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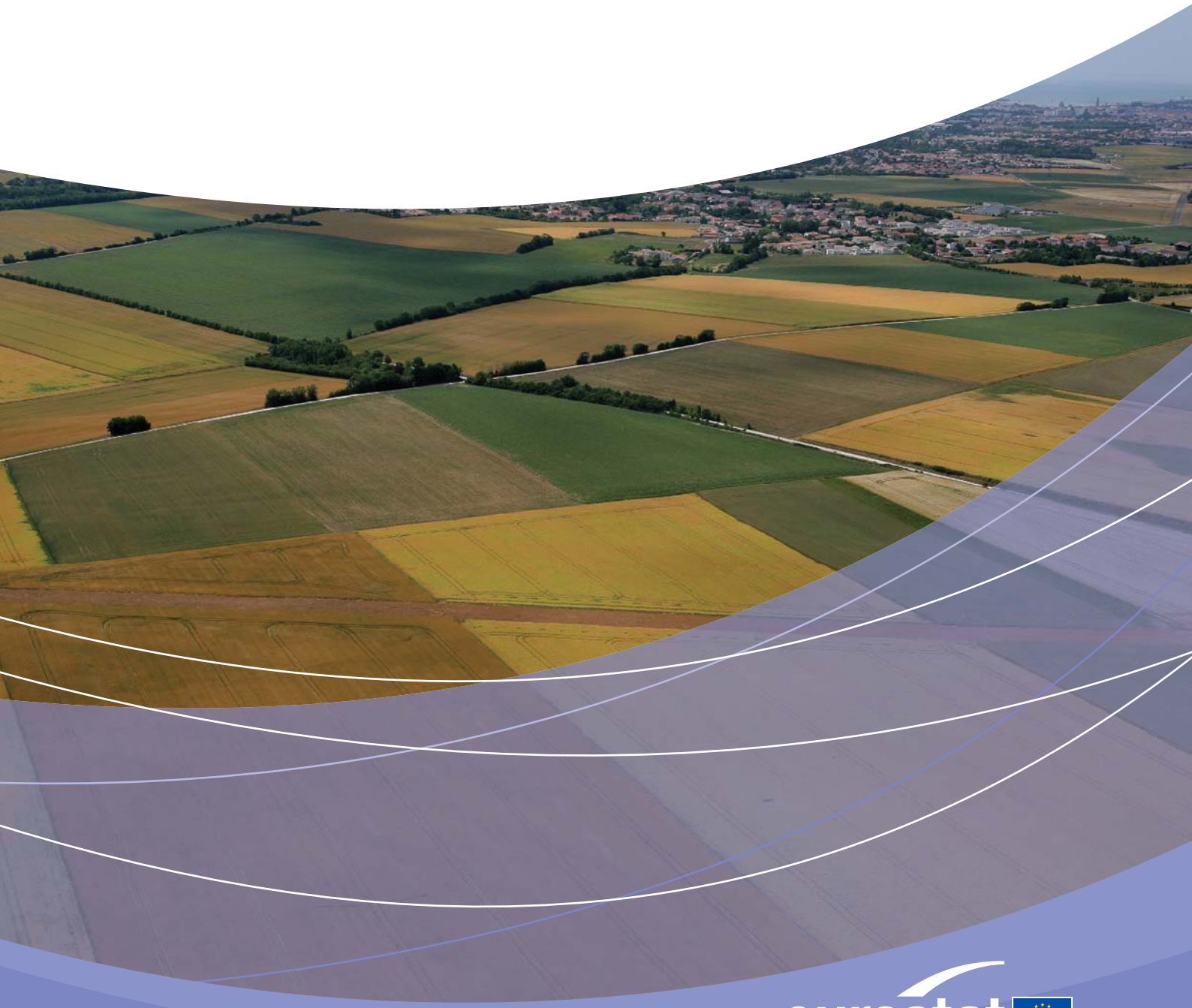

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Preface

Dear reader,

I am pleased to present the 2008 edition of the Eurostat regional yearbook, which gives an overview of the most recent developments in the regions of the European Union, with its current 27 Member States, as well as in the candidate countries and EFTA countries.

We have again selected themes that we think will show you the most interesting facets of development in the economic, social and demographic fields in Europe's regions. We are also pleased to include a contribution from our colleagues at the Commission's Directorate-General for Regional Policy for the second year running. This time the chapter is about 'Sectoral productivity' and it examines how productivity in different business sectors differs between the EU's regions.

Regional policy programmes initiated last year under the EU's new cohesion policy are now well under way and we hope that this publication will give some flavour of the progress being made in regional cohesion throughout the EU. We have also included some of the most recent results from the Urban Audit exercise, a data collection that compiles a great deal of statistical information on Europe's cities.

We are progressively developing the range of regional indicators available and will hopefully be able to include these in our choice of topics in future editions, as data availability and quality allow.

I wish you a stimulating read.

Hervé Carré
Director-General, Eurostat

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The editors of the *Eurostat regional yearbook 2008* would like to thank all those who were involved in its preparation. We thank in particular the following chapter authors for making publication of this year's edition possible.

- **Population**: Gregor Kyi (Unit F.1 at Eurostat: Demographic and migration statistics)
- **Urban statistics**: Teodóra Brandmüller (Unit D.2 at Eurostat: Regional indicators and geographical information)
- **Gross domestic product**: Andreas Krüger (Unit C.2 at Eurostat: National accounts — production)
- **Household accounts**: Andreas Krüger (Unit C.2 at Eurostat: National accounts — production)
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- **Labour costs**: Simone Casali (Unit F.2 at Eurostat: Labour market statistics)
- **Transport**: Anna Bialas-Motyl and Anastassia Vakalopoulou (Unit G.5 at Eurostat: Transport statistics)
- **Tourism**: Ulrich Spörel (Unit F.6 at Eurostat: Information society and tourism statistics)
- **Science, technology and innovation**: Bernard Felix and Tomas Meri (Unit F4 at Eurostat: Education, science and culture statistics)
- **Health**: Tomasz Urbanski (Unit F.5 at Eurostat: Health and food safety statistics)
- **Agriculture**: Garry Mahon (Unit E.2 at Eurostat: Agricultural and fisheries statistics)

This publication was edited and coordinated by Åsa Önnerfors (Unit D.2 at Eurostat: Regional indicators and geographical information) with the help of Pavel Bořkovec (Unit B.6 at Eurostat: Dissemination). Baudouin Quennery (Unit D.2) produced all the statistical maps.

We are also very grateful to:

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Contents

Introduction

Regional statistics give more detailed information

Eurostat, the statistical office of the European Communities, collects data on a range of different statistical topics, mainly from the 27 Member States of the European Union, but also from the three candidate countries (Croatia, the former Yugoslav Republic of Macedonia, and Turkey) and from the four EFTA countries (Iceland, Liechtenstein, Norway and Switzerland). The statistical data are often only collected at national level, but very many statistical fields also have statistics at regional level, which gives us a more complete picture.

This aim of this publication, the *Eurostat regional yearbook 2008*, is to give you detailed information on life in the European regions today. Looking at the regions of Europe under the magnifying glass allows the authors of the 13 different chapters to make an in-depth analysis of a large variety of statistical domains. We very much hope you will enjoy reading it!

The first chapter is about population statistics (demography), because population data form the basis for all other statistics. Many other statistical indicators are divided by the population figures, thus resulting in data with the unit expressed in terms of 'per inhabitant'. Therefore, we start the first chapter by presenting some basic facts about how the population is spread over the regions in Europe, providing birth and death rates, migration patterns and age distribution.

The second chapter, on urban statistics, is based on the Urban Audit data collection and it presents data on a range of different topics from all European capitals and from many other large European cities. As a large proportion of EU citizens live in these cities, it should be a topic that is interesting and directly relevant for many people.

The other chapters can be divided into four different themes.

The first concerns economic or financial indicators: gross domestic product (GDP), household accounts and structural business statistics. Economic cohesion is one of the main goals in EU policy and, one might say, the engine for all other policies. In particular the chapter on GDP gives a very good idea of the situation in the European Union today.

Labour market indicators form the second group of themes in this publication, containing a basic chapter on the labour market, and also introducing two totally new subjects for the *Eurostat regional yearbook*; sectoral productivity, written by a subject specialist from the Directorate-General for Regional Policy, and labour costs, where the regional differences in labour costs per hour are analysed.

The theme for the third group of chapters is more general and concerns the everyday life of most European citizens. Transport and tourism both focus on the mobility of people, while science, technology and innovation is often seen as one of the main cornerstones in the new Lisbon strategy for growth and jobs.

Well-being in general is the theme for the last two chapters; statistics on health are a welcome reappearance this year, focusing on the main causes of death and on the density of healthcare staff in the European regions; the chapter on agriculture this year concerns animal-rearing, mainly regarding pigs, sheep and cows.

The NUTS classification

All statistics at regional level within the EU are based on the nomenclature of territorial units for statistics (NUTS). The NUTS classification has been used for regional statistics for many decades, and has always formed the basis for regional funding policy. It was only in 2003, though, that NUTS acquired a legal basis, when the NUTS regulation was adopted by the Parliament and the Council ([1]).

Whenever new Member States join the EU, the NUTS regulation is of course amended to include the regional classification in those countries. This was the case in 2004, when the EU took in 10 new Member States, and in 2007 when it expanded to include Bulgaria and Romania.

The NUTS regulation provides for a review to be conducted every three years whereby the regional classification can be changed and adapted to new administrative boundaries or economic circumstances. In 2006, this exercise took place for the first time, and the results of these changes to the NUTS classification have now been valid since 1 January 2008. Most territorial changes are at NUTS level 3, affecting 11 countries, while four countries had changes made at NUTS level 2 and only one country at NUTS level 1.

The main changes in this latest revision of the NUTS classification are the following: Denmark introduced new NUTS 2 regions and revised the existing NUTS 3 regions following a substantial

([1]) More information on the NUTS classification can be found on the Internet (http://ec.europa.eu/eurostat/ramon/nuts/splash_regions.html).

administrative regional reform. In one German region, Sachsen-Anhalt, three different NUTS 2 regions were merged into just one NUTS 2 region. Slovenia introduced two new NUTS 2 regions where it had only one previously. In the United Kingdom, more specifically in north-eastern Scotland, a boundary shift at both NUTS 2 and 3 levels had the effect of creating new regions. Sweden introduced NUTS 1 regions for the first time due to the size of the country. For more detailed information on the most recent NUTS changes, please consult the Eurostat website.

Since these NUTS changes were introduced only on 1 January 2008 and the statistical data for all the chapters had already been extracted by the beginning of this year, you will find that regional data, especially for Denmark and Slovenia, are missing or have been replaced with national values on many of the statistical maps. The regional data availability for these two countries will have hopefully improved for next year's publication.

As a rule regional data by NUTS 2 regions are displayed and analysed in the *Eurostat regional yearbook 2008*, but there is one exception. Regarding labour costs, Eurostat only collects data at NUTS level 1 and therefore in that chapter the data are based on NUTS 1 regions instead.

Please note that some of the Member States have a relatively small population and they are therefore not divided into more than one NUTS 2 region. Thus, for these countries the NUTS 2 value is exactly the same as the national value. Following the latest revision of the NUTS classification this now applies to six Member States (Estonia, Cyprus, Latvia, Lithuania, Luxembourg and Malta), one candidate country (the former Yugoslav Republic of Macedonia), and two EFTA countries (Iceland and Liechtenstein): in all these cases the whole country consists of one single NUTS 2 region.

A folding map accompanies this publication on the inside of the cover and it shows all the regions at NUTS level 2 in the 27 Member States of the European Union (EU-27) and the corresponding statistical regions at level 2 in the candidate and EFTA countries. In the annex you will find the full list of codes and names of these regions. This will help you to locate a specific region geographically on the map.

Coverage

The *Eurostat regional yearbook 2008* mainly contains statistics from the 27 Member States of the European Union, but when available also from the three candidate countries: Croatia, the former Yugoslav Republic of Macedonia, and Turkey; and from the four EFTA countries: Iceland, Liechtenstein, Norway and Switzerland.

Regions in the candidate countries and the EFTA countries are called statistical regions and they follow the same rules as the NUTS regions in the European Union, except that there is no legal base. Data from the candidate and EFTA countries are not yet available in the Eurostat database for some policy areas, but the data availability situation is constantly improving, and we hope to have even better coverage in the near future.

More regional information

Under the theme 'General and regional statistics' on the Eurostat website you will find tables with statistics on both 'Regions' and the 'Urban Audit' with more detailed time series (some of them going back as far as 1970) and with more detailed statistics than contained in this yearbook. You will also find a number of indicators at NUTS level 3 (such as area, demography, gross domestic product and labour market data). This is important since some of the countries covered are not divided into NUTS 2 regions, as mentioned above.

For more detailed information on the contents of the regional and urban databases please consult the Eurostat publication *European regional and urban statistics — Reference guide — 2008 edition*, which you can download free of charge from the Eurostat website. The specific data used for producing the maps and other illustrations in this publication can also be found as Excel tables on the Eurostat website.

1

Population

Revealing the regional pattern of demography

Demographic trends have a strong impact on the societies of the European Union. Consistently low fertility levels, combined with an extended longevity and the fact that the baby boomers are reaching retirement age, result in a demographic ageing of the EU population. The share of the older generation is increasing, while the share of those of working age is decreasing.

This chapter presents the regional pattern of demographic phenomena as it is visible today. The analysis is mainly based on demographic trends that have been observed during the period from 1 January 2001 to 1 January 2006. For this purpose, five-year averages have been calculated of the total annual population change and of its components. Given that demographic trends are long-term developments, the five-year averages provide a stable and accurate picture. They help to identify regional clusters that often extend across national borders.

Some demographic developments are likely to become considerably more important in future decades. Eurostat calculates national and regional population projections that reveal the effects current trends might have if they continued into the future. Eurostat's population projections should be considered not as forecasts, but as 'what if?' scenarios: they show possible demographic developments that are based upon assumptions about fertility, mortality and migration which, in turn, have been derived from observed trends and expert opinion (see Methodological notes at the end of this chapter).

This regional yearbook presents some results of the regional population projections that became available at the beginning of 2008. More data can be found on the Eurostat website (under Data/ Population/Population projections).

The drivers behind population change

During the last four and a half decades, the population of the 27 countries of today's European Union has grown from around 400 million persons (1960) to almost 500 million persons (2007). However, the strength and composition of the population growth have varied significantly over the years.

The total population change has two components: the so-called 'natural increase', which is defined as the difference between the numbers of live births and deaths, and net migration, which ideally represents the difference between inward and outward migration flows (see Methodological notes).

Until the end of the 1980s, the natural increase was by far the major component of population growth. However, since the early 1960s there has been a sustained decline in the natural increase. International migration, on the other hand, has gained in importance, becoming the major force of population growth from the beginning of the 1990s onwards.

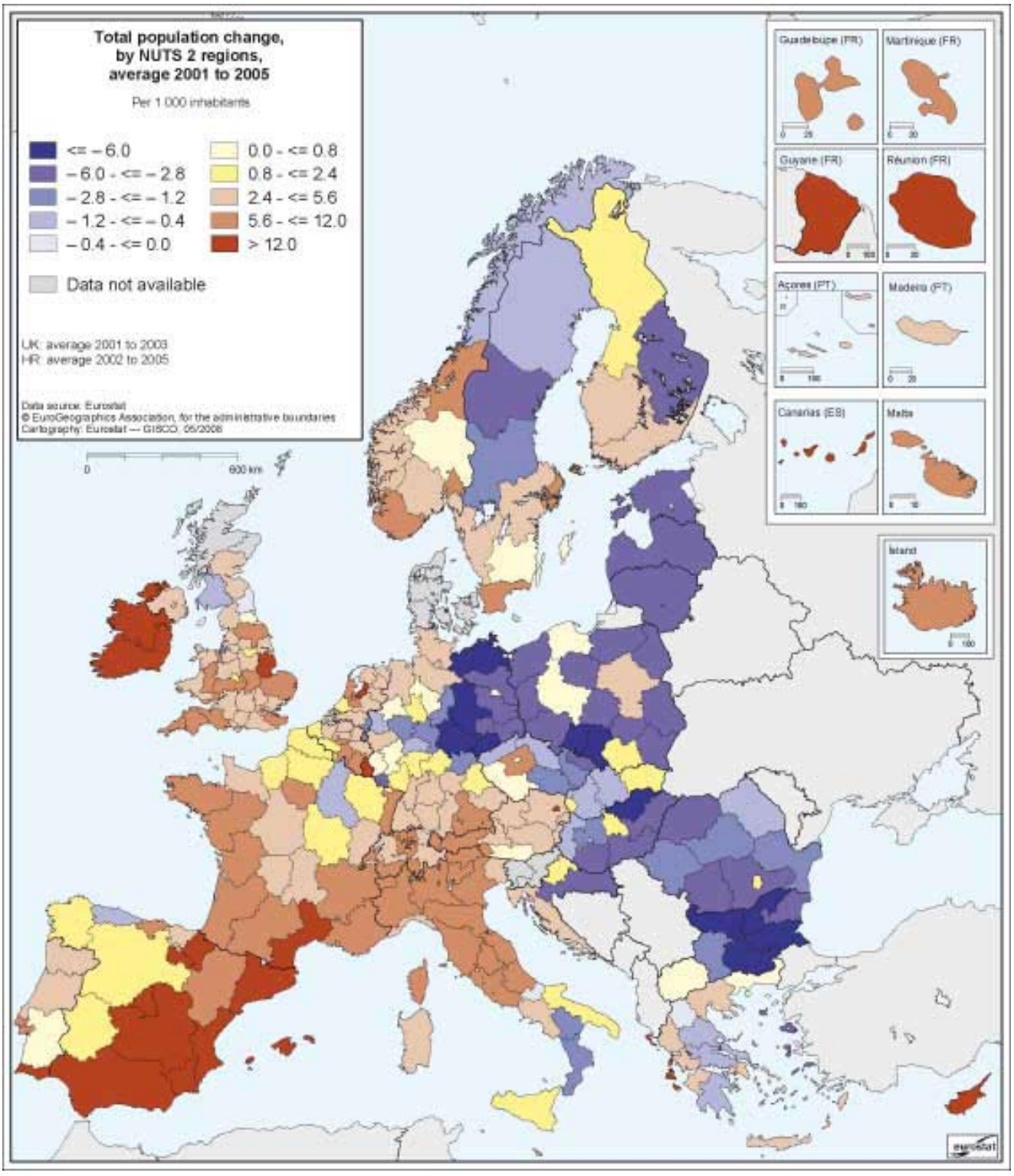
Maps 1.1, 1.2 and 1.3 show the total population change and its components since the start of the new century. For the purposes of comparability, the population change is presented in relative terms, i.e. it is related to the size of the total population. The maps show the five-year average for the resulting 'crude rates of population change' (average for the years 2001 to 2005).

In the north-east and east of the European Union the population is decreasing. Map 1.1 is marked by a clear divide between the regions there and in the rest of the EU. Most affected by a decreasing population are Germany, Poland, the Czech Republic, Slovakia, Hungary, Romania and Bulgaria, and to the north the three Baltic States, and parts of Sweden and Finland.

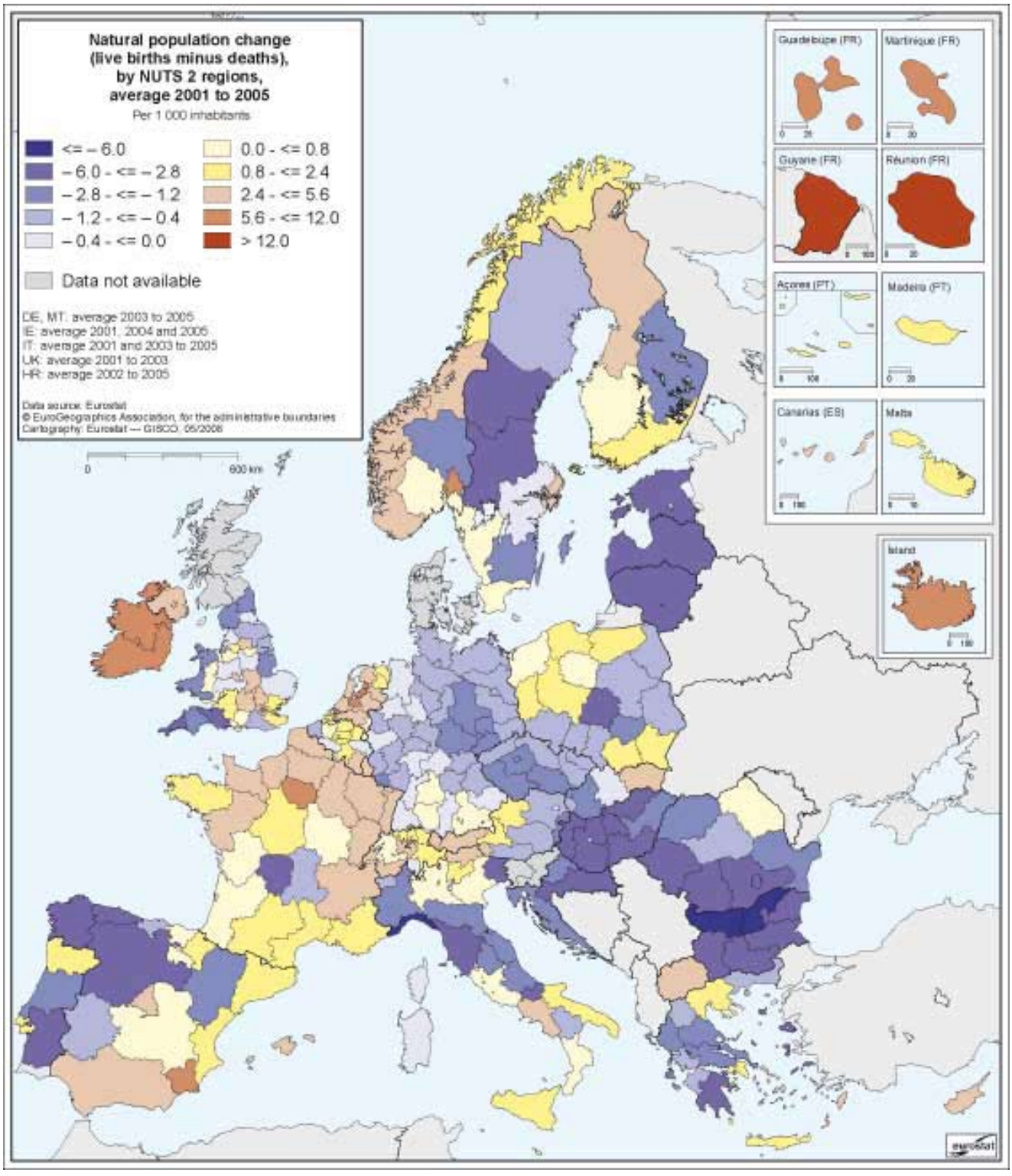
Map 1.2 shows that in many regions of the EU more persons have died than have been born since the start of the new century. The resulting negative 'natural population change' is widespread, although the pattern is less pronounced than for the total population change. Ireland, France and the three Benelux countries have been the main countries experiencing a natural increase in the population. The natural population change is predominantly negative in Germany, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, Bulgaria and adjacent regions, as well as the Baltic States, Sweden in the north and Greece in the south. The other Member States have a situation that is, overall, more balanced.

A major reason for the slowdown of the natural increase in the population is the fact that, on average and over time, the inhabitants of the EU have fewer children. In the 27 countries that today form the European Union, the total fertility rate declined from a level of around 2½ in the early 1960s to a level of about 1½ in 1993, where it has remained (see Graph 1.1 for the definition of 'Total fertility rate' in the Methodological notes). The slight increase in recent years might be attributable

Map 1.1: Total population change, by NUTS 2 regions, average 2001 to 2005
Per 1 000 inhabitants



Map 1.2: Natural population change (live births minus deaths), by NUTS 2 regions, average 2001 to 2005
Per 1 000 inhabitants



in part to the fact that today more women are having their first child later in their lives.

By comparison: In the more developed parts of the world, a total fertility rate of around 2.1 children per woman is currently considered to be the replacement level, i.e. the level at which a population would remain stable in the long run if there were no inward or outward migration.

As for net migration, four cross-border regions where more persons have left than arrived can be identified on Map 1.3. These are:

- the northernmost regions of Sweden and Finland;
- an eastern group, comprising most of eastern Germany, Poland, Lithuania and Latvia, as well as parts of the Czech Republic, Slovakia, Hungary, Romania and Bulgaria;
- regions in the north of France;
- regions in the south of Italy.

In some regions a negative 'natural change' has been compensated for by a positive net migration. This is most conspicuous in western Germany, eastern Austria and the north of Italy, as well as the south of Sweden and regions in Spain, Greece and the United Kingdom. The opposite is much rarer: in only a few regions (namely in the north of Poland) has a positive natural change been offset by negative net migration.

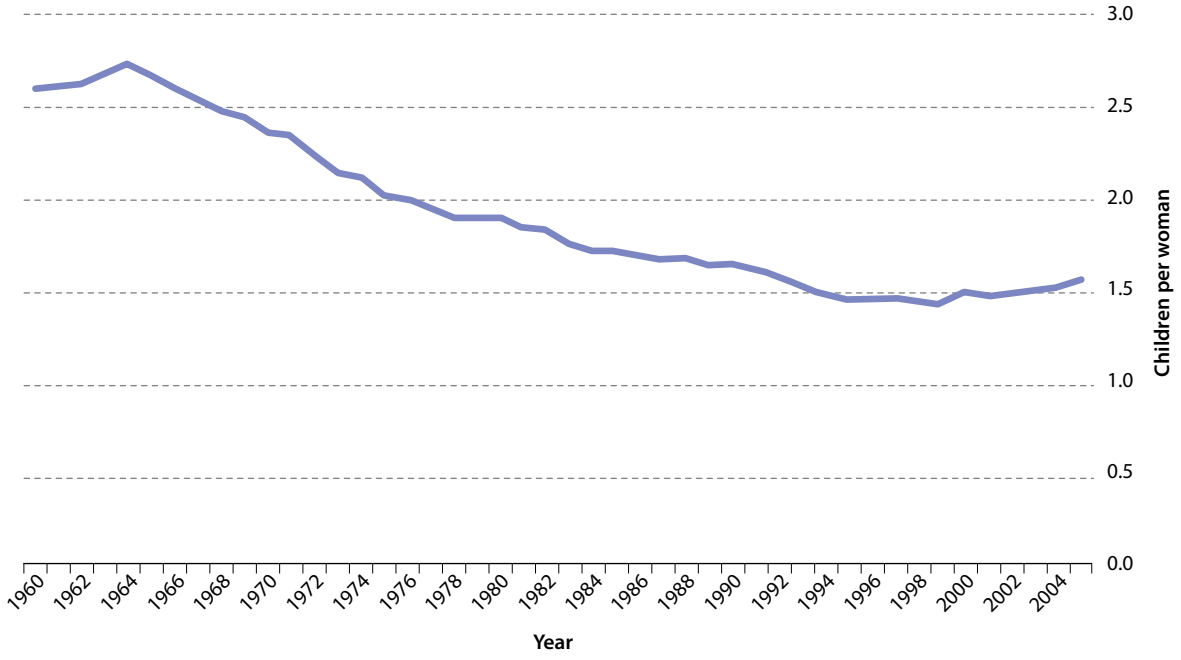
Regions without compensation are often exposed to a profound development, upwards or — in some regions — downwards. In Ireland, the Benelux countries, many regions of France and some regions of Spain, a natural increase has been accompanied by positive net migration. However, in eastern Germany, Lithuania and Latvia, as well as some regions of Poland, the Czech Republic, Slovakia, Hungary, Romania and Bulgaria, both components of population change were negative. In some regions this has led to a sustained population loss.

Demographic ageing: the situation today …

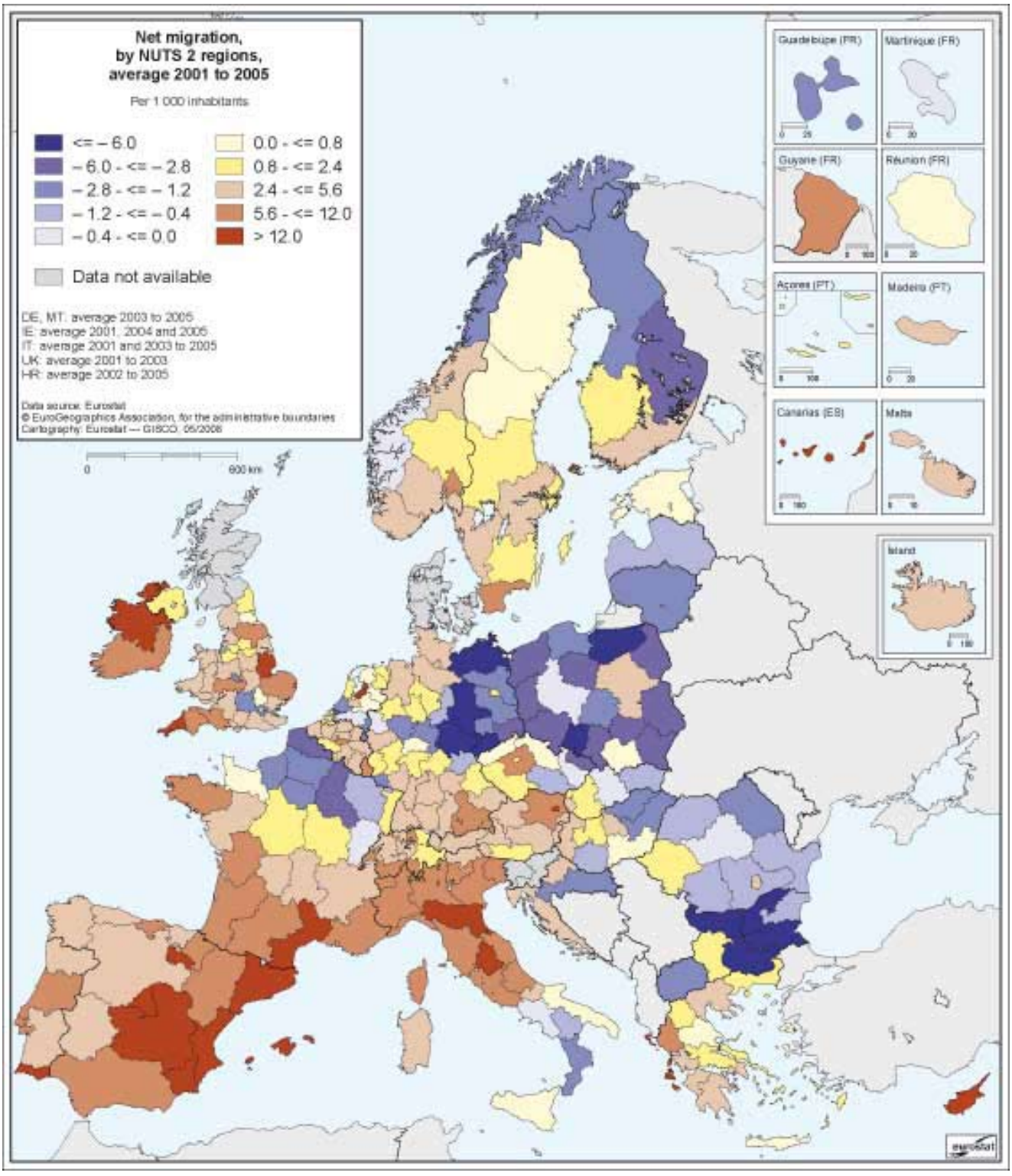
Age dependency ratios are important demographic indicators and relate the young and old-age populations to the population of working age. The 'old age' roughly approximates to the age of retirement. Today, different demographic reports present dependency ratios based on different definitions for the age groups. In this publication the following age groups are used.

- Young age dependency ratio: the population aged up to 14 years related to the population aged between 15 and 64 years.
- Old age dependency ratio: the population aged 65 years or older related to the population aged between 15 and 64 years.

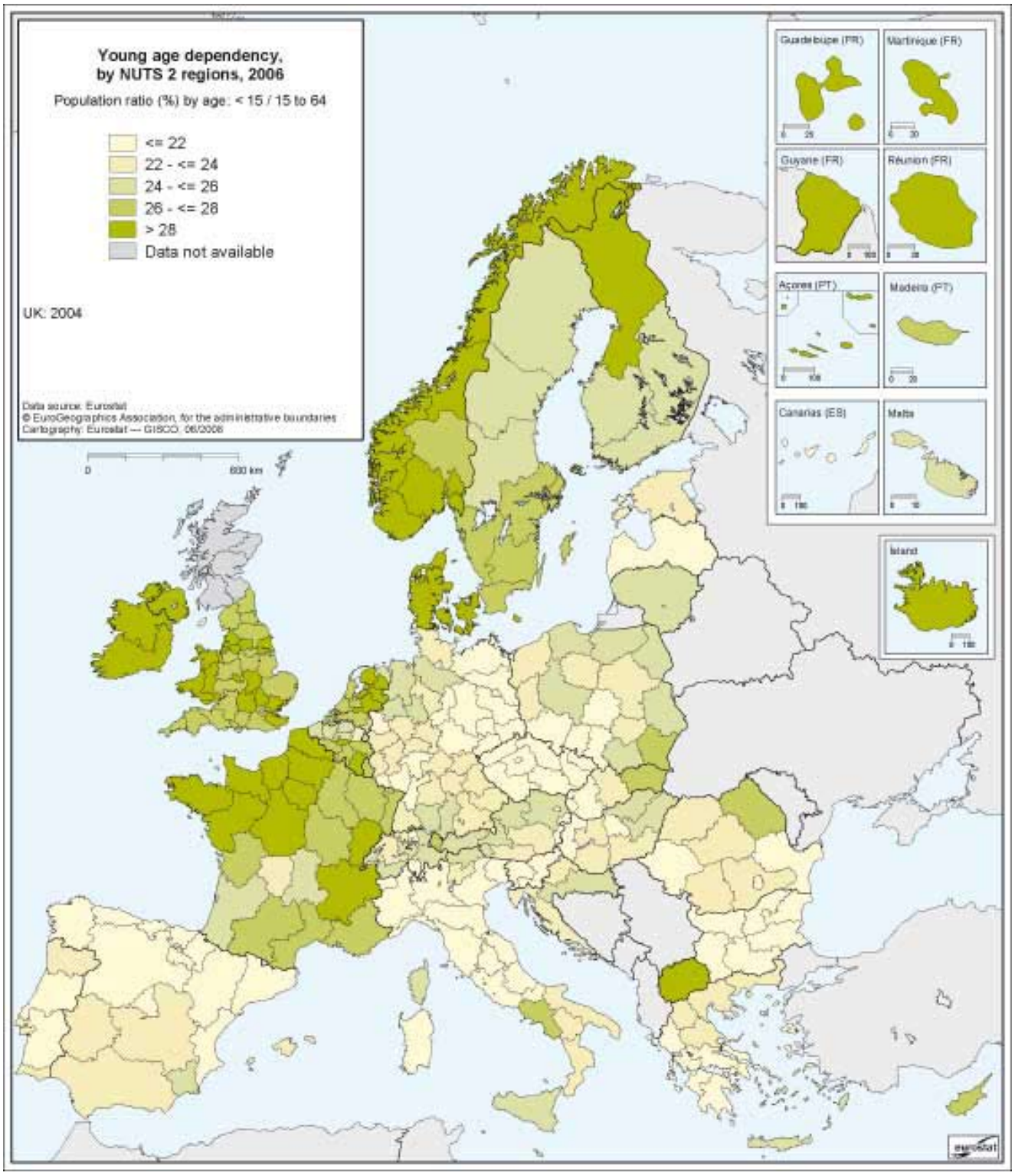
Figure 1.1: Total fertility rate in the EU-25, 1960–2005



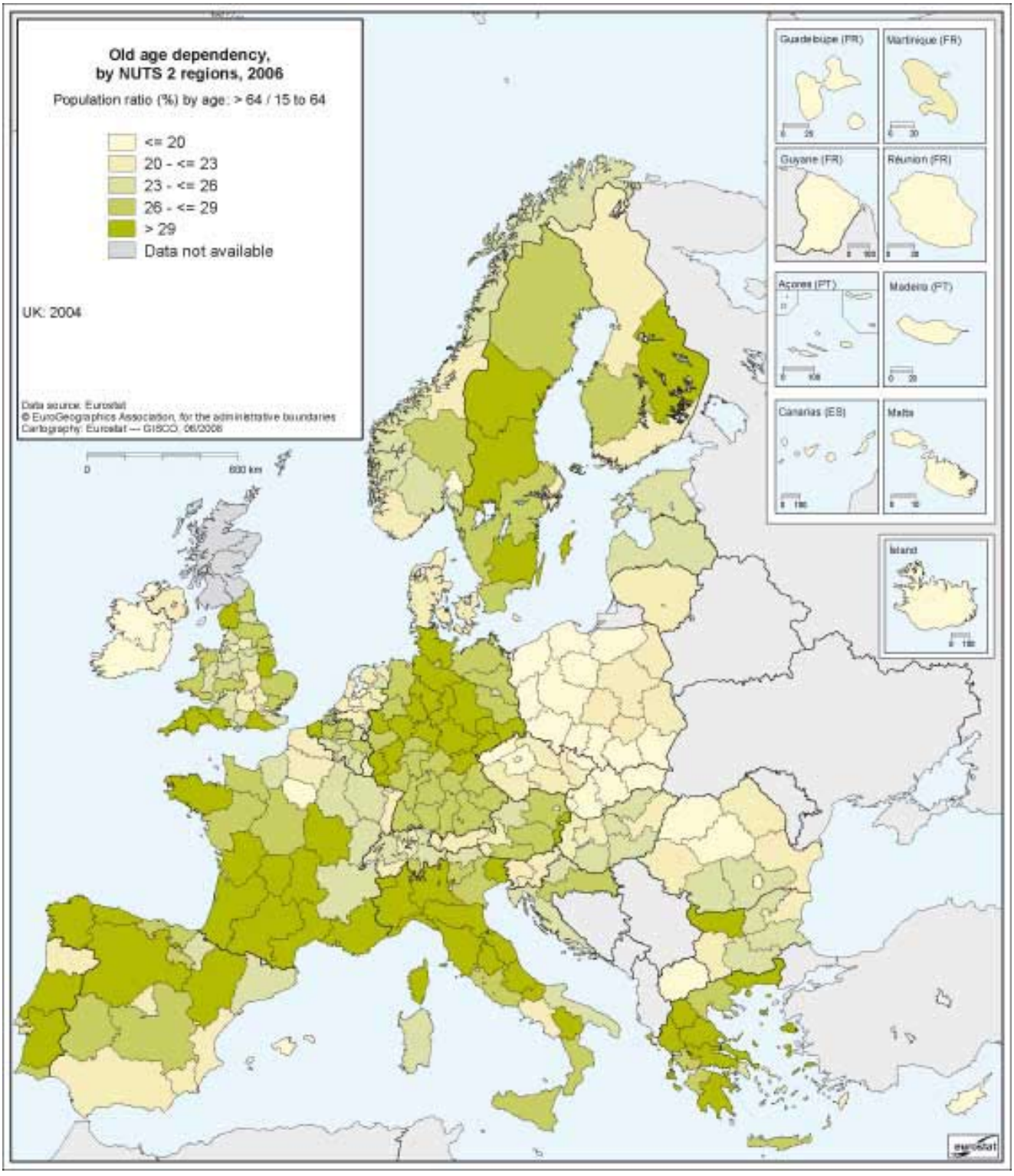
Map 1.3: Net migration, by NUTS 2 regions, average 2001 to 2005
Per 1 000 inhabitants



Map 1.4: Young age dependency, by NUTS 2 regions, 2006
Population ratio (%) by age: < 15/15 to 64



Map 1.5: Old age dependency, by NUTS 2 regions, 2006
Population ratio (%) by age: > 64/15 to 64



Maps 1.4 and 1.5 show the population structure at the beginning of 2006. The young age dependency ratio is influenced by recent fertility levels. Countries with higher fertility tend to have a higher young age dependency (i.e. more young people per 100 of working age) when compared with countries displaying low fertility levels. This is conspicuously the case for Ireland, France, the United Kingdom, the Benelux countries, Sweden and Finland. The young age dependency is below average in regions in Italy, Greece, Spain, Germany, the Czech Republic, Latvia, Romania and Bulgaria. The regional pattern for old age dependency is less clear cut.

… and its impact in the future

Eurostat's population projections allow a fairly accurate anticipation of how the demographic situation will develop if current trends continue.

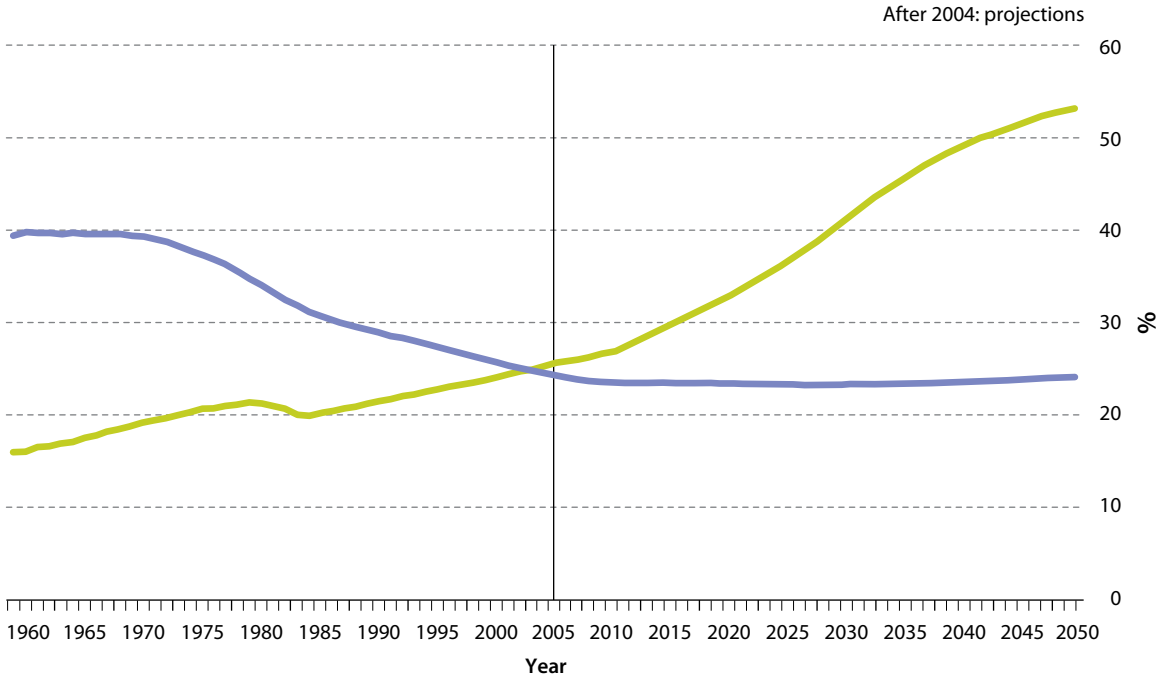
The old age dependency ratio will be a particularly dynamic indicator. It is a reasonable projection that, on average for the EU-27 and if current trends prevail, the old age dependency ratio will approximately double during the next 50 years (Figure 1.2). This means that in 2050 a person of working age might have to provide for up to twice as many retired people as is usual today.

Demographic ageing is a general phenomenon. There are regions where, for a person aged 65 years or older, there are fewer than three persons of working age (old age dependency ratio of over 33 %). In 2006, this was still the exception; less than 6 % of the EU's population lived in such regions. By 2026, however, this will be the rule (over three quarters of the EU population).

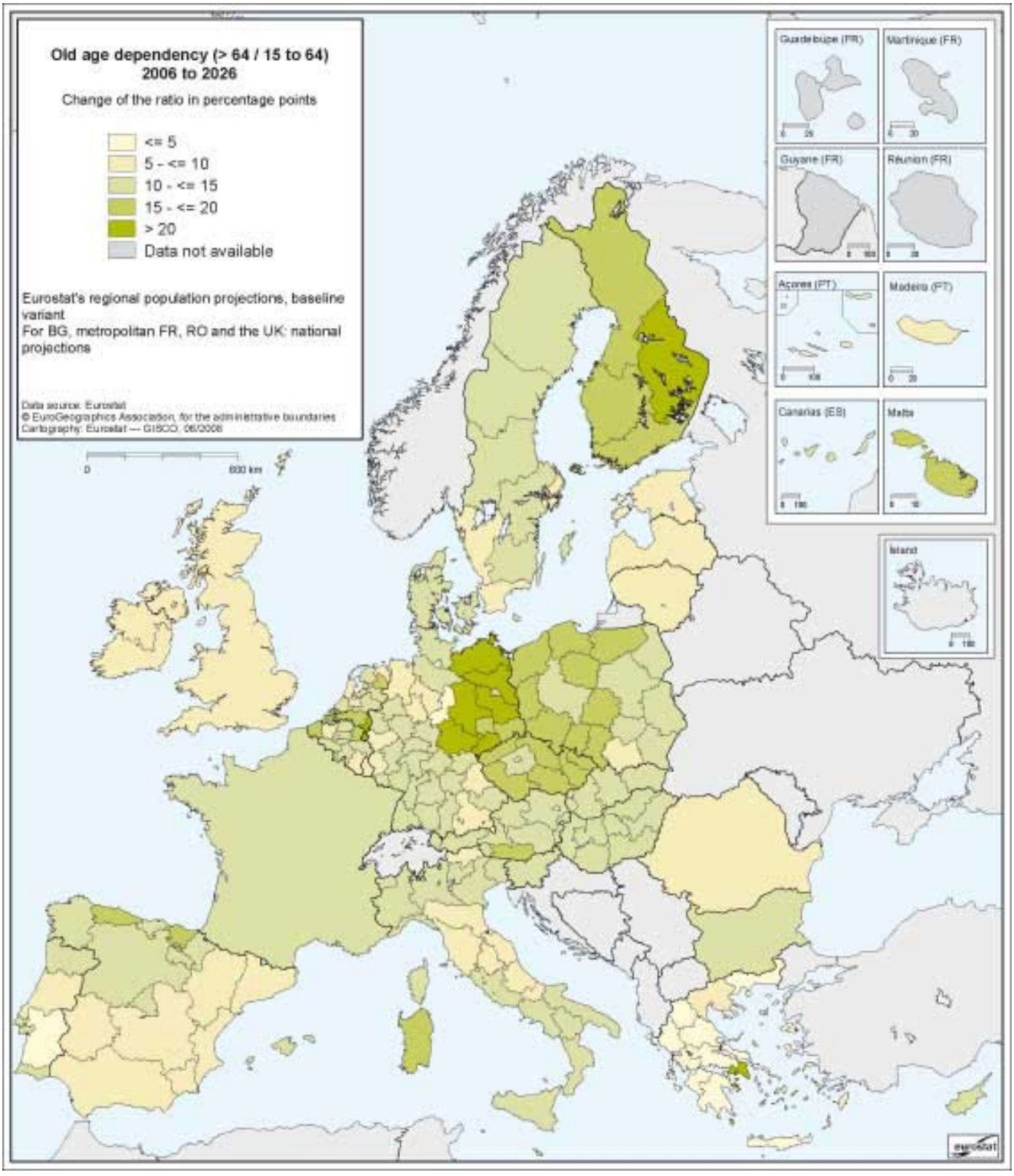
However, the regional differences that are already visible today might lead to a more dramatic development in some regions than in others.

Map 1.6 highlights the size of the regional differences in the development. Whereas in some regions the increase in the old age dependency ratio between 2006 and 2026 will be well below 10 percentage points, the increase in other regions will be over 20 percentage points. In 13 regions, the old age dependency will rise to a level of around 50 % or more in 2026, which means that there will then be only two persons of working age for every person aged 65 years or over. Nine of these regions are in eastern Germany.

Figure 1.2: Old and young age dependency



Map 1.6: Old age dependency (> 64/15 to 64) 2006 to 2026
Change of the ratio in percentage points



Methodological notes

Sources: Eurostat — Demographic statistics. For more information, please consult the Eurostat website (http://www.europa.eu.int/comm/eurostat/).

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 spend her childbearing years conforming to the age-specific fertility rates that have been measured in a given year.

The **Eurostat population projections** presented here correspond to the baseline variant of the trend scenario. The Eurostat set of population projections is just one of a number of scenarios of population evolution based on assumptions of fertility, mortality and migration. The current trend scenario does not take into account any future measures that could influence demographic trends. It comprises different variants: the 'baseline' variant, plus 'high population', 'low population', 'zero-migration', 'high fertility', 'younger age profile' and 'older age profile' variants, which are all available on the Eurostat website. It should be noted that the assumptions adopted by Eurostat may differ from those adopted by national statistical institutes. Therefore, the results may differ from those published by Member States.

The regional breakdown of the population projections at NUTS level 2 is computed by making the assumptions already formulated for the national-level exercise into region-specific assumptions. The regional variation in demographic behaviour is expressed using the method of indirect standardisation: the national fertility and mortality age- and sex-specific rates are applied first to the regional population, yielding a hypothetical number of events; subsequently, the observed number of regional events is divided by this hypothetical number to obtain a regional scaling factor. The latter is therefore an estimate of the extent to which regional rates are above or below the national value. For international migration, scaling factors were calculated as the ratio of the regional crude migration rate to the national crude migration rate.

In addition to the traditional components (fertility, mortality and international migration), one issue that is peculiar to the regional dimension has to be considered: interregional migration. The age- and sex-specific rates of interregional migration are estimated by means of a model that uses as input the inter-NUTS 2 departures and arrivals by age, sex and region, and the total amount of inter-NUTS 2 migration by region of origin and region of destination (origin–destination migration matrix).

Owing to appropriate data not being available for France and the United Kingdom, regional population projections could not be made for these two countries.

Source: Europop2004 regional level, baseline variant.

Migration can be extremely difficult to measure. A variety of different data sources and definitions are used in the Member States, with the result that direct comparisons between national statistics can be difficult or misleading. The net migration figures here are not directly calculated from immigration and emigration flow figures. As many EU Member States do not have complete and comparable figures for immigration and emigration flows, net migration is estimated here as the difference between the total population change and the 'natural increase' over the year. In effect, net migration equals all changes in total population that cannot be attributed to births and deaths.

The **population density** is the ratio of the mid-year population of a territory to the size of the territory on a given date.

2

Urban statistics

Introduction

Improving the attractiveness of regions and cities is one of the priorities targeted by the renewed Lisbon strategy and the Community strategic guidelines on cohesion for 2007–13. Quality of life is crucial in attracting and retaining a skilled labour force, businesses, students, tourists and, most of all, residents in a city. Assessing the current situation is a prerequisite for any improvement, development and future monitoring. The Urban Audit is a response to this demand for assessment. This data collection provides information on the different aspects of the quality of urban life in Europe's cities.

The Urban Audit is the result of a joint effort by the participating cities, the statistical offices belonging to the European statistical system and the European Commission's Directorate-General for Regional Policy. The success of this data collection depends on their contributions and continued support.

What makes the Urban Audit unique?

The Urban Audit exercise can now look back over almost a decade of trials, errors, and achievements. Several concepts were tested and large volumes of data were collected during the pilot study in 1999, the first large-scale data collection round of 2003/04 and the most recent collection round of 2006/07. The data which passed the quality control procedures has, since April 2008, been available in Eurostat's statistical databases. The uniqueness of the Urban Audit data set lies in the extent of its three main dimensions: its wide choice of indicators, its large geographical coverage and its decade-long time series.

Wide choice of indicators

More than 300 indicators were defined and calculated, covering most aspects of quality of life, e.g. demography, housing, health, crime, labour market, income disparity, local administration, educational qualifications, environment, climate, travel patterns, information society and cultural infrastructure. These indicators are derived from the 336 variables collected by Eurostat. Data availability differs from domain to domain: in the domain of demography, for instance, data are available for more than 90 % of the cities, while in the domain of the environment data are available for less than half of them.

Large geographical coverage

Following the pilot study of 58 cities, in 2003/04 the data collection expanded to cover 258 cities. At present the Urban Audit includes 321 cities from the EU-27, 26 Turkish cities, six Norwegian cities and four Swiss cities. Data will be collected from five Croatian cities in the course of 2008.

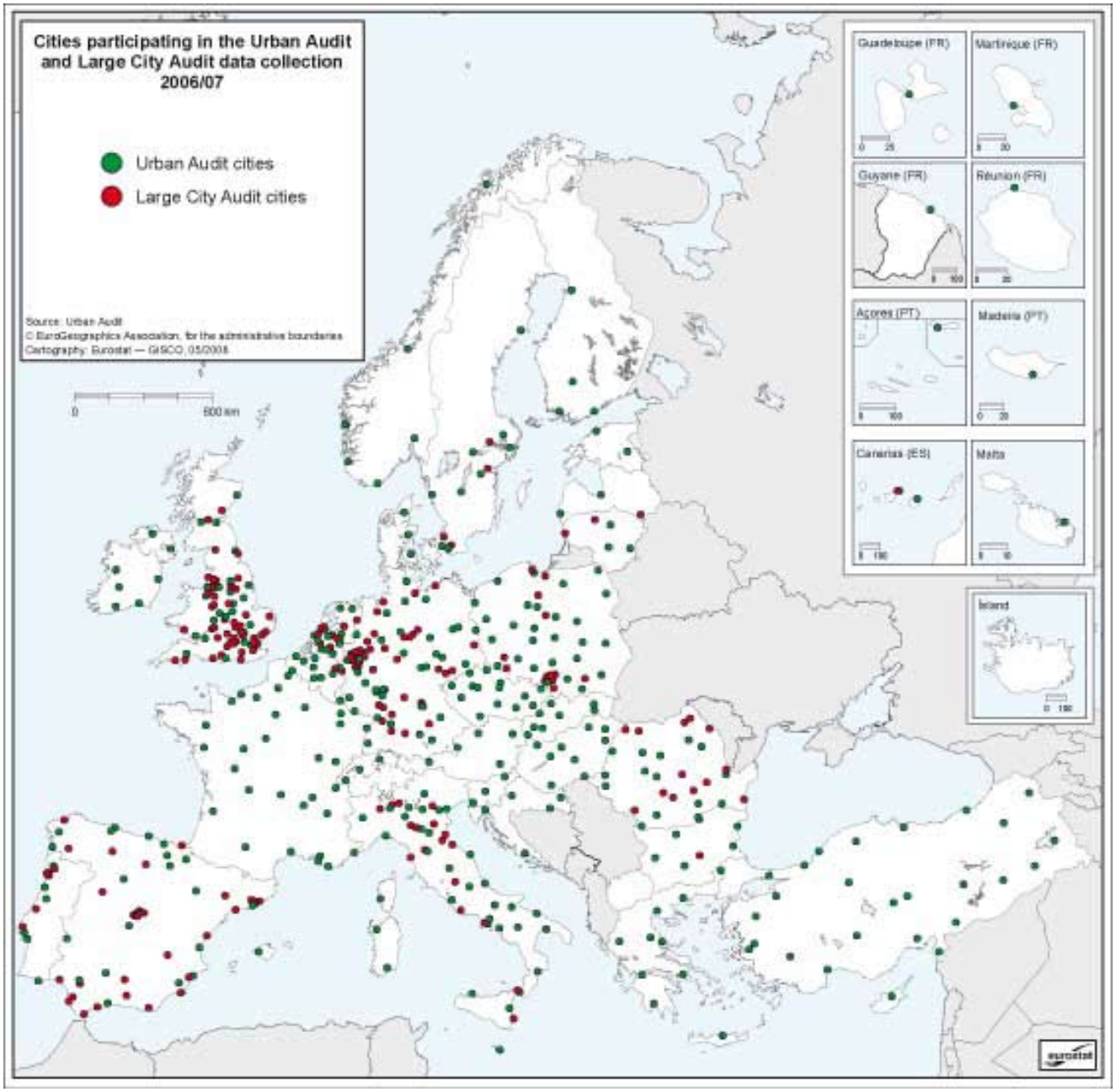
A city can be designated as an urban settlement (morphological concept) or as a legal entity (administrative concept). The Urban Audit uses this latter concept and delineates the so-called 'core city' according to political and administrative boundaries. Data used to produce the maps in this chapter refer to this spatial level. However, economic activity, labour force or air pollution, etc. evidently cross the administrative boundaries of a city. To capture information on this extended spatial level, the 'larger urban zone' was defined based on commuter flows. The larger urban zone includes the core city and its 'commuter belt'. Each core city is divided up into sub-city districts. This third spatial level enables information to be collected on disparities within a city. To allow comparative analysis, national-level data have also been compiled. Figure 2.1, for instance, compares the national population to the population figures collected at the city level.

The selection of Urban Audit cities was based on several criteria. As a general requirement, the cities selected should reflect the geographical cross-section of each country and should comprise approximately 20 % of the national population. Consequently, in a few countries some large cities (over 100 000 inhabitants) were not included in the Urban Audit. To supplement the Urban Audit data collection in this respect, in 2006 a new data collection, the so-called 'Large City Audit' was launched. The Large City Audit includes all 'non-Urban Audit cities' with more than 100 000 inhabitants in the EU-27. For the over 250 cities in the Large City Audit, a reduced set of 50 variables is collected. The list of participating cities was agreed bilaterally with the Member States. Map 2.1 illustrates the geographical spread of Urban Audit cities and Large City Audit cities.

More than a decade-long time series

Four reference periods have been defined so far for the Urban Audit: 1989 to 1993, 1994 to 1998, 1999 to 2002 and 2003 to 2005. Within each period a reference year was set: 1991, 1996, 2001 and 2004. Where possible, cities were asked to provide data for these years. An adjacent year was

Map 2.1: Cities participating in the Urban Audit and Large City Audit data collection 2006/07



chosen for variables which were not available for the reference year. For the years 1991 and 1996, data were collected only for a reduced number of 80 variables.

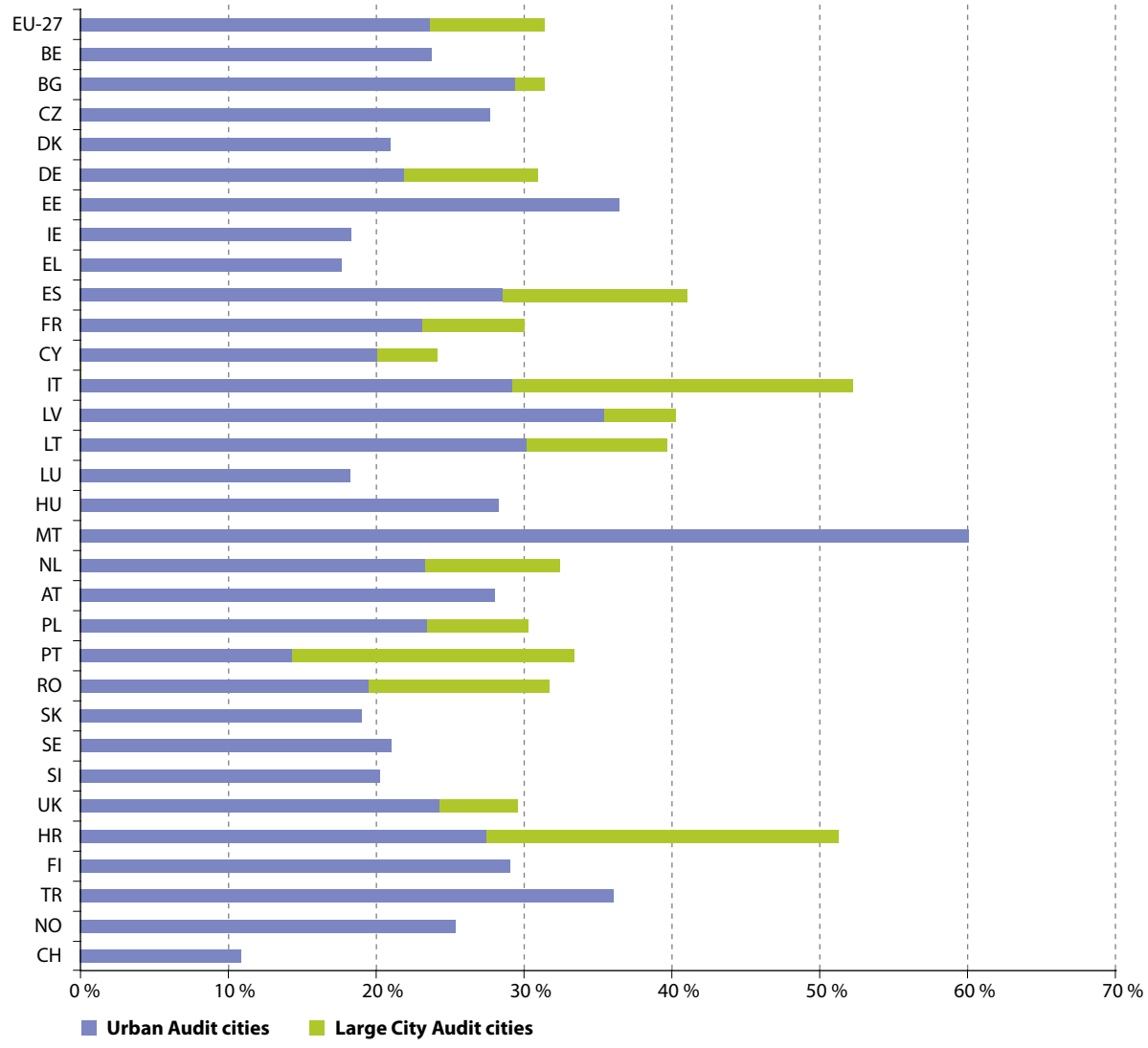
Attractiveness of cities

The power to attract people has been one of the distinguishing characteristics of cities. The concentration of people in cities is therefore one of the basic indicators of cities' attractiveness.

Figure 2.1 illustrates the percentage of national population living in the Urban Audit cites and Large City Audit cities. The total population of the 321 Urban Audit cities is more than 120 million, representing approximately 25 % of the EU-27 population, while the Large City Audit covers an additional 8 % of the EU-27 population. In the two Mediterranean island States Cyprus and Malta, the proportions of the national population living in Urban Audit or Large City Audit cities are the highest among all Member States. It is worth noting that the smaller countries are not the only ones with high population coverage: Spain and the United Kingdom also have a percentage value above 40 %.

The size of the urban population in itself reveals only part of the story. Using the Urban Audit database we can examine the age structure of the cities. The share of children less than 14 years old

Figure 2.1: Population living in Urban Audit and Large City Audit cities as a percentage of the national population, 2004

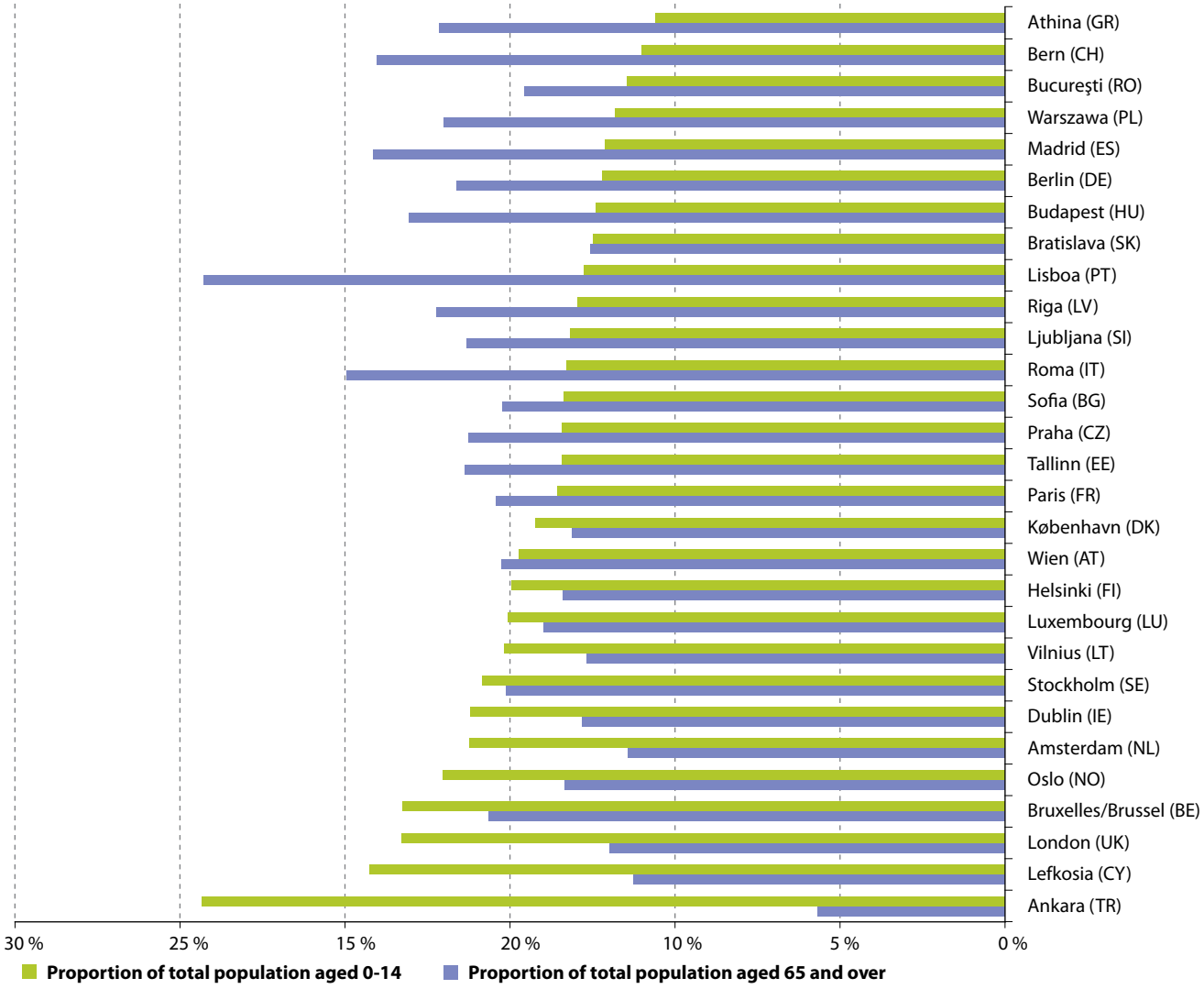


Data: HU: 2005; MT, FI: 2003; BG, IE: 2002; DK: 2001; FR: 1999

in the total resident population was the highest in Ankara and Lefkosia, as shown in Figure 2.2. Capitals such as London, Bruxelles/Brussel, Oslo, Amsterdam, Dublin and Stockholm also attract young people: the proportion of children less than 14 years old is above 15 % there, whereas in Athina, Bern and Bucuresti only one in 10 residents is less than 14 years old. The Portuguese capital has the highest share of residents above 65 years old, followed by the other two southern European capitals, Roma and Madrid. In these cities the share of elderly residents is significantly higher than the share of younger residents, raising concerns about the ageing of the population. This process is brought about by low birth rates and/or high life expectancies. These two indicators are available from the Urban Audit database stored on the Eurostat portal.

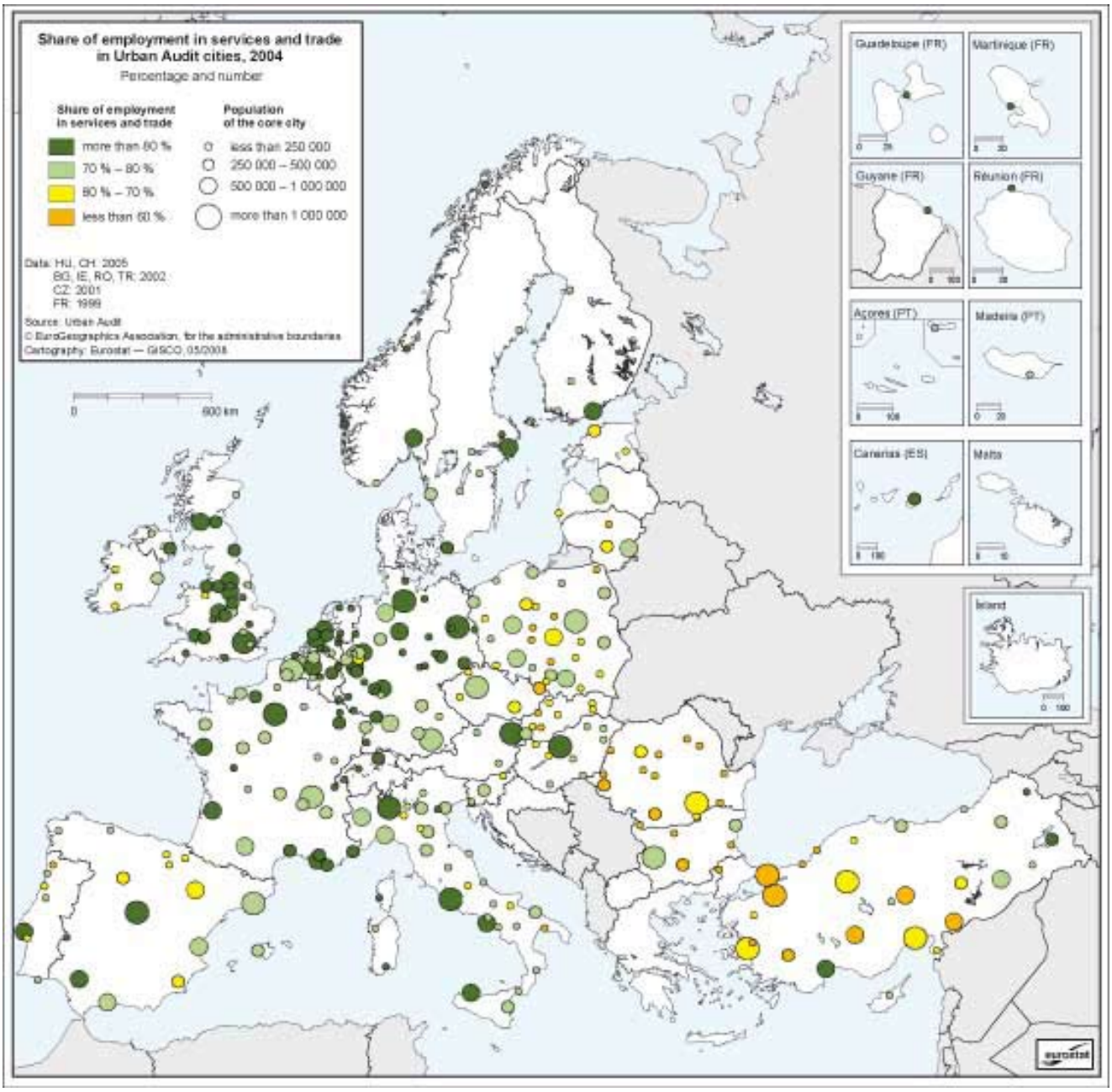
The enhancement of urban attractiveness is a continuous policy effort. These efforts should achieve, along with other targets, an adaptable and diverse economic structure at the city level to provide a secure employment base for citizens. Generally, cities with a concentration of economic activity in the tertiary sector are considered to be more flexible and dynamic. The highest shares of employment in services, more than 92 %, were registered in Cambridge, Luxembourg and Genève. Despite their relatively small population these cities are acknowledged as international centres of research, financial services or

Figure 2.2: Proportion of population according to age groups in European capitals, 2004



Data: HU 2005; IE 2002; CY, FI, CZ, BG 2001; FR 1999; MT: data not available

Map 2.2: Share of employment in services and trade in Urban Audit cities, 2004
Percentage and number



administration. Cities where the share of employment in the service sector is 80 % or more are mostly located in north-western and northern Europe (see Map 2.2). Some cities of southern France, Spain and Italy where catering and the tourist trade are dominant also belong to this group. Cities with a high rate of employment in agriculture and industry are notably to be found in the two newest Member States and in Turkey. In 16 out of the 22 cities with more than 1 million inhabitants the share of employment in services is above 70 %, while among the cities with less than a 70 % share of employment in services seven out of 10 cities have less than 500 000 inhabitants. This is also highlighted on Map 2.2, where each circle represents one city: the size of the circle relates to the resident population of the city, and the colour of the circle shows the share of employment in services.

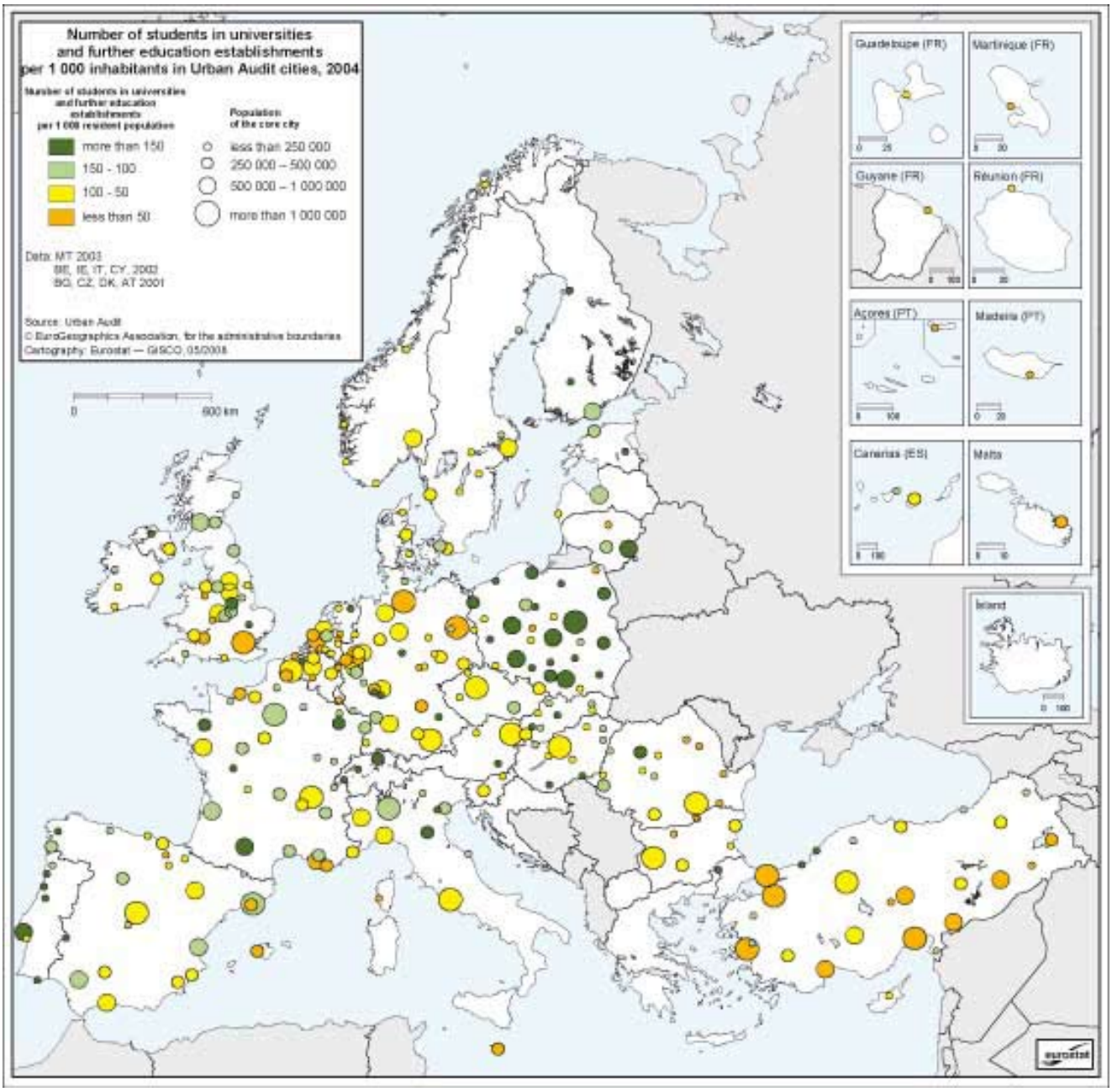
Whether cities are experiencing a 'brain drain' or a 'brain gain' depends among other things on their ability to attract students to their colleges and universities. Retaining university and college graduates in the city is the next step in establishing a highly skilled workforce. Map 2.3 shows the number of students in universities and other further education establishments per 1 000 resident population. The highest number of students in higher education per 1 000 resident population was registered in the world-famous Italian university town of Padova. Bologna, after which the process of creating the European Area of Higher Education was named, also ranked in the top 10. Cities where more than 150 students per 1 000 inhabitants are enrolled in higher education are widely spread all over Europe. However, in Poland a high concentration of such cities can be observed. Looking at the number of students relative to inhabitants means that large cities perform seemingly badly according to this indicator, although most of them host prestigious and large universities. Warszawa is the only city with more than 1 million inhabitants where the number of students is above 150 per 1 000 residents. Assessing the absolute number of students in colleges and universities could counterbalance this side-effect. These data series can also be consulted on the Urban Audit database available online.

Environmental factors, such as clean air, clear water and friendly weather, also influence the attractiveness of a city. Map 2.4 provides an overview of one of the basic indicators related to the environment: the average number of hours of sunshine per day. The patterns on the map clearly reflect the variety of climates we can experience throughout Europe. In general, northern and north-western Europe has less sunshine; the lowest daily averages were observed in the cities of the Ruhr area. Cities in southern Europe have more than 7.5 hours of sunshine daily. The largest disparities within a country are registered in Spain, between Bilbao and Málaga.

Besides the economic dimension, the importance of the social dimension of urban attractiveness has been coming to the fore recently. The image of a 'divided city' or an 'unsafe city' evidently has detrimental effects on the city's attractiveness. The image of a city has its roots in associations, memories and feelings linked to the city. Therefore, in addition to hard facts about social exclusion, disparities or crime, the perception of residents is crucial. To find out how citizens feel and think about their city we can turn to the results of the Urban Audit perception survey. The last survey took place in 2006 and included 75 major cities in the EU-27, Croatia and Turkey. Survey data were collected through telephone interviews of samples of 500 persons per city.

Figure 2.3 illustrates the responses to the questions in the public opinion survey on perception of safety in the city and in the neighbourhood. Respondents were asked if they always, sometimes, rarely or never feel safe in the city they live in. In Aalborg (DK), Oulu (FI), Oviedo (ES), Groningen (NL), København (DK), München (DE) and Helsinki (FI) less than 5 % of the respondents answered that they never or rarely feel safe in the city. Consequently, more than 95 % of the respondents always or most of the time feel safe in the city. Similarly favourable answers were registered in these cities to the question on feeling safe in the neighbourhood. These almost unanimous answers point to the fact that these cities are perceived as safe by the citizens. However, not all cities could be considered safe based on the responses. At the other end of the scale we find Istanbul (TR) and Napoli (IT). In these cities more than half of the respondents never or rarely feel safe in the city. In striking contrast to these negative results, remarkably few respondents, less than 15 %, stated in Istanbul that they never or rarely feel safe in the neighbourhood they live in. Large differences between the perceptions of safety in the city in general and in the specific neighbourhood where the respondents live were found in other cities as well, notably in Diyarbakir (TR), Marseille (FR), Antalya (TR) and Praha (CZ). In these cities the safety of the neighbourhood was rated more positively than the overall safety of the city. These discrepancies indicate the existence of social divisions within a city and the potential existence of 'crisis districts'.

Map 2.3: Number of students in universities and further education establishments per 1 000 inhabitants in Urban Audit cities, 2004



Map 2.4: Average number of hours of sunshine per day in Urban Audit cities, 2004

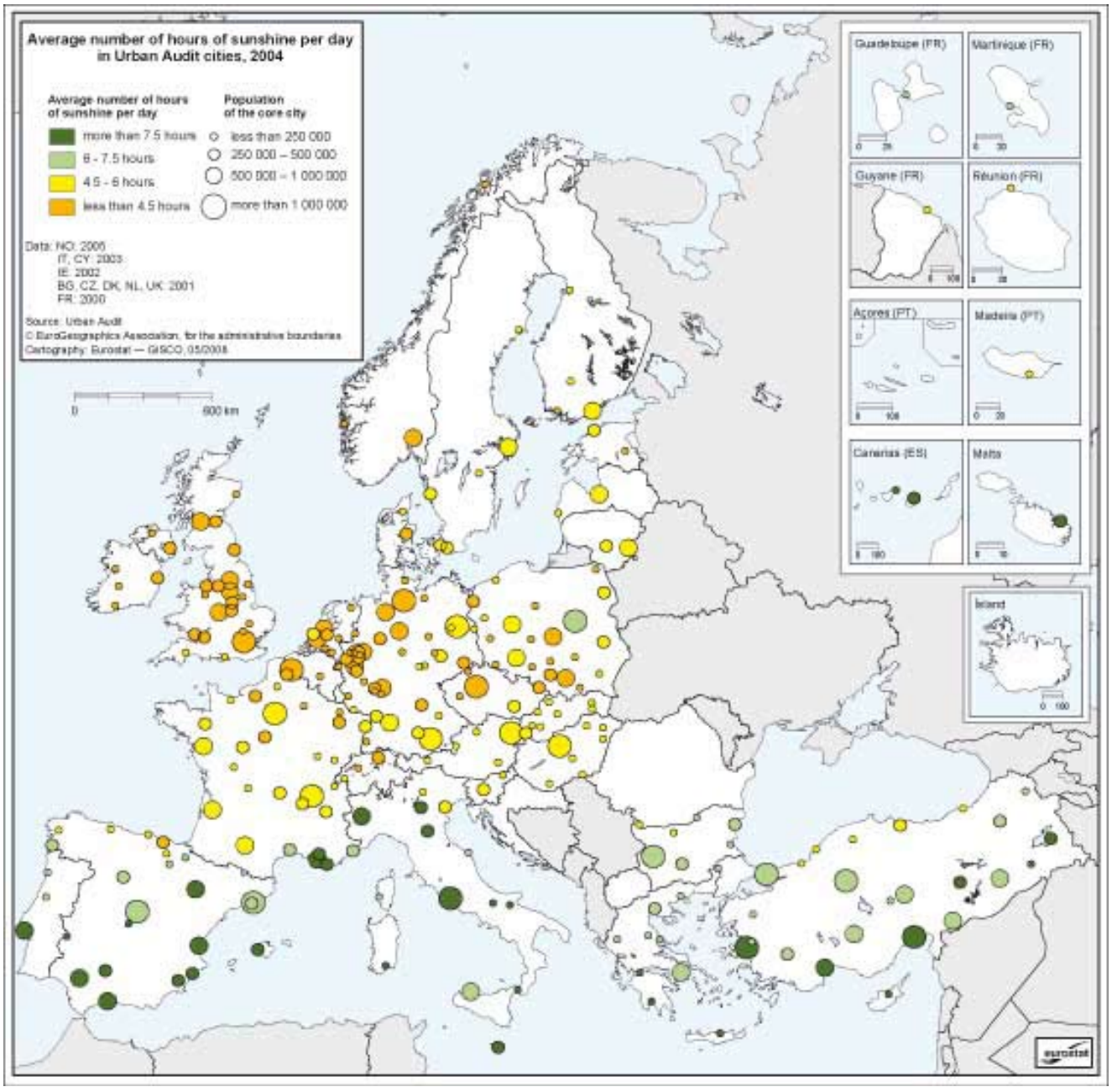
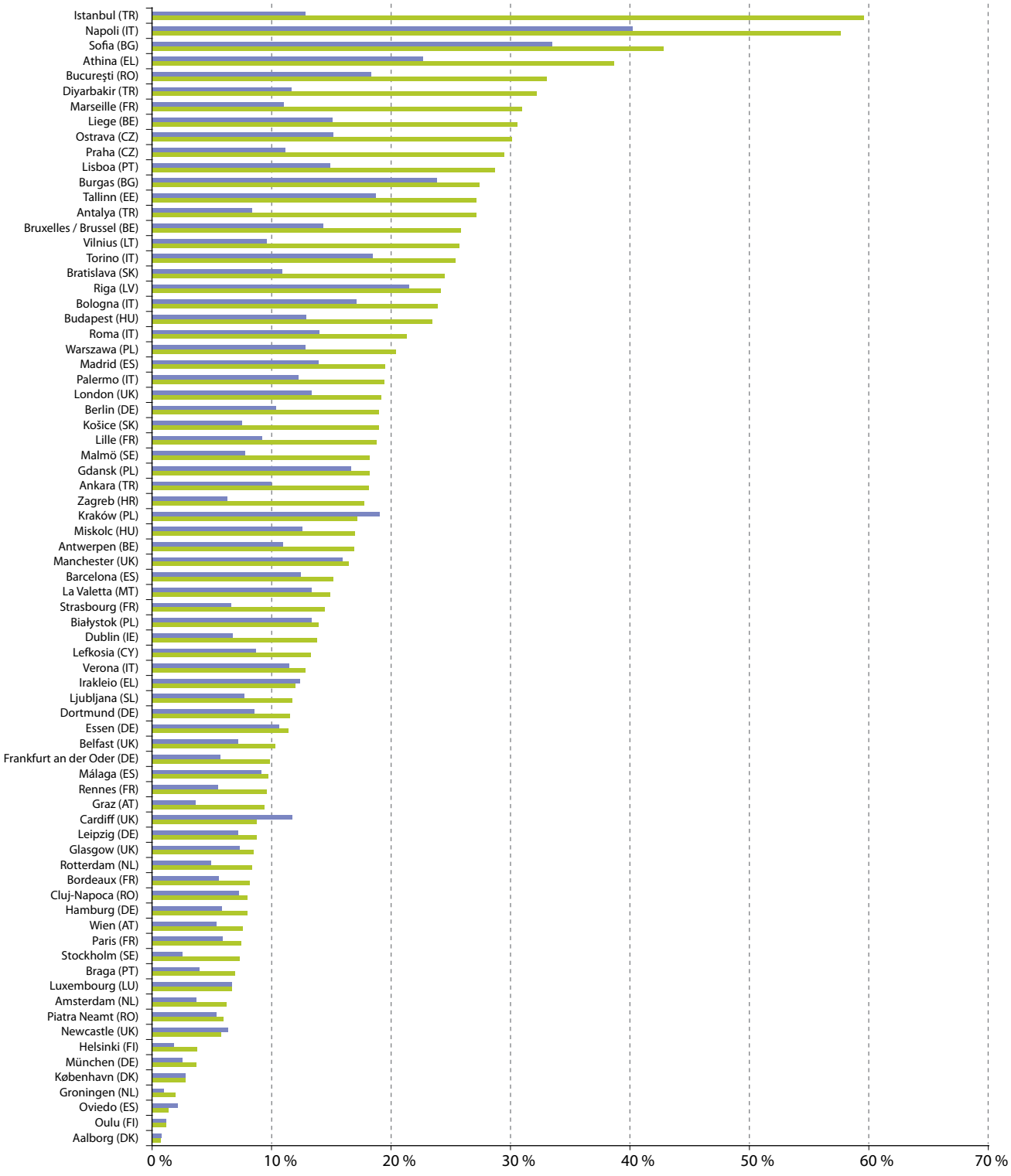


Figure 2.3: Perception of safety in selected Urban Audit cities, 2006
Percentage of respondents who never or rarely feel safe in the city or in the neigborhood they live in



Source: Urban Audit perception survey

Conclusion

What makes a city attractive? Residents are attracted to cities with a high quality of life, businesses are attracted to cities with a good skills base and infrastructure, students are attracted to cities with a good university or college, and tourists are attracted to cities with cultural values and mild weather, etc. As a result, a city's attractiveness is determined by a number of factors. In the previous paragraphs we mentioned a few, such as demographic characteristics, economic structure, the environment and social aspects. However, several other elements could be analysed. We encourage readers to probe deeper into the Urban Audit database and discover which cities they find attractive.

3

Gross domestic product

What is regional gross domestic product?

The economic development of a region is, as a rule, expressed in terms of its gross domestic product (GDP). This indicator is also frequently used as a basis for comparisons between regions. But what exactly does it mean? And how can comparability be established between regions of different sizes and with different currencies?

Regions of different sizes achieve different levels of GDP. However, a real comparison can only be made by comparing the regional GDP with the population of the region in question. This is where the distinction between place of work and place of residence becomes significant: GDP measures the economic performance achieved within national or regional boundaries, regardless of whether this was attributable to resident or non-resident persons. Reference to GDP per inhabitant is therefore only straightforward if all persons engaged in generating GDP are also residents of the region in question.

In areas with a high proportion of commuters, regional GDP per inhabitant can be extremely high, particularly in economic centres such as London, Vienna, Hamburg, Prague or Luxembourg, and relatively low in the surrounding regions, even if primary household income in these regions is very high. Regional GDP per inhabitant should therefore not be equated with regional primary income.

Regional GDP is calculated in the currency of the country in question. In order to make GDP comparable between countries, it is converted into euros using the official average exchange rate for the given calendar year. However, exchange rates do not reflect all the differences in price levels between countries. In order to compensate for this, GDP is converted, using currency conversion rates known as purchasing power parities (PPPs), into an artificial common currency called the purchasing power standard (PPS). This makes it possible to compare the purchasing power of the different national currencies (see Methodological notes).

Regional GDP in 2005

Map 3.1 provides an overview of the regional distribution of per-inhabitant GDP (as a percentage of the average for EU-27 of 22 400 PPS) for the European Union plus Croatia. It ranges from 24 % of the EU-27 average (5 430 PPS) per inhabitant in north-east Romania to 303 % (67 798 PPS) per inhabitant in the UK capital region of Inner London. The difference between the two ends of the range is therefore 12.5 to 1. Luxembourg at 264 % (59 202 PPS) and Brussels at 241 % (53 876 PPS) follow in second and third places, and Hamburg at 202 % (45 271 PPS) and Vienna at 178 % (39 774 PPS) take fourth and fifth places.

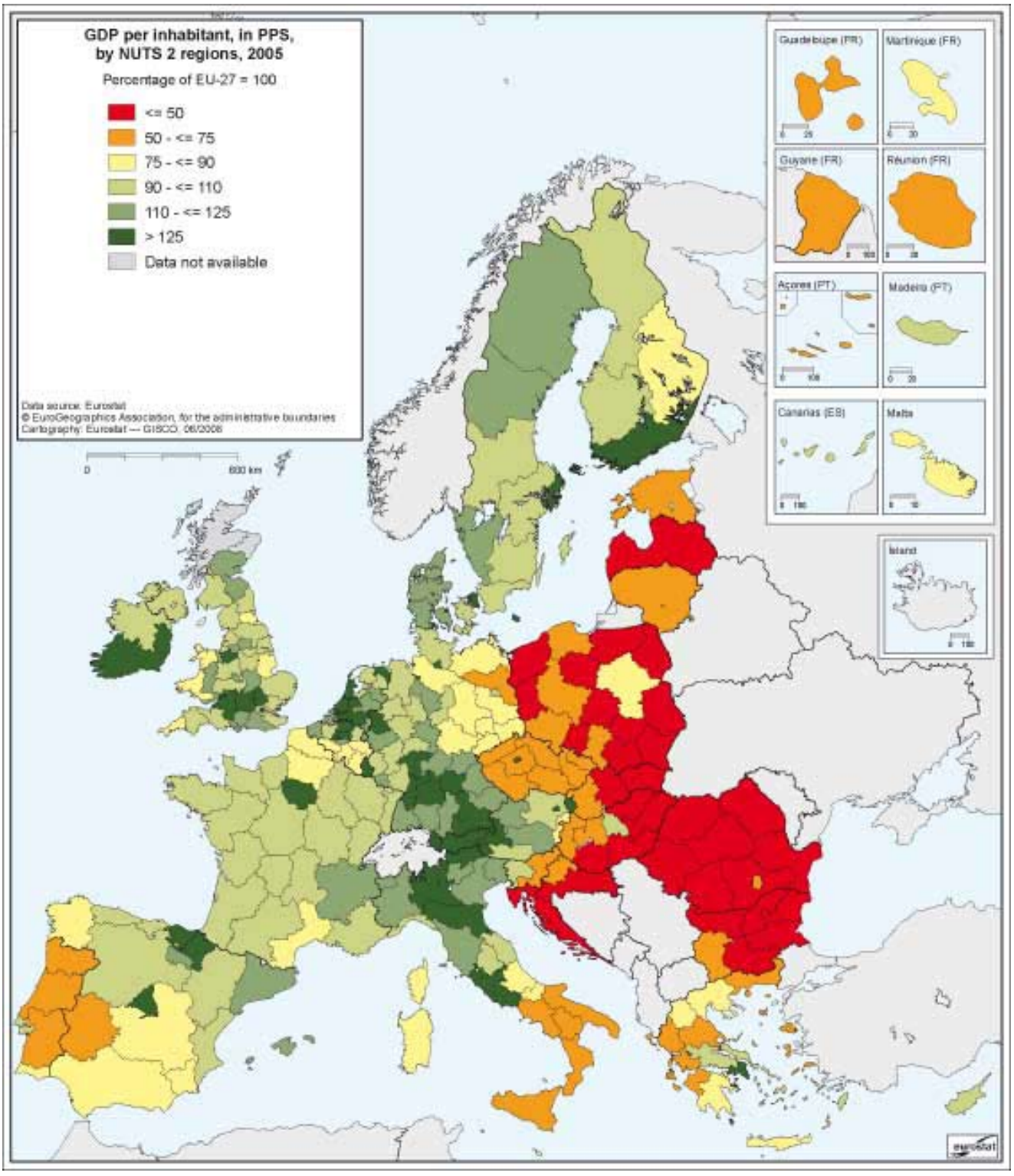
The most prosperous regions are in southern Germany, in the south of the UK, in northern Italy and in Belgium, Luxembourg, the Netherlands, Ireland and Scandinavia. The capital regions of Madrid, Paris and Prague also fall into this category. Most of the economically weaker regions are in the southern and western periphery of the EU and in eastern Germany, the new Member States and Croatia.

Prague (Czech Republic), the region with the highest GDP per inhabitant in the new Member States, has already risen to 12th place with 160 % of the EU average (35 901 PPS), and Bratislavský kraj (Slovakia) with 148 % (33 124 PPS) has reached 18th place out of the 274 level-2 regions considered here (in the EU-27 plus Croatia). However, these two regions are exceptions in the new Member States, as the next ones are lagging far behind: Közép-Magyarország (Hungary) at 105 % (23 489 PPS) in 111th place, Zahodna Slovenija (Slovenia) also at 105 % (23 453 PPS) in 112th place and Cyprus at 93 % (20 753 PPS) in 157th place. With the exception of two regions (Mazowieckie in Poland and Malta), all the other regions of the new Member States and Croatia have a GDP per inhabitant of less than 75 % of the EU-27 average.

If the 274 regions are divided into classes according to their GDP (in PPS) per inhabitant, the following picture emerges. In 2005, GDP in 69 regions was less than 75 % of the EU-27 average. These 69 regions account for 25.6 % of the population (EU-27 and Croatia), of which three quarters are in the new Member States or Croatia, and one quarter in the EU-15.

At the upper end of the spectrum, 43 regions display a GDP per inhabitant of more than 125 % of the EU-27 average. Some 21.4 % of the population live in these regions. A total of 53.0 % of the population, i.e. a slight majority, live in regions with a per-inhabitant GDP between 75 % and 125 % of the EU-27 average. Some 12.1 % of the population live in regions whose per-inhabitant GDP is less than 50 % of the EU-27 average; all of these regions are in the new Member States or Croatia.

Map 3.1: GDP per inhabitant, in PPS, by NUTS 2 regions, 2005
Percentage of EU-27 = 100



Three-year average GDP over the period 2003–05

Map 3.2 gives an overview of average per-inhabitant GDP levels (in PPS) over the period 2003–05. Three-year averages are especially important because they are used in deciding which regions are to receive subsidies from the EU Structural Funds.

The map shows a concentration of less developed regions, i.e. with per-inhabitant GDP of less than 75 % of the average for 2003–05 in the EU-27 (21 560 PPS), in southern Italy, Greece and Portugal, the new Member States and Croatia. In Spain, only Extremadura is still below the 75 % bar, and in France the four overseas departments. The eastern German regions are now all above the 75 % level. Overall, 70 regions had average per-inhabitant GDP over the period 2003–05 of less than 75 % of the EU-27 average; these regions were home to 25.4 % of the population of the 28 countries being considered.

Map 3.2 also shows the particularly prosperous regions, with GDP of more than 125 % of the EU-27 average. These 47 regions are home to 23 % of the population of the EU-27 (plus Croatia). Contrary to what is widely assumed, these regions are by no means all at the geographical heart of the Union, but include examples such as Etelä-Suomi (Finland), Southern and Eastern (Ireland), Madrid (Spain) and Attiki (Greece). However, it is correct to assume that many capital cities are in this group, in particular London, Dublin, Brussels, Paris, Madrid, Stockholm, Prague and Bratislava.

The new Member States fare very differently when it comes to their regions with a GDP of less than 50 % and between 50 % and 75 % of the EU-27 average. Thirty-four regions, accounting for 12.6 % of the population, have less than 50 % of average GDP, most of them in Bulgaria, Romania and Poland. This group also includes two out of the three regions in Croatia.

It must be taken into account, however, that seven regions (three in Greece, two in Italy and one each in Germany and Malta), accounting for 1 % of the population, are above the 75 % bar only because the EU grew in 2007 to 27 members, which means that per-inhabitant GDP in the new EU-27 is some 4 % lower than it was in EU-25. To show this statistical effect, these seven regions are shown on Map 3.2 in yellow.

Major regional differences even within countries

There are also substantial regional differences within countries themselves, as Figure 3.1 shows. In 2005, the highest per-inhabitant GDP was more than twice the lowest in 12 of the 22 countries with more than one NUTS 2 region. This group includes five of the eight new Member States (plus Croatia) but only seven of the 14 EU-15 Member States.

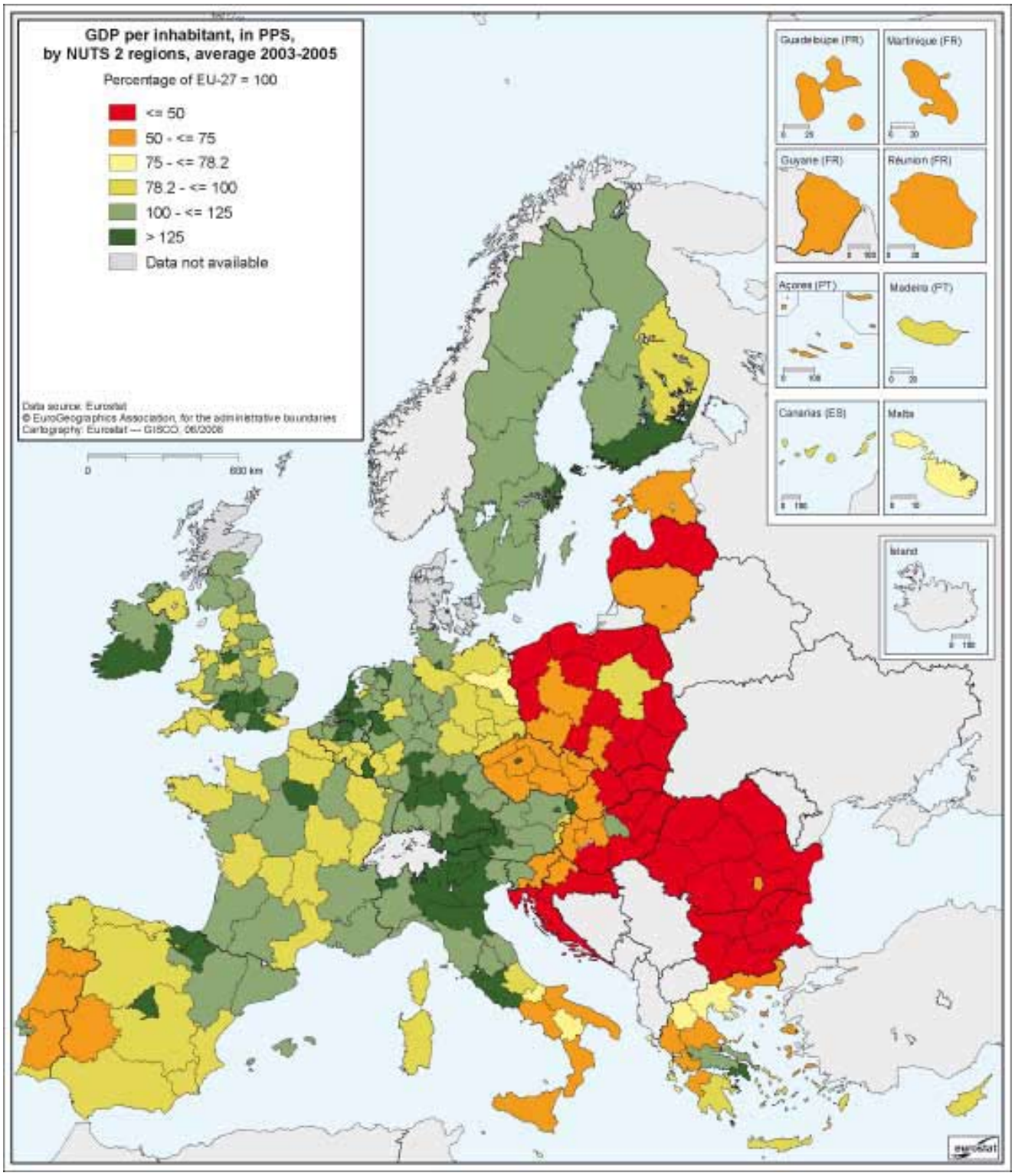
The largest regional differences are in the United Kingdom, where there is a factor of 3.9, and in Slovakia and France, with a factor of 3.4 between the two extreme values. The lowest values are in Ireland and Slovenia, with a corresponding factor of 1.5 in each case. Moderate regional disparities in per-inhabitant GDP (i.e. factors of less than 2 between the highest value and the lowest) are found only in the EU-15 Member States and in Bulgaria, Croatia and Slovenia.

In all the new Member States and Croatia, and in a number of the EU-15 Member States, a substantial share of economic activity is concentrated in the capital regions. As a result, in 18 of the 22 countries included here in which there is more than one NUTS 2 region, the capital regions are also the regions with the highest per-inhabitant GDP. For example, Map 3.1 clearly shows the prominent position of the regions of Brussels, Prague, Sofia, Athens, Madrid, Paris, Lisbon, as well as Budapest, Bratislava, London, Warsaw, Bucharest and Zagreb.

A comparison of the ranges between 2000 and 2005 shows, however, that developments in the EU-15 were significantly different to those in the new Member States. Whilst the ranges between the regional extremes in the new Member States and Croatia tended to increase, they decreased in most of the EU-15 countries.

However, considering the regional extreme values alone cannot give a full picture of reality, as the regions are treated the same regardless of their population. Eurostat has therefore developed a new linear dispersion indicator which, for each region, weights the difference in per-inhabitant GDP compared with the national average on the basis of the population of the region in question (see Methodological notes). In this way, extreme values for regions with a smaller population, e.g. Åland (Finland), are given a smaller weighting, in line with their smaller

Map 3.2: GDP per inhabitant, in PPS, by NUTS 2 regions, average 2003–2005
Percentage of EU-27 = 100



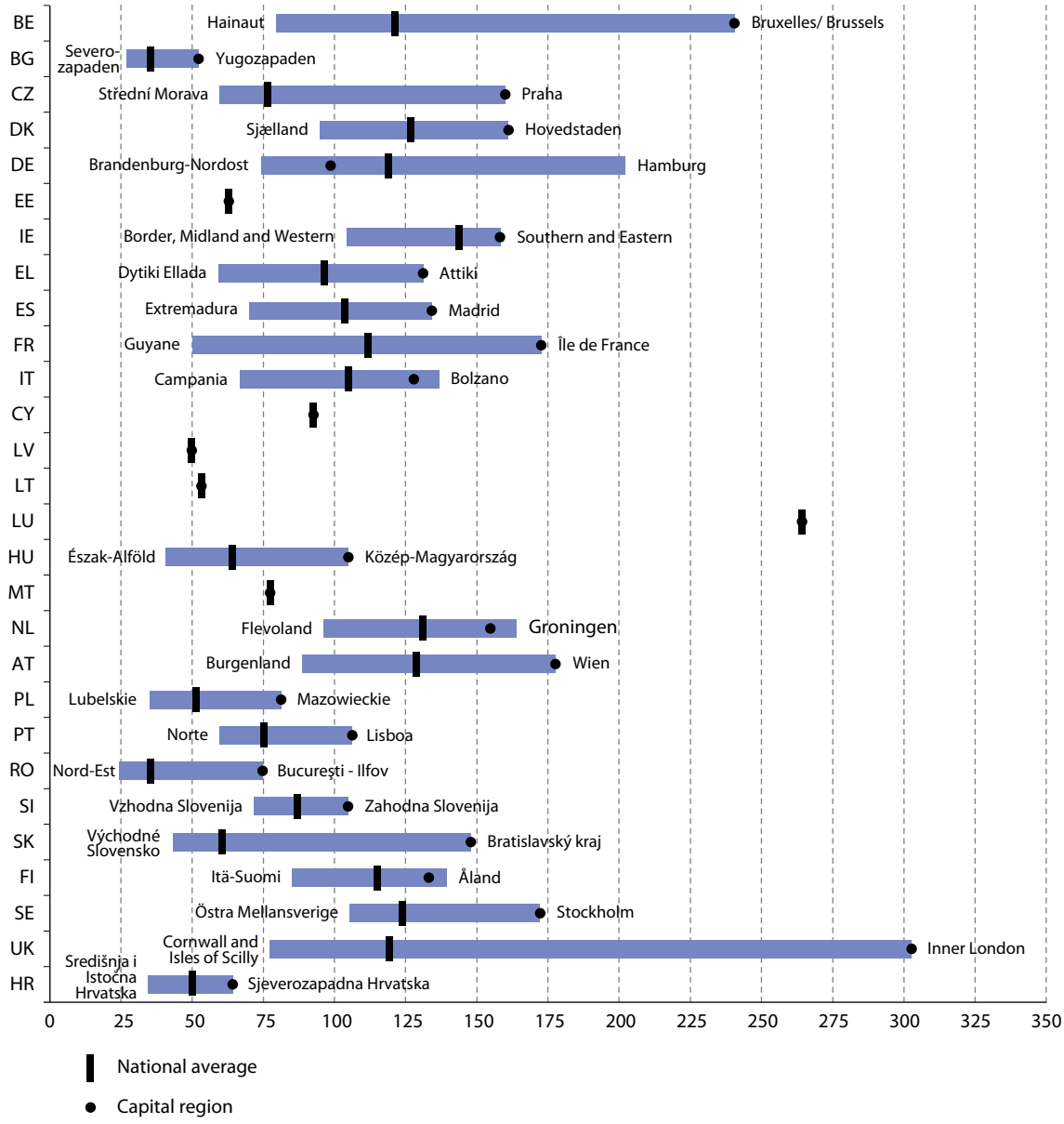
population, and those with a large population, e.g. Île-de-France, are given a correspondingly larger weighting.

Figure 3.2 shows the regional dispersion calculated according to this method for all Member States with more than one NUTS 2 region, plus Croatia. We can see first of all that Hungary and Slovakia, with values of more than 30 %, have the greatest regional dispersion; these values are three times those in the Netherlands which, at 11 %, has the most homogenous spread. Most of the new Member States and Croatia are in the range of 20–30 %; with the exception of Poland and Slovenia, only EU-15 States show values under 20 %.

Dynamic catch-up process in the new Member States

Map 3.3 shows the extent to which per-inhabitant GDP changed between 2000 and 2005 by comparison with the EU-27 average (expressed in percentage points of the EU-27 average). Economically dynamic regions, whose per-inhabitant GDP increased by more than 2 percentage

Figure 3.1: GDP per inhabitant, in PPS, by NUTS 2 regions, 2005
In percentage of the EU-27 average (EU-27 = 100)

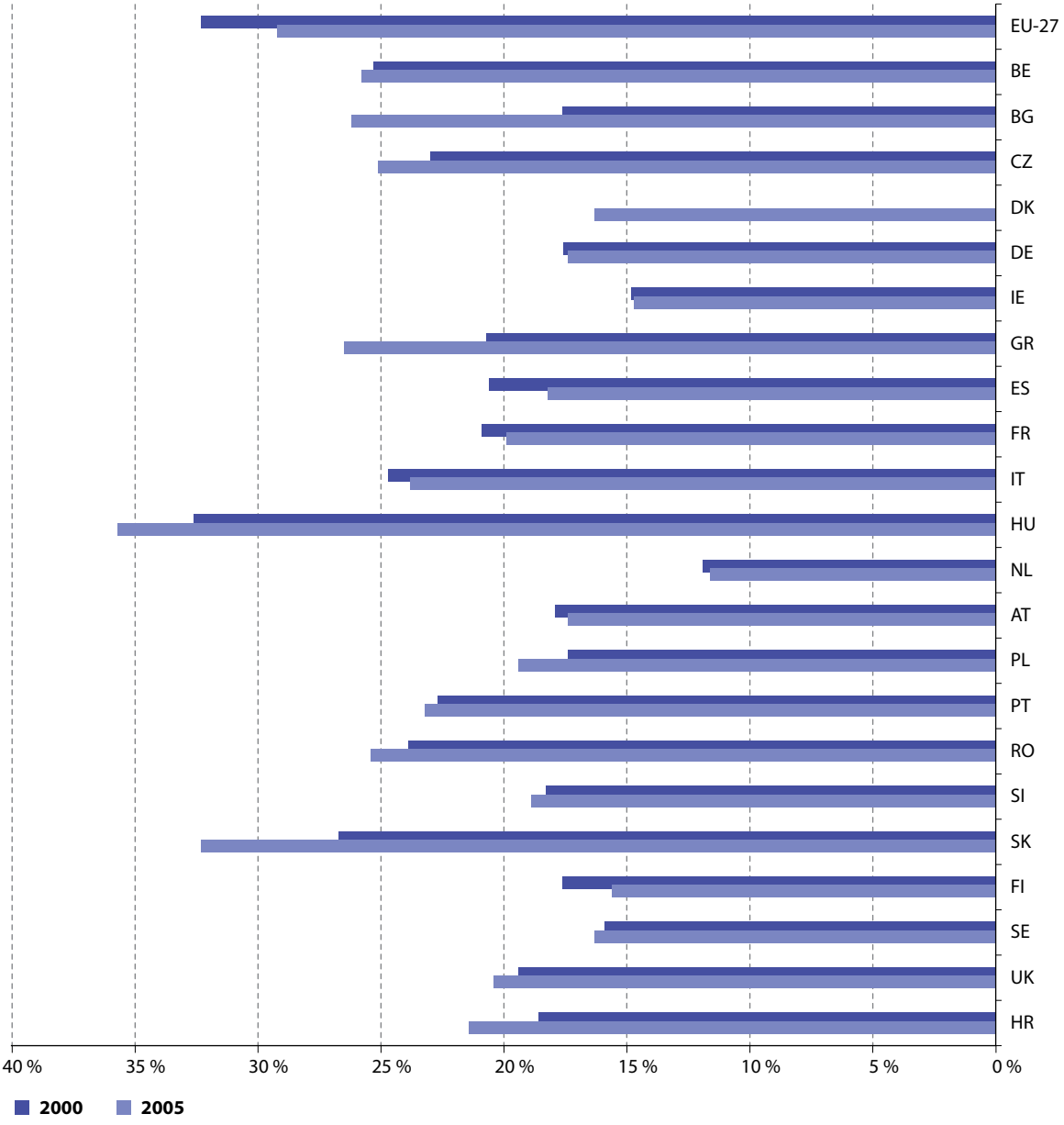


points compared with the EU average, are shown in green. Less dynamic regions (those with a fall of more than 2 percentage points in per-inhabitant GDP compared with the EU-27 average) are shown in orange and red. The values range from + 39 percentage points for Bratislavský kraj (Slovenia) to - 22.5 percentage points for Emilia-Romagna in Italy.

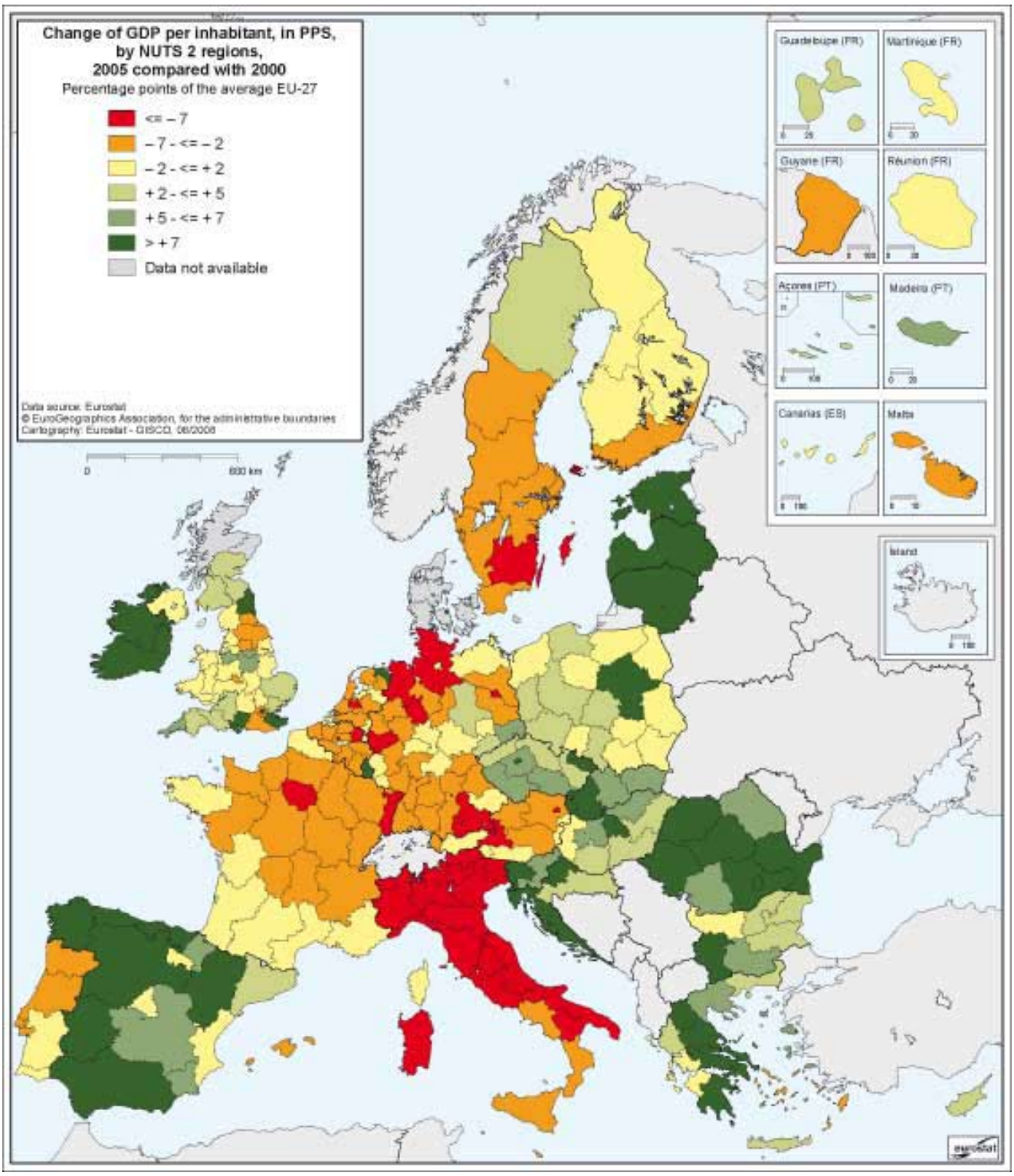
The map shows that economic dynamism is well above average in the western and eastern peripheral areas of the EU, not only in the EU-15 but also in the new Member States and Croatia.

Among the EU-15 Member States, strong growth can be seen in particular in Greece, Spain, Ireland and parts of the United Kingdom. On the other side, a trend which has now been observed for several years is continuing, with persistent low growth in some EU-15 countries. Italy, where not a single region achieved the average growth in the EU-27 between 2000 and 2005, and Portugal, where only Madeira and the Azores were able to make progress vis-à-vis the EU-27, have been hit particularly hard. Most of the regions in Belgium, Germany, France and Austria also fell back compared with the EU average.

Figure 3.2: Dispersion of regional GDP per inhabitant, in PPS, NUTS level 2, 2000 and 2005
Percent



Map 3.3: Change of GDP per inhabitant, in PPS, by NUTS 2 regions, 2005 compared with 2000
Percentage points of the average EU-27



Of the new Member States plus Croatia, with the exception of the capital regions, which are all very dynamic, the Baltic countries, Hungary, Romania, the Czech Republic, Slovakia and Croatia have experienced above-average growth. By contrast, growth in Poland was significantly higher than the EU-27 average in only seven of the 16 regions.

Closer analysis of these very dynamic regions shows that 42 of them grew by more than 7 percentage points compared with the EU average; of these, 19 are in the new Member States or Croatia.

The fastest-growing regions are scattered relatively widely across the countries examined here. However, it can be seen that the capital regions of both the EU-15 and the new Member States, plus Croatia, are particularly dynamic. The non-capital region with the strongest growth among the regions in the new Member States was Vest (Romania), whose per-inhabitant GDP (in PPS) increased by 13 percentage points between 2000 and 2005, from 26.8 % to 39.8 % of the EU-27 average.

A clear regional concentration is apparent, on the other hand, at the lower end of the distribution curve: of the 34 regions which fell by more than 7 percentage points compared with the EU-27 average, 18 are in Italy, 7 in Germany and 2 each in Belgium, France and Austria.

Closer analysis of the new Member States plus Croatia shows that, between 2000 and 2005, only three regions actually fell back compared with the EU-27 average: Nyugat-Dunántúl in Hungary (– 0.4 percentage points), Zachodniopomorskie in Poland (– 1.6) and Malta (– 6.5 percentage points).

The new Member States and Croatia were catching up with the EU-27 average by around 1.4 percentage points per year during the period 2000–05, significantly faster than in the 1990s. Per inhabitant GDP (in PPS) in those 13 countries therefore rose from 45.1 % of the EU-27 average in 2000 to 52.2 % in 2005.

Different trends within the countries

A more detailed analysis of the development within individual countries between 2000 and 2005 shows that economic development can diverge between the regions in one country almost as widely as between regions in different countries.

The greatest differences are in Slovakia and Greece, where the per-inhabitant GDP of the most dynamic region and that of the most slowly growing regions have grown apart by around 34 and 28 percentage points of the EU-27 average respectively. The corresponding figures for the Netherlands and the United Kingdom were 24 and 21 percentage points respectively. At the bottom of the scale are Ireland and Slovenia, with regional disparities of just 5 and 6 percentage points respectively, and Croatia and Finland with 7 and 8 percentage points respectively.

Both in the new Member States and in the EU-15, divergent regional developments can be attributed mainly to the dynamism of the respective capital cities. However, there is no reason to assume, on the basis of the data available, that major differences in the distribution of growth rates are typical of the new Member States or accession countries.

The available data also show that in seven countries even the least economically dynamic regions attained levels of growth above the EU-27 average. In this context it can be considered as encouraging that, besides Ireland, these were five new Member States and Croatia.

A somewhat different picture is obtained when not only the strongest and weakest growing regions, but all regions of a country are considered, as can now be done with the dispersion indicator mentioned above, which weights per-inhabitant GDP according to the population of the region in question. A comparison between the situations in 2005 and in 2000 (see Figure 3.2) shows that the regional dispersion in all the new Member States and Croatia has increased, especially in Bulgaria, Slovakia and Hungary. Decreases are to be found only in EU-15 countries, above all in Spain, Finland, France and Italy.

Convergence makes progress

This section examines the extent to which convergence among the regions of the EU-27 and Croatia made progress over the five-year-period 2000–05. With the help of indicators available from the ESA 95 data transmission programme, the regional convergence of economic activity can be assessed in various ways.

A simple approach is to find the difference between the highest and lowest values. In fact, this difference fell from a factor of 15.8 in 2000 to 12.5 in 2005, mainly as a result of accelerated economic development in Bulgaria and Romania.

However, as this approach examines only the extremes, many of the shifts between regions will clearly not be taken into account.

Methods which take the data for all regions and then apply a weighting to these regions in line with their population sizes yield significantly more accurate results.

The dispersion indicator already mentioned in this chapter (see Methodological notes) shows the regional dispersion for all Member States with more than one NUTS 2 region, plus Croatia. Figure 3.2 shows the results for 2000 and 2005. It is clear that the dispersion is decreasing in most of the EU-15 countries and increasing in the new Member States and Croatia. For the EU as a whole the indicator can only be estimated at the moment, as for certain Member States (Denmark and the UK) regional data are not available for both years. As certain large Member States are seeing clearly decreasing dispersion values, it can be assumed that forthcoming precise values for the EU as a whole will also show a decreasing trend.

The approach currently allowing the most accurate measure of convergence divides the regions into categories on the basis of per-inhabitant GDP (in PPS). It can thus be seen what proportions of the population of the countries being considered (EU-27 plus Croatia) live in more or less prosperous regions, and how these proportions have changed.

Table 3.1 shows that economic convergence between the regions during the five-year period 2000–05 was considerable: the proportion of the population living in regions where per-inhabitant GDP was less than 75 % of the average for the EU-27 fell from 28.3 % to 25.6 %. In the same period, the proportion of the population in regions with values more than 125 % of the EU-27 average fell from 24.4 % to 21.4 %. These shifts at the two ends of the distribution meant that the proportion of the population living in the middle range (per-inhabitant GDP between 75 % and 125 % of the EU-27 average) rose from 47.3 % to 53.0 %, corresponding to an increase of 32 million people.

However, Map 3.4 shows that, despite generally clear progress in convergence between 2000 and 2005, only six regions rose above the 75 % bar. Of these, two are in Greece, and one each in Spain, France, Poland and the UK. These regions are home to 16 million people, or around 3.2 % of the population of the 28 countries under consideration. At the same time, GDP fell back below the 75 % level in four regions: two in Italy and one each in Germany and Greece, corresponding to a total of 6 million people, or around 1.2 % of the population of the 28 countries being considered. If the two developments are offset against each other, we find that economic growth has meant that the population living in regions where GDP is more than 75 % of the average has grown by around 10 million.

These results around the 75 % bar, which is so important for regional policy, suggest that the economically weaker regions have benefited only marginally from the progress towards convergence made between 2000 and 2005.

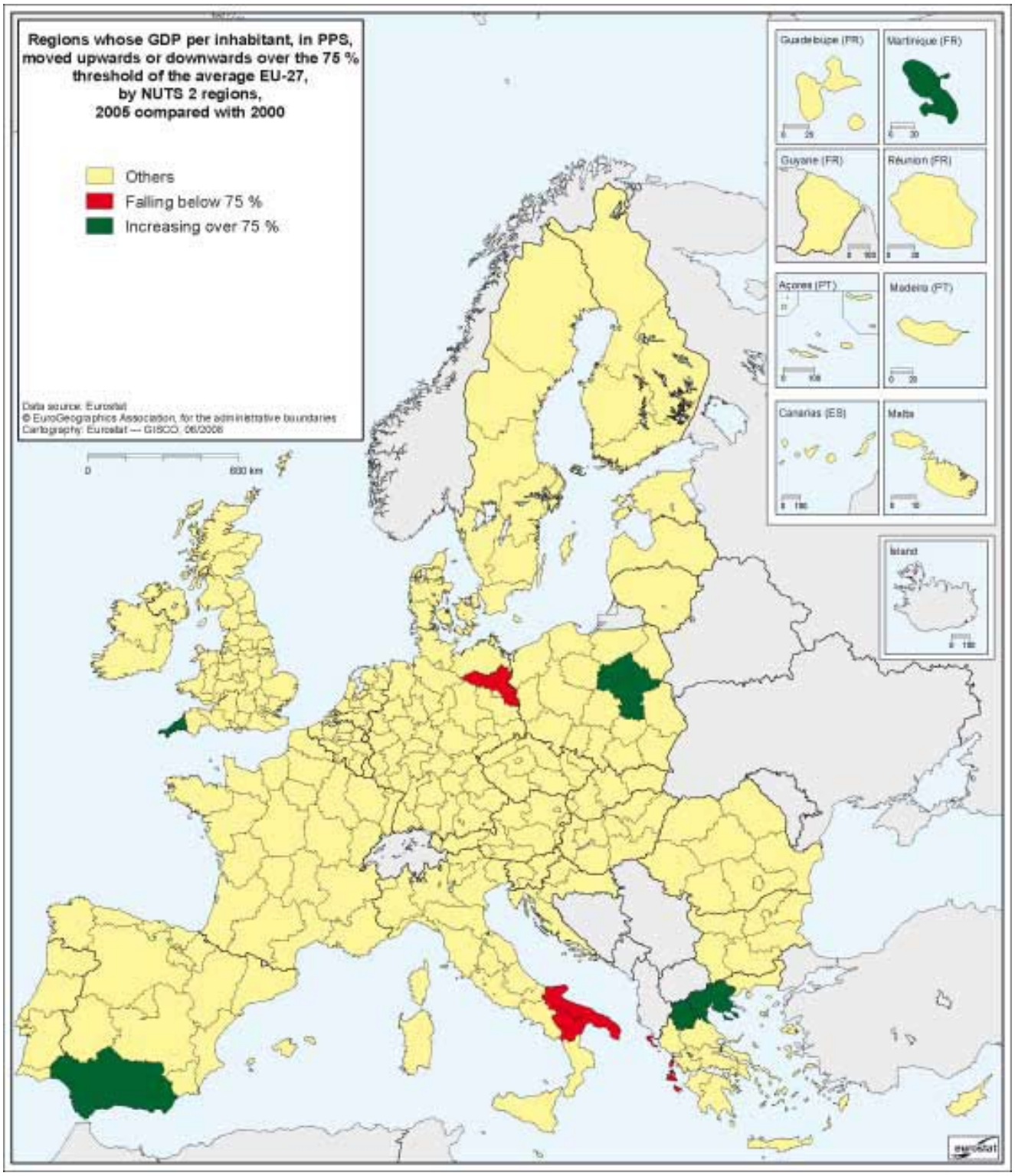
However, on closer examination we see that many regions with per-inhabitant GDP of less than 75 % of the EU-27 average made significant progress. For example, the share of the population living in regions with a GDP of less than 50 % of the average fell from 14.5 % to 12.1 %, i.e. by more than 10 million people.

A look at the 20 economically weakest regions, in which 7.5 % of the population live, shows that these regions have also made progress. Their per-inhabitant GDP rose during these five years from 27.5 % to 32.8 % of the EU-27 average. This is the result, in particular, of the significant progress made in Bulgaria and Romania.

Table 3.1: Proportions of resident population in economically stronger and weaker regions

Percentage of population of EU-27 plus Croatia resident in regions with a GDP per inhabitant of	2000	2005
> 125 % of EU-27=100	24.4	21.4
> 110 % to 125 % of EU-27=100	17.0	15.9
> 90 % to 110 % of EU-27=100	20.5	25.2
> 75 % to 90 % of EU-27=100	9.8	11.9
less than 75 % of EU-27=100	28.3	25.6
less than 50 % of EU-27=100	14.5	12.1

Map 3.4: Regions whose GDP per inhabitant, in PPS, moved upwards or downwards over the 75 % threshold of the average EU-27, by NUTS 2 regions, 2005 compared with 2000



Conclusion

In 2005, per-inhabitant GDP (in PPS) for the 274 NUTS 2 regions examined here differed in the 28 countries (EU-27 plus Croatia) by a factor of 12.5 to 1, which is still very high but shows convergence over the medium term. Within individual countries, there are ranges with a factor of up to 3.9, with regional differences in the new Member States being generally greater than in the EU-15.

In 2005, per-inhabitant GDP (in PPS) in 69 regions was less than 75 % of the EU-27 average. These 69 regions account for 25.6 % of the population, of which three quarters are in the new Member States or Croatia, and one quarter in the EU-15. If the perspective is widened to look at the three-year average for 2003–05, which is important for the EU's structural policy, the results are very similar: 70 regions, accounting for 25.4 % of the population, have less than 75 % of the EU-27 average.

If developments over the five-year period 2000–05 are considered, dynamic growth in the EU-15 was seen in Greece, Spain, Ireland and some regions of the UK. This contrasted with relatively disappointing economic development in most of the Austrian, Belgian, French, German, Italian, and Portuguese regions.

Of the new Member States plus Croatia, in particular the Baltic countries, Hungary, Romania, the Czech Republic, Slovakia and Croatia experienced above-average growth. By contrast, just seven out of 16 Polish regions caught up significantly with the average for EU-27.

The catch-up process in the new Member States and Croatia has accelerated significantly compared with the 1990s and is continuing, with an annual rate of 1.4 percentage points compared with the EU-27 average. However, not all the regions of the new Member States are able to benefit from this to the same extent. This is particularly true of Poland and Malta. All the new Member States plus Croatia, taken together, caught up with the EU-27 average during the period 2000–05 by around 7.1 percentage points, to reach 52.2 %.

Methodological notes

Purchasing power parities and international volume comparisons

International differences in GDP values, even after conversion via exchange rates to a common currency, cannot be attributed solely to differing volumes of goods and services. The 'level of prices' component is also a major contributing factor. Exchange rates reflect many factors relating to supply and demand in the currency markets, like, for example, international trade, inflation forecasts and interest rate differentials. Conversions via exchange rates are therefore of only limited use for international comparisons. To obtain a more accurate comparison, it is essential to use special conversion rates which remove the effect of price-level differences between countries. Purchasing power parities (PPPs) are currency conversion rates of this kind which convert economic data expressed in national currencies into an artificial common currency, called purchasing power standards (PPS). PPPs are therefore used to convert the GDP and other economic aggregates (e.g. consumption expenditure on certain product groups) of various countries into comparable volumes of expenditure, expressed in PPS.

With the introduction of the euro, prices can now, for the first time, be compared directly between countries in the euro area. However, the euro has different purchasing power in the different countries of the euro area, depending on the national price level. PPPs must therefore also continue to be used to calculate pure volume aggregates in PPS for Member States within the euro area.

In their simplest form, PPPs are a set of price ratios, which show the relationship between the prices in national currency of the same good or service in different countries (e.g. a loaf of bread costs EUR 1.87 in France, EUR 1.68 in Germany, GBP 0.95 in the UK, etc.). A basket of comparable goods and services is used for price surveys. These are selected so as to represent the whole range of goods and services, taking account of the consumption structures in the various countries. The simple price ratios at product level are aggregated to PPPs for product groups, then for overall

consumption and finally for GDP. In order to have a reference value for the calculation of the PPPs, a country is usually chosen and used as the reference country, and set to 1. For the European Union the selection of a single country as a base seemed inappropriate. Therefore, the PPS is the artificial common reference currency unit used in the European Union to express the volume of economic aggregates for the purpose of spatial comparisons in real terms.

Unfortunately, for reasons of cost, it will not be possible in the foreseeable future to calculate regional currency conversion rates. If such regional PPPs were available, the GDP in PPS for numerous peripheral or rural regions of the EU would probably be higher than that calculated using the national PPPs.

Calculating in PPS instead of euros can lead to differences in the ranking of regions. For example, in 2005 the Swedish region of Östra Mellansverige was recorded as having a per-inhabitant GDP of EUR 27 806, ranking above the Spanish region of Madrid, with EUR 27 220. However, in PPS, Madrid, at PPS 29 998 per inhabitant, is ahead of Östra Mellansverige, at PPS 23 621.

In terms of distribution, the use of PPS rather than the euro has a levelling effect, as regions with a very high per-inhabitant GDP also generally have relatively high price levels. This reduces the range of per-inhabitant GDP in NUTS 2 regions in the EU-27 plus Croatia from around EUR 73 900 to around PPS 62 400.

Per inhabitant GDP in PPS is the key variable for determining the eligibility of NUTS 2 regions under the European Union's structural policy.

Dispersion of regional per-inhabitant GDP

Since 2007, Eurostat has been calculating a new, derived indicator which records the differences between regional per-inhabitant GDP and the national average and makes them comparable between countries. This dispersion indicator is calculated at NUTS 2 and at NUTS 3 levels. The figures used by Eurostat are based on GDP in purchasing power standards (PPS).

For a given country, the dispersion 'D' of the regional GDP of the level 2 regions is defined as the sum of the absolute differences between regional and national GDP per inhabitant, weighted on the basis of the regional share of population and expressed in percent of the national GDP per inhabitant:

$$D = 100 \frac{1}{Y} \sum_{i=1}^{n} \left| (y_i - Y) \right| (p_i / P)$$

In the above equation:

- y_i is the regional GDP per inhabitant of region i;
- Y is the national average GDP per inhabitant;
- p_i is the population of region i;
- P is the population of the country;
- n is the number of regions in the country.

The value of the dispersion of GDP per inhabitant is zero if the values of regional GDP per inhabitant are identical in all regions of the country or economic area (such as the EU-27 or the euro area), and it will show, all other things being equal, an increase if the differences in per-inhabitant GDP between the regions increase. A value of 30 % therefore means that the GDP of all regions of a given country, weighted on the basis of the regional population, differs from the national value by an average of 30 %.

4

Household accounts

Introduction: measuring wealth

One of the primary aims of regional statistics is to measure the wealth of regions. This is of particular relevance as a basis for policy measures which aim to provide support for less well-off regions.

The indicator most frequently used to measure the wealth of a region is regional gross domestic product (GDP). GDP is usually expressed in purchasing power standards (PPS) per inhabitant to make the data comparable between regions of differing size and purchasing power.

GDP is the total value of goods and services produced in a region by the persons employed in that region, minus the necessary inputs. However, owing to a multitude of interregional flows and State interventions, the GDP generated in a given region does not tally with the income actually available to the inhabitants of the region.

One drawback of regional GDP per inhabitant as an indicator of wealth is that a 'place-of-work' figure (the GDP produced in the region) is divided by a 'place-of-residence' figure (the population living in the region). This inconsistency is of relevance wherever there are net commuter flows — i.e. more or fewer people working in a region than living in it. The most obvious example is the Inner London region of the UK, which has by far the highest GDP per inhabitant in the EU. Yet this by no means translates into a correspondingly high income level for the inhabitants of the same region, as thousands of commuters travel to London every day to work there but live in the neighbouring regions. Hamburg, Vienna, Luxembourg, Prague and Bratislava are other examples of this phenomenon.

Apart from commuter flows, other factors can also cause the regional distribution of actual income not to correspond to the distribution of GDP. These include, for example, income from rent, interest or dividends received by the residents of a certain region, but paid by residents of other regions.

This being the case, a more accurate picture of a region's economic situation can be obtained only by adding the figures for net income accruing to private households.

Private household income

In market economies with State redistribution mechanisms, a distinction is made between two stages of income distribution.

The primary distribution of income shows the income of private households generated directly from market transactions, i.e. the purchase and sale of factors of production and goods. These include in particular the compensation of employees, i.e. income from the sale of labour as a factor of production. Private households can also receive income on assets, particularly interest, dividends and rents. Then there is also income from operating surplus and self-employment. Interest and rents payable are recorded as negative items for households in the initial distribution stage. The balance of all these transactions is known as the primary income of private households.

Primary income is the point of departure for the secondary distribution of income, which means the State redistribution mechanism. All social benefits and transfers other than in kind (monetary transfers) are now added to primary income. From their income, households have to pay taxes on income and wealth, pay their social contributions and effect transfers. The balance remaining after these transactions have been carried out is called the disposable income of private households.

For an analysis of household income, a decision must first be made about the unit in which data are to be expressed if comparisons between regions are to be meaningful.

For the purposes of making comparisons between regions, regional GDP is generally expressed in purchasing power standards (PPS) so that meaningful volume comparisons can be made. The same process should therefore be applied to the income parameters of private households. These are therefore converted with specific purchasing power standards for final consumption expenditure called PPCSs (purchasing power consumption standards).

Results for 2005

Primary income

Map 4.1 gives an overview of primary income in the NUTS 2 regions of the 23 countries examined here. Centres of wealth are clearly evident in southern England, Paris, northern Italy, Austria, Madrid and north-eastern Spain, Flanders, the western Netherlands, Stockholm, Nordrhein–Westfalen, Hessen, Baden-Württemberg and Bayern. The north–south divide in Italy and the west–east divide in Germany are clear to see, while the regional distribution in France is rela-

tively homogeneous. A south–north divide can also be seen in the United Kingdom, albeit to a lesser extent than in Italy and Germany.

In the new Member States, it is mainly the capital regions that have relatively high income levels, particularly Prague, Bratislava, Közép-Magyarország (Budapest) Mazowieckie (Warsaw) and București — Ilfov. The primary income of households is over half the EU average in two other Hungarian regions, all the other Czech regions and Slovenia, while in all the other regions of the new Member States it is below that level. The regional values range from 2 882 PPCS per inhabitant in north-eastern Romania to 29 392 PPCS in the UK region of Inner London. The 10 regions with the highest income per inhabitant include four regions each in the UK and Germany and one each in France and Belgium. This clear concentration of regions with the highest incomes in the United Kingdom and Germany is also evident when the ranking is extended to the top 30 regions: This group contains 11 German and six UK regions, along with five in Austria, three in Belgium, two in the Netherlands and one each in France, Italy and Sweden.

It is no surprise that the 30 regions at the tail end of the ranking are all located in the new Member States; the list contains 15 of the 16 Polish regions, seven of the eight Romanian regions, four regions in Hungary and two in Slovakia, together with Estonia and Latvia.

In 2005, the highest and lowest primary incomes in the EU regions differed by a factor of 10.2. Five years earlier, in 2000, this factor had been 11.8. There was therefore measurable convergence between the opposite ends of this distribution over the period 2000–05.

Disposable income

A comparison of primary income with disposable income (Map 4.2) shows the levelling influence of State intervention. This particularly increases the relative income level in some regions of Italy and Spain, in the west and north of the United Kingdom and in parts of eastern Germany and Greece. Similar effects can be observed in the new Member States, particularly in Hungary, Slovakia and Poland. However, the levelling out of private income levels in the new Member States is generally less pronounced than in those of the EU-15.

In spite of State redistribution and other transfers, most capital regions maintain their prominent position with the highest disposable income for the country in question.

Of the 10 regions with the highest disposable income per inhabitant, five are in the United Kingdom, four in Germany, and one in France. The region with the highest disposable income in the new Member States is Közép-Magyarország (Budapest) with 11 283 PPCS per inhabitant, followed by the Prague region with 10 916 PPCS.

If the ranking is extended to the top 30 regions, the dominance of German, Austrian and UK regions is clear: the list contains seven regions each in the United Kingdom and Austria and 14 in Germany, together with one region each in Belgium and France.

The lower end of the distribution is very similar to the ranking for primary income. The bottom 30 include 13 Polish and seven Romanian regions, four in Hungary and three in Slovakia, together with the three Baltic States.

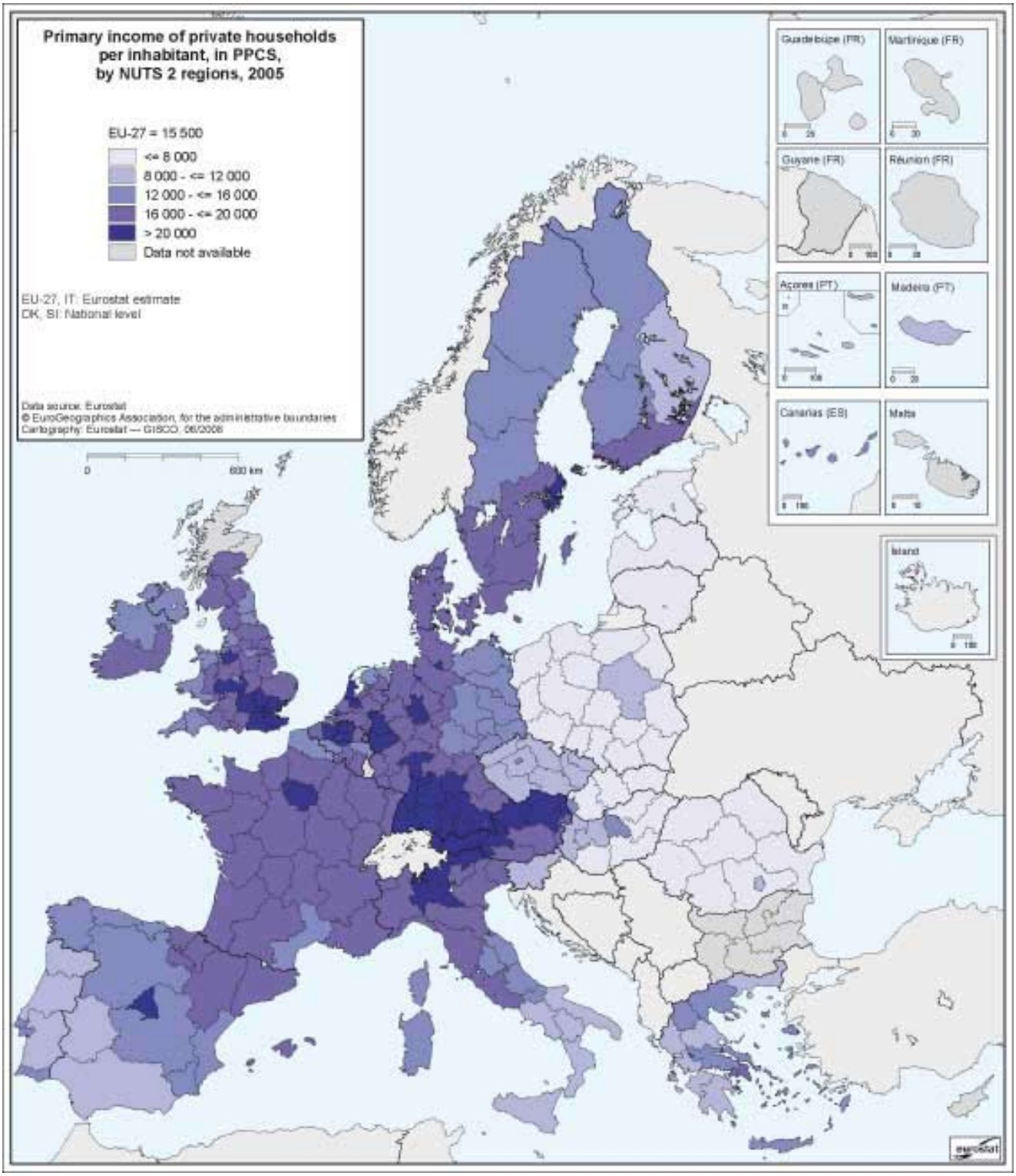
The regional values range from 3 146 PPCS per inhabitant in north-east Romania to 22 103 PPCS in Hamburg. State activity significantly reduces the difference between the highest and lowest regional values in the 23 countries dealt with here from a factor of around 10.2 to 7.0.

As with primary income, there is a clear trend in disposable income towards a narrowing of the spread in regional values: between 2000 and 2005 the difference between the highest and lowest values fell from a factor of 9.0 to 7.0.

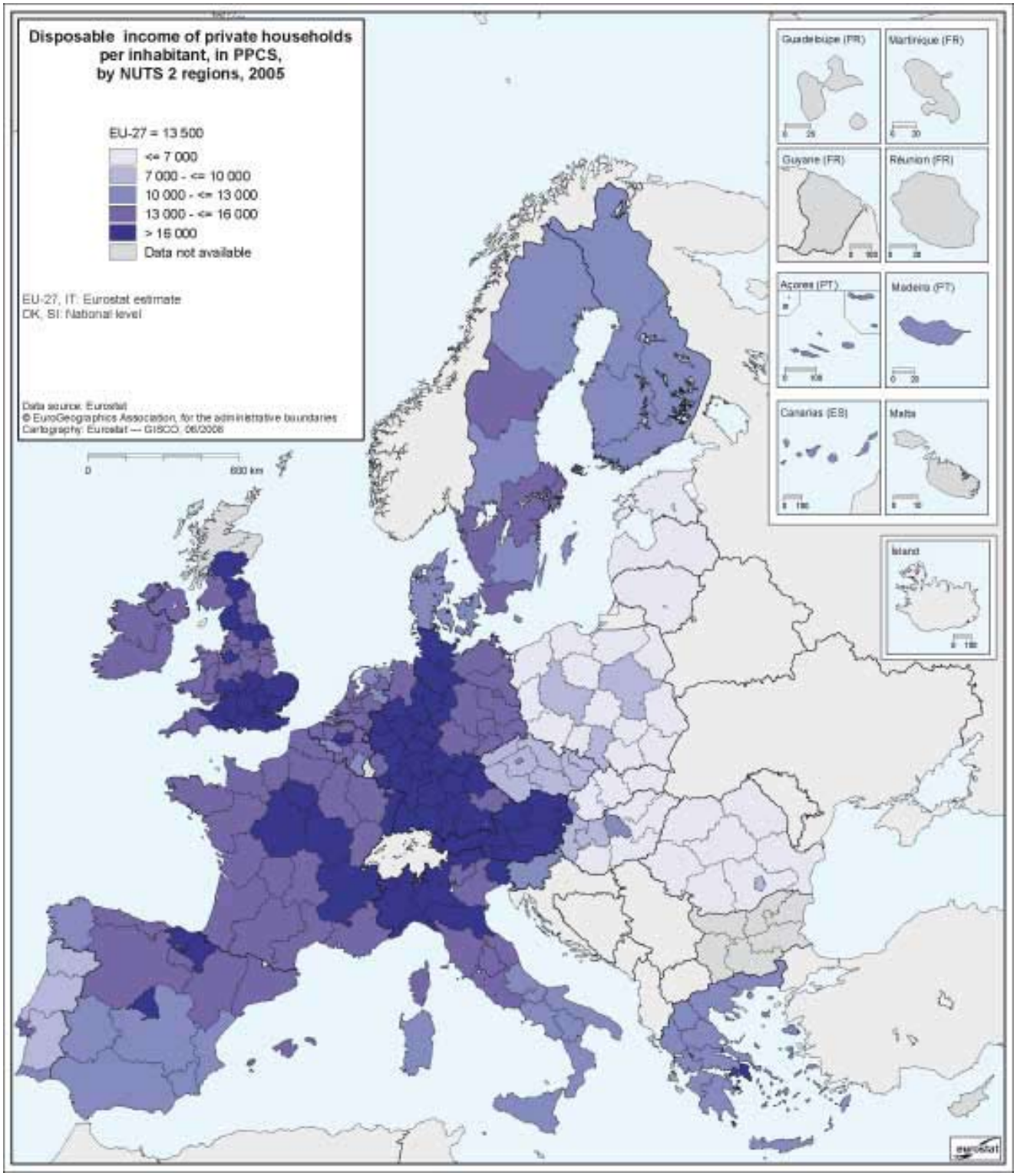
It can thus be concluded overall that there was measurable regional convergence between 2000 and 2005 both in the primary income generated from market transactions and in the disposable income affected by State intervention.

The regional spread in disposable income within the individual countries is naturally much lower than for the EU as a whole, but varies considerably from one country to another. Graph 4.1 gives an overview of the spread of disposable income per inhabitant between the regions with the highest and the lowest values for each country. It can be seen that, with a factor of 2.3, the regional disparity is greatest in Romania. That means that the disposable income per inhabitant in the region of București — Ilfov is more than twice as high as in north-east Romania. Apart from Romania, only Greece and Hungary have regional spreads with a factor of more than 2. With factors of around 1.9, Italy and Slovakia also have large regional variations. For Spain, Poland and Germany the

Map 4.1: Primary income of private households per inhabitant, in PPCS, by NUTS 2 regions, 2005



Map 4.2: Disposable income of private households per inhabitant, in PPCS, by NUTS 2 regions, 2005



highest value is about two thirds higher than the respective lowest value.

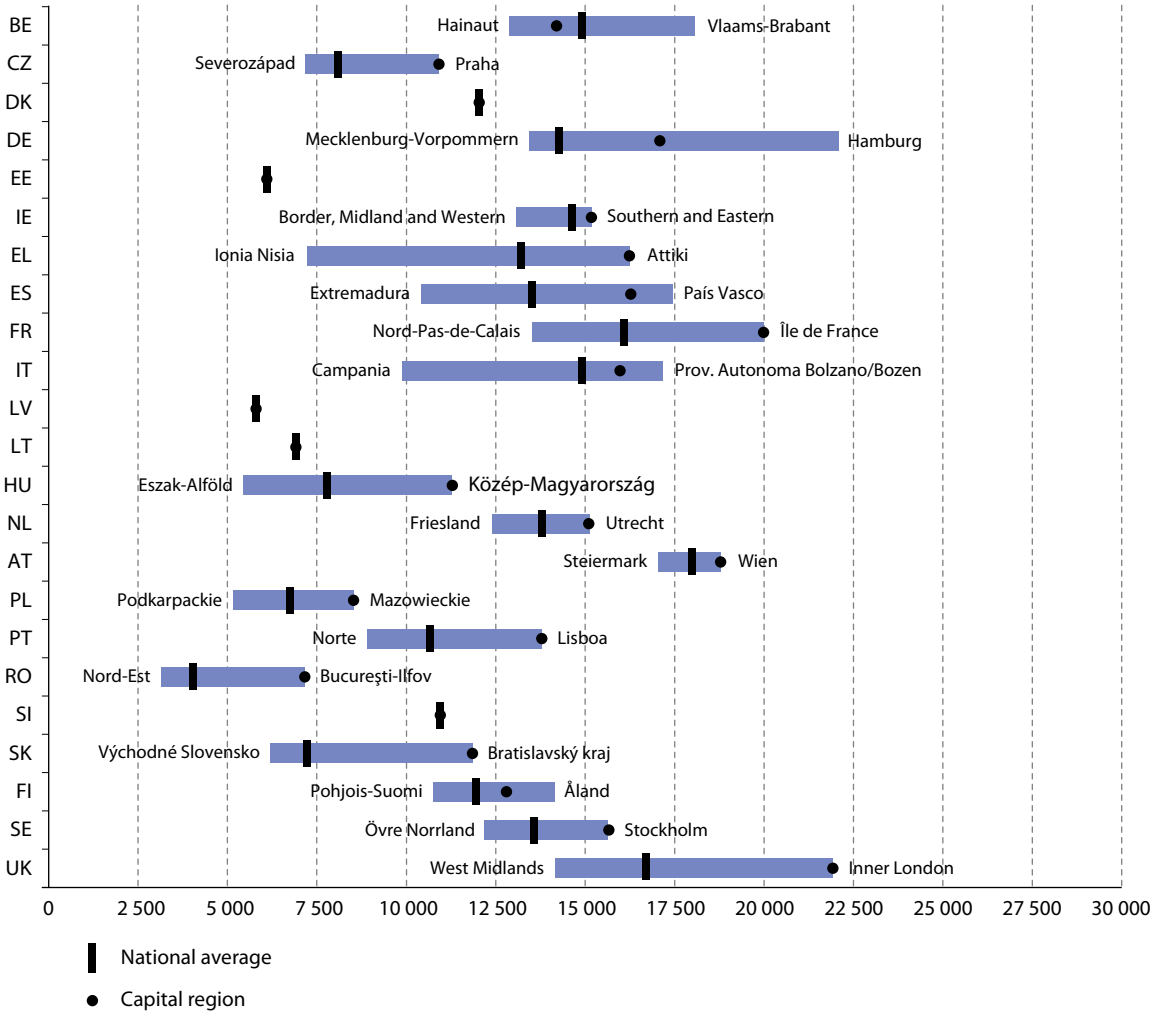
Of the new Member States, the Czech Republic, with 51 %, has the smallest spread between the highest and lowest values and is thus very close to Portugal, France and the United Kingdom. The smallest regional income disparities are to be found in Austria, Ireland, the Netherlands and Sweden, where the maximum values exceed the minimum values by between 10 % and 28 %.

Graph 4.1 also shows that the capital cities of 12 of the 18 countries with more than one NUTS 2 region also have the highest income values. This group includes all the larger new Member States. The economic dominance of the capital regions is also evident when their income values are compared with the national averages.

In four countries (Romania, Slovakia, Hungary and the Czech Republic), the capital cities exceed the national values by more than a third. Only in Belgium, Germany and Italy are the values lower than the national average.

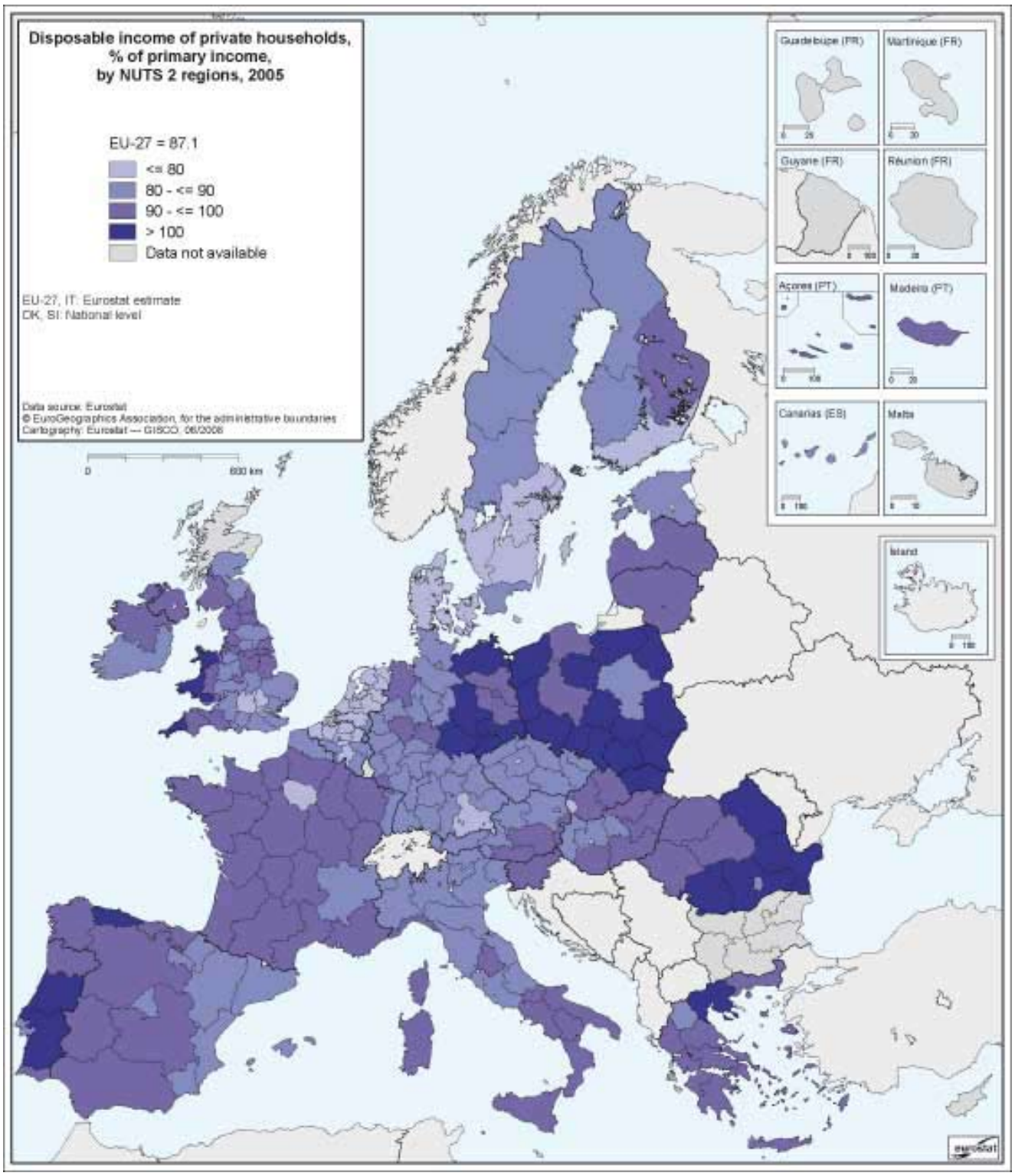
To assess the economic situation in individual regions, it is important to know not just the levels of primary and disposable income but also their relationship to each other. Map 4.3 shows this quotient, which gives an idea of the effects of State activity and of other transfer payments. On average in the EU-27 disposable income amounts to 87.1 % of primary income. In 2000 this figure had

Figure 4.1: Disposable income of private households per inhabitant (in PPCS), by NUTS 2 regions, 2005



Notes: DK, SI: data only available at national level
FR: without overseas departments

Map 4.3: Disposable income of private households, % of primary income, by NUTS 2 regions, 2005



been 85.8 %, so over this five-year period the scale of State intervention and other transfers decreased slightly. In general the EU-15 Member States have lower values than the new Member States.

On closer inspection, substantial differences can be seen between the regions of the Member States. Disposable income in the capital cities and other prosperous regions of the EU-15 is generally less than 80 % of primary income. Correspondingly higher percentages can be observed in the less affluent areas, in particular on the southern periphery of the EU, in the west of the UK and in eastern Germany.

The reason for this is that in regions with relatively high income levels a larger proportion of primary income is transferred to the State in the form of taxes. At the same time State social benefits amount to less than in regions with relatively low income levels.

The regional redistribution of wealth is generally less significant in the new Member States than in the EU-15. For the capital regions the values are between 80 % and 90 % and are almost without exception at the bottom end of the national ranking. This shows that incomes in these regions require much less support through social benefits than elsewhere. The difference between the capital region and the rest of the country is particularly large in Romania, at 15 percentage points.

In the 23 EU Member States examined here, there are 30 regions in which disposable income exceeds primary income. This is primarily the case in Poland, where, out of 16 regions, only the centres of economic activity around Warsaw, Gdansk and Poznan record values of below 100 %, and in Romania where four out of eight regions lie above the 100 % mark. In the EU-15 Member States, the most noticeable instances are six eastern German regions and two each in Portugal and the United Kingdom.

When interpreting these results, however, it should be borne in mind that it is not just monetary social benefits from the State which may cause disposable income to exceed primary income. Other transfer payments (e.g. transfers from people temporarily working in other regions) can play a significant role in some cases.

Dynamic development on the edge of the Union

The focus finally turns to an overview of medium-term trends in the regions compared with the EU-27 average. Map 4.4 uses a five-year comparison to show how disposable income per inhabitant (in PPCS) changed between 2000 and 2005 compared with the average for the EU-27.

It shows, first of all, the powerful dynamic processes in action on the edge of the Union, particularly in the case of most UK, Spanish and Romanian regions and in the Czech Republic, Slovakia and the Baltic States.

On the other hand, below-average trends in income are apparent in Belgium, Germany, Portugal and especially Italy, where even regions with only average levels of income were affected. The relative declines in Brussels and Vienna are less severe, however, as these regions have very high income levels.

The changes range from + 19.7 percentage points for Bratislava (Slovakia) to – 22.7 percentage points for Dytiki Makedonia (Greece).

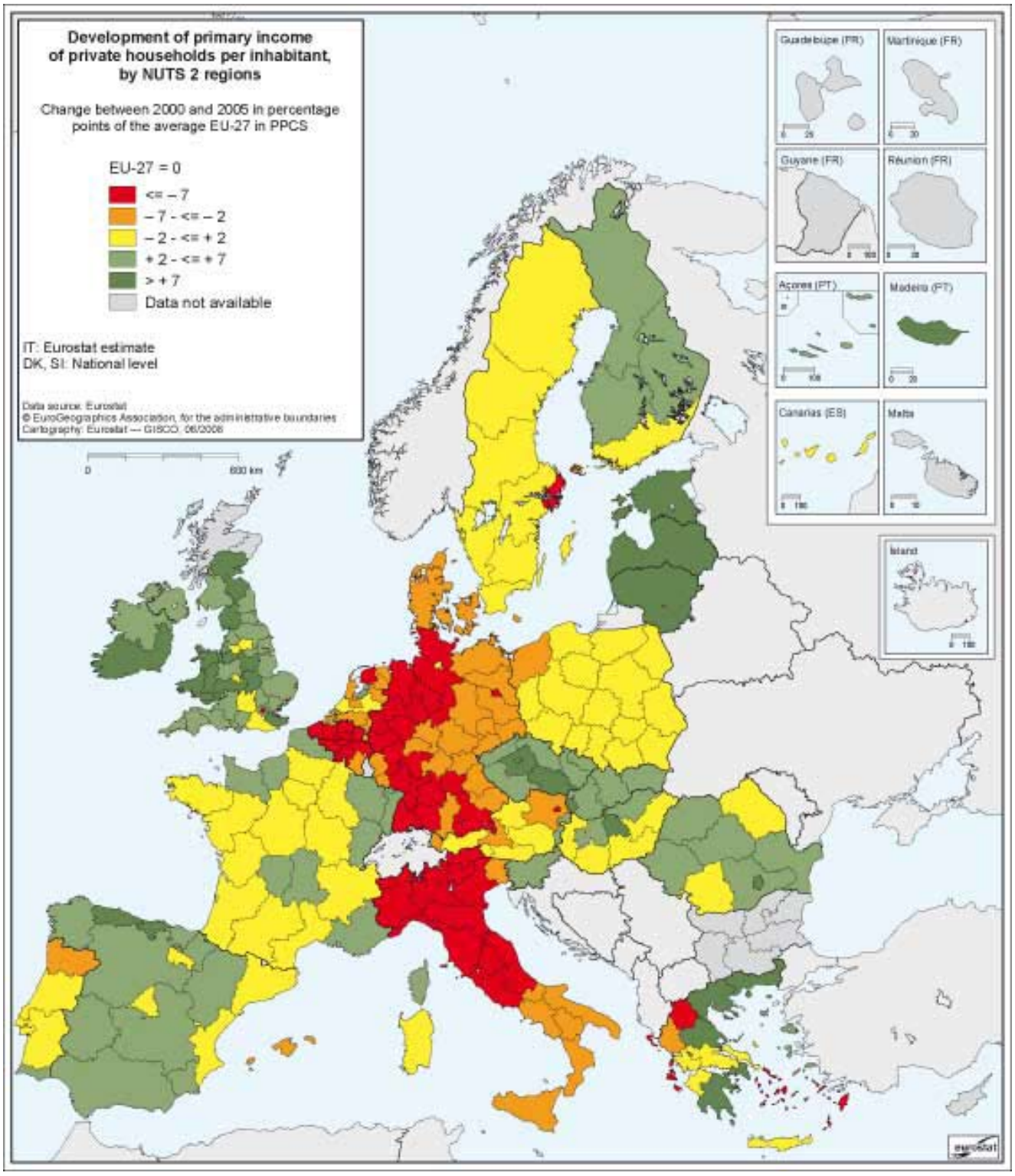
Despite clear evidence of a catching-up process in the new Member States, the same positive trend is not found everywhere. In 13 of Poland's 16 provinces incomes dropped behind the EU average by up to 2.6 percentage points, and in Hungary developments were less than satisfactory in two regions out of seven. The figures for Romania, on the other hand, are very encouraging. With an increase of 16.4 percentage points, the Bucureşti — Ilfov region achieved the third-highest relative improvement of all regions, with even the Nord-Est region (the region with the lowest income in the whole EU) catching up by 1.8 percentage points on average income growth in the EU. The structural problem nevertheless remains that in all the new Member States except Poland the wealth gap between the capital and the poorer parts of the country has widened further.

In all, the trend between 2000 and 2005 resulted in a slight flattening of the upper limit of the spread of regional income levels, especially as a result of fairly large relative falls in regions with high levels of income. At the same time, nine of the 10 regions at the tail end of the ranking have caught up considerably on the EU average.

Conclusion

The regional distribution of household income differs from that of regional GDP in a large number of NUTS 2 regions. This is mainly the result of State intervention in the form of monetary social transfers and the levying of direct taxes, which levels out considerably the disparities

Map 4.4: Development of primary income of private households per inhabitant, by NUTS 2 regions
Change between 2000 and 2005 in percentage points of the average EU-27 in PPCS



between regions. In some cases, other transfer payments and flows of other types of income received by private households from outside their region can also play an important role. On the other hand, unlike regional GDP, the figures for the income of private households are not affected by commuter flows.

Taken together, State intervention and other influences bring the spread of disposable income between the most prosperous and the economically weakest regions to a factor of about 7.0, whereas the two extreme values of primary income per inhabitant differ by a factor of 10.2. The flattening out of regional income distribution desired by most countries is therefore being achieved.

The income level of private households in the new Member States continues to be far below that in the EU-15, and in only a small number of capital regions are income figures more than two thirds of the EU average.

An analysis over the period 2000–05 shows that incomes in some regions of the new Member States are catching up only very slowly. Some Polish and Hungarian regions have actually fallen back compared with the EU average. In Romania, on the other hand, a strong catching-up process has taken hold — a development which, fortunately, extends beyond the capital region of Bucureşti — Ilfov.

For both primary and disposable income there is a clear trend towards a narrowing of the spread in regional values. Between 2000 and 2005 the difference between the highest and lowest values fell from a factor of 11.8 to 10.2 for primary income and from 9.0 to 7.0 for disposable income.

With regard to the availability of data concerning income, the comprehensiveness of the data and the length of the time series have gradually improved. Once a complete data set is available, data on the income of private households could be taken into account alongside GDP statistics when decisions are taken on regional policy measures.

Methodological notes

Eurostat has had regional data on the income categories of private households for a number of years. The data are collected for the purposes of the regional accounts at NUTS level 2.

There are still no data available at NUTS 2 level for the following regions: Bulgaria, France's overseas departments, Cyprus, Luxembourg and Malta. For Denmark and Slovenia only national data are available. For Italy regional figures were available only up to and including 2004, but national figures were available for 2005. The regional figures for 2005 were therefore estimated using the regional structure from 2004.

The text in this chapter therefore relates to only 23 Member States, or 251 NUTS 2 regions. Three of these 23 Member States consist of only one NUTS 2 region, namely Estonia, Latvia and Lithuania. Since the beginning of 2008 Denmark and Slovenia have consisted of five and two NUTS 2 regions respectively, but they appear here only as single NUTS 1 regions, as no data are yet available for the newly defined NUTS 2 regions.

Because of the limited availability of data, the EU-27 values for the regional household accounts had to be estimated. For this purpose it was assumed that the share of the missing Member States in household income for the EU-27 was the same as for GDP. For the reference year 2005 this portion was 0.6 %.

Data that reached Eurostat after 8 April 2008 are not taken into account in this chapter of the yearbook.

5 Structural business statistics

Introduction

What effects do the European Union's economic and regional policies have on the business structure of the regions? Which sectors are growing, which sectors are contracting and which regions are likely to be most affected? What are the differences in investment levels and wages and what effects will this have on growth and the future location of business? A detailed analysis of the structure of the European economy can only be made at regional level. Regional structural business statistics (SBS) provide data with a detailed activity breakdown which can be used for this kind of analysis. The first part of this chapter presents an analysis of regional specialisation and business concentration within the EU's business economy. The second part analyses the activity of chemicals manufacturing in more detail.

Regional specialisation and business concentration

There are considerable disparities between European regions in terms of the importance of different activities within the business economy. In many cases, particularly within industrial activities, this trend has become more pronounced as a result of the recent expansion of the EU from 15 to 27 Member States. Conversely, while some activities are characterised by a relatively even distribution across most regions, many activities exhibit a considerable variation in the level of regional specialisation, often with a few regions having a particularly high degree of specialisation.

The share of a particular activity within the business economy gives an idea of which regions are the most or least specialised in that activity, regardless of whether the region or the activity considered is large or small. There are various reasons for relative specialisation. Depending on the type of activity, these can include availability of natural resources, availability of skilled employees, culture and tradition, cost levels, infrastructure, legislation, climatic and topographic conditions and proximity to markets.

Figure 5.1 shows that, on an aggregate activity level (NACE sections), the widest spread in the relative importance of an activity in each region's non-financial business economy (NACE sections C to I and K) workforce was in manufacturing (NACE section D) — the activity with the second-highest median employment. Manufacturing accounted for only 3.8 % of the persons employed in Ciudad Autónoma de Ceuta (Spain) and under 10 % in a further 11 regions, including the capital regions of both Spain and the United Kingdom. The distribution of the remaining regions was relatively symmetrical, from 10 % to over half of the workforce in two Slovakian regions, Východné Slovensko (52.4 %) and Západné Slovensko (59.8 %). In contrast, the spread of employment was much narrower in distributive trades (NACE section G), which was the activity displaying the highest median employment, present in all regions and serving more local clients. Shares ranged from around 15 % in Åland (Finland) and Východné Slovensko (Slovakia) to just over 40 % in Kentriki Makedonia (Greece).

On the other hand, transport, storage and communication (NACE section I) and mining and quarrying (NACE section C) are two activities with a similar relative size in most regions, but where there are a few strong outlier regions that are highly specialised in them. Transport, storage and communication accounted for between 3.5 % and 7.1 % in a quarter of the regions (line to the left of the box in Figure 5.1) and between 7.1 % and 10.1 % in half of the regions (the box in the figure). These narrow ranges are mainly due to the fact that road transport and post and telecommunications account for a large share of employment in this sector and that these activities tend to be of relatively equal importance across most regions. The remaining quarter of the regions were spread over a wide range, from 10.1 % to just over 50 %.

The region most specialised in transport, storage and communication was the Finnish island region of Åland, which is due almost exclusively to the importance of water transport. Åland was far ahead of Köln in Germany (33 %), where post and telecommunications was particularly important, and Bratislavský kraj (22 %), the capital region of Slovakia, owing to the importance of road and other land transport. Natural endowments play an important role in activities such as mining and quarrying. Many regions record little or no such activity, with only very few regions being highly specialised on the basis of deposits of metallic ores, coal, oil or gas. Mining and quarrying accounted for less than 0.2 % of the persons employed in one quarter of all regions, and between 0.2 % and 0.5 % in half of the regions. However, this sector accounted for over 5 % in eight regions and as much as one 10th of the total non-financial business economy workforce in Śląskie (Poland) and Dytiki Makedonia (Greece).

Table 5.1 shows which region was the most specialised in 2005 on a more detailed activity level (all NACE divisions within each NACE section) and, as a comparison, the median and average share of the non-financial business economy workforce among all regions within the EU-27 and Norway. Manufacturing activities that involve the processing or consumption of minerals may be located close to mineral deposits. Świętokrzyskie in the south-east of Poland was the second most specialised region in other mining and quarrying (NACE 14) after Alentejo (Portugal), as well as the most specialised in manufacturing of other non-metallic mineral products (NACE 26) such as glass, ceramics, cement and concrete.

Similarly, manufacturing activities which involve the primary processing stages of agricultural, fishing or forestry products are particularly concentrated in areas close to the source of the raw material. The regions most specialised in food and beverages manufacturing (NACE 15) were all located in rural areas in or close to agricultural production centres: Bretagne (the most specialised of all the regions) and Pays de la Loire in France, Lincolnshire in the United Kingdom, Lubelskie, Podlaskie and Warmińsko-Mazurskie in the eastern part of Poland, Dél-Alföld in Hungary, and La Rioja in Spain. Heavily forested Nordic and Baltic regions were the regions most specialised in the manufacture of wood and wood products (NACE 20), as well as the related manufacturing of pulp, paper and paper products (NACE 21): Latvia, Estonia (each considered as a single region at the NUTS 2 level) and Småland med öarna (Sweden) in wood products; Norra Mellansverige, Mellersta Norrland (both Sweden) and Länsi-Suomi (Finland) in pulp and paper; and Itä-Suomi (Finland) in both activities.

Weather and the environment (natural or man-made) can also play a role: regions traditionally associated with tourism, in particular in Spain, Greece or Portugal, were the most specialised in hotels and restaurants (NACE 55) and in activities that support hotels and restaurants, notably retail trade (NACE 52) and construction (NACE 45), providing tourism infrastructure. Hotels and restaurants accounted for more than 20 % of the workforce in the Greek island regions of Ionia Nisia and Notio Aigaio, the Spanish Illes Balears, the Algarve in the south of Portugal and Provincia Autonoma Bolzano/Bozen in the north-east of Italy on the border with Austria.

Transport services are also influenced by location, with water transport (NACE 61) naturally being important for coastal regions and islands, while air transport (NACE 62) is also important for many island regions (especially those with a developed tourism industry), but also regions with or close to major cities. The small island region of Åland (Finland) is a centre for the ferry services between Sweden and Finland as well as other Baltic Sea traffic. Åland was very highly specialised in water transport, which accounted for over 40 % of the persons employed in 2005, over 10 times more than the next most specialised regions: Hamburg in Germany and Agder og Rogaland, Vestlandet and Nord-Norge along the west coast of Norway. Corse in France was the region most specialised in air transport, followed by metropolitan Amsterdam, Outer London and Köln, and the Illes Balears in Spain.

As with air transport, specialisation in real estate, renting and business activities (NACE 70–74) may be based on access to a critical mass of clients (enterprises or households) or to a knowledge base (external researchers and qualified staff). Within the countries, the capital region or other large metropolitan regions were normally among the most specialised in the business services sectors: computer services (NACE 72) and other business activities (NACE 74) ([2]). Real estate (NACE 70) and renting (NACE 71) are activities which could also be particularly important in small tourism-dominated regions. Latvia was most specialised in real estate in 2005, ahead of Inner London (United Kingdom) and Algarve (Portugal), while Hamburg was most specialised in renting, ahead of the French overseas departments of Guadeloupe and Martinique.

While an analysis of specialisation shows the relative importance of different activities in the regions, regardless of the size of the region or the activity, an analysis of concentration looks at the dominance of certain regions within an activity, or activities within a region. In most activities, there are many examples of regions which are highly ranked in terms of both specialisation and concentration. Figure 5.2 shows the extent to which employment in certain activities was concentrated in a limited number of regions in 2005. Four of the five mining and quarrying activities came at the top of the ranking based on the share of total employment in the EU-27 and Norway accounted for by the 10 regions with the largest workforces. Most concentrated was the mining of uranium and thorium ores (NACE 12), with persons employed in only seven of the 262 regions in 2005.

([2]) For a detailed analysis of business services, see *Eurostat regional yearbook 2007*.

Air transport (NACE 62) and leather and leather products manufacturing (NACE 19) were also highly concentrated in the 10 largest regions, which together accounted for 61 % and 54 % of total employment respectively. In the case of air transport, this dominance is due to concentration in large metropolitan regions where the large airports are situated: chief among them the regions of Paris, Outer London, Köln, Amsterdam and Madrid. Leather and leather products manufacturing, on the other hand, is a small activity in Europe, heavily concentrated in Italy, Portugal and Romania: five of the 10 regions with the largest workforces were situated in Italy, three in Romania and one each in Portugal and Spain. The region with the largest workforce was Norte in Portugal, with 48 000 persons employed; this region alone accounted for almost 9 % of the total leather manufacturing workforce in the EU-27 and Norway.

In contrast to the more specialised types of mining and quarrying, other mining and quarrying (NACE 14) was among the activities in which the 10 largest regions were least dominant, accounting for only 18 % of total sectoral employment. This is due to the widespread availability and local sourcing of many construction materials, such as sand and stone, which dominate this type of mining in most regions. Among all activities (NACE divisions), only retail trade (NACE 52), food and beverages manufacturing (NACE 15) and motor trades (NACE 50) had a lower concentration in 2005. In contrast to other mining and quarrying, these are all major activities in terms of employment in the EU.

Post and telecommunications (NACE 64) and motor vehicles manufacturing (NACE 34) are examples of the opposite — that is major activities which were relatively highly concentrated in a few regions.

Map 5.1 gives an indication of how concentrated (or, conversely, how diversified) the regional business economy was in 2005, measured as the share of the five largest activities (NACE divisions) in the total non-financial business economy workforce. The level of concentration tends to be highest in regions where trade and services dominate

Figure 5.1: Degree of regional specialisation by activity (NACE sections), EU-27 and Norway, by NUTS 2 regions, 2005

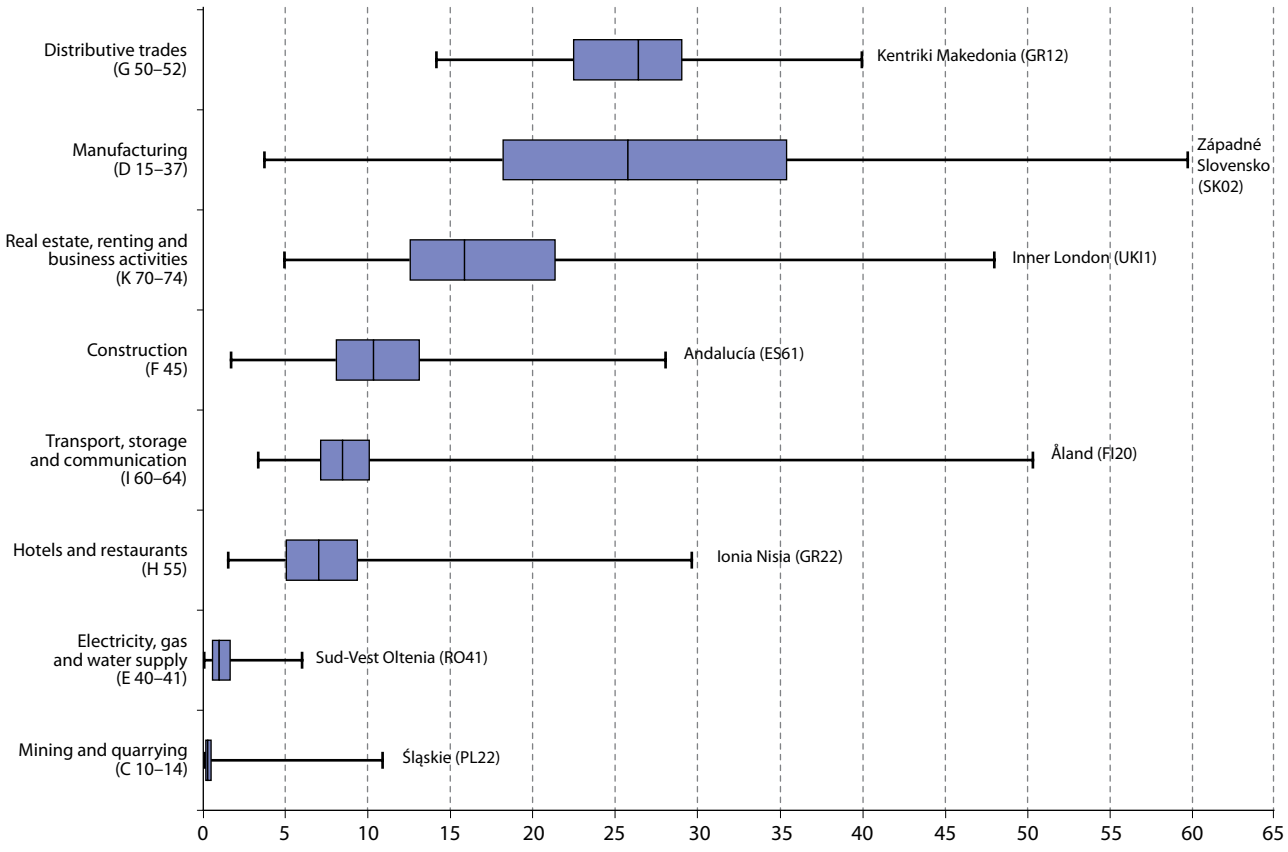
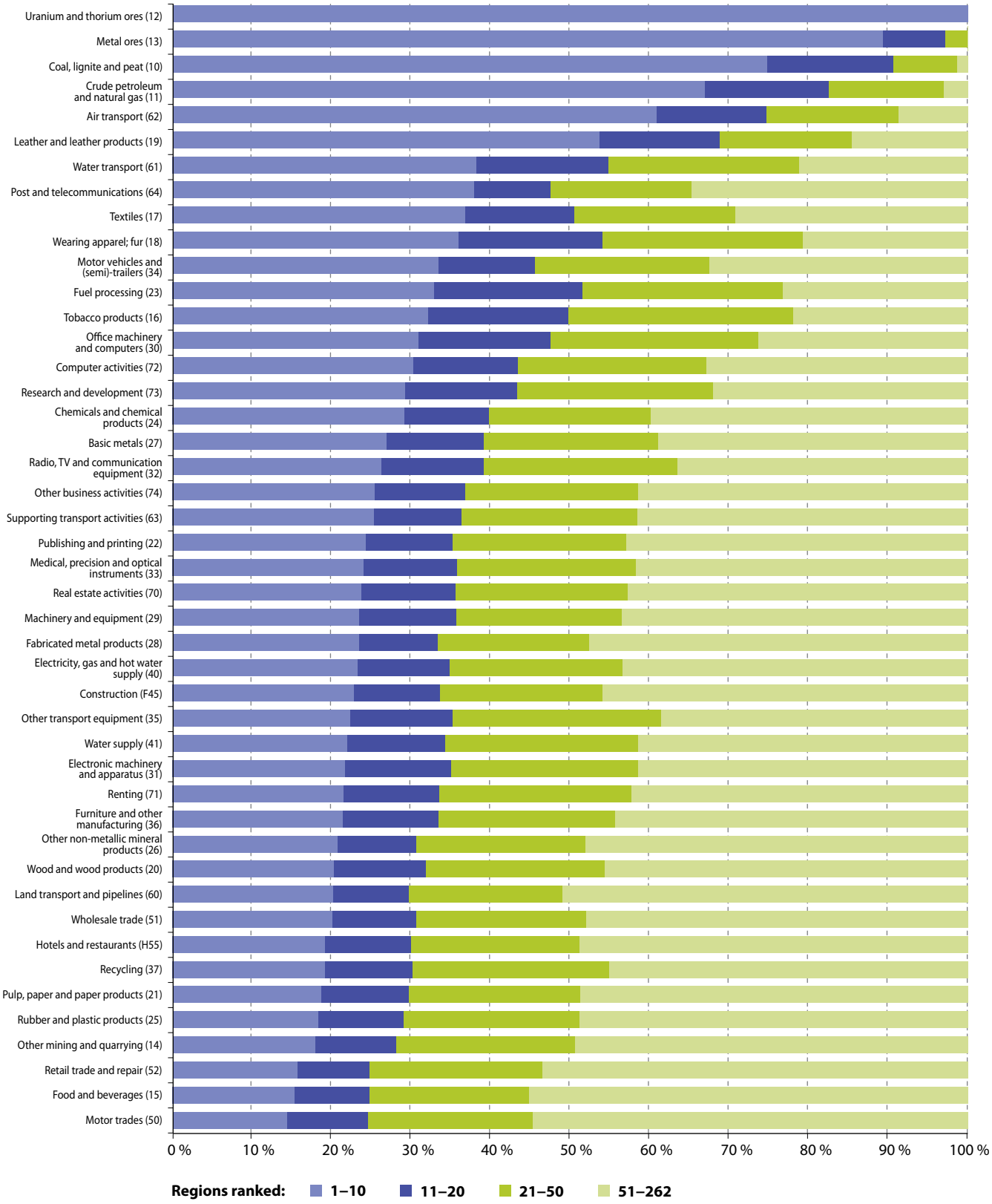


Table 5.1: Most specialised region by activity (NACE sections and divisions), EU-27 and Norway, 2005
Percentage of total non-financial business economy employment of the region and the median and average share of all regions (%)

Activity (NACE)	Most specialised region		All regions	
	Name (NUTS 2 region)	Share (%)	Median share (%)	Average share (%)
Mining and quarrying (C 10–14)	Śląskie (PL22)	11.0	0.3	0.6
Coal. lignite and peat (10)	Śląskie (PL22)	c	0.0	0.3
Crude petroleum and natural gas (11)	Agder og Rogaland (NO04)	7.7	0.0	0.1
Uranium and thorium ores (12)	Severovýchod (CZ05)	c	0.0	0.0
Metal ores (13)	Övre Norrland (SE33)	c	0.0	0.0
Other mining and quarrying (14)	Alentejo (PT18)	c	0.2	0.2
Manufacturing (D 15–37)	Západné Slovensko (SK02)	59.8	25.8	26.4
Food and beverages (15)	Bretagne (FR52)	12.1	3.7	3.4
Tobacco products (16)	Trier (DEB2)	c	0.0	0.0
Textiles (17)	Prov. West-Vlaanderen (BE25)	5.8	0.4	0.9
Wearing apparel; fur (18)	Dytiki Makedonia (GR13)	11.8	0.3	1.1
Leather and leather products (19)	Marche (ITE3)	7.9	0.1	0.4
Wood and wood products (20)	Itä-Suomi (FI13)	c	0.8	1.0
Pulp. paper and paper products (21)	Norra Mellansverige (SE31)	4.9	0.5	0.6
Publishing and printing (22)	Inner London (UKI1)	4.4	1.2	1.4
Fuel processing (23)	Cumbria (UKD1)	c	0.0	0.1
Chemicals and chemical products (24)	Rheinhessen-Pfalz (DEB3)	12.4	1.0	1.5
Rubber and plastic products (25)	Auvergne (FR72)	9.1	1.2	1.3
Other non-metallic mineral products (26)	Świętokrzyskie (PL33)	5.5	1.2	1.2
Basic metals (27)	Východné Slovensko (SK04)	c	0.5	0.9
Fabricated metal products (28)	Franche-Comté (FR43)	9.1	2.7	2.9
Machinery and equipment (29)	Unterfranken (DE26)	12.3	2.1	2.8
Office machinery and computers (30)	Southern and Eastern (IE02)	1.4	0.0	0.1
Electrical machinery and apparatus (31)	Západné Slovensko (SK02)	c	0.9	1.3
Radio. TV and communication equipment (32)	Pohjois-Suomi (FI1A)	7.0	0.4	0.6
Medical. precision and optical equipment (33)	Border. Midland and Western (IE01)	6.1	0.6	0.8
Motor vehicles and (semi)-trailers (34)	Braunschweig (DE91)	c	0.8	1.8
Other transport equipment (35)	Agder og Rogaland (NO04)	6.5	0.5	0.7
Furniture and other manufacturing (36)	Warmińsko-mazurskie (PL62)	8.1	1.1	1.4
Recycling (37)	Brandenburg - Nordost (DE41)	0.7	0.1	0.1
Electricity, gas and water supply (E 40–41)	Sud-Vest Oltenia (RO41)	6.1	1.0	1.2
Electricity. gas and hot water supply (40)	Bratislavský kraj (SK01)	c	0.8	0.9
Water supply (41)	Stredné Slovensko (SK03)	3.1	0.2	0.3
Construction (F 45)	Andalucía (ES61)	28.2	10.3	10.2
Distributive trades (G 50–52)	Kentriki Makedonia (GR12)	40.1	26.4	25.0
Motor trades (50)	Réunion (FR94)	6.8	3.6	3.3
Wholesale trade (51)	Attiki (GR30)	15.4	7.2	7.8
Retail trade and repair (52)	Kriti (GR43)	24.9	14.6	13.9
Hotels and restaurants (H 55)	Ionia Nisia (GR22)	29.8	7.0	7.1
Transport, storage and communication (I 60–64)	Åland (FI20)	50.4	8.5	9.5
Land transport and pipelines (60)	Bratislavský kraj (SK01)	14.9	4.5	4.4
Water transport (61)	Åland (FI20)	41.3	0.1	0.2
Air transport (62)	Corse (FR83)	7.2	0.0	0.3
Supporting transport activities (63)	Bremen (DE50)	11.9	1.7	2.1
Post and telecommunications (64)	Köln (DEA2)	25.7	1.8	2.4
Real estate, renting, business activities (K 70–74)	Inner London (UKI1)	48.1	15.9	20.0
Real estate activities (70)	Latvija (LV00)	5.4	1.9	2.2
Renting (71)	Hamburg (DE60)	1.7	0.4	0.5
Computer activities (72)	Berkshire. Buckinghamshire and Oxfordshire (UKJ1)	7.8	1.3	2.1
Research and development (73)	Oberbayern (DE21)	2.2	0.2	0.3
Other business activities (74)	Inner London (UKI1)	36.9	11.8	14.8

BG, DK, SI, MT, North Eastern Scotland (UKM5) and Highlands and Islands (UKM6): data not available
CY excluding Research and development (K73) and NO excluding Water supply (E 41)
CZ and NO: 2004
c: confidential

Figure 5.2: Most concentrated activities (NACE divisions), share of largest regions in total employment, EU-27 and Norway, 2005
Percentage of sectoral total



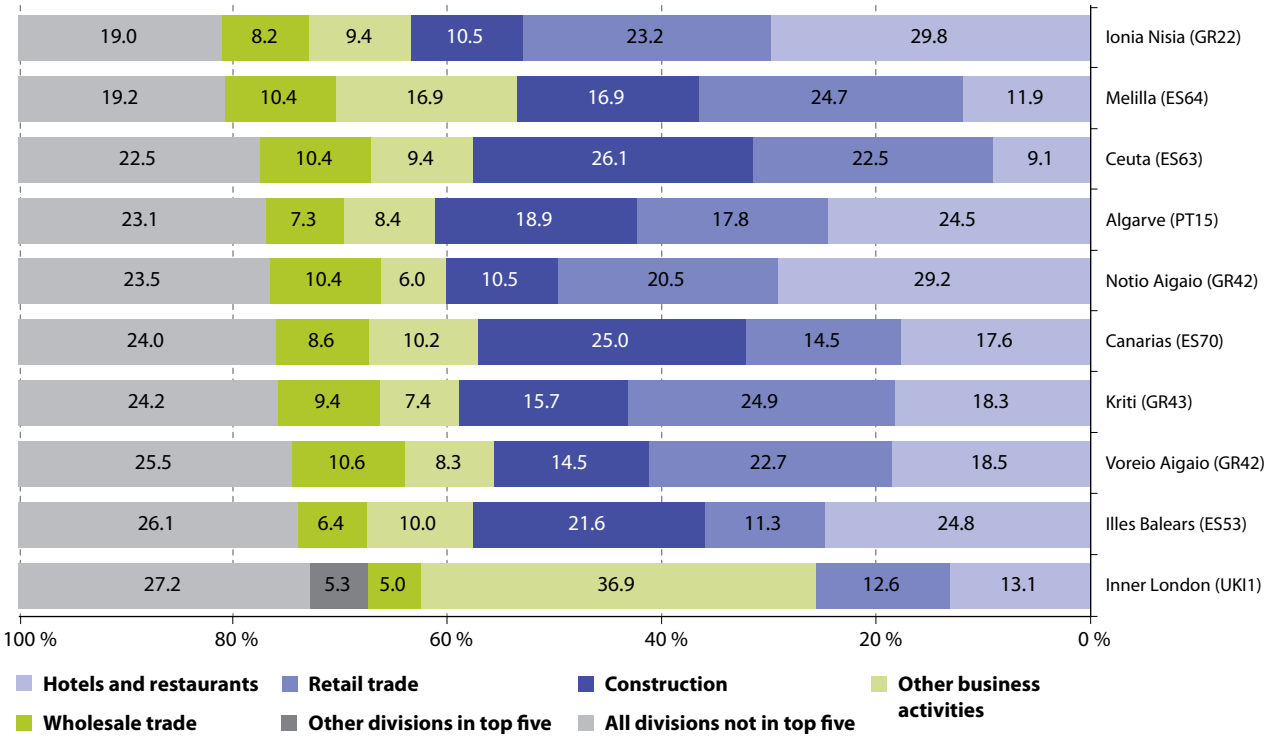
the business economy, as industrial activities are more fragmented. By this measure, the most concentrated regions were generally in countries traditionally associated with tourism (in particular Spain, Greece and Portugal), underlining the importance of construction, trade, and hotels and restaurants in tourism-oriented regions.

However, high concentrations were also recorded in several densely populated areas such as the south-east of the United Kingdom, most parts of the Netherlands, and also the capital region in most countries (at least relative to the national average). In these regions, other business activities (NACE 74) are particularly important, due to proximity to clients and availability of skilled labour. These activities include legal, accounting and management services, architecture and engineering consultancy, labour recruitment and similar highly specialised, knowledge-intensive business services, and also, for example, security and industrial cleaning services. The situation was similar in most countries; the capital region was usually among the regions with the highest business concentration and often was top of the list. The main exceptions were Etelä-Suomi in Finland (47 %), Île-de-France (55 %) and Lazio (57 %) in Italy, with a business concentration just above the respective country average.

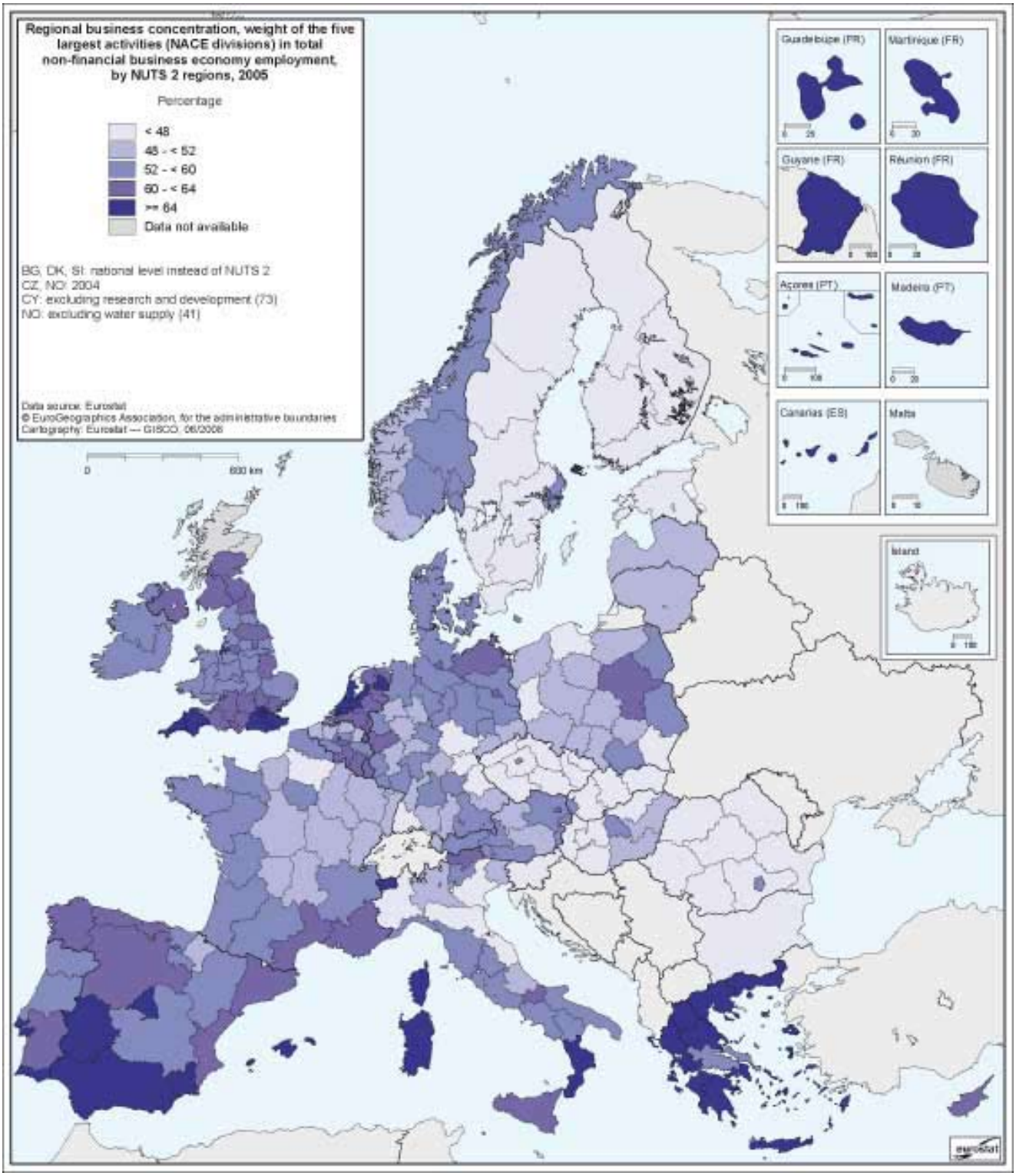
In contrast, the lowest business concentrations were recorded mainly in regions with a relatively small services sector and a large manufacturing sector in eastern Europe (in particular in Slovakia, the Czech Republic, Hungary, Romania and Bulgaria), although low shares were also recorded in Sweden (except the capital region) and Finland (except the island region of Åland). The five largest activities accounted for less than 40 % of total employment in Centru and Vest in Romania, Západné Slovensko and Stredné Slovensko in Slovakia and in Severovýchod in the Czech Republic. These are regions where between 44 % and 60 % of the workforce were employed in various manufacturing activities, which means they were among the top 12 regions by this measure.

The nature of the largest activity varies from region to region, but there is a clear pattern. Figure 5.3 provides a more detailed analysis for the 10 regions with the largest concentration. Among the top 10 regions, Inner London stands apart as the only large metropolitan region with a fundamentally different business profile. Here, other business activities dominate, accounting for 37 % of total employment, which is much higher than in all the other regions shown. In addition, real estate activities (NACE division 70) are among the

Figure 5.3: Most concentrated regions, share of the five largest activities (NACE divisions) in non-financial business economy employment, EU-27 and Norway, 2005
Percentage of regional total



Map 5.1: Regional business concentration, weight of the five largest activities (NACE divisions) in total non-financial business economy employment, by NUTS 2 regions, 2005
Percentage



top five activities in Inner London (and not construction), whereas in all other regions shown the top five activities in terms of employment were retail trade, construction, hotels and restaurants, other business activities and wholesale trade. In fact, looking at all regions for which data are available, retail trade is among the five largest activities (NACE divisions) in every region, other business activities is among the five largest in more than 90 % of the regions, construction and wholesale trade in more than 80 % of the regions, and hotels and restaurants in more than 60 % of the regions. These five activities stand apart from the remaining 40 activities studied: none of the others are among the top five activities in more than 20 % of the regions, 14 do not make it to the top five in any region, while 20 feature among the top five in five or fewer regions.

Focus on chemicals manufacturing

The second part of this publication focuses on chemicals manufacturing (NACE division 24), where raw materials, particularly oils and minerals, are transformed into a wide variety of substances which are used as inputs by many downstream economic sectors and in a wide variety of consumer products. Chemicals manufacturing, dominated by the manufacturing of pharmaceuticals and basic chemicals (see Figure 5.4), was the fifth-largest manufacturing activity (NACE division) in terms of employment in the EU-27 in 2005. It also had the second-highest labour productivity (value added per person employed).

While employment in chemicals manufacturing has decreased steadily in the EU-27 over the last decade, production has increased steadily (respectively – 8 % and + 22 % in total between 2000 and 2007, according to short-term statistics), indicating a considerable increase in productivity. Chemicals manufacturing is a sector dominated by large enterprises. Small and medium-sized enterprises (SMEs), with fewer than 250 persons employed, accounted for only one third of the workforce in the EU-27 in 2005, compared with close to 60 % in manufacturing as a whole and around two thirds in the total non-financial business economy. The European enterprises within this sector account for about 30 % of global chemicals sales and include many of the world's largest enterprises (groups) ([3]).

([3]) *Source:* CEFIC (http://www.cefic.org) and Chemical and engineering news (http://pubs.acs.org/cen) in *European business: facts and figures*, 2007 edition, Eurostat (2008).

Figure 5.4: Employment in manufacture of chemicals and chemical products (NACE division 24) by subsector, EU-27, 2005
Percentage of sectoral total

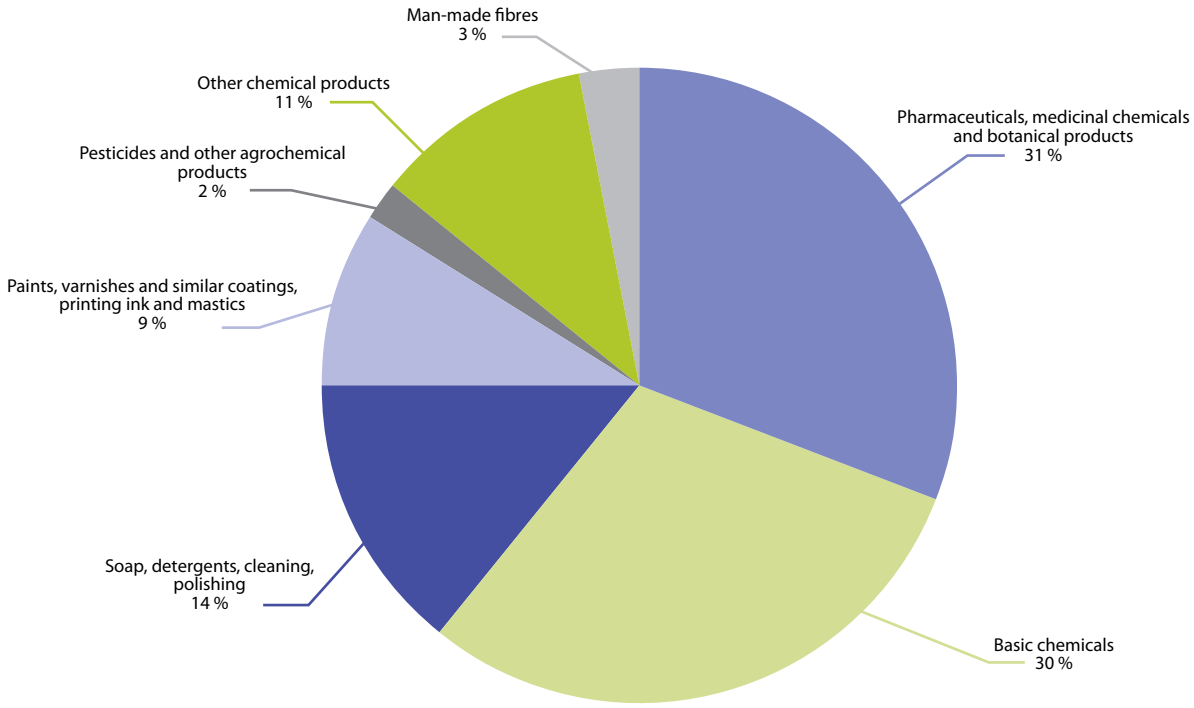


Figure 5.5 shows the 30 regions most specialised in chemicals manufacturing in 2005, in terms of this activity's share of total non-financial business economy employment. The most specialised region was Rheinhessen-Pfalz (Germany), where 12.4 % of the total persons employed worked in chemicals manufacturing. Five of the 10 most specialised regions in chemicals manufacturing were in Germany, two of the top four were in Belgium, and there were also several highly specialised regions in France and the United Kingdom. Only three of the 30 most specialised regions were in Member States that joined the EU in 2004 or 2007, namely Sud-Est in Romania, Észak-Magyarország in Hungary and Západné Slovensko in Slovakia. Figure 5.5 also shows the share accounted for by these regions in total chemicals employment in the EU-27 and Norway.

Many of the regions shown were also among those with the largest workforces, including 15 of the 30 largest regions in terms of employment in 2005, including nine of the 14 regions with a workforce over 20 000 people. This includes Lombardia in Italy, the region with the largest workforce of all, alone accounting for 5.2 % of total chemicals employment in the EU-27 and Norway in 2005. However, the figure also includes several smaller-sized regions where chemicals manufacturing accounted for a large proportion of regional employment, but where the region's actual share of total chemicals employment was rather small.

By far the largest difference in relative terms concerned the second and sixth most specialised regions: Prov. Brabant Wallon in Belgium and Zeeland in the Netherlands, where chemicals manufacturing accounted for 9.3 % and 4.4 % respectively of regional employment in 2005, which was respectively 23 and 18 times their contribution to total chemicals employment in the EU-27 and Norway (0.4 % and 0.2 %).

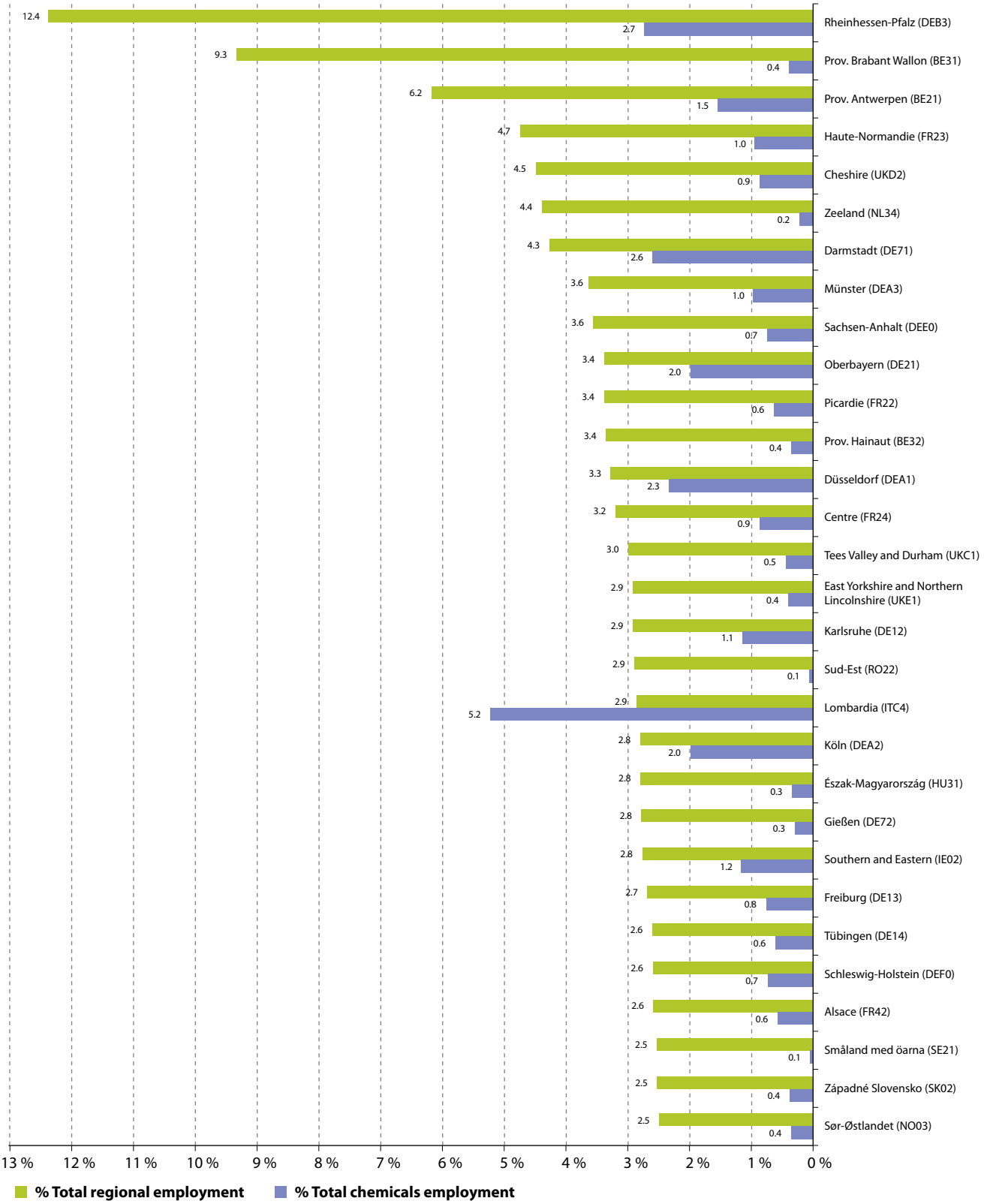
Map 5.2 shows the size of the chemicals manufacturing workforce in the regions of the EU-27 and Norway in 2005. As can be seen, this activity was relatively dispersed throughout the EU, but with a sizeable part located in central Europe: particularly in western Germany, northern Italy, France, Belgium and the Netherlands. The regions with the largest chemicals manufacturing workforces in 2005 were Lombardia in northern Italy (with 96 000 persons employed), Île-de-France (81 000) and Cataluña in Spain (62 000), followed by five regions in southern and western Germany: Rheinhessen-Pfalz (50 000), Darmstadt (48 000), Düsseldorf (43 000), Köln (37 000) and Oberbayern (36 000).

Between 2004 and 2005, employment in chemicals manufacturing increased in 105 regions, decreased in 156 regions and was unchanged in four regions (see Map 5.3). In total, employment among the regions shown decreased by 20 600 persons employed, or 1.1 %. There is some evidence of an increase in the regional concentration of employment in chemicals manufacturing. In France and Italy, employment has risen substantially in the regions with the largest workforce while, at the same time, it has fallen in almost every other region. As a consequence, the leading regions have significantly increased their share of total national employment: from 23.5 % in 2004 to 30.9 % in 2005 in the capital region of France, and from 45.7 % to 48.8 % in Lombardia in Italy. In addition, an analysis of the employment trend based on the employment size-classes used in Map 5.2 shows that employment decreased in all classes, except the one containing the regions with the largest workforces. The 16 regions with a chemicals workforce of over 20 000 persons employed in 2005 recorded a total net increase of 19 300 persons employed, or + 3.0 %, between 2004 and 2005.

Employment in regions with a workforce of between 10 000 and 19 999 decreased by 3.2 %, with a decrease of 2.4 % in regions with a workforce between 4 000 and 9 999. The largest relative decline in chemicals employment occurred in regions with the smallest workforces: 1 000 to 3 999 persons employed (– 5.7 %) and below 1 000 persons employed (– 5.0 %). Five of the eight regions with an increase in employment of more than 1 000 people were among the regions with the largest workforces in 2005: Île-de-France (Paris region) with an increase of 21 000 persons employed, Lombardia in Italy (+ 5 300), Düsseldorf (+ 2 100) and Oberbayern (+ 1 300) in Germany and Southern and Eastern in Ireland (+ 1 200). The other three regions had a relatively small chemicals workforce in 2005, despite growth of between 15 % and 25 %: Prov. Brabant Wallon in Belgium (+ 1 900), Lorraine in north-eastern France (+ 1 300) and Sør-Østlandet in southern Norway (+ 1 100).

Chemicals employment decreased by over 1 000 people in 19 regions: five of these were in the United Kingdom, four in France, three each in Germany and Italy, one each in Belgium, Hungary and Romania, and also Denmark (considered here as one region). The largest decrease was recorded in Picardie in north-western France (– 3 400 people), followed by Köln in Germany (– 3 000) and Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest in Belgium (– 2 600).

Figure 5.5: 30 most specialised regions in chemicals manufacturing, EU-27 and Norway, 2005
Share of non-financial business economy employment of the region and the region's share of total chemicals manufacturing employment, in percentage



Investment and growth are correlated at the macro level, but not necessarily in terms of employment creation, as investments in new machinery and equipment could reduce the need for labour input. Map 5.4 shows how much was invested, on average, per person employed in chemicals manufacturing in 2005 in each region, with regions classified in one of two categories according to the size of the chemicals workforce: below 4 000 persons employed, or 4 000 and above. It should be noted that data have not been adjusted to take into account differences in purchasing power between regions, which generally are significantly lower in the Member States that joined the EU in 2004 and 2007.

The highest investments relative to the size of the workforce in chemicals manufacturing were recorded in Åland (Finland) and in Ionia Nisia (Greece), but these were among the regions with the smallest workforces, which means that, in euro terms, investments were actually among the smallest of all the regions. Among the regions with over 4 000 people working in chemicals manufacturing the highest investment rate was recorded in Sør-Østlandet in Norway, EUR 42 100 per person employed, followed by Észak-Magyarország in Hungary with EUR 38 400 and Cheshire in the United Kingdom with EUR 36 800. Five of the 16 regions with over 20 000 persons employed in chemicals manufacturing had an investment rate of over EUR 15 000 per person employed: these were Southern and Eastern in Ireland (EUR 33 800), Oberbayern in Germany (EUR 20 800), Denmark (EUR 19 700), Köln in Germany (EUR 16 300) and Prov. Antwerpen in Belgium (EUR 15 300).

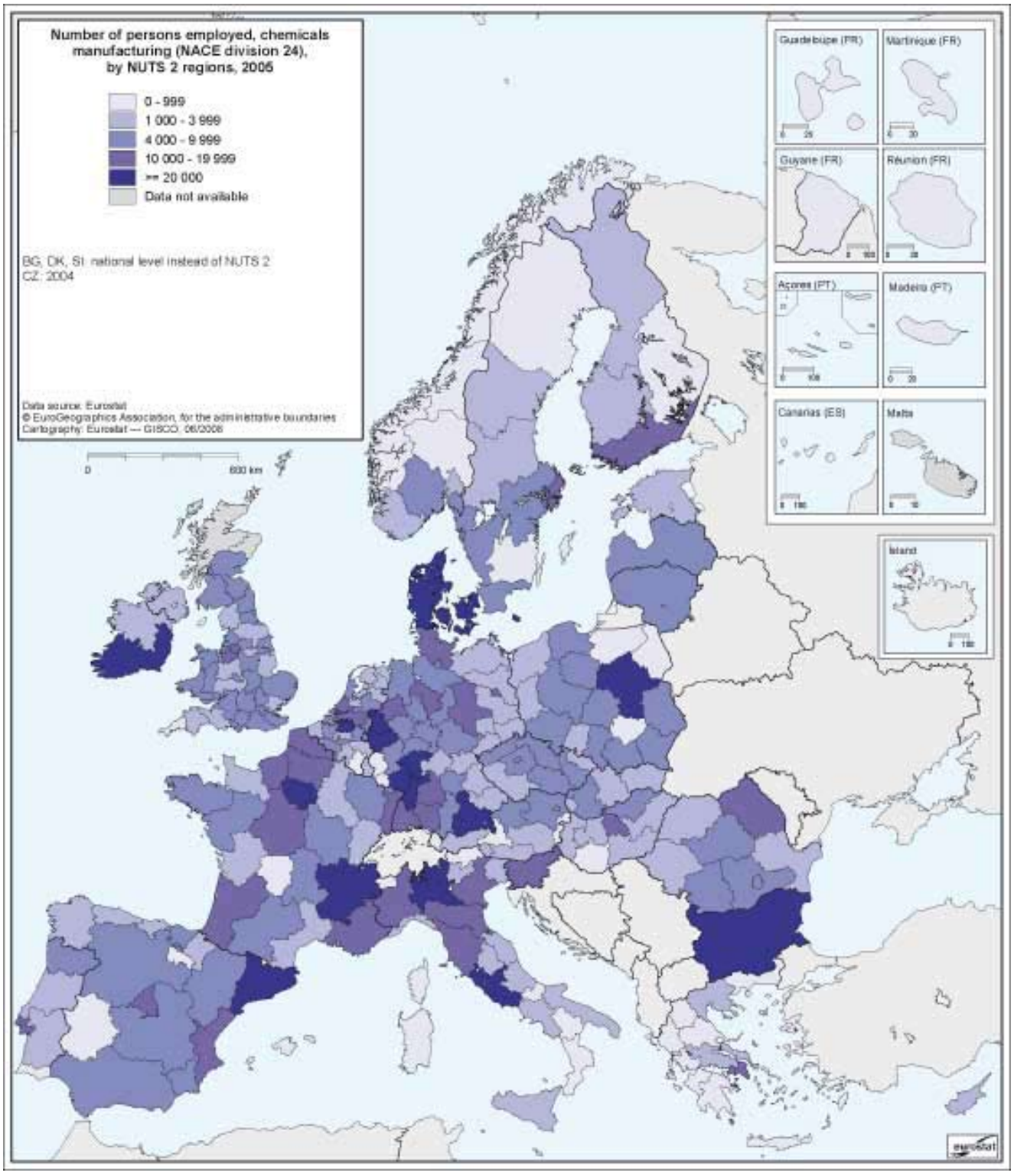
The investment rate tended to be higher on average in regions which experienced an increase in employment. Regions where employment decreased in 2005 recorded an investment rate of EUR 12 900 per person employed on average. This is somewhat lower than the investment rate in regions where employment increased (EUR 13 300). The difference is greater between the 20 regions with the largest increase and decrease in employment — EUR 14 700 and EUR 12 500 respectively.

Furthermore, the averages for both sets of regions with an increase in employment are strongly affected by the relatively moderate investments per person employed in the two regions with the largest workforces: Lombardia in Italy (EUR 11 900) and the French capital region (EUR 10 200). If these two regions are excluded, the average investments per person employed for regions with an increase in employment would be EUR 14 000, while the average for the top 20 regions would be as high as EUR 17 500.

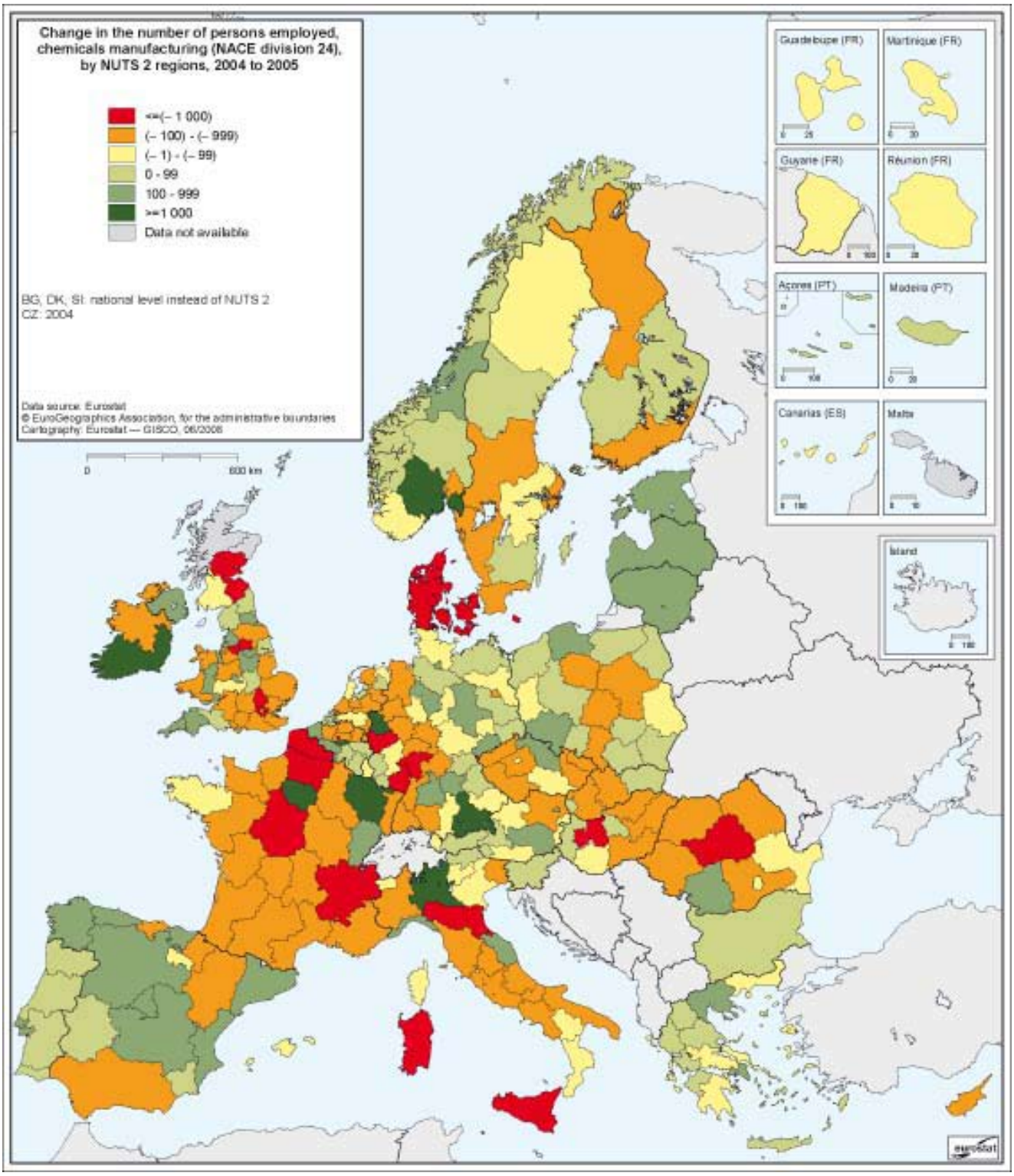
Conclusion

Regional structural business statistics offer a detailed, harmonised data source for users who want to know more about the structure and development of the regional business economy. This chapter has shown how some of these data can be used to analyse different regional business characteristics. These are just some examples. As more time series become available, it will be possible to study changes in specialisation or concentration patterns, for example. Further horizontal studies can also be carried out where regional structural business statistics are used in combination with other sources to increase the understanding of the factors affecting the regional business economy and the driving forces behind structural changes.

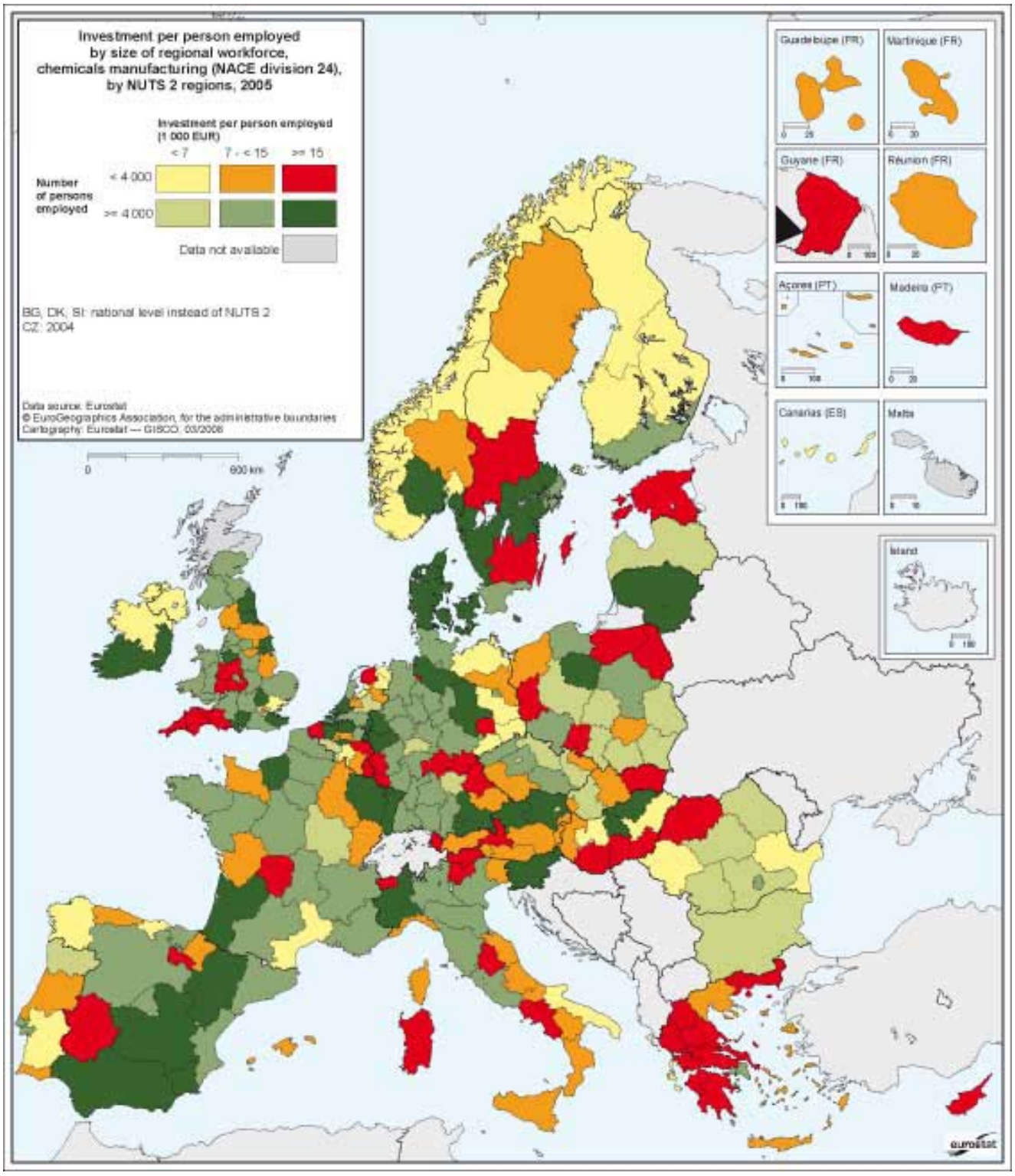
Map 5.2: Number of persons employed, chemicals manufacturing (NACE division 24), by NUTS 2 regions, 2005



Map 5.3: Change in the number of persons employed, chemicals manufacturing (NACE division 24), by NUTS 2 regions, 2004 to 2005



Map 5.4: Investment per person employed by size of regional workforce, chemicals manufacturing (NACE division 24), by NUTS 2 regions, 2005



Methodological notes

Regional structural business statistics (SBS) are collected within the framework of a Council and Parliament regulation, according to the definitions and breakdowns specified in the Commission regulations implementing it. The data cover all the EU Member States and Norway. (Data for Bulgaria are only presented at the national level as, at the time of writing, data are only available according to pre-accession regional breakdowns.) These and other SBS data sets are available on the Eurostat website (http://europa.eu.int/comm/eurostat/) under the theme 'Industry, trade and services' (select 'Data'/'Industry, trade and services'/'Horizontal view'/'Structural Business Statistics'). Selected publications, data and background information are available in the section of the Eurostat website dedicated to European business, located directly under the theme 'Industry, trade and services' (direct link: http://ec.europa.eu/eurostat/europeanbusiness) — see special topic regional structural business statistics. Most data series are continuously updated and revised where necessary. This chapter reflects the data situation in March 2007.

Structural business statistics are presented by sectors of activity according to the NACE Rev. 1.1 classification, with a breakdown down to the two-digit level (NACE divisions). The data presented here are restricted to the non-financial business economy. The non-financial business economy includes sections C (Mining and quarrying), D (Manufacturing), E (Electricity, gas and water supply), F (Construction), G (Wholesale and retail trade), H (Hotels and restaurants), I (Transport, storage and communication) and K (Real estate, renting and business activities). It excludes agricultural, forestry and fishing activities and public administration and other non-market services (such as education and health, which are currently not covered by the SBS), as well as financial services (NACE section J), which for the time being are collected on a voluntary basis only. These activities together accounted for around 30 % of the total EU-27 value added and 38 % of employment in 2005, according to national accounts. They could, however, represent a substantially larger share in certain regions.

The observation unit for the regional SBS data is the local unit, which is an enterprise or part of an enterprise situated in one geographically identified place. Local units are classified into sectors (by NACE) according to their main activity. At national level, the statistical unit is the enterprise. An enterprise can consist of several local units. It is possible for the principal activity of a local unit to differ from that of the enterprise to which it belongs. Hence, national and regional structural business statistics are not entirely comparable. It should be noted that in some countries the activity code assigned is based on the principal activity of the enterprise in question.

Regional data are available at the NUTS 2 level for a limited set of variables: the number of local units, wages and salaries, the number of persons employed and investments in tangible goods. The latter variable is collected on an optional basis, except for Industry (NACE sections C to E), which results in a more limited availability of data than for the other variables. Below is a summary of the definitions of the variables presented in this publication:

Number of persons employed: The total number of persons who work (paid or unpaid) in the observation unit, as well as persons who work outside the unit who belong to it and are paid by it. It includes working proprietors, unpaid family workers, part-time workers, seasonal workers, etc.

Gross investment in tangible goods: All new and existing tangible capital goods, whether bought from third parties or produced for own use, having a useful life of more than one year, including non-produced tangible goods such as land. Also included are all additions, alterations, improvements and renovations which prolong the service life or increase the productive capacity of capital goods.

Wages and salaries: The total remuneration, in cash or in kind, payable to all persons on the payroll (including home workers) in return for work done during the accounting year. Wages and salaries include the value of any social contributions, income taxes, etc. payable by the employee, even if they are paid directly by the employer. Wages and salaries do not include social contributions payable by the employer.

6

Labour market

Regional labour market cohesion

There are marked differences in regional labour markets. Some regions have low unemployment rates and high employment and activity rates, and they perform well for young people. That is the case of almost every region in the United Kingdom, the Netherlands and Austria. Other regions tend to show significant differences in gender participation in the labour market and perform less well for young people. That is the case for the regions of Greece, southern Italy and southern Spain.

The eastern regions of both Germany and Slovakia have high unemployment rates but no big gap between male and female participation in the labour market.

Swedish, Portuguese, Czech and west German regions show relatively high employment and activity rates, especially for older workers. Regions in France, Poland, Hungary and Romania have some difficulties with the participation of young and older workers in their labour markets.

In spite of all these different characteristics — and some of them may be caused by different cultural environments — the European social cohesion objective implies that disparities in regional labour markets should be as small as possible.

This chapter focuses mainly on the overall employment and unemployment rates, how they are developing over time and the implications of this development for regional cohesion. Does good labour market performance necessarily benefit all regions? Or are there regions that are being left behind?

Employment

In 2006, the EU-27 made its best progress ever towards the overall employment target set by the Lisbon Council in 2000, though the employment rate of 64.3 % is still 5.7 percentage points below target.

The other main employment targets are also closer to being achieved. The female employment rate stood at 57.1 % in 2006, which is 2.9 percentage points below the target, and for people aged from 55 to 64 the employment rate was 43.4 %, still 6.6 percentage points below target.

Improvements were made in 2006 but significantly better performance is needed to accomplish the objectives set.

Beyond the employment targets, one must not forget that social cohesion is itself an important issue, being one of the three main objectives set by the Lisbon Council. National objectives should not be met at the cost of leaving some regions lagging behind.

Map 6.1 shows the distribution of employment rates, with the NUTS 2 regions that have already achieved the Lisbon employment targets shown in the darkest colour.

Right in the centre there are a set of regions in the intersection of Germany, Austria and the Czech Republic that have relatively high employment rates, as do regions in the northern countries and almost all regions in the United Kingdom and the Netherlands.

Regions with relatively low employment rates tend to be located mainly in two parts of EU: in southern Spain, France, Italy and Greece and in eastern Hungary and the Czech Republic. Polish regions also have relatively low employment rates, as do two Belgian regions, Région de Bruxelles-Capitale Brussels Hoofdstedelijk Gewest and Prov. Hainaut, as well as the overseas regions of France.

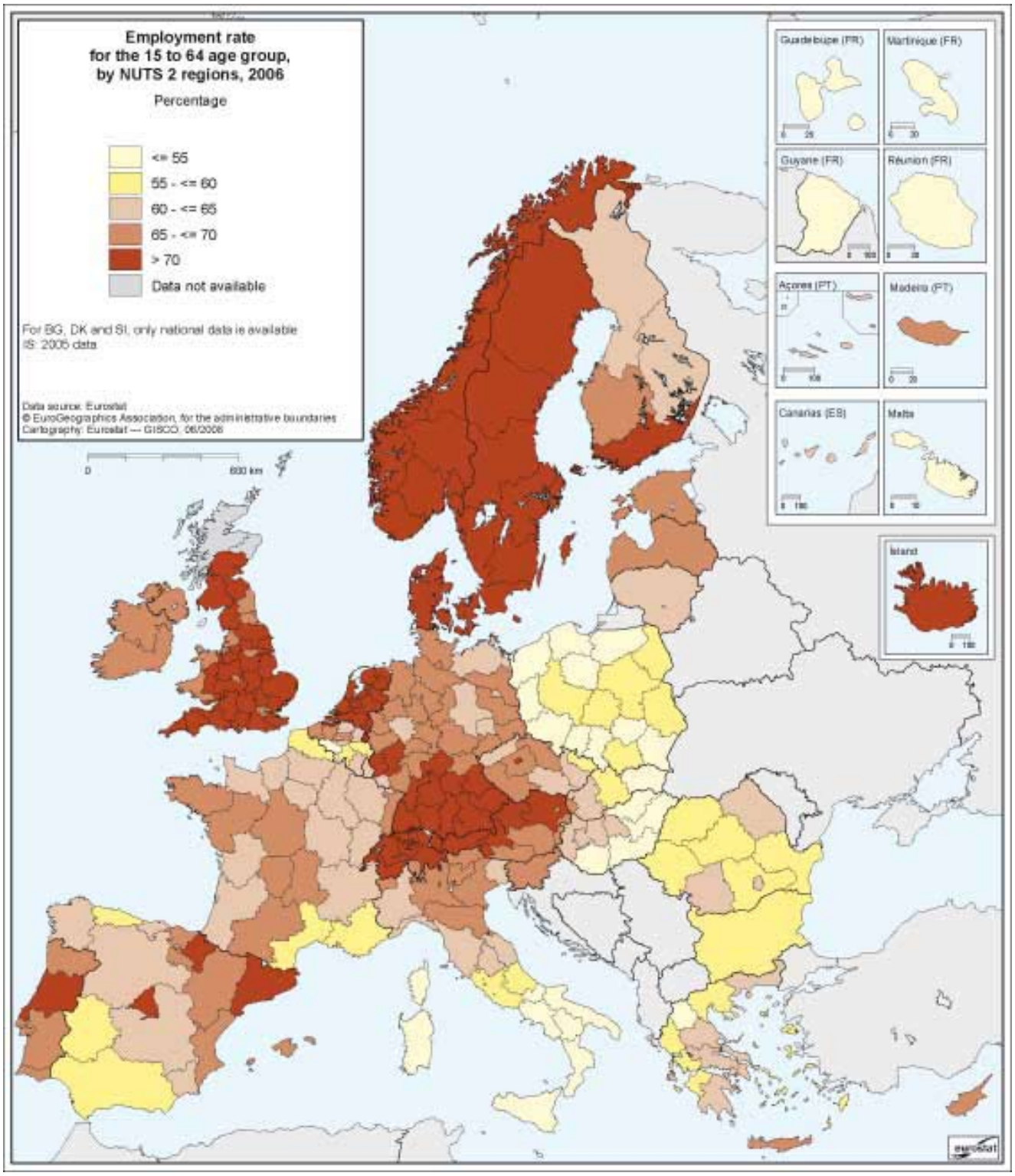
The range between the lowest and highest regional employment rate was still significant in 2006. The rates ranged from 41.7 % in Guyane, an overseas region of France, to 78.7 % in Berkshire, Buckinghamshire and Oxfordshire, in the United Kingdom.

The map also shows that in some countries every, or almost every, region is in the same class, meaning that regional employment rates are very similar, for example in the Netherlands and Sweden. In other countries, like Italy or Slovakia, the distribution of employment rates is more heterogeneous. Measuring these disparities between regional employment rates is a way to measure labour market cohesion. These disparity measures will be analysed further on in the text.

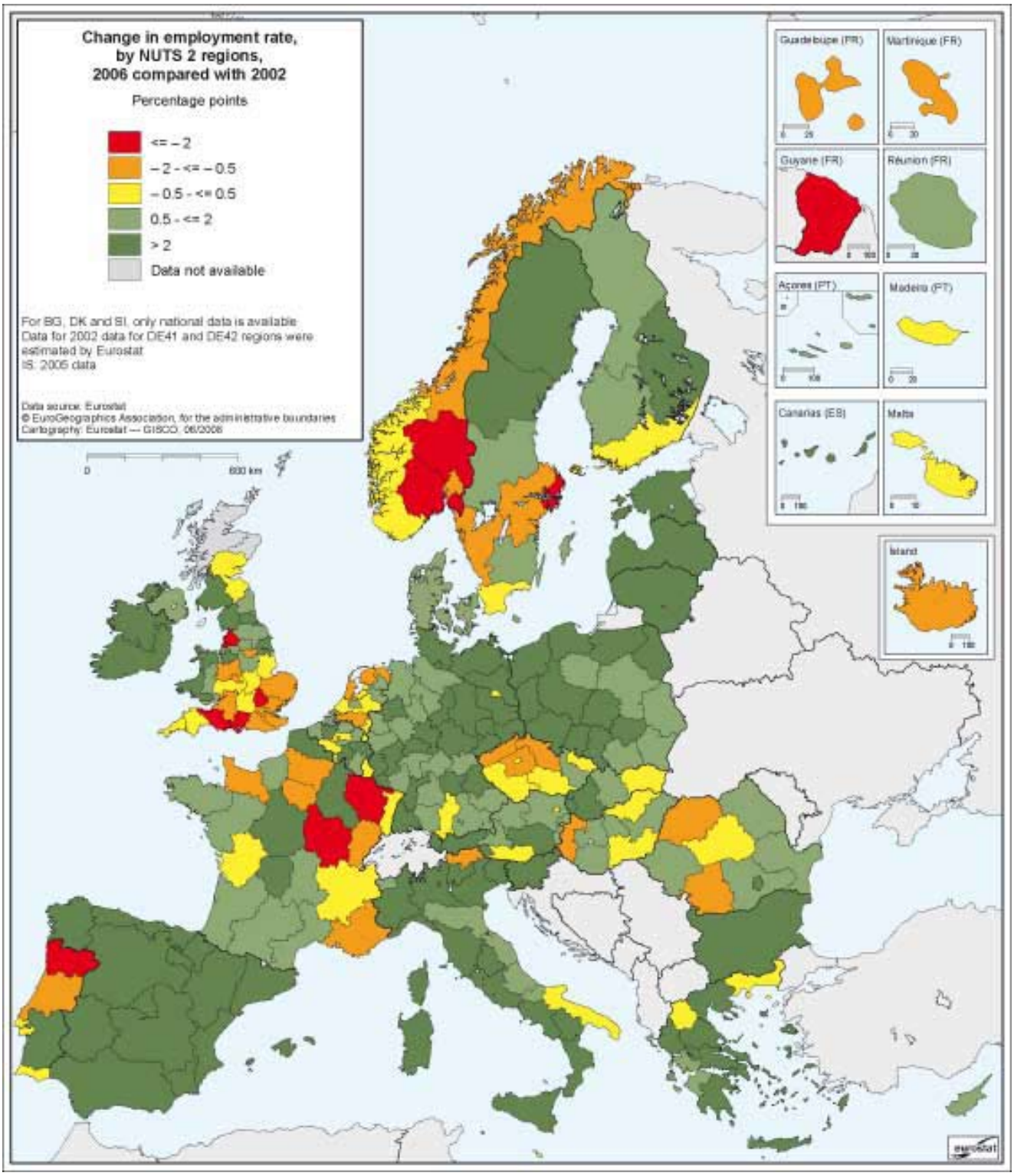
The best way to overcome the disparities in regional labour markets is for regions that have relatively low employment rates to raise them faster than other regions. Map 6.2 shows the change in percentage points in regional employment rates over the last five years.

In the last five years the employment rate has risen in almost 80 % of EU-27 regions; only nine regions, of the 259 for which data are available, have seen their employment rate fall by more than 2 percentage points.

Map 6.1: Employment rate for the 15 to 64 age group, by NUTS 2 regions, 2006
Percentage



Map 6.2: Change in employment rate, by NUTS 2 regions, 2006 compared with 2002
Percentage points



There is a negative correlation, not too strong but significant, between employment rates in 2002 and the change in the employment rate over the next five years: in general, there was a tendency for regions with low employment rates in 2002 to grow faster in this period than other regions.

This is one sign that the regional disparity in employment rates has decreased over the last five years.

In the EFTA countries, all regional employment rates were above 70 %, with the sole exception of Ticino, in Switzerland.

Unemployment

In 2006 there was also a substantial decline in unemployment in the EU-27, the biggest since 2000. The unemployment rate fell from 9.0 % in 2005 to 8.2 % in 2006. The gender gap between unemployment rates stood at 1.4 percentage points, with unemployment rates at 7.6 % for men and 9.0 % for women.

At country level, there were still big differences in unemployment rates. There were six countries with unemployment rates below 5 %: Denmark and the Netherlands (both with 3.9 %), Ireland (4.4 %), Cyprus (4.5 %) and Austria and Luxembourg (both with 4.7 %). Three countries had unemployment rates above 10 %: Germany (10.2 %), Slovakia (13.4 %) and Poland (13.9 %). While Slovakia and Poland have reduced their unemployment rates over the last five years by 5.3 and 6.0 percentage points, respectively, Germany's has actually increased by 1.7 percentage points.

High unemployment is mainly located in north-eastern regions, in Poland, eastern Germany and eastern Slovakia (Map 6.3). The French overseas departments, the region of Extremadura in Spain and the southern regions of Italy also had high unemployment rates.

As with the distribution of employment rates, one can see from Map 6.3 that some countries have unemployment rates similar to those of their regions — e.g. Poland or Sweden — while others show marked differences, e.g. Italy, where it is possible to see a clear north–south division.

If regions with a relatively high unemployment rate tend to decrease that rate at a faster pace than other regions, not only would the national figure be lower, but there would also be greater cohesion.

The change in regional unemployment rates over the last five years is shown in Map 6.4.

There is a significant negative correlation between unemployment rates in 2002 and the change in those rates over the next five years, which means that, in general, regions with higher unemployment rates tended to reduce them faster than other regions.

One can see from Map 6.4 that, despite remaining high, unemployment rates fell significantly over the last five years in the Polish and south European regions, while they rose in the Portuguese and west German regions. For instance, in the Norte region of Portugal and the Bremen region of Germany, unemployment rates have increased by more than 4.0 percentage points since 2002.

The Polish region of Lubuskie, the Italian region Calabria and three Bulgarian regions, Severozapaden, Yugoiztochen and Severoiztochen, have shown remarkable reductions in their unemployment rates of more than 10 percentage points.

Although differences between regional unemployment rates across the EU-27 are still big, they are gradually becoming smaller.

Regional unemployment in the EFTA countries is relatively small. The Région lémanique, in Switzerland, is the only region with an unemployment rate above 5 %.

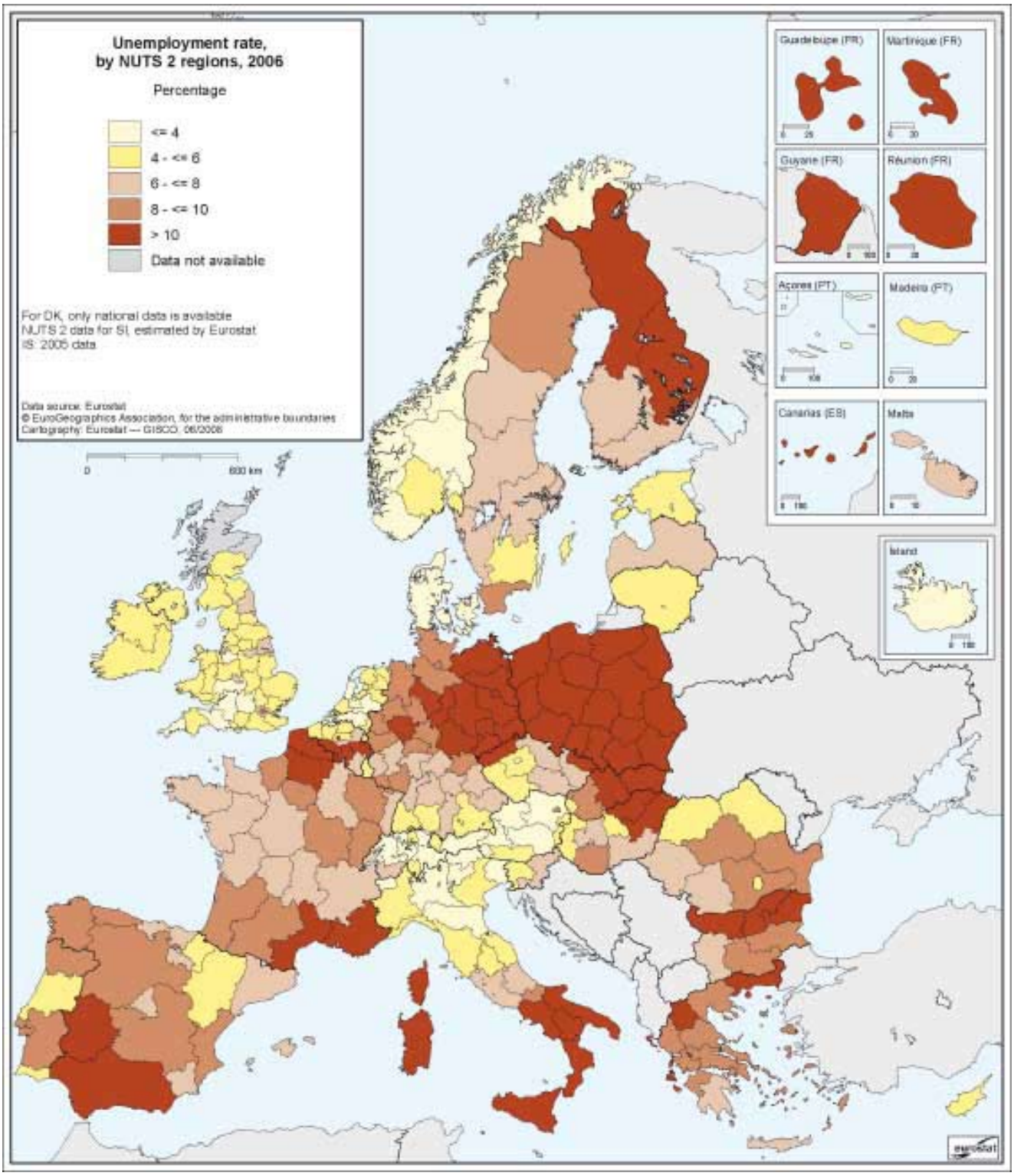
Long-term unemployment

Long-term unemployment has significant effects on people's lives and is an indicator of how difficult it is to put people seeking a job back into work. The long-term unemployment share, i.e. the percentage of total unemployed persons seeking a job for longer than one year, was 45.8 % in 2006. This long-term unemployment share in the EU-27 has not shown a significant trend in the last five years.

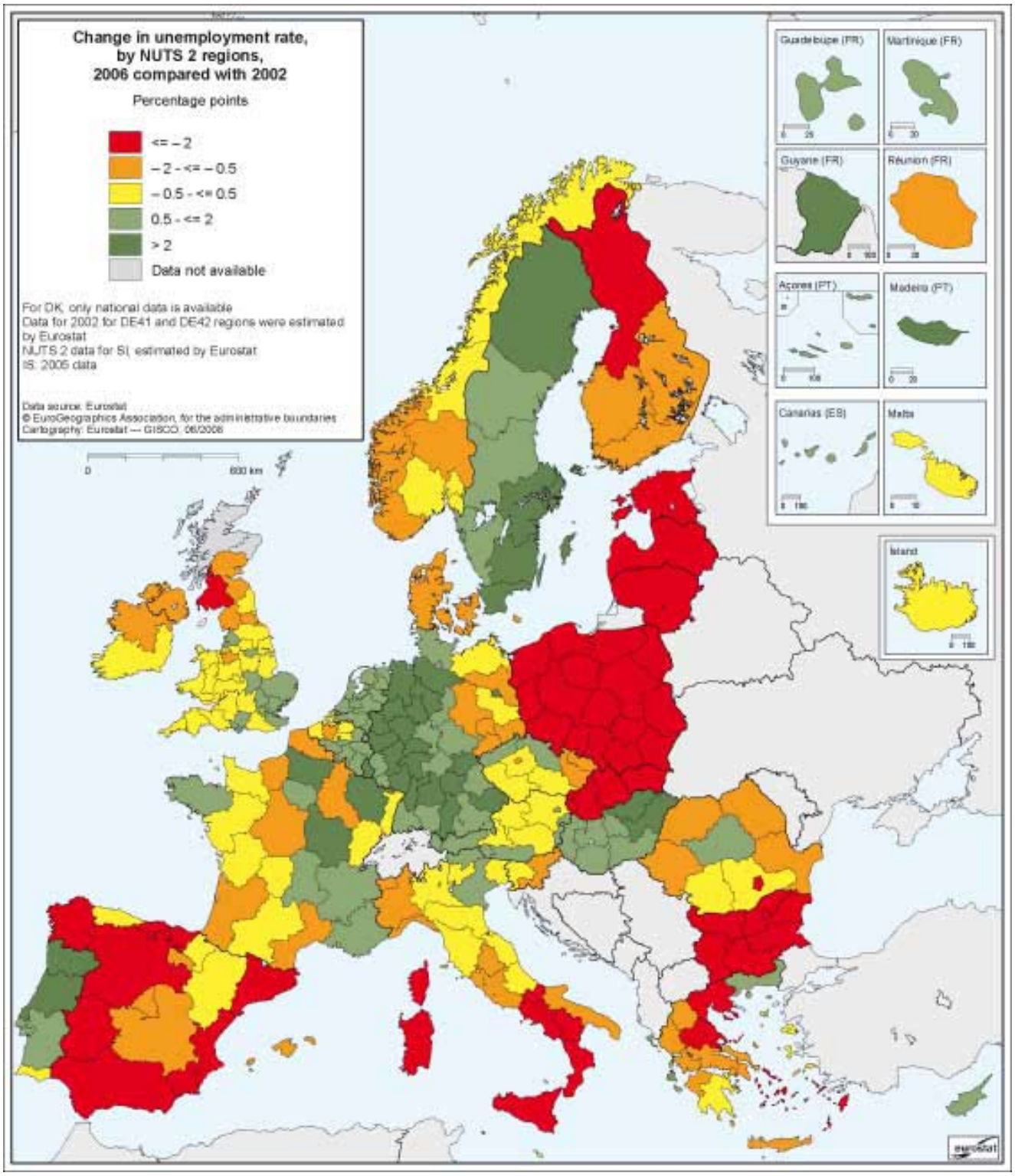
Bulgaria, Romania and Italy have reduced their long-term unemployment share, but in Bulgaria more than half of all unemployed persons had been seeking a job for more than one year in 2006. In Spain and Sweden, less than 30 % of job seekers took more than one year to find a job and there have been significant improvements in long-term unemployment in the last five years.

One can easily see from Map 6.5 that, with the exception of Italy, regional long-term unemployment

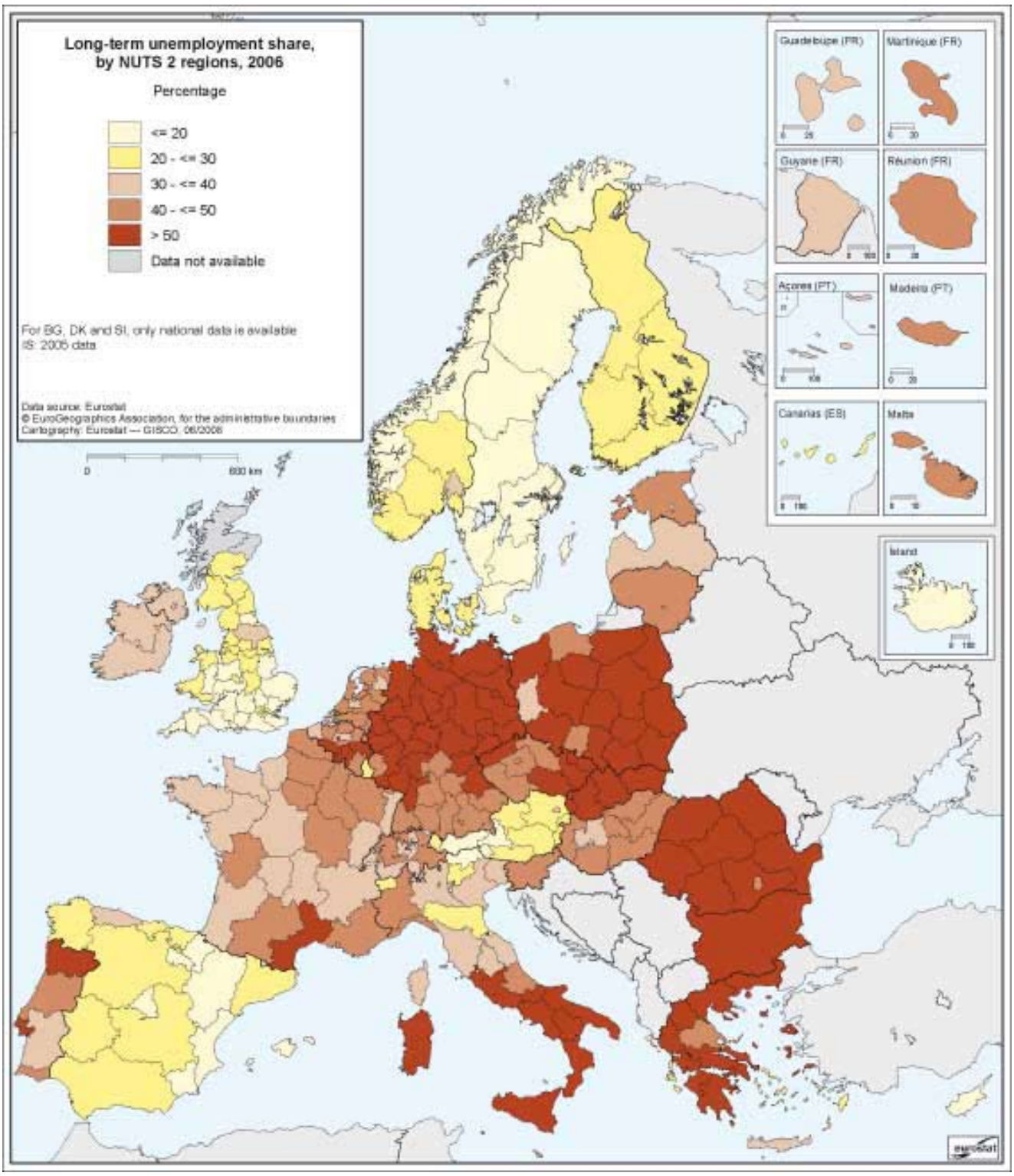
Map 6.3: Unemployment rate, by NUTS 2 regions, 2006
Percentage



Map 6.4: Change in unemployment rate, by NUTS 2 regions, 2006 compared with 2002
Percentage points



Map 6.5: Long-term unemployment share, by NUTS 2 regions, 2006
Percentage



shares tend to be more similar within each country than employment or unemployment rates. Since there are no big differences between regions belonging to the same country, the long-term unemployment share is mainly a country-level phenomenon.

Another thing that can be seen from Map 6.5 is that countries fall into three groups in terms of long-term unemployment shares. Countries like Spain, Luxembourg, Austria and Denmark have relatively low long-term unemployment shares, while Romania, Poland or Germany have relatively high shares. The third group, including France, Hungary and Latvia, have medium long-term unemployment shares.

Long-term unemployment is especially high in the overseas regions of France and in all regions of Slovakia (with the exception of Bratislavský kraj), where more than 70 % of unemployed persons have been looking for a job for 12 months or more.

As with regional employment and unemployment rates, the difference between the north and south of Italy is quite marked, the southern regions being those with the highest levels of long-term unemployment.

In EFTA regions the long-term unemployment share is relatively low as compared with the majority of the EU-27 regions. Only three regions of Switzerland had a little more than 40 % of the unemployed persons looking for a job for more than one year in 2006.

Disparities in regional labour markets

It is fairly simple to check whether the employment targets set by the Lisbon Council in 2000 are going to be achieved or not, since they are very easy to understand. It is just a matter of checking whether a certain labour market indicator is above a certain threshold. But analysing only these indicators does not tell us whether regional cohesion is being achieved or not in meeting those targets.

To analyse how much regions differ from each other within a country or the whole EU we need another kind of indicator, called indicators of labour market disparities. The dispersion of employment and unemployment rates measures the spread of regional rates in a country or in the EU-27, which gives an idea of how much regional rates differ from each other. Because of the nature of these indicators, a decrease in the dispersion of rates corresponds to an increase in labour market cohesion.

Table 6.1 shows the dispersion of employment and unemployment rates.

European regions are becoming less different in terms of labour markets. In the EU-27, the dispersion of employment and unemployment rates fell 1.8 and 16.8 percentage points, respectively.

This is because, generally, lower-performing regions, especially the regions belonging to the new Member States, are catching up, and so regional differences are being attenuated.

Almost all countries have reduced their regional disparities over the last five years. There are two exceptions, Belgium and Slovakia, where dispersion increased both for employment and unemployment. The country with the highest dispersion was Italy, with 16.0 % for employment and 57.1 % for unemployment. In this country there was a marked north–south difference in regional labour market performance, already shown on Maps 6.1 and 6.3. This north–south division was smaller in 2006 than five years ago, since Italy also recorded the highest decrease in the dispersion of unemployment rates.

Poland was the country in which regional unemployment rates were most similar and the Netherlands had the lowest dispersion of employment rates.

Another way to measure regional disparities is to calculate the index of underperforming regions (UPR). A region is 'underperforming' if its employment rate is relatively low compared with the national employment rate (below 90 % of the national figure) or if its unemployment rate is relatively high compared with the national rate (above 150 % of the national figure).

Table 6.2 shows the index of UPR results for employment.

In 2006, the number of underperforming regions did not decrease much. There were 51 underperforming regions in the EU-27, one less than five years ago. These regions accounted for 20.6 % of the population. This means that one in every five people in the EU-27 lives in a region where the employment rate is relatively low compared with other European regions.

At country level, the biggest decreases in the number of UPRs in terms of employment in the last five years were in the United Kingdom and Poland, with a decrease of three regions each. As a result, Poland actually had no UPR in 2006. Finland had also no UPR in 2006, whereas five years ago the Itä-Suomi region was underperforming in terms of employment.

In Belgium, Germany, Greece and Italy, the number of underperforming regions has increased by one in the last five years. Five years ago, neither Germany nor Greece had UPRs but in 2006 both the Berlin region in Germany and Dytiki Makedonia in Greece were underperforming in terms of employment.

Italy recorded the highest proportion of people living in underperforming regions: one in every three Italians was living in a region where the employment rate was relatively low compared with the rest of the country in 2006. Hungary, Belgium and Spain also showed a significant proportion of people living in regions with relatively low employment levels.

The results in Table 6.2 show that regional cohesion in terms of employment did not significantly

Table 6.1: Dispersion of employment and unemployment rates, NUTS level 2

	Dispersion of employment rates					Dispersion of unemployment rates				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
EU-27	13.2	12.8	12.1	11.9	11.4	62.8	58.3	54.1	50.9	45.6
BE	8.0	7.7	8.7	8.4	8.7	48.3	43.5	48.1	48.4	55.1
BG	:	:	:	:	:	19.1	22.0	21.5	20.6	26.3
CZ	5.6	5.8	5.6	5.5	5.2	43.6	41.9	41.6	45.8	44.6
DK	:	:	:	:	:	:	:	:	:	:
DE	5.7	5.9	6.0	5.6	5.2	54.7	45.8	44.6	39.6	39.2
EE	-	-	-	-	-	-	-	-	-	-
IE	-	-	-	-	-	-	-	-	-	-
EL	3.8	3.2	4.1	4.3	3.7	14.7	15.9	18.4	18.3	14.0
ES	9.3	9.0	8.7	8.3	7.8	36.9	32.3	31.7	30.2	29.1
FR	8.0	7.2	7.1	7.3	7.5	37.4	34.8	34.6	33.6	34.6
IT	16.7	17.0	15.6	16.0	16.0	77.5	78.1	61.8	59.9	57.1
CY	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-	-	-
LT	-	-	-	-	-	-	-	-	-	-
LU	-	-	-	-	-	-	-	-	-	-
HU	9.4	8.5	9.4	9.9	9.1	32.1	32.6	27.6	26.9	31.8
MT	-	-	-	-	-	-	-	-	-	-
NL	2.2	2.3	2.3	2.0	2.2	16.1	10.7	12.2	15.1	14.8
AT	2.5	3.0	3.5	4.1	3.4	42.8	42.3	40.6	39.6	44.2
PL	7.3	7.2	6.4	5.6	5.1	16.5	15.8	15.9	14.6	12.1
PT	3.8	3.9	3.5	3.3	3.1	30.7	29.6	25.1	22.3	21.0
RO	3.2	3.5	4.9	4.5	3.6	14.6	13.9	17.6	17.3	22.7
SI	-	-	-	-	-	-	-	-	-	-
SK	7.3	7.6	9.0	9.8	8.6	22.9	26.7	30.8	36.7	37.8
FI	6.7	6.1	5.5	5.5	5.4	28.1	22.0	21.3	21.9	23.9
SE	4.6	4.3	4.4	3.0	2.9	17.3	15.8	13.0	12.5	11.9
UK	6.6	6.1	5.9	5.7	5.5	29.7	30.5	31.5	26.4	25.8

Notes: : NUTS level 2 employment data not available for BG and DK
: NUTS level 2 unemployment data not available for DK
- Not applicable — EE, IE, CY, LV, LT, LU, MT and SI comprise only one or two NUTS level 2 regions

improve over the last five years. But regarding unemployment the results were a little better and are shown in Table 6.3.

In 2006 there were 43 underperforming regions in the EU-27, three fewer than five years ago. These regions have 16.1 % of the European active population, 2.3 percentage points less than five years ago.

In Bulgaria, Germany, Greece and Spain the number of underperforming regions in terms of unemployment has increased. Of these countries, Bulgaria and Greece had no UPR five years ago, but while in Bulgaria the UPR is Severen tsentralen, which represents 11.9 % of the country's active population, the Greek UPR is Dytiki Makedonia, which accounts for only 2.5 % of the active population.

Spain had one more UPR in 2006 than five years ago, but the UPRs changed: while in 2002 the population living in UPRs represented 19.0 % of the country's active population, but now the Spanish UPR make up only 2.4 % of the active population.

In Germany, the gain of two underperforming regions over the last five years increased the German active population living in underper-

Table 6.2: Index of underperforming regions (UPR) in terms of employment, at NUTS level 2

Number of UPR			% of UPR			% of population living in UPR			
2002	2006	change	2002	2006	change	2002	2006	change	
52	51	-1	20.3	19.9	-0.4	20.8	20.6	-0.2	EU-27
1	2	1	9.1	18.2	9.1	12.3	22.0	9.8	BE
:	:	:	:	:	:	:	:	:	BG
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	CZ
:	:	:	:	:	:	:	:	:	DK
0	1	1	0.0	2.6	2.6	0.0	4.4	4.4	DE
-	-	-	-	-	-	-	-	-	EE
-	-	-	-	-	-	-	-	-	IE
0	1	1	0.0	7.7	7.7	0.0	2.6	2.6	EL
5	4	-1	26.3	21.1	-5.3	23.2	20.5	-2.7	ES
7	6	-1	26.9	23.1	-3.8	13.9	6.9	-7.0	FR
6	7	1	28.6	33.3	4.8	33.0	33.5	0.5	IT
-	-	-	-	-	-	-	-	-	CY
-	-	-	-	-	-	-	-	-	LV
-	-	-	-	-	-	-	-	-	LT
-	-	-	-	-	-	-	-	-	LU
2	2	0	28.6	28.6	0.0	27.6	27.4	-0.2	HU
-	-	-	-	-	-	-	-	-	MT
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	NL
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	AT
3	0	-3	18.8	0.0	-18.8	11.2	0.0	-11.2	PL
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	PT
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	RO
-	-	-	-	-	-	-	-	-	SI
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	SK
1	0	-1	20.0	0.0	-20.0	12.6	0.0	-12.6	FI
0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	SE
4	1	-3	11.4	2.9	-8.6	12.4	5.2	-7.2	UK

Notes: : NUTS level 2 employment data not available for BG and DK
- Not applicable — EE, IE, CY, LV, LT, LU, MT and SI comprise only one or two NUTS level 2 regions

forming regions by only 2.9 percentage points to 18.2 % in 2006.

In Hungary, the Netherlands and United Kingdom the number of UPRs has fallen in the last five years. Due to this reduction, the United Kingdom reduced the percentage of the active population living in UPRs by 3.5 percentage points and both Hungary and the Netherlands had no underperforming regions in 2006.

Conclusion

The results presented in this chapter show that 2006 was a year with good performances on employment and unemployment, but they have to be significantly enhanced in the coming years to meet the employment targets set by the Lisbon Council.

At the same time that labour market indicators are approaching the employment objectives for 2010, disparities between European regions are generally and gradually decreasing.

The effort to meet the employment targets must be increased but the latest results show that there is regional convergence towards those targets and, with just a few exceptions, labour market performance is strengthening regional labour market cohesion.

Table 6.3: Index of underperforming regions (UPR) in terms of unemployment, at NUTS level 2

	Number of UPR			% of UPR			% of active population living in UPR		
	2002	2006	change	2002	2006	change	2002	2006	change
EU-27	46	43	-3	17.8	16.5	-1.3	18.4	16.1	-2.3
BE	2	2	0	18.2	18.2	0.0	20.6	20.8	0.1
BG	0	1	1	0.0	16.7	16.7	0.0	11.9	11.9
CZ	2	2	0	25.0	25.0	0.0	23.1	22.9	-0.2
DK	:	:	:	:	:	:	:	:	:
DE	6	8	2	16.7	21.1	4.4	15.3	18.2	3.0
EE	-	-	-	-	-	-	-	-	-
IE	-	-	-	-	-	-	-	-	-
EL	0	1	1	0.0	7.7	7.7	0.0	2.5	2.5
ES	2	3	1	10.5	15.8	5.3	19.0	2.4	-16.6
FR	4	4	0	15.4	15.4	0.0	2.5	2.5	-0.0
IT	6	6	0	28.6	28.6	0.0	29.0	27.5	-1.5
CY	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-	-
LT	-	-	-	-	-	-	-	-	-
LU	-	-	-	-	-	-	-	-	-
HU	1	0	-1	14.3	0.0	-14.3	11.5	0.0	-11.5
MT	-	-	-	-	-	-	-	-	-
NL	1	0	-1	8.3	0.0	-8.3	3.5	0.0	-3.5
AT	1	1	0	11.1	11.1	0.0	19.8	20.2	0.4
PL	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
PT	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
RO	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
SI	-	-	-	-	-	-	-	-	-
SK	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
FI	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
UK	2	1	-1	5.7	2.9	-2.9	8.3	4.8	-3.5

Notes: : NUTS level 2 unemployment data not available for DK
- Not applicable — EE, IE, CY, LV, LT, LU, MT and SI comprise only one or two NUTS level 2 regions

Methodological notes

The source for regional labour market information down to NUTS level 2 is the EU labour force survey (LFS). This is a quarterly household sample survey conducted in the Member States of the European Union.

The LFS target population is made up of all members of private households aged 15 or over. The survey follows the definitions and recommendations of the International Labour Organisation (ILO). To achieve further harmonisation, the Member States also adhere to common principles of questionnaire construction.

All regional results presented here concern NUTS level 2 regions.

For further information about regional labour market statistics see the metadata on the Eurostat website (http://epp.eurostat.ec.europa.eu) under Data/General and Regional statistics/Regions/Regional labour market.

Definitions

Population covers persons aged 15 and over, living in private households (population living in collective households, i.e. residential homes, boarding houses, hospitals, religious institutions and workers' hostels are not included). This comprises all persons living in the households surveyed during the reference week. This definition also includes persons absent from the households for short periods (but having retained a link with the private household) owing to studies, holidays, illness, business trips, etc. Persons on obligatory military service are not included.

Employed persons are persons aged 15 year and over (16 and over in ES, UK and SE (1995–2001); 15–74 years in DK, EE, HU, LV, FI, NO and SE (from 2001 onwards); 16–74 in IS) who during the reference week performed work, even for just one hour a week, for pay, profit or family gain or were not at work but had a job or business from which they were temporarily absent because of, for example, illness, holidays, industrial dispute and education and training.

Unemployed persons are persons aged 15–74 (in ES, NO, SE (1995–2000), UK and IS 16–74) who were without work during the reference week, were currently available for work and were either actively seeking work in the past four weeks or had already found a job to start within the next three months.

Employment rate represents employed persons as a percentage of the population.

Unemployment rate represents unemployed persons as a percentage of the economically active population. The unemployment rate can be broken down further by age and sex. The youth unemployment rate relates to persons aged 15–24.

Long-term unemployment share represents long-term unemployed (12 months or longer) as a percentage of the total unemployed persons.

Dispersion of employment (unemployment) rates is the coefficient of variation of regional employment (unemployment) rates in a country, weighted by the absolute population (active population) of each region.

Underperforming region is a region with either an employment rate below 90 % of the national employment rate or an unemployment rate 150 % above the national unemployment rate. To compute the EU aggregate, the rates of all regions are compared with the EU employment and unemployment rates.

7

Sectoral productivity

Introduction

The goal of this chapter is to address the differences between the regions of the EU in the productivity of the EU's most important sectors.

First of all, the relation of sectoral gross value added (GVA) to employment is analysed at national level. This leads to the selection of two sectors — real estate, renting and business activities, and manufacturing — which are the most important for the EU's productivity and employment. Regional data are then analysed to capture the levels of productivity in these sectors at regional level. The last section takes a look at how the sectors of GVA and employment have evolved in the last five years, again at regional level.

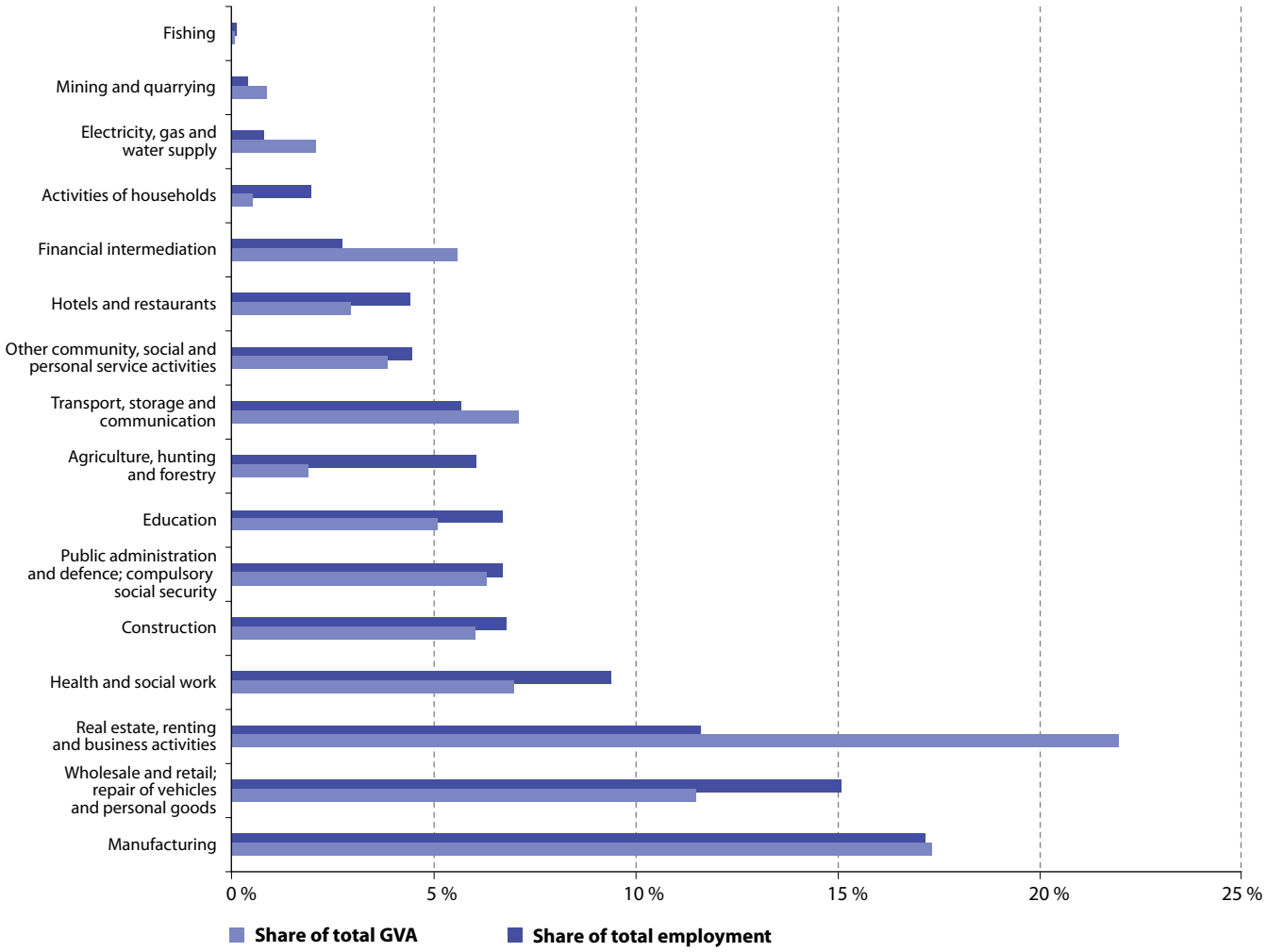
The conclusion sums up the findings and shows their implications for the European cohesion policy.

The top sectors

In 2005, the sector that generated the highest GVA was (NACE section K) real estate, renting and business activities. It contributed more than a fifth of the total GVA created in the EU-27 and it had a share of 12 % of total employment, which is the third highest in the EU. As a result, this sector had extremely high GVA per person employed, more than the double the average across all sectors (See Figure 7.1).

In terms of employment, the top sector in 2005 was (NACE section D) manufacturing. It accounted for 17 % of total EU-27 employment, or 37 million jobs. Manufacturing contributes approximately the same share to total GVA (17 %) as to total employment. Hence, its GVA per person employed is close to the average for all sectors.

Figure 7.1: Share of total GVA and employment in 16 sectors, 2005
Percentage



The second most important sector in terms of employment — wholesale and retail trade — covers 15 % of employment. This sector's share of GVA, at 11 %, is considerably lower than its share in employment, leading to GVA per person employed of 75 % of the average for all sectors.

Thus, the two sectors of real estate, renting and business activities and manufacturing are currently the most important sectors for the growth of the EU economy and its level of employment, respectively. This, and the changes that they have experienced in recent years, makes them the perfect candidate to show how sectoral productivity develops in the European Union, Norway, Switzerland and Croatia.

The real estate, renting and business activities sector (NACE section K) is rather diverse and includes five distinct sub-sectors (NACE divisions):

70 — Real estate activities

71 — Renting of machinery and equipment

72 — Computer and related activities

73 — Research and development

74 — Other business activities (such as accounting, market research, management consultancy, architecture, advertising and technical testing)

There are no GVA data available for these five subsectors, but the labour force survey can be used to estimate the share of employment in these subsectors. Other business activities (Division 74) is the most important, accounting for approximately 70 % of employment in this sector.

The manufacturing sector consists of 14 subsectors (See Figure 7.3).

Productivity at regional level

While GVA and employment data at national and EU level are available for more detailed industry categories, the data available at regional level limit the detail to six sectors.

Real estate, renting and business activities are part of the wider financial intermediation and business sector (NACE sections J and K), together with the financial intermediation sector (J). In 2005, real estate, renting and business activities accounted for more than 80 % of total employment and nearly the same share of total GVA of the EU's financial intermediation and business sector.

The manufacturing sector had an even higher share of total GVA and total employment in its group, total industry (NACE sections C, D and E), at 87 % and 95 % respectively.

Thus, analysing the productivity of the financial intermediation and business sector and that of total industry can still give us a useful insight into the productivity levels and growth in the real estate, renting and business activities and manufacturing sectors at regional level.

Map 7.1 shows the regional variation in the productivity of the financial intermediation and business sector. The patterns are visibly national, with clear distinctions between the 15 old and the 12 new EU Member States.

The productivity of the financial intermediation and business sector is above the EU average in 120 out of 179 regions ([4]) in the EU-15. The regions with the highest productivity are concentrated in Ireland, Luxembourg and France. The average productivity of the regions in these three countries is 45 % higher than the EU average. Of the non-EU members displayed on the map, Norway has the most productive financial intermediation and business sector, with productivity 80 % above the EU average.

In the EU-15, the 15 regions with the lowest productivity in financial intermediation and business are in north-eastern Germany (Leipzig, Sachsen-Anhalt, Dresden, Berlin, Thüringen and Mecklenburg-Vorpommern), the whole of Portugal, and Campania in southern Italy, followed by Comunidad de Madrid in Spain and Attiki in Greece. The latter have a level of GVA in the financial intermediation and business sector comparable with other capital regions, but the number of people working in the sector is much higher, which explains the low productivity.

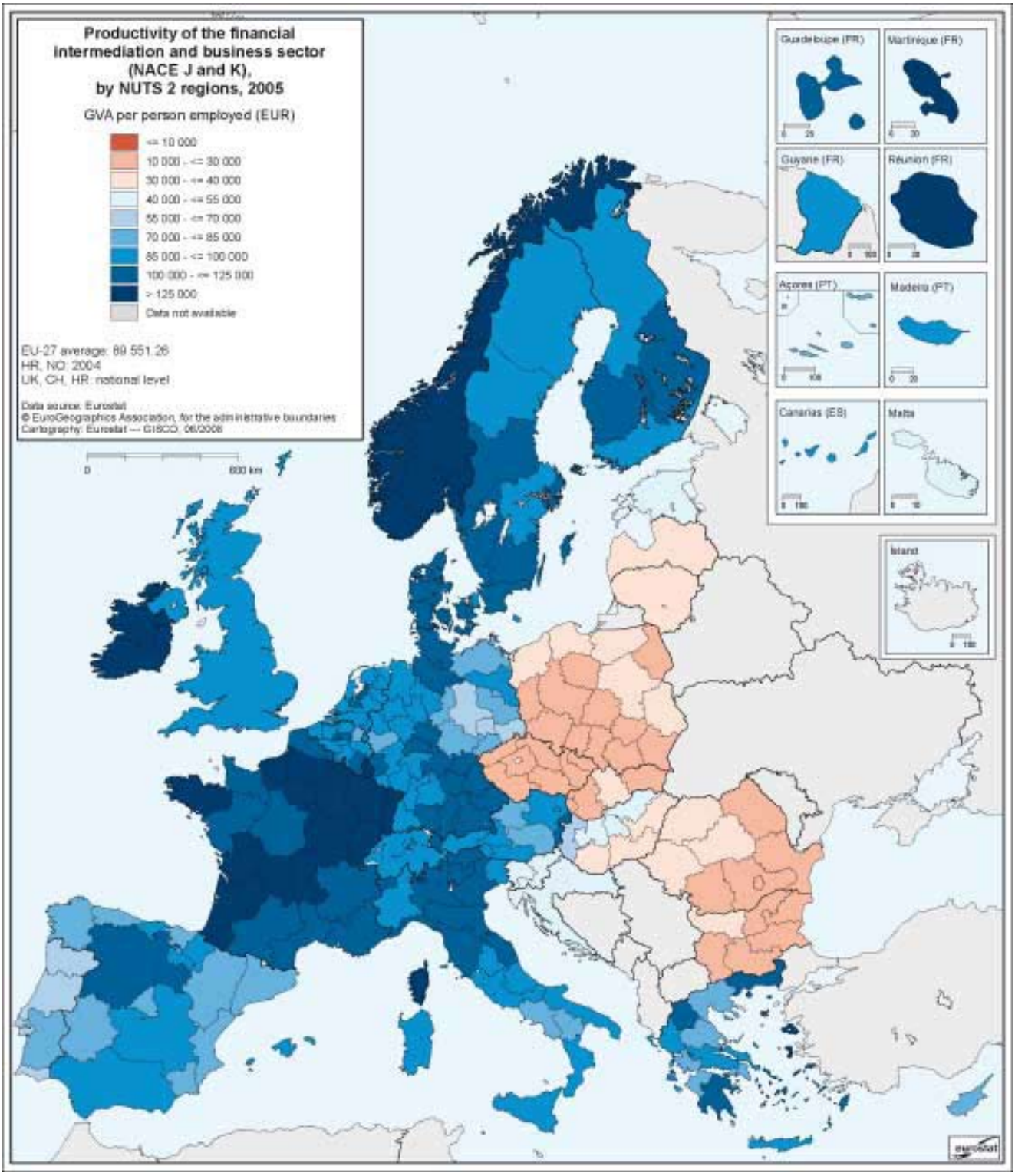
In contrast, the productivity in all of the 56 regions in the EU-12 is below the EU average, the sector's average productivity being only 35 % of the EU average. As can be seen in Map 7.1, the highest productivity is in Cyprus and Malta, followed by Slovenia, Estonia and the seven Hungarian regions.

The regions with the lowest productivity are all in Bulgaria, in the north of the Czech Republic, followed by the south and centre of the country, except for the region of Prague, and the eastern regions of Romania.

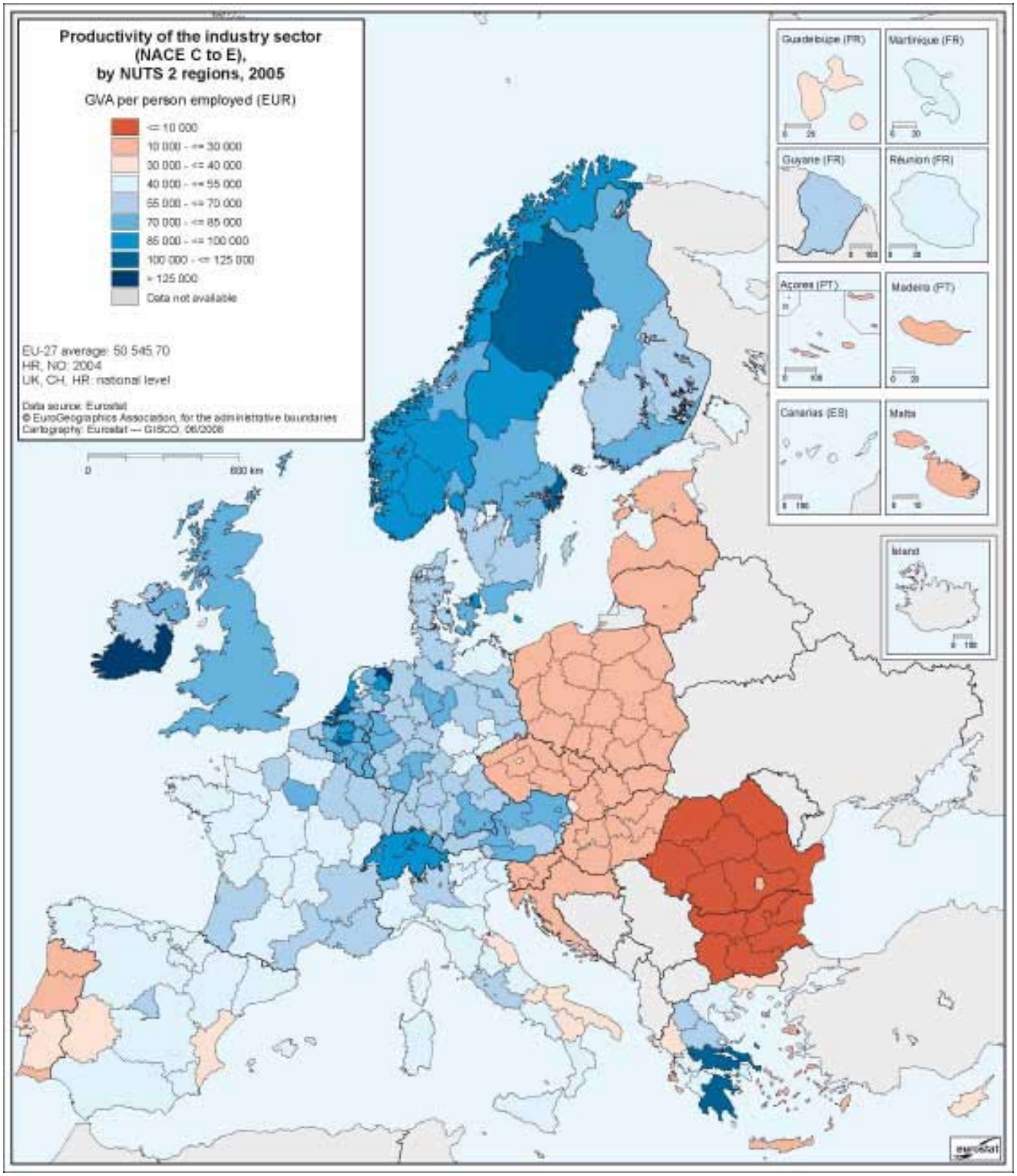
Map 7.2 on the productivity of total industry shows the same division between the old and the new Member States, a clear distinction between

([4]) The UK is analysed at national level, due to lack of regional data. Normally, the total number of regions in the EU-15 would be 216, which makes 271 (NUTS 2) regions for the whole of the EU.

Map 7.1: Productivity of the financial intermediation and business sector (NACE J and K), by NUTS 2 regions, 2005
GVA per person employed (EUR)



Map 7.2: Productivity of the industry sector (NACE C to E), by NUTS 2 regions, 2005
GVA per person employed (EUR)



the EU-10 and Romania and Bulgaria, and more regional variation in the EU-15.

The number of regions with above-average productivity is 122, all in the EU-15. Groningen in the north of the Netherlands ranks the highest. The most productive regions include a further two Dutch regions, Zeeland and Zuid-Holland, and Southern and Eastern in Ireland, Brabant Wallon, Antwerpen and the capital region in Belgium, Sterea Ellada in Greece, the Övre Norrland in the north of Sweden, the regions of Stockholm and Hamburg.

Standing at half the EU average productivity, Portuguese industry has the lowest productivity among the old Member States, followed by the Iperios region in the north of Greece, the Greek islands, the Spanish Extremadura and Comunidad Valenciana, and the regions of southern Italy.

The level of productivity of total industry is three times lower in the EU-12 than in the EU-15. Cyprus is the region with the highest productivity. The other regions with relatively high productivity in total industry are the Slovak, Czech and Hungarian capital regions, the whole of Slovenia and Malta, followed by other Czech, Hungarian and Polish regions.

As shown in Map 7.2, Bulgaria and Romania have the lowest values for productivity in the sector.

The importance of the two sectors is visibly not the same for the old and the new Member States. Despite low productivity levels in the EU-12, the importance of the industry sector is higher than in the EU-15 (See Table 7.1).

While the industry sector in the EU-12 employs nearly a quarter of all employed people, it also accounts for a quarter of countries' total GVA. In the EU-15, it represents less than a fifth of total GVA and only 17 % of total employment.

The situation in the financial intermediation and business sector is the reverse. The sector's share of total GVA is only 18 % in the EU-12, but more than a quarter in the EU-15. Finally, the number of people working in the sector in the EU-15 is twice as high as in the EU-12.

How has sectoral productivity developed in recent years?

As shown in Figure 7.2, the real estate, renting and business activities sector has generated one of the highest employment growths in the EU-27. It grew by nearly 3 % a year between 2000 and 2005. This has led to an increase in employment of 3.5 million jobs in this sector. In addition, GVA growth between 2000 and 2005 was also very strong, at 2.7 % a year. In short, this sector has generated very high employment and GVA growth in recent years and is clearly one of the EU's growth sectors.

The manufacturing sector, however, saw its total employment shrink between 2000 and 2005, at an average of –1.1 % a year or a loss of 2.3 million jobs. Manufacturing GVA grew by 0.8 % a year between 2000 and 2005, less than half of total GVA growth of 1.8 %.

Financial intermediation also had very high growth in GVA. The sector with the biggest increase in GVA, however, is transport, storage and communication, with an average annual increase of 3.1 %. Employment in transport, storage and communication, however, grew very little.

Productivity grows when GVA increases …

To illustrate the growth in the regions of these sectors between 2000 and 2005, this section looks once more at the six-sector breakdown.

Map 7.3 shows the regional growth of GVA in the financial intermediation and business sector between 2000 and 2005. GVA growth in this sector was almost universally positive, with only a few exceptions: all regions in Slovakia, with the exception of the capital region, Severovýchod in

Table 7.1: GVA per person employed and sector share of total GVA, in the EU-15 and 12 new Member States (NMS), 2005

Percentage

Sector	GVA per person employed EU-27=100, 2005		Sector share of total GVA, 2005	
	EU-15	NMS	EU-15	NMS
Financial intermediation and business (NACE J and K)	208	68	28	18
Industry (NACE C – E)	140	33	19	26

the north-eastern part of the Czech Republic and a few regions in the Netherlands and Germany. Switzerland and Croatia experienced a contraction of GVA in this sector.

Moreover, 158 of the 236 EU regions displayed on the map had growth rates above the average for the sector, including the vast majority of the regions in the new Member States, with some Romanian regions growing at a rate of more than 10 % a year. Thus, despite low productivity levels in 2005, as shown above, GVA grew fast in the 12 new Member States, reaching an average rate of 3.8 %, double the average for the Member States of the former EU-15.

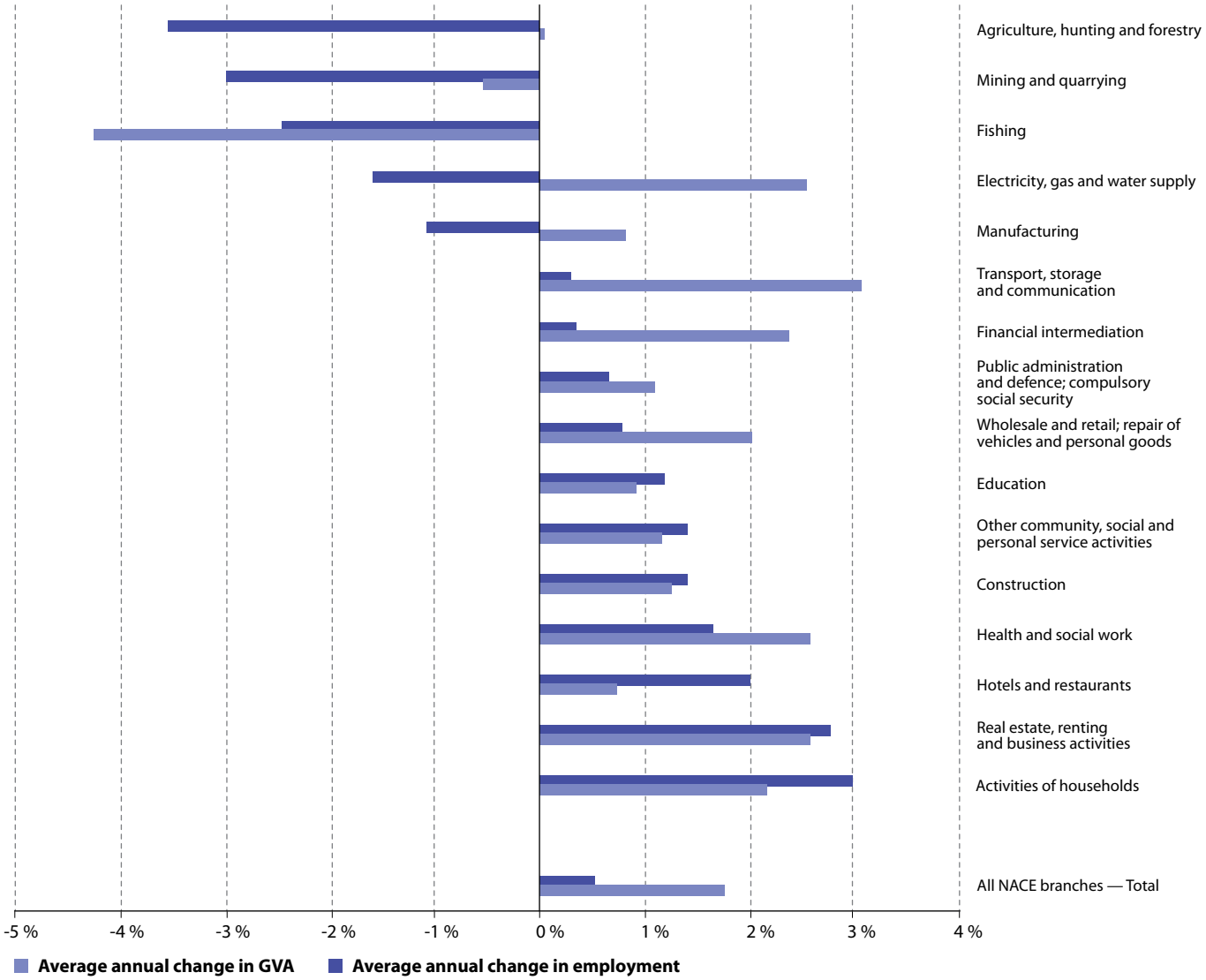
In contrast to the financial intermediation and business sector, the growth rate of GVA in total industry was less than half the total GVA growth rate at EU level. At regional level, however, growth in industry GVA trailed total GVA growth only in 50 out of 236 regions. This was the case for Italy, Denmark and the UK; the others were concentrated in Portugal, Belgium and the Netherlands (See Map 7.4).

In the new Member States, the growth of GVA in total industry, at 4 % a year against 0.7 % in the EU-15, is further evidence of its importance, as mentioned previously.

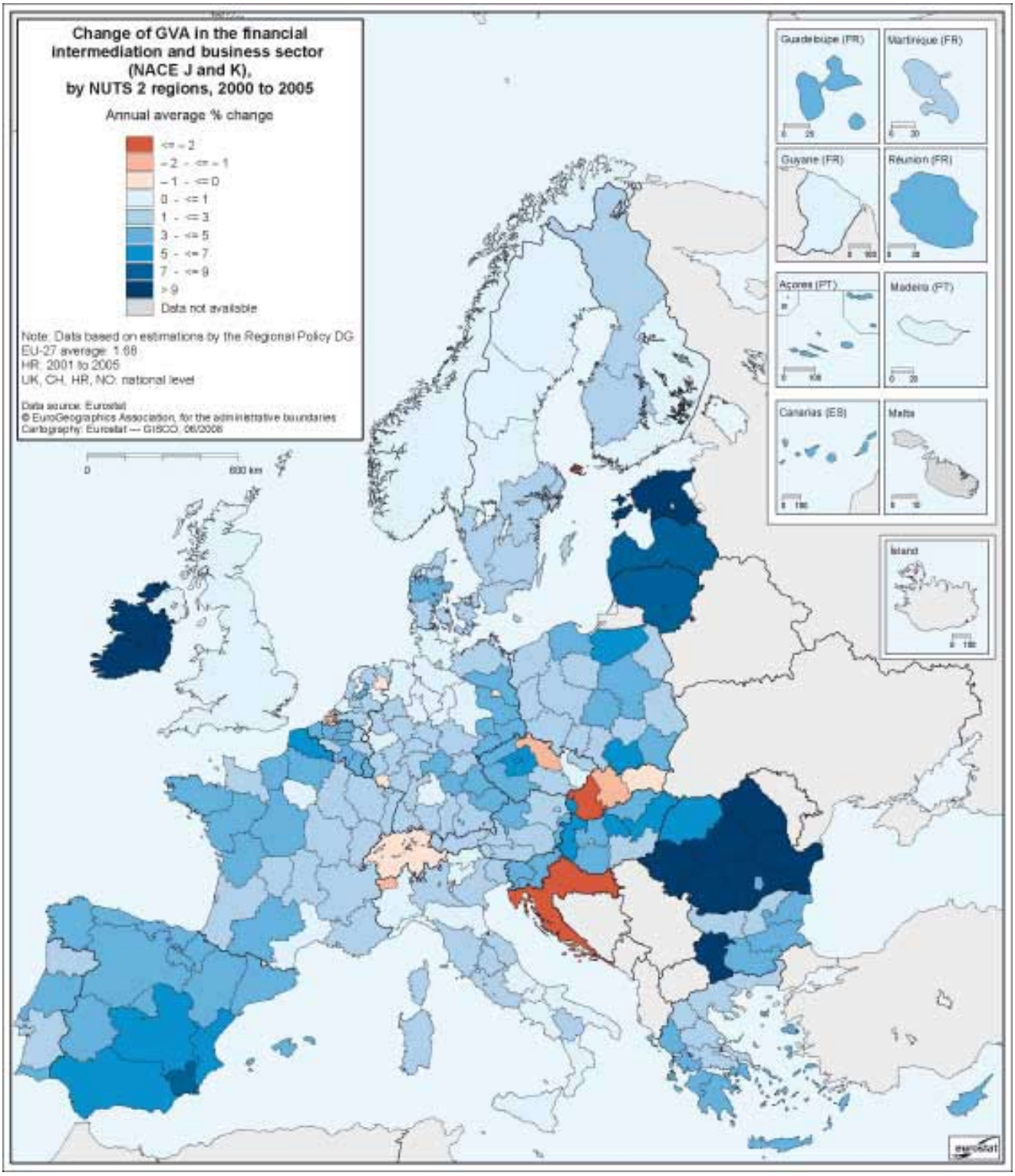
… or when employment decreases

Map 7.5 shows a similar picture for the growth of employment in the financial intermediation and business sector to the growth of GVA.

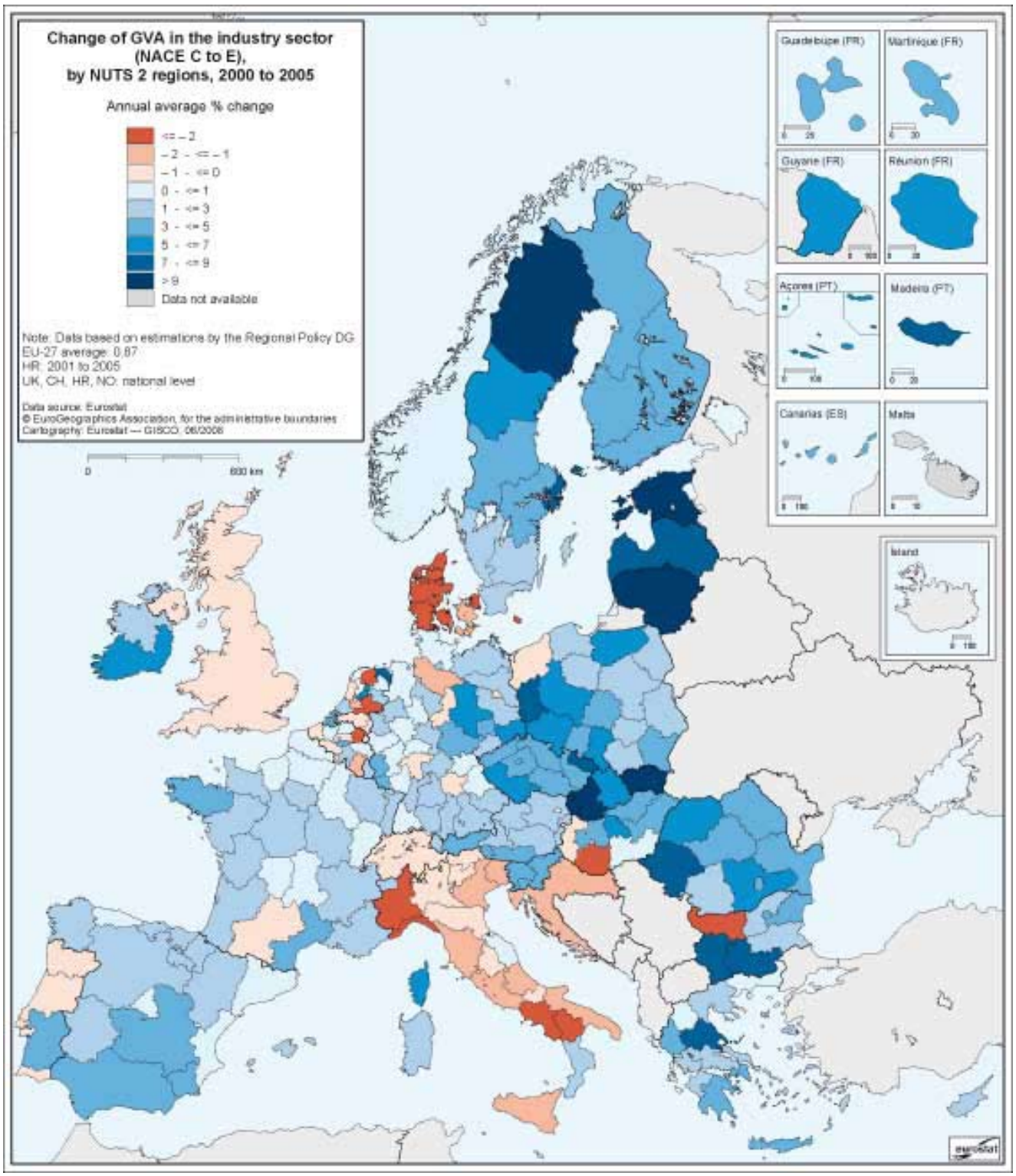
Figure 7.2: Changes in GVA and employment in 16 sectors, 2000–05
Average annual change



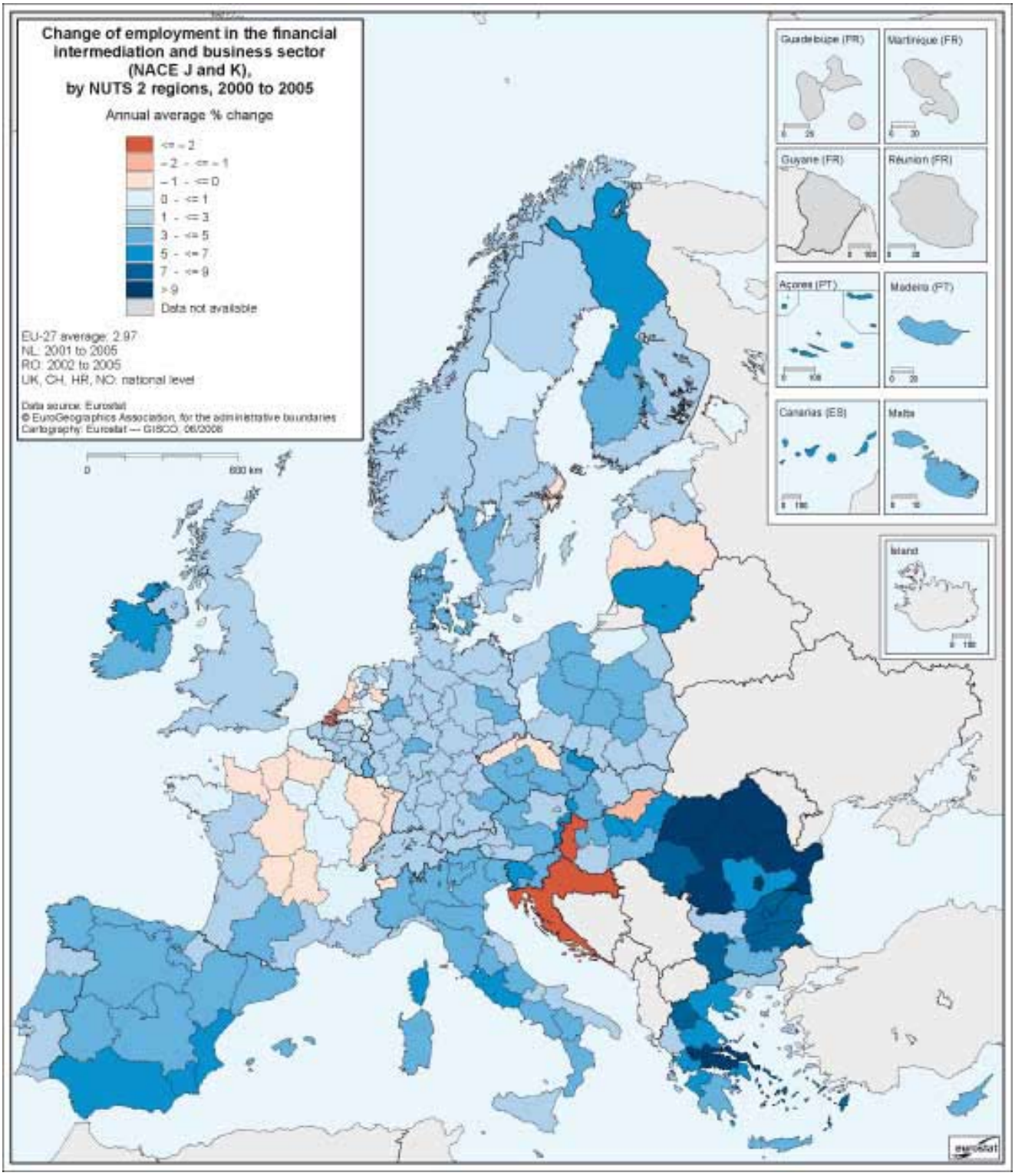
Map 7.3: Change of GVA in the financial intermediation and business sector (NACE J and K), by NUTS 2 regions, 2000 to 2005
Annual average % change



Map 7.4: Change of GVA in the industry sector (NACE C to E), by NUTS 2 regions, 2000 to 2005
Annual average % change



Map 7.5: Change of employment in the financial intermediation and business sector (NACE J and K), by NUTS 2 regions, 2000 to 2005
Annual average % change



The sector experienced very high employment growth between 2000 and 2005 of five times the growth rate for all sectors. The regional distribution of this employment growth is generally even, with high growth everywhere except in the Netherlands, France and a few regions in the new Member States.

The highest growth rates were recorded in Greece, the two most recent members, Romania and Bulgaria, and Spain.

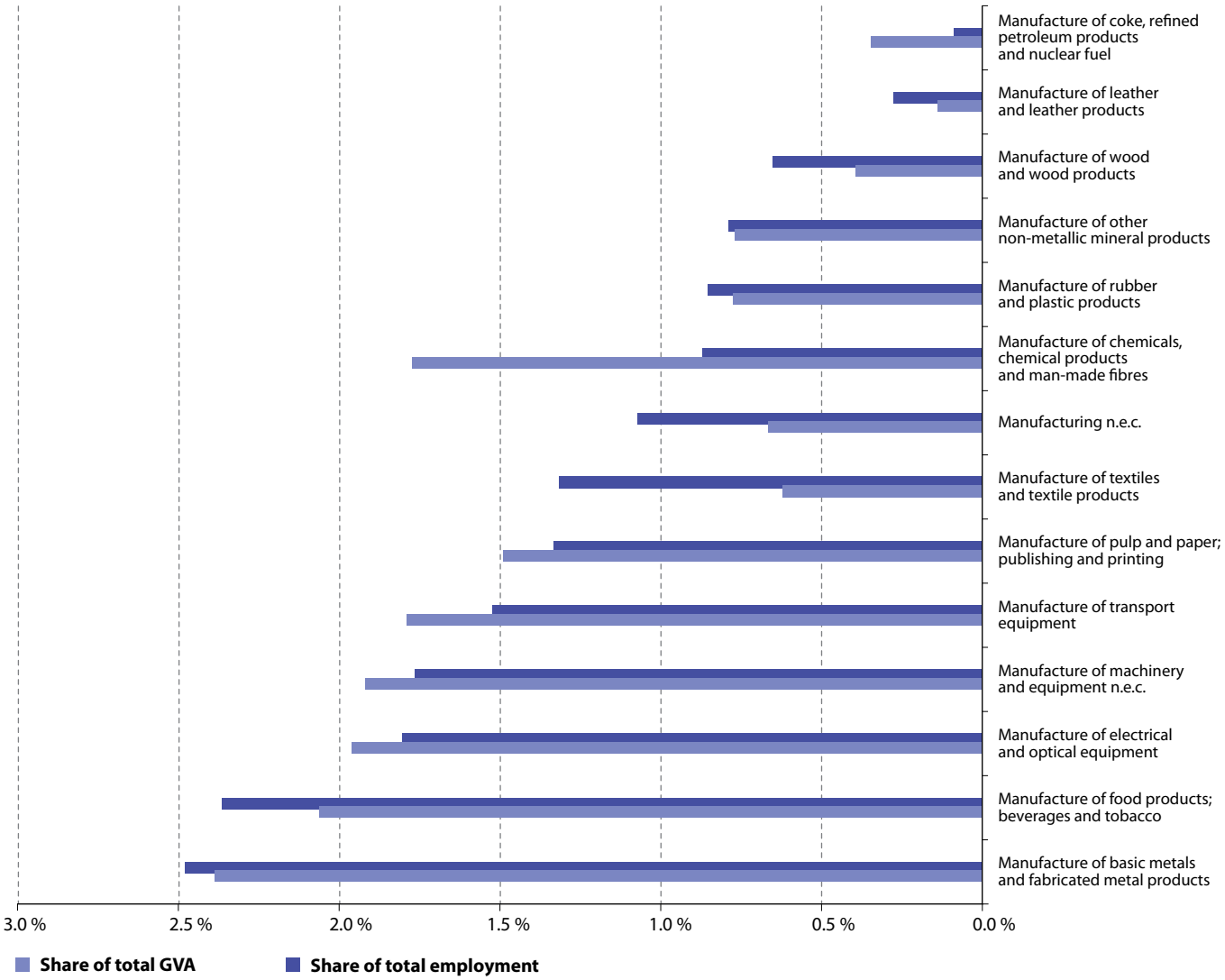
Map 7.6 on the change of employment in industry leaves no doubt that the sector is on the way to losing its position as the EU's top employer. The decline of people employed in industry is in evidence in almost all the regions, with the exception of a few regions in Italy, the new Member States and Spain, which experienced strong growth.

Manufacturing vs knowledge economy

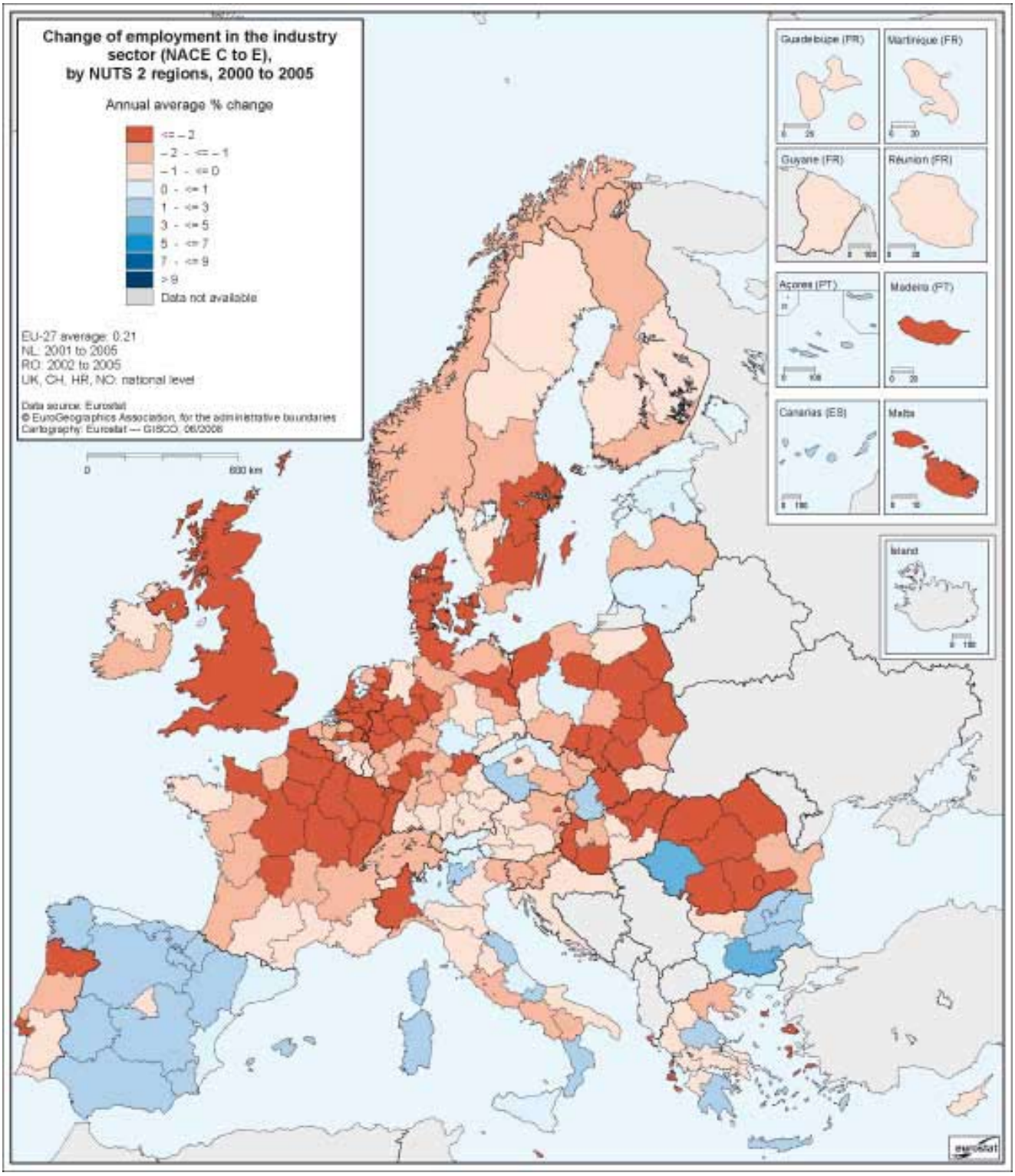
While real estate, renting and business activities (the same applies to financial intermediation) are defined by Eurostat as knowledge-intensive services, thus making them part of the definition of knowledge economy as a whole, this is not the case for manufacturing.

Only four of the 14 sub-sectors of manufacturing in Figure 7.3 — manufacture of electrical and optical equipment (NACE sub-section DL),

Figure 7.3: Share of GVA and employment in manufacturing (NACE D), 2005
Percentage



Map 7.6: Change of employment in the industry sector (NACE C to E), by NUTS 2 regions, 2000 to 2005
Annual average % change



manufacture of machinery and equipment n.e.c. (DK), manufacture of transport equipment (DEM) and manufacture of chemicals, chemical products and man-made fibres (DG) — use high or medium-high technology and are thus considered to be part of the knowledge economy.

These four sub-sectors displayed the highest productivity in the EU in 2005. In general, high and medium-tech manufacturing employment declined a little, but the downswing in the other manufacturing sectors was much stronger. GVA growth in the high and medium-high technology manufacturing sectors was far higher than in the low and medium-low technology sectors.

The same applies to knowledge-intensive services in comparison to less knowledge-intensive services, such as the hotels and restaurants sector, public administration and defence, activities of households, and so on.

The knowledge economy covers almost 40 % of total employment within the EU-27, and this share is growing. It includes sectors which are most likely to create growth as they tend to be less labour-intensive, have higher valued added per person employed, are less exposed to globalisation, use highly skilled labour and thus have the capacity to innovate and create, and turn new ideas into value. Indeed, innovation, skills, enterprise and competition are the main drivers of increases in long-term productivity.

In 2005, the most important manufacturing subsectors in terms of employment were: manufacture of basic metals and fabricated metal products (DJ), manufacture of food products, beverages and tobacco (DA) — both with lower technological intensity — manufacture of electrical and optical equipment (DL), manufacture of machinery and equipment n.e.c. (DK) and manufacture of transport equipment (DEM).

These five sub-sectors each account for between 1.5 % and 2.5 % of total employment in the sector. Only one of these five important manufacturing sub-sectors, manufacturing of transport equipment, increased its share of employment. The only other sub-sector to experience an increase in employment is manufacturing of rubber and plastic products, which is classified as using mostly low technology.

The share of GVA in the 14 sub-sectors follows a similar path. The sub-sectors with the highest share are: manufacture of basic metals and fabricated metal products (DJ), manufacture of food products, beverages and tobacco (DA), followed by the four high and medium-technology sub-sectors: manufacture of electrical and optical equipment (DL), manufacture of machinery and equipment n.e.c. (DK), manufacture of transport equipment (DEM) and manufacture of chemicals, chemical products and man-made fibres (DG).

Between 2000 and 2005, only two sub-sectors saw their GVA decline: manufacture of leather and leather products and manufacture of textiles and textile products, both classified as low technology. These two sub-sectors also lost the highest share of employment and are included in the analysis of the Regional Policy DG as sectors vulnerable to increased global competition.

Two sub-sectors experienced very high increases in GVA: manufacture of electrical and optical equipment and manufacture of chemicals, chemical products and man-made fibres. Two more subsectors experienced above-average increases in GVA: manufacturing of rubber and plastic products and manufacturing of transport equipment.

Conclusion

The analysis shows that the decades-old trend of a shift from the primary and secondary sectors to the service sector, from less productive to more productive sectors, and from the less knowledge-intensive economy to the knowledge economy continues.

We can distinguish between two types of regions in the EU: regions with a low share in the high value added sectors (but very high growth rates) and persistently high shares in the less value added and less knowledge-intensive sectors, and regions with a high share (but lower growth rates) in the high value added and more knowledge-intensive sectors, such as real estate, renting and business activities and the high and medium-tech manufacturing sector.

The majority of the regions in the first group fall under the convergence objective of the European cohesion policy ([5]). Similarly, most of the regions in the second group fall under the regional competitiveness and employment objective (RCE) of the European cohesion policy. This suggests that, in the RCE regions, the high value added and knowledge-intensive sectors have been the main drivers of growth, and economic restructuring towards these sectors can also play a crucial role in helping the convergence regions to catch up. This has several implications from a policy point of view.

([5]) Convergence regions are the NUTS 2 regions whose GDP per inhabitant, measured in purchasing power parities for the period 2000–02, is less than 75 % of the average GDP of the EU-25 for the same period. All the non-convergence regions are eligible under the regional competitiveness and employment objective.

The main challenges in the convergence regions, located mainly in the new Member States, are the huge employment loss in the primary sectors and the emerging competition from the Asian economies in the low value added sectors.

The first challenge calls for measures to ensure the flow of the labour force from declining to expanding activities. Skill requirements for the newly created jobs in the service sector, however, tend to be higher than those for the jobs lost in manufacturing. Hence, convergence regions should focus on improving the level of education of their labour forces and increasing their share of knowledge workers. In the meantime, the issue of lifelong learning presents itself as a genuine means of shortening periods of unemployment.

Secondly, these regions will need to modernise and diversify their economic structure into high value added sectors. Industry is bound to remain an important sector for convergence regions, at least in the medium term. Therefore, it is important to reorientate production towards high productivity and value added activities by creating the conditions for business, and particularly SMEs, to adopt and adapt innovative products and processes, to establish cooperation networks with other enterprises and with research institutes, to access risk capital and to internationalise their activities. Currently, around 80 % of all resources under the European cohesion policy are available to convergence regions, with a substantial amount going to economic restructuring.

In the RCE regions, the challenge lies in maintaining and possibly increasing the competitiveness of these regions in the high value added sectors, not only in Europe but also and especially in relation to regions of the United States. Investment in research and development (R & D) has a key role to play in deciding who has a competitive edge. Investment in R & D in the RCE regions is almost three times higher than in the convergence regions but lower than in US regions.

This clearly underlines the focus of European cohesion policy in RCE regions towards more innovation, as underscored in particular by its contribution to achieving the aims of the renewed Lisbon strategy.

In this respect, the European cohesion policy requires old Member States to earmark at least 75 % of the funds for their RCE regions and 60 % of the funds for the convergence regions in investment categories that are particularly conducive to growth, 'such as R & D, physical infrastructure, environmentally friendly technologies, human capital and knowledge'. Earmarking was not compulsory for the new Member States, but they also focus a substantial amount of their investment on these types of investments.

Most of the Member States have engaged in the exercise and the earmarking targets have been reached. An amount of around EUR 210 billion has been earmarked in support of these investments, an increase of over EUR 55 billion compared with the programming period 2000–06.

Methodological notes

A common definition of productivity is 'a ratio of a volume measure of output to a volume measure of input use' (OECD, 2001). A volume measure of regional (and sectoral) GVA is the preferred measure for output. GVA is preferable to GDP at regional level also, because it excludes taxes or subsidies on products that are difficult to attribute to local units. To measure productivity at regional and sectoral levels, GVA is divided by the number of people employed, referred to also as labour productivity. Labour productivity provides a better indicator than GVA per inhabitant because it is not distorted by potential regional demographic differences, including different dependency ratios. Nor is it distorted by cross-regional commuting that causes disparities between the number of people who live in a region and the number who work there.

However, GVA per person employed does not take account of the balance between different sectors in a region. Nor does it take regional labour market structures or different working patterns into consideration, such as the possible mix of part- and full-time workers, home workers, and so on. Therefore, GVA per hour worked is a more appropriate measure of productivity, because it apportions GVA to the total hours worked by the workforce.

Up until now, regional figures for total number of hours worked are still estimates. In future, systematic collection of regional data for hours worked will become available. Data availability will improve substantially from 2008 onwards.

Another issue is the availability of regional deflators for GVA. Regional GVA is not available at constant prices. As a result, growth rates cannot be calculated. In this chapter, sector-specific regional GVA at current prices has been used to regionalise sector-specific national-level GVA at constant prices.

As regards the sectoral breakdown of regional GVA and employment data, as of this year, regional accounts only provide a six-sector breakdown for NUTS 2 regions.

The six sectors are:

Sections A + B:	Agriculture, forestry and fishery
Sections C–E:	Mining, manufacturing, electricity, gas and water supply
Section F:	Construction
Sections G–I:	Wholesale and retail trade, repair of vehicles and personal goods, transport, storage and communication
Sections J + K:	Financial intermediation
	Real estate, renting and business activities
Sections L–P:	Public administration and defence; compulsory social security
	Education
	Health and social work
	Other community, social and personal service activities
	Activities of households

The availability of regional accounts data at NUTS 2 level is not complete: for Malta, no GVA and, for the UK, no regional GVA and employment figures are available.

8

Labour costs

Introduction

The labour cost survey is one of the cornerstones of the existing system of major European structural surveys in the business sector. Eurostat has been collecting, processing and publishing regional labour-cost data by economic activity for more than 20 years.

Eurostat's website currently contains regional data on labour costs for the reference years 1996, 2000 and 2004. The user thus has access to detailed regional figures on labour costs (including/excluding apprentices), direct remuneration, employers' social security contributions, the structure of labour costs (as a percentage of total labour costs), the number of employees, the number of hours actually worked and paid per employee, and the number of statistical units.

Labour costs are a major part of the production costs for goods and services and correspond to the costs borne by the employer for employing staff. Although the costs of labour as a factor of production are not alone decisive for a business's choice of site, in terms of competition their importance alongside criteria such as productivity, availability of well-qualified specialist staff, tax conditions and the provision of infrastructure should not be underestimated. It is also important to know whether the regions whose level of labour costs is under consideration are home to predominantly knowledge-intensive, capital-intensive or labour-intensive industries.

In 2004 average labour costs across the EU-27 in businesses with 10 or more employees in manufacturing and market services (i.e. NACE sections C to K) amounted to EUR 20.58 per hour worked. There are considerable differences between the regions of Europe, however, with regard to the level and structure of labour costs.

Hourly labour costs

Map 8.1 clearly shows the substantial regional differences in the level of labour costs per hour worked in manufacturing and market services. A north–south gradient and an east–west divide are relatively clear to see. With EUR 37.29 per hour, the region of Île-de-France has the highest average labour costs in the EU. This is 23 times as high as the average in Bulgaria, which has the lowest labour costs at EUR 1.61 per hour. The figures for the 10 regions with the highest average labour costs are as follows ([6]): EUR 37.29 per hour for Île-de-France (FR), EUR 32.99 per hour for Région de Bruxelles-Capitale/Brussels Hoofstedelijk Gewest (BE), EUR 32.93 per hour for London (UK), EUR 32.06 per hour for Hessen (DE), EUR 31.77 per hour for Hamburg (DE), EUR 31.14 per hour for Denmark, EUR 31.08 per hour for Sweden, EUR 30.80 per hour for Baden-Württemberg (DE), EUR 30.04 per hour for the Grand-Duchy of Luxembourg and EUR 29.76 per hour for Région Wallonne (BE).

The lowest average labour costs, on the other hand, are found in the following 10 regions or countries, which are without exception in the newer Member States: Bulgaria, Romania, Latvia, Lithuania, Wschodni (PL), Północno-Zachodni (PL), Północny (PL), Slovakia, Południowo-Zachodni (PL) and Estonia. Here average labour costs are less than EUR 4.50 per hour.

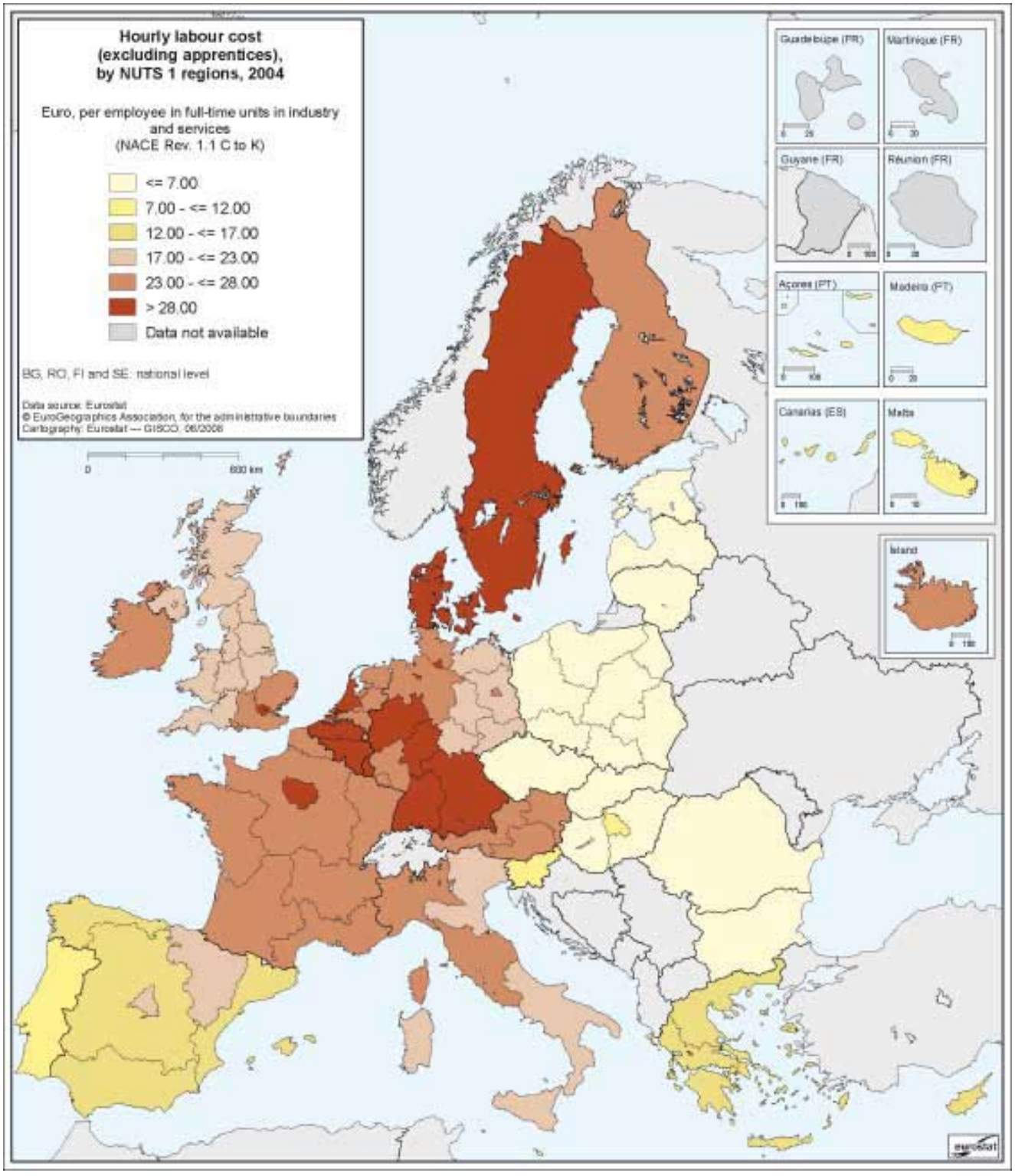
Figure 8.1 allows a more differentiated view of regional labour costs by economic activity. This shows, for example, separate figures for the energy sector or for specialist service companies in the financial sector with relatively high labour costs, and for economic activities such as wholesale and retail trade or hotels and restaurants, which are known to have relatively low costs. The database offers further data on labour costs in an even more detailed breakdown of economic activities.

Hours actually worked

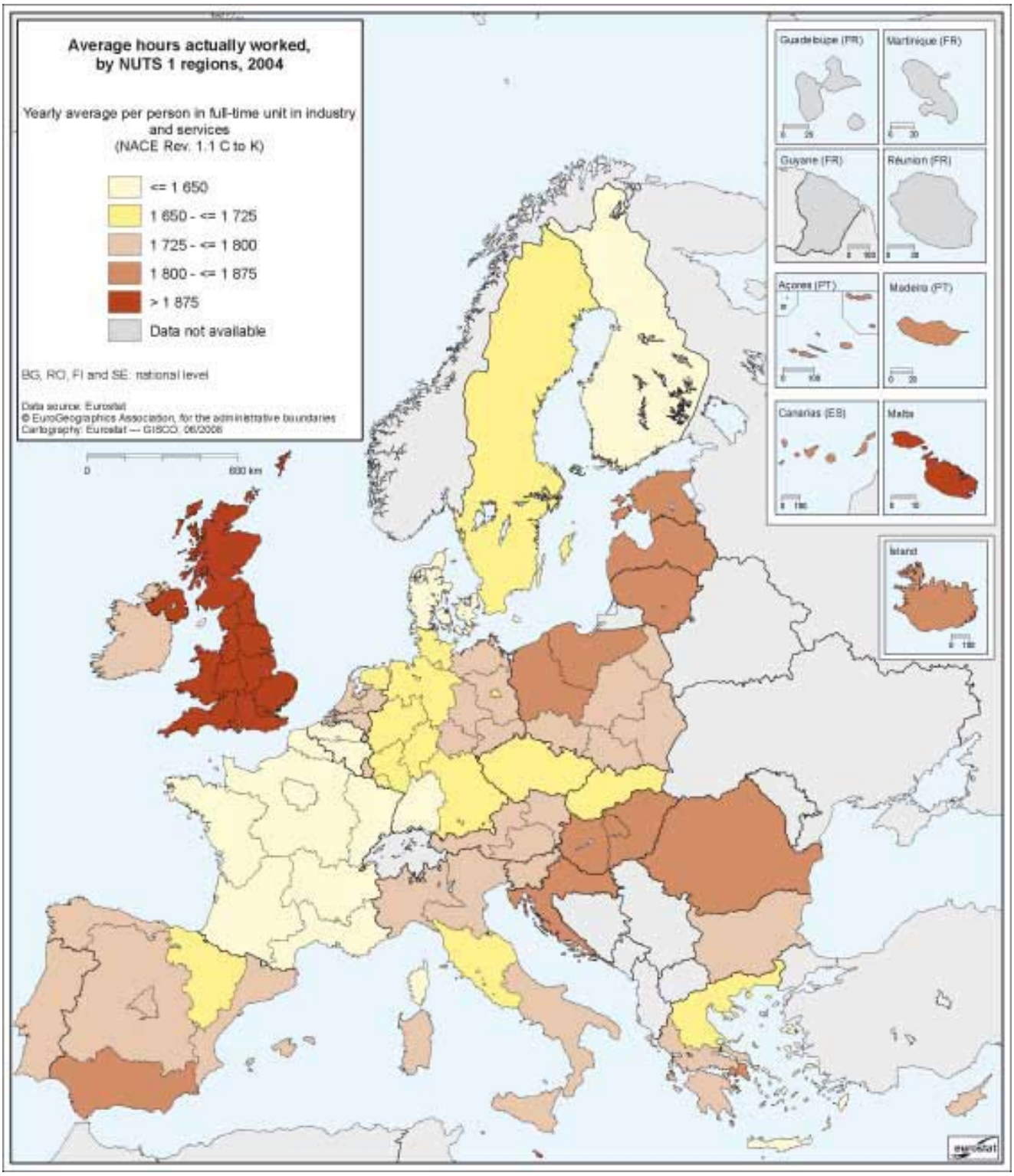
Map 8.2 shows a regional comparison of the average hours actually worked per year in manufacturing industry and market services in the EU-27. In 2004 the average number of hours actually worked per employee (in full-time equivalents) was more than 1 875 in all regions of the United Kingdom and in Malta. The average hours worked per employee are lowest, at 1 650 or less, in all regions of France, in the three Belgian regions (Région Wallonne, Vlaams Gewest, Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest), in the Greek regions of Nisia Aigaiou and Kriti, in Finland and Denmark (where only national data are available) and in Baden-Württemberg in Germany. In this comparison the particular national legislative arrangements and habits concerning working time, which can also vary from one sector of activity to another (hotels and restaurants, transport, construction), must naturally not be forgotten. The average time worked is also affected by the prevailing economic situation (full order books on the one hand, or short-time working and plant closures on the other). In

([6]) Labour-cost data for BG, RO, FI and SE are at present available only at national level.

Map 8.1: Hourly labour cost (excluding apprentices), by NUTS 1 regions, 2004
Euro, per employee in full-time units in industry and services (NACE Rev. 1.1 C to K)



Map 8.2: Average hours actually worked, by NUTS 1 regions, 2004
Yearly average per person in full-time unit in industry and services (NACE Rev. 1.1 C to K)



connection with the labour-cost survey the regional database offers users additional information on working time, such as the number of employees and the corresponding total number of hours actually worked and paid, broken down by full-time and part-time workers and in full-time equivalents. Here too the data are available at the level of the two-digit NACE divisions.

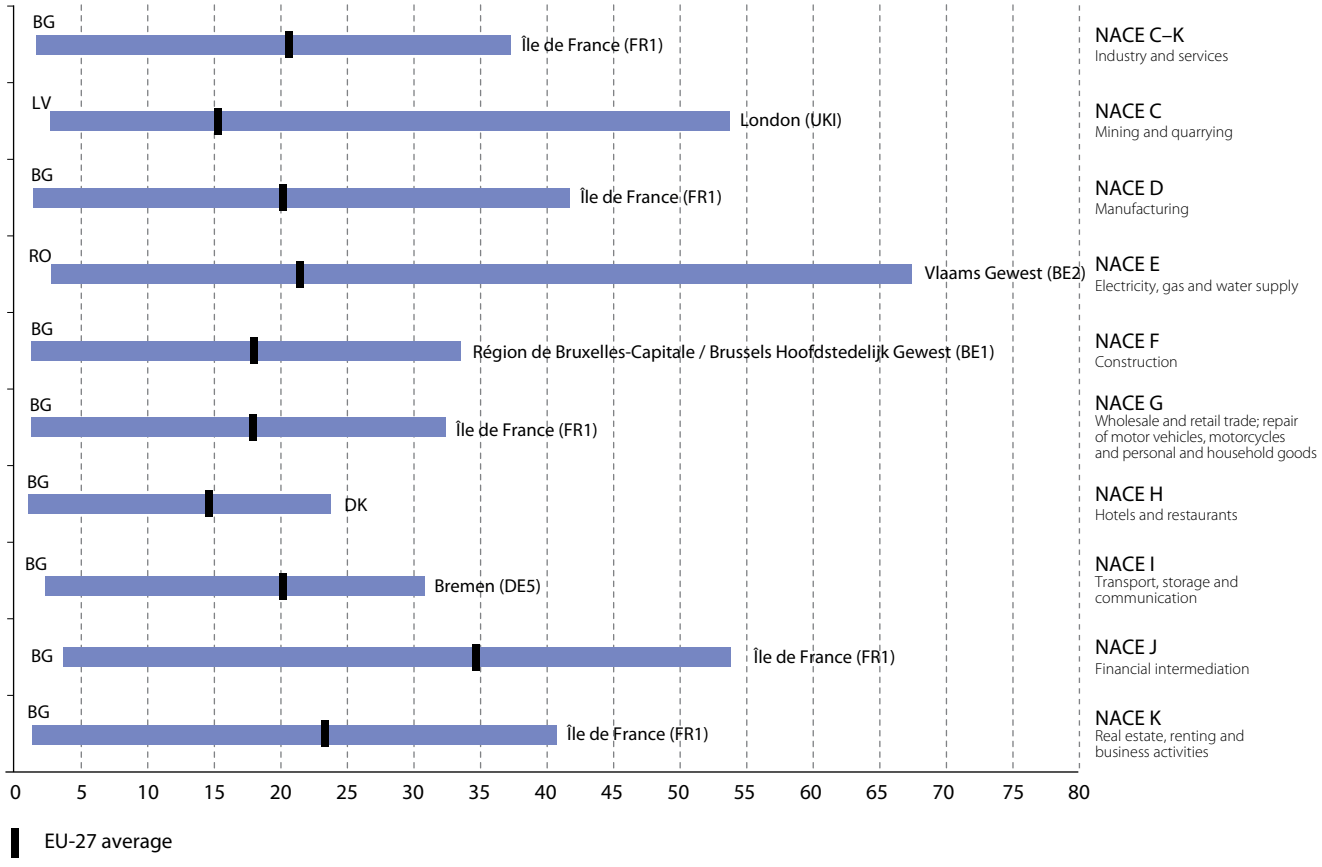
Structure of labour costs

Map 8.3 gives an idea of the share of employers' actual social contributions in labour costs in industry and services in the various regions in 2004. This comparison too must be seen against the background of the particular national legislative arrangements and social-security models.

The 10 regions with the highest proportions include the two regions Vlaams Gewest (30.4 %) and Région Wallonne (29.7 %) in Belgium, Sweden (29.3 %) and the Hungarian region of Dunántúl (27.9 %), followed by two regions in Italy (Nord-Ovest with 27.1 % and Nord-Est with 26.9 %) and finally the four French regions of Sud-Ouest (26.7 %), Nord — Pas-de-Calais (26.7 %), Est (26.6 %) and Centre-Est (26.5 %).

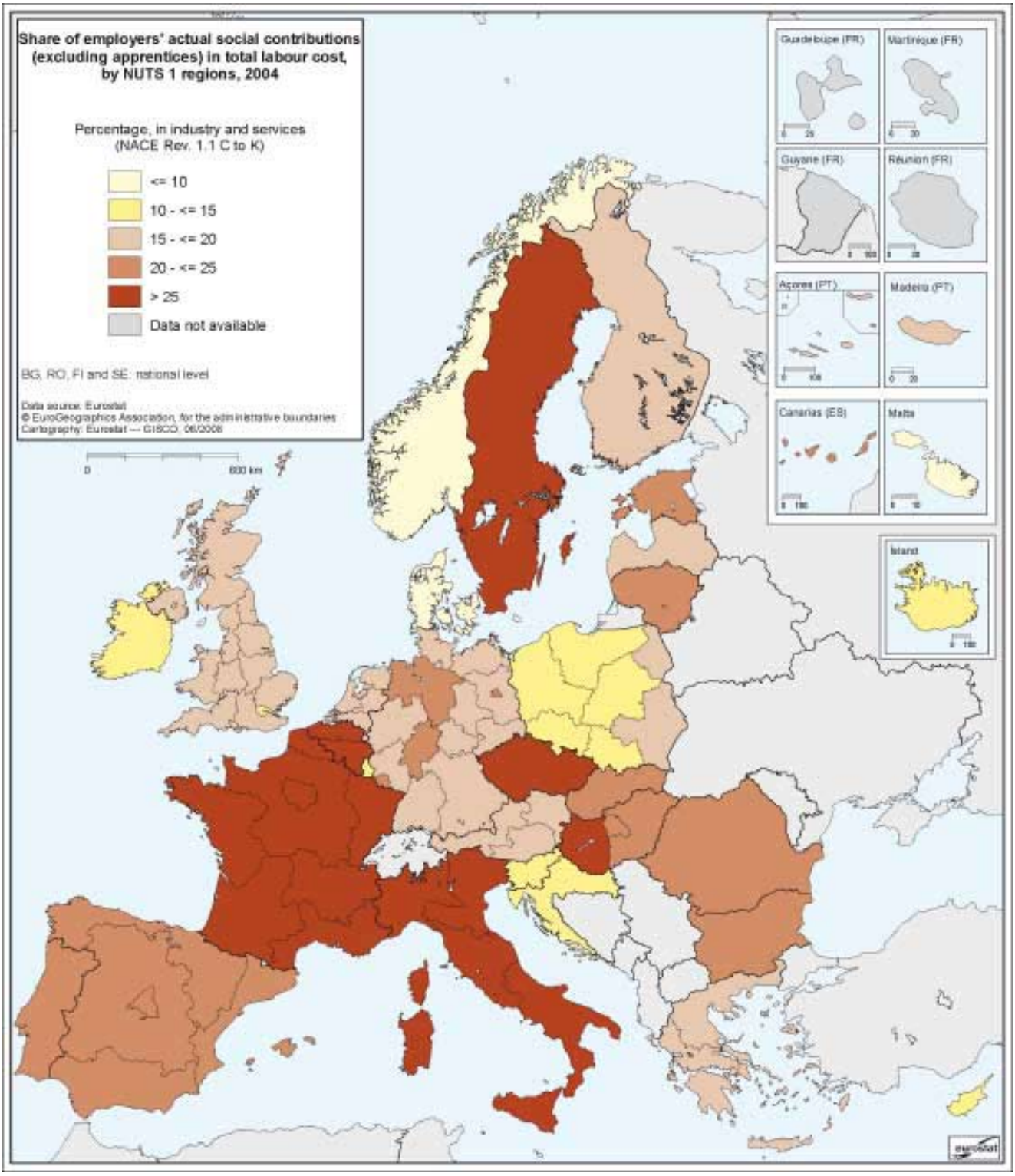
Among the 10 regions with the lowest shares of employers' actual social contributions in labour costs across the EU we find, besides four Polish regions, mainly the smaller Member States of the EU. The share of employers' actual social contributions in labour costs is thus lowest in Malta (6.2 %), Denmark (10.0 %), Slovenia (12.4 %), Ireland (12.8 %) and the Grand-Duchy of Luxembourg (13.1 %), followed by the region of Centralny in Poland (14.0 %), Cyprus (14.2 %), the capital region of London in the United Kingdom (14.8 %) and finally three Polish regions (Północny with

Figure 8.1: Regional divergences of hourly labour costs, 2004
EUR per hour
The graph shows the region with the lowest and the region with the highest hourly labour cost by economic activity



Notes: BG, RO, FI and SE: national level

Map 8.3: Share of employers' actual social contributions (excluding apprentices) in total labour cost, by NUTS 1 regions, 2004
Percentage, in industry and services (NACE Rev. 1.1 C to K)



14.9 %, Południowy with 14.9 % and Północno-Zachodni with 15.0 %).

It is also worth mentioning that Norway (6.0 %), Croatia (13.0 %) and Iceland (13.4 %) likewise fall within this lower band.

Anyone who wants to look more closely into the regional structure of labour costs will find information in the database on the following labour-cost components: wages and salaries (total), wages and salaries (excluding apprentices), direct remuneration, bonuses and allowances (excluding apprentices), payments to employees' saving schemes, payments for days not worked (excluding apprentices), wages and salaries in kind (excluding apprentices), gross wages and salaries of apprentices, employers' social contributions (total), the abovementioned employers' actual social contributions (excluding apprentices), employers' imputed social contributions (excluding apprentices) and employers' social contributions for apprentices. The shares in labour costs of vocational training costs (excluding apprentices), other expenditure and employment-related taxes and subsidies can also be found in the database.

Conclusion

The examples given above are intended merely to provide a few fragmentary glimpses of the area covered by the EU labour cost survey and therefore by no means exhaust the possibilities of data analysis by EU region in this field. In any case we hope they will encourage readers to explore Eurostat's website in search of further interesting discoveries.

Methodological notes

The source for information on regional labour costs down to NUTS level 1 is the EU labour cost survey. This survey is conducted every four years in the Member States of the European Union on the basis of Council Regulation (EC) No 530/1999 and Commission Regulation (EC) No 1737/2005.

The survey's population comprises all businesses with 10 or more employees. Although in 2004 the scope of the survey was extended for the first time to the sectors M (Education), N (Health and social work) and O (Other community, social and personal service activities), we have confined ourselves here to sectors C to K, i.e. manufacturing and 'market' services, in the Statistical Classification of Economic Activities in the European Community (NACE Rev. 1.1).

The purpose of the survey is to measure the level and the structure of labour costs.

In the labour cost survey detailed information is sought for the calculation of the various components of labour costs. Besides wage components (e.g. direct remuneration, bonuses and allowances, payments to employees' saving schemes, payments for days not worked, wages and salaries in kind) these also include a multitude of social security contributions payable by the employer (statutory, under collective agreements, contractual or voluntary), together with employers' 'imputed' social contributions (e.g. guaranteed remuneration in the event of sickness or payments to employees leaving the business). Costs of vocational training and taxes and subsidies relating to the employment of staff are also recorded.

At the same time questions are asked on the number of full-time jobs and the number of hours worked and paid.

It should also be noted that for Bulgaria, Romania, Finland and Sweden data on labour costs were available only at national level. The same goes for a number of smaller Member States, where the NUTS 1 level corresponds to the whole country: Cyprus, the Czech Republic, Denmark, Estonia, Ireland, Latvia, Lithuania, Luxembourg, Malta, Slovakia and Slovenia. For France's overseas departments no labour-cost data are supplied.

Data for Iceland, Norway and Croatia (where the statistical region at Level 1 also corresponds to the whole country) are only partially available.

Definitions

Labour costs

Labour costs are the total expenditure borne by employers for the purpose of employing staff. This definition adopted by the Community closely follows the international definition laid down by the International Conference of Labour Statisticians (Geneva, 1966). These costs include compensation of employees (comprising wages and salaries in cash and in kind, and employers' social security contributions), vocational training costs, other expenditure (such as recruitment costs and expenditure on working clothes) and employment taxes regarded as labour costs minus any subsidies received. The costs for persons employed by temporary employment agencies are to be included in the sector of the agency which employs them (NACE Rev. 1.1, 74.50), not that of the business for which they actually work.

Besides average labour costs per hour worked, Eurostat also publishes average monthly labour costs and average annual labour costs. The figures are given for full-time workers, part-time workers and apprentices, and in full-time equivalents.

Average labour costs per hour are equal to total labour costs divided by the number of hours worked in the sector concerned.

Hours worked

The number of hours actually worked is defined as the sum of all periods spent on direct and ancillary activities to produce goods and services.

The average number of hours worked corresponds to the number of hours the person normally works. This includes all hours worked including overtime, regardless of whether they were paid or not. It excludes the travel time between home and the place of work, and the main meal breaks (normally taken at midday).

Full-time equivalents

The total number of employees comprises full-time workers, part-time workers and apprentices. Part-time workers have been converted to full-time equivalents on the basis of the hours worked. In the observations presented here, apprentices have been disregarded.

Employers' actual social contributions (excluding apprentices)

These consist of payments made by employers for the benefit of their employees to insurers (social security funds and other privately funded schemes such as occupational pension schemes). These payments are in the form of statutory, collectively agreed, contractual or voluntary contributions in respect of insurance against social risks or needs. Employers' actual social contributions are attributed to the period during which the work is done.

9

Transport

Introduction

Roads, railway lines and inland waterways, as well as seaports, airports and railway stations, form the basic transport infrastructure in the European regions. A modern transport infrastructure of a high standard is the basis for the mobility of goods and passengers and thus essential both for regional economic development and for the creation of an internal European market.

In keeping with the high importance of inland transport infrastructure for the economic development of the European regions, investments in road and rail infrastructure account for a major share of the Community's regional budgets.

The aim of regional transport statistics is to describe regions in terms of a set of transport indicators, and also to quantify the flows of goods and passengers between, within and through regions. In the 2008 edition of the Eurostat regional yearbook, the analysis of regional transport infrastructure provision is accompanied by an analysis of the regional distribution of road fatalities and a sharper focus on the top European regions with respect to the dynamic growth of air transport.

This chapter is divided into three main sections. The first of these sections deals with the regional distribution of motorways and railway lines within Europe, thus helping to identify the regions with comparatively high and low infrastructure densities. It reveals regional patterns of infrastructure provision, as well as differences between EU Member States and peripheral and central countries. The second section investigates the regional distribution of road fatalities. While the overall number of fatal road accidents in the European Union has fallen since 1991, significant regional disparities remain, providing an insight into the conditions that favour low fatality rates in road transport. The third section reviews the top 30 European regions in terms of air passenger and air freight transport and the growth of these regions between 2003 and 2006.

Transport infrastructure

The major importance of modern high-capacity transport links and hubs for all modes of transport for European economic integration has been recognised by the Union and its Member States via the definition of major trans-European transport axes within the framework of the trans-European networks (TEN). These have been a key component for the development of the single market and for promoting economic and social cohesion within the EU.

The implementation of these priority transport axes involves the enhancement and extension of existing regional transport infrastructure to include the trans-European axes that have been identified. However, the removal of transport bottlenecks, particularly on cross-border sections of the networks, is also important for the regions' improved accessibility. Enhancing the capacity of cross-border links has traditionally been neglected by nationally focused transport planning concepts, and so the EU is putting particular emphasis on their future development. In many cases transport bottlenecks are caused not only by an insufficient provision of physical infrastructure, but also by organisational constraints. This is especially true of rail transport, where the inherited organisation of the national railway companies, each with their own technical standards, hampers international traffic flows. However, in recent years, progress has been achieved. The extension of the Schengen area to include the eastern European countries in 2007 was a major step in terms of the mobility of goods and passengers on the roads.

From a regional perspective, an extensive network of roads, motorways and railway links is a prerequisite for economic development and interregional competitiveness.

Map 9.1 shows the density of the motorway network in the European NUTS 2 regions in 2006, expressed as kilometres of motorway per 1 000 km^2.

- In general, the density of the motorway network is closely correlated with population density and thus with the degree of urbanisation. The densest motorway networks can therefore be found in the Netherlands, Belgium, the western regions of Germany and the UK. As regards the motorway infrastructure at country level, the Netherlands has the highest density with 63 km/1 000 km^2, followed by Luxembourg (57 km/1 000 km^2). Trailing some distance behind Luxembourg, in third place, comes Germany with 35 km/1 000 km^2, followed by Slovenia, Portugal and Denmark. The countries with the lowest motorway density are Romania and Poland (2 km/1 000 km^2), and also Bulgaria, Finland, Sweden, Ireland, the Baltic States, the Czech Republic, Hungary and Slovakia, with numbers well below 10 km/1 000 km^2.
- A closer view reveals that the highest density of motorways is to be found around European capitals and other major cities, and in major

industrial conurbations. Looking at European history, it is fair to say that, historically, the motorway infrastructure (in these specific regions) was a product of regional development rather than the driving force behind it.

- Important industrialised areas with high motorway densities include the German regions in the 'Ruhrgebiet' (Düsseldorf: 118 km/1 000 km²) and the 'Rhein-Main-Region' (Köln: 76 km/1 000 km², Darmstadt: 64 km/1 000 km²) as well as the north-western part of England, with Greater Manchester (140 km/1 000 km²) as the centre, and the densely populated 'Randstad' in the western part of the Netherlands (Utrecht: 122 km/1 000 km², Zuid-Holland: 103 km/1 000 km²).
- Most European capitals and large cities are surrounded by a ring of motorways in order to meet the high road transport demand originating from these metropolitan areas. The densest motorway networks can be found around the capitals: Lisboa (220 km/1 000 km²), Wien (108 km/1 000 km²), Madrid (93 km/1 000 km²), Berlin (82 km/1 000 km²) and Paris (Île-de-France: 51 km/1 000 km²). Since the motorways are concentrated in a ring close to the cities, the reported density decreases with the area of the respective NUTS 2 region. As a result, the reported motorway density for the small NUTS 2 region of Lisboa is higher than for the much larger NUTS 2 region of Île-de-France, even though the motorway network of Paris is actually larger.
- High motorways densities are also found around the major seaports of northern Europe: The motorway densities of the NUTS 2 regions of Bremen (176 km/1 000 km²) with the port Bremerhaven, Hamburg (107 km/1 000 km²), Zuid-Holland with the port of Rotterdam (103 km/1 000 km²) and Prov. Antwerpen (76 km/1 000 km²) with the port of Antwerpen are among the highest of all European regions.
- Another reason for the higher density of the motorway network in central European countries such as Germany is the similarly high and growing volume of transit traffic in freight transport.
- In addition to the regional structure described above, it is noticeable that coastal regions with a substantial tourism industry have denser motorway networks than other peripheral regions. This is especially true for Spain (Pais Vasco: 60 km/1 000 km²) and for Italy, with Liguria (69 km/1 000 km²) being the peripheral coastal region with the densest motorway network in Europe. Not surprisingly, the supply of motorways on islands is generally low, since islands cannot be reached directly by road transport, and they rely instead on sea or air for access. However, the motorway density of the Canarias — at 34 km/1 000 km² — is still relatively high.
- While ready accessibility for goods and passengers may be an important factor in shaping a region's ability to compete, this does not mean that regions with a high GDP necessarily have a high density of motorways in all cases. While a high regional accessibility is generally a prerequisite for a region's economic performance, this can likewise be achieved by means of transport other than road, such as air and rail.

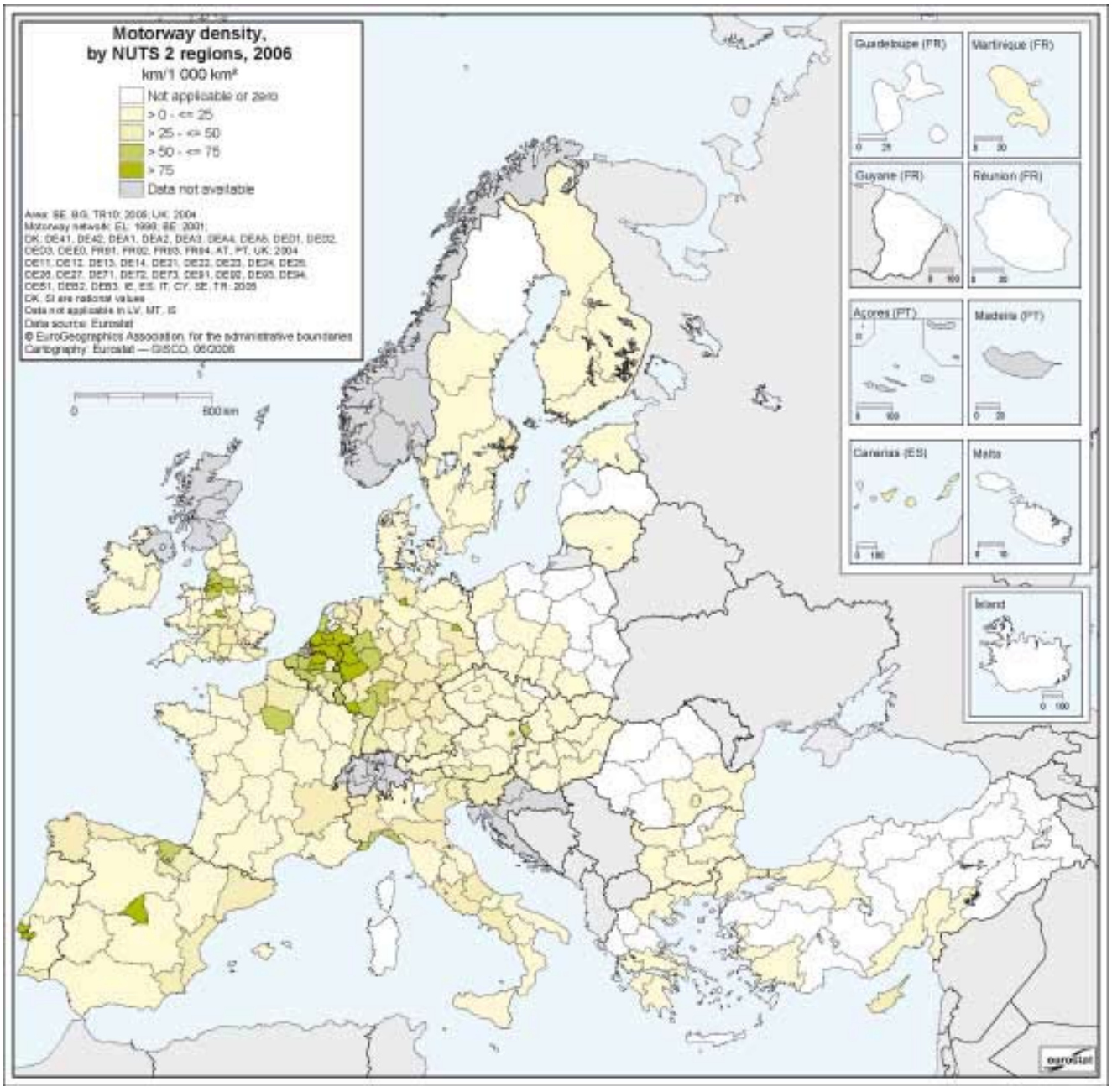
The regional pattern of the distribution of physical railway infrastructure is shaped by economic development, specific historical developments and the geographical characteristics of the regions. As a legacy from the socialist era, the countries in central and eastern Europe have retained a more concentrated rail network than their western counterparts, while at the same time having a substantially less developed motorway network. Although these countries — with the support of the EU (e.g. through the Phare programme and the Structural Funds) in addition to national efforts — have made substantial changes in their transport policy since the beginning of the 1990s, their infrastructure landscape still reveals differences.

Map 9.2 illustrates the density of railway lines per unit of territory in Europe.

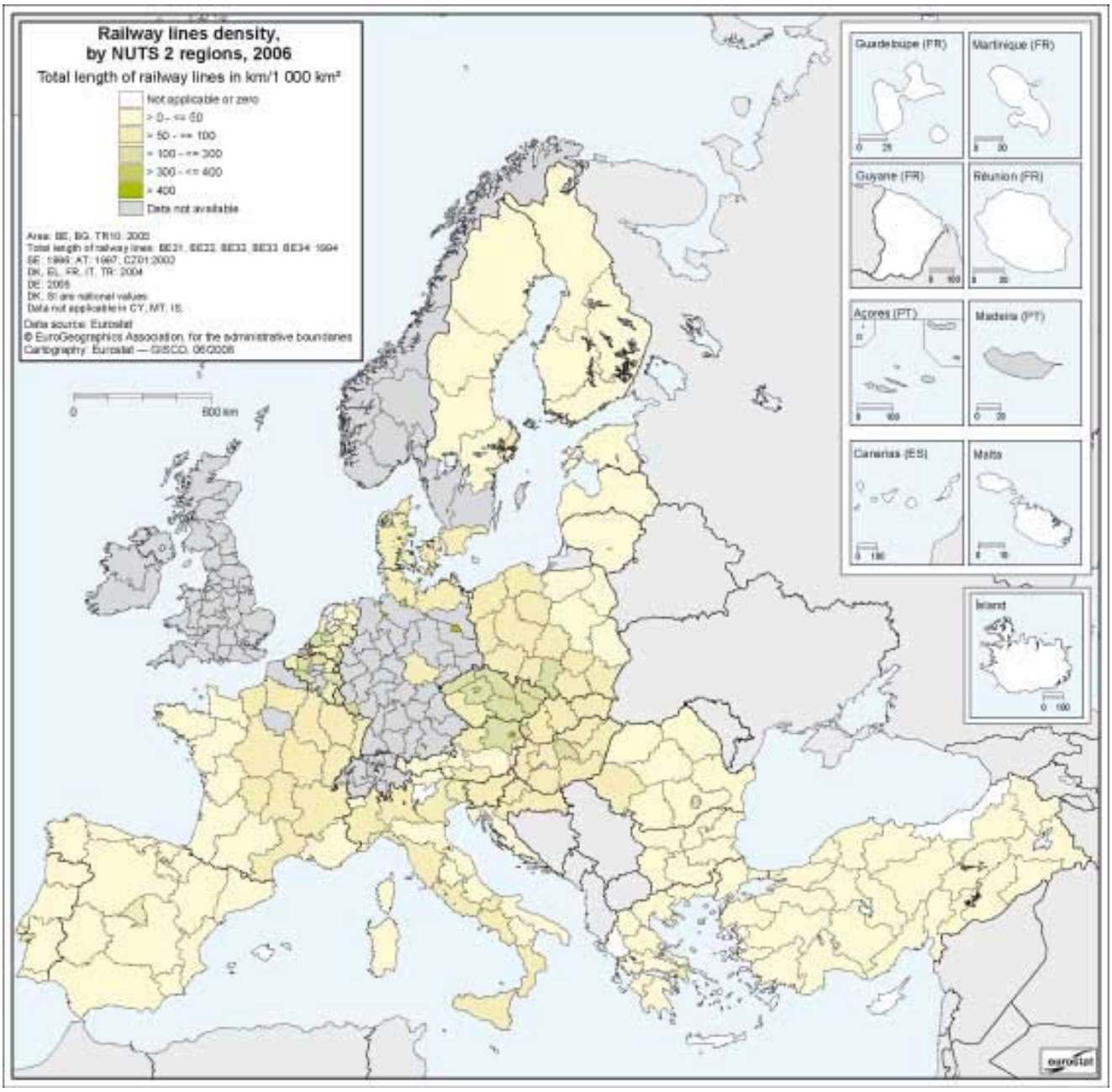
- In general, the network-to-area ratio for railway lines at national level is high in central Europe (including the Benelux countries, Germany, the Czech Republic and Poland) and lower in the peripheral countries (including Scandinavia, the Iberian peninsula, western France, the Baltic countries, Turkey and Bulgaria). The highest network density can be found in the Czech Republic, Belgium, Luxembourg and Germany (above 100 km/1 000 km²), followed by Hungary, Austria, Poland, the United Kingdom, the Netherlands and Slovakia (65–80 km/1 000 km²). At the lower end of the range are Norway, Finland, Turkey, Greece and the Baltic States, with values of 20 km/1 000 km² and below. While the significant differences in population density between the countries account for most of the differences observed, the relatively high values for the Czech Republic, Slovakia, Hungary and Poland exemplify the still strong relevance of the socialist heritage for Europe's infrastructure landscape of today.

- When rail network density is measured by population instead of territory, the overall picture changes. The highest supply of railway infrastructure per inhabitant is in the Scandinavian countries and Latvia. The new Member States in central Europe follow some way behind, while by far the lowest values are found in Turkey, the Netherlands and the United Kingdom. For Scandinavia, the sheer vastness of the country requires high levels of investment per inhabitant in railway lines in order to ensure a sufficient degree of rail accessibility for their population. Furthermore, it has to be remembered that the way in which the railway lines are operated differs significantly between countries with low and high population densities respectively. While the level of service is comparatively low in countries with a high rail infrastructure supply per inhabitant, countries with a high population density, like the Netherlands and Germany, operate their rail infrastructure using highly complex rail traffic management systems in order to meet the high level of demand on their heavily used railway network.
- There are also other differences between rail transport systems that are due to the spatial distribution of population within countries. As an example, the French system can be described as a kind of 'hub-and-spoke' system, with Paris at its centre, while in Germany the degree of direct connectivity between population centres is significantly higher, reflecting Germany's more even population distribution. This results in a more complex railway network.
- In many central and eastern European countries, since 1990, there has been a significant drop in rail freight transport in terms of both total volume and modal share. By contrast, road transport volumes have surged ahead. This development can be regarded as part of the economic and social transformation process undergone by the countries which joined during the last two enlargements. As a result, the density of the railway network decreased in some countries — a phenomenon which was not seen in the case of any national motorway network. A particularly striking reduction in rail infrastructure supply was seen in Poland, where the railway density dropped from 84 km/1 000 km^2 in 1990 to 74 km/1 000 km^2 in 1998 and then to 65 km/1 000 km^2 in 2006. Data on regional rail infrastructure supply in Poland have been available since 1998. The most striking reductions between 1998 and 2006 took place in Dolnośląskie (– 27 %, 2006: 75 km/1 000 km^2), Lubelskie (– 26 %, 2006: 42 km/1 000 km^2), Warmińsko-Mazurskie (– 22 %, 2006: 128 km/1 000 km^2) and Wielkopolskie (– 20 %, 2006: 103 km/1 000 km^2), compared with a decline of 13 % for Poland as a whole over the same period. Most of these regions had high-density networks in 1990. An exception is the Śląskie region, where the legacy of a high-density rail network has actually been significantly extended since 1998 (+ 16 % in 2006: 174 km/1 000 km^2).
- With respect to passenger transport, the most important recent development is the ongoing expansion of the high-speed rail network. While this development is not reflected in the railway density indicator, it does account for major recent investment in railway infrastructure.
- Turning to the individual regions, the densest rail networks are in the capital regions: Berlin (681 km/1 000 km^2), Wien (434 km/1 000 km^2) and Praha (385 km/1 000 km^2). While these central European capitals have indeed had a traditionally strong railway infrastructure, the strikingly high values are due to the small size of these regions within the European NUTS 2 classification and the fact that the density of urban infrastructure tends to be much higher than the density of inter-urban roads and railway lines.
- Next among the top-ranking regions come Bremen (416 km/1 000 km^2) and Hamburg (373 km/1 000 km^2), two more small NUTS 2 regions where extensive freight lines to and from the seaports contribute to the high ratios. Like the capital cities mentioned above, these two Hanseatic cities, which are also German federal states, are much smaller than regions like Zuid-Holland and Prov. Antwerpen, with their competing ports of Rotterdam and Antwerpen. These differences make it hard to draw direct comparisons with the infrastructure supply at the North Sea ports.
- Freight lines also play an important role in some traditional regions with coal and steel industries, like the Saarland in western Germany (142 km/1 000 km^2) and Śląskie in the south-west of Poland (174 km/1 000 km^2). Interestingly, Śląskie is, as mentioned above, also the only Polish region with significant recent net additions to its rail network. Thus, the development of rail infrastructure in Śląskie runs counter to the general development in Poland, although this can probably be attributed to the strong economic development in this region.

Map 9.1: Motorway density, by NUTS 2 regions, 2006
Km/1 000 km²



Map 9.2: Railway lines density, by NUTS 2 regions, 2006
Total length of railway lines in km/1 000 km²



- Further individual regions with a high railway density are Comunidad Valenciana in Spain, Lisboa in Portugal and Bucureşti — Ilfov in Romania.

Road safety

Currently, road mobility still comes at a high price in terms of lives lost. In 2006, about 43 000 people lost their lives in road accidents within the EU-27, which is more than 20 times the combined total of fatalities in rail and air transport. Given the growing concern of European citizens over road safety, the European Union has made this issue a priority of its common transport policy, as set out in the 2001 White Paper on transport 'Time to decide' and its mid-term review in 2006 (*Keep Europe moving — Sustainable mobility for our continent*). In that White Paper, the European Commission proposed to reach the target of halving the number of road fatalities between 2000 and 2010. To achieve this objective, a number of actions have been taken, including the introduction of higher vehicle safety standards, improvement of the quality of road infrastructure and the extension of the regulations concerning traffic, as well as an enforcement of existing regulations and improved education of drivers. As a result, and despite the significant growth in European road traffic volumes, it has been possible to reduce the total road death toll by 44 % between 1991 and 2006, and by 23 % since the year 2000. While this positive trend can be seen across all countries, there are significant variations between the European regions in terms of the relative risk of fatal road accidents.

Map 9.3 shows the number of deaths in road traffic accidents per million inhabitants by NUTS 2 region in 2006.

- National totals, taken from the CARE database (see Methodological notes), show that the lowest recorded numbers of road fatalities per million inhabitants are in the Netherlands (45 fatalities per million inhabitants), Switzerland (50), most German regions — especially for the 'former' federal states in the west – (Germany: 63), Sweden (49) and Norway (53), the majority of regions in the UK (54) and the south of Italy. Furthermore, the relative number of fatal road accidents at regional level is comparably low in major agglomeration areas and European capitals such as Wien (20 fatalities per million inhabitants), Berlin (22), Inner London (26), Hamburg (16), Düsseldorf (30), Stockholm (31), Zuid-Holland (35) Köln (37), Île-de-France (41), Madrid (47), Lisboa (48) and Praha (58). The fatality rates in the more rural areas surrounding the agglomerations are always significantly higher.
- The highest rates of road deaths are to be found in the eastern and south-eastern Member States. Lithuania has the highest fatality rate (223 fatalities per million inhabitants), followed by Latvia (177), Estonia (164), Greece (159), Slovenia (140), Poland (137), Slovakia (130), Bulgaria (124) and Romania (115). Given the still lower level of vehicle ownership in most of these countries, the reasons behind these high values — compared with western Europe — can probably be found in the quality of infrastructure supply and a less developed awareness of road safety issues in these countries. Especially striking are the high fatality rates in Greece, which are by far the highest in the EU-15.
- It is noticeable that, statistically, the numbers of road deaths are particularly low for many regions with high traffic volumes. This is valid especially for most regions in western Germany, for the Netherlands and the southern part of England. A closer look at this phenomenon reveals that many of these regions also tend to have a high motorway density. In general, motorways are much safer than secondary roads. Given that it is mainly transit traffic that uses existing motorways, the number of road fatalities in these regions is relatively low, despite high total traffic volumes. In fact, high transport volumes also cause congestion, which reduces average speeds and therefore also the likelihood of fatalities when accidents do occur. Finally, the quality of the roads in these countries is especially high, thus contributing to a low number of accidents.
- In contrast, high fatality rates are found in regions with a low motorway density such as the north-eastern part of Germany, Mecklenburg-Vorpommern (109) and Brandenburg (103), as well as the Baltic States, the whole of Poland, the Czech Republic, Hungary (103), and many rural areas in France and the Iberian peninsula. These data strongly underline the fact that the high proportion of traffic using motorways is a factor behind the low number of road fatalities in many regions.
- In addition to the share of the total road network accounted for by motorways, the significant reductions in the number of road deaths are also

due to a combination of high in-vehicle and out-of-vehicle safety standards, speed regulations and a general 'safety culture', including the quality of the emergency and health systems.

- The relatively low number of fatal road accidents in most of the major European cities can be explained by the higher proportion of public transport and other modes of transport, such as bicycle and pedestrian traffic. While road accidents in general are more frequent in city traffic, driving at lower speed reduces the probability of serious injuries. However, an increase in the number of accidents involving non-motorised travel may also lead to an increase in the number of serious injuries. Thus, the combined effect of lower speed and more accidents involving less protected traffic participants is not clear-cut.
- Physical geography might be another reason for the differences in per-inhabitant fatality levels. Driving in mountainous regions like the Alps, the Pyrenees and the Carpathian Mountains is probably more dangerous than in flat areas, and therefore leads to an increased number of accidents and fatalities. In addition, these regions attract a high volume of tourist traffic, thus increasing local traffic and hence the number of reported accidents per inhabitant.
- Some of the French overseas regions like Guadeloupe, Martinique and Guyane have a relatively high percentage of road fatalities per inhabitant. Possible reasons include a high proportion of motorcycle traffic and poor road quality in these regions.

Air transport

The rapid growth of air transport has been one of the most important transport sector developments in Europe and throughout the world. Since 1995, intra-EU and domestic passenger air transport increased by more than 50 %. While the events of 11 September 2001 led to a decline in 2002, growth rates resumed thereafter. There is no doubt that the completion of the liberalisation of the air transport market in the European Union contributed significantly to this development, most noticeably through the massive expansion of low-cost airlines, which also led to a remarkable growth of smaller, regional airports, which are less congested and have lower landing fees than large airports in the capital regions.

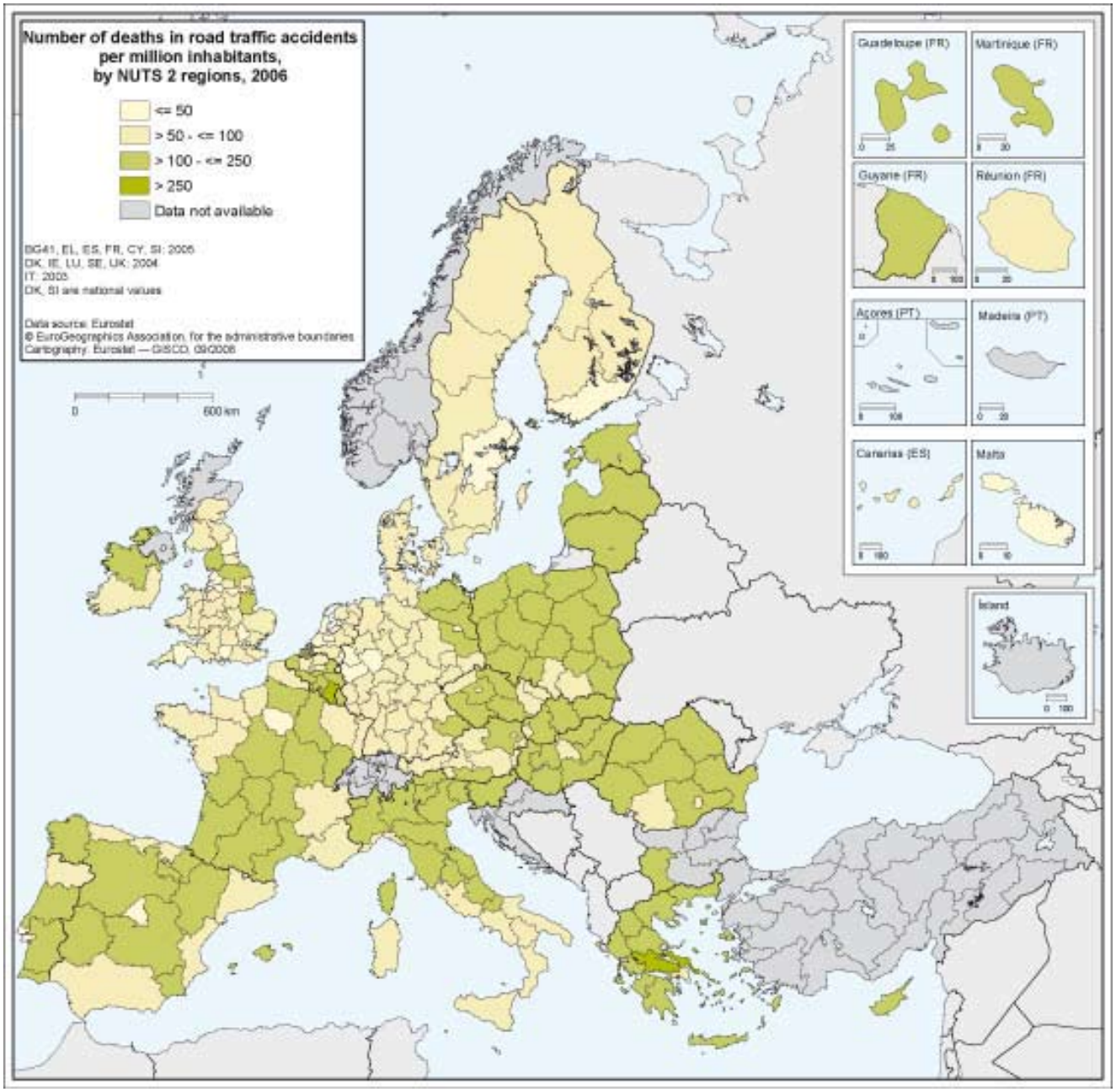
Eurostat's statistical databases contain air transport statistics at a regional level for passengers and freight. These series show passenger and freight movements over NUTS 2 regions measured in thousands of passengers and tonnes, respectively. The passenger data are divided into passengers embarking, disembarking and in transit. The freight statistics data are divided into tonnes of freight loaded and unloaded. Two series are available here, based on different methodologies. The series going back to 1978 ended with reference year 1998 and was replaced by a new time series with different definitions as from 1999.

Currently, data on air transport are collected under Regulation (EC) No 437/2003 of the European Parliament and the Council on statistical returns in respect of the carriage of passengers, freight and mail by air. This regulation provides for the collection of detailed monthly data for airports handling more than 150 000 passengers per year. For airports handling fewer than 150 000 but more than 15 000 passengers, only aggregated annual data are required, whereas for minor airports no data need to be provided. The data collected at airport level are then aggregated at regional NUTS 2 level.

In this section on air transport, the focus is on the total number of passengers and the total number of tonnes loaded and unloaded in the European top 30 NUTS 2 regions. Table 9.1 and Table 9.2 show the top 30 regions with the highest number of air passengers and with the highest volume of air freight in 2006.

- In air passenger transport, the top-ranking regions in terms of the total number of passengers are the capital regions of western Europe. The list is headed by Île-de-France, with a total number of 82.1 million passengers for the airports Paris-Charles de Gaulle and Paris/Orly, followed by Outer London (Heathrow airport) with 67.3 million passengers, Darmstadt with the Frankfurt/Main airport (52.4 million), Noord Holland (Amsterdam/Schiphol: 46.0 million) Comunidad de Madrid (45.1 million) and Lombardia with several airports geographically spread (36.7 million).
- The big airports in and around western Europe's capitals also serve as central hubs for intercontinental air traffic. This is especially true for the Heathrow (London), Charles-de-Gaulle (Paris), Frankfurt/Main and Schiphol (Amsterdam) airports.
- In addition to the important capital regions, high air passenger transport volumes can also be observed for Cataluña, Canarias and Oberbayern

Map 9.3: Number of deaths in road traffic accidents per million inhabitants, by NUTS 2 regions, 2006



(München). The high passenger volumes for the south of Spain can be explained to a great extent by tourist traffic.

- Although this is not visible from Table 9.1, a significant number of smaller, regional airports are among the fastest-growing airports because of the ongoing success of low-cost carriers.
- Among the top 30 airports for passenger transport the Praha region, with + 55 %, shows the strongest growth since 2003, followed by Cataluña (+ 41 %), Southern and Eastern in Ireland (+ 35 %), Niederösterreich (+ 32 %), Comunidad Valenciana (+ 31 %), Andalucia and Lisboa (+ 29 %), Oberbayern with München (+ 28 %) and Comunidad de Madrid (+ 27 %). The strong development of air passenger transport at the airports of the Iberian peninsula is especially noteworthy. It is not surprising that the biggest airports do not show the fastest growth, since they are already starting from a high base and are often operating near to maximum capacity. However, the picture may change in the near future due to significant extensions of capacity, e.g. at London Heathrow airport or the Berlin-Schönefeld airport.
- For air freight transport, Darmstadt (Frankfurt/Main) leads the list of the top 30 European regions with 2.12 million tonnes, followed by Noord-Holland (Amsterdam/Schiphol: 1.57 million tonnes), Île-de-France (Paris: 1.42 million tonnes) and Outer London (Heathrow: 1.34 million tonnes). Volumes at other European airports are significantly smaller, indicating that the biggest European airports serve as the main European hubs for air freight transport. Relatively high volumes can also be observed in four other regions, namely: Prov. Vlaams Brabant (Bruxelles: 0.71 million tonnes), Köln (Köln-Bonn: 0.69 million tonnes), Luxembourg (0.63 million tonnes) and Lombardia (Milano/Bergamo/Brescia: 0.60 million tonnes).
- While the total volume of air freight transport is limited by comparison with the much higher volumes on road, rail, inland waterways and especially maritime transport, air freight transport is very important for articles with high added value, perishable goods (especially food) and also express parcels, and its importance is steadily growing.
- While air freight transport is dominated by the big airports, the most dynamic growth was at the regional airports of Frankfurt-Hahn in the Koblenz region of Germany and at the airports in Southern and Eastern Ireland. Both regions enjoyed growth of over 200 % between 2003 and 2006. However, the respective reasons behind this development are different. While the growth of the relatively young airport of Frankfurt/Hahn underlines its growing importance, due to the untapped potential of the airport itself, the dynamic development of air transport in Ireland is closely connected to Ireland's strong economic growth.

Conclusion

The data shown in the three maps and two tables presented in this chapter reveal a number of interrelationships between regional economic and geographical characteristics and the structure of the European transport system. It has been possible to identify a close relationship between the provision of motorways and road safety. Basic figures on the regional distribution of air transport have also been provided. However, the data presented in this chapter represent only a part of the wider set of regional transport statistics available in Eurostat's statistical databases. Regional transport statistics show patterns of variation across regions where transport-related variables are often closely related to levels of economic activity. As already mentioned, transport policies are at the very heart of efforts to reduce regional inequality and improve regional cohesion. In an enlarged Europe, economic and infrastructure disparities are now more evident than before. One of Eurostat's long-term objectives is to expand the current regional transport indicators in order to provide a better understanding of the impact of transport policies on economic growth, transport needs and the environment.

Table 9.1: Top 30 NUTS 2 regions with highest number of air passengers in 2006 and index 2003 = 100
1 000 passengers carried

Ranking	NUTS	Region	Airports contributing by NUTS 2 region	Total passengers in 2006 1 000 passengers	Index 2003 = 100
1	FR10	Île de France	Paris-Charles De Gaulle Paris/Orly	82 052.2	116
2	UKI2	Outer London	London Heathrow Biggin Hill	67 339.3	107
3	DE71	Darmstadt	Frankfurt/Main	52 402.7	109
4	NL32	Noord-Holland	Amsterdam/Schiphol	45 998.0	116
5	ES30	Comunidad de Madrid	Madrid/Barajas	45 063.8	127
6	ITC4	Lombardia	Milano/Malpensa Bergamo/Orio Al Serio Milano/Linate Brescia/Montichiari	36 719.5	125
7	ES51	Cataluña	Barcelona Girona/Costa Brava Reus	34 852.6	141
8	UKJ2	Surrey, East and West Sussex	London Gatwick	34 080.1	114
9	ITE4	Lazio	Roma/Fiumicino Roma/Ciampino	33 804.5	124
10	DE21	Oberbayern	München Oberpfaffenhofen	30 607.4	128
11	ES70	Canarias (ES)	Las Palmas/Gran Canaria Tenerife Sur/Reina Sofia Arrecife/Lanzarote Puerto Del Rosario/ Fuerteventura Tenerife Norte Santa Cruz De La Palma Hierro	30 048.6	107
12	ES53	Illes Balears	Palma De Mallorca Ibiza Menorca/Mahon	28 822.0	114
13	IE02	Southern and Eastern	Dublin Cork Shannon Kerry	26 807.9	135
14	UKH3	Essex	London Stansted Southend	23 709.4	127
15	DK (*)	Denmark	København/Kastrup Billund Aalborg Aarhus Bornholm Karup Esbjerg Soenderborg København/Roskilde Thisted	22 965.7	109
16	UKD3	Greater Manchester	Manchester	22 123.8	113
17	ES61	Andalucia	Malaga Sevilla Jerez Granada Almeria	20 279.5	129
18	SE11	Stockholm	Stockholm/Arlanda	19 490,3	117

			Stockholm/Bromma		
19	CH04	Zürich	Zürich	19 298.5	114
20	DEA1	Düsseldorf	Düsseldorf Niederrhein Essen/Mülheim Mönchengladbach	17 092.0	121
21	AT12	Niederösterreich	Wien-Schwechat	16 808.3	132
22	FR82	Provence-Alpes-Côte d'Azur	Nice-Cote D'Azur Marseille-Provence Toulon-Hyères Avignon-Caumont Cannes-Mandelieu La Mole	16 624.8	111
23	BE24	Prov. Vlaams Brabant	Bruxelles/National	16 592.5	110
24	GR30	Attiki	Athens	15 076.4	123
25	ES52	Comunidad Valenciana	Alicante Valencia	13 803.8	131
26	DE30	Berlin	Berlin-Tegel Berlin-Tempelhof	12 392.5	108
27	FI18	Etelä-Suomi	Helsinki-Vantaa Turku Lappeenranta Helsinki-Malmi Utti Immola	12 368.3	125
28	PT17	Lisboa	Lisboa	12 280.6	129
29	DE60	Hamburg	Hamburg Hamburg-Finkenwerder	11 873.7	127
30	CZ01	Praha	Praha/Ruzyne	11 513.0	155

(*) For Denmark national totals are used and the index = 100 refers to the year 2004.

Table 9.2: Top 30 NUTS 2 regions with highest volume of air freight in 2006 and index 2003 = 100
1 000 tonnes of total goods loaded and unloaded

Ranking	NUTS	Region	Airports contributing by NUTS 2 region	Total goods in 2006 1 000 tonnes	Index 2003 = 100
1	DE71	Darmstadt	Frankfurt/Main	2 117.9	129
2	NL32	Noord-Holland	Amsterdam/Schiphol	1 566.7	116
3	FR10	Île de France	Paris-Charles De Gaulle Paris/Orly	1 416.4	111
4	UKI2	Outer London	London Heathrow	1 342.6	103
5	BE24	Prov. Vlaams Brabant	Bruxelles/National	713.5	118
6	DEA2	Köln	Köln/Bonn Bonn-Hangelar	691	130
7	LU00	Luxembourg (Grand-Duché)	Luxembourg	633.7	105
8	ITC4	Lombardia	Milano/Malpensa Bergamo/Orio Al Serio Milano/Linate Brescia/Montichiari	602.4	128
9	ES30	Comunidad de Madrid	Madrid/Barajas	344.2	116
10	BE33	Prov. Liège	Liege/Bierset	323.2	:
11	UKF2	Leicestershire, Rutland and Northants	Nottingham East Midlands	298.3	126
12	CH04	Zürich	Zürich	265.5	102
13	UKH3	Essex	London Stansted Southend	241.4	119
14	DE21	Oberbayern	München Oberpfaffenhofen	238.1	146
15	UKJ2	Surrey, East and West Sussex	London Gatwick	219.9	94
16	AT12	Niederösterreich	Wien-Schwechat	201.8	159
17	ITE4	Lazio	Roma/Fiumicino Roma/Ciampino	162.4	89
18	UKD3	Greater Manchester	Manchester	150.3	120
19	IE02	Southern and Eastern	Dublin Shannon Cork Kerry	132	317
20	FI18	Etelä-Suomi	Helsinki-Vantaa Turku Lappeenranta Utti Helsinki-Malmi Immola	126.7	143
21	DEB1	Koblenz	Frankfurt-Hahn Koblenz-Winningen	113.2	306
22	GR30	Attiki	Athens	102.4	78
23	ES51	Cataluña	Barcelona Girona/Costa Brava Reus	98.4	159
24	PT17	Lisboa	Lisboa	98.2	105
25	ES70	Canarias (ES)	Las Palmas/Gran Canaria Tenerife Norte Tenerife Sur/Reina Sofia Arrecife/Lanzarote Puerto Del Rosario/ Fuerteventura Santa Cruz De La Palma Hierro	70.7	104
26	HU10	Közép-Magyarország	Budapest/Ferihegy	64.9	129

27	FR82	Provence-Alpes-Côte d'Azur	Marseille-Provence Nice-Cote D"Azur Toulon-Hyères Avignon-Caumont Cannes-Mandelieu La Mole	62.5	91
28	IS00	Ísland	Keflavik	61.8	146
29	DEA1	Düsseldorf	Düsseldorf Essen/Mulheim Niederrhein Mönchengladbach	59.3	124
30	FR62	Midi-Pyrénées	Toulouse Blagnac Tarbes Lourdes Pyrenees Rodez-Marcillac Castres-Mazamet	59.3	110

Methodological notes

Eurostat collects, compiles and disseminates a variety of regional indicators. Data on road and railway infrastructures, inland waterways, vehicle stocks and road accidents are currently collected by Member States and candidate countries on a voluntary basis via annual questionnaires, while data on road, maritime and air transport for passengers and goods are directly derived from data collection required by law. In addition, data on journeys made by vehicles are derived from a specific study of road transport data.

In Eurostat's statistical database, information on the regional infrastructure supply of roads, railway lines and inland waterways is available at the NUTS 2 level. The road network is divided into motorways and other roads. Railway links are classified according to two criteria: the number of tracks and whether or not they are electrified. Inland waterways include navigable rivers and canals, as well as lakes. However, up to now, the varying transport quality of these links (e.g. the capacity per link) has not been reflected in the data Eurostat receives from the Member States.

Regional transport indicators are readily available on Eurostat's website under the 'Transport' theme and are mirrored in the 'General and regional statistics'. There are 18 tables for transport data, which cover infrastructure, the vehicle fleet, journeys by road, sea and air (with separate tables for freight and passengers, in each case) and road safety (as reflected in numbers of deaths and injuries in road accidents). All data are annual, with time series going back to the reference year 1978 for transport infrastructures, air and maritime transport; for road safety data, the series start from 1988.

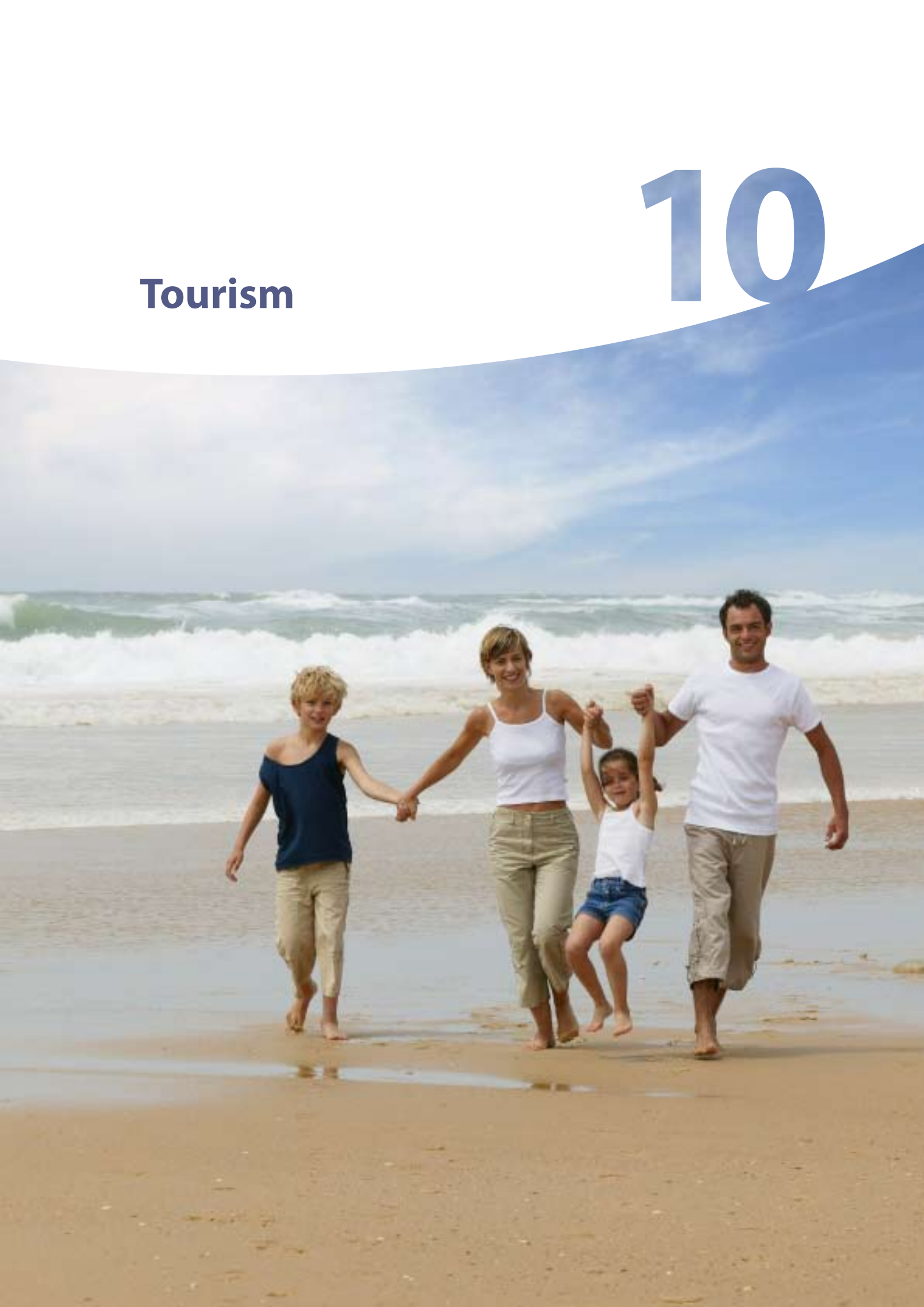
Due to the intrinsic nature of transport, a spatial breakdown is built into most legislation dealing with the collection of transport flow statistics, which allows us to derive regional indicators for maritime and air transport directly. Moreover, other regional transport indicators on transport flows can be found under the separate areas of 'Transport', namely: 'Road transport', 'Railway transport' and 'Inland waterway transport'. Further information on transport flows between airports and ports can be also obtained under the 'Maritime transport' and 'Air transport' headings.

In order to demonstrate the potential of transport statistics for analysing regional patterns, this year's contribution focuses on the data on regional transport infrastructure provision, road safety and air transport — the latter being derived from the data collections required by legislation. In order to visualise the regional infrastructure supply, a density indicator has been provided which divides the total length of the motorway and railway network within a region by the region's area. Regional road safety was addressed by dividing the number of fatalities in road transport by the number of inhabitants per region. In contrast to the data on persons injured, the data on road casualties are comparable across Europe. Regional air transport volumes are expressed as the total number of air passengers embarking, disembarking and in transit, and tonnes of freight loaded and unloaded at the airports of the regions. The data are derived from the data provided by the airports. The precise definitions of all variables used can be found in the publication *Glossary for transport statistics* (http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-BI-03-002).

The basic data used in the maps and tables above have been extracted from Eurostat's website, although not all the derived indicators can be found directly on Eurostat's website. The aim here is to provide added value over and above the data already available to the public on the website. Further information can be found in *Statistics in focus* and *Panorama of transport* publications and in the European Road Accident Database CARE (Website: http://ec.europa.eu/transport/care/). This is a Community database on road accidents resulting in death or injury. CARE contains detailed data on individual accidents as collected by the Member States.

10

Tourism



Introduction

Tourism is an important and fast-evolving economic factor in the European Union, occupying large numbers of small and medium-sized businesses. Its contribution to growth and employment varies widely across the EU regions. In rural regions in particular, usually peripheral to the economic centres of their countries, tourism is often one of the main sources of income for the population and a prominent factor in creating and securing an adequate level of employment.

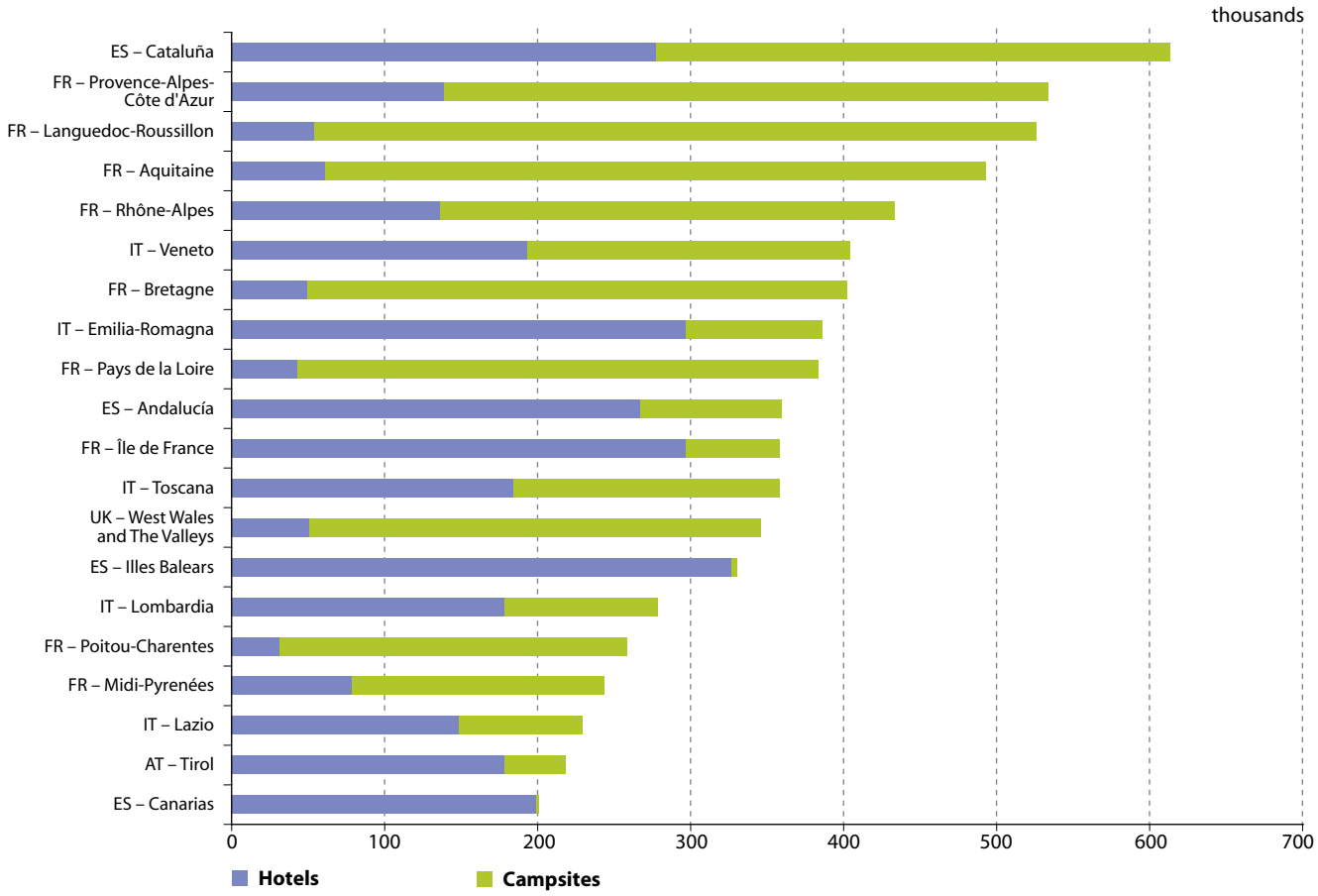
Tourism is a typical cross-cutting industry. Services for tourists involve a variety of economic branches: hotels and similar, restaurants and cafés, the various transport operators, and also a wide range of cultural and recreational facilities (theatres, museums, leisure parks, swimming pools, etc.). In many tourist regions the retail sector also benefits considerably from the demand created by tourists in addition to that of the resident population.

Accommodation capacity

Figure 10.1 shows the 20 NUTS 2 regions of the EU with the highest accommodation capacities, measured by the number of bedplaces in hotels and similar establishments and on campsites. Numbers of pitches on campsites are multiplied by four to make them comparable with hotel accommodation and arrive at a theoretical number of bedplaces, assuming that four people occupy the average pitch.

The ranking of the 20 regions with the largest accommodation capacities reveals the dominance of three main tourist destinations: France, Italy and Spain. Nine of the 20 regions on this list are in France, five are in Italy and four are in Spain. The United Kingdom and Austria complete the list of the top regions for accommodation capacity, with one region each (West Wales and The Valleys, and Tirol). It is clear that the strong position of the French regions on this list reflects a very heavy preponderance of campsite accommodation.

Figure 10.1: Top 20 EU-27 tourist regions, number of bed-places by type of accommodation, by NUTS 2 regions, 2006



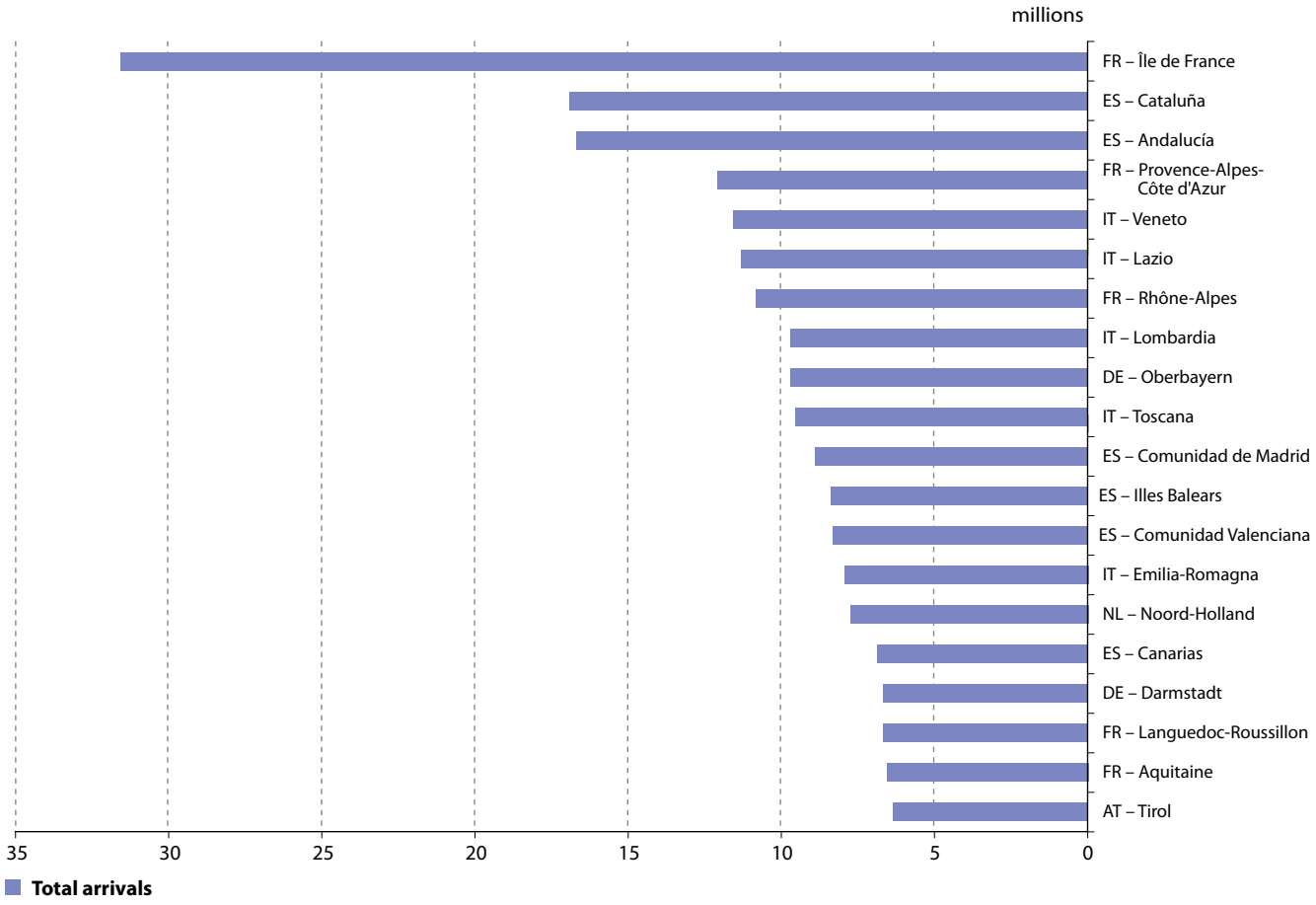
Visitor arrivals

The number of visitor arrivals can be seen as an indicator of the attractiveness of a region. The data available allow visitor arrivals to be quantified only for the two types of establishment named above: hotels (and similar) and campsites. Visitors staying in other kinds of establishment or at the private homes of friends or relatives are not included in this analysis.

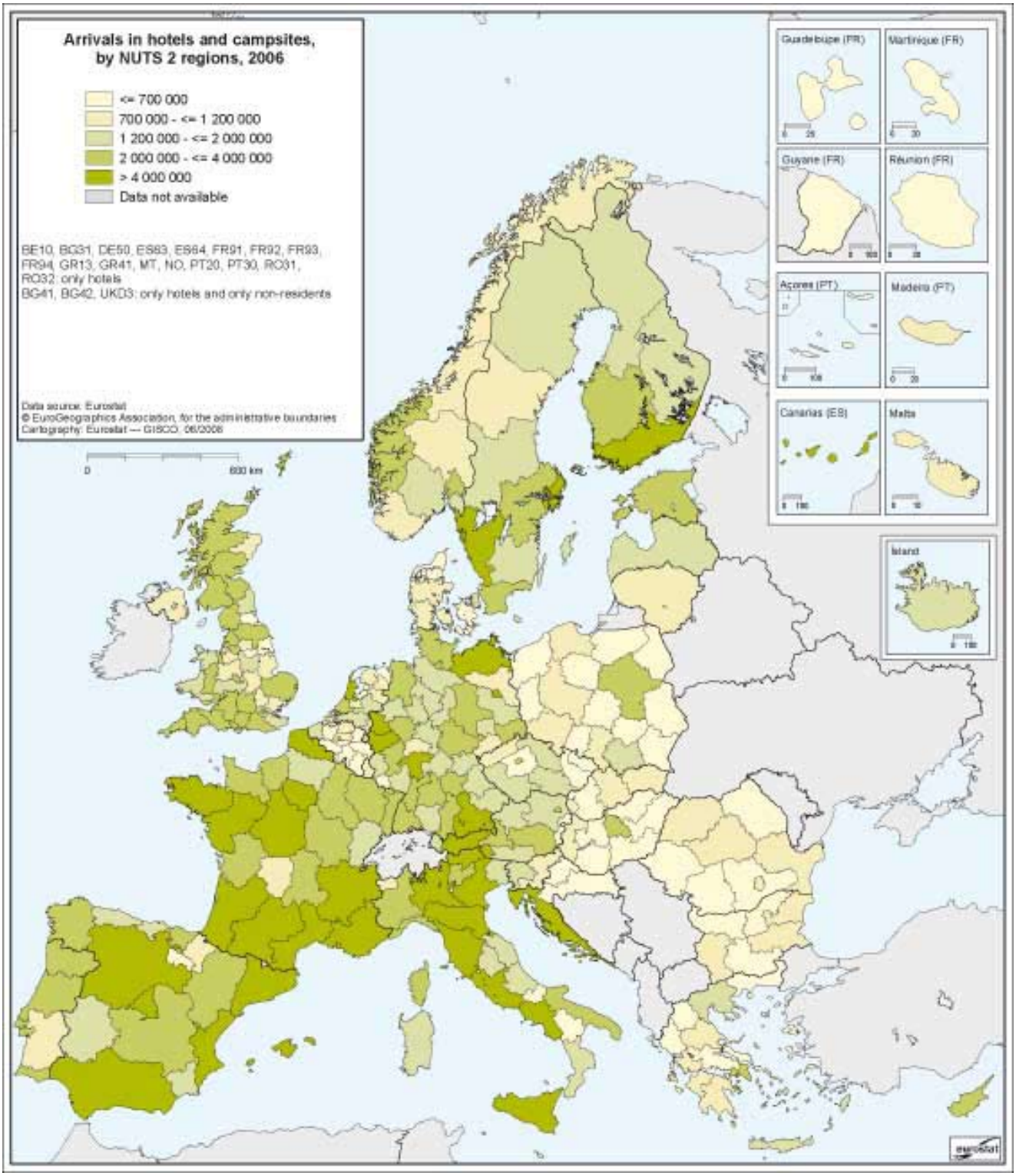
Three countries — Spain, France and Italy — account for 16 of the 20 regions in Europe with the largest numbers of visitor arrivals at hotels and campsites. At 31.4 million visitor arrivals, Île-de-France with the Paris metropolitan area is well in the lead, followed by the two Spanish regions of Cataluña, including Barcelona (16.9 million visitor arrivals) and Andalucía (16.6 million), and by Provence-Alpes-Côte d'Azur (12.1 million) in France. The first Italian region, Veneto (11.5 million visitor arrivals), takes fifth place, closely followed by Lazio, the region around the Italian capital of Rome (11.3 million). Only in eighth place do we find a region in a Member State other than the three leaders: Oberbayern in Germany, with 9.6 million visitor arrivals. Germany is also represented by the Darmstadt region, which includes the economic centre of Frankfurt (6.7 million), the Netherlands by Noord-Holland — the region around the Amsterdam metropolitan area — (7.7 million), and Austria by Tirol (6.3 million).

Map 10.1 gives a general view of numbers of visitor arrivals at hotels and campsites in all European regions (where data are available). Once again we see the clear preponderance of the three countries — France, Italy and Spain — that have most of the regions with more than 4 million visitor arrivals. Six regions in Germany are also in this size class, however, along with two regions in Sweden and one each in the Netherlands, Austria, Croatia and Finland. It is noticeable that the regions with the largest numbers of visitor arrivals include some that surround large metropolitan areas or economic centres, where business

Figure 10.2: Top 20 EU-27 tourist regions, number of arrivals in hotels and campsites, by NUTS 2 regions, 2006



Map 10.1: Arrivals in hotels and campsites, by NUTS 2 regions, 2006



travellers probably play an important role, as well as regions known as typical holiday destinations.

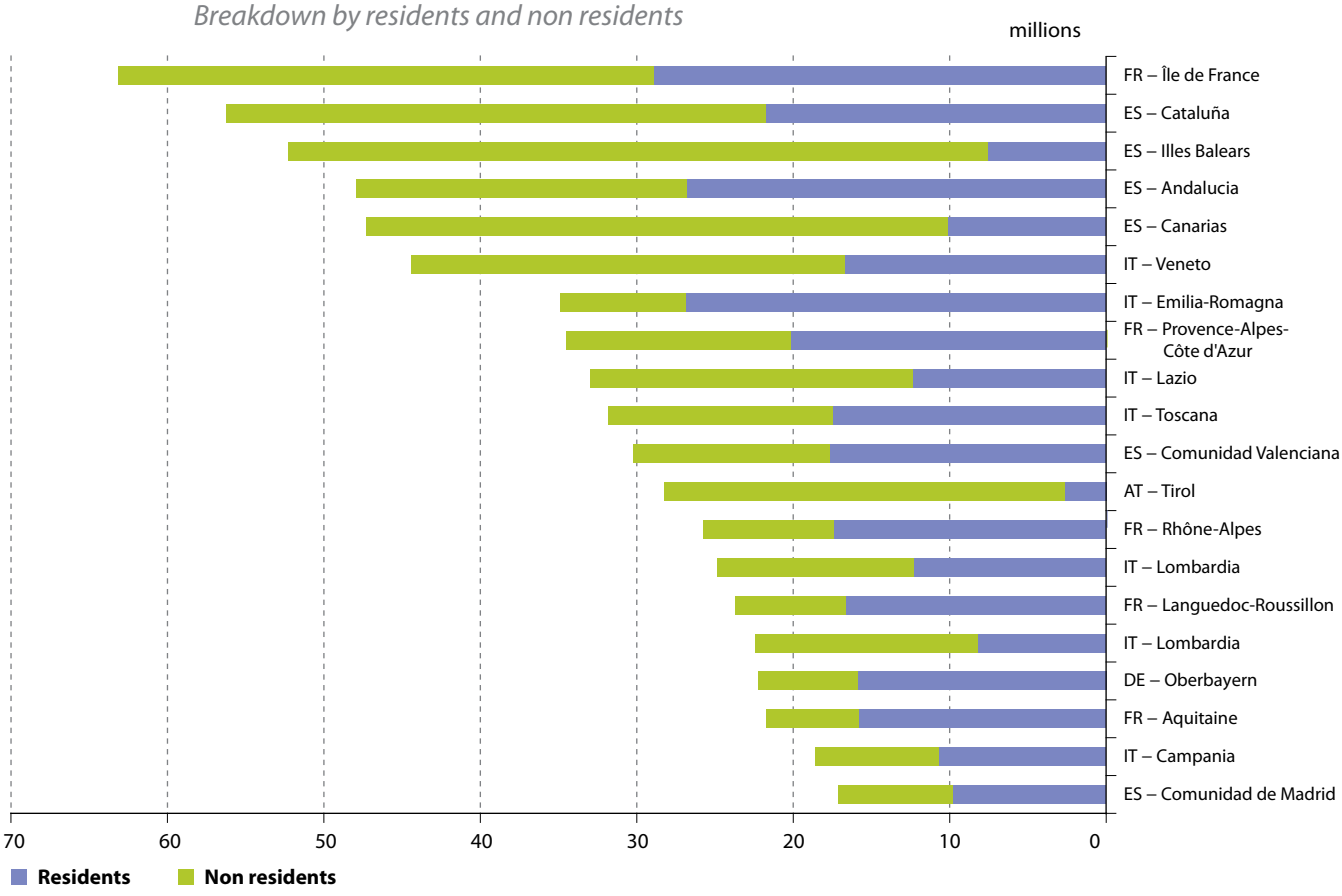
Overnight stays

The central indicator for hotel services is the number of overnight stays in establishments, since this covers the length of stay as well as the number of visitors. Further expenditure by tourists during their stays at their destination correlates closely with the number of overnight stays.

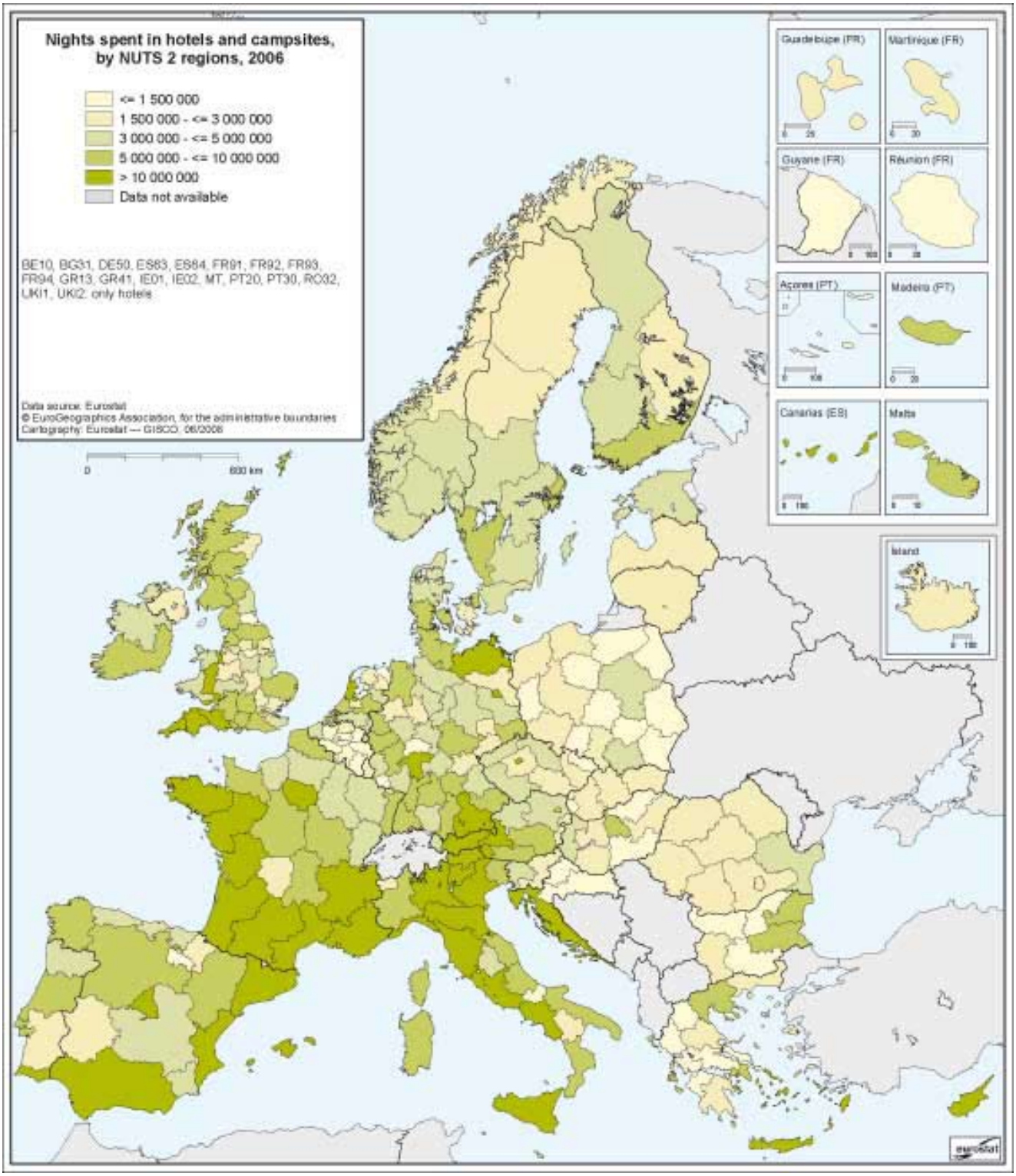
Figure 10.3 shows the regions in Europe with the largest numbers of overnight stays, broken down by domestic and foreign visitors. The dominance in European tourism of Italy, Spain and France, which account for 18 of the 20 regions, is even more pronounced here than with visitor arrivals. As with visitor arrivals, Île-de-France is in the lead with 63.1 million overnight stays, followed by the four Spanish regions of Cataluña (56.2 million), Illes Balears (52.2 million), Andalucía (47.9 million) and Canarias (47.3 million). Tirol in Austria, at 28.2 million overnight stays, and Oberbayern in Germany (22.2 million) are the only regions on the list of 20 that are not in one of the three leading tourism countries.

Map 10.2 gives an overview of numbers of overnight stays in the regions of Europe. Here, too, it is clear that the focus of European tourism is in the Mediterranean. Apart from those in Italy, Spain and France, the regions with more than 10 million overnight stays include Jadranska Hrvatska in Croatia (31.7 million), the Algarve in Portugal (16.0 million), Cyprus (14.4 million) and the two Greek regions of Kriti (13.5 million) and Notio Aigaio (13.2 million). Of the non-Mediterranean countries, Germany and the United Kingdom (four regions each) and the Netherlands and the Czech Republic (one region each) also have regions with more than 10 million overnight stays. Where numbers of overnight stays are concerned, the typical holiday regions, most of which have long coastlines, carry greater weight overall than do the metropolitan centres. The latter also often attract large numbers of tourists, but their length of stay at these destinations tends to be shorter, which means smaller numbers of overnight stays.

Figure 10.3: Top 20 EU-27 tourist regions, number of nights spent in hotels and campsites, by NUTS 2 regions, 2006
Breakdown by residents and non residents



Map 10.2: Nights spent in hotels and campsites, by NUTS 2 regions, 2006



Tourism intensity

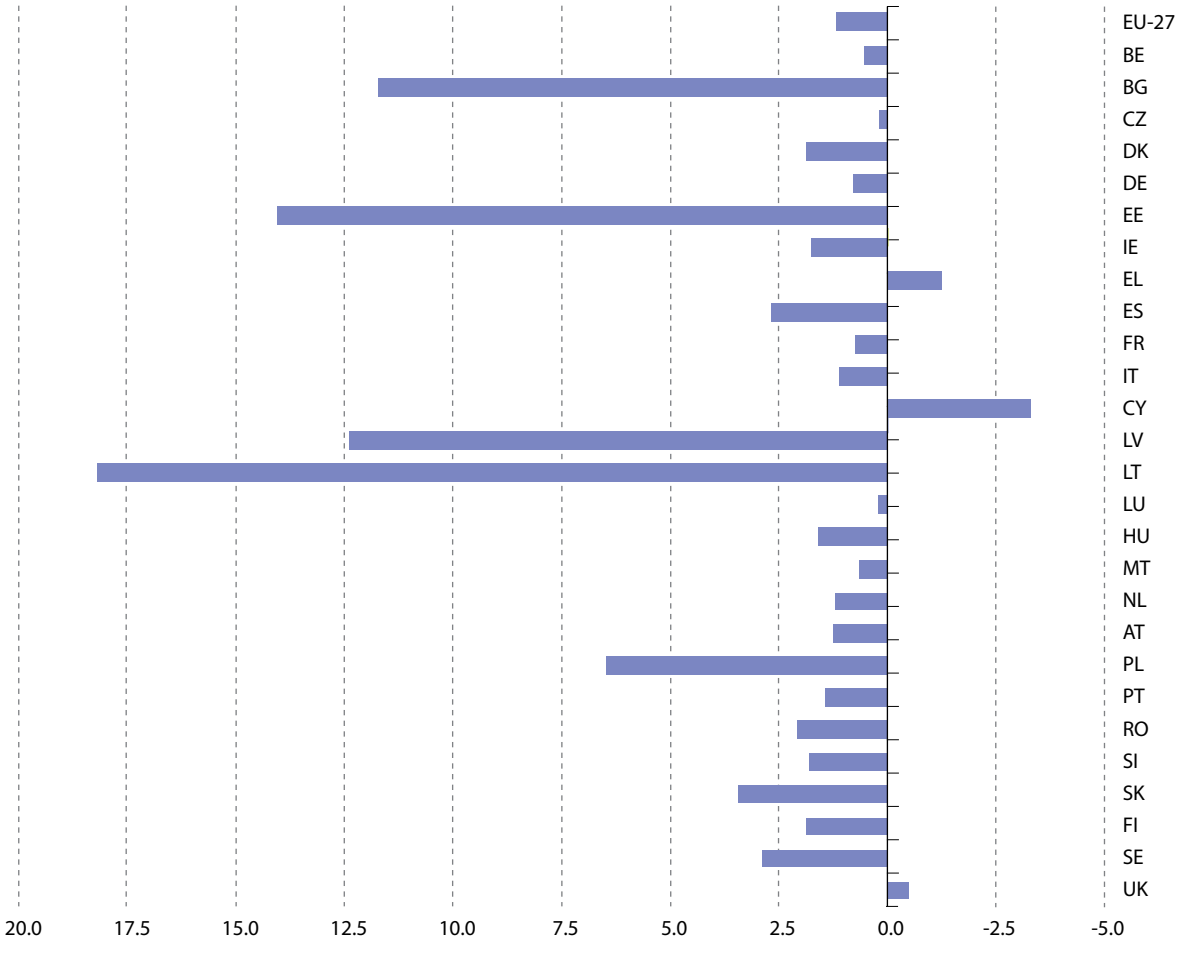
Tourism intensity is found by comparing the number of overnight stays with the number of inhabitants (see Map 10.3). This figure serves as an indicator of the relative importance of tourism for a region. It is generally a better guide to the economic weight of tourism than the absolute number of overnight stays. The prime importance of tourism to many of Europe's coastal regions and islands, and also to most of the Alpine regions of Austria and Italy, is evident here too. The Spanish region of Illes Balears shows the highest tourism intensity, with 53 006 overnight stays per 1 000 inhabitants, followed by the Italian Provincia Autonoma Bolzano/Bozen (46 920 overnight stays per 1 000 inhabitants), the Greek region of Notio Aigaio (43 333), the Austrian Tirol (40 454), the Portuguese Algarve (38 350) and the Greek Ionia Nisia (31 499).

Trends in tourism 2000–06

Tourism in the European Union increased overall from 2000 to 2006. After slight declines in overnight-stay figures in 2001, 2002 and 2003, due partly to the events of 11 September 2001, the EU-27 hotel industry again recorded significant upward trends in 2004, 2005 and 2006. All Member States except Greece, Cyprus and the United Kingdom saw a clear upturn in overnight stays in some regions.

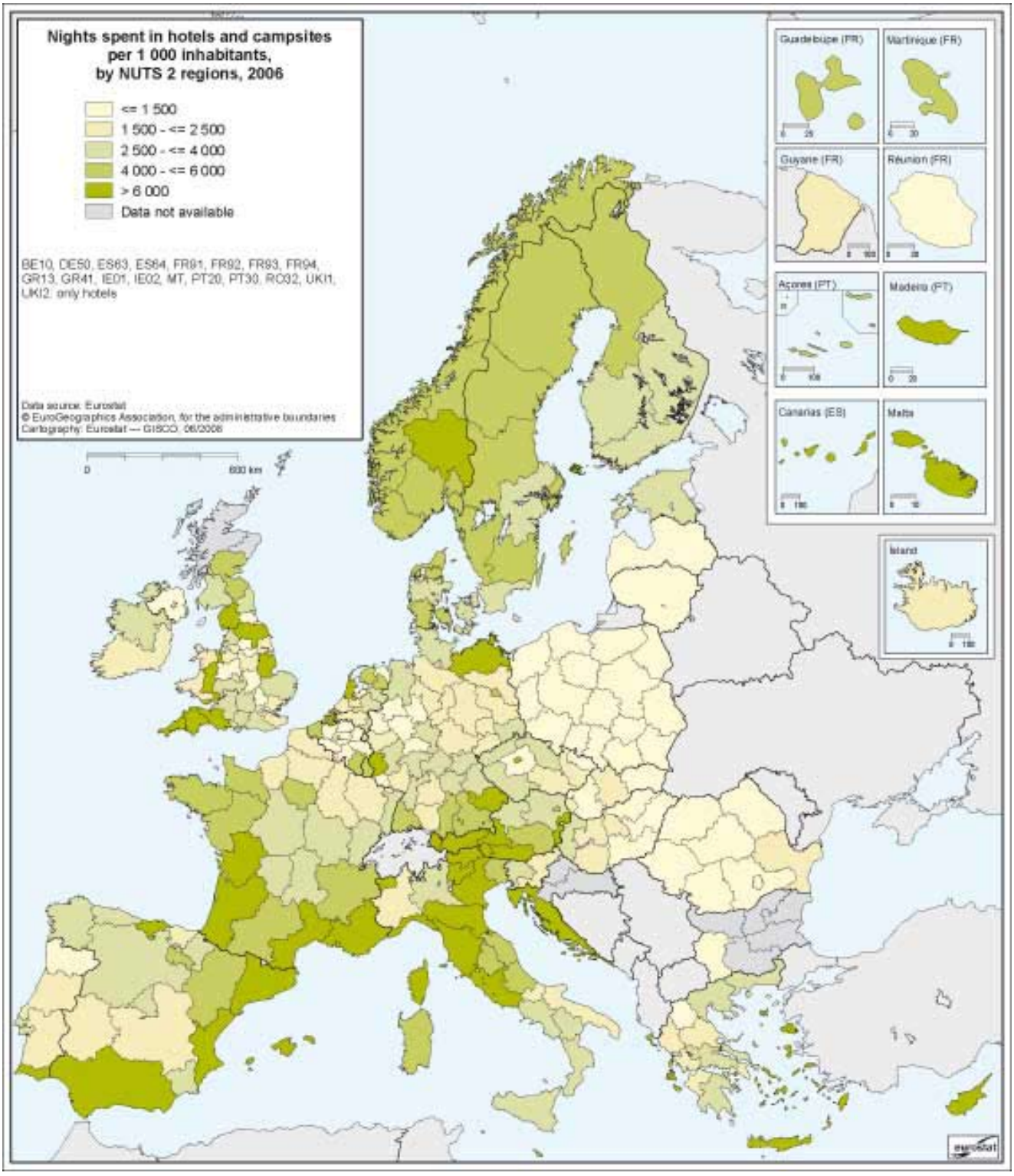
The three Baltic states were in the lead, with Lithuania (+ 18.2 %), Estonia (+ 14.0 %) and Latvia (+ 12.4 %) all showing double-figure average annual growth rates in the period concerned. The increases in all six regions of Bulgaria (Bulgaria as a whole + 11.7 %) and the regions of Poland (Poland as a whole + 6.5 %) were far above

Figure 10.4: Nights spent in hotels and campsites, EU-27, average annual change rate 2000–06
Percentage

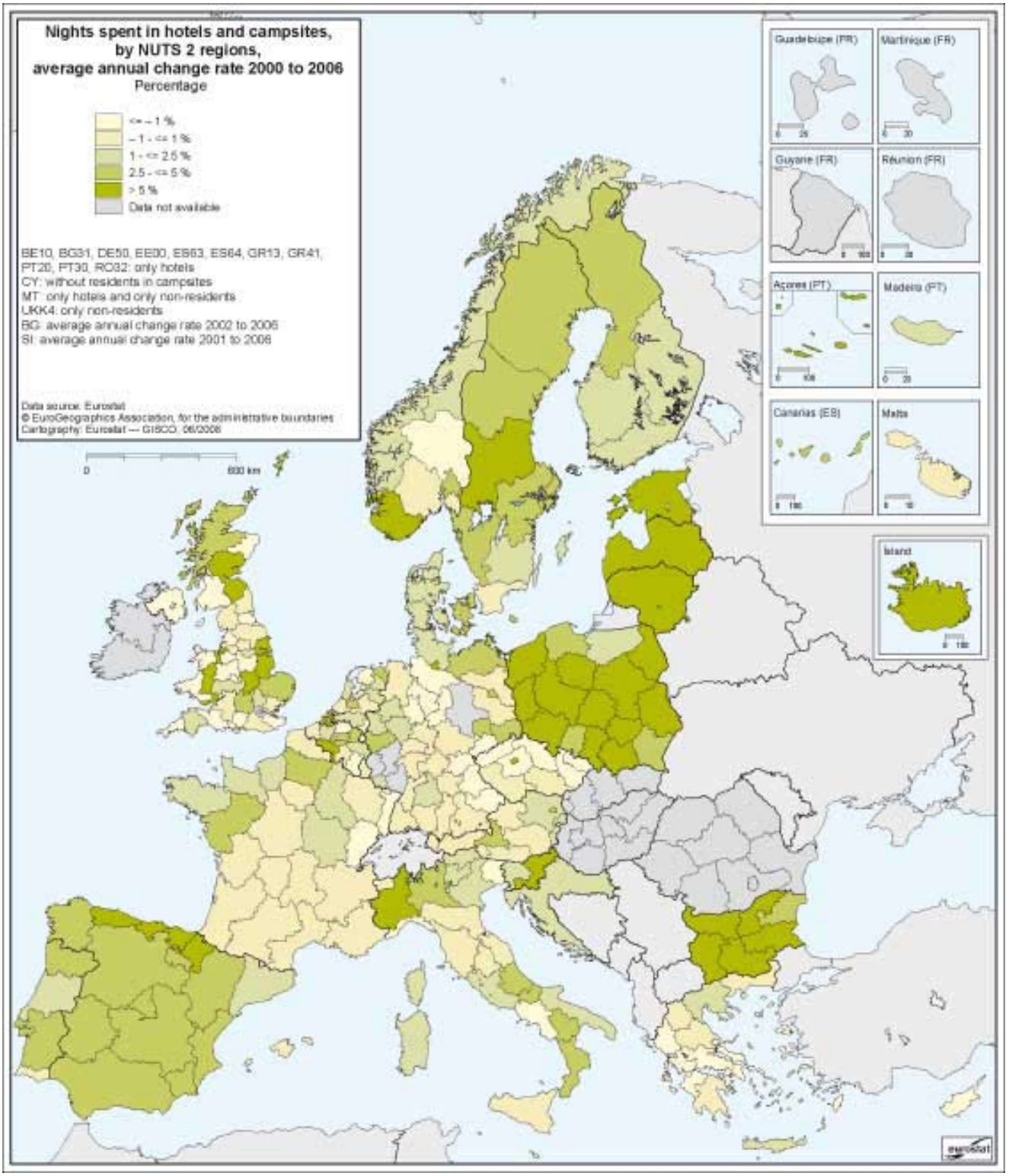


Notes: EE only hotels; MT only non residents

Map 10.3: Night spent in hotels and campsites per 1 000 inhabitants, by NUTS 2 regions, 2006



Map 10.4: Nights spent in hotels and campsites, by NUTS 2 regions, average annual change rate 2000 to 2006
Percentage



the EU-27 average of 1.2 %. Most regions of the Iberian peninsula (except the Algarve), Finland and Sweden (except Sydsverige) showed a regular upward trend, with average annual growth rates of 1 % or more.

Inbound tourism

Inbound tourism, or visits from abroad, is of particular interest to most analyses of tourism in a given region. The statistically important factor here is the usual place of residence of visitors, not their nationality. Foreign visitors, particularly those from distant countries, usually spend more per day than domestic visitors during their stays and thus carry greater weight as a demand factor for the local economy. Their expenditure also contributes to the balance of payments of the country visited and they may therefore help to offset foreign trade deficits.

Map 10.5 shows overnight stays by foreign visitors as percentages of total overnight stays in the various regions. The values can be seen to differ very widely from region to region, ranging from less than 10 % to over 90 %. Europe's islands, or at least those in the south, show particularly high figures for foreign visitors as a percentage of total overnight stays. This is true not only of the island states of Cyprus and Malta, but also of the Greek island regions, the Spanish Illes Balears and Canarias, and the Portuguese Regiãos Autónomas dos Açores and da Madeira. High percentages of foreign visitors are also found in the three Baltic states, in the Belgian regions, in Slovakia and Luxembourg, and in the Alpine regions of Austria, northern Italy and Slovakia.

Camping tourism

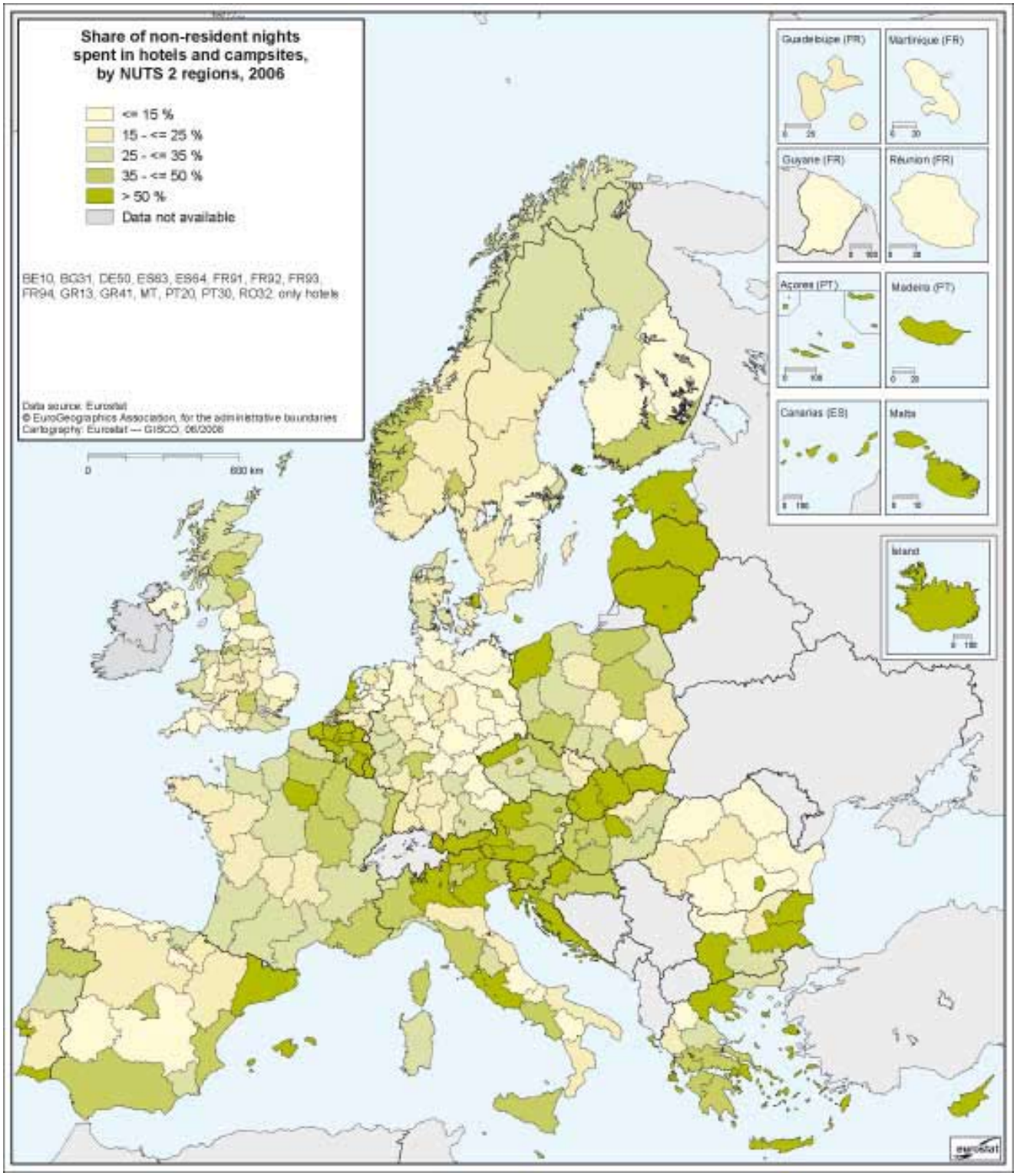
Camping tourism is a special segment of the tourism market. It is more strongly weather-dependent than other types of tourism and therefore more seasonal. Map 10.6 shows the distribution of overnight stays on campsites across the regions of Europe. It can be seen here that camping tourism is more common in western and northern Europe, in the Iberian peninsula, in Italy and on the Adriatic coast of Croatia. The relative scarcity of camping in Greece, Cyprus, Malta and the two leading Spanish tourism regions, Illes Balears and Canarias, is also noticeable. Camping is also still relatively uncommon in the new Member States in the east of the European Union.

Future prospects

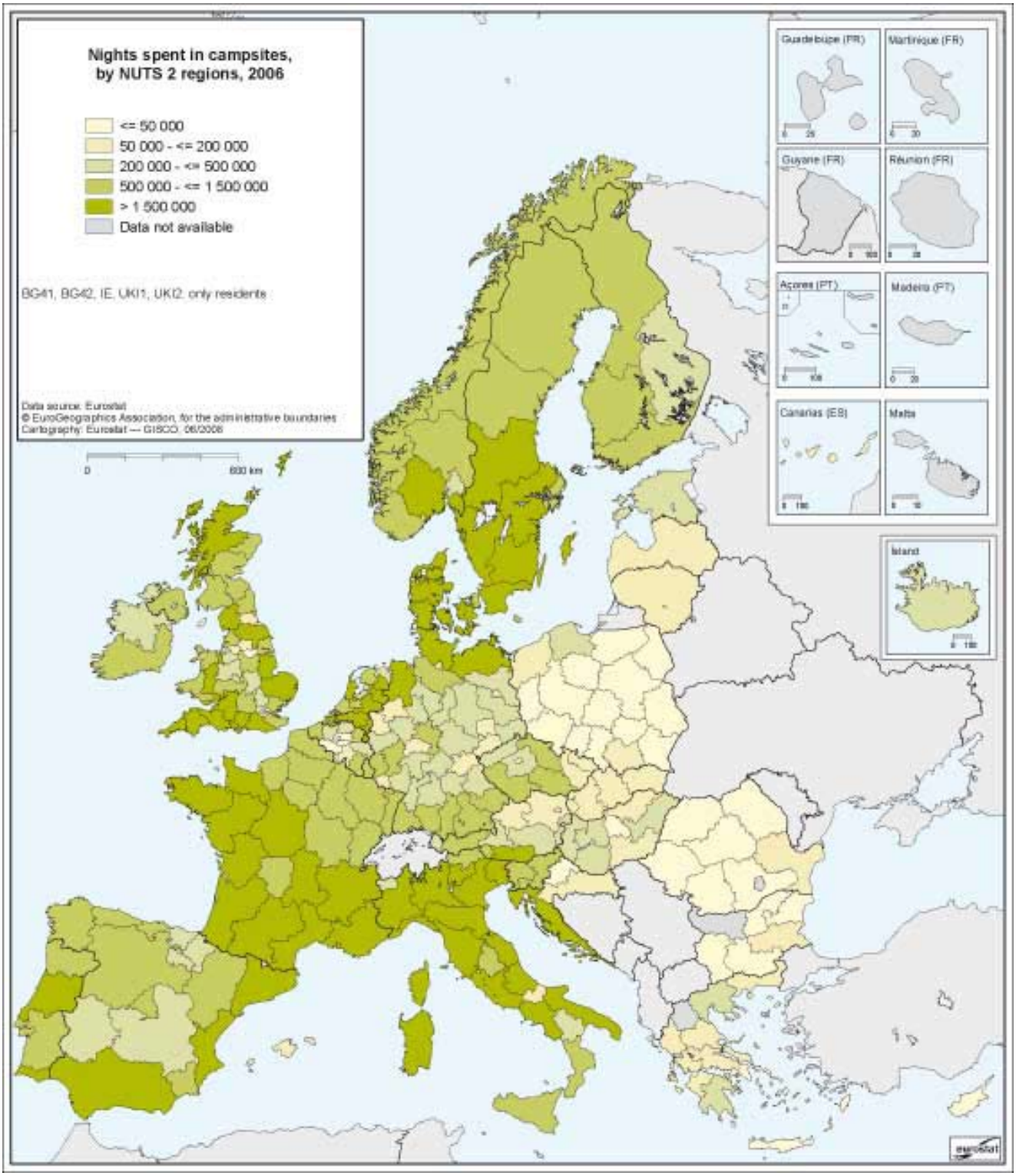
According to the World Tourism Organisation, Europe is the most frequently visited region on Earth. Six of the top 10 countries for visitors worldwide are European Union Member States. The wealth of its cultures, the variety of its landscapes and the exceptional quality of its tourist infrastructure are some of the reasons for this prominent position. The accession of the new Member States has hugely enriched the European Union's tourism potential by enhancing its cultural diversity and providing interesting new destinations for many citizens to discover. It is therefore no surprise that most of the new Member States, particularly those in the east of the European Union, have seen dynamic growth in tourism since their accession.

Following the slight downturns at the start of this decade, tourism has recovered well even in the traditional tourist centres, more than compensating for the declines in the 2001–03 period. The generally favourable economic climate in Europe has probably made a major contribution here. All empirical results suggest that even natural disasters and terrorist attacks cannot dampen people's travel plans for long. They have, on the contrary, sometimes diverted tourism flows from other continents to Europe. A continuing stable economy overall gives prospects of further growth in European tourism in the years to come.

Map 10.5: Share of non-resident nights spent in hotels and campsites, by NUTS 2 regions, 2006



Map 10.6: Nights spent in campsites, by NUTS 2 regions, 2006



Methodological notes

Harmonised statistical data on tourism have been collected since 1996 in the Member States of the European Union on the basis of Council Directive 95/57/EC of 23 November 1995 on the collection of statistical information in the field of tourism. The programme covers both the demand side, i.e. data on available accommodation capacity (establishments, rooms, bedplaces) and its utilisation (number of visitor arrivals and overnight stays), and the supply side, i.e. the travel behaviour of the population. Results by region below Member State level are available only for the supply side, however.

The presentation of tourism statistics in this chapter is restricted to 'hotels and similar establishments' and 'tourist campsites'. Results for 'holiday dwellings' and 'other collective accommodation', on which data are also collected under the tourism statistics directive, are not included in this analysis since their comparability must still be regarded as limited, particularly at regional level.

The analysis of tourism statistics covers data on both private and business travellers. This means that the underlying definition of tourism is broader than the concept in common use. The reason for this is primarily economic, since the two groups of travellers demand similar services and are thus more or less interchangeable for the providers of those services.

11

Science, technology and innovation

Introduction

In March 2005, the European Council decided to relaunch the Lisbon strategy with the initiative on growth and jobs. Knowledge and innovation for growth became one of three main areas for action in the new Lisbon partnership for growth and jobs. Science, technology and innovation were put at the heart of EU policies, EU funding and business.

To follow Europe's performance on science, technology and innovation, a number of indicators can be used from the domains of research and development (R & D), innovation, human resources in science and technology, high-tech industries and knowledge-based services and patenting. In recent years, much progress has been made, with more and more up-to-date data produced in the various domains concerned. This chapter gives examples of the available regional indicators for science, technology and innovation, focusing on highly qualified personnel and patents. These indicators are of interest in that highly qualified human resources are the foundation of all research and innovation and patents are proof of converting hard-earned knowledge into innovative output.

More regional indicators for science, technology and innovation are available on the Eurostat webpage under 'science and technology' (see link in the Methodological notes).

Human resources in science and technology

There can be no research or development without human resources. For science and technology to develop further in the EU, the stock of highly qualified persons needs to grow rather than diminish. This group can be measured in different ways, one way being from the angle of education and occupation by using the set definition of 'human resources in science and technology' (HRST). HRST are persons who have completed tertiary education and/or are employed in a science and technology occupation for which tertiary education is normally required. The core group of HRST (HRSTC) are persons that fulfil both criteria, meaning that they have both completed tertiary education and are employed in a science and technology occupation.

Map 11.1 shows that persons who have completed tertiary education and are employed in a science and technology occupation (HRSTC) are concentrated in urban regions, and especially in capital regions. Companies might have their headquarters based in capitals, and, as government institutions, higher education institutes and other knowledge-intensive workplaces are also often located in capital regions, this results in a natural concentration of highly qualified persons. Persons that have recently graduated from higher education are aware of this and are therefore attracted to these regions, since they offer good opportunities for finding qualified jobs. In addition, this makes these and nearby regions good places for new companies to open up businesses, given the pool of highly qualified human resources on their doorstep.

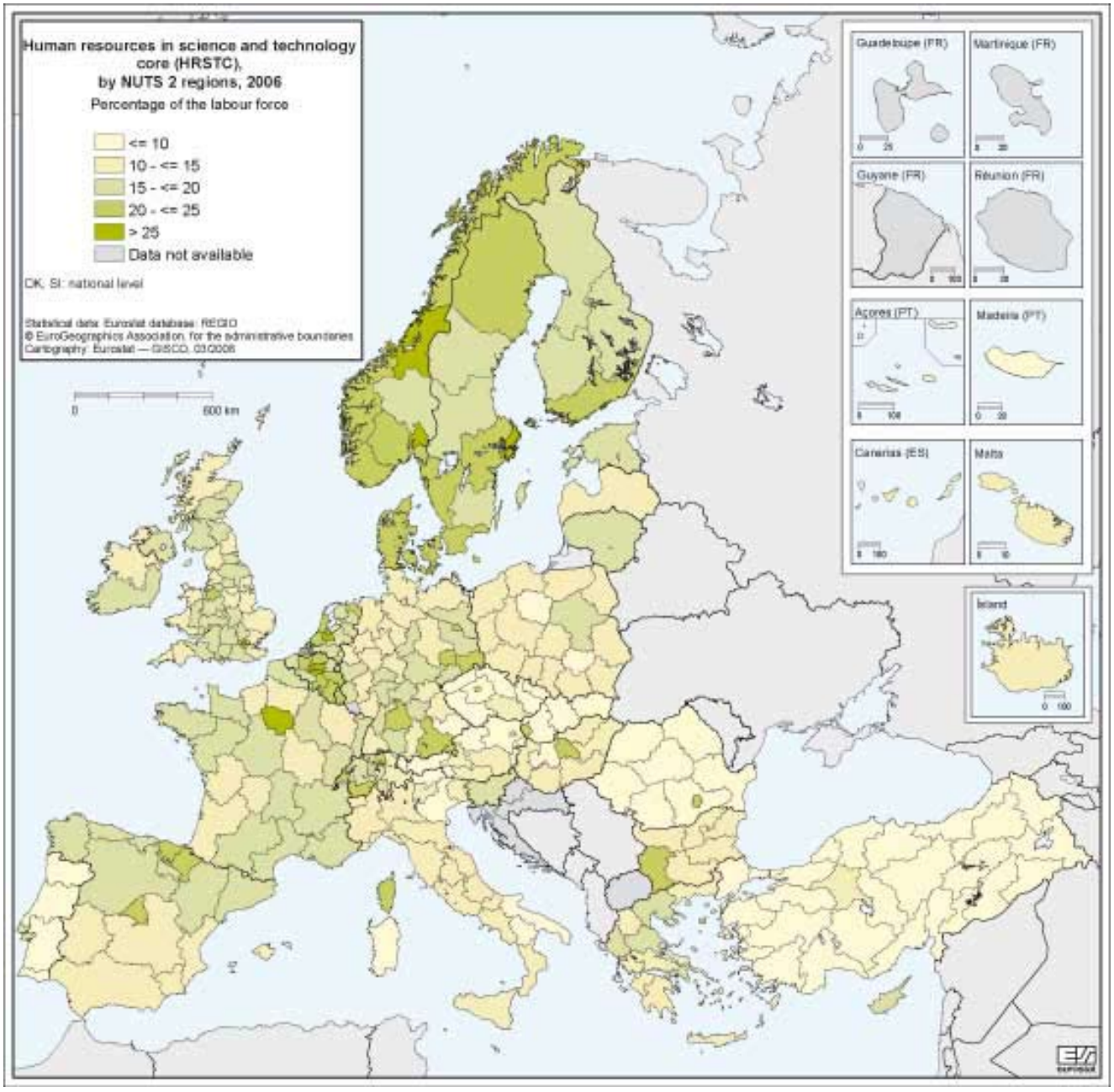
But the concentration of highly qualified persons depends on more than whether it is a capital region or not. In densely populated areas, like the Benelux countries (Belgium, the Netherlands and Luxembourg), the concentration is also often high. Other regions with a high concentration of HRSTC are regions in countries with traditionally large shares of tertiary graduates, such as the Nordic countries. A look at Map 11.1 shows that all regions in Denmark, Norway, Sweden and Finland have shares of over 15 %. In this cluster, the two regions with the highest shares of HRSTC among the labour force are found in Oslo og Akershus (Norway), with 33.3 %, and Stockholm (Sweden), with 28.2 %. The third-largest share is found in the Province of Brabant Wallon (Belgium), with 27.8 %, in the Benelux area, which is another cluster presenting high regional shares of HRSTC.

A divide between the westerly and northerly regions of Europe and the southerly and eastern regions of Europe is apparent, where the latter regions generally display low shares of HRSTC. The 18 regions with the lowest shares of HRSTC among the labour force are all Turkish regions. The lowest share is found in Van (Turkey), with 3.9 %. However, some exceptions exist, one of them being București — Ilfov (Romania), which is ranked among the top 10 regions, with a share of 24.7 %. Other exceptions are the recently joined Member States of Cyprus, Estonia, Lithuania and Slovenia. These four countries are classified as single NUTS 2 regions, but they still post shares of above 15 %.

High-technology industries and knowledge-intensive services

Based on R & D intensity, sectors of economic activity can be subdivided into more specific

Map 11.1: Human resources in science and technology core (HRSTC), by NUTS 2 regions, 2006
Percentage of the labour force



sub-sectors for the purposes of analysing employment in science and technology. Two sub-sectors of great importance for science and technology are high-tech knowledge-intensive services and high-tech manufacturing. In this section, these two sub-sectors are referred to as 'high-tech sectors'. It should be noted that three quarters of the high-tech sectors in 2006 were persons occupied in high-tech knowledge-intensive services while a quarter were occupied in high-tech manufacturing. High-tech knowledge-intensive services include the sub-sectors of post and telecommunications, computer and related activities, and research and development. High-tech manufacturing includes, for example, manufacture of computers, televisions and medical instruments.

Some 66 % of the labour force in the EU in 2006 were employed in the total service sector, but only 3 % were employed in high-tech knowledge-intensive services. In addition, 18 % were employed in manufacturing, but only 1 % in high-tech manufacturing. Together, these high-tech sectors employed 4.4 % of the EU labour force.

At first glance, Map 11.2 shows similar patterns to Map 11.1, which indicates the share of the core group of human resources in science and technology (HRSTC) among the labour force, with high shares in capital regions and regions close to capitals. Berkshire, Buckinghamshire and Oxfordshire (United Kingdom), situated in close proximity to London, stand out with 11.5 % of its labour force in high-tech sectors. No other region has a share above 10 %, the next closest region being Stockholm (Sweden) with 9.3 %.

There are only four Member States, Denmark, Ireland, Malta and Finland, along with Iceland and Switzerland, where all regions have more than 4 % of the labour force working in high-tech sectors. Map 11.2 shows a further cluster of relatively high shares stretching from Cataluña in the north of Spain through the southern regions of France and the northern regions of Italy, up through Switzerland and the southern regions of Germany to the western regions of the Czech Republic and Hungary. The regions of the United Kingdom and the Benelux countries also show relatively high shares of employment in high-tech sectors.

Conversely, many of the regions in eastern and south-western Europe show low shares of people employed in high-tech sectors. Hatay (Turkey) displays the lowest share, with 0.4 % of employment in high-tech sectors.

Looking at high-tech knowledge-intensive services and high-tech manufacturing separately shows that there are many differences. Table 11.1 shows the 30 leading regions with the highest shares of employment in these two sectors, and there are only four regions that appear on both lists: Berkshire, Buckinghamshire and Oxfordshire (United Kingdom), Oberbayern (Germany), Etelä-Suomi (Finland) and Karlsruhe (Germany).

Berkshire, Buckinghamshire and Oxfordshire (United Kingdom) is the region with the highest share of employment in high-tech knowledge-intensive services, with 9.2 %. It is followed by six capital regions, of which Stockholm (Sweden) registered the highest share, with 8.3 %. In fact, of the 30 top regions nearly half are capital regions.

Looking at the regions with the highest shares of employment in the other sub-sector, high-tech manufacturing, only three capital regions appear on the list: Espace Mittelland (Switzerland), Etelä-Suomi (Finland) and Malta. The two regions with the highest shares of employment in high-tech manufacturing are Hungarian: Nyugat-Dunántúl and Közép-Dunántúl, with 4.8 % and 4.4 %, respectively. Central European regions are well represented, 22 of the 30 leading regions being Austrian, Czech, German, Hungarian, Slovak or Swiss.

Patents

Patents reflect a country's inventive activity and its capacity to translate knowledge into economic gain. For a certain time and within a certain geographical area, patents give protection to innovations.

They provide a useful indicator of innovative developments in all areas of technology, and they can denote the level of innovative activity in a particular market, region or country.

Patent data shown in the Eurostat reference database at regional level only provide information up to 2002. A full update with data up to 2005 will be available in the second half of 2008.

Patent data are related to international patent classification (IPC). The IPC codes given to each patent make it possible to aggregate them in different technological areas, such as biotechnology, high technology and ICT (information and communication technology). A concordance table links the IPC codes to NACE codes, thus showing patents by industrial sector.

Map 11.2: Employment in high-tech sectors, by NUTS 2 regions, 2006
Percentage of total employment

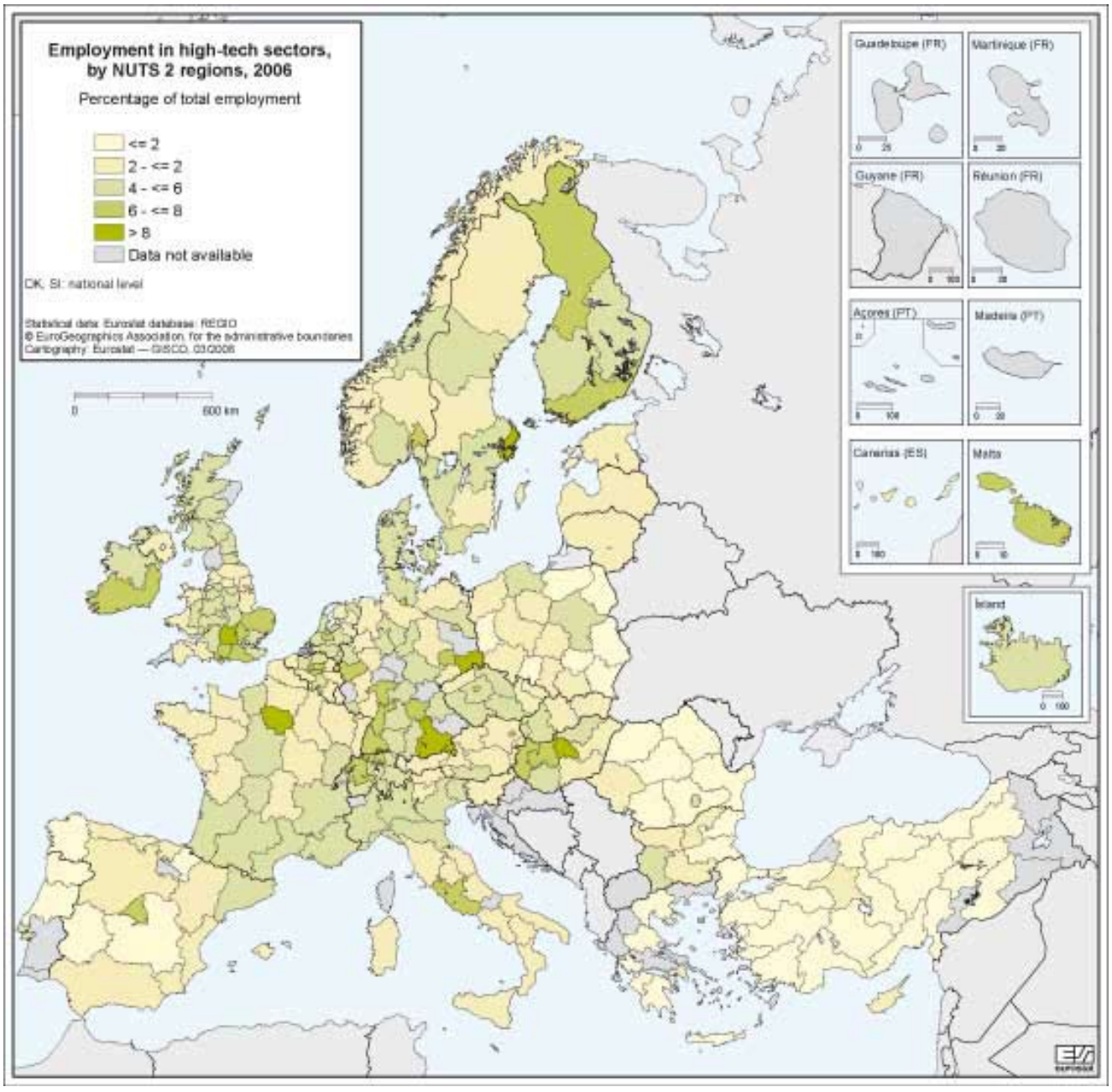


Table 11.1: 30 leading regions in employment in high-tech knowledge-intensive services and high-tech manufacturing, by NUTS 2 regions, 2006

High-tech knowledge-intensive services			High-tech manufacturing		
	% of total employment	Total number (1 000s)	Total number (1 000s)	% of total employment	
Berkshire, Bucks and Oxfordshire (UK)	9.2	106	21	4.8	Nyugat-Dunántúl HU)
Stockholm (SE)	8.3	82	21	4.4	Közép-Dunántúl (HU)
Île de France (FR)	7.2	356	34	4.3	Mittelfranken (DE)
Oslo og Akershus (NO)	7.0	39	30	4.2	Dresden (DE)
Comunidad de Madrid (ES)	6.6	195	20	3.8	Oberpfalz (DE)
Közép-Magyarország (HU)	6.5	80	9	3.5	Pohjois-Suomi (FI)
Prov. Vlaams Brabant (BE)	6.5	30	31	3.3	Hampshire and Isle of Wight (UK)
Oberbayern (DE)	6.2	132	30	3.3	Espace Mittelland (CH)
Bedfordshire, Hertfordshire (UK)	6.2	50	5	3.1	Malta (MT)
East Anglia (UK)	5.9	64	33	3.1	Freiburg (DE)
Surrey, East and West Sussex (UK)	5.9	75	16	3.1	Border, Midlands and Western (UK)
Praha (CZ)	5.8	36	38	2.9	Karlsruhe (DE)
Utrecht (NL)	5.7	36	29	2.7	Thüringen (DE)
Prov. Brabant Wallon (BE)	5.6	8	9	2.6	Dél-Dunántúl (HU)
Lazio (IT)	5.6	119	22	2.6	Západné Slovensko (SK)
Berlin (DE)	5.6	82	38	2.5	Southern and Eastern (UK)
Etelä-Suomi (FI)	5.6	72	14	2.5	Jihozápad (CZ)
Outer London (UK)	5.5	120	10	2.5	Észak-Magyarország (HU)
Leipzig (DE)	5.2	24	17	2.4	Severovýchod (CZ)
Hamburg (DE)	5.1	42	6	2.4	Kärnten (AT)
Bratislavský kraj (SK)	5.1	16	30	2.3	Etelä-Suomi (FI)
Wien (AT)	5.0	38	49	2.3	Oberbayern (DE)
Köln (DE)	5.0	89	22	2.3	Schwaben (DE)
Inner London (UK)	4.9	64	26	2.3	Berkshire, Bucks and Oxfordshire (UK)
Flevoland (NL)	4.9	9	16	2.2	Zürich (CH)
Västsverige (SE)	4.8	44	9	2.2	Zentralschweiz (CH)
Bucuresti - Ilfov (RO)	4.7	48	28	2.2	Schleswig-Holstein (DE)
Saarland (DE)	4.7	21	12	2.1	Ostschweiz (CH)
Karlsruhe (DE)	4.7	62	12	2.0	Střední Morava (CZ)
Sydsverige (SE)	4.7	29	16	2.0	Alsace (FR)

A closer look at high-tech patent applications per million inhabitants at national level shows that Finland ranked first, far ahead of Sweden and the Netherlands.

High regional concentration of high-tech patenting

At regional level, high-tech patenting appears to be highly concentrated in the EU-25 regions. Some 27 % of high-tech patent applications are covered by four regions: Oberbayern (Germany), Île-de-France (France), Noord-Brabant (Netherlands) and Etelä-Suomi (Finland). The concentration of high-tech patenting is linked to a number of specific regions spread over EU-25 countries. Only in Finland and in Germany are there several regions concerned that are geographically close. In the Netherlands, the difference between the most active high-tech patenting region and the least active is very high.

Some 50 % of high-tech patent applications are presented by inventors living in 14 regions. These regions are part of eight different Member States: five are German, two French, two British, one Dutch, one Finnish, one Italian, one Swedish and one Danish. This means that half of all high-tech patent applications are from inventors from 6 % of all regions involved in high-tech patenting. Inventors from 35 regions filed 75 % of all EU-25 high-tech patents. Thus, a large majority of 184 regions were only responsible for the remaining 25 % of high-tech patent applications.

Map 11.3 shows the geographical situation of EU-25 regions with comparable high-tech patenting activity per million inhabitants in 2002. The most dynamic regions in high-tech patenting are quite scattered. Looking at the map, the Finnish regions are the most active in high-tech patenting per million inhabitants. In Germany, the most dynamic high-tech patenting regions are in the southern part of the country, whereas in France these dynamic regions are not close together at all, i.e. Île-de-France, Rhône-Alpes and Bretagne.

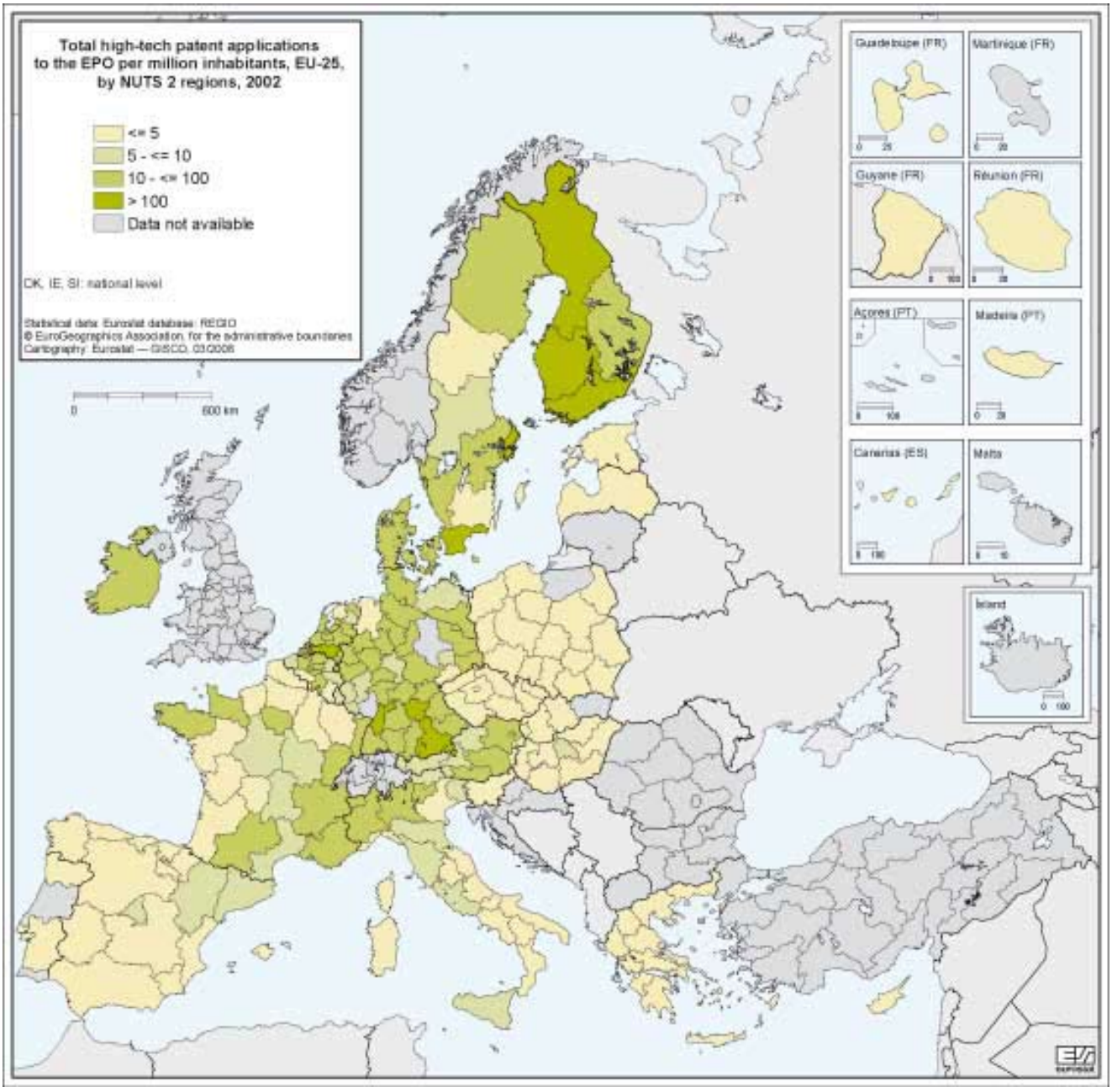
The data show that Noord-Brabant (Netherlands) was well in the lead, ranking first with 343 high-tech patent applications per million inhabitants. The figures per million inhabitants among the following regions then fell steadily from 209 in Oberbayern (Germany) to 62 in Wien (Austria), which brought up the rear of the list of the 15 leading regions. The Scandinavian regions are well represented: Finland had three regions among the first seven and Sweden two of the first eight.

Conclusion

Relevant and meaningful indicators for science, technology and innovation are paramount for keeping policy makers abreast of where European regions stand in their quest for more knowledge and growth and how their position is evolving. The statistics and indicators presented in this chapter highlight European regions' recent performance in human resources in science and technology, high-tech industries and knowledge-based services and patenting. The range of data and indicators produced is constantly evolving to give broad coverage of the regional dimension in all the areas mentioned.

Further work is being carried out to produce more regional data in various fields of activity, for example in the domain of high-tech industries and knowledge-based services.

Map 11.3: Total high-tech patent applications to the EPO per million inhabitants, EU-25, by NUTS 2 regions, 2002



Methodological notes

The data in the maps or tables in this chapter are extracted from the following domains: science and technology; human resources in science and technology; high-technology industries and knowledge-intensive services; and patent statistics.

The statistics on human resources in science and technology (HRST) are compiled annually, based on microdata extracted from the EU labour force survey. The basic methodology for these statistics is laid down in the *Canberra Manual*, which lists all the HRST concepts.

The data on high-technology industries and knowledge-intensive services are compiled annually, based on data collected from a number of official sources (EU labour force survey, structural business statistics, etc.). The high-technology or knowledge-intensive aggregates are generally defined in terms of R & D intensity, calculated as the ratio of R & D expenditure on the relevant economic activity to its value added.

Finally, the data on patent applications to the European Patent Office (EPO) are compiled on the basis of microdata received from the EPO. The patent data reported include the patent applications filed at the EPO during the reference year, classified by the inventor's region of residence and in accordance with the international patents classification of applications. Patent data are regionalised using procedures linking postcodes and/or place names to NUTS 2 regions.

Since 2004, the OECD interinstitutional patent statistics task force has been developing a worldwide raw database on patent statistics (Patstat). Patstat is a single raw database on patent statistics, held by the EPO and developed in cooperation with the World Intellectual Property Organisation (WIPO), the OECD and Eurostat. Patstat should meet the needs of all users from the various international organisations who draw on this raw database to produce their own statistics.

For further information on methodology, see the relevant Eurostat webpage (http://epp.eurostat.cec.eu.int/portal/page?_pageid=1996,45323734&_dad=portal&_schema=PORTAL&screen=welcomeref&open=/&product=EU_science_technology_innovation&depth=2).

12

Health

Introduction

Health is an important priority for Europeans; they expect to be protected against illness and disease — at home, in the workplace and when travelling. Health is a cross-cutting issue involving a range of topics including consumer protection (food safety), safety in the workplace, and environmental and social policies.

The establishment of EU-wide comparable data on public health and its determinants is closely linked to one of the priorities of the community action programme in the field of public health 2008–13, namely the priority to generate and disseminate health information and knowledge.

It is within this priority area that Eurostat contributes to the achievement of other objectives of the action programme, by collecting and disseminating statistical data and health indicators, which will help policymakers to identify health risks and improve citizens' health security and to promote health, including by the reduction of health inequalities.

Causes of death

Mortality patterns differ significantly according to age and sex, but they also vary between countries and between regions. There are three types of factors that determine mortality patterns: intrinsic factors, such as age and sex, extrinsic factors, such as biological or social collective factors, living or working conditions, and individual factors, such as lifestyle, smoking, alcohol consumption, driving and sexual behaviour.

As a general rule, mortality is higher among men than among women in all age groups. Although there are signs that the mortality gap is narrowing in some Member States, there are still significant differences between the genders.

Variations in mortality patterns highlight the major difference in causes of death according to the particular age group of the population. Since people tend to live longer nowadays, diseases of the circulatory system are the main cause of death in the European Union. Malignant neoplasms are the second most frequent cause, affecting mainly the middle-aged and the elderly. At the same time, the largest proportion of deaths in the younger age groups is due to external causes (including transport accidents). The distribution of causes of death also varies according to geographical location: most of the new Member States, for example, are characterised by high death rates due to diseases of the circulatory system, with the Baltic States also recording excess mortality from external causes.

All the reasons mentioned above make the case for examining mortality rates more closely, both at national and at regional levels, distinguishing between men and women and between different age groups.

Colorectal cancer

Colorectal cancer (also called bowel cancer) includes cancerous growths in the colon, rectum and anus and is the second most frequent cause of deaths from cancer in Europe; it accounts for more than one in 10 of all malignant cancer deaths (11.2 %) and for 3 % of all deaths within the European Union in the period 2003–05. Colorectal cancer mainly affects older people: seven out of 10 deaths occur after the age of 65 years.

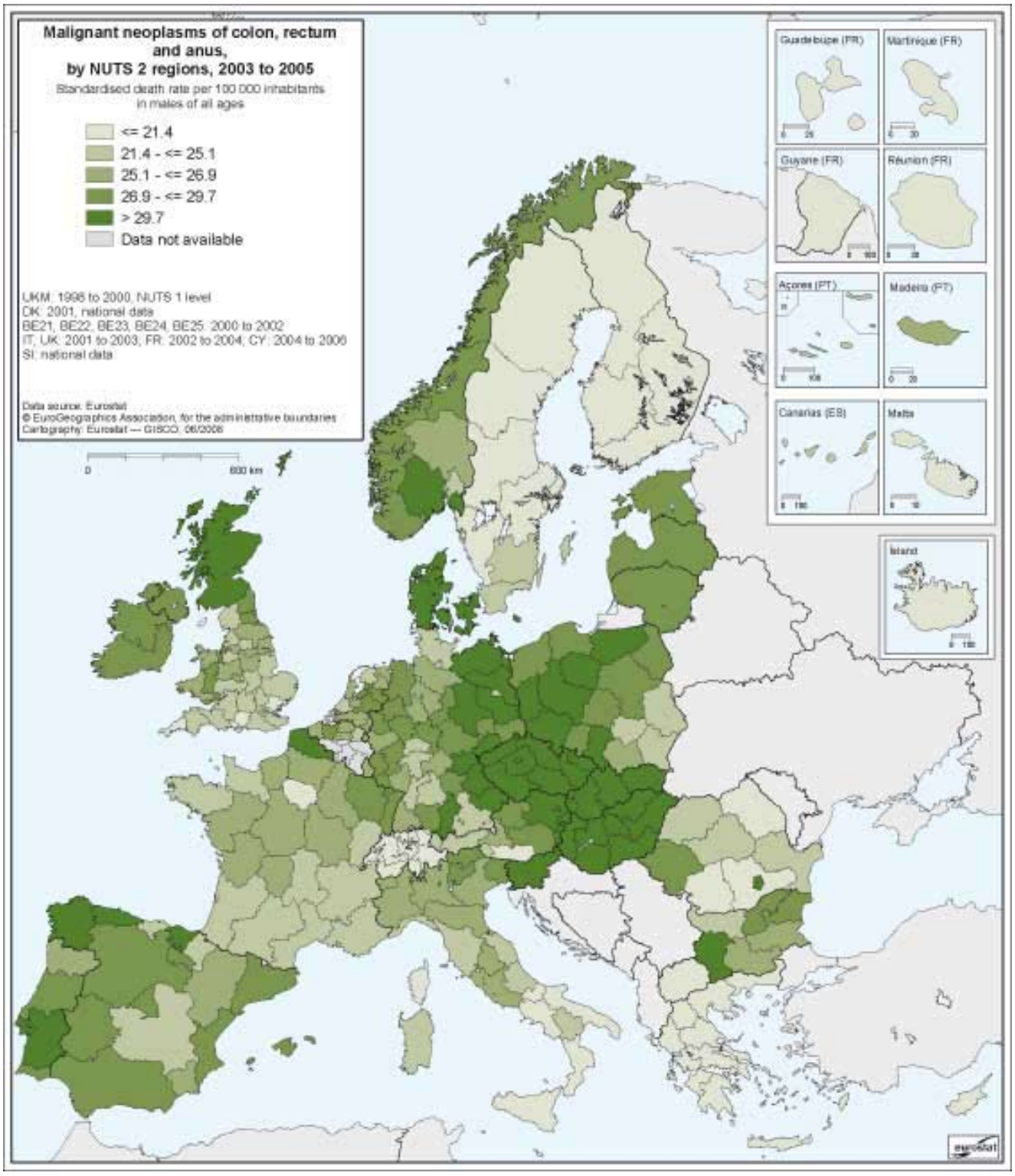
There are considerable differences in the patterns of deaths from colorectal cancer within Europe; these are shown in Maps 12.1 (male death rates) and 12.2 (female death rates). The average death rates range from 26 deaths per 100 000 inhabitants for men and 16 deaths per 100 000 inhabitants for women.

Taking all ages together, in almost all cases the male/female mortality ratios for colorectal cancer show a male excess mortality in virtually every region, except for Martinique (France), where more female deaths were recorded (11.3 compared with 10.6). For other regions within the EU-27 the variation is relatively small, ranging from close to 1.0 in Åland (Finland) and Sterea Ellada (Greece) to around 2.3 in Principado de Asturias (Spain), País Vasco (Spain) and Stredné Slovensko (Slovakia).

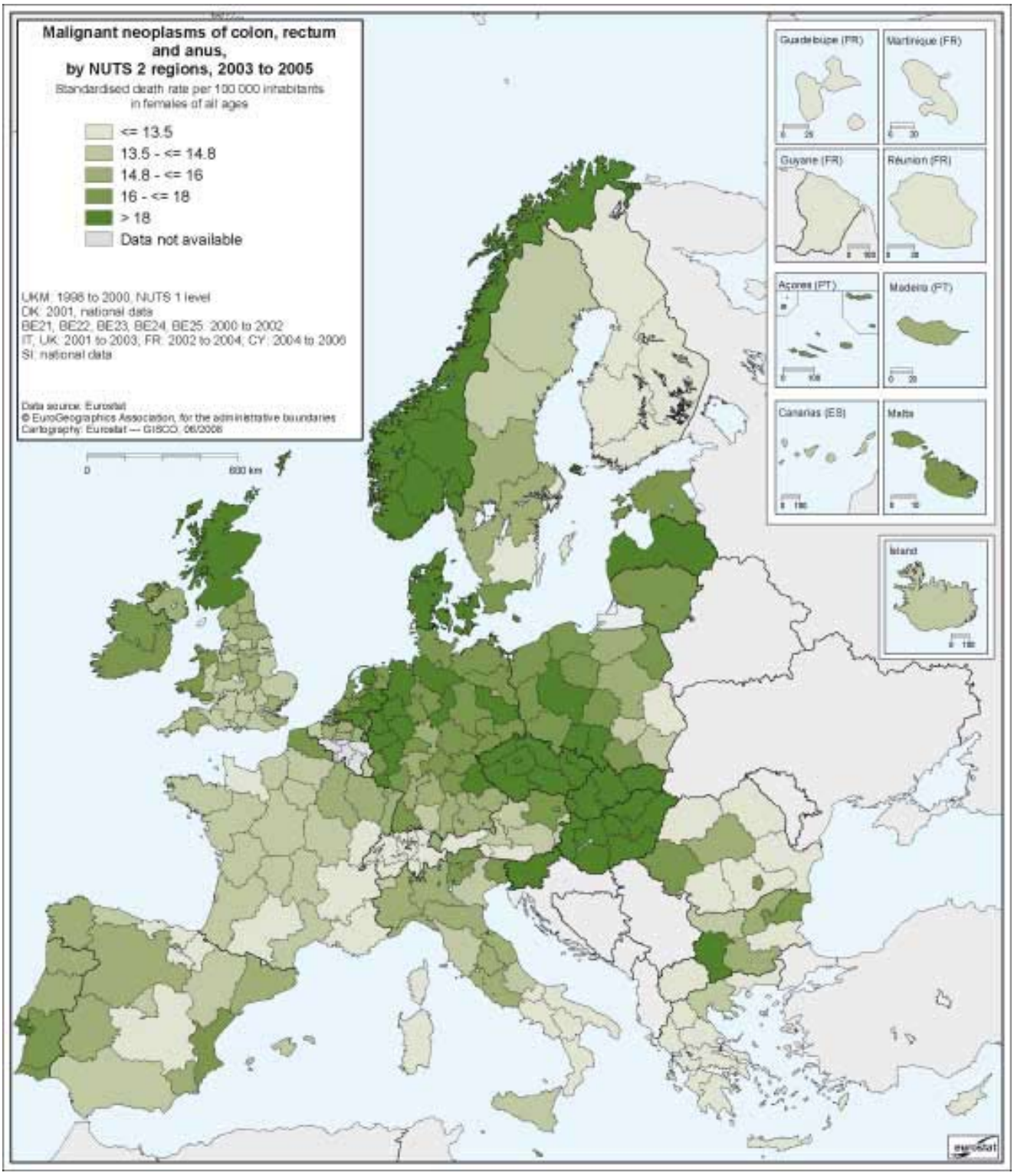
The regional pattern of mortality is not very evident, although some regional particularities are apparent. High mortality is observed in the central and east European regions, as well as in Norway and Portugal, for the period 2003–05. Mortality rates were particularly high in Hungary (36.1), the Czech Republic (34.7) and Slovakia (31.4), being on average 77 %, 70 % and 54 % higher than the EU-27 average (20.4). At the other end of the scale are the regions of Finland (13.9), Greece (12.6), and Cyprus (10.1), where mortality from colorectal cancer was the lowest in the EU-27, with rates respectively 32 %, 38 % and 50 % lower than the EU-27 average.

The number of new cases of colorectal cancer and the number of deaths from colorectal cancer are

Map 12.1: Malignant neoplasms of colon, rectum and anus, by NUTS 2 regions, 2003 to 2005
Standardised death rate per 100 000 inhabitants in males of all ages



Map 12.2: Malignant neoplasms of colon, rectum and anus, by NUTS 2 regions, 2003 to 2005
Standardised death rate per 100 000 inhabitants in females of all ages



decreasing slightly each year. However, the survival rate for such cancers is only 54 %. Although it is impossible to influence a number of factors associated with increased risk, such as genetic predisposition or ageing, the incidence of colorectal cancer could be lowered by taking preventive measures and reducing risk factors. There is broad agreement about a correlation between obesity, a diet high in red meat, proteins and fats and high alcohol consumption, and an increased risk of colorectal cancer.

Transport accidents

Regional death rates from transport accidents (which include road, rail and air accidents) mainly reflect the mortality associated with road accidents, which cause by far the greatest number of deaths in the group. Over three quarters of the deaths caused by road accidents affect those under 65 years.

Road traffic accidents from the majority of all transport-related fatalities are the main cause of mortality in the 15–24 age group in most European regions. Map 12.3 shows the regional distribution of transport accidents for men and Map 12.4 likewise for women.

Disparities in deaths from transport accidents across Europe are clearly marked: causing more than 20 deaths per 100 000 inhabitants in the period 2003–05 in Cyprus, Lithuania and Latvia, compared with the Netherlands, Malta or Sweden where rates are more than five times lower.

Deaths from transport accidents do not affect the whole population evenly. Premature mortality rates due to transport accidents for males are on average 3.7 times higher than for females. Although the male/female mortality ratio may vary significantly across countries, from less than 3 in Cyprus, Iceland and Luxembourg to more than 5 in the former Yugoslav Republic of Macedonia and Malta, in general the pattern for men and women follows the same trend.

When comparing regional rates, the population size and number of vehicles must be taken into account, together with other factors affecting road safety, such as the quality of the roads and observance of traffic regulations.

Analysed by sub-national areas, mortality rates for transport accidents vary considerably across the EU. The regional distribution of premature mortality expressed in standardised death rates (SDRs) shows a very clear pattern of European risk areas. The highest SDRs for accidents are reported for a more or less coherent area stretching from the Baltic countries via Poland, Slovakia, and regions in the Czech Republic, Austria and Hungary through Romania all the way to Greece.

In the southern part of the EU, almost all regions in Portugal and Greece show high SDRs for the period 2003–05, and indeed the highest rates in the EU; the Portuguese provinces of Algarve and Alantejo rank in second and third place respectively. The lowest mortality rates were found mainly in regions with large urban areas, such as Berlin (3.3), Bremen (3.5) and Hamburg (3.5) in Germany, in Zuid-Holland (with 3.7 for Rotterdam) and Noord-Holland (with 4.3 for Amsterdam) in the Netherlands, Stockholm (3.7) in Sweden, Outer London (4.1) in the United Kingdom, Oslo og Akershus (4.7) in Norway, Zurich (4.9) in Switzerland and Wien (5.3) in Austria.

One possible explanation for these rates is the relatively lower traffic speeds encountered in urban areas, as well as greater efficiency of the emergency care provided to accident victims.

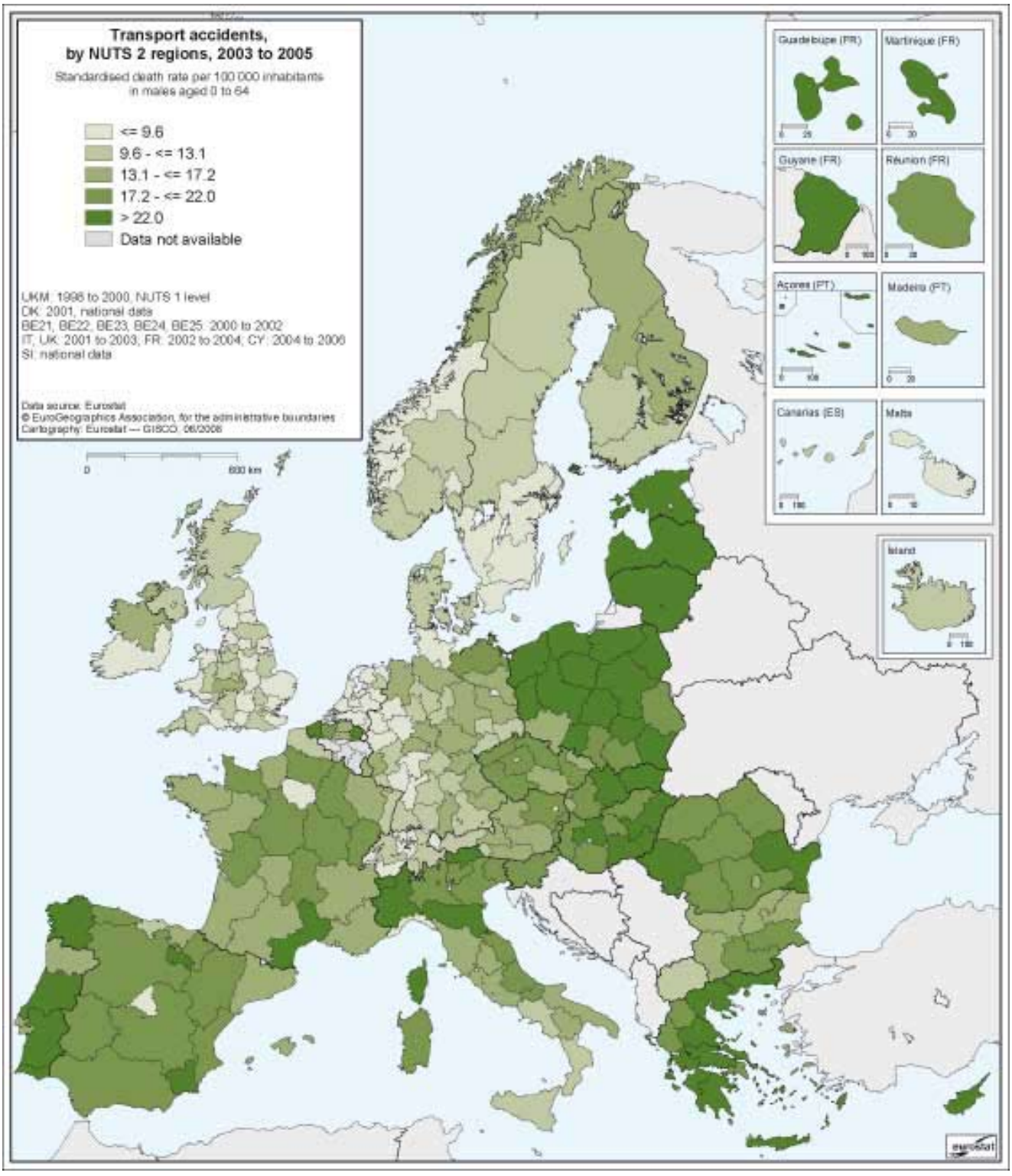
The mortality pattern in many cases follows national borders. In public health terms, transport accidents are arguably the most avoidable cause of loss of productive life — suggesting that there is an important role here for policymakers.

Healthcare staff

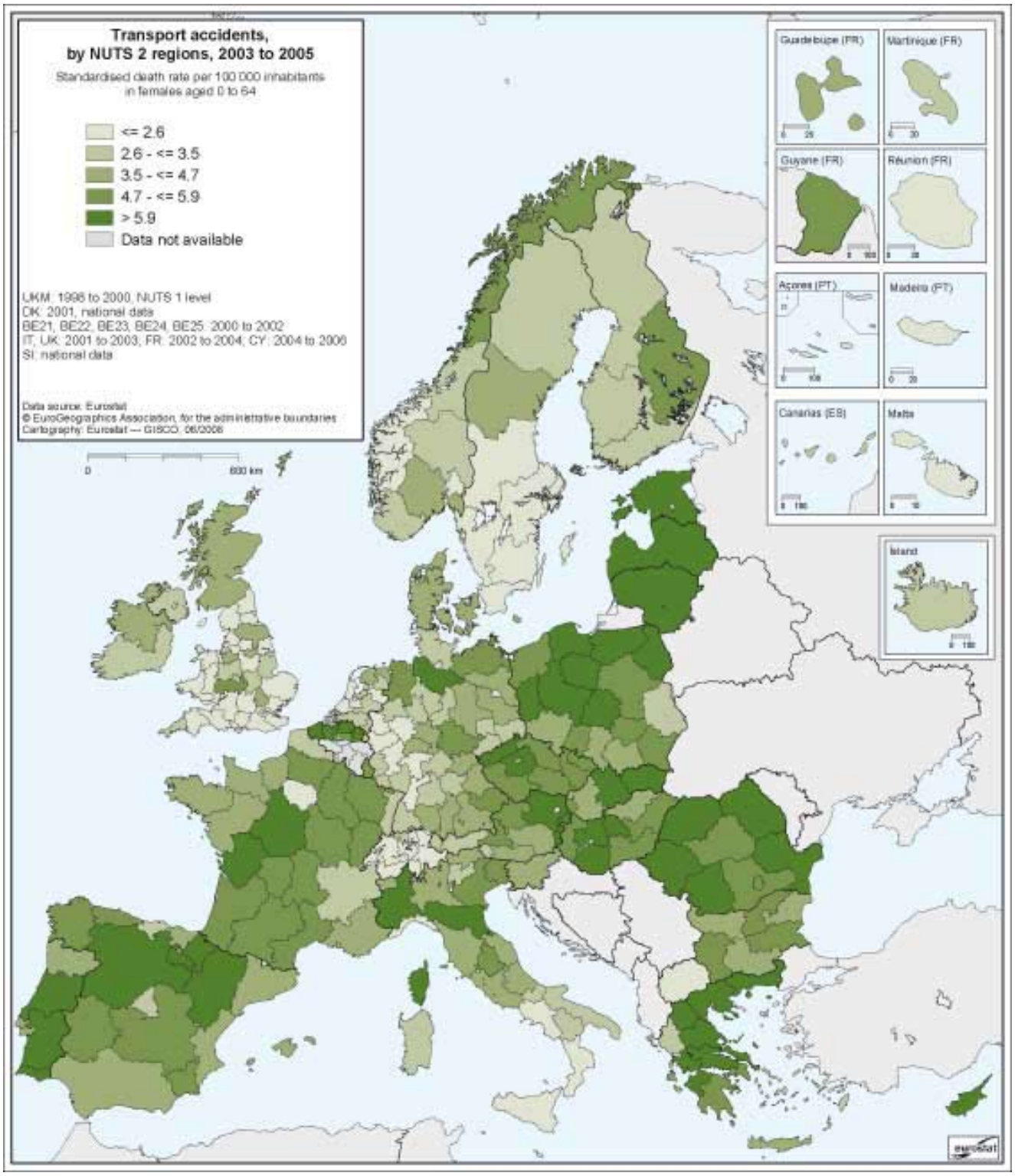
Regional data on healthcare staff present a broad picture of the availability of healthcare human resources as part of the healthcare provision for the population. The information on healthcare staff that is available in Eurostat is based largely on administrative data sources. The definitions used may vary from country to country and, to a large degree, they reflect country-specific ways of organising healthcare; as a result, the data collected may not always be totally comparable.

Data on healthcare staff in the form of human resources available for providing healthcare services are presented irrespective of the sector of employment (i.e. whether the personnel are independent, employed by a hospital or any other provider). When comparing healthcare services across Member States, Eurostat gives preference to the concept of practising professionals (who provide services directly to patients), as this best describes the availability of healthcare resources. However, it has not always been possible to achieve this objective. In many EU countries the scarcity of physicians is a major concern. The number of practising physicians and their distribution is influenced by various factors, including restrictions on entry,

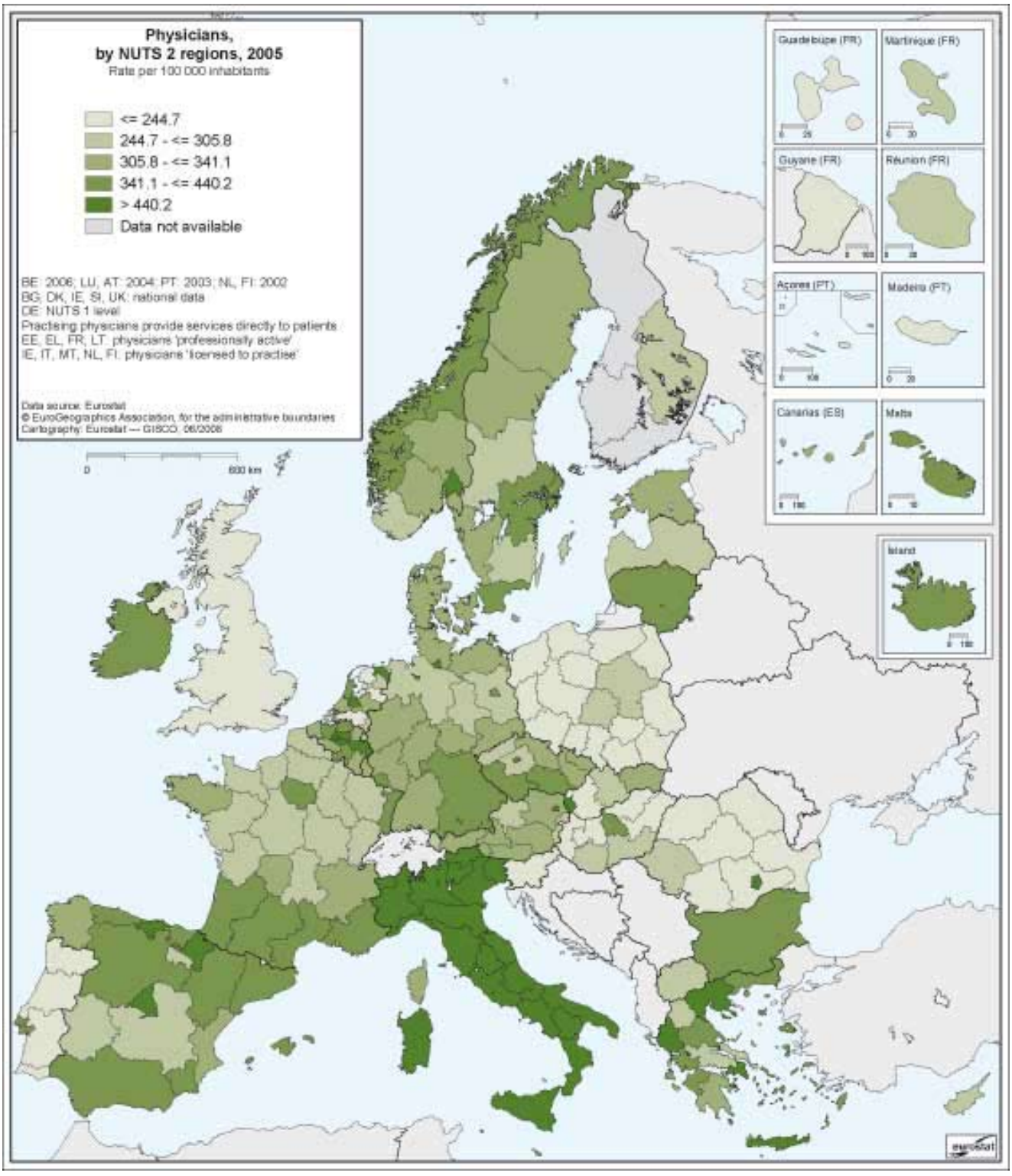
Map 12.3: Transport accidents, by NUTS 2 regions, 2003 to 2005
Standardised death rate per 100 000 inhabitants in males aged 0 to 64



Map 12.4: Transport accidents, by NUTS 2 regions, 2003 to 2005
Standardised death rate per 100 000 inhabitants in females aged 0 to 64



Map 12.5: Physicians, by NUTS 2 regions, 2005
Rate per 100 000 inhabitants



choice of speciality, remuneration, working conditions and international migration.

Map 12.5 shows the rate of practising physicians per 100 000 inhabitants. In 2005 in the EU-27, there were on average 310 physicians per 100 000 inhabitants. The highest concentrations, of more than 400 physicians per 100 000 inhabitants, were reported by Belgium (406.2), Greece (501.3), and Italy (639.1), while in Romania and Poland the figure was around 30 % below the EU average, at 213.5 and 216.9 respectively. Consequently, there are also considerable variations to be seen at regional level.

Taking all regions together, the density rates range from less than 160 physicians per 100 000 inhabitants in 2005 in Sud-Muntenia (128.7) and Sud-Est (147.7) in Romania, Közép-Dunántúl (152.2) in Hungary or Flevoland (154.8) in the Netherlands, to rates of over 600 in regions of Italy, the Czech Republic, Greece, Spain or Belgium. Not surprisingly, in most countries it is often the capital region where the highest concentration of physicians are to be found; examples include Lazio (with 833.9 in Rome), Praha (672.2 in Prague) or Antiki (649.7 in Athens). However, there are also a number of countries where non-capital regions displayed a higher percentage of physicians. Examples include Prov. Brabant Wallon in Belgium (647.7), Comunidad Foral de Navarra in Spain (620.0), Utrecht in the Netherlands (474.1) and Hamburg in Germany (473.8).

In terms of interpreting the map and the figures it must be pointed out that the regional data for Italy and Lithuania relate to licensed and professionally active physicians and not to practising physicians; the data are therefore overestimated.

Conclusion

The provision of information about healthcare systems and, ultimately, about the health of a population is a prerequisite for monitoring the effective performance of public health policy.

The currently available regional indicators for health provide an insight into similarities and specificities, as well as into the contrasts that exist throughout the European regions. As shown above, there can be large differences between the regions of a particular country, while regions of other countries may be very similar. Thorough analysis of the trends in and variation of health indicators at regional level is therefore essential for the planning and monitoring of actions and programmes, the formulation of new policies and the development of new strategies, which together contribute to 'evidence-based health policy'.

The main focus of Eurostat's work in the area of health statistics is on the further improvement of the quality, comparability and completeness of the data, as well as on the further extension of regional coverage.

Methodological notes

Causes of death (COD) statistics are based on information derived from the medical death certificate. COD statistics record the underlying cause of death, i.e. 'the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury'. This definition has been adopted by the World Health Assembly.

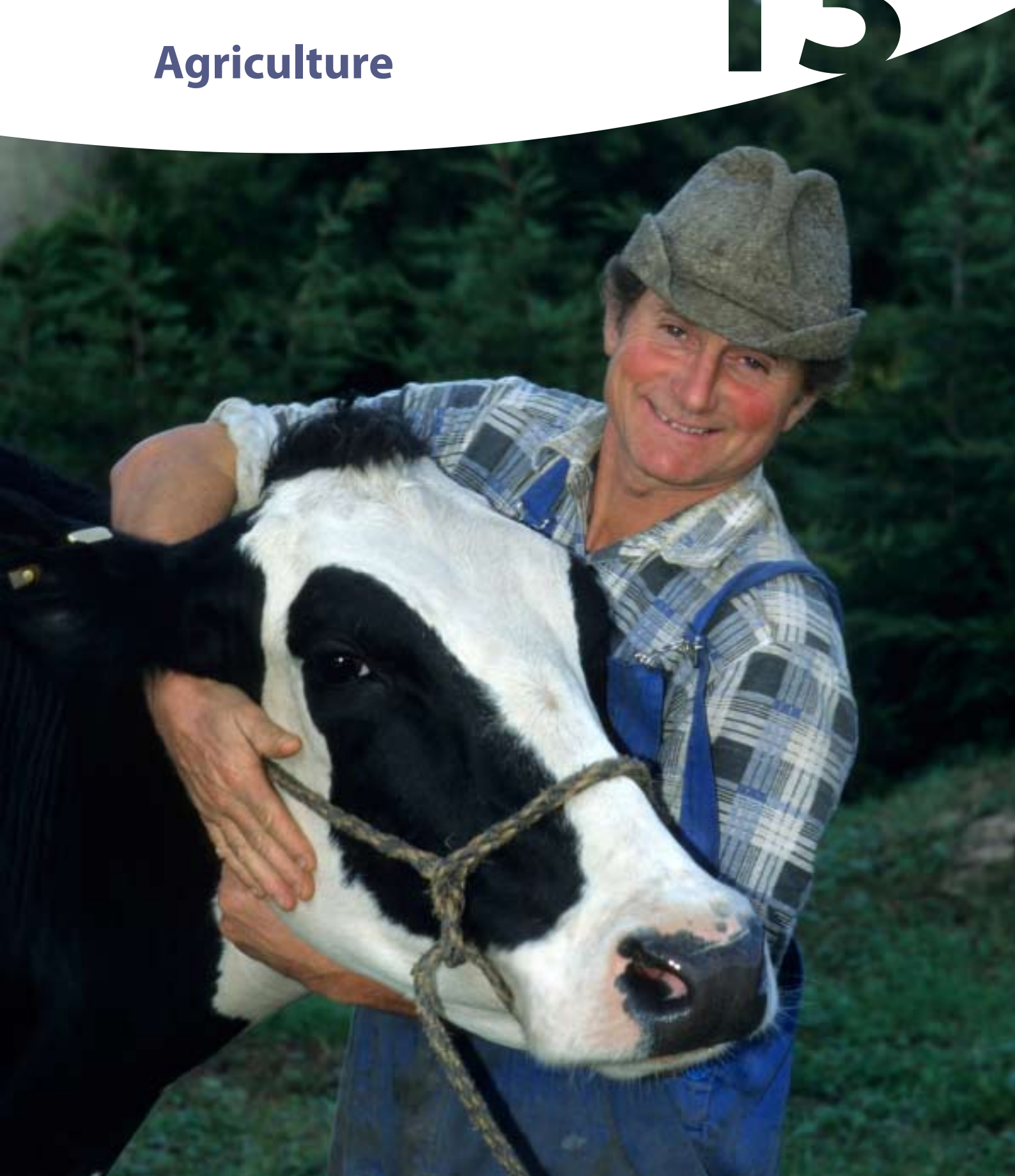
In addition to absolute numbers, crude death rates and standardised death rates for COD are provided at national and regional level. Regional level data are provided in form of three-year averages. The crude death rate describes mortality in relation to the total population. It is expressed per 100 000 inhabitants, being calculated as the number of deaths recorded in the population for a given period divided by the population in the same period and then multiplied by 100 000. Crude death rates are calculated by five-year age groups. At this level of detail, comparisons between countries and regions are meaningful. However, the crude death rate for the total population (all ages) by sex and age is a weighted average of the age-specific mortality rates. The weighting factor is the age distribution of the population whose mortality is being observed. Thus, the population structure strongly influences this indicator for broad age classes. In a relatively 'old' population, there will be more deaths than in a 'young' population because mortality is higher in higher age groups. For comparisons, the age effect can be taken into account by using a standard population. The standardised death rate (SDR) is a weighted average of age-specific mortality rates. The weighting factor is the age distribution of a standard reference population. The standard reference population used is the 'standard European population' as defined by the World Health Organisation (WHO). Standardised death rates are expressed per 100 000 inhabitants and calculated for the age group 0–64 ('premature death') and for all ages. Causes of death are classified by the 65 causes on the 'European shortlist' of causes of death. This shortlist is based on the International Statistical Classification of Diseases and Related Health Problems (ICD), a classification developed and maintained by the WHO.

Eurostat collects regional-level statistics on healthcare staff (numbers of doctors, dentists and other health professionals) and on hospital beds as well as data on hospital discharges of in-patients (the latter two are not shown in this publication but are available in Eurostat's statistical databases). In addition to absolute numbers, density rates are provided for healthcare statistics. Density rates are used to describe the availability of these resources or the frequency of services rendered, expressed per 100 000 inhabitants. They are calculated by dividing the absolute number of healthcare resources available or services rendered in a given period by the respective population in the same period and then multiplying it by 100 000.

Data on physicians should refer to those 'providing services directly to patients', i.e. physicians who have direct contact with patients as consumers of healthcare services. In the context of comparing healthcare services across Member States, Eurostat considers that this is the concept which best describes the availability of healthcare resources. However, Member States use different concepts when they report the number of healthcare professionals, both for national purposes and for international comparison. Therefore, for some countries, the data might refer to 'professionally active' physicians (i.e. practising physicians plus other physicians for whom their medical education is a prerequisite for the execution of the job) or physicians 'licensed to practice' (i.e. practising physicians, professionally active and economically active physicians as well as all physicians being registered and entitled to practise as healthcare professionals).

13

Agriculture



Introduction

Eurostat's coverage of regional agricultural statistics comprises three main fields; land use and crops, agricultural accounts and livestock. This latter aspect is the focus of this year's agriculture chapter, first in terms of major types of farm animals found throughout Europe and then with specific attention to the dairy industry.

Animal-rearing in Europe's regions

Pigs, cattle and sheep are among the earliest farm animals to have been domesticated and are an integral part of the farming landscape throughout the EU-27 countries. However, as the following maps demonstrate, there are very clear regional disparities in their distribution.

Some regions have terrain and land cover that permit almost all the land surface to be used for agriculture: in others, a harsh climate, dense forest cover or altitude may mean only a fraction of the land area can be used in this way. The regions with the largest proportion of agricultural area (see Map 13.1) include most of the United Kingdom, northern and western France, and parts of several other Member States (Belgium, Germany, Spain, Hungary, Ireland, Italy, the Netherlands, Portugal and Romania). Regions with the smallest proportion of agricultural area include major cities such as Berlin, London and Praha.

Pigs

Because pigs can be raised effectively indoors in 'zero grazing' systems, it might be assumed that they would most often be found where human population density is high enough to put pressure on farming land. In fact, Map 13.2 shows that this is not the case. While the most dense concentration of pigs is found in Belgium (in such regions as West- and Oost-Vlaanderen, Antwerpen and Limburg), in the Netherlands (from Limburg in a sweep across the south of the country) and the German region of Nordrhein-Westfalen, these are not in fact zones with the densest human population in each of these countries. This concentrated area of pig farming is probably much better explained by the co-existence of arable land on which the pig slurry can be spread and the availability of grain imports via the ports of Rotterdam and Antwerpen. Bretagne in France, Denmark, Malta, Catalũna and Murcia in Spain, Lombardia in Italy and Wielkopolskie in Poland are also regions of intense pig-raising.

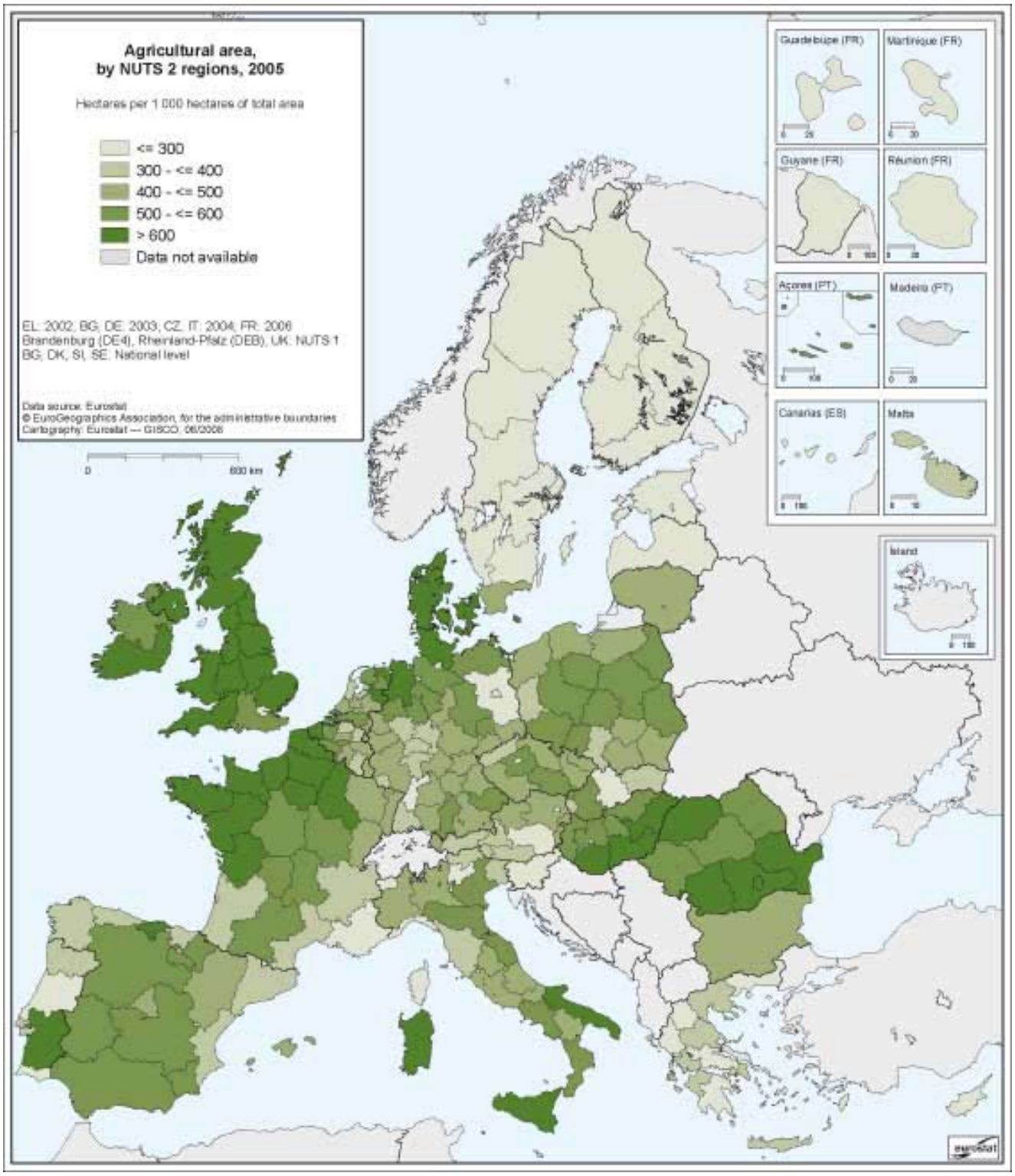
Clearly, there is a close interrelationship, built up over many centuries, between the farming tradition of a region and its traditional diet. Over a large part of western and central Europe, the omnivorous nature of pigs (which could be fed on food wastes, forest acorns and beech nuts) and the many ways it was possible to preserve their meat gave them an important role in permitting communities to survive the winter. Accordingly, even in today's less climate-dependent lifestyle, they form part of the diet (and thus the agriculture) of a zone that (as Map 13.2 shows) is not bounded by natural frontiers.

Sheep

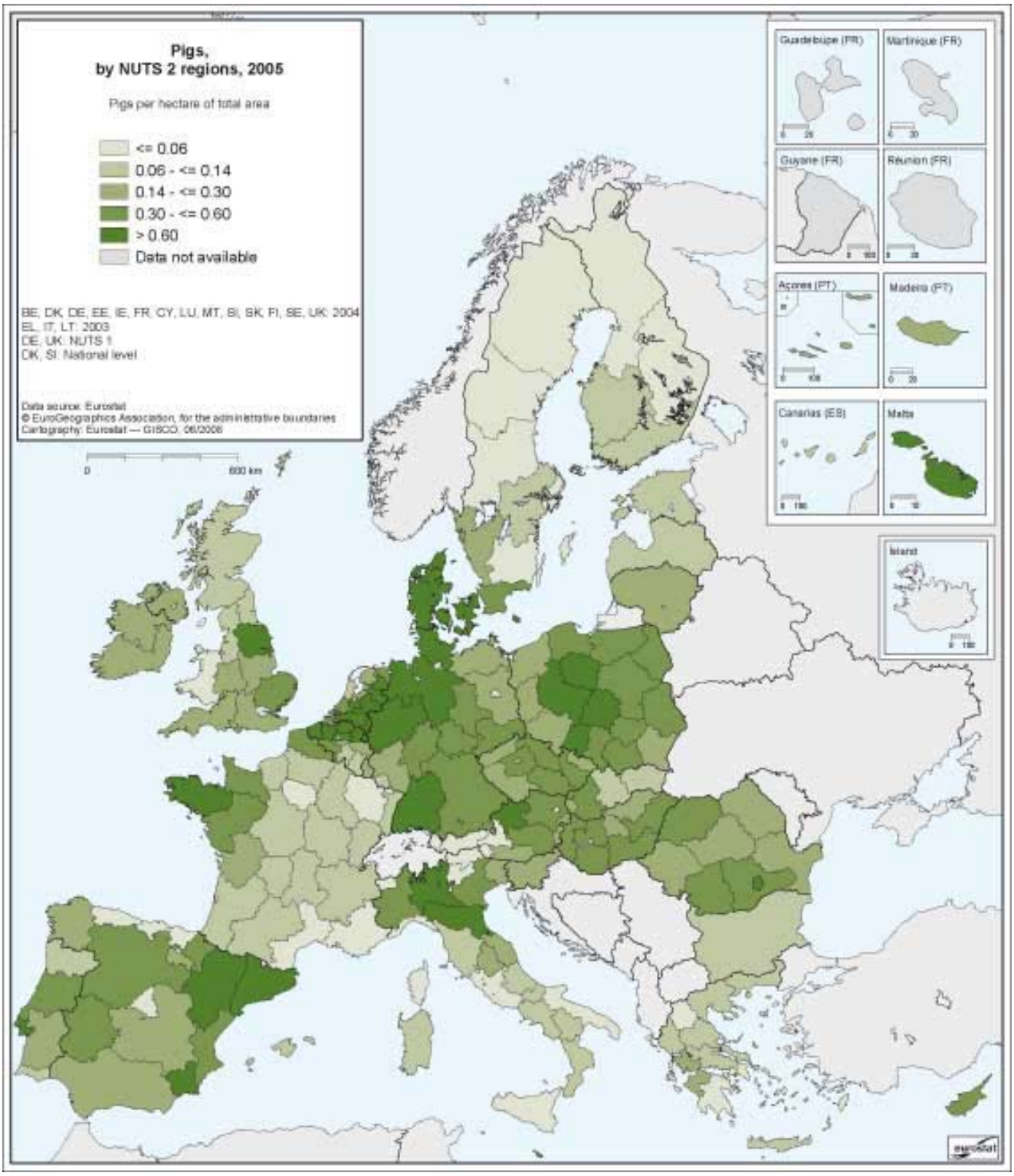
Sheep, along with cattle (see below), are important grazing animals and their distribution may be compared with that of grassland. Regions with the largest proportion of grassland (see Map 13.3) include Cantabria in Spain, much of the United Kingdom (Northern Ireland, Wales, Scotland, north-west, north-east, south-west and West Midlands); the Açores and Alentejo in Portugal; Sardegna and Bolzano-Bozen in Italy; all of Ireland; Friesland, Utrecht and Overijssel in the Netherlands; and some regions in other Member States (Austria, France and Romania).

A wide variety of different breeds of sheep is farmed across the EU, breeds that have emerged as being best adapted to the specialised local conditions, or to local demand for particular types of wool to supply local industries, such as clothing or carpets. While some breeds remain highly localised, others have been exported to similar regions in other EU countries or, as exemplified by the Merino from northern Spain, to countries as far away as Australia and New Zealand. Three particular characteristics of sheep — their hardiness thanks to the protection offered by their wool, their ability to graze on grass that is short or of poor quality and their sure-footedness on very steep slopes — mean that they can use land too hilly, cold or rough for other livestock. This element is very clearly apparent in Map 13.4, where one observes a high concentration of sheep in Dytiki Ellada, Ipeiros, Thessalia and Ionia Nisia in the northern part of Greece, on the Greek island Kriti and the Italian island Sardegna, as well as in the hilly regions of the north and west of the United Kingdom. The ability of sheep to cope with relatively arid conditions, and hence poor grass growth, is an important aspect in regions such as Extremadura in Spain.

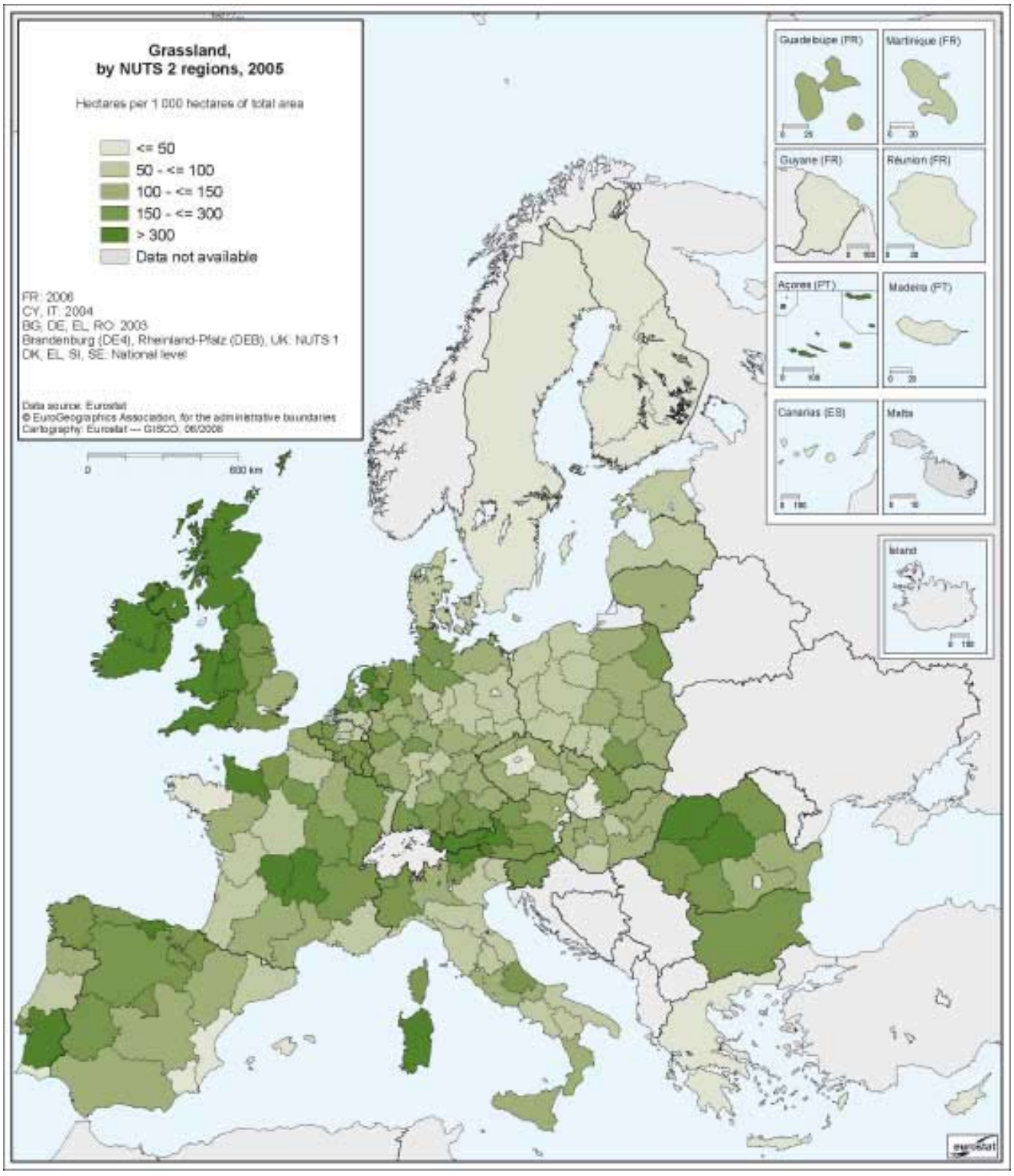
Map 13.1: Agricultural area, by NUTS 2 regions, 2005
Hectares per 1 000 hectares of total area



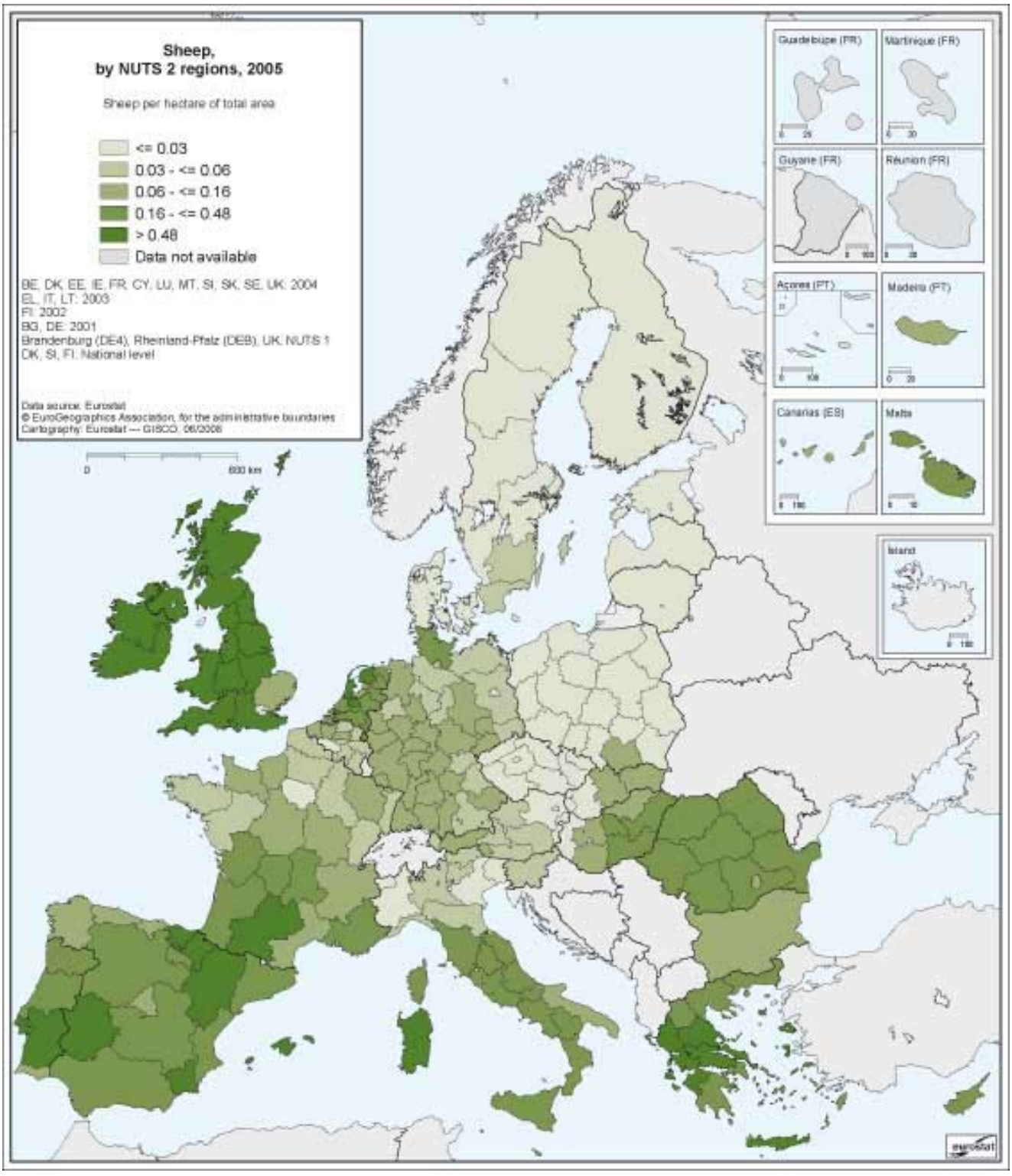
Map 13.2: Pigs, by NUTS 2 regions, 2005
Pigs per hectare of total area



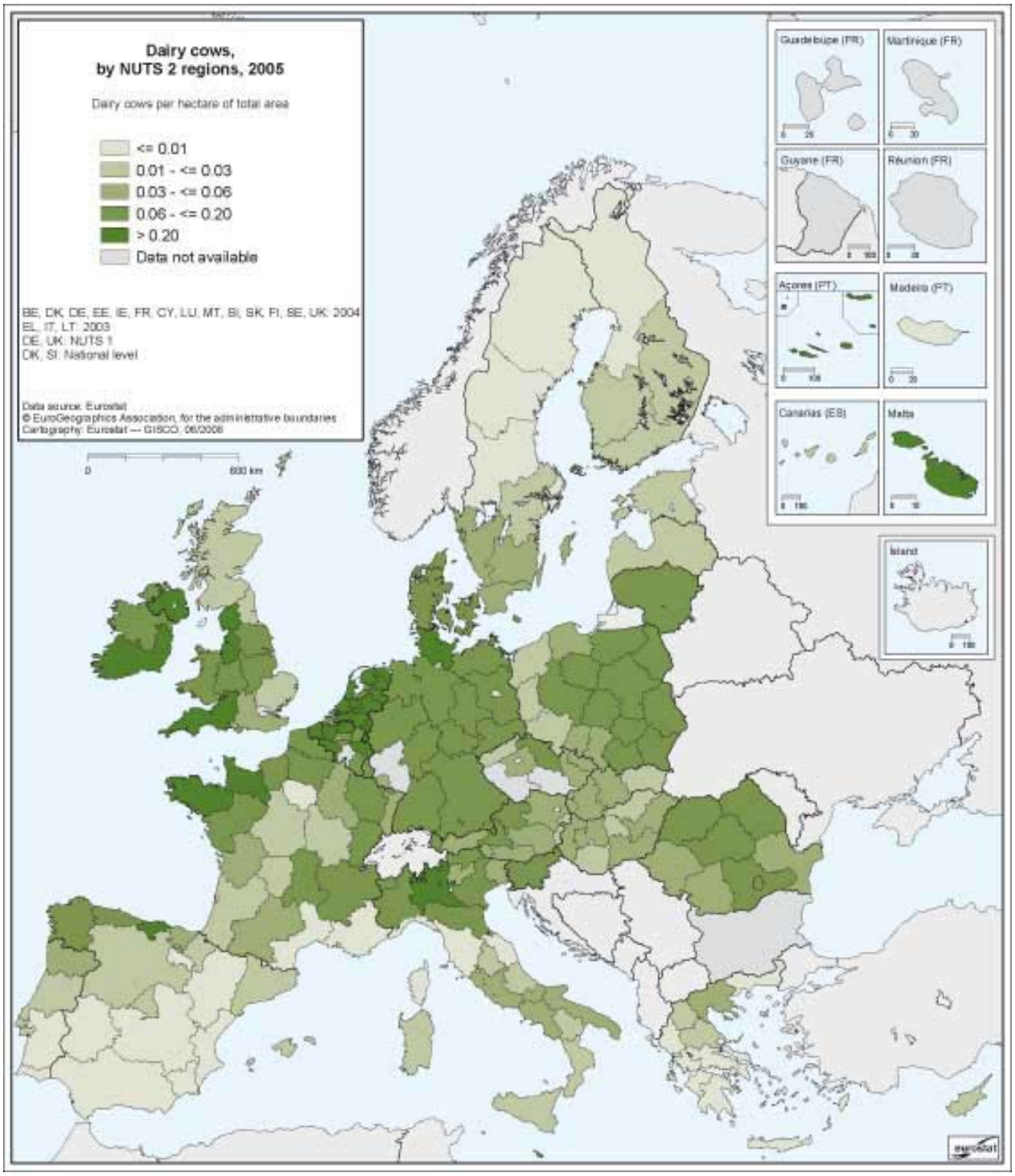
Map 13.3: Grassland, by NUTS 2 regions, 2005
Hectares per 1 000 hectares of total area



Map 13.4: Sheep, by NUTS 2 regions, 2005
Sheep per hectare of total area



Map 13.5: Dairy cows, by NUTS 2 regions, 2005
Dairy cows per hectare of total area



Cattle

Unlike sheep, which are subject to footrot in boggy conditions and bloat when feed is too rich, cattle thrive in conditions where rainfall is plentiful and the grass is good. Thus Map 13.5, which shows the distribution of dairy cows, includes a number of clear contrasts with the previous map, reflecting, in particular, altitude and climate differences. Western Europe lies squarely across the predominant westerly airstreams at this latitude. Typically, where the moisture-rich winds strike the coast, rainfall is abundant, and, as a result, rich pasture is available for cattle. The Spanish region of Cantabria falls into this category, as do Bretagne and Basse-Normandie in France. Further north, this applies to Southern and Eastern in Ireland, Northern Ireland and the whole western seaboard of England (however, the mountainous nature of Wales and Scotland means sheep remain important there). A similar well-watered coastal crescent is visible across the north-western part of continental Europe comprising the Oost-Vlaanderen, West-Vlaanderen, Liège and Hainault regions of Belgium, most of the Netherlands, and into Schleswig-Holstein region of northern Germany. The 'coastal rainfall' effect is less noticeable in the much drier Mediterranean environment but still clearly apparent in Lombardia in Italy, which faces onto winds moving north up the Adriatic, and Malta.

Milk production

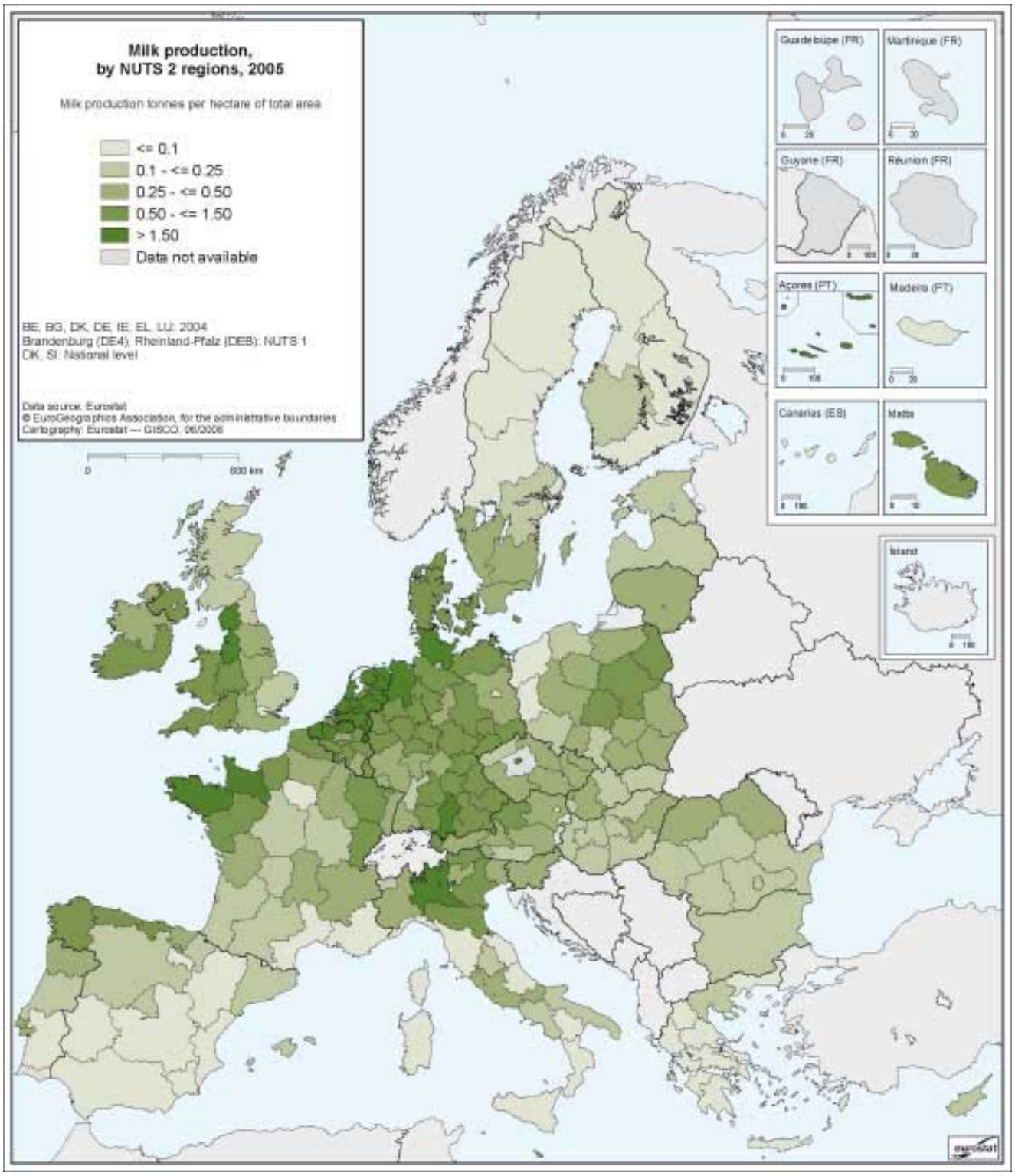
There are two possible modes of milk production: from cows on grazing land, which requires sufficiently productive grassland, and cows kept in stalls. The second method needs either arable land for the production of fodder or concentrated feed (e.g. cereals), or imports of feed from other regions or countries. This flexibility explains why the number of dairy cows (Map 13.5) is not necessarily linked to the proportion of grassland (Map 13.3). In Southern and Eastern in Ireland we can see that the high percentage of grassland corresponds with a large number of dairy cows. The same is true of the Basse-Normandie region in France. However, in Bretagne the number of livestock is just as high despite a lower percentage of grassland. Finally, we can see regions with much grassland with a lower, sometimes much lower, number of dairy cows. One possible explanation in the case of the drier regions (such as Alentejo in Portugal, or Sardegna in Italy) is that because grazing land is not as rich it is therefore first and foremost used for sheep and goats. Elsewhere, it is beef cattle which use the grasslands in regions such as Bourgogne in France, Scotland and Andalucía in Spain.

Previously, regional statistics on cows' milk were based on collection data, which meant that milk produced in one region might be delivered to a nearby collection centre in another region. Nowadays these statistics are based on the farm where milk is produced (Map 13.6). The most productive regions are around Praha in the Czech Republic, most of the Netherlands, the Açores in Portugal; West-Vlaanderen, Oost-Vlaanderen and Antwerpen in Belgium; Schwaben and Weser-Ems in Germany; Bretagne in France, and Lombardia in Italy. Once it is processed into cheese, butter or other dairy products, or packaged as drinking milk, milk is easily transported. As a result many densely populated regions such as Berlin, London or Wien have very low production levels (in contrast to Praha).

Conclusion

Animal production represents 41.3 % of agricultural output by value according to the latest statistics ('EU agricultural income + 5.4 % in 2007', *Statistics in focus — Agriculture and Fisheries,* 24/2008). It can be seen from the maps in this chapter that the production of animals and animal products takes place throughout the European Union, but with different degrees of intensity from one region to another. Recent and ongoing reforms of the common agricultural policy can be expected to lead to changes in the geographical pattern of animal production over the coming years.

Map 13.6: Milk production, by NUTS 2 regions, 2005
Milk production tonnes per hectare of total area



Methodological notes

Agricultural area is the total area of arable land, grassland (i.e. permanent pasture and meadows), land under permanent crops and kitchen gardens. It excludes unutilised agricultural land, woodland and land occupied by buildings, farmyards, tracks, ponds, etc. Livestock numbers (pigs, sheep and dairy cows) refer to animals counted in the December livestock surveys in each Member State. Production of cows' milk on farms includes milk obtained by milking the cows even if that milk is used to feed calves, but excludes milk suckled directly.

Annex 1

EUROPEAN UNION: NUTS 2 regions

Belgium

BE10 Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest
BE21 Prov. Antwerpen
BE22 Prov. Limburg (B)
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 (B)
BE35 Prov. Namur

Bulgaria

BG31 Severozapaden
BG32 Severen tsentralen
BG33 Severoiztochen
BG34 Yugoiztochen
BG41 Yugozapaden
BG42 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
DE41 Brandenburg — Nordost
DE42 Brandenburg — Südwest
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
DED1 Chemnitz
DED2 Dresden
DED3 Leipzig
DEE0 Sachsen-Anhalt
DEF0 Schleswig-Holstein
DEG0 Thüringen

Estonia

EE00 Eesti

Ireland

IE01 Border, Midland and Western
IE02 Southern and Eastern

Greece

GR11 Anatoliki Makedonia,Thraki
GR12 Kentriki Makedonia
GR13 Dytiki Makedonia
GR14 Thessalia
GR21 Ipeiros
GR22 Ionia Nisia
GR23 Dytiki Ellada
GR24 Sterea Ellada
GR25 Peloponnisos
GR30 Attiki
GR41 Voreio Aigaio
GR42 Notio Aigaio
GR43 Kriti

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
FR91 Guadeloupe
FR92 Martinique
FR93 Guyane
FR94 Réunion

Italy

ITC1 Piemonte
ITC2 Valle d'Aosta/Vallée d'Aoste
ITC3 Liguria
ITC4 Lombardia
ITD1 Provincia Autonoma Bolzano/ Bozen
ITD2 Provincia Autonoma Trento
ITD3 Veneto
ITD4 Friuli-Venezia Giulia
ITD5 Emilia-Romagna
ITE1 Toscana
ITE2 Umbria
ITE3 Marche
ITE4 Lazio
ITF1 Abruzzo
ITF2 Molise
ITF3 Campania
ITF4 Puglia
ITF5 Basilicata
ITF6 Calabria
ITG1 Sicilia
ITG2 Sardegna

Cyprus

CY00 Kypros/Kıbrıs

Latvia

LV00 Latvija

Lithuania

LT00 Lietuva

Luxembourg

LU00 Luxembourg (Grand-Duché)

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
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 (P)
PT17 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

SI01 Vzhodna Slovenija
SI02 Zahodna Slovenija

Slovakia

SK01 Bratislavský kraj
SK02 Západné Slovensko
SK03 Stredné Slovensko
SK04 Východné Slovensko

Finland

FI13 Itä-Suomi
FI18 Etelä-Suomi
FI19 Länsi-Suomi
FI1A Pohjois-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
UKD2 Cheshire
UKD3 Greater Manchester
UKD4 Lancashire
UKD5 Merseyside
UKE1 East Riding and North 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
UKI1 Inner London
UKI2 Outer London
UKJ1 Berkshire, Buckinghamshire and Oxfordshire
UKJ2 Surrey, East and West Sussex
UKJ3 Hampshire and Isle of Wight
UKJ4 Kent
UKK1 Gloucestershire, Wiltshire and North Somerset
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

CANDIDATE COUNTRIES:

Statistical regions at level 2

Croatia

HR01 Sjeverozapadna Hrvatska

HR02 Središnja i Istočna (Panonska) Hrvatska

HR03 Jadranska Hrvatska

The former Yugoslav Republic of Macedonia

MK00 Poranešna jugoslovenska Republika Makedonija

Turkey

TR10 İstanbul

TR21 Tekirdağ

TR22 Balıkesir

TR31 İzmir

TR32 Aydın

TR33 Manisa

TR41 Bursa

TR42 Kocaeli

TR51 Ankara

TR52 Konya

TR61 Antalya

TR62 Adana

TR63 Hatay

TR71 Kırıkkale

TR72 Kayseri

TR81 Zonguldak

TR82 Kastamonu

TR83 Samsun

TR90 Trabzon

TRA1 Erzurum

TRA2 Ağrı

TRB1 Malatya

TRB2 Van

TRC1 Gaziantep

TRC2 Şanlıurfa

TRC3 Mardin

EFTA COUNTRIES:

Statistical regions at level 2

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

European Commission

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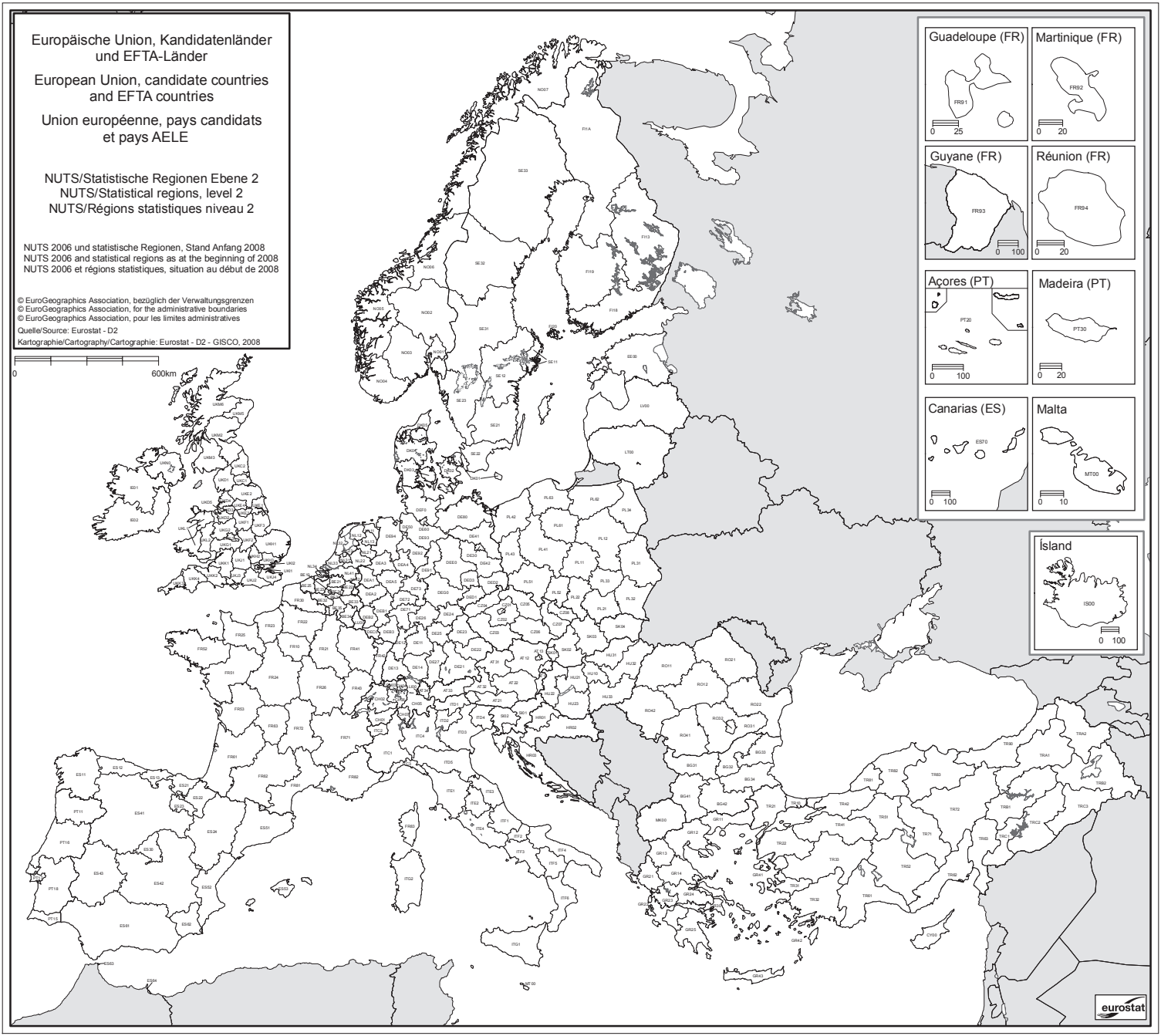
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