure 13.4** allows one other region to be identified, namely, the German region of Trier, where there were almost 35 thousand cross-border outbound commuters (a 12.6 % share of the number of people in the region who were employed). As such, Lorraine, Trier and the Belgian Province Luxembourg were the only regions where cross-border outbound commuting accounted for more than one tenth of the available workforce; the vast majority of the cross- border commuters from each of these regions worked in Luxembourg (see box below for more details).

Other examples of regions that are characterised by relatively high numbers of cross-border outbound commuters include the south-western German region of Freiburg and the northern Italian region of Lombardia, where most cross-border commuters were working in Switzerland (also the case for the French regions of Franche-Comté and Rhône-Alpes).

The southern Swedish region of Sydsverige is an interesting example, as its 19.1 thousand cross-border commuters were almost entirely working in the Danish capital city region of Hovedstaden. This commuter flow has only developed in recent years and has been driven by, among others, the opening of the Øresund bridge linking Malmö and Copenhagen, lower real estate prices

**Figure 13.4: Top 20 regions with the largest number of cross-border commuter outflows, by NUTS 2 regions, 2015** (1)
(thousands)




(1) Based on data available for 182 regions in the EU, Iceland, Norway, Switzerland, the former Yugoslav Republic of Macedonia and Turkey.

*Source:* Eurostat (online data code: lfst_r_lfe2ecomm)

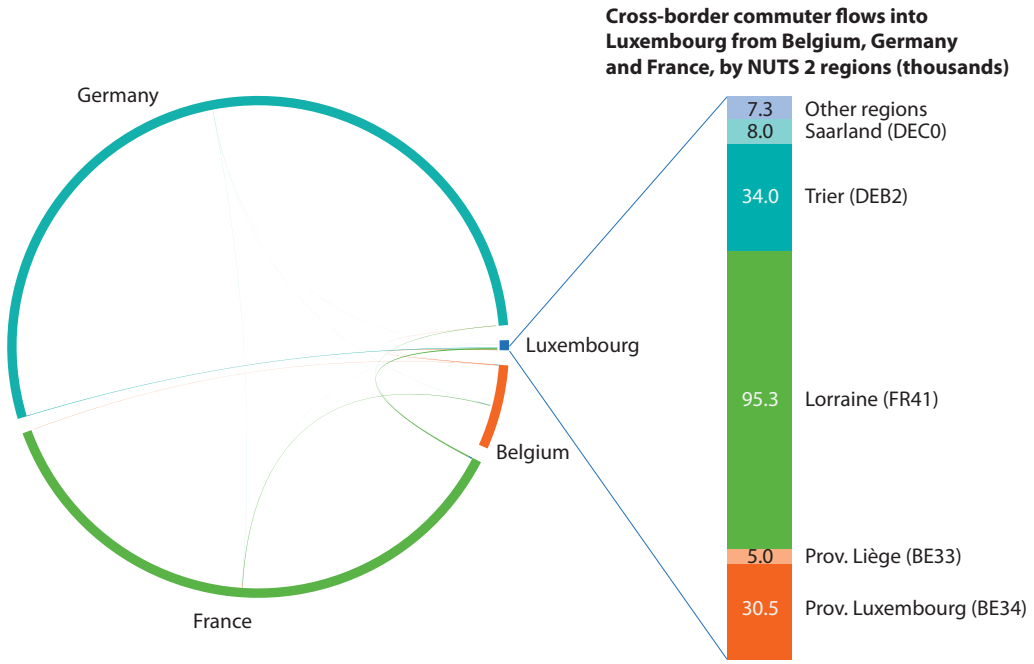
## Cross-border commuting into Luxembourg

In 2015, Luxembourg (one region for the purpose of this analysis) was the most common destination for cross-border commuters in the EU (among NUTS level 2 regions), with 181 thousand cross-border inbound commuters. Its labour market attracted a high number of commuters from neighbouring countries, with approximately 42 % of the workforce in Luxembourg commuting from Belgium, Germany and France. In keeping with many regions, there was a high degree of asymmetry for cross-border commuting patterns into and out of Luxembourg. The ratio of cross-border commuters arriving in Luxembourg compared with the number leaving Luxembourg to work in another country was 31 : 1.

The high proportion of cross-border inbound commuters in Luxembourg may, at least to some degree, reflect the low level of linguistic barriers for those living across the border (as both French and German are official languages in Luxembourg) as well as the large number of subsidiaries in Luxembourg of foreign enterprises. In absolute terms, there were 97 thousand people who commuted into Luxembourg from France, which was more than twice the number who commuted from Germany (44 thousand) or Belgium (39 thousand). It is important to note that these statistics refer to the place of residence of cross-border commuters (rather than their nationality/citizenship). Indeed, the relatively high price of accommodation in Luxembourg may result in a considerable number of people (Luxembourg nationals and people from other countries) deciding to live in one of the neighbouring countries while retaining a job in Luxembourg.

**Figure 13.5** shows that the overall impact of cross-border commuter flows between the four countries was relatively small. The 39 thousand cross-border commuters from Belgium to Luxembourg equated to 1.1 % of the total number of people in Belgium who were employed, while the shares for France (0.4 %) and Germany (0.1 %) were even lower. However, these cross-border commuter flows have a much bigger impact at a regional level. Indeed, the 31 thousand cross-border commuters from the Belgian region of the Province Luxembourg accounted for 27.0 % of the number of people in this region who were employed, while the corresponding shares for the German region of Trier (12.4 %) and the French region of Lorraine (10.5 %) were somewhat lower. Outside of the three immediate neighbouring regions, the only other regions with any sizeable commuter flows into Luxembourg were the German region of Saarland (eight thousand commuters) and the Belgian region of Province Liège (five thousand).

**Figure 13.5: Commuter flows within, into and out of Luxembourg, 2015** (1)
(thousands)




(1) Reading note: the size of the solid outer segments are proportional to the total inflows plus the outflows of each region, where the non-commuters are considered as both an inflow and an outflow. The number of people employed in each region is composed of: commuters leaving to work in other regions (chords in the same colour as the segment); commuters arriving to work in that region from a different region (chords in different colours to the segment); people who live and work in the same region (an invisible white chord connecting the two white areas for each segment). Note that the whole figure is based on double-counting, insofar as those people leaving one region and commuting to work in another are shown for both the region where they live and the region where they work; in a similar vein those who are not commuting (the invisible white chord for each segment) are counted twice and as such, the true proportion of non-commuters living and working in the same region is equal to the size of just one of these white areas.

*Source:* Eurostat (Labour force survey)

and living costs in Sweden, and a relatively high number of job vacancies in the Danish capital. This has resulted in Swedes deciding to work in the Danish capital, but also to a number of Danes choosing to move from Copenhagen to Sweden, while maintaining their jobs in Denmark and commuting back to their 'home' country.

A number of other example suggests that cross-border commuting patterns may be encouraged when there are major infrastructure developments, for example, the development of high-speed train connections (such as Eurostar, Thalys or ICE) that make it relatively easy to commute longer distances.

## Analysis of outbound commuter flows by sex, age group, educational attainment and economic activity

This final section presents a set of four figures which provide alternative analyses of commuter flows according to a set of different socioeconomic factors (sex, age, educational attainment and the economic activity in which people work); note that the information collected for NUTS level 2 regions has been aggregated to the national level in order to analyse the results.

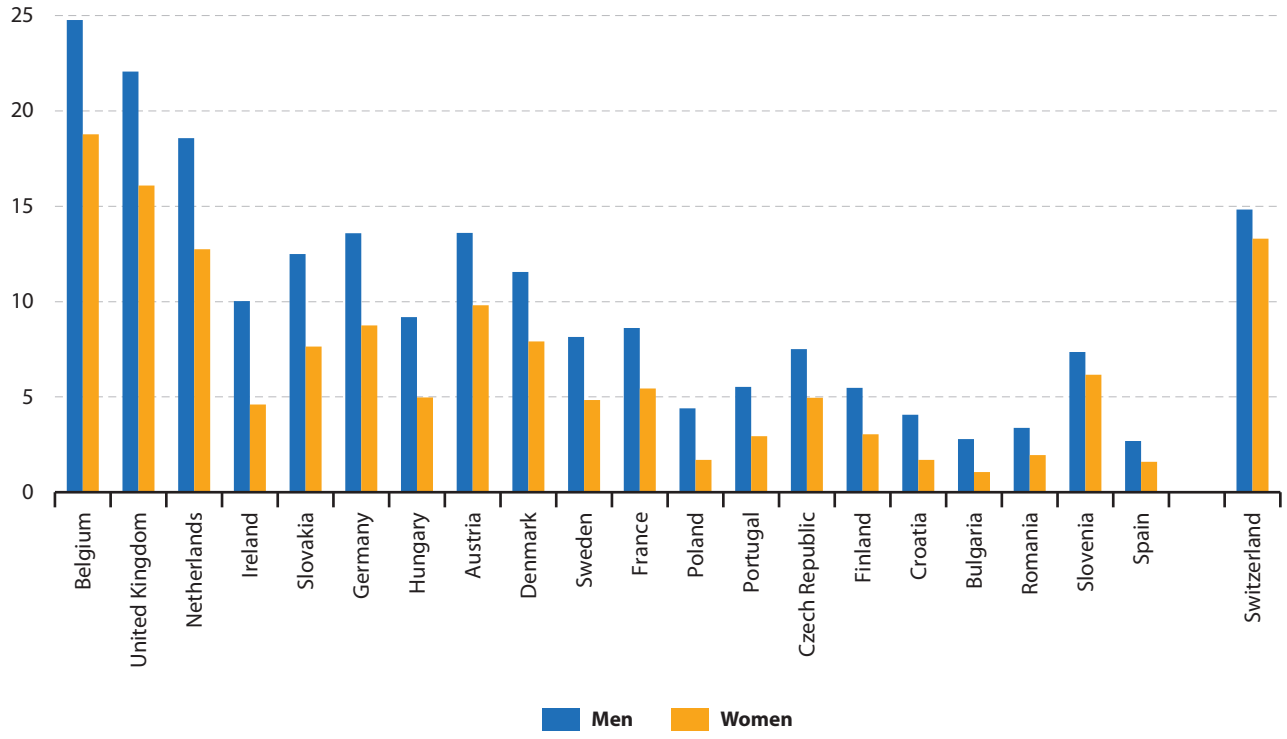
***In general, men commute longer, further and more frequently than women***

**Figure 13.6** shows the share of male and female outbound commuters among all employed persons. In 2015, this share was systematically higher for men (than women) in each of the 20 EU Member States for which data are available; the same was also true in Switzerland. The biggest gender gaps were recorded in those EU Member States that had the highest shares of outbound commuters, namely, Belgium and the United Kingdom, where the proportion of men commuting to a different region was 6.0 percentage points higher than the corresponding share for women.

***Age is another important determinant for commuting behaviour, with young people tending to commute longer and further than older people***

**Figure 13.7** shows an analysis by the age of commuters for 21 EU Member States; it is based on national and cross-border commuter flows from NUTS level 2 regions. In 2015, the most common age groups for outbound commuters were generally 25–34 or 35–44 years, although in Denmark, Germany, Austria and Finland, it was more commonplace for outbound commuters to be somewhat older (45–54 years); this was also the case in Switzerland. Note that these shares

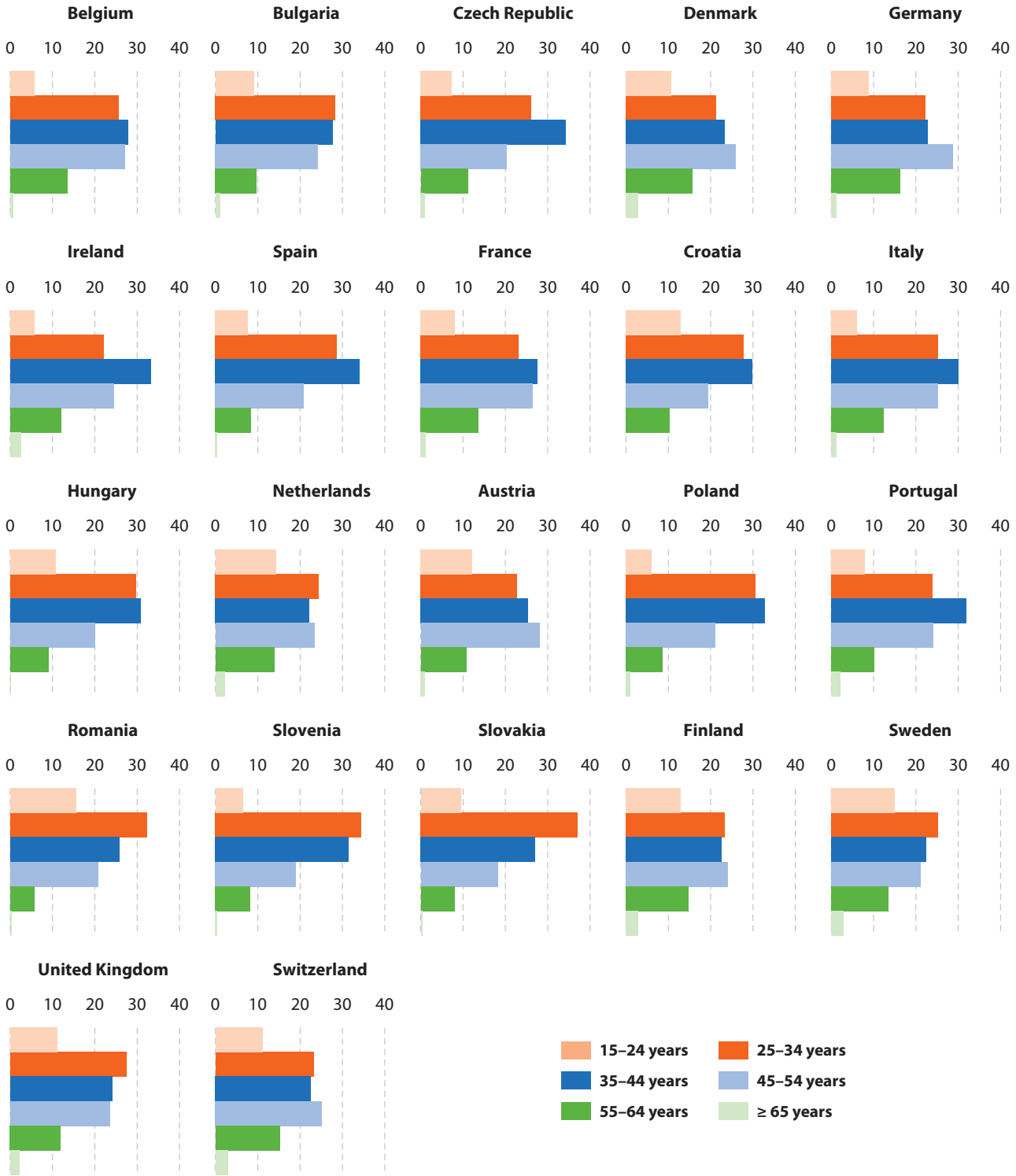
**Figure 13.6: Share of persons in employment commuting out of NUTS 2 regions, by gender, 2015 (1)**
(% of persons in employment)




(1) Ranked on the gender difference in percentage point terms (male share - female share). Refers to national and international commuter flows. Estonia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Iceland, Liechtenstein, Norway, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (Labour force survey)

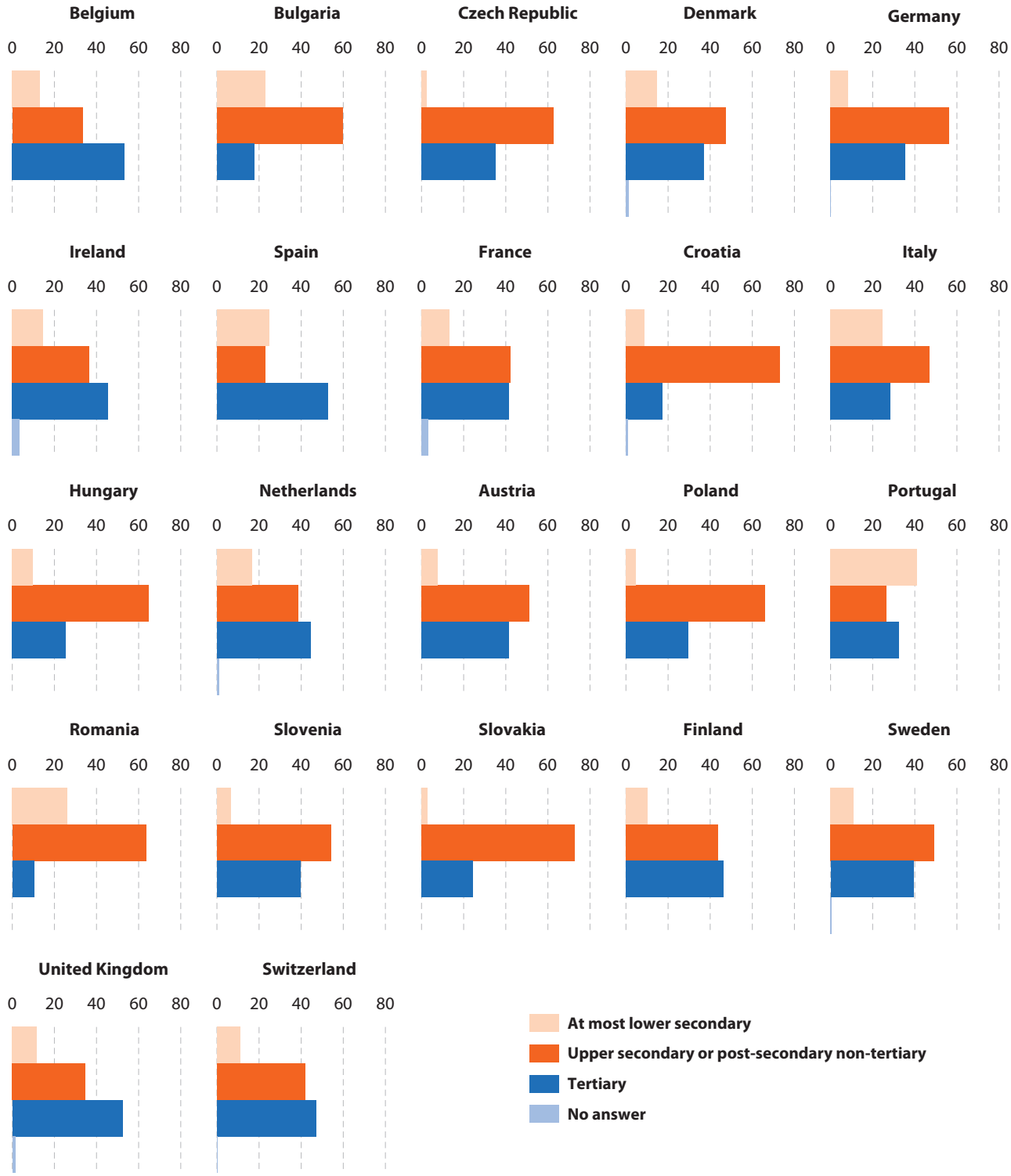
**Figure 13.7:** Distribution by age group of persons commuting out of NUTS 2 regions, 2015 ([1])
(% of commuters)




([1]) Refers to national and international commuter flows. Estonia, Greece, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Iceland, Liechtenstein, Norway, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (Labour force survey)

**Figure 13.8:** Distribution by educational attainment of persons commuting out of NUTS 2 regions, 2015 (1)
(% of commuters)




(1) Refers to national and international commuter flows. Estonia, Greece, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Iceland, Liechtenstein, Norway, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (Labour force survey)

reflect, to some degree, the age structure of each individual workforce, for example, there has been little or no population growth in Germany in recent years, with very low fertility rates and an ageing population; this may, at least in part, be reflected in the share of German commuters who were aged 45–54 years.

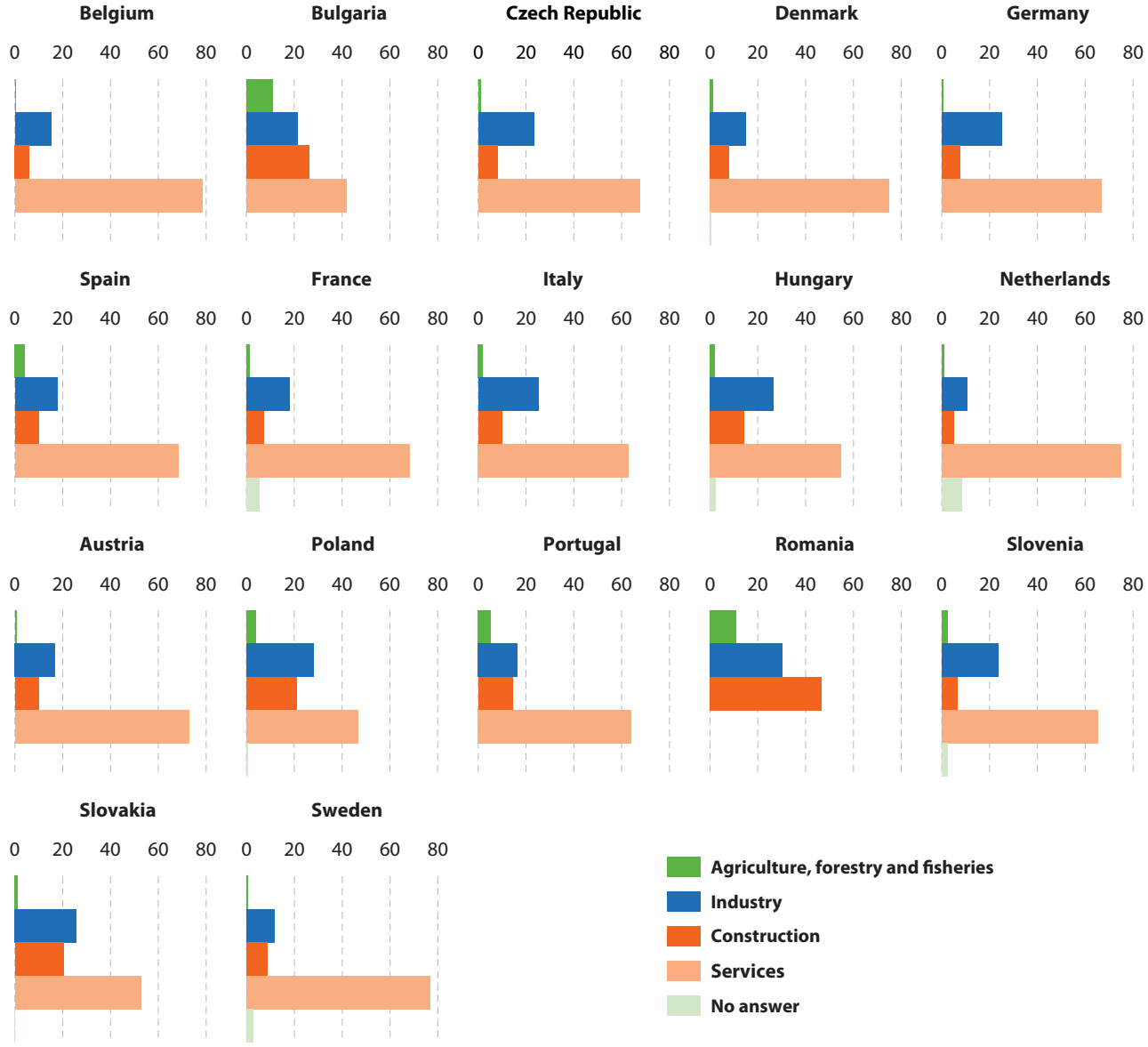
***In the western EU Member States, those with a higher level of educational attainment were more likely to commute***

The highest share of outbound commuters by educational attainment was recorded among those with an upper secondary or post-secondary non-tertiary level of education; this was particularly the case in most of the eastern EU Member States. In the western Member States, it was more commonplace to find that the highest share of outbound commuters was recorded among those with a tertiary level of educational attainment; this was also the case in Switzerland. Portugal was the only country to report that its highest share of outbound commuters was registered among those with at most a lower secondary level of educational attainment.

**Figure 13.9** presents an analysis of the economic activities which provide work to outbound commuters; it is important to note that the shares presented, reflect, to a large degree, the economic structure of each economy. As the services sector accounts for the largest share of economic activity in each of the EU Member States, it is perhaps not surprising to find that the proportion of commuters working in services ranged, in 2015, from a low of 41.7 % in Bulgaria and less than half of the outbound commuting workforce in Romania and Poland, up to a high of 78.5 % in Belgium. Industrial activities generally accounted for the second highest share of commuters, although this pattern was not observed in Bulgaria and Romania, where more than a quarter of all outbound commuters worked in construction, while a higher proportion of outbound commuters in Romania worked in agriculture, forestry and fisheries than in industrial activities.

To conclude, there may be a range of different motivations that explain why some people commute to work. One of the most important is likely to be balancing the availability of well-paid job opportunities with the quality of life and affordability of accommodation. People with higher incomes tend to commute further, while managers and professionals also travel further than people in other occupational groups. This may be linked to higher paid jobs being concentrated in large urban centres and capital cities, where the quality of life is sometimes considered as far from ideal (for example, when bringing up a family). As men tend to occupy more management roles and have higher average earnings than women, this may explain, at least in part, why commuters tend to be predominantly male, within the age group of 25–44 years, and with at least an upper secondary or post-secondary non-tertiary level of education.

**Figure 13.9:** Distribution by economic activity of persons commuting out of NUTS 2 regions, 2015 (1)
(% of commuters)




(1) Refers to national and international commuter flows. Estonia, Ireland, Greece, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Finland, the United Kingdom, Iceland, Liechtenstein, Norway, Switzerland, Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey: not available.

*Source:* Eurostat (Labour force survey)

# Data sources and availability

The data presented in this chapter are derived from a special analysis of labour force survey (LFS) data. The LFS population generally covers those persons aged 15 and over, living in private households. The survey follows the definitions and recommendations of the International Labour Organisation (ILO). More information on regional statistics from the LFS can be found in Chapter 5, or in an online publication on EU labour force survey statistics (see: http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_statistics).

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS.

## Defining commuters

Annual data for outbound commuters are available from 2010 onwards and are presented as numbers by NUTS level 2 region. The total number of people in each NUTS level 2 region who were employed may be analysed in terms of those who work: in the same region as their place of residence ('non-commuters'); in a different region of the same EU Member State ('national commuters'); in a foreign country ('cross-border commuters'). As commuting is defined in terms of the number of persons employed, the count includes the not just employees but also the self-employed.

Commuting is defined in relation to each person's main place of residence, with commuters exercising their occupation in a region (national or international) other than the one in which they reside. Commuters should return, on average, at least once a week to their main place of residence from the region where they are working. For international/cross-border commuters, nationality is not considered as a determining factor, as there are cases where people may move from one country to another in order to benefit from, for example, lower housing and living costs, but then commute back to their home country for work.

# 14 Focus on population projections



This chapter describes the results of the latest population projections of regional demographic patterns across the European Union (EU), Iceland, Norway and Switzerland. It presents a concise summary of results at a regional level for the Europop2013 'main scenario' — a set of population projections for the period 2015–50 that were based on 2013 population data.

The data analysed in this chapter are based on the most recent demographic data (generally for 1 January 2015) and Europop2013 population projections. Some of the 2015 data are still provisional or estimates and so calculations of changes between 2015 and 2050 that are based on these data are also marked as provisional or estimates in the maps and figures provided. It should be noted that the 2015 demographic data were collected using the NUTS 2013 classification, while the population projections were produced using NUTS 2010 and the resulting data were converted to NUTS 2013 (for those regions where a conversion was possible: see the 'Data sources and availability' section below for more information). The population data for 2015 are the most recent official statistics available at the time of writing and the same data set was used as the basis for the regional analysis of population presented in Chapter 2.

Demographic changes in the EU are likely be of considerable importance in the coming decades as the vast majority of models concerning future population trends suggest that the EU's population will continue to age, due to consistently low fertility levels and extended longevity. Although migration plays an important role in the population dynamics of European countries, migration alone will almost certainly not reverse the ongoing trend of population ageing experienced in many parts of the EU. The social and economic consequences associated with population ageing are likely to have profound implications across Europe, both nationally and regionally. For example, low fertility rates will lead to a reduction in the number of students in education, there will be fewer working-age persons to support the remainder of the population, and a higher proportion of elderly persons (some of whom will require additional infrastructure, healthcare services and adapted housing). These structural demographic changes could impact on the capacity of governments to raise tax revenue, balance their own finances, or provide adequate pensions and healthcare services.

# Main statistical findings

Compared with the 508.5 million population of the EU-28 on 1 January 2015, Europop2013 population projections indicate that the EU-28's population would grow slowly (by 3.4 % overall) to reach a peak of 525.6 million in 2048, with the number of inhabitants increasing by 17.1 million persons. The EU-28's population is then projected to fall slightly to 525.5 million by 2050, which is the end of the period studied in this chapter.

## An ageing society in the EU

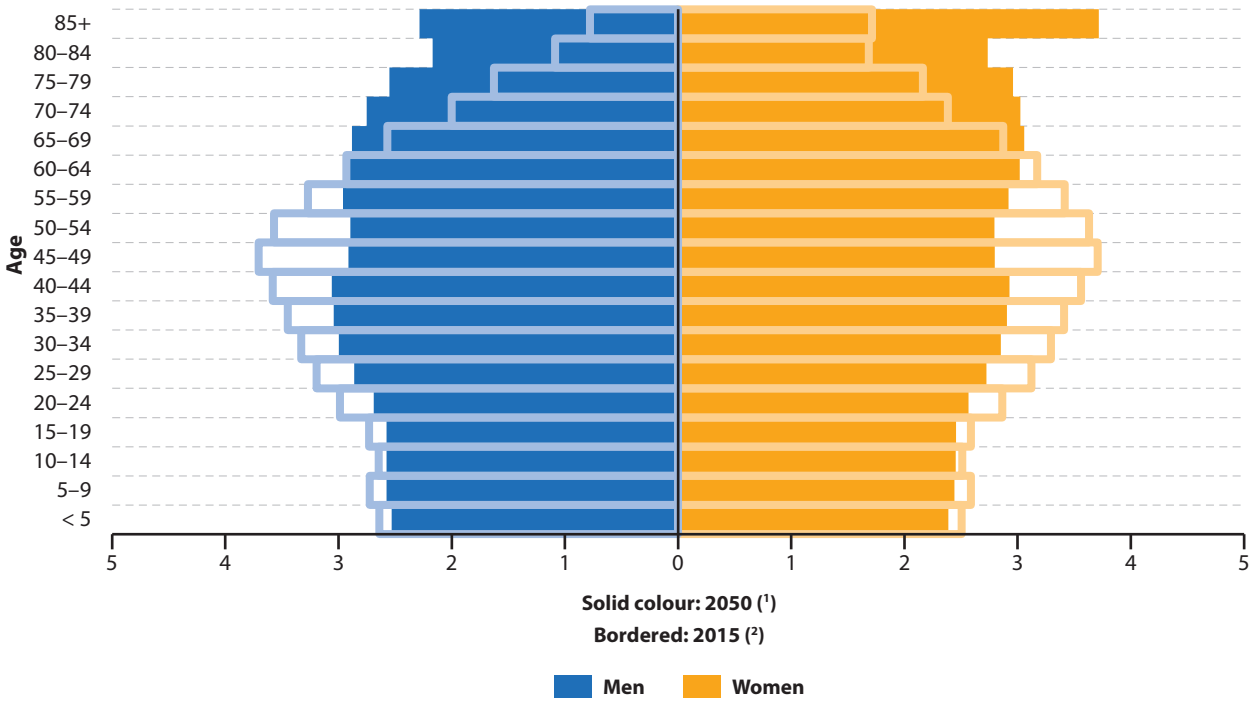
The size of a population changes in a dynamic fashion over time, as a function of three demographic factors: births, deaths and migratory flows, each of which shapes the population's structure over time. The main outcome of the current low levels of fertility and mortality in the EU is a progressive ageing of the population.

Projected changes in the EU-28's population structure can be seen in **Figure 14.1**, which superimposes the 2015 population pyramid on the projected one for 2050. The differences between these pyramids show the projected changes in the composition of the EU-28's population, namely, that:

- the already low number of births is projected to continue, as the base of the pyramid will remain relatively unchanged, indicating that there will be little or no natural population growth;
- the working-age population is projected to shrink considerably between 2015 and 2050, thus further increasing the burden on those of working-age to sustain the dependent population;
- the proportion of elderly persons is projected to grow much larger — as shown by the broadening at the top of the pyramid — reflecting the ageing of the EU's population as a result of reduced mortality rates;
- the number of women aged 85 and over is projected to be considerably higher than the number of men in the same age range.

The 2015 population pyramid bulges in the middle years, with this most noticeable in the age group 45–49, a cohort who were born in the second half of the 1960s. These people will, in the coming years, gradually move into retirement, while there are fewer persons of working-age in the generations that follow.

**Figure 14.1:** Population pyramids, EU-28, 2015 and 2050
(% of the total population)




(1) Projected.
(2) Provisional.

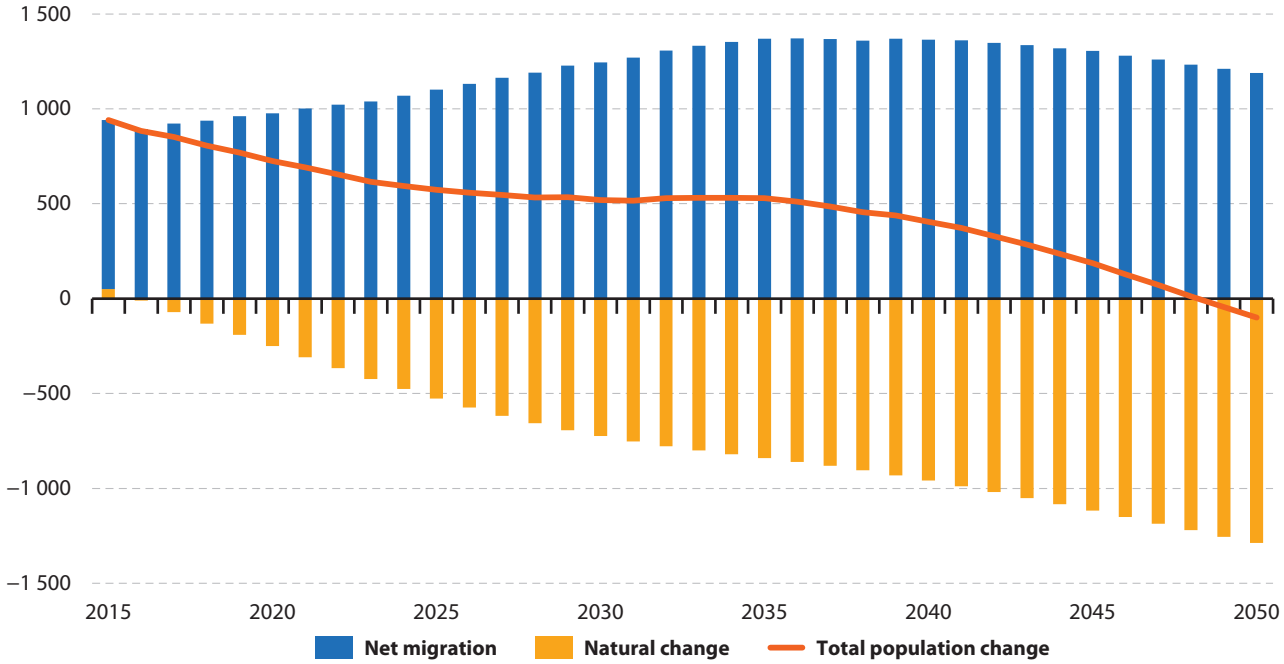
*Source:* Eurostat (online data codes: demo_pjangroup and proj_13npms)

A few demographic indicators illustrate this projected ageing of the population. The median age of the EU-28's population was 42.4 years on 1 January 2015; this means that half of the EU-28's population were older than 42.4 years, while half were younger. The median age is projected to increase by 3.8 years to 46.2 years in 2050. While 15.6 % of the population were aged less than 15 in 2015, this share is projected to fall slightly to 15.0 % by 2050. By contrast, the share of people aged 65 and over is projected to increase from 18.9 % in 2015 to 28.1 % by 2050, with the share of people aged 85 and over more than doubling from 2.5 % in 2015 to 6.0 % by 2050.

Projections for the demographic factors that will drive the change in the overall population are presented in **Figure 14.2**. Natural change — the difference between the number of births and the number of deaths — is projected to turn negative in the EU-28 from 2016 onwards, with deaths exceeding births by 1.3 million by 2050. Net migration — the difference between the number of immigrants and the number of emigrants — is projected to increase in the EU-28 from 891 thousand in 2015 to a peak of 1.37 million in 2036, after which it is projected to fall every year (except in 2039) to reach 1.19 million by 2050.

Initially, the combined impact of the natural population change and net migration is projected to be a series of progressively smaller annual increases in the overall population, from an increase of 941 thousand in 2015 to an increase of 533 thousand in 2028. Thereafter, the population change is projected to stabilise through to 2035 as the increases in net migration are balanced out by a growing level of negative natural population change, with population growth projected to be within the range of 516–535 thousand per year. From 2036, overall population growth is projected to slow again as a falling level of net migration compounds the increasingly negative natural population change. By 2048, the levels of net migration and the negative population change are projected to be almost balanced and for the last two years of the period analysed the projections indicate that net migration will no longer be larger than the negative natural population change leading to a projected decline in overall population numbers for 2049 and 2050.

**Figure 14.2:** Projected developments of population change components, EU-28, 2015–50
(thousands)




*Source:* Eurostat (online data code: proj_13ndbims)

## Projected changes in regional populations

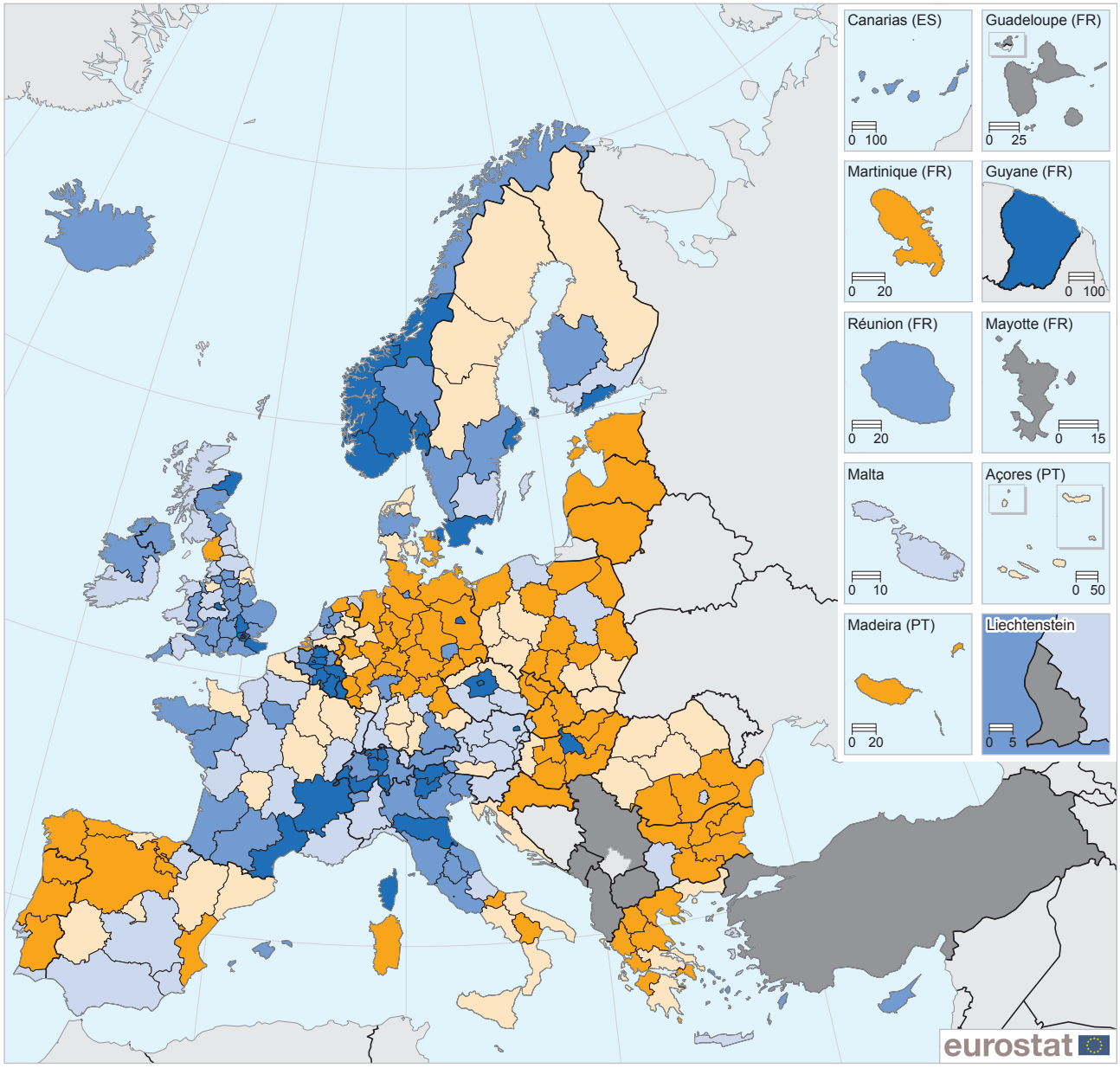
***A small majority of EU regions are projected to have higher population in 2050 than in 2015***

As noted above, the EU-28's population is projected to increase by 3.4 % between 2015 and 2050. Among the 273 NUTS level 2 regions for which data are shown in **Map 14.1**, 132 are projected to have a lower population in 2050 than in 2015 (as shown by the two orange shades), while a slightly larger number, 141 regions, are projected to have a higher population (as shown by the three shades of blue).

Between 2015 and 2050 the population of the Spanish region of Ciudad Autónoma de Melilla is projected to more than double, with the population of the French overseas region of Guyane projected to increase by 94.6 %. For three other regions growth in excess of 80 % is projected: Luxembourg (one region at this level of detail), the Belgian capital city region, and the Spanish Ciudad Autónoma de Ceuta. As well as these five regions, there are another 31 regions across the EU where the projected increase in population is at least 25 % (as shown by the dark blue shade in **Map 14.1**): nine regions in the United Kingdom, 6 more of the 11 Belgian regions, three other French regions, three Italian regions, two regions in each of the Czech Republic, Finland and Sweden, and one region from each of Denmark, Germany, Hungary and Austria. As such, among these 36 regions with the highest projected population growth, nearly two thirds (23 regions) are located in western EU Member States, while there are five regions from northern and five regions from southern Member States, as well as three regions from eastern Member States.

The six regions with the largest projected falls in population include Severozapaden and Severen tsentralen in northern Bulgaria and Mecklenburg-Vorpommern, Thüringen, Chemnitz and Sachsen-Anhalt in eastern Germany, all with projected falls in excess of 36 %. The darker orange shade in **Map 14.1** shows all 78 regions where the projected fall in population is greater than 10 %. A total of 22 of the 38 German regions are projected to have falls of this magnitude, along with nine Polish regions, six Greek and Spanish regions, five Bulgarian and Hungarian regions, four Dutch and Portuguese regions, three Italian and Romanian regions, two Czech and Slovakian regions, a single region in each of Denmark, France, Croatia and the United Kingdom, as well as the Baltic Member States (each one region at this level of detail). As such, most of these regions are in the eastern and western Member States, with a somewhat smaller number in southern Member States and only a few in northern parts of the EU.

**Map 14.1:** Projected percentage change of the population, by NUTS 2 regions, 2015–50 ([1])
(%)




(%)

EU-28 = 3.4

- < −10
- −10 – < 0
- 0 – < 10
- 10 – < 25
- >= 25
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

([1]) EU-28, Ireland and France: provisional. Portugal, Romania and the United Kingdom: estimates. Slovenia: national data.
*Source:* Eurostat (online data codes: demo_r_d2jan, proj_13rpms and proj_13rpms3)

## Spotlight on the regions: Severozapaden, Bulgaria

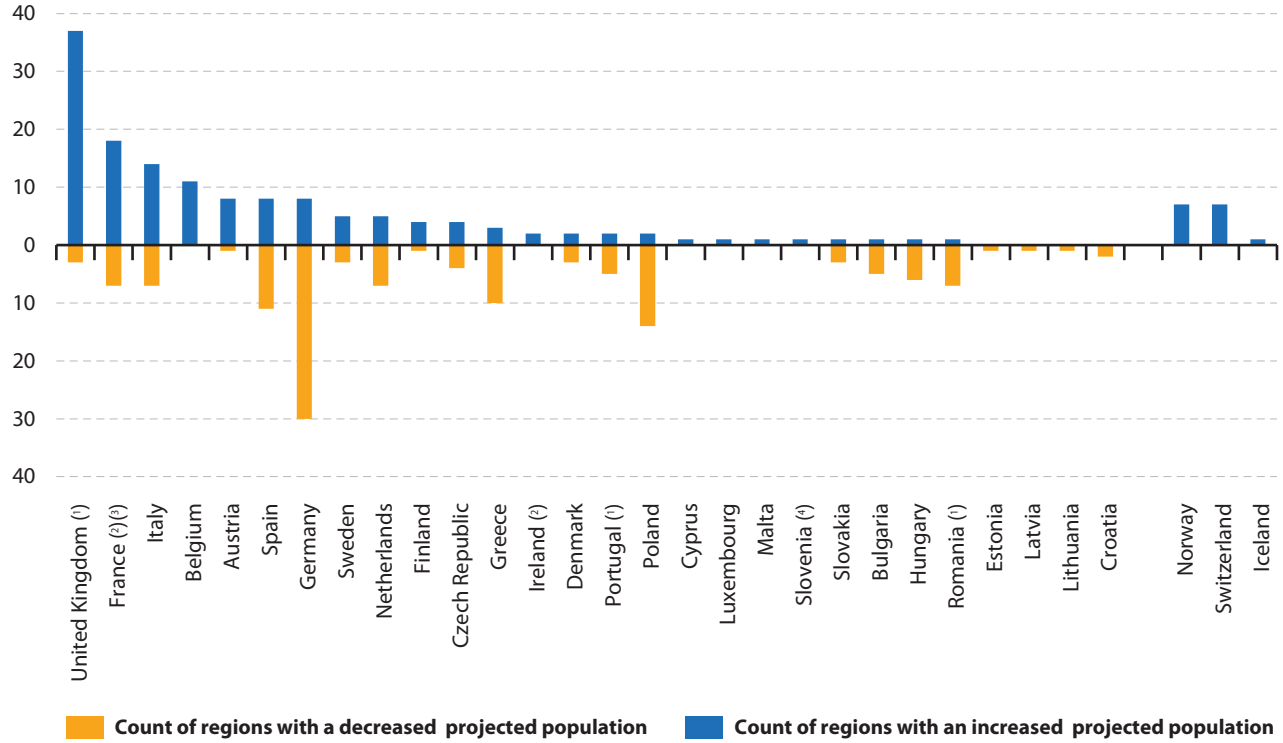
**Eurostat's population projections suggest that the six regions with the largest projected falls in population include Severozapaden and Severen tsentralen from northern Bulgaria and Mecklenburg-Vorpommern, Thüringen, Chemnitz and Sachsen-Anhalt from the eastern part of Germany. The population of Severozapaden is projected to almost halve (−48.9 %) during the period 2015–50, the biggest decline among any of the NUTS level 2 regions.**

***Photo*: Stefankarakashev at Bulgarian Wikipedia**

There are relatively high population increases projected for the three EFTA countries included in the Europop2013 round of population projections. The population of Iceland (one region at this level of detail) is projected to grow by 24.2 % between 2015 and 2050. There were five regions in Norway (out of seven) and five regions in Switzerland (again out of seven) where the population is projected to grow by more than 25 % during the period 2015–50. Among these, the highest projected increase (74.9 %) is foreseen for the Norwegian capital city region of Oslo og Akershus.

**Figure 14.3** provides a summary of the direction of projected population change in the NUTS level 2 regions, again between 2015 and 2050. The population is projected to decrease in the Baltic Member States (all of which are mono-regional) and in both regions of Croatia. By contrast, increases are projected in Cyprus, Luxembourg and Malta (all of which are also mono-regional), Slovenia (for which only national data are available), both Irish regions and all Belgian regions. The majority of regions are projected to have an increase in population in the United Kingdom, France, Italy, Austria, Finland and Sweden, while the Czech Republic is split between four projected increases and four decreases. In the remaining EU Member States the majority of regions are projected to see their populations decrease, with a particularly large number of contractions (relative to increases) in the regions of Germany and Poland.

**Figure 14.3: Number of regions with increased/decreased projected populations, by NUTS 2 regions, 2015–50**
(number)




(1) Estimates.
(2) Provisional.
(3) Guadeloupe and Mayotte: not available.
(4) National data.

*Source:* Eurostat (online data codes: demo_r_d2jan, proj_13rpms and proj_13rpms3)

These latest projections suggest that for Iceland, Norway and Switzerland the population of each level 2 region is likely to increase during the period 2015–50.

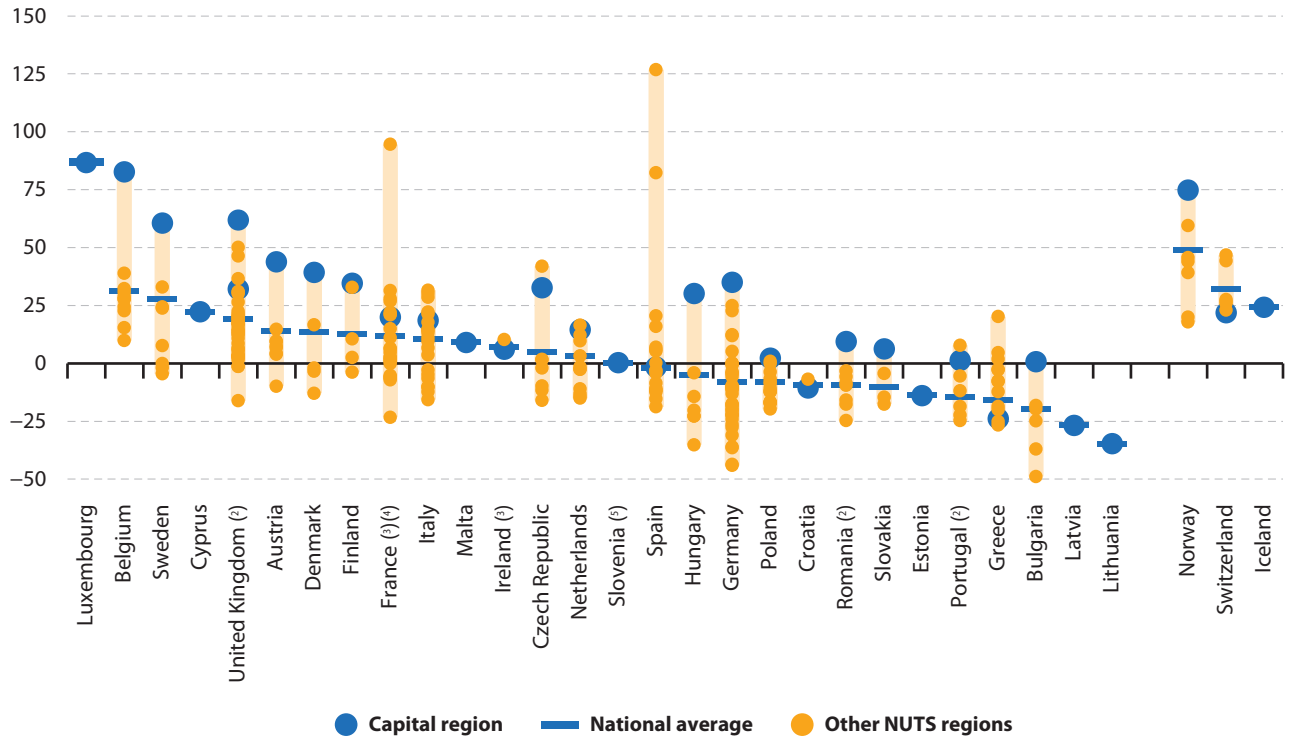
### *Capital city regions nearly always have a projected population change that is higher than the national average*

A similar but more detailed analysis is presented in **Figure 14.4**. As well as distinguishing between the regions with projected increases and decreases between 2015 and 2050, this figure highlights the projected change in the populations of capital city regions, and also illustrates the diversity of the projected population changes within each country.

In 12 of the 21 multi-regional EU Member States for which data are available and in Norway, the capital city region has the highest projected population change between 2015 and 2050; note that at NUTS level 2, Inner London in the United Kingdom is composed of two regions, one of which has the highest projected population change, while the other has the fifth highest change. Among the remaining nine multi-regional Member States, the projected change in the population of the capital city region is below the national average only in Ireland, Greece and Croatia; this is also the case for Switzerland.

In terms of the simple range from highest to lowest, the least diverse projected population changes are in Ireland, Croatia (which both have only two regions), Poland and Slovakia, while the most diverse projected regional population changes between 2015 and 2050 are in Spain and France (although their large ranges are caused by a small number of exceptionally high values). A number of the other EU Member States have quite diverse projected changes across many of their regions, as is the case for Bulgaria, Hungary, Germany and the Czech Republic. There was also quite a large range for the highest to the lowest projected population changes in Norway.

**Figure 14.4: Projected percentage change of the population, by NUTS 2 regions, 2015–50 (1)**
(%)




(1) The light orange shaded area shows the range of the highest to lowest region for each country. The green bar shows the national average. The blue circle shows the capital city region. The orange circles show the other regions.
(2) Estimates.
(3) Provisional.
(4) Guadeloupe and Mayotte: not available.
(5) National data.

*Source:* Eurostat (online data codes: demo_r_d2jan, proj_13rpms and proj_13rpms3)

**Map 14.2** shows the same information as **Map 14.1**, but at a more detailed level, namely for NUTS level 3. At this level of detail the five regions with the largest projected increases in population are the same as those for NUTS level 2 regions, namely: the Belgian capital city region, Luxembourg (one region at this level of detail), and three overseas regions — the Ciudades Autónomas de Ceuta y Melilla (both Spain) and Guyane (France).

Eight NUTS level 3 regions are projected to have decreases in their population numbers in excess of 55 %: Vidin in Bulgaria, Siauliu apskritis in Lithuania and six eastern German regions, namely, Suhl Kreisfreie Stadt, Mansfeld-Südharz, Oberspreewald-Lausitz, Elbe-Elster, Anhalt-Bitterfeld and Spree-Neiße.

While the EU regions with the highest projected increases are the same for NUTS levels 2 and 3 and those with the highest projected decreases include several eastern German regions for NUTS levels 2 and 3, there are some interesting differences between the two maps. There are many NUTS level 2 regions where the projections for the more detailed NUTS level 3 regions vary greatly as can be seen from a few examples. In the Spanish island region of Canarias, the population of Fuerteventura is projected to grow by 33.4 %, while the population of La Gomera is projected to fall by a slightly larger amount, 35.4 %. In the north-western German region of Münster, seven of the NUTS level 3 regions have projected population decreases of at least 13.9 % while Münster Kreisfreie Stadt has a projected increase of 46.5 %. In the Danish NUTS level 2 capital city region of Hovedstaden, the island region of Bornholm has a projected fall in population of 7.4 %, while the NUTS level 3 capital city region of Byen København has a projected increase of 57.2 %. Other NUTS level 2 regions that have a particularly high range of values among their NUTS level 3 regions include: the Romanian capital city region of Bucuresti - Ilfov and the German regions of Thüringen, Leipzig, Freiburg, Brandenburg, Dresden and Darmstadt. In most of these examples, there is a projected shift in populations from more isolated, rural regions towards more densely-populated, urban regions.

In the EFTA countries, the relatively high projected population increases tend to be quite evenly spread across regions when analysing at a more detailed level. For example, in the Norwegian capital city region of Oslo og Akershus (level 2 region) the population is projected to increase by 74.9 % during the period 2015–50, distributed quite evenly between the two level 3 regions of Oslo (80.2 %) and Akershus (69.0 %). In a similar vein, in the northern region of Nord-Norge (level 2), the projected population increase is 19.9 %, with increases among its level 3 regions ranging from 17.7 % in Nordland to 22.5 % for Troms.

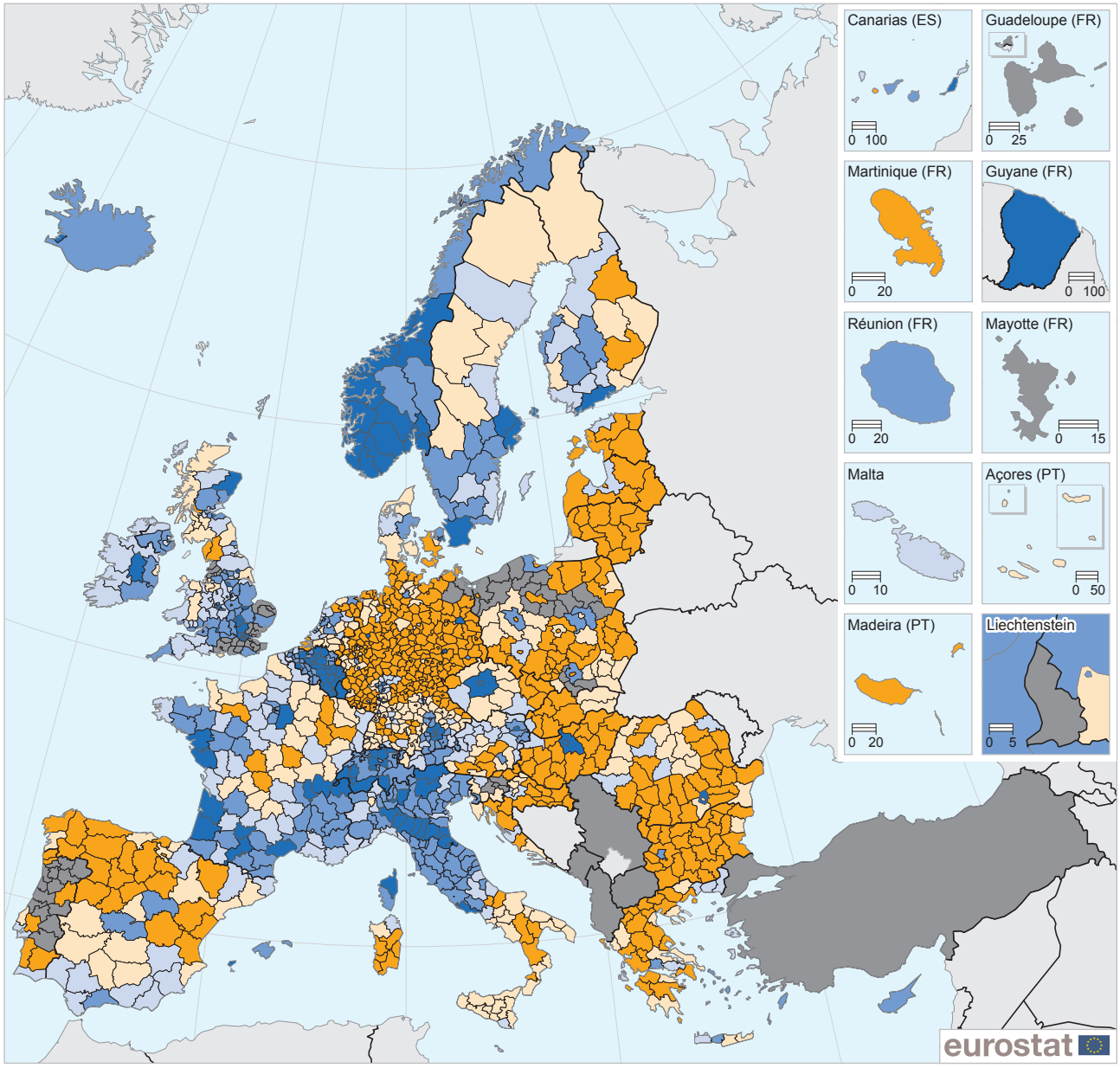
## Demographic factors for projected changes in regional populations

As noted earlier for the EU-28, the overall change in population stems from the relative importance of natural population change (the net effect of births and deaths) and net migration (the balance between immigration and emigration). These two components of population change are presented separately for NUTS level 2 regions in **Maps 14.3** and **14.4**, using the same colours and class boundaries as used for the overall population changes shown in **Map 14.1**. Some regions have projected positive change for both of these components over the period 2015 to 2050, leading to an overall increase in population; others have projected negative change for both components leading to an overall decrease; the remainder have a balance of one negative and one positive component, with the overall direction of population change determined by whichever is greater.

### *High population increases from natural population change are projected mainly in the regions of western EU Member States*

For the EU-28 as a whole, natural population change is projected to reduce the overall population by 4.8 % between 2015 and 2050. It is therefore not unsurprising to find a larger number of NUTS level 2 regions with a projected decrease (202) in population due to natural change than with a projected increase (67). Only seven regions have a projected natural population increase of 25 % or more (the darkest shade of blue in **Map 14.3**): the capital city regions of Belgium, France, Sweden and the United Kingdom (NUTS level 1), as well as the two Spanish regions of Ciudades Autónomas de Ceuta y Melilla and the French overseas region of Guyane. The other regions for which a positive natural population change is projected (shown with the two lighter shades of blue in **Map 14.3**) are concentrated mainly in the western EU Member States — the United Kingdom (21 regions), France (10 regions), Belgium (eight regions), the Netherlands (four regions), Germany, Ireland (two regions each), Austria (one region) and Luxembourg (which is one region at this level of detail) — with only a few regions elsewhere: three Swedish regions, two Danish regions and one Finnish region in the north; two Czech regions in the east; and two Italian regions and Cyprus (which is one region at this level of detail) in the south. Two Norwegian regions — Oslo og Akershus and Agder og Rogaland — are also projected to have population increases of more than 25 % due to natural population change.

**Map 14.2:** Projected percentage change of the population, by NUTS 3 regions, 2015–50 (1)
(%)




(%)

EU-28 = 3.4

- < −10
- −10 – < 0
- 0 – < 10
- 10 – < 25
- >= 25
- Data not available

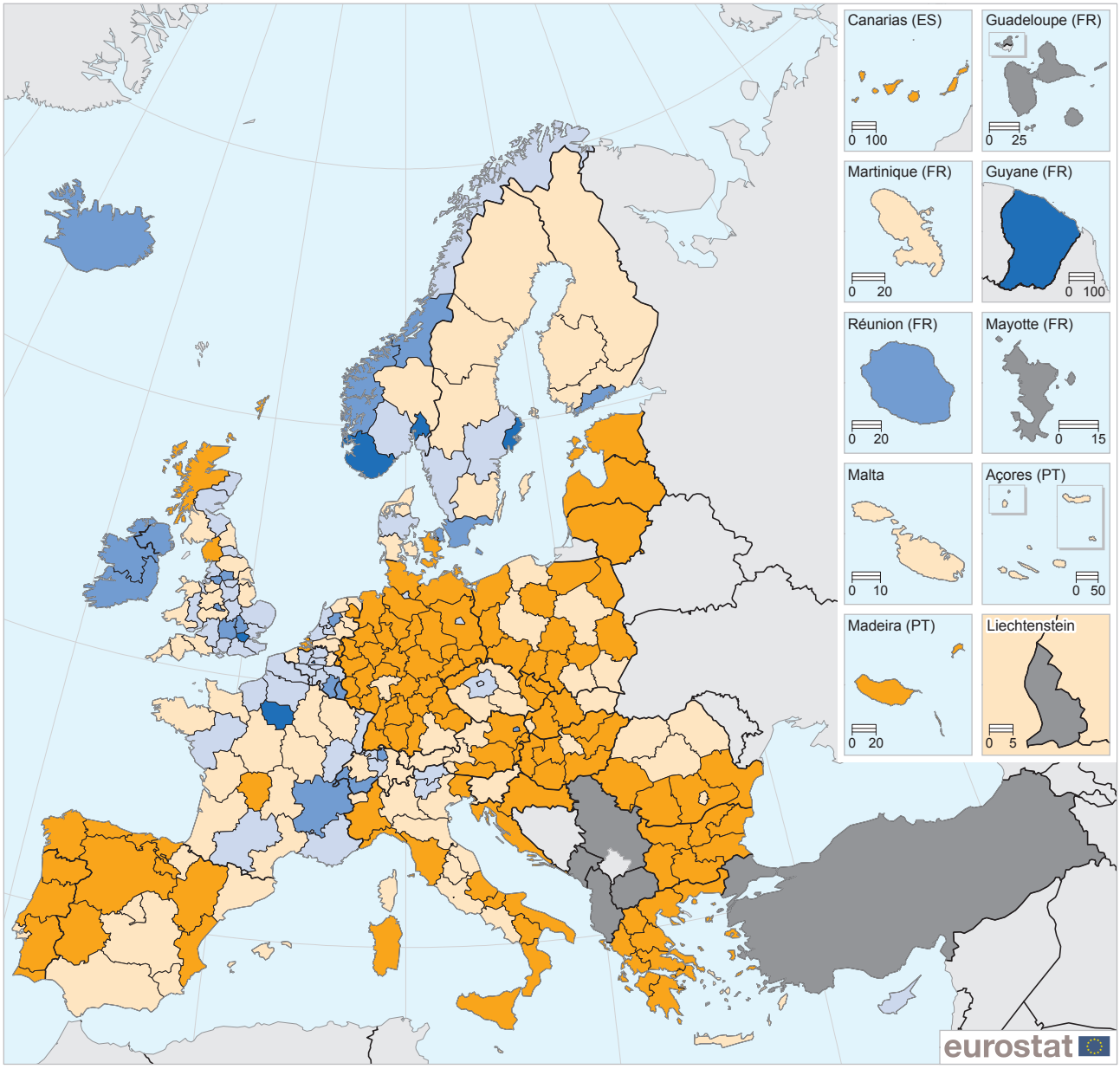
Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) EU-28, Ireland and France: provisional. Portugal, Romania and the United Kingdom: estimates. Attiki (Greece), Opolskie (Poland), London and Greater Manchester (the United Kingdom): NUTS level 2.

*Source:* Eurostat (online data codes: demo_r_pjangrp3 and proj_13rpms3)

**Map 14.3: Projected percentage change of the population due to natural change, by NUTS 2 regions, 2015–50 (1)**
(%)




(%)

EU-28 = -4.8

< –10
–10 – < 0
0 – < 10
10 – < 25
>= 25
Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Reading note: the map shows the projected natural population change (births minus deaths) between 1 January 2015 and 1 January 2050 as a percentage of the population on 1 January 2015. EU-28, Ireland and France: provisional. Portugal, Romania and the United Kingdom: estimates. Slovenia: national data. London (the United Kingdom): NUTS level 1.

*Source:* Eurostat (online data codes: demo_r_d2jan and proj_13rdbims)

***Highest population decreases from natural population change are projected mainly in eastern regions of Germany***

A total of 119 NUTS level 2 regions are projected to have a decrease in population of more than 10 % due to natural population change between 2015 and 2050 and these are shown in **Map 14.3** with the darkest shade of orange. Among these are nine regions where the decrease in population due to natural population change is projected to be greater than 25 %: Severozapaden and Severen tsentralen in Bulgaria, Principado de Asturias in Spain, and the regions of Chemnitz, Sachsen-Anhalt, Brandenburg, Mecklenburg-Vorpommern and Thüringen in eastern Germany and Saarland in south-western Germany.

By contrast, the EU-28's population is projected to increase due to net migration by 8.2 % between 2015 and 2050. A total of 210 regions are projected to have an increase in population due to net migration during this period (as shown by the different shades of blue in **Map 14.4**), with 23 of them projected to have increases of 25 % or more, including eight capital city regions. These 23 regions are mainly located in western and southern EU Member States, with three in the east and two in the north.

Among the 59 NUTS level 2 regions in the EU where a population decrease due to net migration is projected between 2015 and 2050, there were 10 regions where the population is projected to decrease by more than 10 %. These were spread across seven different EU Member States: Latvia and Lithuania (each one region at this level of detail); two Greek regions including the capital city region of Attiki; the two northern Bulgarian regions of Severozapaden and Severen tsentralen; the north-eastern Hungarian region of Észak-Magyarország; Sachsen-Anhalt in Germany, and; the French overseas regions of Martinique and La Réunion.

It can be noted that there are three regions which are common to the lists of regions with projected decreases of more than 25 % due to natural population change and more than 10 % due to net migration: Severen tsentralen, Severozapaden and Sachsen-Anhalt. These three regions, along with Chemnitz in Germany, are the four NUTS level 2 regions in the EU with the largest overall projected decreases in their respective populations.

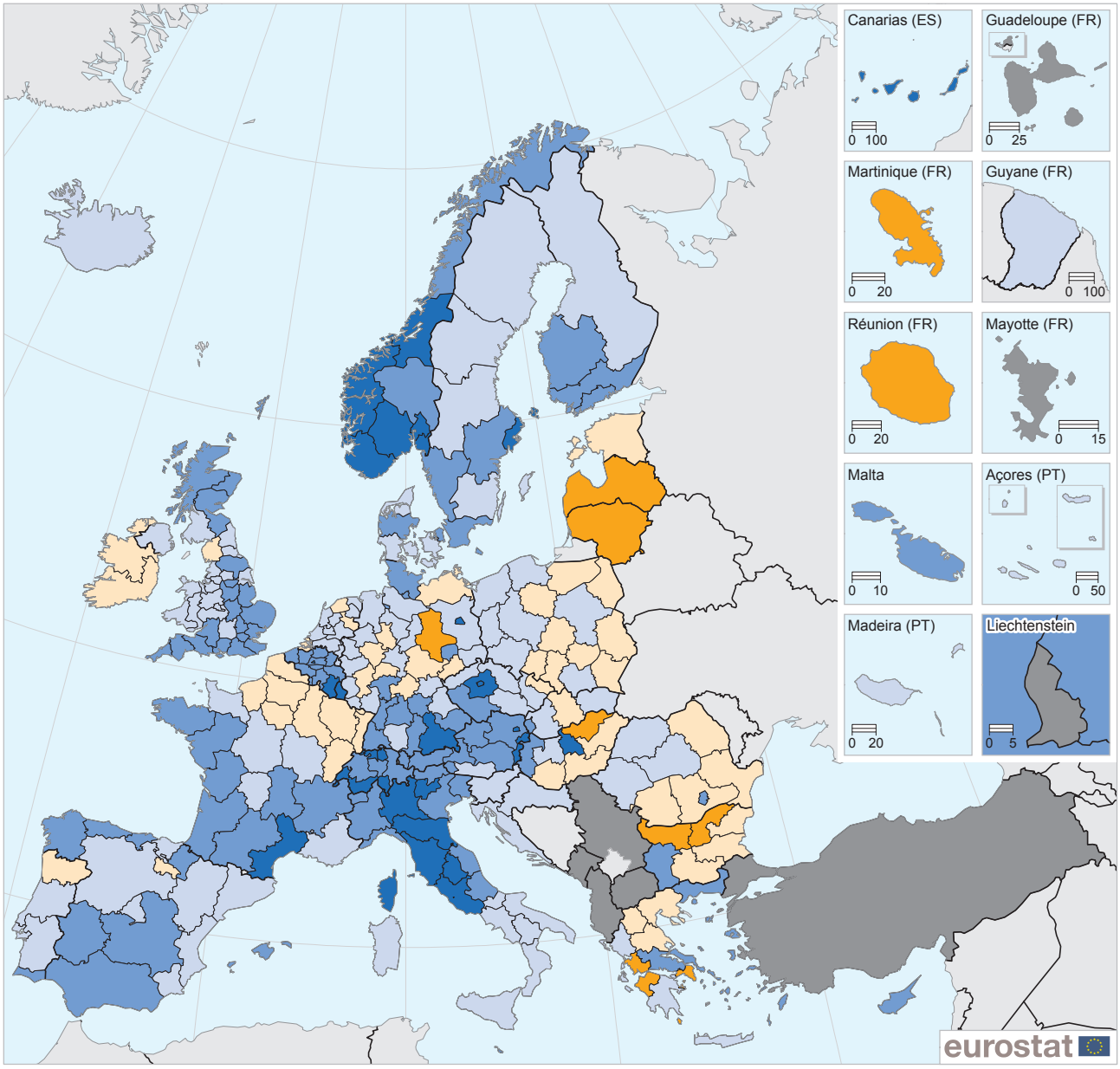
A similar analysis shows that natural population change is projected to increase in the majority of EFTA level 2 regions during the period 2015–50, while every one of the EFTA regions in Iceland, Norway and Switzerland is projected to see its population increase as a result of net migration. There are five Norwegian regions where the population is projected to increase by at least 25 % as a result of net migration, including the capital city region (Oslo og Akershus) which has the highest projected rate of increase, at 41.6 %. The projected increases in population numbers as a result of net migration range from 22.7 % to 34.8 % for the seven level 2 regions in Switzerland, with the highest projected increase for the Région lémanique (the region around Lake Geneva).

Combining the information presented in **Maps 14.1**, **14.3** and **14.4**, the 269 NUTS level 2 regions in the EU for which data are available (1) can be grouped concerning their projected population changes between 2015 and 2050. There were:

- 50 regions where both natural change and net migration are projected to decrease;
- 83 regions where natural change is projected to decrease and net migration to increase leading to an overall population decrease;
- 9 regions (both Irish regions and seven French ones) where natural change is projected to increase and net migration to decrease leading to an overall population increase;
- 69 regions where natural change is projected to decrease and net migration to increase leading to an overall population increase;
- 58 regions where both natural change and net migration are projected to increase.

(1) The only difference in the data availability across these three maps concerns London: NUTS level 2 data for London are only available for **Map 14.1**, so this joint analysis of **Maps 14.1**, **14.3** and **14.4** uses NUTS level 1 data for this region.

**Map 14.4: Projected percentage change of the population due to net migration, by NUTS 2 regions, 2015–50 (1)**
(%)




(1) Reading note: the map shows the projected net migration including statistical adjustment between 1 January 2015 and 1 January 2050 as a percentage of the population on 1 January 2015. EU-28, Ireland and France: provisional. Portugal, Romania and the United Kingdom: estimates. Slovenia: national data. London (the United Kingdom): NUTS level 1.

*Source:* Eurostat (online data codes: demo_r_d2jan and proj_13rdbims)

## Ageing regional populations

***Only nine regions in the EU are projected to have a lower median age in 2050 than in 2015***

As noted earlier, the median age of the EU-28's population was 42.4 years on 1 January 2015 and is projected to increase by 3.8 years to 46.2 years by 2050. The 10 fastest ageing NUTS level 2 regions in the EU as well as the 10 slowest ageing regions (which include nine regions where the median age is projected to actually fall between 2015 and 2050) are shown in **Figure 14.5**. One of the nine regions where the population is projected to be younger in 2050 than in 2015 is the north-western Italian region of Liguria while the other eight are split between northern and western EU Member States: Sweden and Lithuania in the north; Belgium, Germany and the United Kingdom in the west. By contrast, the regions projected to age the fastest are concentrated in just three of the Member States, from the south and the east: three Portuguese regions, five Polish regions, and two Slovakian regions.

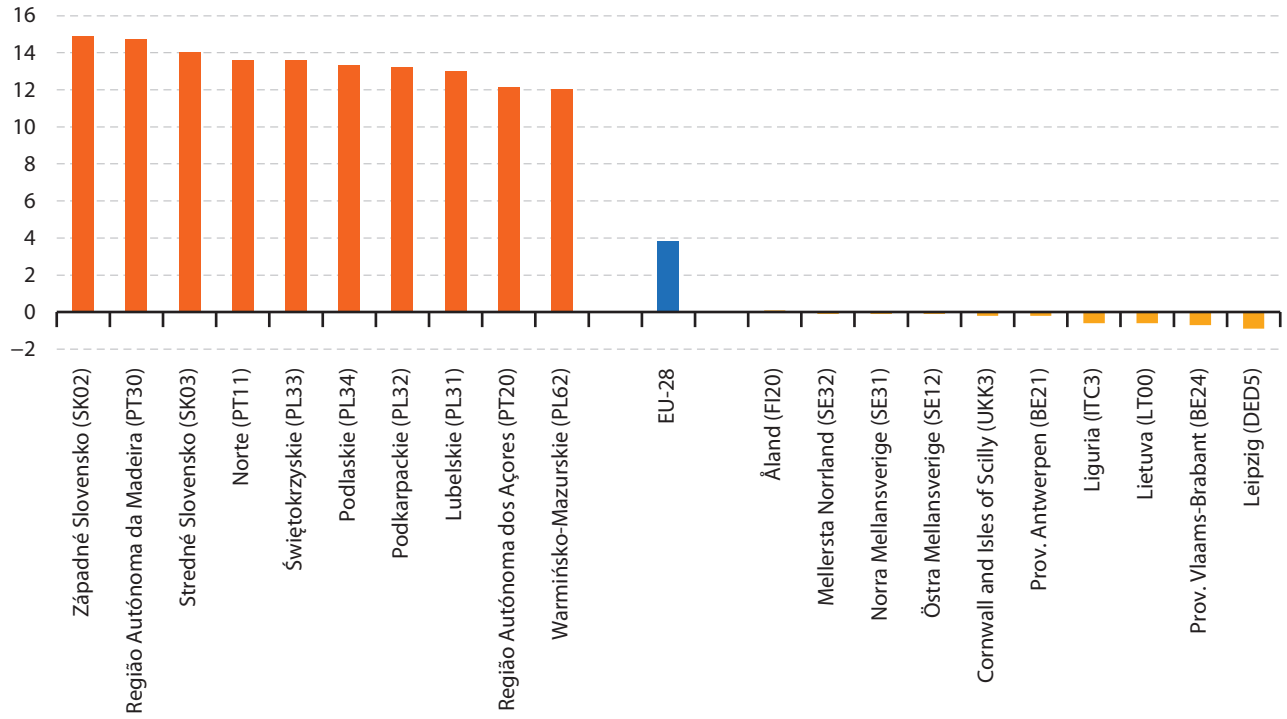
The magnitude of the projected change in median age is quite small for all nine regions where a fall is projected, all less than one year of difference. By contrast, three regions — Západné Slovensko and Stredné Slovensko (both Slovakia) and the Região Autónoma da Madeira (Portugal) — are projected to have increases of at least 14 years for their median ages between 2015 and 2050.

Among the 268 NUTS level 2 regions of the EU (including only national data for Slovenia) for which data are available, a total of 26 are projected to have increases of at least ten years. These include 11 of the 16 Polish regions, four of the seven Portuguese regions, three of the four Slovakian regions, as well as five regions from eastern Germany, and a single Hungarian, Italian and French overseas region.

Across the 15 level 2 regions in the EFTA countries, the projected increase in the median age between 2015 and 2050 was generally quite small in magnitude, ranging from 1.3 years in the Swiss region of Ticino to 4.1 years in Zentralschweiz (also Switzerland).

Other signs of projected ageing can be seen by looking at the share of particular age groups in the total population or at age dependency ratios. The share of people aged 65 and over in the EU-28 is projected to increase from 18.9 % in 2015 to 28.1 % by 2050. At the same time, the share of people aged 15–64 (a broad definition of the working-age population), is projected to fall from 65.5 % in 2015 to 56.9 % by 2050.

**Figure 14.5: Fastest and slowest ageing regions in the EU — projected change in median age, by NUTS 2 regions, 2015–50 (1)**
(years)




(1) Reading note: the figure shows the 10 NUTS 2 regions with the biggest increases (in orange) and the biggest decreases (in yellow) in their projected median age over the period 2015–50, as well as the EU-28 average (in blue). Slovenia: national data. Guadeloupe, Mayotte (France) and London (the United Kingdom): not available.

*Source:* Eurostat (online data code: proj_13rdbims)

## Spotlight on the regions: Západné Slovensko, Slovakia

**The median age of the EU-28 was 42.4 years in 2015: in other words, half of the EU-28's population was older than 42.4 years, while half was younger. The effects of population ageing are already apparent and the median age of the EU-28 population is projected to rise by 3.8 additional years between 2015 and 2050. During the same period (2015–50), the median age of the populations in two Slovakian regions — Západné Slovensko and Stredné Slovensko — and the Portuguese Região Autónoma da Madeira are projected to increase by 14–15 years, such that the median age attains 55.4 years in Západné Slovensko by 2050, the highest value among any of the NUTS level 2 regions.**

***Photo*: Paul Cosmin**

Age dependency ratios may be used to study the level of support given to younger and/or older persons by the working-age population; these ratios are expressed in terms of the relative size of younger and/or older populations compared with the working-age population. The old-age dependency ratio, shown in **Map 14.5**, is calculated as the ratio between the number of people aged 65 and over and the number aged 15–64, expressed as a percentage. As the share of the older age group is projected to rise while that of the working-age group is projected to decline, the old-age dependency ratio is projected to increase, from 28.8 % in 2015 to 49.4 %. In other words, in 2015 the ratio of people of working-age to people aged 65 and over was 3.5 : 1 and this is projected to fall to almost 2 : 1 by 2050.

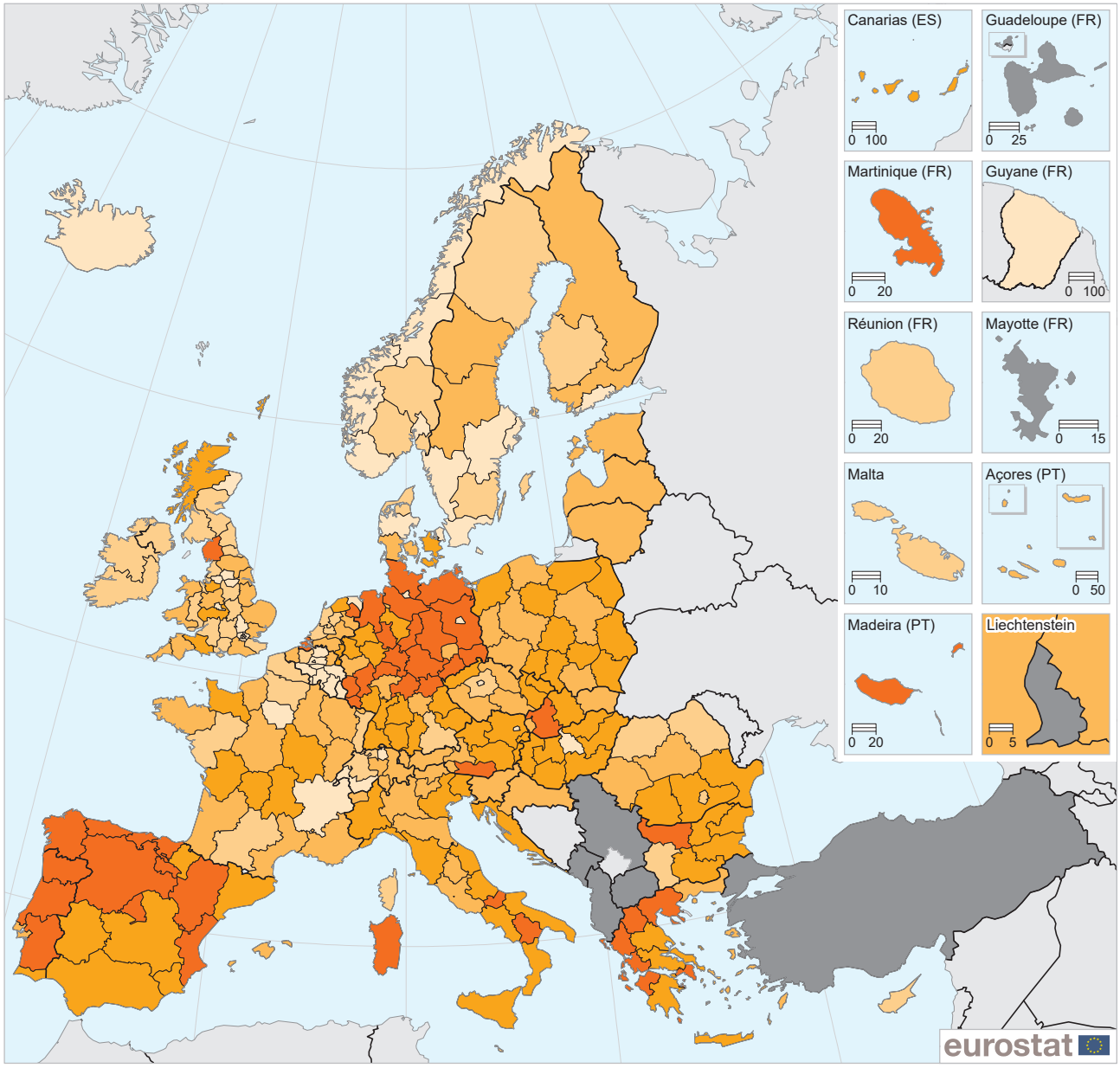
***By 2050, four eastern German regions are projected to have more people aged 65 and over than of working-age***

There were four eastern German regions — Chemnitz, Sachsen-Anhalt, Mecklenburg-Vorpommern and Brandenburg — where the old-age dependency ratio is projected to reach or exceed 100 %; in other words, there will be as many or even more people aged 65 and over as there will be aged 15–64. A total of 47 of the 273 NUTS level 2 regions of the EU (including only national data for Slovenia) for which data are available (as shown in **Map 14.5**) have a projected old-age dependency ratio of 62 % or higher in 2050 (the darkest shade of orange in the map). Most of these regions are in Germany (18 regions) or one of the southern EU Member States: Spain (nine), Greece (six), Portugal (four) or Italy (three). In addition, there are a few such regions in other western Member States (France, the Netherlands, Austria and the United Kingdom) or eastern Member States (Bulgaria and Slovakia). The only capital city regions where the old-age dependency ratio is projected to reach or surpass 62 % by 2050 are Attiki in Greece and the Comunidad de Madrid in Spain.

By contrast, the capital city regions of 11 EU Member States figure among the 38 regions where the projected old-age dependency ratio by 2050 is below 40 % (as shown by the lightest shade of orange in **Map 14.5**). The other regions projected to have relatively low old-age dependency ratios were mainly in Belgium, the United Kingdom and Sweden, with a small number of regions in Denmark, Germany, Spain, France and the Netherlands.

Projected old-age dependency ratios are generally quite low for the EFTA level 2 regions, and the following rates are projected for their capital city regions: 45.3 % for the Espace Mittelland (Switzerland), falling to 37.5 % in Iceland (one region at this level of detail) and 29.9 % for Oslo og Akershus (Norway).

**Map 14.5:** Projected old-age dependency ratio, by NUTS 2 regions, 2050 (1)
(%)




(%)

EU-28 = 49.4

- < 40
- 40 – < 46
- 46 – < 52
- 52 – < 62
- >= 62
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 05/2016

0 200 400 600 800 km

(1) Slovenia: national data.

*Source:* Eurostat (online data codes: proj_13rdbims and proj_13rpms3)

# Data sources and availability

Europop2013, the latest population projections released by Eurostat, provide a main scenario and four variants for population developments from 2013 to 2080 across 31 European countries: all of the EU Member States, as well as Iceland, Norway and Switzerland. These population projections were produced using data for 1 January 2013 as a starting point and therefore include any modifications made to demographic statistics resulting from the 2011 population census exercise.

Europop2013 projections result from the application of a set of assumptions on future developments for fertility, mortality and net migration. The projections should not be considered as forecasts, as they show what would happen to the resulting population structure if the set of assumptions are held constant over the entire time horizon under consideration; in other words, the projections are 'what-if' scenarios that track population developments under a set of assumptions. As these population projections are made over a relatively long time horizon, statements about the likely future developments for the EU's population should be taken with caution, and interpreted as only one of a range of possible demographic developments.

The Europop2013 population projections at regional level were produced using the NUTS 2010 classification and these data have been reclassified to NUTS 2013 for the purpose of this chapter. The consequences of this are that: data are not available at any NUTS level for the French regions of Guadeloupe and Mayotte; for data presented at NUTS level 2, only national data are available for Slovenia, and in most cases data for London (the United Kingdom) are only available at NUTS level 1; for data presented at NUTS level 3, data are not available for some German, Polish, Portuguese, Slovenian and British regions, while data for London are presented at NUTS level 2.

## NUTS

The data presented in this chapter are based exclusively on the 2013 version of NUTS. For the vast majority of regions there is no difference between the 2010 and 2013 versions of NUTS. Whereas the latest population data (generally for 1 January 2015) used in many figures and maps in this chapter were available in the 2013 version of NUTS, the regional population projections were produced using the 2010 version of NUTS. All of the data for the regional population projections used in this chapter have been converted to NUTS 2013. The countries affected by changes to the 2013 version of the NUTS classification were Germany, Greece, France, Poland, Portugal, Slovenia and the United Kingdom. The conversion of the data has had the following consequences for presenting data at NUTS level 2: data for the French region of Guadeloupe are not available, only national data are available for Slovenia, and in some cases data for London are shown at NUTS level 1. The conversion of the data has had the following consequences at NUTS level 3: data for a number of regions are not available, while data for Attiki (Greece), Opolskie (Poland), London and Greater Manchester (the United Kingdom) are shown at NUTS level 2.

# Annex 1 — Classification of territorial units for statistics, 2013 version

## European Union: NUTS 2 regions (capital region is shown in bold)

### BELGIUM

| | |
|---|---|
| **BE10** | **Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest** |
| BE21 | Prov. Antwerpen |
| BE22 | Prov. Limburg (BE) |
| BE23 | Prov. Oost-Vlaanderen |
| BE24 | Prov. Vlaams-Brabant |
| BE25 | Prov. West-Vlaanderen |
| BE31 | Prov. Brabant Wallon |
| BE32 | Prov. Hainaut |
| BE33 | Prov. Liège |
| BE34 | Prov. Luxembourg (BE) |
| BE35 | Prov. Namur |

### BULGARIA

| | |
|---|---|
| BG31 | Северозападен/Severozapaden |
| BG32 | Северен централен/Severen tsentralen |
| BG33 | Североизточен/Severoiztochen |
| BG34 | Югоизточен/Yugoiztochen |
| **BG41** | **Югозападен/Yugozapaden** |
| BG42 | Южен централен/Yuzhen tsentralen |

### CZECH REPUBLIC

| | |
|---|---|
| **CZ01** | **Praha** |
| CZ02 | Střední Čechy |
| CZ03 | Jihozápad |
| CZ04 | Severozápad |
| CZ05 | Severovýchod |
| CZ06 | Jihovýchod |
| CZ07 | Střední Morava |
| CZ08 | Moravskoslezsko |

### DENMARK

| | |
|---|---|
| **DK01** | **Hovedstaden** |
| DK02 | Sjælland |
| DK03 | Syddanmark |
| DK04 | Midtjylland |
| DK05 | Nordjylland |

### GERMANY

| | |
|---|---|
| DE11 | Stuttgart |
| DE12 | Karlsruhe |
| DE13 | Freiburg |
| DE14 | Tübingen |
| DE21 | Oberbayern |
| DE22 | Niederbayern |
| DE23 | Oberpfalz |
| DE24 | Oberfranken |
| DE25 | Mittelfranken |
| DE26 | Unterfranken |
| DE27 | Schwaben |
| **DE30** | **Berlin** |
| DE40 | Brandenburg |
| DE50 | Bremen |
| DE60 | Hamburg |
| DE71 | Darmstadt |
| DE72 | Gießen |
| DE73 | Kassel |
| DE80 | Mecklenburg-Vorpommern |
| DE91 | Braunschweig |
| DE92 | Hannover |
| DE93 | Lüneburg |
| DE94 | Weser-Ems |
| DEA1 | Düsseldorf |
| DEA2 | Köln |
| DEA3 | Münster |
| DEA4 | Detmold |
| DEA5 | Arnsberg |
| DEB1 | Koblenz |
| DEB2 | Trier |
| DEB3 | Rheinhessen-Pfalz |
| DEC0 | Saarland |
| DED2 | Dresden |
| DED4 | Chemnitz |
| DED5 | Leipzig |
| DEE0 | Sachsen-Anhalt |
| DEF0 | Schleswig-Holstein |
| DEG0 | Thüringen |

### ESTONIA

| | |
|---|---|
| **EE00** | **Eesti** |

### IRELAND

| | |
|---|---|
| IE01 | Border, Midland and Western |
| **IE02** | **Southern and Eastern** |

### GREECE

| | |
|---|---|
| **EL30** | **Αττική/Attiki** |
| EL41 | Βόρειο Αιγαίο/Voreio Aigaio |
| EL42 | Νότιο Αιγαίο/Notio Aigaio |
| EL43 | Κρήτη/Kriti |
| EL51 | Ανατολική Μακεδονία, Θράκη/Anatoliki Makedonia, Thraki |
| EL52 | Κεντρική Μακεδονία/Kentriki Makedonia |

EL53 Δυτική Μακεδονία/Dytiki Makedonia
EL54 Ήπειρος/Ipeiros
EL61 Θεσσαλία/Thessalia
EL62 Ιόνια Νησιά/Ionia Nisia
EL63 Δυτική Ελλάδα/Dytiki Ellada
EL64 Στερεά Ελλάδα/Sterea Ellada
EL65 Πελοπόννησος/Peloponnisos

## SPAIN

ES11 Galicia
ES12 Principado de Asturias
ES13 Cantabria
ES21 País Vasco
ES22 Comunidad Foral de Navarra
ES23 La Rioja
ES24 Aragón
**ES30 Comunidad de Madrid**
ES41 Castilla y León
ES42 Castilla-La Mancha
ES43 Extremadura
ES51 Cataluña
ES52 Comunidad Valenciana
ES53 Illes Balears
ES61 Andalucía
ES62 Región de Murcia
ES63 Ciudad Autónoma de Ceuta
ES64 Ciudad Autónoma de Melilla
ES70 Canarias

## FRANCE

**FR10 Île de France**
FR21 Champagne-Ardenne
FR22 Picardie
FR23 Haute-Normandie
FR24 Centre
FR25 Basse-Normandie
FR26 Bourgogne
FR30 Nord - Pas-de-Calais
FR41 Lorraine
FR42 Alsace
FR43 Franche-Comté
FR51 Pays de la Loire
FR52 Bretagne
FR53 Poitou-Charentes
FR61 Aquitaine
FR62 Midi-Pyrénées
FR63 Limousin
FR71 Rhône-Alpes
FR72 Auvergne
FR81 Languedoc-Roussillon
FR82 Provence-Alpes-Côte d'Azur
FR83 Corse
FRA1 Guadeloupe
FRA2 Martinique
FRA3 Guyane
FRA4 La Réunion
FRA5 Mayotte

## CROATIA

HR03 Jadranska Hrvatska
**HR04 Kontinentalna Hrvatska**

## ITALY

ITC1 Piemonte
ITC2 Valle d'Aosta/Vallée d'Aoste
ITC3 Liguria
ITC4 Lombardia
ITF1 Abruzzo
ITF2 Molise
ITF3 Campania
ITF4 Puglia
ITF5 Basilicata
ITF6 Calabria
ITG1 Sicilia
ITG2 Sardegna
ITH1 Provincia Autonoma di Bolzano/Bozen
ITH2 Provincia Autonoma di Trento
ITH3 Veneto
ITH4 Friuli-Venezia Giulia
ITH5 Emilia-Romagna
ITI1 Toscana
ITI2 Umbria
ITI3 Marche
**ITI4 Lazio**

## CYPRUS

**CY00 Κύπρος**

## LATVIA

**LV00 Latvija**

## LITHUANIA

**LT00 Lietuva**

## LUXEMBOURG

**LU00 Luxembourg**

## HUNGARY

**HU10 Közép-Magyarország**
HU21 Közép-Dunántúl
HU22 Nyugat-Dunántúl
HU23 Dél-Dunántúl
HU31 Észak-Magyarország
HU32 Észak-Alföld
HU33 Dél-Alföld

## MALTA

**MT00 Malta**

## NETHERLANDS

| | |
|---|---|
| NL11 | Groningen |
| NL12 | Friesland (NL) |
| NL13 | Drenthe |
| NL21 | Overijssel |
| NL22 | Gelderland |
| NL23 | Flevoland |
| NL31 | Utrecht |
| **NL32** | **Noord-Holland** |
| NL33 | Zuid-Holland |
| NL34 | Zeeland |
| NL41 | Noord-Brabant |
| NL42 | Limburg (NL) |

## AUSTRIA

| | |
|---|---|
| AT11 | Burgenland |
| AT12 | Niederösterreich |
| **AT13** | **Wien** |
| AT21 | Kärnten |
| AT22 | Steiermark |
| AT31 | Oberösterreich |
| AT32 | Salzburg |
| AT33 | Tirol |
| AT34 | Vorarlberg |

## POLAND

| | |
|---|---|
| PL11 | Łódzkie |
| **PL12** | **Mazowieckie** |
| PL21 | Małopolskie |
| PL22 | Śląskie |
| PL31 | Lubelskie |
| PL32 | Podkarpackie |
| PL33 | Świętokrzyskie |
| PL34 | Podlaskie |
| PL41 | Wielkopolskie |
| PL42 | Zachodniopomorskie |
| PL43 | Lubuskie |
| PL51 | Dolnośląskie |
| PL52 | Opolskie |
| PL61 | Kujawsko-Pomorskie |
| PL62 | Warmińsko-Mazurskie |
| PL63 | Pomorskie |

## PORTUGAL

| | |
|---|---|
| PT11 | Norte |
| PT15 | Algarve |
| PT16 | Centro (PT) |
| **PT17** | **Área Metropolitana de Lisboa** |
| PT18 | Alentejo |
| PT20 | Região Autónoma dos Açores |
| PT30 | Região Autónoma da Madeira |

## ROMANIA

| | |
|---|---|
| RO11 | Nord-Vest |
| RO12 | Centru |
| RO21 | Nord-Est |
| RO22 | Sud-Est |
| RO31 | Sud - Muntenia |
| **RO32** | **Bucureşti - Ilfov** |
| RO41 | Sud-Vest Oltenia |
| RO42 | Vest |

## SLOVENIA

| | |
|---|---|
| SI03 | Vzhodna Slovenija |
| **SI04** | **Zahodna Slovenija** |

## SLOVAKIA

| | |
|---|---|
| **SK01** | **Bratislavský kraj** |
| SK02 | Západné Slovensko |
| SK03 | Stredné Slovensko |
| SK04 | Východné Slovensko |

## FINLAND

| | |
|---|---|
| FI19 | Länsi-Suomi |
| **FI1B** | **Helsinki-Uusimaa** |
| FI1C | Etelä-Suomi |
| FI1D | Pohjois- ja Itä-Suomi |
| FI20 | Åland |

## SWEDEN

| | |
|---|---|
| **SE11** | **Stockholm** |
| SE12 | Östra Mellansverige |
| SE21 | Småland med öarna |
| SE22 | Sydsverige |
| SE23 | Västsverige |
| SE31 | Norra Mellansverige |
| SE32 | Mellersta Norrland |
| SE33 | Övre Norrland |

## UNITED KINGDOM

| | |
|---|---|
| UKC1 | Tees Valley and Durham |
| UKC2 | Northumberland and Tyne and Wear |
| UKD1 | Cumbria |
| UKD3 | Greater Manchester |
| UKD4 | Lancashire |
| UKD6 | Cheshire |
| UKD7 | Merseyside |
| UKE1 | East Yorkshire and Northern Lincolnshire |
| UKE2 | North Yorkshire |
| UKE3 | South Yorkshire |
| UKE4 | West Yorkshire |
| UKF1 | Derbyshire and Nottinghamshire |
| UKF2 | Leicestershire, Rutland and Northamptonshire |
| UKF3 | Lincolnshire |
| UKG1 | Herefordshire, Worcestershire and Warwickshire |

| | |
|---|---|
| UKG2 | Shropshire and Staffordshire |
| UKG3 | West Midlands |
| UKH1 | East Anglia |
| UKH2 | Bedfordshire and Hertfordshire |
| UKH3 | Essex |
| **UKI3** | **Inner London - West** |
| **UKI4** | **Inner London - East** |
| UKI5 | Outer London - East and North East |
| UKI6 | Outer London - South |
| UKI7 | Outer London - West and North West |
| UKJ1 | Berkshire, Buckinghamshire and Oxfordshire |
| UKJ2 | Surrey, East and West Sussex |
| UKJ3 | Hampshire and Isle of Wight |
| UKJ4 | Kent |
| UKK1 | Gloucestershire, Wiltshire and Bristol/Bath area |
| UKK2 | Dorset and Somerset |
| UKK3 | Cornwall and Isles of Scilly |
| UKK4 | Devon |
| UKL1 | West Wales and The Valleys |
| UKL2 | East Wales |
| UKM2 | Eastern Scotland |
| UKM3 | South Western Scotland |
| UKM5 | North Eastern Scotland |
| UKM6 | Highlands and Islands |
| UKN0 | Northern Ireland |

## EFTA countries: statistical regions at level 2 (capital region is shown in bold)

### ICELAND

| | |
|---|---|
| **IS00** | **Ísland** |

### LIECHTENSTEIN

| | |
|---|---|
| **LI00** | **Liechtenstein** |

### NORWAY

| | |
|---|---|
| **NO01** | **Oslo og Akershus** |
| NO02 | Hedmark og Oppland |
| NO03 | Sør-Østlandet |
| NO04 | Agder og Rogaland |
| NO05 | Vestlandet |
| NO06 | Trøndelag |
| NO07 | Nord-Norge |

### SWITZERLAND

| | |
|---|---|
| CH01 | Région lémanique |
| **CH02** | **Espace Mittelland** |
| CH03 | Nordwestschweiz |
| CH04 | Zürich |
| CH05 | Ostschweiz |
| CH06 | Zentralschweiz |
| CH07 | Ticino |

## Candidate countries: statistical regions at level 2 (capital region is shown in bold)

### MONTENEGRO

| | |
|---|---|
| **ME00** | **Црна Гора/Crna Gora** |

### THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

| | |
|---|---|
| **MK00** | **Поранешна југословенска Република Македонија/Poranešna jugoslovenska Republika Makedonija** |

### SERBIA

| | |
|---|---|
| **RS** | **Република Србија/Republika Srbija** |

### ALBANIA

| | |
|---|---|
| AL01 | North |
| **AL02** | **Centre** |
| AL03 | South |

### TURKEY

| | |
|---|---|
| TR10 | İstanbul |
| TR21 | Tekirdağ, Edirne, Kırklareli |
| TR22 | Balıkesir, Çanakkale |
| TR31 | İzmir |
| TR32 | Aydın, Denizli, Muğla |
| TR33 | Manisa, Afyonkarahisar, Kütahya, Uşak |
| TR41 | Bursa, Eskişehir, Bilecik |
| TR42 | Kocaeli, Sakarya, Düzce, Bolu, Yalova |
| **TR51** | **Ankara** |
| TR52 | Konya, Karaman |
| TR61 | Antalya, Isparta, Burdur |
| TR62 | Adana, Mersin |
| TR63 | Hatay, Kahramanmaraş, Osmaniye |
| TR71 | Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir |
| TR72 | Kayseri, Sivas, Yozgat |
| TR81 | Zonguldak, Karabük, Bartın |
| TR82 | Kastamonu, Çankırı, Sinop |
| TR83 | Samsun, Tokat, Çorum, Amasya |
| TR90 | Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane |
| TRA1 | Erzurum, Erzincan, Bayburt |
| TRA2 | Ağrı, Kars, Iğdır, Ardahan |
| TRB1 | Malatya, Elazığ, Bingöl, Tunceli |
| TRB2 | Van, Muş, Bitlis, Hakkari |
| TRC1 | Gaziantep, Adıyaman, Kilis |
| TRC2 | Şanlıurfa, Diyarbakır |
| TRC3 | Mardin, Batman, Şırnak, Siirt |

# Annex 2 — Other classifications used in this publication

## International statistical classification of diseases and related health problems: ICD

See: http://apps.who.int/classifications/icd10/browse/2010/en

## International standard classification of education: ISCED

See: http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf

## Statistical classification of economic activities in the European Community: NACE

See: http://ec.europa.eu/eurostat/web/nace-rev2/overview

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Each chapter presents statistical information in maps, tables and figures, accompanied by a description of the policy context, main findings and data sources. These regional indicators are presented for the following 12 subjects: regional policies and Europe 2020, population, health, education and training, the labour market, the economy, structural business statistics, research and innovation, the information society, tourism, transport, and agriculture. In addition, two special chapters are included in this edition: a focus on commuting patterns between regions and a focus on regional population projections.

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Publications Office

PDF: ISBN 978-92-79-60090-6
ISSN 2363-1716
doi: 10.2785/29084
Print: ISBN 978-92-79-60091-3
ISSN 1830-9674
doi: 10.2785/671934