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2003 EDITION

# Regions: Statistical yearbook 2003

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THEME 1
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# Foreword

This 2003 edition of the Eurostat regional yearbook is the last before the planned enlargement in 2004, the most extensive in the history of the European Union. With the arrival of a further 10 Member States, regional statistics at European level will undoubtedly alter in character, but, in fact, many of the trends are already clearly identifiable, reflecting the increasingly complete integration of the individual countries within the data-collection system of Eurostat.

Clearly, regional variations within these countries will continue to interest policy-makers but there will be some shift in emphasis. The small size of no fewer than six of the accession countries (Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia) means that, in most statistical fields, Eurostat will be collecting data from these countries only at national level — whereas only two of the current 15 Member States (Denmark and Luxembourg) are in this situation. This does not, of course, mean that conditions are similar throughout each of these countries, or that no data are available. With the exception of Cyprus, each of the above countries has agreed with Eurostat a regional breakdown at a lower level, permitting the collection of regional accounts, unemployment and certain other data.

It is understandable that attention should focus on the 2004 enlargement date but it is important to recognise the great efforts made by Bulgaria and Romania to comply with European standards in statistics and to supply data on an equal footing with the remaining 10 accession countries. The regional yearbook's maps and commentaries, of course, continue to feature these two countries. Although it is uncertain how far negotiations (and statistical cooperation) will have advanced in the meantime, it is quite possible that the 2004 edition may already feature data from Turkey. The broader the European canvas becomes, the more important it is to have accurate and comparable regional statistics to build up a clear overall picture of the social and economic realities of a growing European Union.

**Pedro Solbes Mira**
European Commissioner for Economic
and Monetary Affairs, responsible for Eurostat

# CONTENTS


INTRODUCTION . . . . . 9
2003 — a year of remarkable changes . . . . . 11
New nomenclature . . . . . 11
Enlargement . . . . . 11
Content and structure . . . . . 11
Readers' views . . . . . 12
Specialist input . . . . . 13
NUTS 99 . . . . . 13
More regional information needed? . . . . . 14
Regional interest group on the web . . . . . 14
Closure date for the yearbook data . . . . . 14

POPULATION . . . . . 15
Introduction . . . . . 17
Population change . . . . . 18
Components of population increase . . . . . 18
Net migration . . . . . 20
In- and out-migration flows . . . . . 20

AGRICULTURE . . . . . 25
Introduction . . . . . 27
The contribution of agriculture to GDP . . . . . 28
Animal share of agricultural goods output . . . . . 28
Output/input ratios in agriculture . . . . . 29
Eurofarm data — women in agriculture . . . . . 31
Income diversification of the farming community . . . . . 32
The LUCAS survey — statisticians monitor territory . . . . . 34
Objectives of the survey . . . . . 35
Two-stage area frame systematic sampling design . . . . . 35
A multi-purpose information system . . . . . 36
Realisation of the survey . . . . . 36
Main results . . . . . 37
Land use . . . . . 38
Mixed land cover/land use . . . . . 40
Landscape photos . . . . . 40
Conclusion . . . . . 41

REGIONAL GROSS DOMESTIC PRODUCT . . . . . 43
What is gross domestic product? . . . . . 45
Purchasing power parities and international volume comparisons . . . . . 45
Regional GDP in euro for the year 2000 . . . . . 47

REGIONAL UNEMPLOYMENT . . . 51
Introduction . . . 53
The regional dimension of overall unemployment . . . 53
Women and the labour markets . . . 56
Youth unemployment . . . 57
The problem of long-term unemployment . . . 60
Revised methodology . . . 61

LABOUR FORCE SURVEY . . . 63
Overall rate of employment . . . 65
Employment rate for women . . . 66
Average number of hours normally worked . . . 67
Lifelong training . . . 69
Levels of education and employment . . . 69

SCIENCE AND TECHNOLOGY . . . 75
Introduction . . . 77
Human resources in science and technology . . . 77
Employment in high-tech and knowledge-intensive fields . . . 80
Patent applications . . . 83
Methodological notes . . . 87

STRUCTURAL BUSINESS STATISTICS . . . 89
Introduction . . . 91
Services are the largest employer in the regions . . . 92
Employees better paid around the capital cities . . . 92
Employment in industry unevenly divided among the regions . . . 94
Capital-intensive industries in the regions . . . 96
Conclusion . . . 96

TRANSPORT . . . 99
Introduction . . . 101
Methodological notes . . . 101
Transport infrastructure . . . 101
Road network . . . 102
Railway network . . . 103
Transport equipment . . . 103
Sea transport . . . 106
Air transport . . . 108
Safety . . . 110
Conclusion . . . 112

HEALTH . . . 113
Introduction . . . 115
Comments on methodology . . . 115
Mortality in the EU regions . . . 116
Incidence of tuberculosis in the EU regions . . . 124
Healthcare resources in the EU regions . . . 126

TOURISM . . . . . 131
Introduction . . . . . 133
Methodological notes . . . . . 133
Capacity (infrastructure) statistics . . . . . 133
Occupancy data . . . . . 137
Conclusion . . . . . 138

URBAN STATISTICS . . . . . 141
Background . . . . . 143
Tight schedule . . . . . 143
Selection of cities . . . . . 143
Spatial units . . . . . 145
The variables . . . . . 145
Organisation . . . . . 147
Next steps . . . . . 147

HOUSEHOLD ACCOUNTS . . . . . 149
Income of private households and gross domestic product . . . . . 151
How rich are Europe's regions? . . . . . 157

INTERACTIVE DATA PRESENTATION . . . . . 163
Interactive visualisation of regional data . . . . . 165
How to use the applet . . . . . 165

EUROPEAN UNION: NUTS 2 REGIONS . . . . . 167

REGIONS IN THE CANDIDATE COUNTRIES . . . . . 169

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# INTRODUCTION

# 2003 — a year of remarkable changes

Over the past year, the future structure and nature of regional statistics at European level have been shaped by the adoption of the nomenclature of territorial units for statistics (NUTS) regulation and by the steady march towards enlargement in 2004.

# New nomenclature

In April 2003, after more than two years of preparations — involving thorough consultations at national level, wide-ranging discussions with data users and two separate passages through the European Parliament — the NUTS regulation was adopted by Parliament. The NUTS nomenclature thus at last gains a legal base, along with a well-defined procedure for managing modifications to the regional breakdowns in individual countries.

At the same moment that the regulation itself became part of European legislation, so too did its annex, which sets out the nomenclature agreed between Eurostat and the member countries. Whereas (until the regulation was signed) regional statistics in Europe had been collected in accordance with the 1999 version of the nomenclature (known as 'NUTS 99'), the annex lays down a new nomenclature, 'NUTS 2003', which is now the only valid and acceptable regional breakdown for supplying data to Eurostat.

The snag, of course, is that data supplied in the months following the adoption of the regulation were necessarily collected on the basis of the NUTS 99 breakdown. For this reason, Eurostat has adopted a target date of 21 November 2003 for completing the reorganisation of its databases that contain regional data, in particular the REGIO database. The same reasoning applies all the more forcefully in the case of the yearbook, where the initial extractions of data for this year's chapters actually occurred before the regulation became law. Accordingly, this 2003 yearbook, its list of regions and all maps, graphs and commentaries are based on NUTS 99. A summary of the classification may be found at the end of this introduction.

In fact, NUTS 2003 strongly resembles its predecessor. Of the over 200 NUTS 2 regions featuring in the NUTS 99 breakdown, only 10 have been modified and, in every, case the underlying NUTS 3 structure remains unaffected, greatly helping data recalculation. In all, 10 Member States are completely unaffected by the changes at NUTS 2 level. Changes at the NUTS 3 level are even less extensive. Full details of the NUTS 2003 breakdown may be found on Eurostat's RAMON server ([1]).

# Enlargement

With regard to data for the candidate countries, there has been further improvement in coverage since last year's edition, though not as extensive as one would wish.

Although in almost all thematic fields the accession countries have been integrated into the data-collection process, this has in a number of cases been too recent for the data to be available for this year's edition. Accordingly, several chapters contain maps still limited to current EU Member States. By contrast, the 2004 edition should feature complete integration of all accession countries.

While attention naturally has focused on the 2004 enlargement date, it should be stressed that no distinction is made in the yearbook between countries scheduled to become Member States in 2004 and those due to join around 2007: wherever data are available for Bulgaria and Romania, these, of course, also feature in the maps and commentaries. In the case of Turkey, the situation is rather different. Although a regional breakdown has been agreed between Turkey and Eurostat, little regional data have as yet been collected and the coverage is certainly too thin for inclusion in the 2003 yearbook.

# Content and structure

The year 2003 sees the return of the tourism chapter, reflecting the biennial nature of the data-collection process in this field. By contrast, the availability of new environmental data is not suf-

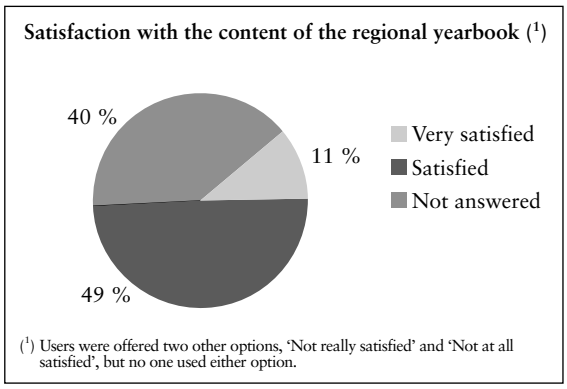
([1]) From the Eurostat home page (www.europa.eu.int/comm/eurostat), just select your preferred language, click on 'Metadata', then on 'Classifications' and finally on 'RAMON'.

ficient to justify retaining the chapter this year and we look forward to restoring it in 2004. Despite the absence of new results from the urban audit, the urban chapter is retained because it offers a forum to discuss the methodological and other challenges that have been encountered during the past year's work on this project and to describe the progress expected. Similarly, the agriculture chapter has been expanded to include a review of the LUCAS project which, while not NUTS based, seeks to obtain highly detailed information on the variation of land use and land cover across Europe. Finally, a new chapter on household accounts has been included in the 2003 edition of the yearbook, further expanding the regional economic information so valued by users.

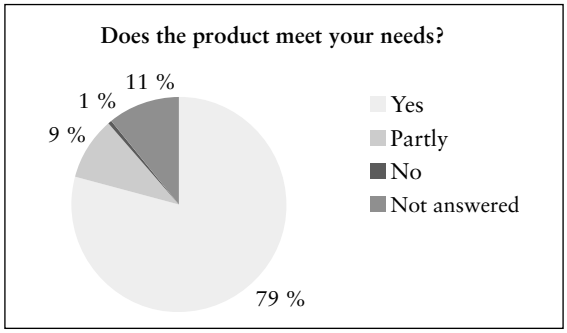
In keeping with earlier years, regional distributions are described in commentaries that exploit carefully selected colour maps and graphs, highlighting individual regions where appropriate. A deliberate attempt has been made to choose variables which are different from those examined in 2002 and 2001, thus not only offering regular readers new insights, but also giving a better impression of the still wider range of data available in the REGIO database. Again in line with previous editions, the enclosed CD-ROM contains data for the latest available year in each REGIO domain, the data series used to draw the maps and the PDF versions of each of the three language editions of the yearbook. A special effort has been made to ensure that the CD-ROM is both interesting and more user-friendly. In recognition of the widespread use of the yearbook in reference and educational settings, the CD-ROM includes this year for the first time an interactive applet that allows users to compare a whole series of variables for each of 27 NUTS 2 regions, these being the regions containing the capital cities of all Member States and accession countries.

# Readers' views

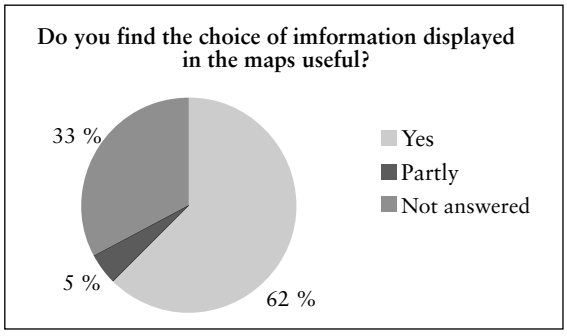
In January 2003, a questionnaire was distributed to some 300 regular individual and institutional users of the regional yearbook. No fewer than 154 replied, providing feedback on the approach so far adopted. In general, the current format was supported, as is shown by the following graphs.



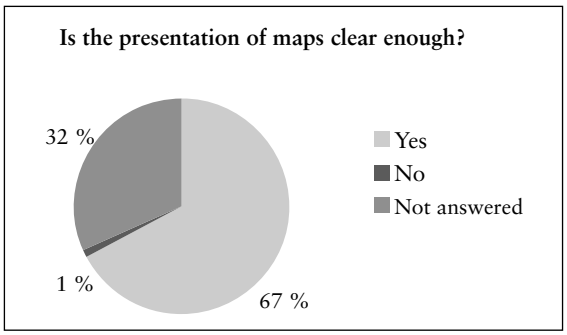

Although the wide variety of users would presuppose very different uses for the yearbook, it appears that the approach adopted does manage to meet most readers' needs.




Again, it is inevitable that different users will value most those chapters more directly related to their work, but overall it would appear that all chapters enjoy a measure of support and indeed many specifically commented that they felt all chapters were useful. High individual rankings were achieved by the regional GDP, regional unemployment and population chapters.




Most users regarded the commentaries as both helpful and offering the appropriate depth of analysis. As the following graphs indicate, the maps, too, were valued.




Some nine users voiced criticisms, two of them advocating coverage at a different level than NUTS 2. A further two regretted the absence of data tables, such as were featured in the regional yearbook until 1999. It would appear that this aspect is outweighed by the greater readability, especially for non-specialist users. Indeed, it is doubtful whether even specialists are greatly inconvenienced, since, for research purposes, the full extent of the REGIO database is available through the Data Shops, with the further advantage of updates since the data closure of the yearbook. There was also nostalgia for the many linguistic versions of the yearbook when it was still only a compilation of tables (up to 1997). On grounds of cost, let alone editorial complexity, however, the regional yearbook will continue to be 'limited' to English, French and German versions.

# Specialist input

Once again, the commentaries within each of the thematic chapters reflect the specialist knowledge of Eurostat's thematic units ([2]). By exploiting their experience of data at the national level, the authors are in a position to place the regional variation noted in an appropriate context.

The regional statistics team gratefully acknowledges the contribution made by the following authors, each of whom has had to find the necessary time within an already overcrowded schedule.

| Chapter | Author(s) |
|---|---|
| 1. Population | Aarno Laihonen<br>Erik Beekink |
| 2. Agriculture | Pol Marquer<br>Ulrich Eidmann<br>Maxime Kayadjanian<br>Manola Bettio |
| 3. Regional gross domestic product | Axel Behrens |
| 4. Regional unemployment | Axel Behrens |
| 5. Labour force | Ana Franco |
| 6. Science and technology | August Goetzfried<br>Simona Frank |
| 7. Structural business statistics | Paul Feuvrier<br>Franca Faes-Cannito |
| 8. Transport | Josefine Oberhausen |
| 9. Health | Didier Dupre<br>Toni Montserrat |
| 10. Tourism | Hans-Wilhelm Schmidt |
| 11. Urban statistics | Berthold Feldmann<br>Torbiörn Carlquist |
| 12. Household accounts | Axel Behrens |
| Working interactively with data | Joachim Mittag<br>Jana Cernovska<br>Ulrich Marty |

# NUTS 99

The present version of NUTS (NUTS 99) subdivides the economic territory of the Member States of the European Union (EU) into 78 regions at NUTS 1 level, 211 regions at NUTS 2 level and 1 093 regions at NUTS 3 level.

Because of their relatively small area or population, some countries do not have all three regional levels. It should be noted that, in the case of both Denmark and Luxembourg, the entire country is one NUTS 2 region.

In the maps in this yearbook, the statistics are presented at NUTS level 2. A map giving the code numbers of the regions may be found in the sleeve of this publication. At the end of the publication, there is a list of all the NUTS 2 regions in the European Union, together with a list of the level 2 statistical regions in the candidate countries, as agreed between Eurostat and the individual statistical offices of the candidate countries. It must be noted that this classification does not preclude any decision on the NUTS that will be taken as and when individual countries join the EU.

([2]) In the case of the chapters on regional gross domestic product, regional unemployment, urban statistics and household accounts, the authors are simultaneously members of the regional statistics team and the subject specialists within Eurostat.

Full details of these national regional breakdowns, including lists of level 2 and level 3 regions and the appropriate maps, may be consulted on the RAMON server using the web site address in footnote 1.

# More regional information needed?

The REGIO database contains more extensive time series (which may go back as far as 1970) and more detailed statistics than those given in this yearbook (for example, population by single years of age — deaths by single years of age — births by age of the mother — detailed results of the Community labour force survey — economic accounts aggregates for 17 branches — detailed breakdown of agricultural production — data on the structure of agricultural holdings, etc.). Moreover, there is coverage in REGIO of a number of indicators at NUTS level 3 (such as area, population, births and deaths, gross domestic product, unemployment rates). This is important because two EU Member States (Denmark and Luxembourg) and four candidate countries (the three Baltic States and Slovenia) do not have a level 2 breakdown.

All REGIO data may be obtained by contacting your nearest Data Shop at the address listed at the back of the publication.

For more detailed information on the content of the REGIO database, please consult the Eurostat publication *European regional statistics — Reference guide 2003*, a copy of which is available in PDF format on the accompanying CD-ROM.

# Regional interest group on the web

Eurostat's regional statistics team maintains a publicly accessible interest group on the web ('CIRCA site') with many useful links and documents.

To access it, simply click on the URL:

http://forum.europa.eu.int/Public/irc/dsis/regstat/information.

Among other resources, you will find:

- a list of all regional coordination officers in the Member States and the candidate countries;
- the *Regional Gazette* published at intervals by the regional team;
- the latest edition of the REGIO reference guide;
- Powerpoint presentations of Eurostat's work concerning regional statistics;
- the regional classification NUTS for the Member States and the regional classification for the candidate countries;
- a link to a list of all Eurostat Data Shops.

# Closure date for the yearbook data

The cut-off date for this issue is 31 May 2003.

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# POPULATION

1

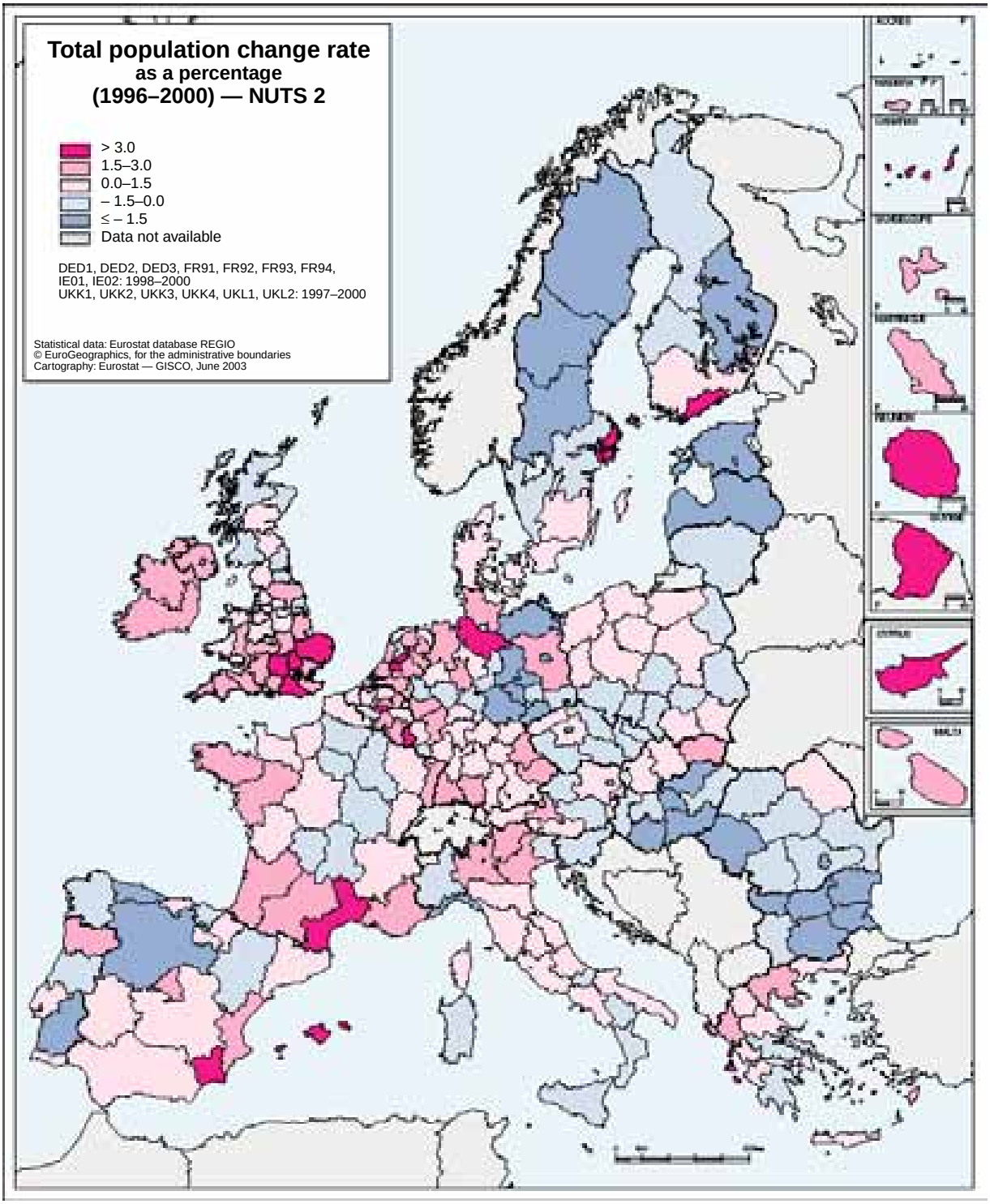
# Introduction

Changes in the size of a population are the result of the number of births, the number of deaths and the number of people who migrate.

The difference between the number of births and the number of deaths we call natural growth. With regard to migration, we can distinguish between international migration, i.e. across a national boundary, and internal migration, i.e. inside a national territory.

Furthermore, a distinction can be made between immigration and emigration (international migration) and arrivals and departures due to internal migration. Migration flows are often expressed in net migration rates.

In the following sections, a description is presented of regional dynamics at the NUTS 2 level




**Map 1.1**

concerning migration flows in the second half of the 1990s in the Member States of the European Union and the accession countries. The first section analyses the population increase during the period 1996–2000, this then being followed by a section presenting an overview of the components of the population increase in the year 1999. The third section focuses on the migration component of the population increase, discussing net migration rates in 1999. The chapter concludes with some case studies on in- and out-migration flows during the years 1996–99.

# Population change

As stated in the introduction, population increase or decrease is a result of natural growth and a positive or negative migration balance.

Map 1.1 shows the relative population increase in per cent over the five-year period 1996–2000 (population at 1 January 2000, minus population at 1 January 1996, divided by the population at 1 January 1996 and multiplied by 100).

In the period 1996–2000, the relative total population increase was negative in more than one quarter of the regions in the European Union (59 out of 211) and nearly 70 % of the regions in the accession countries (38 out of 55). The overall population increase for the EU was 1 %; for the other 12 countries, there was an overall decrease of 2.1 %.

The five regions with the strongest relative population increase during this period were: Flevoland (the Netherlands), Islas Baleares and Canarias (both in Spain), Luxembourg and Uusimaa (Finland).

The five regions with the fastest relative population decrease during this period were: Alentejo (Portugal), Halle, Dessau and Magdeburg (all in Germany) and Mellersta Norrland (Sweden).

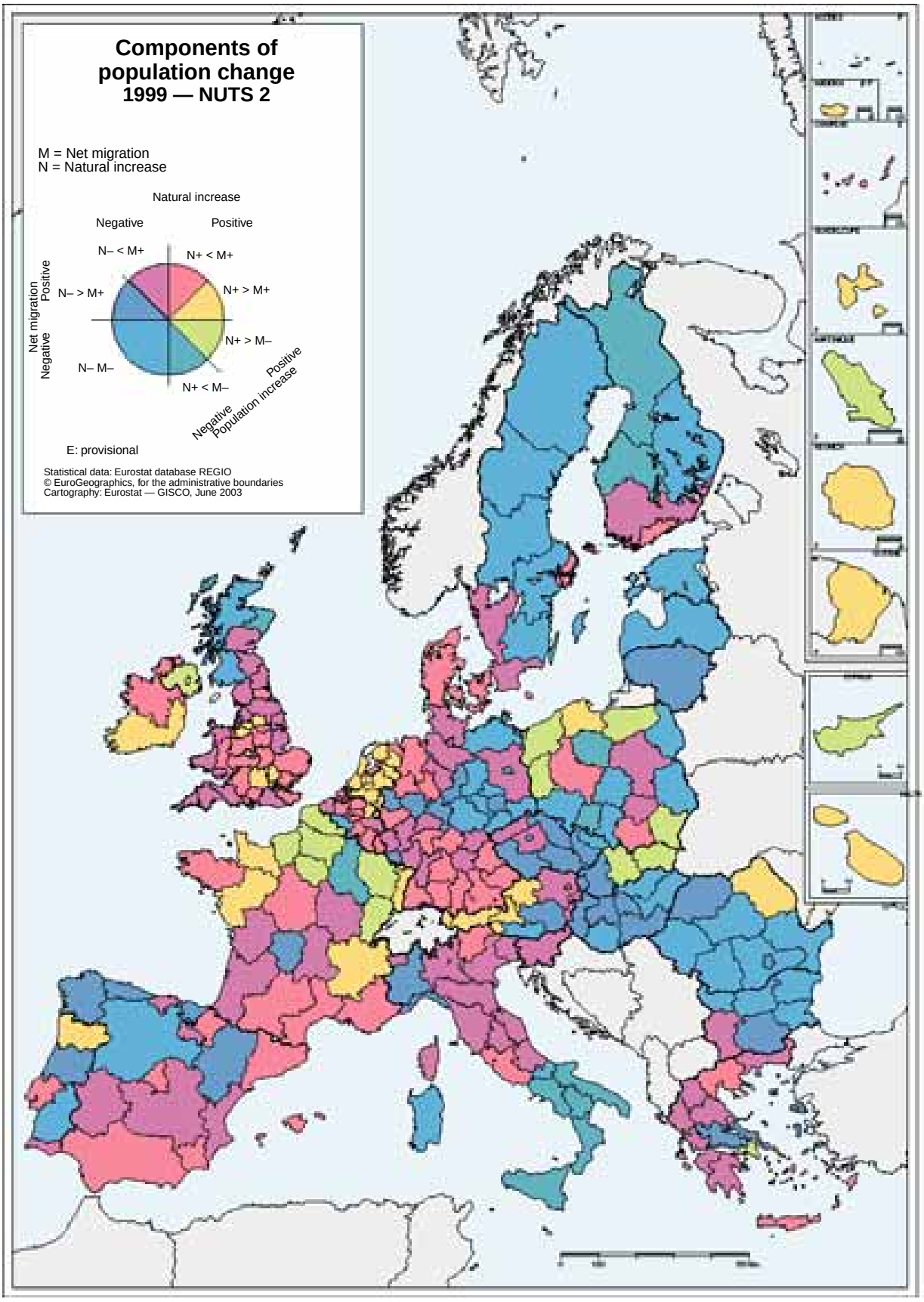
By looking at the colour scheme, some remarkable patterns can be observed. Focusing on the blue-coloured (population decrease) and red-coloured regions (population increase), it can be noticed, for example, that, in the regions in the centre and the north of Sweden (other than Stockholm) and Finland, the population decreased, while in the southern part of both countries, the population increased. In the United Kingdom, the central and the southern part of the country recorded a population increase, whereas the population decreased in the northern regions. A similar picture is observed in Spain. All regions in the Netherlands experienced a growth in population during this period, but the opposite trend was apparent in Bulgaria and Hungary.

# Components of population increase

What can be said about the balance between natural increase and migration? In Map 1.2, an attempt is made to reproduce both components at the NUTS 2 level in one map for the year 1999. The complexity of the map needs some further explanation. If natural increase is denoted by N and net migration by M, there are six combinations of these components which determine the sign (+, –) of the total population growth. Positive growth (an increase in the total population) will result from three possible combinations of these components. One of these, N+, M+ (both natural increase and net migration are positive), has been further divided in the map into two subclasses showing which of the components has a bigger role in the positive total increase, $N+ < M+$ and $N+ > M+$. The other two combinations leading to overall population growth are $|N-| < |M+|$ (the absolute value of negative natural increase is smaller than the absolute value of positive net migration) and, finally, $|N+| > |M-|$ (the absolute value of positive natural increase is greater than the absolute value of negative net migration).

Negative growth (a decrease in the total population) will result from combinations N–, M– (both natural increase and net migration are negative), $|N-| > |M+|$ (the absolute value of negative natural increase is greater than the absolute value of positive net migration), and $|N+| < |M-|$ (the absolute value of positive natural increase is smaller than the absolute value of negative net migration).

Because of low fertility levels, migration has become the decisive factor for the still positive, but slow, population increase in the European Union as a whole. It is important also at regional level. In 1999, there were 92 NUTS 2 regions (out of the 211) in the European Union with negative natural population increase. Because of positive net migration, the total increase was negative in only half of those regions. This effect does not occur in the accession countries: 41 regions (out




**Map 1.2**

of the 55) showed a negative natural growth, while 35 regions showed a negative population growth.

EU regions with severe population decrease (with both negative natural increase and negative net migration and a total population decrease of 7.5

per 1 000 or more) can mainly be found in Germany (Thüringen, Halle, Magdeburg, Chemnitz, Dresden, Berlin and Mecklenburg-Vorpommern). Among the accession countries, these regions are Severozapaden and Severen tsentralen in Bulgaria.

EU regions with a strong population increase (defined as having positive natural increase, positive net migration and a total population increase of 7.5 per 1 000 or more) are, besides Denmark, for example, situated in the Netherlands (Gelderland, Flevoland, Noord- and Zuid-Holland, Noord-Brabant and Utrecht), in Sweden (Stockholm), in Finland (Uusimaa) and in Spain (Cataluña, Andalucía, Canarias, Islas Baleares, Comunidad de Madrid and Región de Murcia). In the accession countries, there are only two regions (Nord-Est in Romania and Małopolskie in Poland) that comply with all the abovementioned conditions. There are, however, three further regions with both positive natural increase and positive net migration (Malta and the regions of Pomorskie and Wielkopolskie in Poland).

# Net migration

Following from the general overview of the components that contribute to positive or negative population increase in a given region, this section focuses particularly on one of these components, i.e. migration. As mentioned before, despite low fertility in the European Union as a whole, migration has made it possible for the total population to continue to rise, albeit slowly.

In Map 1.3, the difference between in- and out-migration per 1 000 inhabitants on the regional level in 1999 is presented, using the crude rate of net migration. This crude rate is based on the calculation of population increase minus the natural growth (per 1 000 inhabitants).

Nearly one quarter of the EU regions showed a negative migration figure in 1999. For the regions in the accession countries, this proportion was more than twice as high. Especially in Poland and Romania, the vast majority of regions had a negative migration balance. As a result, the overall net migration rate for the EU regions was 2.5 in 1999, while for the accession countries an average figure of – 1.3 was recorded. However, the top five regions losing population due to migration are to be found in Italy (Calabria and Campania), Germany (Halle and Dessau) and Finland (Itä-Suomi). Other EU regions with strong negative migration figures are located in the southern part of Italy, the northern part of France, central and eastern Germany and central and northern Sweden and Finland. The first region from an accession country is in only 17th place: Severozapaden in Bulgaria, followed in 19th, 20th and 25th places, respectively, by Yugoiztochen in Bulgaria, Opolskie in Poland and Severoiztochen, once again in Bulgaria.

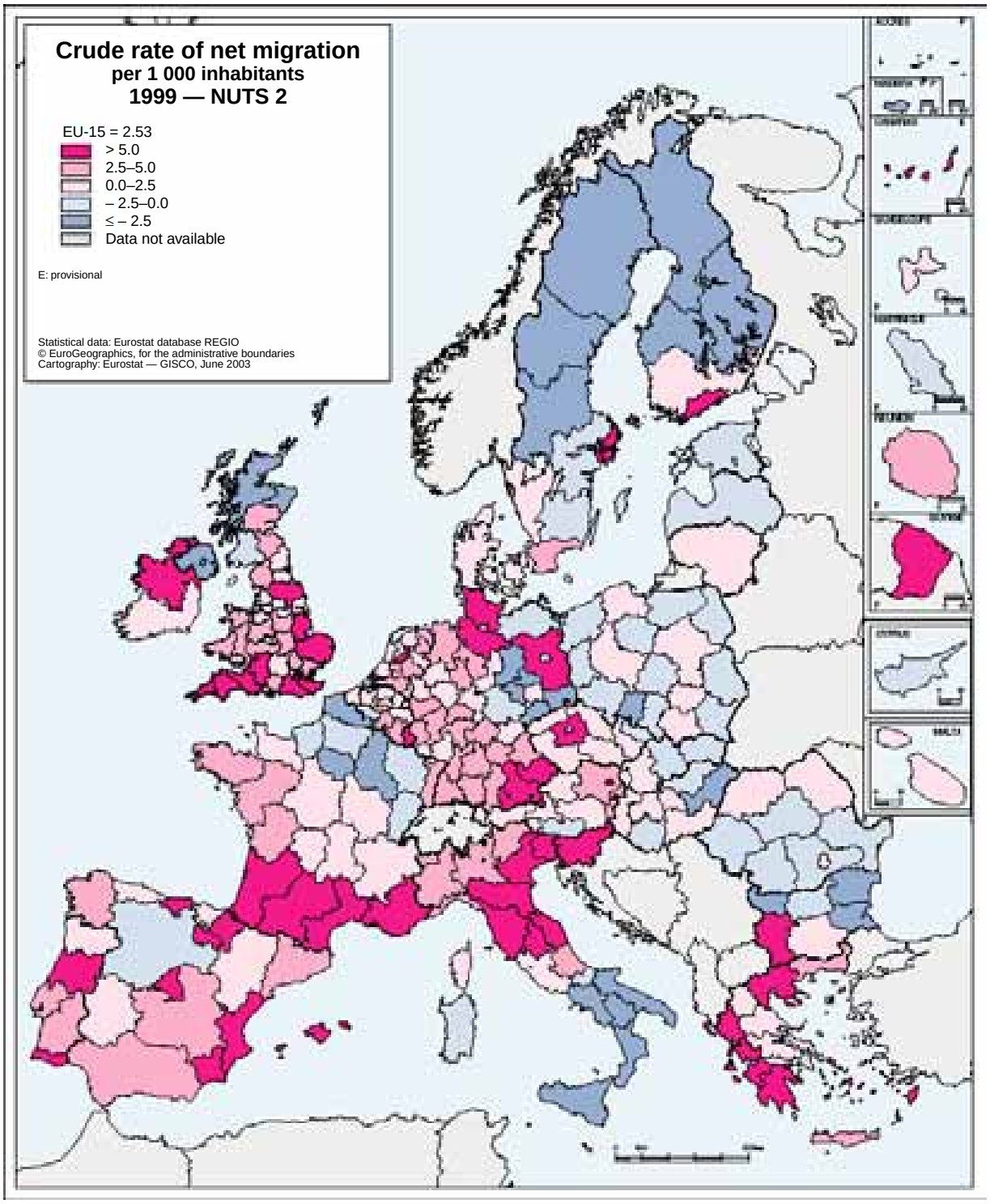
Regions that received relatively many migrants are mainly located in the southern part of the UK, the southern part of France and the central and northern part of Italy. Apart from one region in the Netherlands (Flevoland), the top five regions for incoming migration are situated in Spain (Islas Baleares and Canarias), Portugal (Algarve) and Greece (Ionia Nissia and Ipeiros). In the accession countries, there are two regions with a crude net migration rate that equals or exceeds 5 per 1 000, namely Střední Čechy in the Czech Republic and Slovenia.

Summarising, it may be said that there are significant net migration flows in England going from north to south, in France, again from north to south, and in Italy from the southern to the central and northern parts of the country. Economic push and pull factors, which often cause young people to move to other regions, are the main cause of these shifts. As an example, in the next section an attempt is made to show in more detail the migration flows in particular countries, based on real migration figures.

# In- and out-migration flows

In the previous sections, the dynamics behind population developments were shown. After examining changes in population size at the regional level during the period 1996–99, we focused on the components which influence population growth or decrease: natural increase and migration. Next, we discussed one of the components, (crude) net migration. The crude figures presented are based on the figures for population increase minus those for natural growth.

In this section, a short case study is made, based on real migration figures for a few Member States (Sweden, Finland, the Netherlands and Spain) and two accession countries (the Czech Republic and

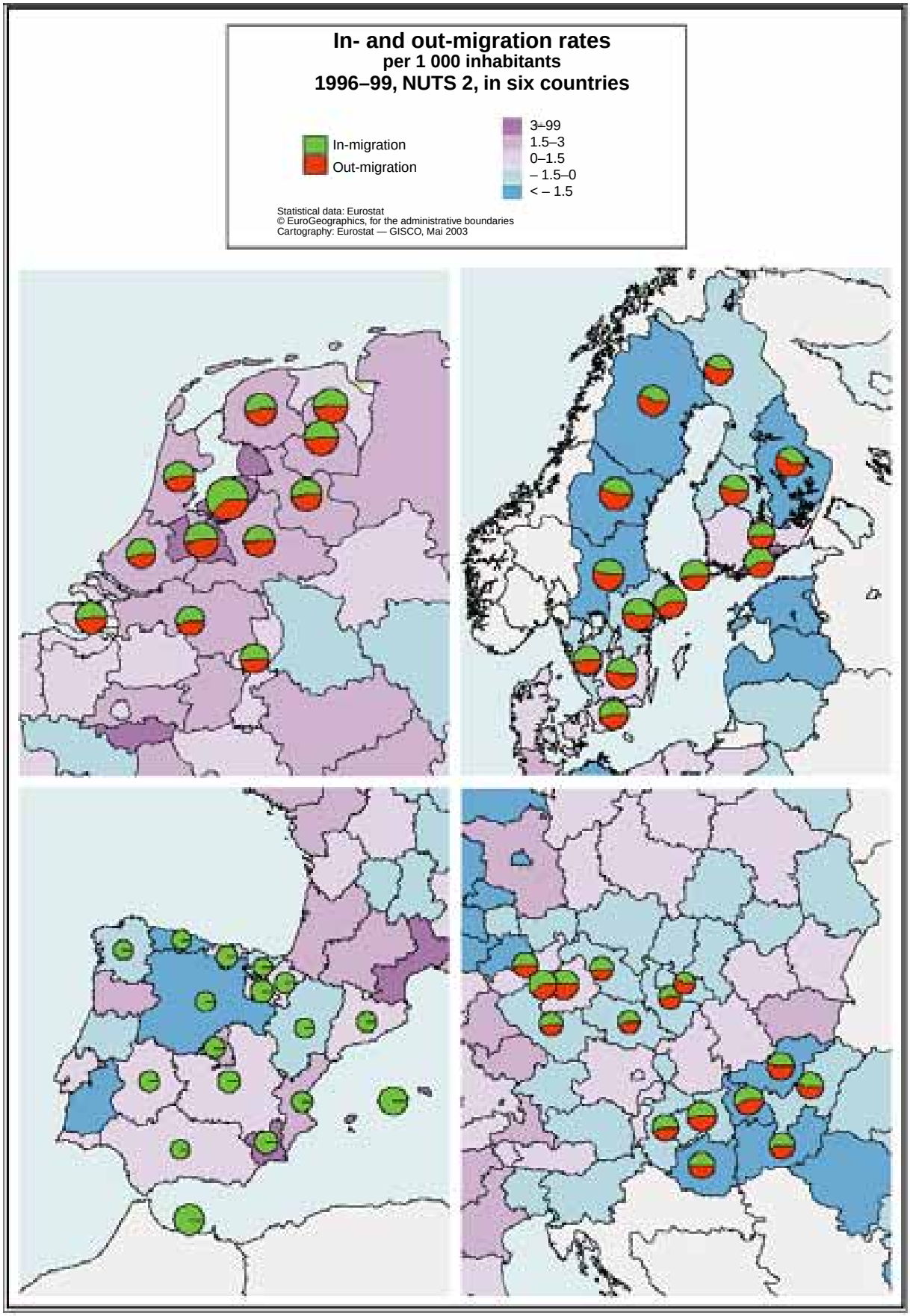



**Map 1.3**

Hungary). The countries were selected on the basis of the availability and completeness of the data.

Map 1.4 shows the countries mentioned above. Using Map 1.1 as background information, Map 1.4 also features pie charts for every region. These charts show the balance between in- and out-migration as a percentage of the average population in that region, while the size of the pie chart indicates the relative size of the migration flows.

In-migration to a particular region is the sum of interregional immigration and international immigration. Similarly, the region's out-migration is the total of interregional emigration and international emigration. In- and out-migration rates are calculated as, respectively, the average annual in- and out-migration during the years 1996–99


In- and out-migration rates
per 1 000 inhabitants
1996–99, NUTS 2, in six countries
In-migration
Out-migration
3–99
1.5–3
0–1.5
– 1.5–0
< – 1.5
Statistical data: Eurostat
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, Mai 2003

**Map 1.4**

divided by the mean population during the period ((1.1.1996 + 1.1.2000)/2) multiplied by 1 000.

In three of the eight regions in Sweden, in-migration is higher than out-migration. The highest in-migration occurs in the region of Stockholm (30.08 per 1 000). Migration into the region, often by young people, is common and is a consequence of the prevalence of job opportunities in this region. Other regions with a higher in- than out-migration rate are Sydsverige (with Malmö) and Västsverige (with the city of Gothenburg). The region with the highest out-migration during the second half of the 1990s was Mellersta Norrland (27.67 per 1 000). The migration, mainly to the southern regions, is partly a result of increasing industrial automation.

Also in Finland, only the southern regions, Uusimaa (with Helsinki), Etelä-Suomi and Ahvenanmaa/Åland, show in-migration higher than out-migration. Especially the in-migration to Uusimaa is high (25.11 per 1 000), caused by the job opportunities in the Helsinki region. The regions in the north show a considerable out-migration. The highest out-migration can be observed in Itä-Suomi with 21.99 per 1 000.

Earlier in the chapter, it was noted that all regions in the Netherlands showed a positive population increase during the period observed. Again in all regions, the migration rate was positive. The region with the highest in-migration is Flevoland (66.83 per 1 000), but the same region also recorded the highest out-migration at 41.46 per 1 000.

For Spain, only in-migration rates are available. The NUTS 2 regions with the highest in-migration are Islas Baleares and Ceuta y Melilla. In the region of Cataluña, the number of arrivals due to internal migration is lower than international immigration.

All regions in Hungary show a negative population increase. All regions also have a negative natural growth. Two of the seven regions also have a higher out- than in-migration: Észak-Magyarország and Észak-Alföld, both in the eastern part of the country. In the region of Dél-Dunántúl in the south, in- and out-migration are nearly equal. The region with the highest in-migration is Közép-Magyarország (which contains Budapest).

In the Czech Republic, almost all the regions have a higher in- than out-migration. The regions of Praha and Ostravsko are the only ones featuring a higher out-migration but for quite different reasons. Although Praha is unusual among capital-city regions in recording out-migration, this is because of residents moving out of the region to less expensive accommodation from which they then commute to work in the city. By contrast, the out-migration from Ostravsko reflects the rise in unemployment following the decline of the heavy industry that once underpinned the region's economy. The highest in-migration was recorded by Střední Čechy, which entirely surrounds Praha (21.55 per 1 000).

Earlier, it was stated that migration flows are usually caused by economic push and pull factors: young people moving from a region with few job opportunities to a region with more job opportunities. While this is indeed the explanation for the majority of the flows mentioned above, the cases of Praha and Flevoland (not to mention Ceuta y Melilla, where the military garrisons are a major component of the region's population) demonstrate that other factors may also be involved.

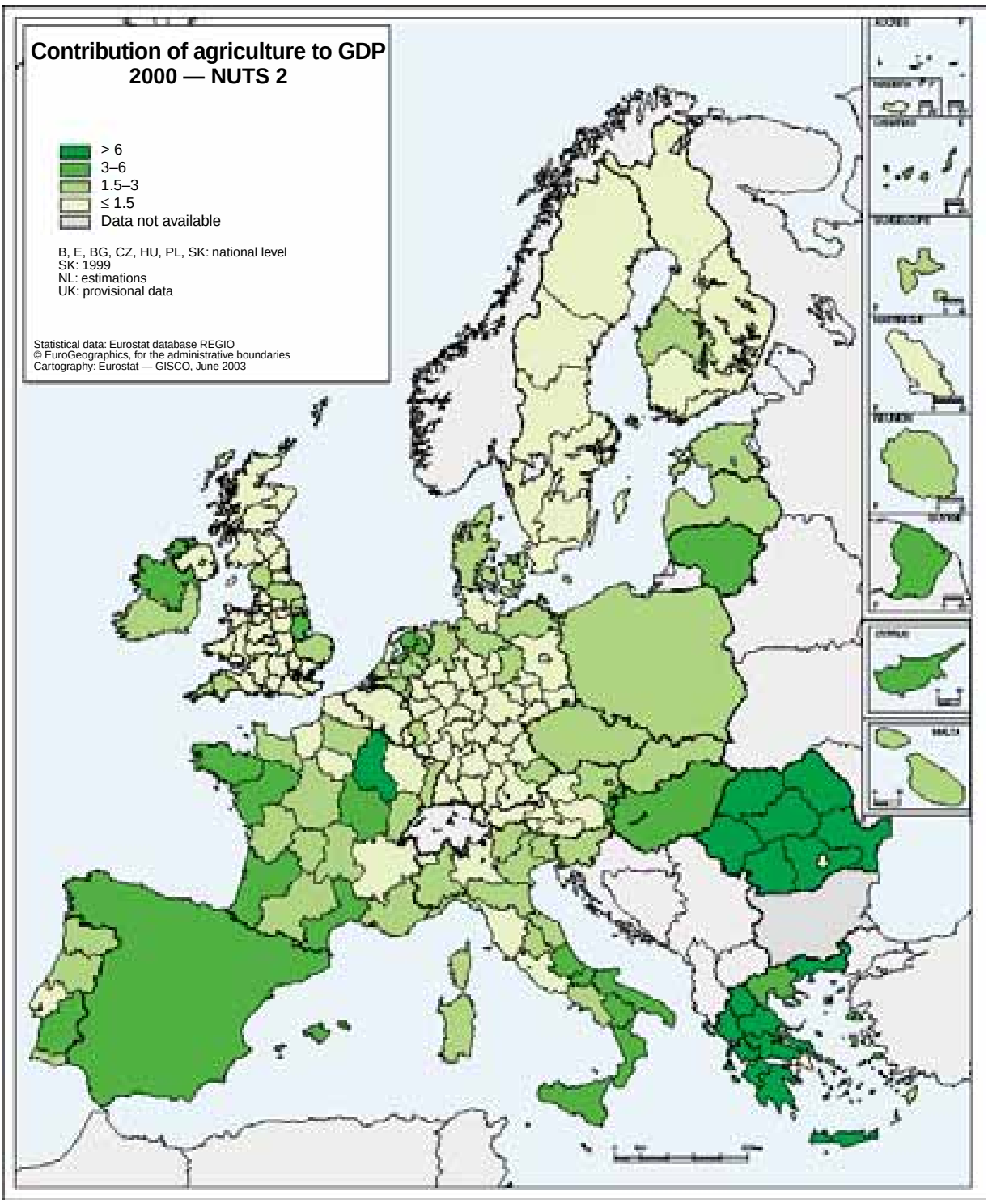
eurostat

# AGRICULTURE

2

# Introduction

This edition of the regional yearbook interprets agriculture in an unusually wide sense to include land use and land cover. The result is a very heterogeneous chapter comprising three quite separate sections. Firstly, the very large amount of information available from regional agricultural accounts is exploited to provide a new perspective on the distribution of agricultural activities. Secondly, the reader is introduced to the potential offered by Eurofarm data, as well as the methodological considerations involved. Finally, the opportunity is taken to introduce the innovative LUCAS project. Although this project is not limited to agriculture, it offers enormous potential in terms of understanding Europe's landscapes, whether or not these are agriculturally exploited.




**Map 2.1**

# The contribution of agriculture to GDP

In national accounts terminology, gross domestic product (GDP) at market prices is the final result of the production activity of the various branches (resident producer units) of an economy. It corresponds to the sum of gross value added (at market prices) of the various branches, and the comparison of the gross value added of a given branch with the overall GDP therefore makes it possible to establish a rough measure of the importance of that particular branch. It is only a rough measure because, given the close economic relationships between the individual branches, it would be slightly short-sighted to consider each of them in an isolated way. In the case of agriculture, the contribution of which to GDP is generally quite low, a more sophisticated analysis would therefore need to also take into account agriculture's links with the various branches of industry, both upstream and downstream, in particular with the agro-food industry.

Nevertheless, the indicator chosen for the first map in this section refers to agriculture only, more precisely to **agriculture's contribution to GDP**. With regard to the Member States, the first finding of this analysis is that, in terms of the number of regions, this contribution is equivalent to or higher than 3 % in only about one of four regions. Most of the regions with a higher contribution from agriculture are located in Greece. In fact, if one focuses on those regions where agriculture contributes 6 % or more to GDP, 10 of the 12 EU regions in this situation can be found in Greece, the other two regions of this group being Açores (Portugal) and Champagne-Ardenne (France).

Amongst the candidate countries, for which no data were available at the NUTS 2 level, Bulgaria and Romania are those countries where agriculture is most important, contributing more than 10 % to the countries' GDP. In the other countries, agriculture's share in overall GDP varies between 1.5 % (Czech Republic) and 3.8 % (Cyprus, 1999 data). In Poland, the largest agricultural producer amongst the countries joining the European Union in 2004, agriculture contributes 2.7 % to GDP.

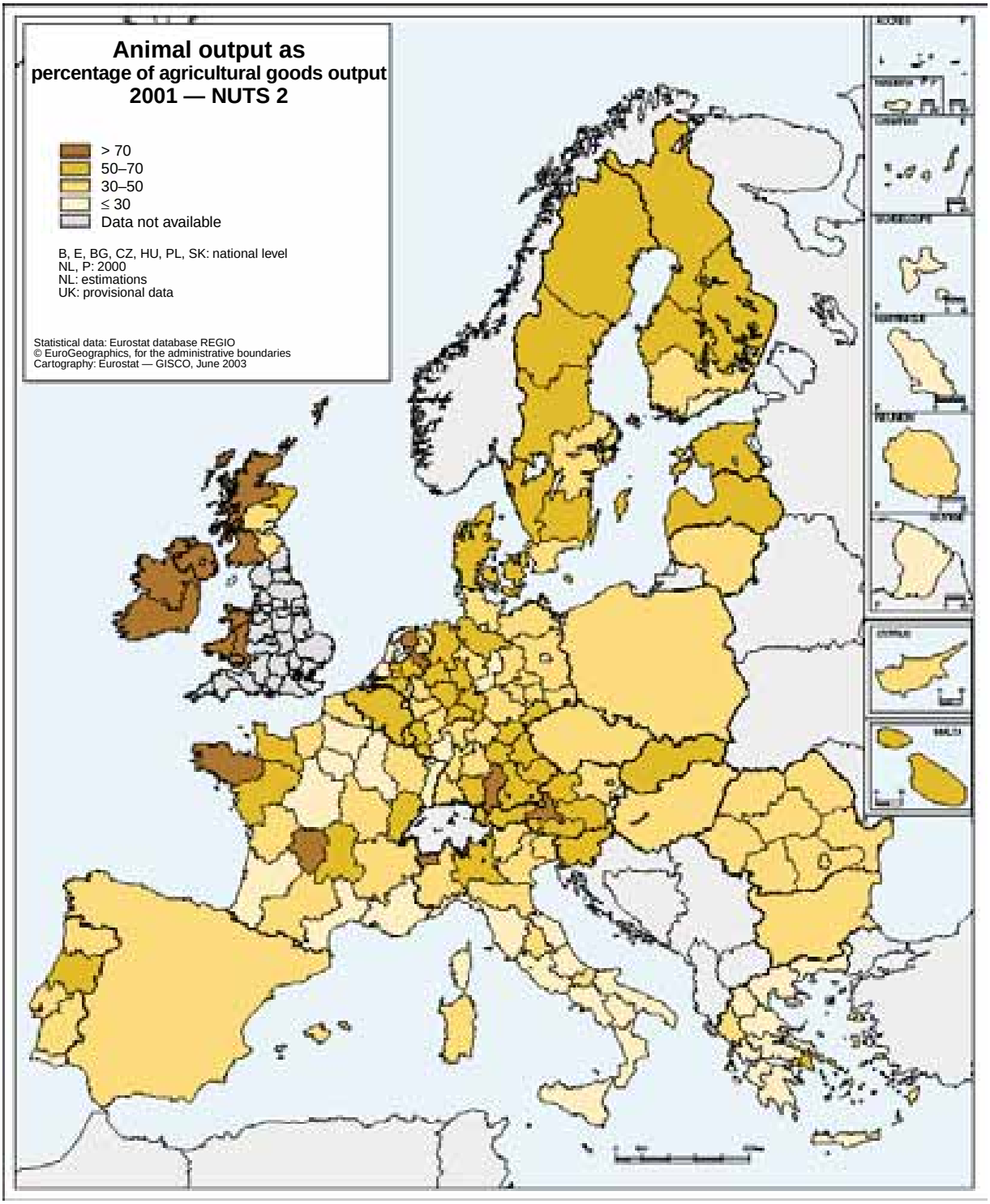
# Animals' share of agricultural goods output

Map 2.2 gives information, at a rather high level of aggregation, on the composition of agricultural production. The indicator chosen is the **share of animal output in the overall output of agricultural goods**; it is a measure of the relative importance of animal (and indirectly crop) production in the various regions.

This analysis should be interpreted with caution as the composition of agricultural output is subject to a number of factors which can have a considerable impact when looked at on a year-to-year basis, but which may have little impact on the medium-term development of agricultural production. This is particularly the case for crop production, where differences in the climatic conditions between years may lead to considerable changes in the level of output. The use of three-year averages, for example, would give a more accurate picture of the structure of agricultural production but this would increase the time lag in the availability of data by a further year.

Taking the EU-15 average, animal production is slightly less important than crop production. In 2001, the reference year of the present analysis, the ratio was about 45:55 (animal versus crop output). One therefore expects a certain predominance of regions 'specialised' in crop output, i.e. where the share of crop output is more important than that of animal output. This expectation can be confirmed by the findings of this analysis, though the number of regions where crop production is more important than animal production is higher than one would expect — outranking animal-oriented regions by a ratio of 2:1.

As shown in Map 2.2, the regions with the highest degree of specialisation on animal production are located in the Netherlands (Overijssel and Friesland), Ireland and France (Bretagne and Limousin). However, in the Portuguese islands of the Azores (Açores) and in the Italian region of Valle d'Aosta, animal production accounts for about four fifths of agricultural output. Most of the regions where crops represent the predominant type of production (at least three quarters of total output) are located in Greece, France and Italy. In Spain, for which in this context no regional break-




**Map 2.2**

down is available, crop production is clearly predominant (a ratio of 60:40).

Amongst the candidate countries, animal production is most important in Estonia (more than 60 % of total output). At the other end of the scale is Romania, where crops account for almost two thirds of total output. In Poland, the crops/animals ratio is 50:50.

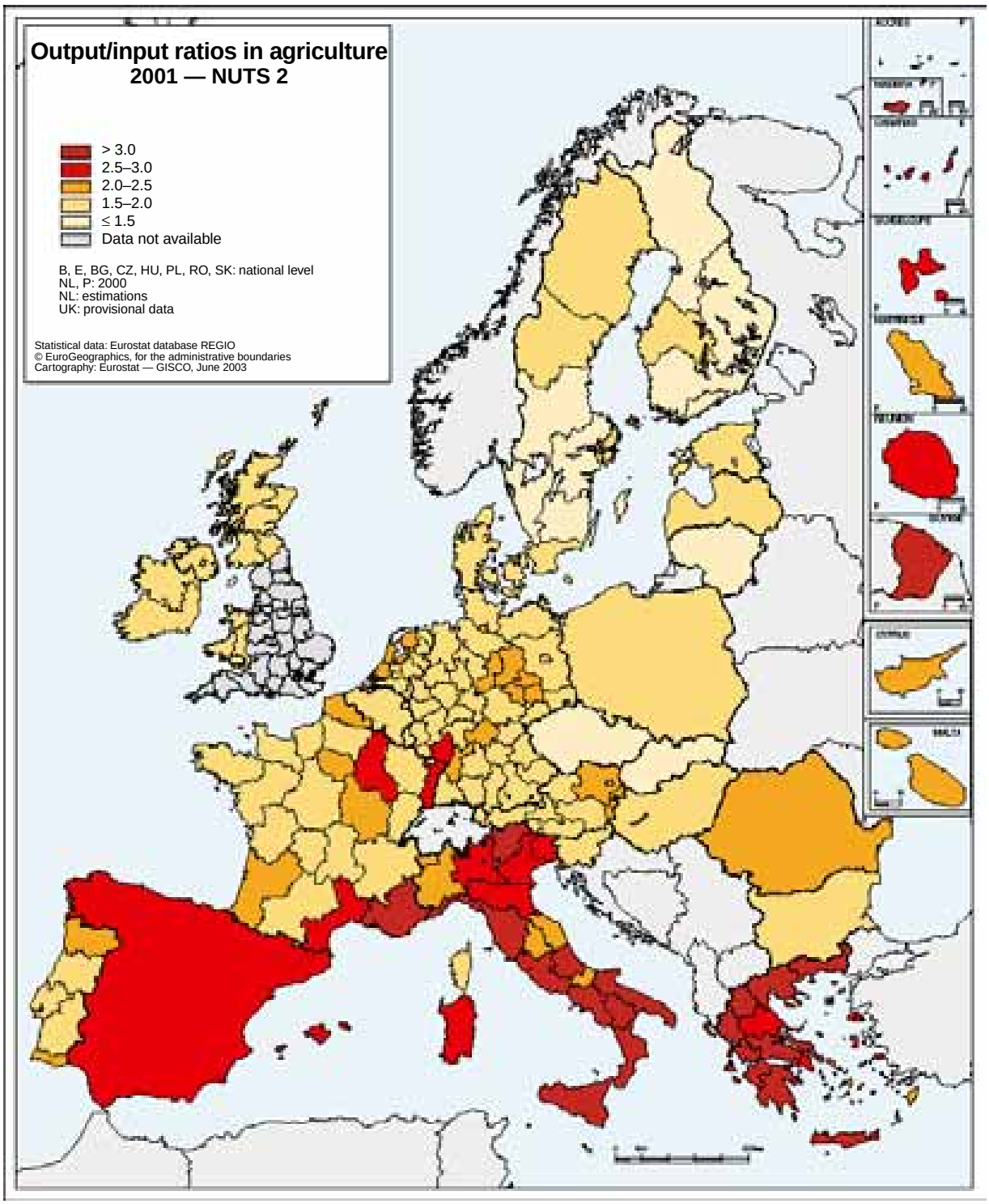
# Output/input ratios in agriculture

The **output/input ratios** which are the basis of Map 2.3 give information on the value of output generated by one unit of input. They can be regarded as a relatively simple type of productivity indicator. Their usefulness is limited, however, by

the fact that output is seen as a function of intermediate consumption of goods and services only, while the other factors of production (labour, land and capital) are disregarded. The difference between output and intermediate consumption is (gross) value added, and the output/input ratios are therefore also referred to as 'value added rates'.

The map shows that most of the EU regions with high output/input ratios are located in the southern part of Europe (Italy, Greece, southern France and Spain). To a certain degree, this seems to be linked with the type of production that is predominant in the respective regions. In most of the regions with an output/input ratio of 3.0 or higher, crop products account for at least 70 %, and permanent crops (fruit, olive oil, wine) are of particular importance.

Those regions where the output/input ratio is relatively low (no more than 1.5) are mainly located in the north of Europe, namely in Finland and



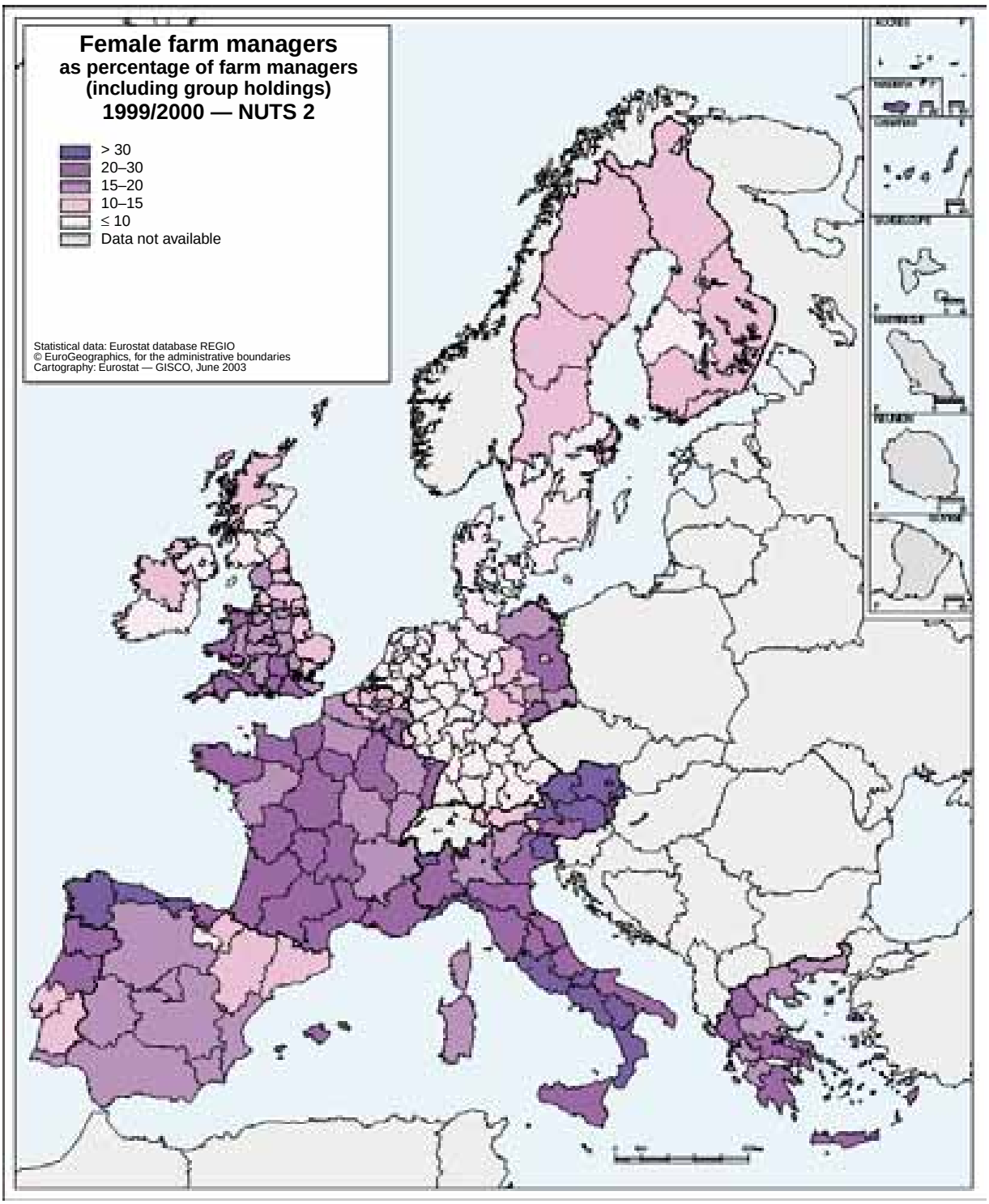

**Map 2.3**

Sweden. This seems to be the consequence mainly of difficult climatic conditions and of a relatively short vegetation period.

As regards the candidate countries, the differences are less pronounced. The output/input ratios are highest in Malta and Cyprus (2.4 and 2.3 respectively), and lowest in Slovakia and the Czech Republic (1.4 and 1.5 respectively). In Poland, the output/input ratio is 1.7.

# Eurofarm data – women in agriculture

The proportion of women who are farm managers (see Map 2.4) is in stark contrast to usual gender maps of the EU, which show a more balanced distribution of men and women in management and leadership positions in Europe's northern regions. Among farm managers, however, the




**Map 2.4**

proportion of women is higher in southern than in northern Europe. A number of other considerations should nevertheless be taken into account.

- In all EU regions, more men than women manage farms. The highest proportion of female managers is 49 % (in Galicia in Spain), while the EU average is a modest 22 %.
- The decision-making powers of the manager are not the same as the economic power enjoyed by the farm holder. Some national trends are very strong, reflecting underlying cultural values. In the United Kingdom and Austria, the female rate is higher for farm managers than for farm holders. The reverse phenomenon is recorded in Spain.
- In every Member State, the farms managed by women are physically and economically smaller units on average than those managed by men.

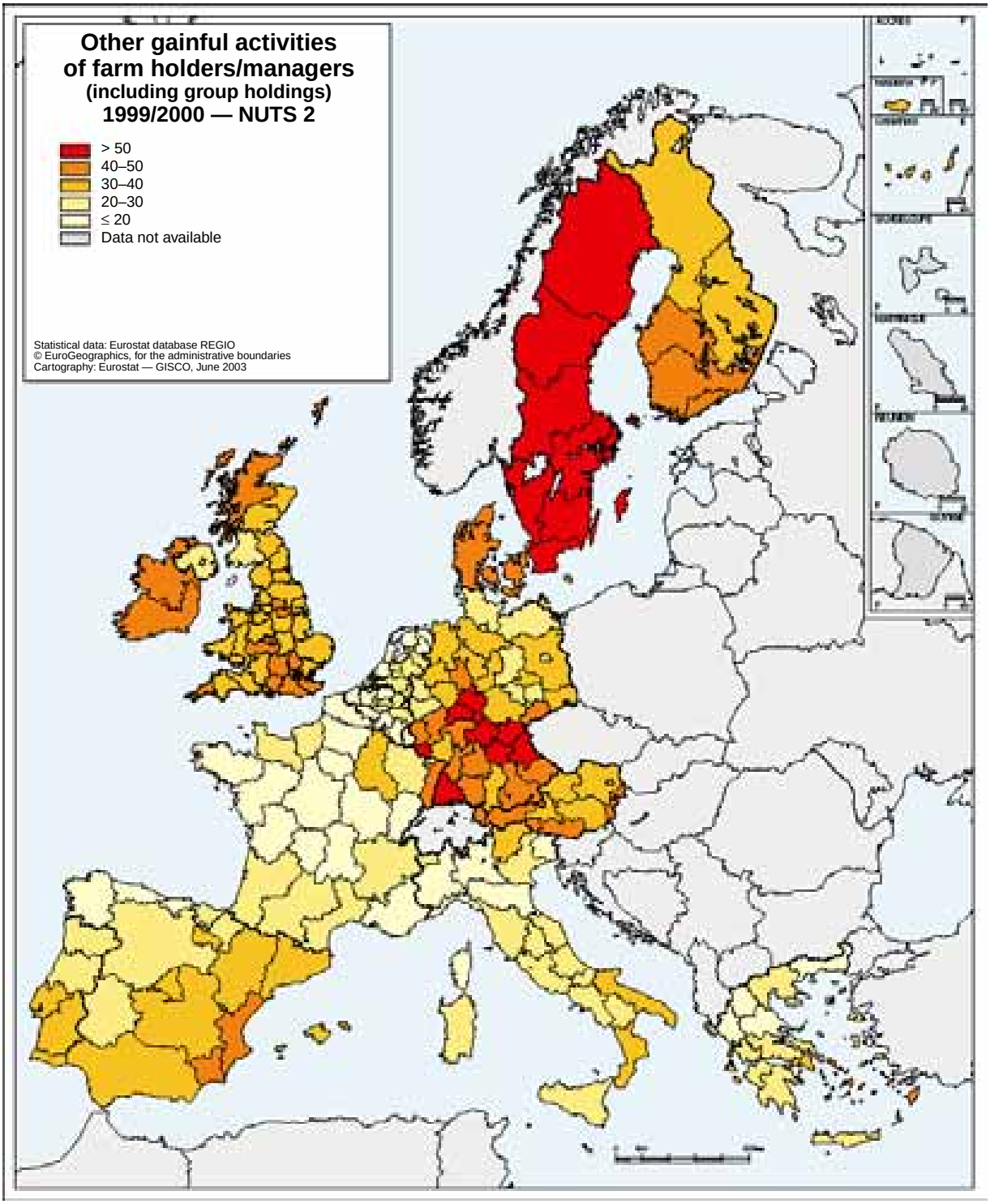
# Income diversification of the farming community

The level of other gainful activities (OGAs) reported by farm holders/managers (see Map 2.5) gives an indication of both the viability of farms and the availability of alternative employment opportunities in the local economy. Three types of cases can be described.

- In rural areas (northern Europe, the extreme south of Europe and mountain areas), the high proportion of OGAs reflects the insufficient income generated by the actual farm itself. Most of these OGAs are nevertheless linked with agriculture (forestry, agricultural product processing, agri-tourism).
- In urban areas (south-eastern UK, central Germany, the Spanish Mediterranean coast), the farms are relatively small and more intensive. An additional income can be found near to the holding, possibly in other branches of the economy.
- Elsewhere, agriculture is more professional, generating incomes that make alternative sources of income less necessary.

Certain NUTS 2 regions illustrate each of these typical cases. For example, Sweden, Ireland, Scotland and the Aegean Islands could be classified in the first type. The urban *Länder* (such as Bremen, Hamburg or Berlin) and Saarland in Germany represent the second, while France's Bretagne and Île-de-France regions and Italy's Emilia-Romagna and Lombardia could be regarded as examples of the third type.

It should be noted that these trends have been mapped at the NUTS 2 level. In a number of cases, the NUTS 2 region is relatively large and rates calculated across the whole of the region tend to blur some combinations of these typologies. By contrast, the smaller NUTS 2 regions show more extreme cases and better illustrate these location-dependent phenomena.


Other gainful activities
of farm holders/managers
(including group holdings)
1999/2000 — NUTS 2
> 50
40–50
30–40
20–30
≤ 20
Data not available
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, June 2003

**Map 2.5**

### Matching NUTS and FSS geographical units

The farm structure survey (FSS) uses its own geographical units at three different levels: country, region and district. Each level has been defined as a compromise, making it possible to aggregate data as precisely and reliably as possible. The district is the level of aggregation of census data, every 10 years. The region permits a sufficient quality level for intermediate surveys (sampling).

Accordingly, the FSS geographical levels do not match with any given NUTS level right across the whole EU. Within each Member State, the FSS geographical level is more consistent with the NUTS. The FSS regions are mainly either NUTS 1 or 2, whereas districts follow NUTS 2 or 3.

There are exceptions to the above rules where the number of agricultural holdings is low. In these cases, urban or natural regions are aggregated at a higher level.

Until now, the FSS geographical units could not be modified between censuses, because they are used as a reference for sample extrapolation. In the run-up to the 1999/2000 census, Eurostat asked to Member States to provide a more precise location of holdings (NUTS 4/5), so that it would be possible to keep track of changes in the nomenclature. The aim was to ensure consistency not with the NUTS classification, but rather with the changes in the Structural Funds 'objective zone' definitions.

The above move does not solve either the reliability problem or the fact that the number of farms in urban or very sparsely populated areas does not match with any NUTS level throughout the EU. After all, the FSS statistics reflect reality rather than that reality is shaped by the statistics.

**Table 2.1 — Managing Eurofarm (FSS DB) exceptions to NUTS**

| | NUTS 2 | Eurofarm regions/districts |
|---|---|---|
| Eurofarm units defined as aggregates of NUTS 2 | BE1 + BE24 | BE24_1 |
| | DE3 + DE5 + DE6 | DE3_90_5_6 |
| | ES61 + ES63 | ES61 |
| | UKC1 + UKC2 | UKC |
| | UKD3 + UKD4 + UKD5 | UKD3_4_5 |
| | UKE3 + UKE4 | UKE3_4 |
| | UKG1 + UKG3 | UKG1_3 |
| | UKI1 + UKI2 + UKJ1 | UKI_J1 |
| NUTS 2 obtained by aggregating Eurofarm districts | FI13 | FI131 + FI132 + FI133 + FI134 |
| | FI14 | FI141 + FI142 + FI143 + FI144 |
| | FI15 | FI151 + FI152 |
| | FI17 | FI171 + FI172 + FI173 + FI174 + FI175 + FI176 + FI177 |
| | IT31 | IT311 + IT312 |

# The LUCAS survey — statisticians monitor territory

Eurostat, in close cooperation with the Directorate-General for Agriculture and with the technical support of the Joint Research Centre, has launched the pilot project 'Land use/cover area frame statistical survey (LUCAS)', thus implementing a decision in 2000 of the European Parliament and the Council on the application of area frame survey and remote-sensing techniques to the agricultural statistics for 1999 to 2003.

In 2001, the first LUCAS pilot survey was carried out in 13 of the 15 Member States of the European Union. It had to be postponed to 2002 in Ireland and the United Kingdom because of foot-and-mouth disease. The survey is organised in two phases: a field survey in springtime (phase I) to collect data on land use/cover, as well as on the environment, and a farmer interview survey in autumn (phase II) to gather additional information on yields and agricultural practices.

# Objectives of the survey

The LUCAS survey, still in a pilot phase, has two main purposes:

1. Implementation of the surveys themselves in 2001 and 2003.

2. Detection of changes in land use/cover. Besides the picture given in a specific year by LUCAS estimates, one of the strengths of the project is the opportunity it offers to monitor and quantify changes over time in land cover, land use and landscape structure.

The survey can already be seen as a dynamic and efficient approach capable of meeting the following objectives:

- to obtain harmonised information (lacking at European level);
- to extend a purely land use/land cover information system so it becomes a multi-purpose and multi-user system;
- to offer a common methodology and nomenclature for data collection and the computation of estimates;
- to get early estimates of areas that refer to the current year, and the possibility to quantify in real-time the changes with respect to previous situations;
- to provide the statistical information needed to monitor the integration of environmental concerns into the common agricultural policy.

# Two-stage area frame systematic sampling design

The sampling design adopted was systematic area frame sampling, since LUCAS is designed to provide multi-purpose information and therefore needs to cover not only the agricultural area, but all the territory of EU Member States.

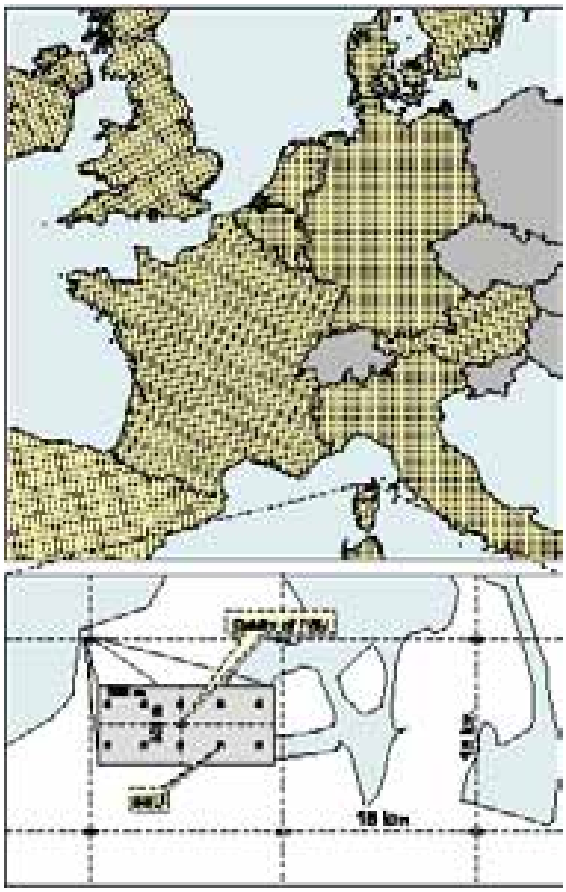



**Figure 2.1 — The LUCAS two-stage sampling**

This sampling design enables the production of area estimates for land cover/land use categories at the European level. If countries so wish, they can acquire results at national or regional level by increasing the number of sampled points.

The LUCAS phase I survey adopts a two-stage sampling design: at the first level, primary sampling units (PSUs) are defined as cells of a regular 18 x 18 km grid, while the secondary sampling units (SSUs) are 10 points regularly distributed (in a 1 500 x 600 m rectangle ([3])) around the centre of each PSU (see Figure 2.1), with reference numbers 11, 12, 13, 14, 15, 21, 22, 23, 24 and 25.

The sampling results in approximately 10 000 PSUs covering all EU territory. The number of PSUs was chosen to optimise the cost structure and the precision at European level.

The observation unit of the LUCAS phase I survey is the point, defined as a circle of 3 m diameter (see Figure 2.2). In each SSU, data on land cover and land use as well as on environmental features are collected in the field. Considering the hetero-

([3]) With the exception of Spain and Italy, in which the LUCAS sampling plan was slightly adapted to comply with already established area frame systems.

geneity of land cover types, in some particular cases an enlargement of the observation window up to a circle of 20 m radius is foreseen ([4]).

Data are also collected along the straight line that connects the observation points located in the first row (the transect) (Figure 2.2).

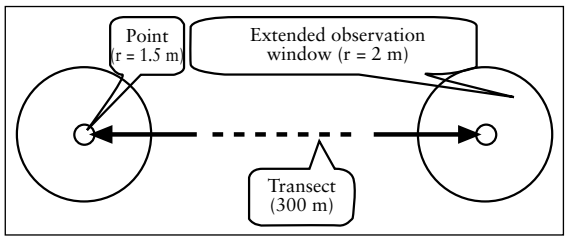



**Figure 2.2 — The point and the transect**

The phase II survey, carried out in autumn, deals with the collection of environmental information and farming practices. The sample for LUCAS phase II is a subsample of about 5 750 SSUs (including a reserve of 15 %) classified as arable land during phase I.

Observation units of the phase II survey are the agricultural holding itself and the plot in which the sampled SSU is located.

# A multi-purpose information system

The survey is intended to record not only agricultural aspects, but also a much wider range of possible land cover types (i.e. built-up areas, forests and wooded lands, bushes and grassland, wetland, water and bare soil areas) and land use categories (residential, industrial, commercial, recreational, etc.). Some environmental information is also collected.

## Land cover and land use information

'Land cover' is the observed physical cover of the earth's surface, while 'land use' is the description of the same areas in terms of their socioeconomic function. The LUCAS concept of 'land' is extended to inland water areas (lakes, rivers, coastal areas), but it does not embrace uses below the earth's surface (mine deposits, subways, mushroom beds, underground levels of buildings, etc.).

The land cover classification is defined in three hierarchical levels of detail with 57 classes at the third level. By contrast, the land use nomenclature distinguishes 14 classes at the third level. The complete nomenclature scheme is available on the CIRCA site land use group ([5]).

## Environmental information

Qualitative information, including the presence of irrigation and drainage infrastructure, isolated trees, evidence of damage from natural hazards and soil erosion/accumulation, is collected in the field (LUCAS phase I) within an extended observation window of a 20 m circle around the observation point. Along the transect, the change of land cover and the occurrence of linear features ([6]) are registered.

Photographs of the landscape are taken at SSU13; these pictures create a photo sample of European landscapes.

The farmer interviews (LUCAS phase II) provide information regarding agricultural techniques (e.g. crop rotation, sowing method, quantities of fertilisers per type, treatment with weed killers, etc.), and data on areas and yield of crops.

# Realisation of the survey

## Location of the points on the ground

Three different tools are used to locate the points on the ground:

- aerial photographs;
- topographic maps;
- compasses and, in certain cases, global positioning system (GPS).

First, topographic maps (1:100 000 to 1:50 000 scale) are used to define the best route to reach PSUs. At the level of SSUs, it is primarily the aerial photographs that are used for a precise location, with the additional support of GPS, compasses, and of larger-scale topographic maps (1:25 000 to 1:5 000).

([4]) The extended window of observation is applied for wooded areas, shrubland and permanent grassland. The existence of certain features (e.g. isolated trees, soil erosion) is also observed in this extended observation window.

([5]) http://forum.europa.eu.int/Public/irc/dsis/landstat/library.

([6]) Hedge and tree rows, stone walls and dykes, water channels, tracks and roads, railways, electricity lines.

## Period and observation time

On average, the survey began in May and lasted for two to three months. In Ireland and the United Kingdom, the 2001 data collection had to be deferred to 2002 due to the foot-and-mouth epidemic. For similar reasons, the survey in the Netherlands did not start until 18 June 2001.

An average of two hours was required to visit each PSU (including walking 10 x 300 m between each SSU). On steeply sloping or heavily overgrown ground, as much as 10 hours were needed.

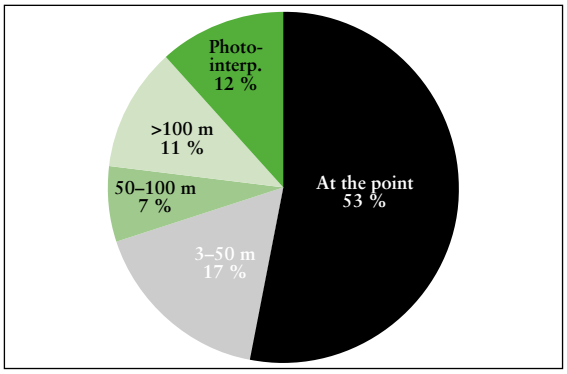



**Figure 2.3 — Distance of observation of the points**

SSUs located at more than 2 000 m altitude (or in such isolated locations as in the middle of the Scandinavian forest or on islands not served by a regular transport service) were photo-interpreted rather than visited on the ground. Nevertheless, 88 % of the SSUs were observed on the ground.

# Main results

## Land cover

**Table 2.2 — Land cover estimates**

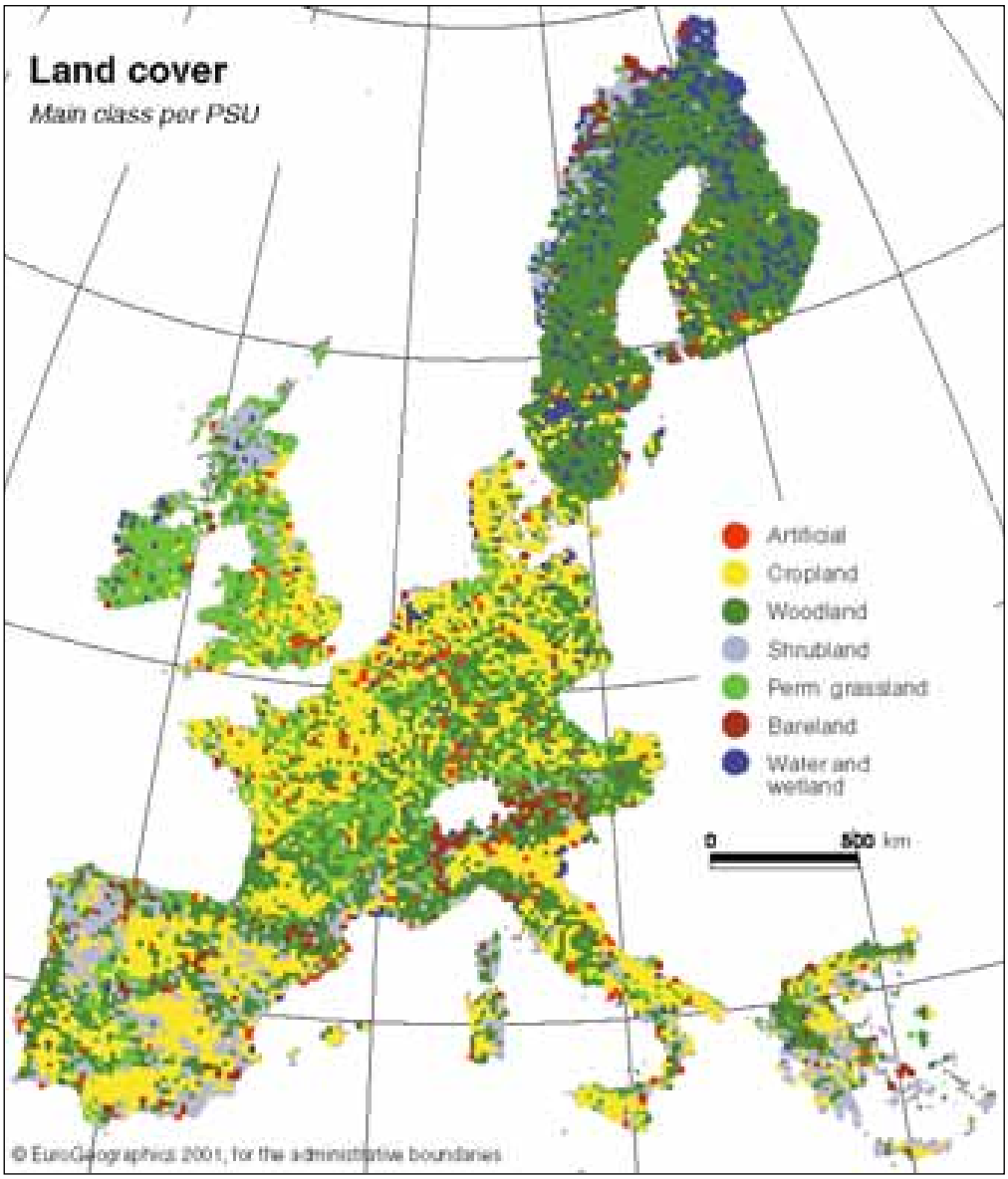
| Land cover | km² | % | CV |
|---|---|---|---|
| Woodland | 1 134 606 | 35.0 | 1.0 |
| Cropland | 837 536 | 25.8 | 1.3 |
| Permanent grassland | 509 573 | 15.7 | 1.4 |
| Shrubland | 268 693 | 8.3 | 2.9 |
| Water and wetland | 236 111 | 7.3 | 3.0 |
| Artificial land | 153 912 | 4.8 | 2.7 |
| Bare land | 99 729 | 3.1 | 5.3 |
| Total | 3 240 160 | 100.0 | |

**NB: CV = Coefficent of variation**

At EU-15 level (see Table 2.2), the main type of land cover consists of areas that are entirely or almost in their natural state. By contrast, the artificial areas represent less than 5 % of the surface of the EU.

The concentration of wooded areas and of inland water (lakes and wetlands) in the Scandinavian countries is very high, especially when compared with the rest of EU territory (see Map 2.6).

The intensive agricultural zones are located in Denmark, the eastern part of England, the north-western half of France, the Po river plain and Adriatic coast in Italy, and the south of Portugal and Spain. Shrublands are mainly concentrated in Mediterranean countries, but their presence is noticeable on the north-west border of Sweden and also in the highlands of Scotland.




**Map 2.6 (1)**

(1) Warning: maps report the most represented class for each PSU.

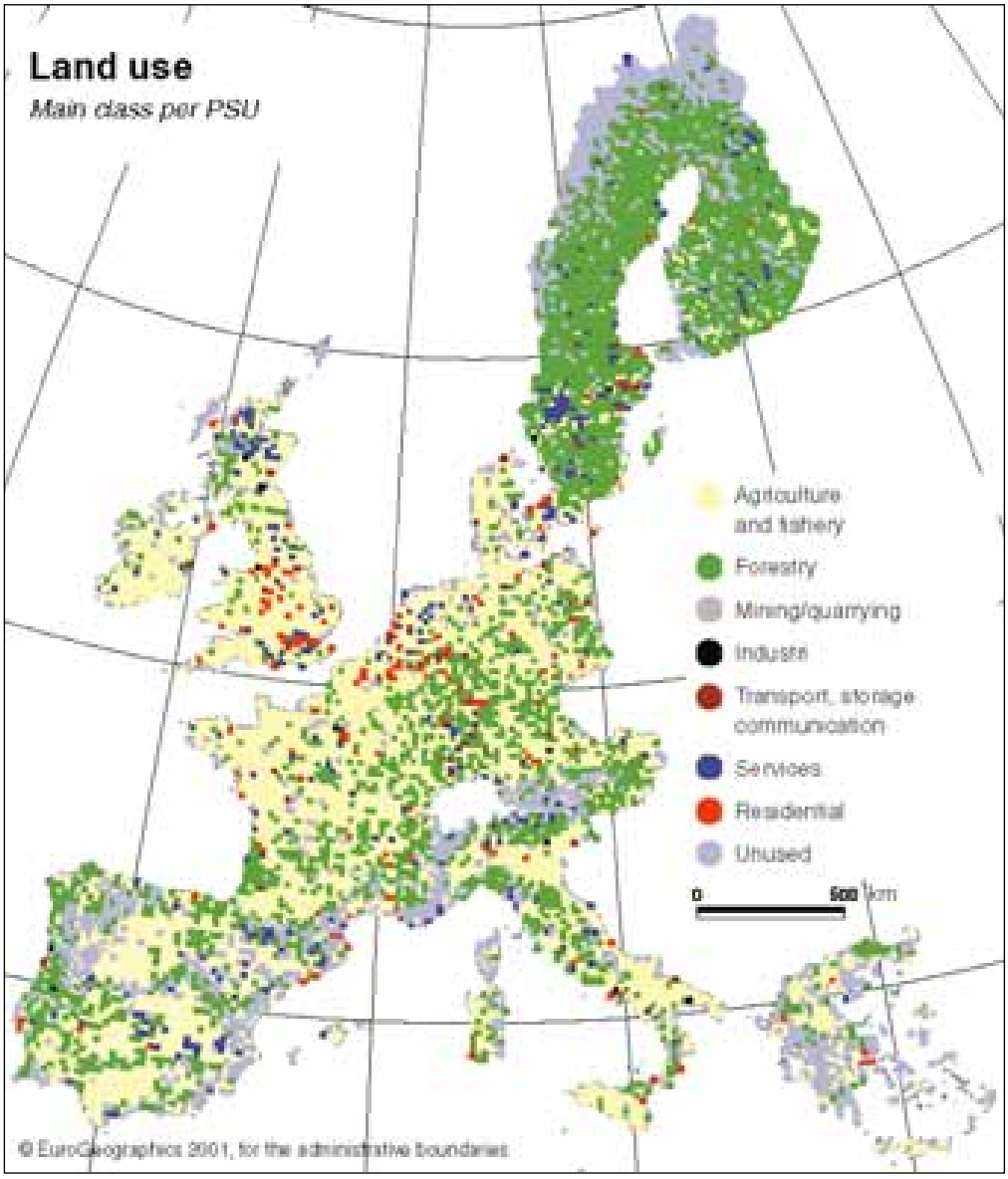
# Land use

Agriculture accounts for more than 41 % of the territory, making it the leading type of land use in the 15 countries investigated (see Table 2.3). This category includes land used directly for production as well as land used generally for farming purposes (buildings, farmyards, etc.). Apart from the extreme situations of the Nordic countries and Austria, on average around half of the territory or more is used for farming. Forestry comes second, with 30 %. Almost 19 % of the territory of the 15 countries is classified as being without apparent use. These three headings (agriculture, forestry, unused) account for 90 % of EU territory.

**Table 2.3 — Land use estimates**

| Land use | km² | % | CV |
|---|---|---|---|
| Agriculture | 1 343 180 | 41.5 | 0.9 |
| Forestry | 972 952 | 30.0 | 1.2 |
| Unused | 603 630 | 18.6 | 1.6 |
| Recreation, leisure, sport | 131 805 | 4.1 | 4.7 |
| Residential | 74 584 | 2.3 | 4.4 |
| Transport, communication, storage, protective works | 65 644 | 2.0 | 3.6 |
| Community services | 11 745 | 0.4 | 16.6 |
| Fishing | 9 743 | 0.3 | 17.5 |
| Industry, manufacturing | 6 861 | 0.2 | 16.1 |
| Commerce, finance, business | 6 458 | 0.2 | 16.3 |
| Mining, quarrying | 6 137 | 0.2 | 22.4 |
| Construction | 2 668 | 0.1 | 23.7 |
| Water, waste treatment | 2 566 | 0.1 | 21.4 |
| Energy production | 2 187 | 0.1 | 31.8 |
| Total | 3 240 160 | 100.0 | |

**NB: CV = Coefficient of variation.**



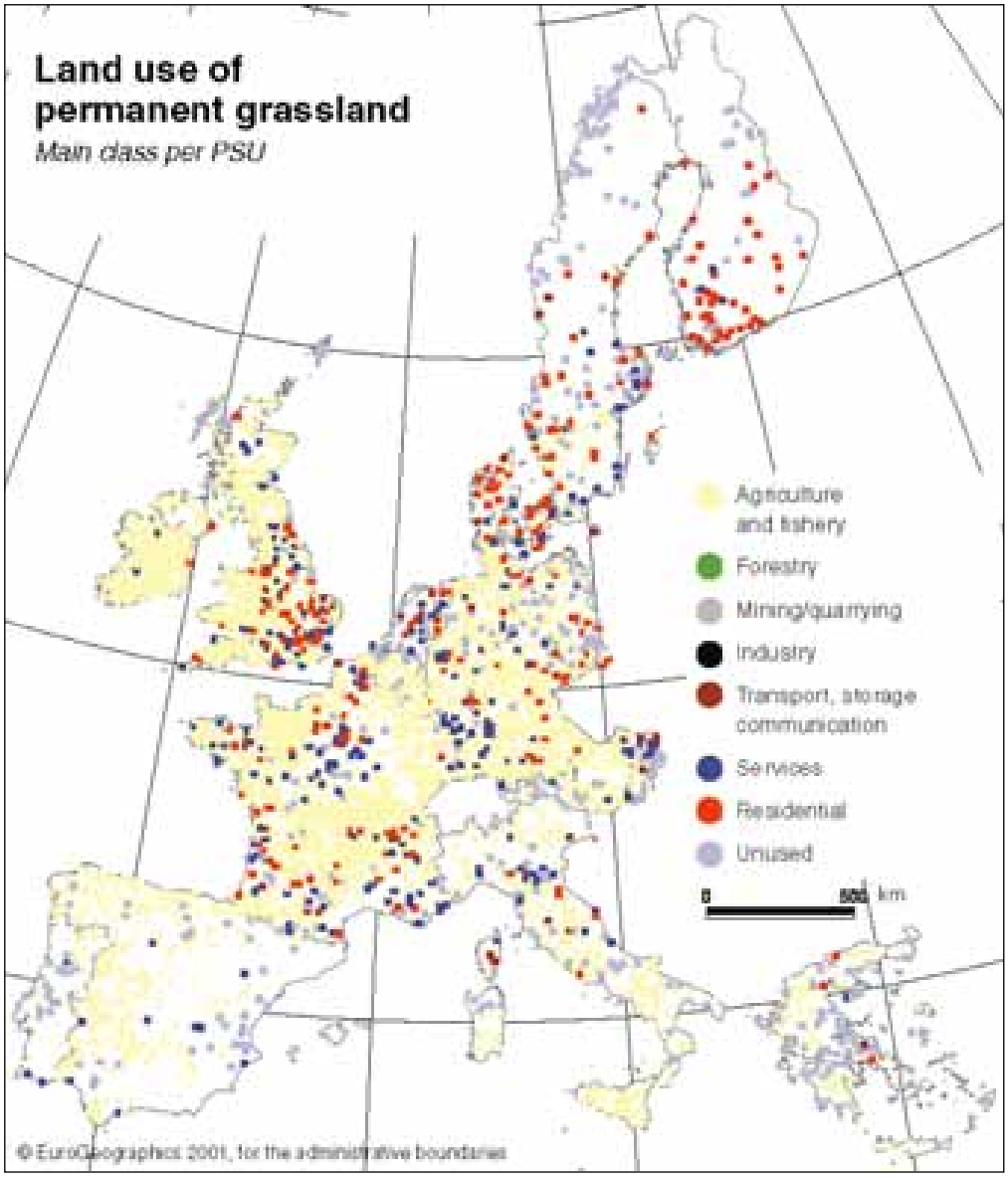

**Map 2.7**

# Mixed land cover/land use

Some 82 % of areas under permanent grass are used for agricultural purposes, 9 % are unused, residential, leisure and recreation areas account for 8 % and the remaining 1 % for transport, storage,communication and protective works. The use of areas under permanent grass varies greatly. In Germany, Greece, Spain and France, over 80 % of this type of land is used for agriculture. 'Other uses' increase from south to north, the trend being for permanent grassland to be used for dwellings (lawns) or recreational purposes (sports grounds). The extreme is Finland, where just 4 % of the area under permanent grass is devoted to agriculture and almost 60 % to dwellings (see Map 2.8).

# Landscape photos

LUCAS data on land cover/land use were supplemented by photographing the landscape from a systematic observation point for each PSU (SSU No 13). Surveyors took one photo in each of the four directions North, East, South and West (see Image 2.1); each photo is referenced to the number of the PSU, to preserve its location in space.




**Map 2.8**

Some 20 000 photos were taken in the 2001 data collection. These photos constitute a unique archive of European landscapes, to be exploited with the aim of opening new perspectives in the analysis of European landscapes.


**Image 2.1 — Example of four landscape photos taken in France**

# Conclusion

The experience acquired with the LUCAS pilot survey has made it possible to validate the area frame methodology applied, and the survey has proved its reliability in providing for the first time harmonised and comparable data at EU level.

Due to its flexible design, LUCAS can be seen as a platform for many kinds of applications, especially those related to environmental assessments.

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# REGIONAL GROSS DOMESTIC PRODUCT

3

# What is gross domestic product?

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

Regions of differing size achieve different GDP levels. A comparison can be made by indicating GDP per inhabitant of the region in question. Here, the distinction between place of residence and place of employment is important, since reference to GDP per inhabitant is only straightforward if all employees engaged in generating this value are also residents of the region in question. Gross domestic product measures the economic performance achieved within national or regional boundaries, regardless of whether this was attributable to domestic or foreign economic entities. In areas with a high proportion of commuters, regional GDP per inhabitant can be extremely high, particularly in such economic centres as London or Vienna, and relatively low in the surrounding regions, even if these are characterised by high household purchasing power or disposable income. Regional GDP per inhabitant should not, therefore, be equated with regional disposable income.

As has already been pointed out, regional GDP represents a 'cash value'. International comparability can be easily achieved by converting national currencies into euro or another currency, but exchange rates will not reflect all international price-level differences. In order to correct this imbalance, GDP is converted into purchasing power standards (PPS). This allows a comparison based on units of volume or goods units rather than values. The section below explains in detail what purchasing power parities (PPPs) are.

# Purchasing power parities and international volume comparisons

## Introduction

International differences in GDP values, even after conversion via exchange rates to a common currency, are not due simply to differing volumes of goods and services. The 'level of prices' component can sometimes assume sizeable proportions. Exchange rates reflect many factors related to demand and supply in the currency markets, such as international trade and interest rate differentials. In other words, exchange rates usually reflect other components as well as price differences. Conversions via exchange rates are therefore of only limited use for international comparisons.

To obtain a pure comparison of volumes, it is essential to use special conversion rates (spatial deflators) which remove the effect of price-level differences between countries. Purchasing power parities are such currency conversion rates that convert economic indicators expressed in national currencies to an artificial common currency, called purchasing power standards.

In other words, PPPs are used to convert nominal final expenditures on product groups, national accounts aggregates and GDP of different countries to comparable pure expenditure volumes, expressed in PPS units. With the introduction of the euro, prices can be compared directly for the first time between countries in the euro zone. However, the euro has different purchasing power in the different countries of the euro zone, depending on the national price level. PPPs must therefore continue to be used to calculate pure volume aggregates in PPS. In other words, for countries not in the euro zone, PPPs are currency conversion rates and eliminate the effects of different price levels, while for the euro-zone countries they fulfil only the abovementioned price deflator function.

## How are PPPs calculated and what are PPS?

In their simplest form, PPPs are a set of price relatives, which show the ratio of 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.). For the price collections, a basket of comparable goods and services is used which is selected to represent the whole range of goods and services, and to be representative of consumption patterns 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. For the European Union, the selection of a single country (or currency) as a base seemed inappropriate. Therefore, 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. Economic volume aggregates in PPS are obtained by dividing their original value in national currency units by the respective PPPs.

## The empirical evidence

Graph 3.1 shows the conversion rates in order of size used to convert the GDP values in ecu/euro into the PPS described above. Values are shown for both 1993 and 2003. The graph reads as follows: if Denmark has a GDP of EUR 100 in 2003, this converts into approximately 79 PPS; if Estonia also has a GDP of EUR 100 in 2003, this converts into approximately 200 PPS.

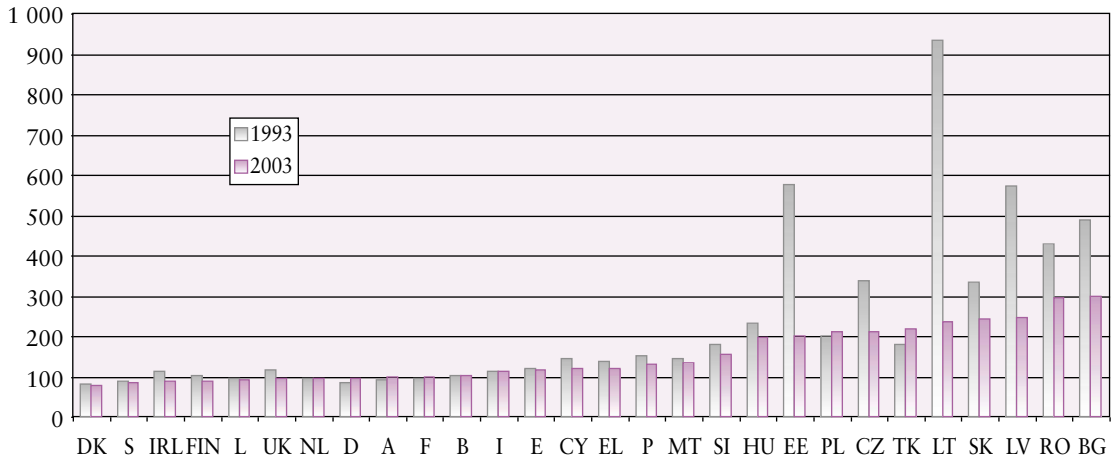
It can be seen that between 1993 and 2003 the differences between the countries, in particular between the EU Member States and the candidate countries, diminished considerably, and there is a clear convergence of price levels. However, differences do remain, particularly in relation to little-developed countries, such as Bulgaria or Romania.

It is also clear that strong economic development can affect price levels. In percentage terms, Ireland has recorded the greatest reduction in the ecu/euro–PPS rate: Whereas in 1993 its GDP was converted at a rate of ECU 100 to 114 PPS, the 2003 conversion rate is only EUR 100 to 86 PPS.

Unfortunately, no conversion rates at regional level are available, so that, for example, French overseas departments (*départéments d'outre mer*) such as Réunion or Guadeloupe are converted using the rate for France. With regional conversion factors, the GDP in PPS for these areas would certainly be higher. Similarly, the same conversion factor is used for northern and southern Italy or western and eastern Germany. A certain amount of distortion should therefore be expected. The order of magnitude of the PPPs is also significant. Assuming a statistical margin of error for both GDP and PPPs, the effect of converting euro to PPS dominates the statistical inexactitude of regional GDP when the conversion factor from euro to PPS is very high.

The regions are ranked differently when calculations are based on PPS rather than the euro: Slovenia, for example, has a much higher per capita GDP in euro (EUR 9 815) than the capital region of Bratislava (Slovakia) (EUR 8 426), whereas in

**Graph 3.1 — Value of GDP in PPS, if GDP in euro = 100**



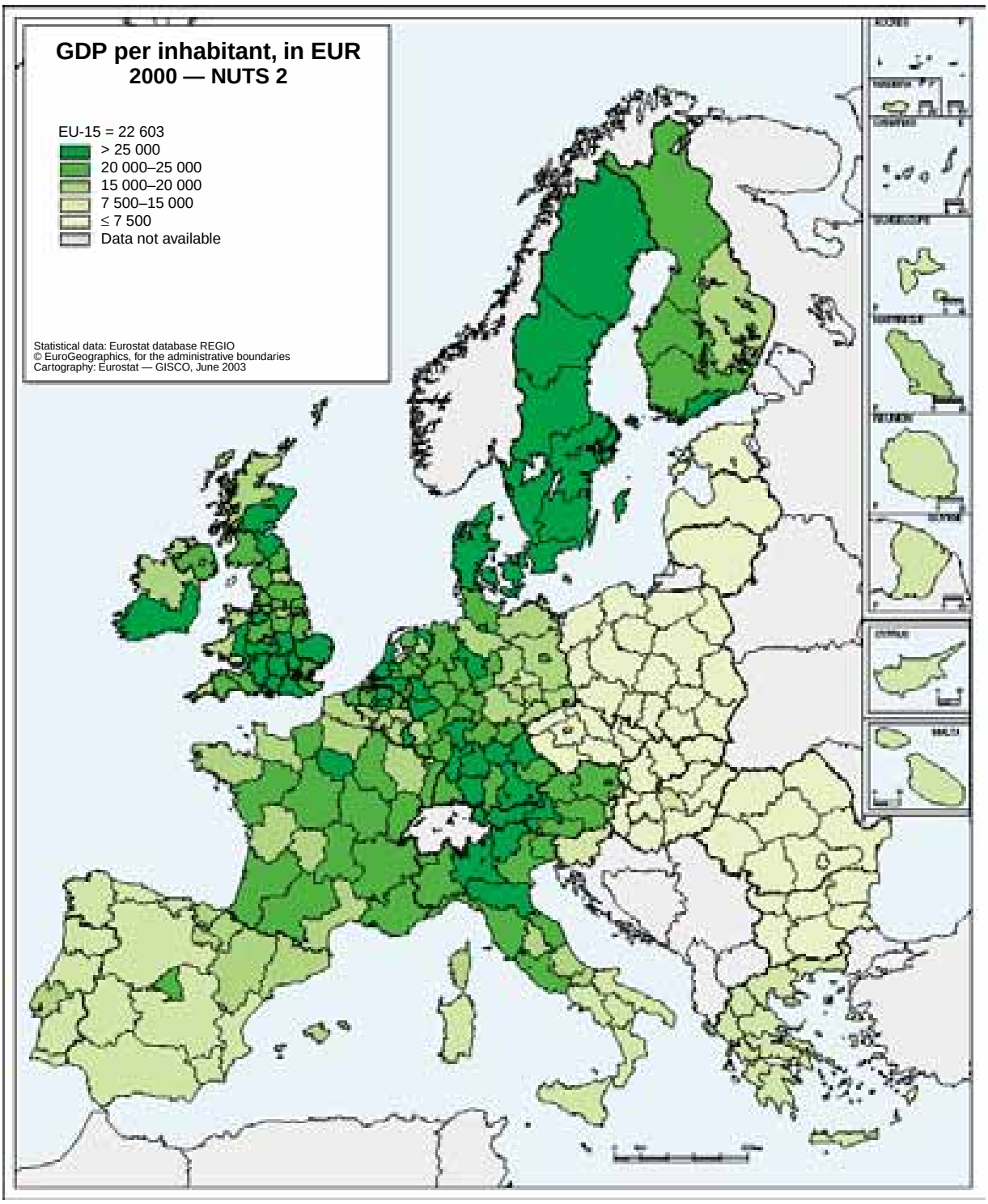

NB: For Malta, no PPS figure is available for 2000.

PPS, Bratislava comes out higher than Slovenia with 22 134 PPS per capita as opposed to 15 183 PPS per capita.

In terms of distribution, the use of PPS rather than the euro has a levelling effect, reducing the range of NUTS 2 regions in Europe from more than 60 000 to around 50 000, and the coefficient of variation from 54.3 % for GDP in euro to 41.0 % for GDP in PPS.

# Regional GDP in euro for the year 2000

Map 3.1 shows the regional distribution of GDP for the European Union and the candidate countries. It ranges from EUR 1 251 per capita in south-east Romania to EUR 62 788 per capita in the UK Inner London region. Brussels and




**Map 3.1**

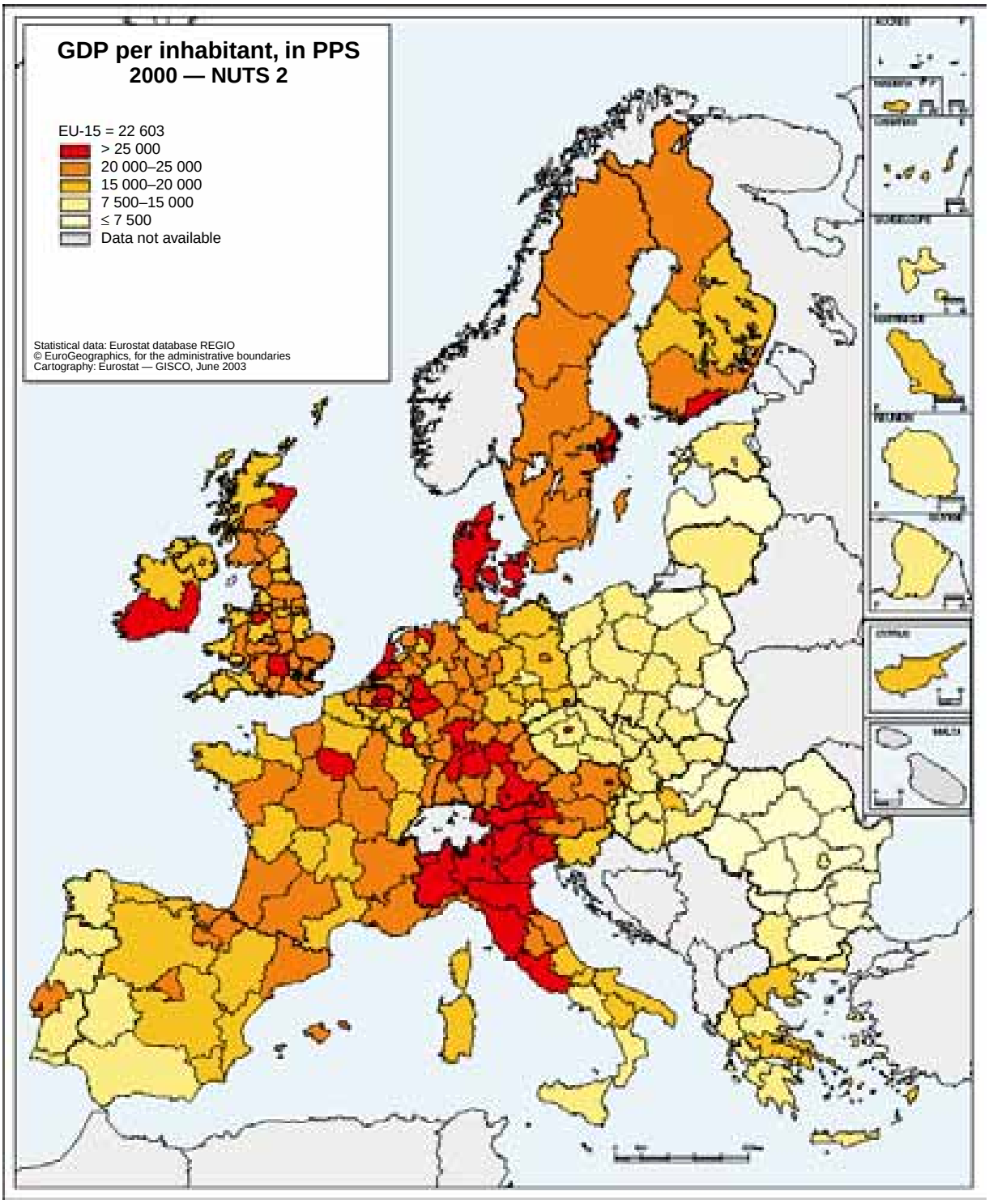
Luxembourg follow in second and third places, with Stockholm in fifth place, although it is only ninth for GDP in PPS. An even clearer example of the difference between the different calculations of GDP is Prague, which is 29th for GDP in PPS, but 196th for GDP in euro.

There are also differences within the countries, as Graph 3.2 shows. The largest regional differences are in the United Kingdom, where the Inner London region, in particular, stands out with its very high GDP per capita. However, this disparity is mostly due to the borders of the regions and the resulting commuter effect. If London is removed from the equation, the range of regional GDP is fairly average.

When these values are converted into PPS, the GDP per capita for Europe's regions is as follows. The range of values is lower, i.e. the difference between the regions is larger in monetary units than in volume comparisons. Map 3.2 again shows the prominent position of the capital regions. Lisbon, Madrid, Brussels, London, Berlin, Prague, Bratislava, Budapest, Sofia and Stockholm all stand out clearly.

For the sake of completeness, the regional disparities in GDP in PPS of the individual countries are also shown. Regional GDP per capita in PPS is currently the key variable for determining European structural policy. Regions under a specific threshold value are eligible for aid under

**Graph 3.2 — Gross domestic product, NUTS level 2, 2000 (million EUR per capita)**




**Map 3.2**

Objective 1. This variable therefore generates a great deal of interest. Interestingly, whilst a large amount of regional aid is based on the concept of PPS, Member States' contributions are determined on the basis of figures expressed in national currency or euro.

## Graph 3.3 — Gross domestic product, NUTS level 2, 2000 (million PPS per capita)

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# REGIONAL UNEMPLOYMENT

4

# Introduction

Unemployment is one of the key problems of Europe. It is not merely a matter of idle capacity in labour as a factor of production: unemployment often leads to social distortions. The human factor plays a key part in this — unemployment is often accompanied by social exclusion and can cause depression in those affected. It also presents the countries' social systems with immense problems. Health and pension insurance systems lose contributors and run into financial difficulties. For governments, the pressure for reform grows to an extent that would not have been possible with full employment.

Unemployment rates are defined as the proportion of unemployed persons in the overall labour force of a region. The numerators and denominators of these rates are calculated in accordance with the recommendations of the 13th International Conference of Labour Statisticians. Regional estimates are based on the results of the Community labour force survey (CLFS) at national level, which are adapted to refer to April of the year in question.

To estimate regional unemployment rates, the numerator (labour force) and the denominator (unemployed) are first separated and calculated for four sub-populations:

- men under 25 years of age and women under 25 years of age;
- men over 25 years of age and women over 25 years of age.

The number of unemployed people is broken down over the regions either directly on the basis of the results of the second quarter of the labour force survey or by using information on registered unemployed persons. In both cases, the results at national level are taken and the number of unemployed people is broken down over the various regions in proportion to the regional results of the labour force survey or to the regional figures for registered unemployed persons.

However, regionalisation of the labour force down to NUTS 2 level is based on the second quarter of the labour force survey. Depending on the data situation, any further breakdown is based, again, on the results of the labour force survey, on registers or on the latest available census results.

Figures for long-term unemployment are estimated directly from the labour force survey, but are available only for NUTS 2 level and are not broken down by gender or age.

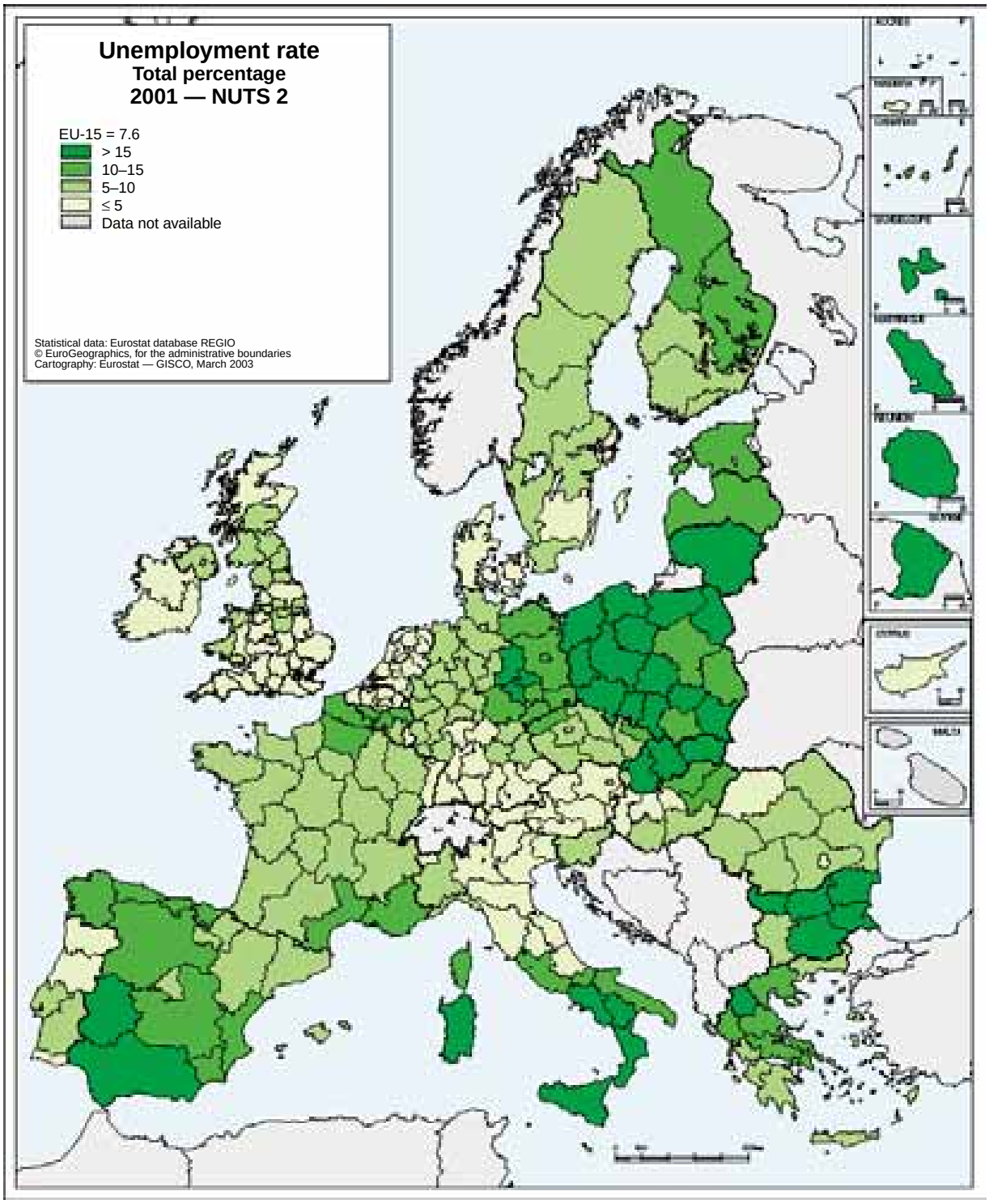
# The regional dimension of overall unemployment

In April 2001, the unemployment rate in the NUTS 2 regions of the European Union varied between 1.2 and 33.3 %, and between 2.0 and 32.8 % in the candidate countries. Breakdowns by gender and age highlight even greater regional differences. The rate of unemployment among women, for example, ranged from 1.1 to 36.4 %, while between 2.1 and 59.9 % of under-25s were out of work. The breakdown by gender shows that the female unemployment rate in the candidate countries has a narrower range (between 2.0 and 28.5 %) than that of the EU. However, the differences in the rates for under-25s are larger, ranging from 3.0 to 75.5 %.

The unemployment rate in the European Union, i.e. the ratio of unemployed persons to the total economically active population, stood at 7.6 % in April 2001. At national and, in particular, regional level, there were marked deviations from this average figure.

Taking only the NUTS 2 regions into consideration, the unemployment rate varied between 1.2 % in the Dutch region of Utrecht and 33.3 % in the French region of Réunion. Related in each case to 100 members of the economically active population, Réunion thus had around 27 times more jobless people than the region of Utrecht.

Of the 265 regions under consideration, as many as 53 achieved an unemployment rate in April 2001 of, at most, 3.8 % — lower than half the EU average of 7.6 %. These 53 NUTS 2 regions were spread over 11 Member States, with Greece, Spain and France being the only countries where no NUTS 2 region had an unemployment rate of 3.8 % or less. This was also the case for Denmark. The Netherlands and the United Kingdom are well represented in this leading group, with more than 10 regions each; the group, however, contains only three regions from the candidate countries — two of them in Hungary and one in the Czech Republic. At the other extreme, 16 regions



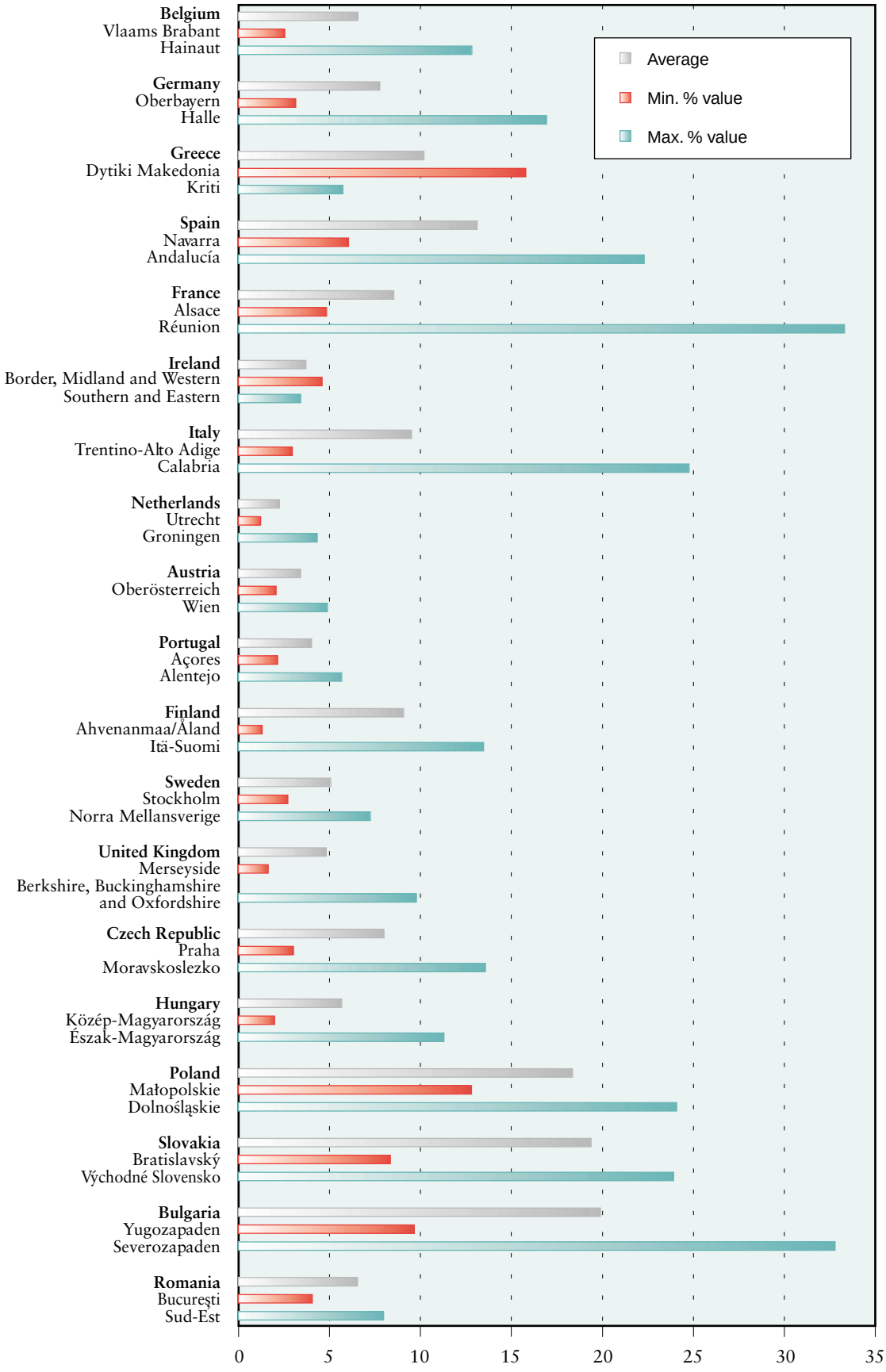

**Map 4.1**

(in Germany, Spain, France and Italy) had unemployment rates of over 15.2 %, at least double the rate for the European Union as a whole.

Within the countries, there are also differences in the unemployment rates. Graph 4.1 shows the regions with the lowest and the highest unemployment rates in April 2001.

Clearly, the trends in the EU Member States and the central and east European countries (CEECs) run in opposite directions. Whereas the unemployment rate in the EU countries fell from 9.2 % in 1999 to 8.3 % in 2000 and stood at 7.6 % in 2001, it rose in the CEECs from 10.4 % in 1999 to 12.5 % in 2000, before climbing to 13.1 % in 2001.

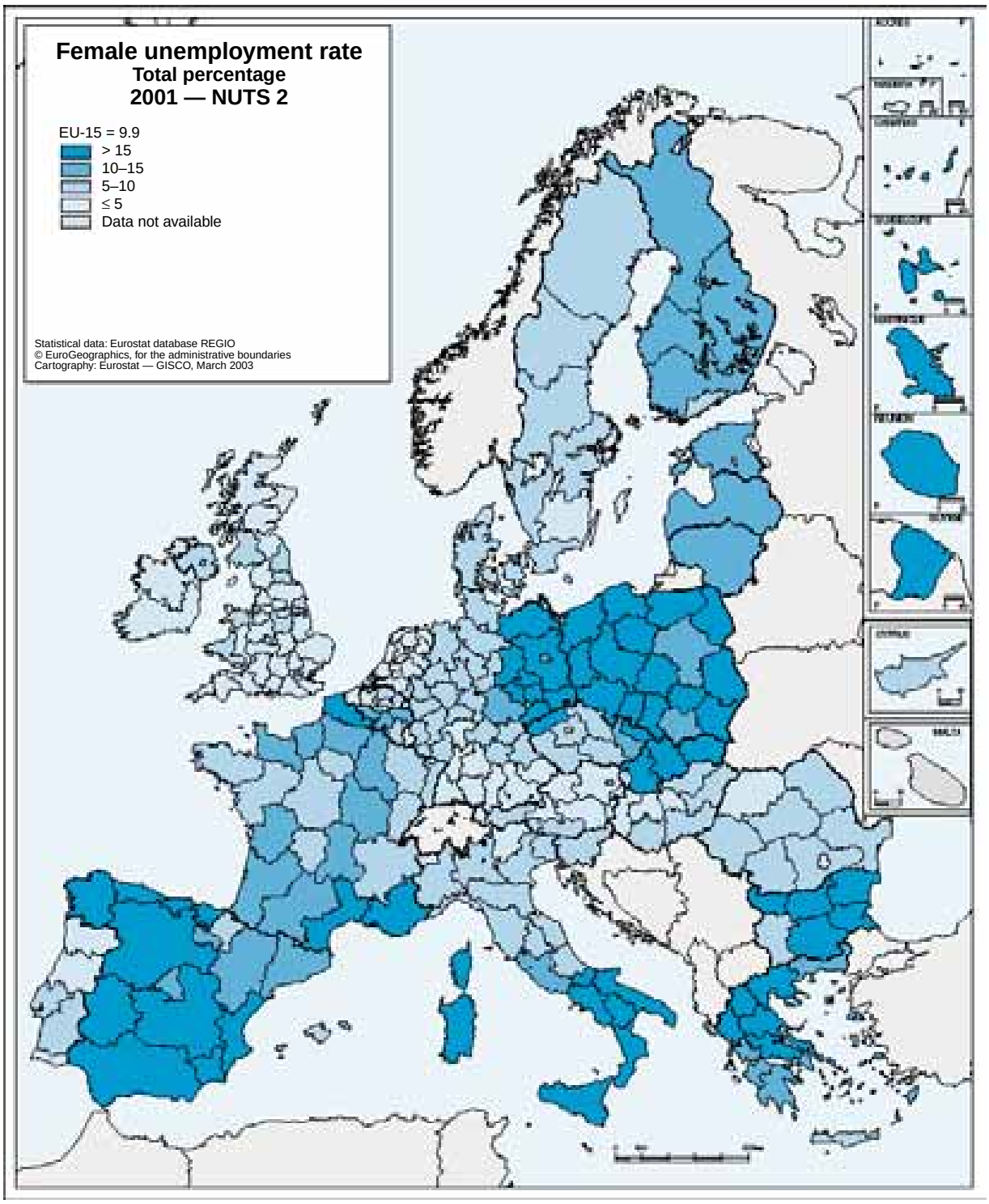
## Graph 4.1 — Unemployment rate, total percentage, NUTS level 2, 2001



# Women and the labour markets

In many European countries, the social situation of men and women varies. It is therefore useful to analyse female unemployment.

Female unemployment rates in the regions of Europe in April 2001 ranged from 1.1 % to 36.4 %. The lowest rates were recorded by the regions of Utrecht (the Netherlands) at 1.1 % and Ahvenanmaa/Åland (Finland) at 1.4 %. The highest figures were in the Italian region of Calabria (36.4 %), and the Spanish regions of Ceuta y Melilla (34.3 %) and Extremadura (34.1 %). The breakdown of unemployment by gender shows that the female unemployment rate in the candidate countries is more or less as high as that for men, i.e. between 2.0 % for the Hungarian capital region of

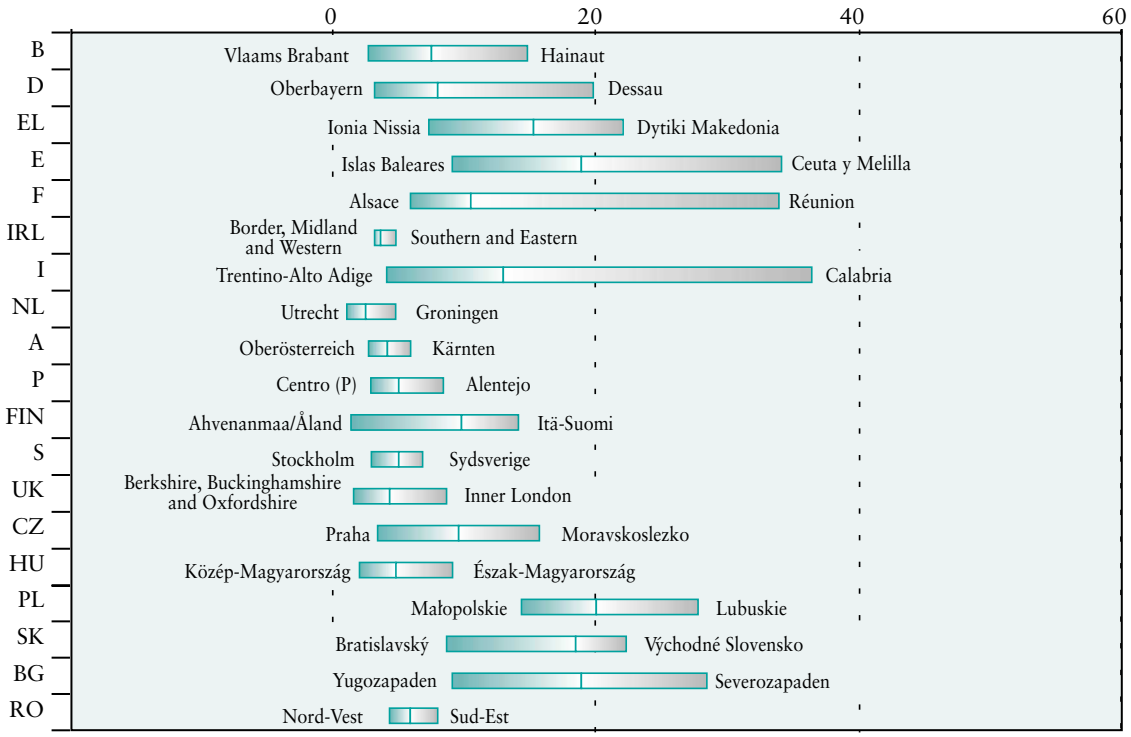



**Map 4.2**

Közép-Magyarország and 28.5 % for the Bulgarian region of Severozapaden. This may indicate that the participation of men and women in the labour markets in the accession countries is more balanced than in the European Union.

Graph 4.2 shows the regions with the lowest and the highest unemployment rates for women in April 2001.

**Graph 4.2 — Female unemployment rate, total percentage, NUTS level 2, 2001**



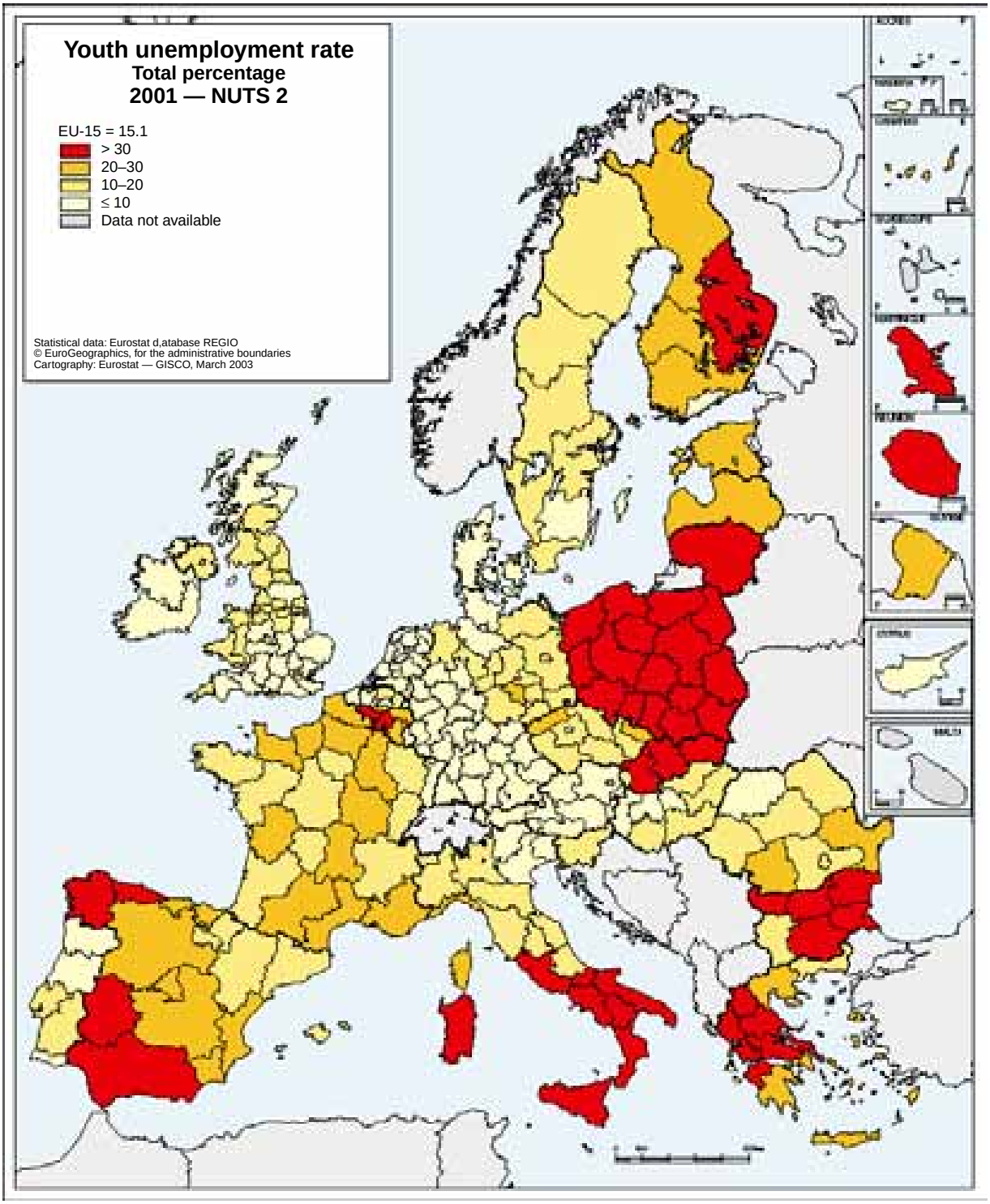

# Youth unemployment

Another dimension of unemployment relates to the under-25s. Whilst unemployment at a more advanced age leads in many cases to depression or social withdrawal, youth unemployment can result in strong social discontent or violence. If it can be assumed that professional experience makes reinsertion into the labour market easier, people who have become unemployed at an early stage in life will have even fewer opportunities.

In many of the regions under consideration, the youth unemployment rate decreased between April 2000 and April 2001. The biggest falls occurred in the Italian regions of Umbria with 10.5 %, Liguria with 9.7 %, and Molise (9.5 %, a value shared also by Cantabria in Spain). Striking in this context is the different development between western and eastern Germany. While the rates in all regions of the former West Germany are decreasing, they are increasing strongly in the regions of the new *Länder*. Poland has also recorded a sharp rise in youth unemployment. In Estonia, youth unemployment has increased, although the overall rate has fallen.

Regional differences in the youth unemployment rate, i.e. the rate of unemployment among the active population under 25 years of age, are much more pronounced than in the overall unemployment rate. In April 2001, youth unemployment varied between 2.1 % in the Dutch region of Utrecht and 75.5 % in the Bulgarian region of Severozapaden. The figures for the Dutch region of Zeeland are not suitable for publication due to the small sample size, but experience shows that, in this region, youth unemployment is particularly low. Zeeland is therefore in all probability the region with the lowest youth unemployment in Europe.

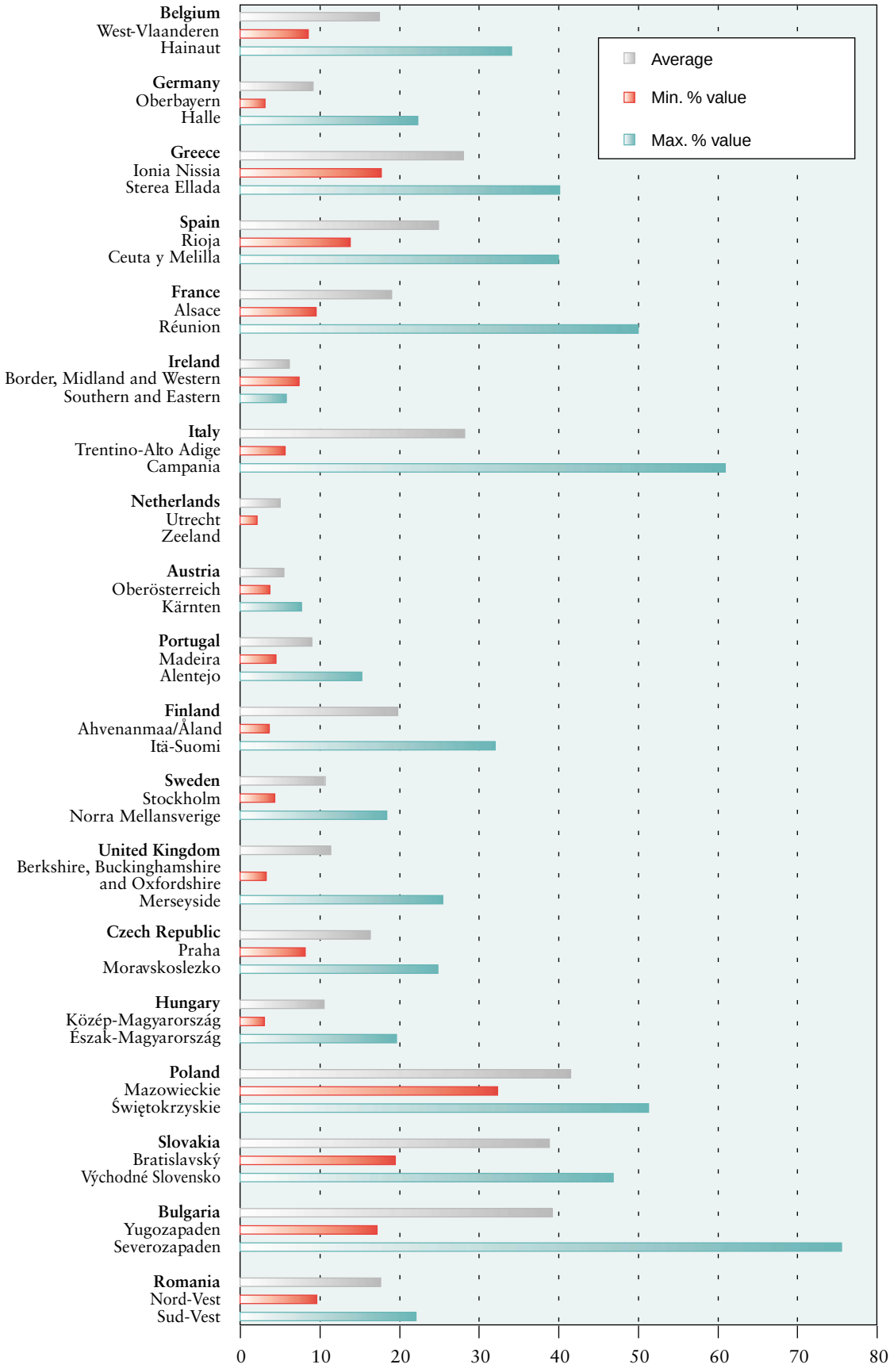
On the youth unemployment front, too, a whole series of regions posted rates differing markedly from the EU average of 15.1 %. In April 2001, the rate was below the EU average in as many as 52 regions, while 48 regions recorded levels of over twice the average.




**Map 4.3**

The 53 regions with relatively low unemployment among young people were mainly in northern and central Europe: 17 in Germany, 8 in the Netherlands, 8 in Austria and 7 in the United Kingdom. The rest were spread over Hungary, Ireland, Italy, Luxembourg, Portugal, Finland and Sweden. With regard to youth unemployment, it should be pointed out that there are major differences in the education systems. In Germany, for example, the relatively low youth unemployment rate may be due to the availability of school or non-school training: young people attending who would otherwise be unemployed do not appear in unemployment statistics.

## Graph 4.3 — Youth unemployment rate, total percentage, NUTS level 2, 2001

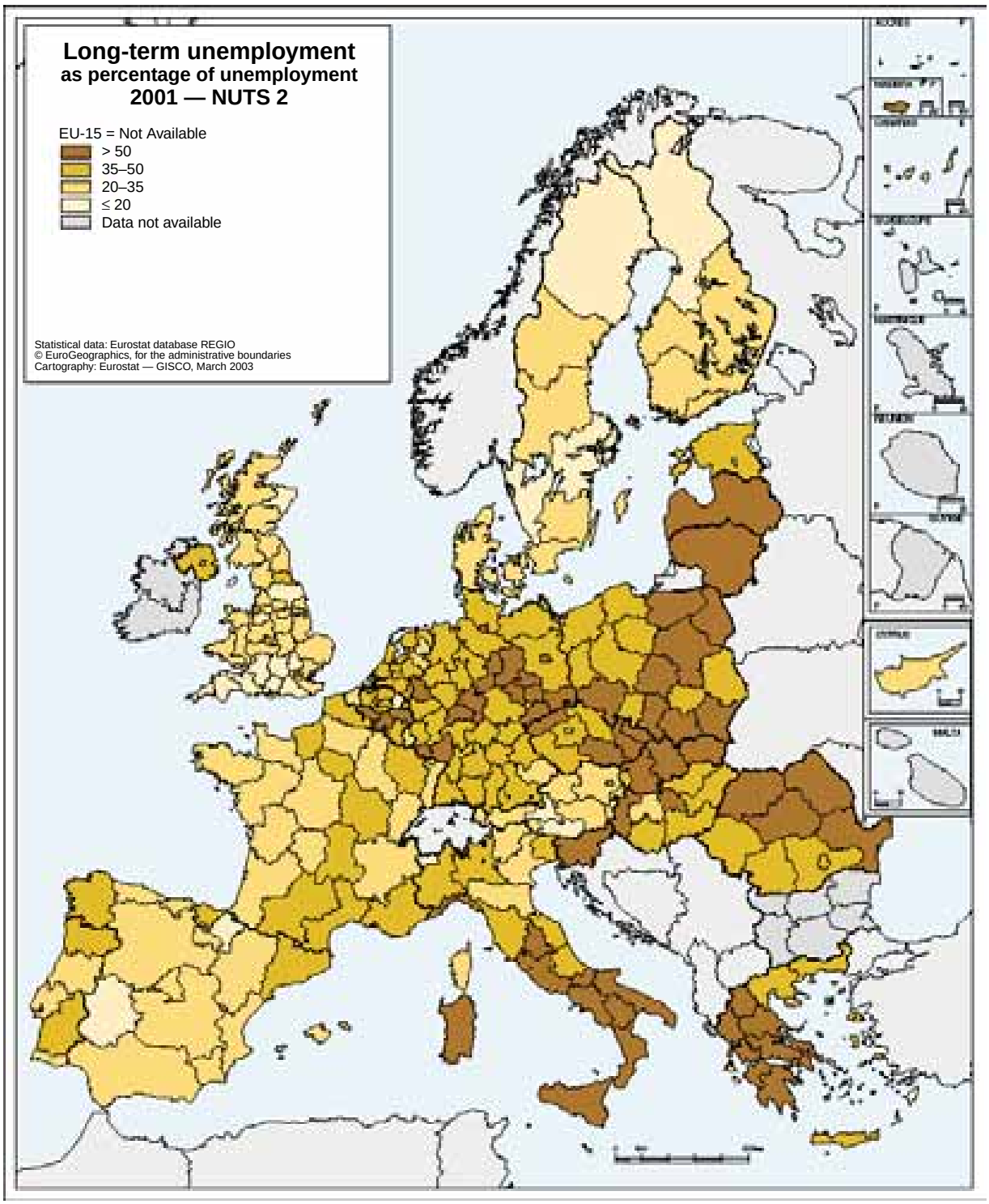


The 48 regions with particularly high rates, on the other hand, were nearly all in the Mediterranean area — mainly in Spain, Italy and Greece — and the French overseas departments. Poland is represented in all 16 *Voivodships*. There is also high youth unemployment in Bulgaria, Lithuania and Slovakia.

Graph 4.3 shows the regions with the highest and lowest youth unemployment rates in April 2001.

# The problem of long-term unemployment

There is a considerable difference between employees becoming unemployed in the short term due to normal economic restructuring and long-term unemployment. 'Long term' is usually defined here as 'longer than a year'. If a person




**Map 4.4**

cannot be reemployed within a year, the reason is structural, and the problem lies either with the person concerned or with structural deficits in the sectoral or regional sector.

In order to show the effect of long-term unemployment, separately and to ensure that the results of the regions are comparable, the proportion of long-term unemployment is viewed below in relation to the overall unemployment figure. It is, for example, possible for the proportion of long-term unemployment to be low even where unemployment figures are high. In this case, there will be many instances of 'job-ready' unemployed people (for whom finding a suitable job is simply a matter of time) and unemployment caused by the economy, but the structural problem is only slight. It is also possible for there to be a high percentage of long-term unemployment in a country where unemployment is low. In these cases, there is very probably a structural problem.

Map 4.4 shows the proportion of long-term unemployment. From this map, unlike the maps above, which showed a more peripheral problem, it is clear that there is a major problem of long-term unemployment in eastern Europe, which also extends to Greece and southern Italy. A further feature of the map is a band with a high proportion of long-term unemployment passing through central Germany into Belgium. Interestingly, the often observed disparity between western and eastern Germany does not appear to exist here, although, clearly, there are job-creation measures in the new *Länder* which may be reducing long-term unemployment figures.

Data on long-term unemployment are available for 253 regions, 23 of which have a proportion of long-term unemployment in relation to overall unemployment of under 20 %. Of these, 10 are in the United Kingdom and 4 are in Sweden; the rest are spread over Belgium, Greece, Spain, Italy, Austria and Finland. Even in the below-30 % range, Cyprus is the only candidate country represented. At the other end of the scale, 46 regions have a share of between 50 and 60 %; 17 have an even higher proportion. Of those 17, eight are in Italy and three are in Greece; the others are in Belgium, Germany, Poland, Portugal, Slovakia and Slovenia. However, this list may not be complete, as no data are available from the French overseas departments or Bulgaria.

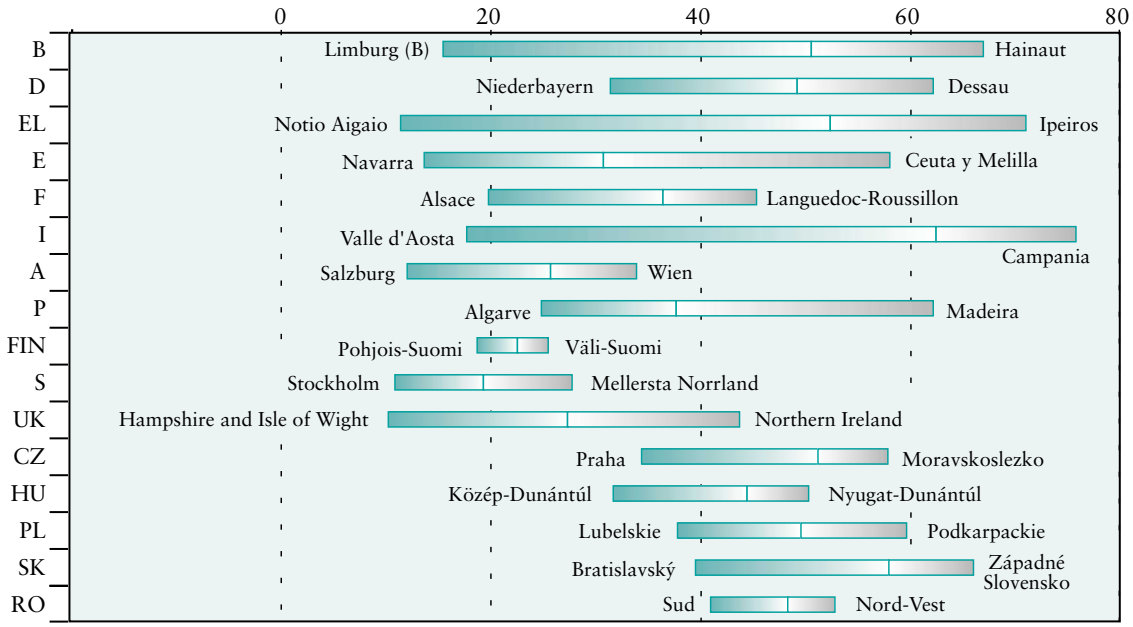
Within the countries, the breakdown is illustrated in Graph 4.4.

# Revised methodology

The year 2003 will see a reform of regional unemployment rates, with the focus switching from the results of the second quarter to annual averages.

Within the framework of a major quality project on regional indicators, Eurostat created a task

**Graph 4.4 — Long-term unemployment as percentage of unemployment, NUTS level 2, 2001**



force to examine in detail and, if necessary, revise the methodology used to estimate regional unemployment rates. The task force presented recommendations for a revised system of calculating regional unemployment rates, which were discussed in the relevant Eurostat working parties between Eurostat and the Member States. The working parties asked Eurostat to implement the new rules as soon as the required data became available.

Some background information is required to understand the new method: the Community labour force survey (CLFS) is one of the main components of the calculation. However, for many years data from the CLFS were available only for the second quarter. The Member States have made great efforts to remedy this situation, and, at present, almost all countries are able to provide data for all four quarters. Since regional information is published only once a year, it would be a shame not to make use of this new information, particularly in view of the fact that annual averages increase statistical reliability at regional level. This new methodology has already been used to a certain extent for candidate countries.

The new methods are simpler and more transparent than the old ones. Down to NUTS 2 level, only annual averages from the CLFS are used, both for unemployment and active population figures.

The next step is to determine the regional structures below the NUTS 2 level. For some countries, CLFS results at NUTS 3 level are not reliable enough, whilst, for others, they are. Some countries have new census results, whilst others have decided not to conduct a census. The reliability of the countries' registers also varies. The structure is determined by Eurostat and the national statistical offices on the basis of the data situation.

Unemployment figures and economically active population figures are broken down into regions either directly on the basis of the reliable CLFS or using the option of the annual average of a three-year period. Information on the registered unemployed can also be used. Census results can also serve as a source of information.

Regional unemployment rates based on these new methods will be published for the first time in October 2003.

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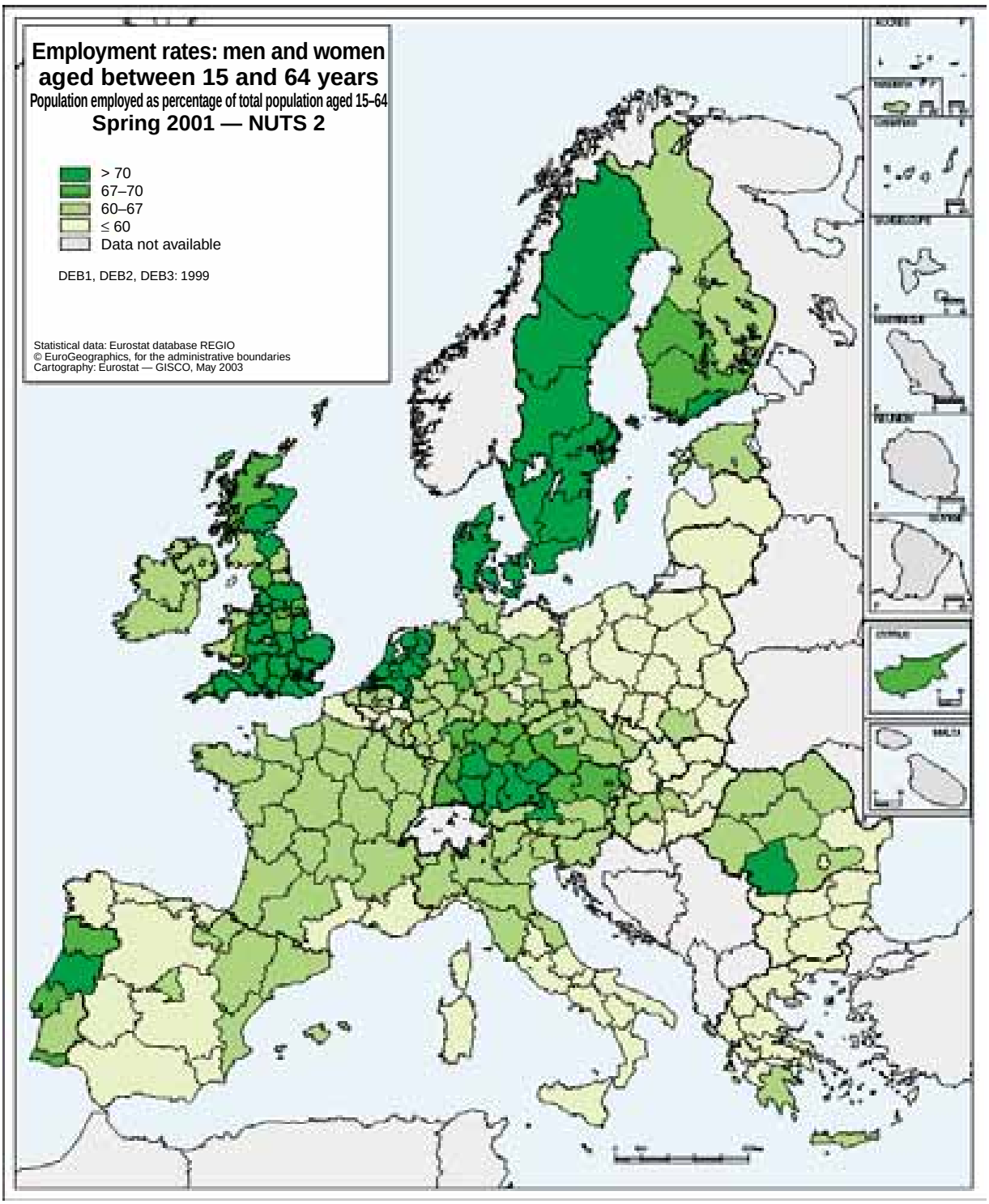
# LABOUR FORCE SURVEY

5

# Overall rate of employment

The European employment strategy (EES), launched at the European Summit on Employment in Luxembourg in 1997, was devised against a background of high unemployment. In 2000, the European Council in Lisbon updated EES priorities by adopting the aim of full employment, setting interim objectives and incorporating the strategy into a broader framework of policy coordination.

In spring 2000, the Lisbon Summit set the objective of achieving an employment rate of around 70 % by 2010 for all persons aged between 15 and 64. In March 2001, the Stockholm European Council set an interim objective of 67 % for the population as a whole by 2005.




**Map 5.1**

Five years after the EES was launched, all the EU Member States generally show a clear rise in employment rates, albeit with regional differences. It is nevertheless difficult to determine to what extent this general improvement in employment rates over the last five years can be attributed to the EES, and to what extent it is the result of better economic circumstances.

The employment rates for all those aged 15–64 ranges between 40.7 % (Campania, Italy) and 80.7 % (Ahvenanmaa/Åland, Finland). For 2001, Map 5.1 shows that the 2005 target of 67 % had been exceeded in Denmark, most regions in Austria, Portugal, Finland and the United Kingdom and every region in the Netherlands and Sweden, as well as in the south of Germany (Baden-Württemberg and Bayern).

The situation was less promising in the candidate countries: only Cyprus, the Praha and Jihozápad regions in the Czech Republic, the Sud-Vest region in Romania and Bratislavský in Slovakia had achieved a rate of more than 67 %.

In the last five years, the biggest improvements in the employment rates were recorded in Spain (up by 6 percentage points for all regions, with an increase of nearly 11 points for the Comunidad de Madrid), Ireland's two regions (6 and 9 points), France (5 points in Basse-Normandie and Lorraine), Italy (more than 5 points in Piemonte, Liguria, Toscana and Umbria), almost every region in the Netherlands and Portugal, the north of Finland, north and central Sweden and the regions of South Yorkshire and East Anglia in the United Kingdom.

In some regions, the employment rates, while not falling, are showing less spectacular progress. This applies to Denmark, the German regions of Brandenburg, Mecklenburg-Vorpommern, Lüneburg, Sachsen-Anhalt, Schleswig-Holstein and Thüringen, throughout Greece (apart from Attiki) and Austria, and in most regions in the United Kingdom.

# Employment rate for women

The Lisbon and Stockholm objectives for women in employment are 57 % by 2005 and 60 % by 2010.

Employment rates for women are rising faster than the overall rate. The trends for 1997–2001 show that women contributed more to the overall growth in employment, although the main reasons for growth differed.

A comparison of Maps 5.1 and 5.2 shows that the 2005 employment target for women had been attained in 2001 in more regions than the target for the population as a whole. This was especially the case in certain regions in Germany, France, Finland and the United Kingdom. Among the candidate countries, Estonia, Latvia, Slovenia and part of Romania and the Czech Republic also had employment rates for women of more than 57 %.

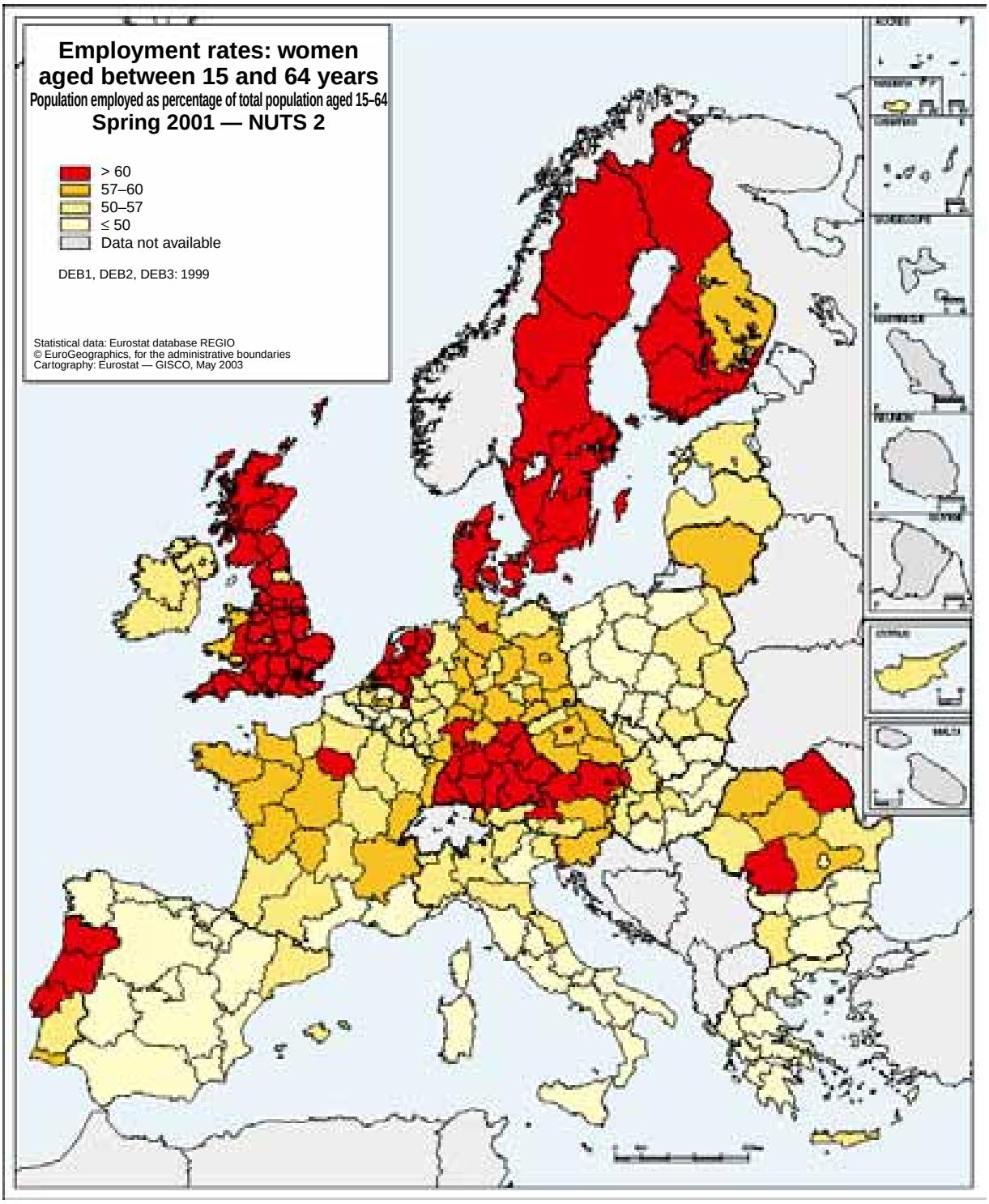
The high rate of participation by women is very often associated with high percentages of women working part-time in order to reconcile employment and family commitments. This does not apply to Portugal and Finland, where less than one in every five women is in a part-time job. Part-time work is also not very common in the candidate countries.

Most of the regions in Greece and Spain, as well as in the south of Italy and France, have rates below 50 %.

Since 1997, in the European Union as a whole, the gap between the employment rates for men and women has narrowed by nearly 2 percentage points. However, there are still big differences at regional level, where the gap exceeds 25 percentage points in almost every region in Greece, Spain and the south of Italy.

Differences below 10 percentage points occur primarily in the northern and eastern countries. This is true of Denmark, some regions in the United Kingdom (Northumberland, Tyne and Wear, Greater Manchester, South Yorkshire, Devon and Eastern Scotland), almost every region in Finland and Sweden (where occasionally the employment rate for women is even higher than for men), the former east German regions of Berlin, Mecklenburg-Vorpommern, Sachsen and Sachsen-Anhalt and most regions in the candidate countries apart from Cyprus, the Czech Republic and Hungary.

The differences in the rates for men and women are relatively low for those aged 15–24 in every country, but they rise quickly for those over 25. In Belgium, Cyprus, most German regions, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Romania and Spain, the gap widens as workers get older because women tend to leave employment because of family commitments.




**Map 5.2**

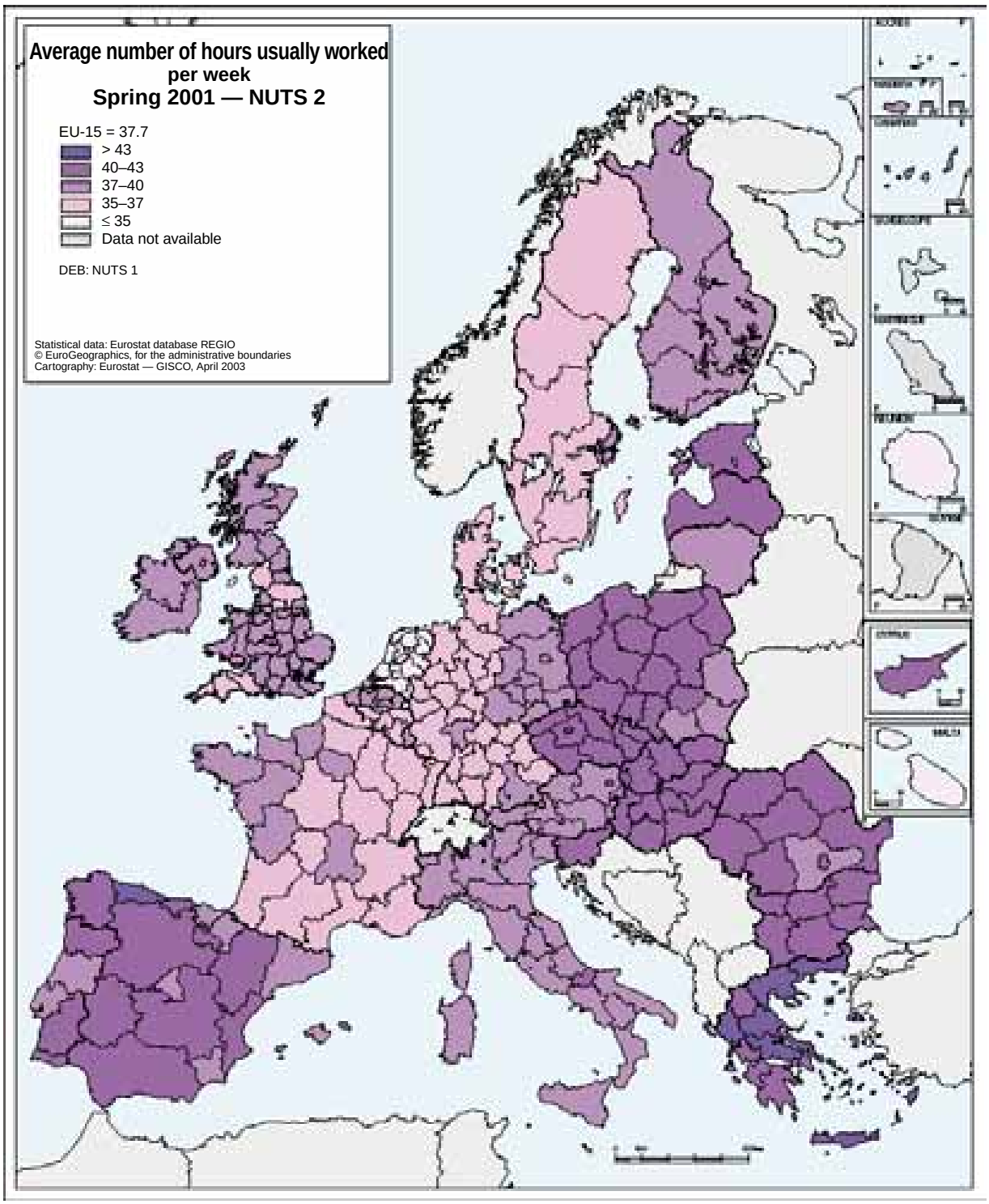
In France, Finland, Sweden, the German regions of Bremen, Berlin, Sachsen, Sachsen-Anhalt and Thüringen and in all the candidate countries not mentioned earlier, there is a return to employment after the age of 35. In the 55–64 age group, some countries also show large differences in the employment rates for men and women, because of a lower retirement age for women.

# Average number of hours normally worked

The average number of hours worked shown in Map 5.3 corresponds to the number of hours

normally worked by the person. It covers all hours including overtime, whether paid or not, normally worked and excludes travel time between the home and place of work and breaks for a main meal.

Every region in the Netherlands has an average number of hours below 32 per week on account of a large percentage of people working part-time. At the other extreme, in most of the regions in Greece, where part-time work is virtually non-existent (only 4.1 % of those in employment), the average number of hours worked is in excess of 42, especially in Notio Aigaio and Anatoliki Makedonia, Thraki (where the figure is 46 hours per week). These are regions where the 'hotels and restaurants' and 'agriculture' sectors, in the former and latter respectively, employ a sizeable percentage of the population.




**Map 5.3**

The sector of activity, occupational status (employer, employee, self-employed) and the incidence of part-time work are factors which determine the number of hours worked. Consequently, regions where there is a high percentage of people working in the hotel trade or agriculture have long working hours, as do regions where there is a noticeable percentage of employers or self-employed persons.

In every country and region, the average number of hours worked by women is lower than the figure for men. This is partly explained by the fact that more women work part-time, but also because they tend to work in the service sector where working hours are shorter than in the manufacturing and agriculture sectors. Women are also more likely than men to be employees. In most of the candidate countries, the differences between the hours normally worked by men and women are relatively narrow compared with the figures for the European Union. The difference is less than 3 hours in Bulgaria, Estonia, Hungary, Latvia, Lithuania, Romania, Slovakia and Slovenia, and less than 6 hours in every region in the Czech Republic and most regions in Poland, but more than 10 hours in most regions in the Netherlands and the United Kingdom.

# Lifelong training

Lifelong training is measured by means of a question in the labour force survey. It refers to instruction or training received during the four weeks prior to the survey. In France, the reference period is reduced to only one week, which makes comparison with other countries difficult and which explains to some extent the fact that the results collected for this question are relatively sparse. In fact, in 2001, the question was not asked in the Czech Republic, Ireland, Latvia or Slovakia.

The indicator shown in Map 5.4 has been calculated for the population aged 25–64 in order to exclude, as far as possible, those attending school or university.

The rate of involvement in education and training among the adult population is still fairly low at about 8.4 % for the EU (compared with 5.8 % in 1997).

Northern Europe has rates of involvement in education and training which are above those of the rest of the European Union. Most regions in the United Kingdom, Mellersta Norrland in Sweden and Uusimaa in Finland, for example, record figures above 20 %. At the other extreme, most regions in Bulgaria, Greece and Romania have rates below 2 %.

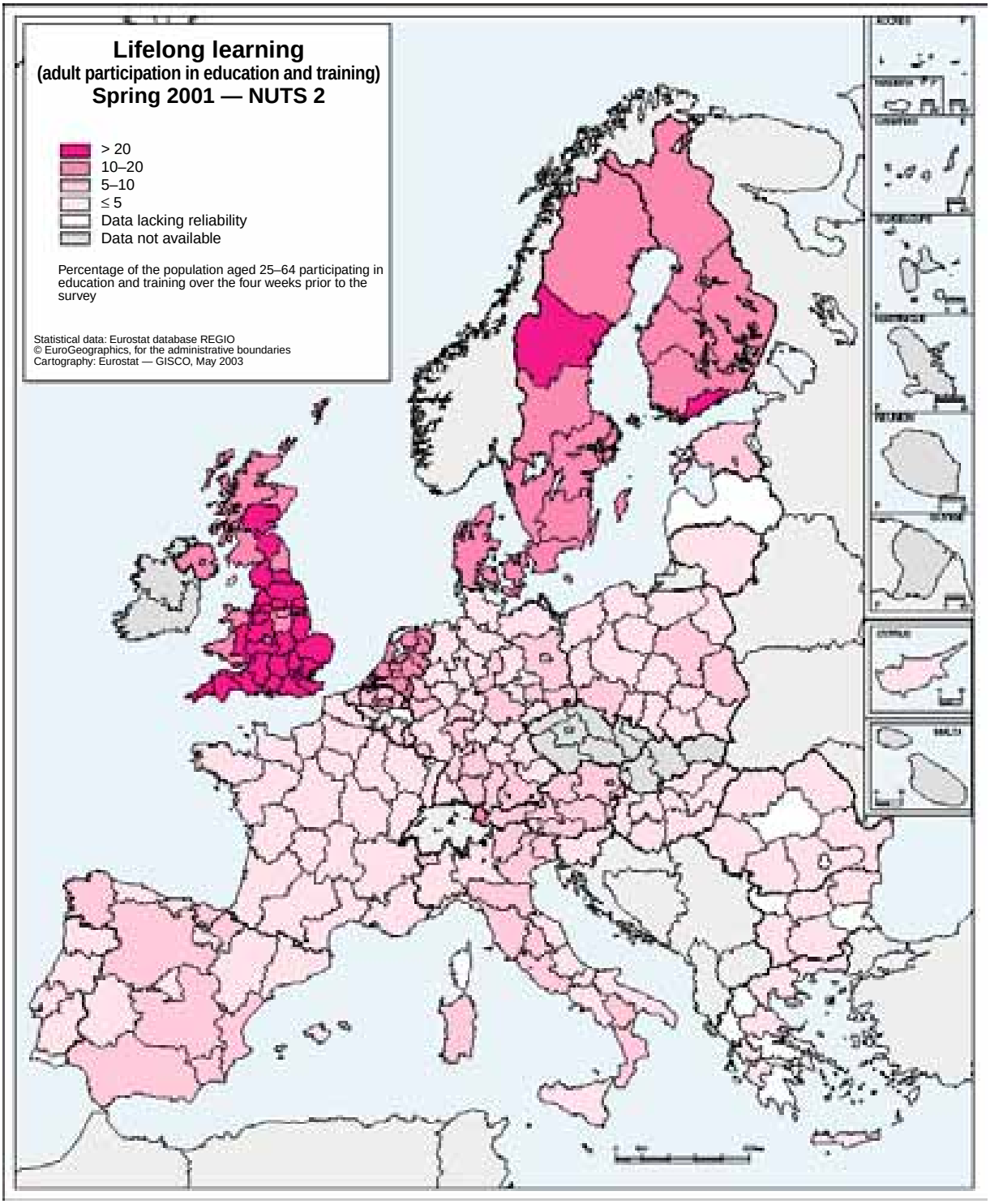
The rates vary according to age and level of education. Those aged 25–34 are five times more likely to be involved in education and training than those aged 55–64. Those with poorer qualifications are six times less likely to be involved in education and training than those with higher qualifications. Women are more involved in lifelong training than men.

# Levels of education and employment

In this chapter, the level of education refers to the highest educational attainment at the time of leaving continuous education. The lower level of education refers to primary or lower secondary education. Medium-level education covers people who have completed secondary or post-secondary non-tertiary education. Higher education combines graduates with a first- or second-stage tertiary qualification.

In the European Union, 42.4 % of people aged between 25 and 64 have completed medium-level, 36.2 % lower-level and 21.5 % higher-level education. Graph 5.1 reveals marked disparities in the distribution of the population by level of education from one country to another. People with higher education qualifications represent more than one quarter of the population aged between 25 and 64 in Belgium, Cyprus, Estonia, Denmark, Finland, Lithuania, Sweden and the United Kingdom, but less than 15 % in Austria, the Czech Republic, Hungary, Italy, Poland, Portugal, Romania, Slovakia and Slovenia. In Belgium, Greece, Spain, Ireland, Italy, Luxembourg and Portugal, on the other hand, more than 40 % of people have completed only primary or lower secondary education. The gaps revealed by these results are real, although they may also derive from the different countries incorrectly applying the international standard classification of education (ISCED).

In the EU Member States and in the candidate countries, generally, employment rates rise with diploma levels. In the European Union, 85 % of tertiary education graduates are in employment, as against 73 % of people with medium-level



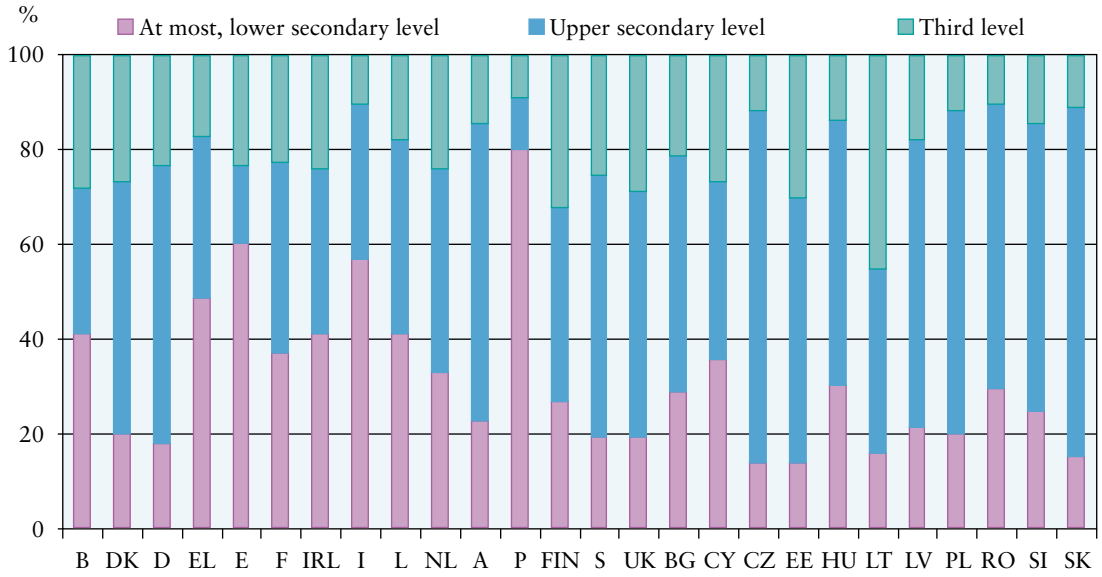

**Map 5.4**

education and 50 % of those who completed lower-level education.

According to Map 5.5, in Portugal, several regions in the United Kingdom, Vorarlberg in Austria, Detmold in Germany, Flevoland in the Netherlands, Norra Mellansverige in Sweden, in southern Romania, Bratislavsky in Slovakia and Praha in the Czech Republic, more than 90 % of higher education graduates are in employment. At the other extreme, in certain regions of Germany (including Berlin, Brandenburg, Sachsen, Sachsen-Anhalt and Thüringen), France (Aquitaine, Midi-Pyrénées and Corse), Greece (north and west), southern Italy, almost all of Spain (with the exception of Este, Nordeste and the Comunidad de Madrid) and all of Bulgaria, Estonia, Lithuania, Nord-Vest and Centru in Romania and Świętokrzyskie in Poland, the rate falls below

## Graph 5.1 — Population aged 25–64 years old by level of education and by country (national level, EU and candidate countries)

Differences in employment rates between persons having attained tertiary education (ISCED 5 and 6) and persons having attained at most a lower secondary education (ISCED 0–2)



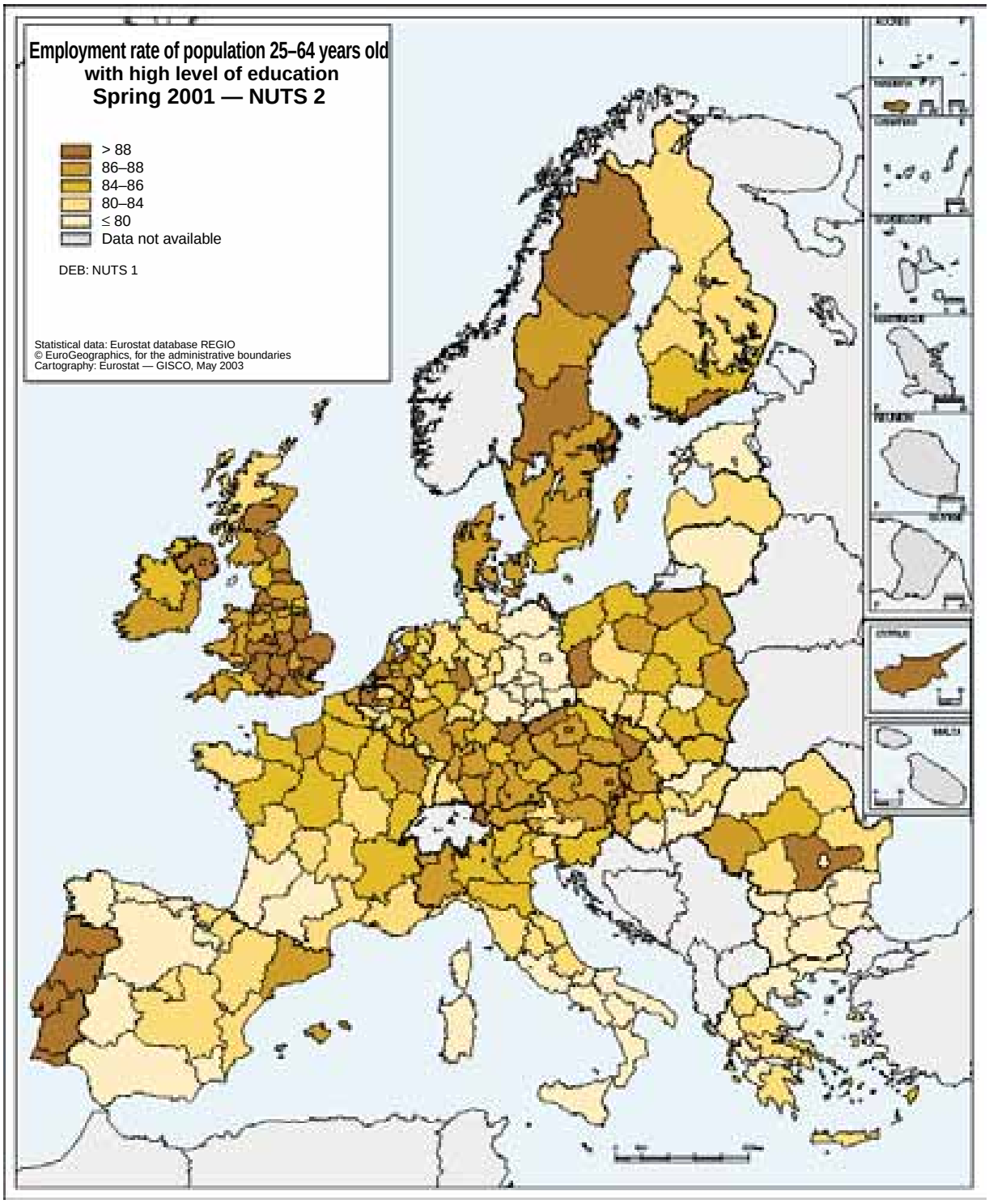

80 %. Only two regions record employment rates of less than 70 % among tertiary education graduates: Corse (France) and Severozapaden (Bulgaria).

While employment rates rise with education levels, the proportion of the population which has completed tertiary education is also unevenly distributed from one country and from one region to another. In Lithuania, where there are five times as many graduates as in Portugal (45 % as against 9.1 %), the graduate employment rate is 10 percentage points lower than in Portugal.

The difference between the employment rates of people with higher and lower-level education reveals marked contrasts between regions (see Graph 5.2). At one extreme, differences in excess of 50 percentage points are found in Slovakia (except for Bratislavský) and in Poland (Kujawsko-Pomorskie Lubuskie, Śląskie, Warmińsko-Mazurskie, Zachodniopomorskie), whereas, at the other extreme, the differences are less than 20 % in Nord-Est, Sud-Vest and Nord-Vest in Romania, in Portugal, in southern Sweden and in Anatoliki Makedonia, Thraki, Kriti and Peloponnissos in Greece.

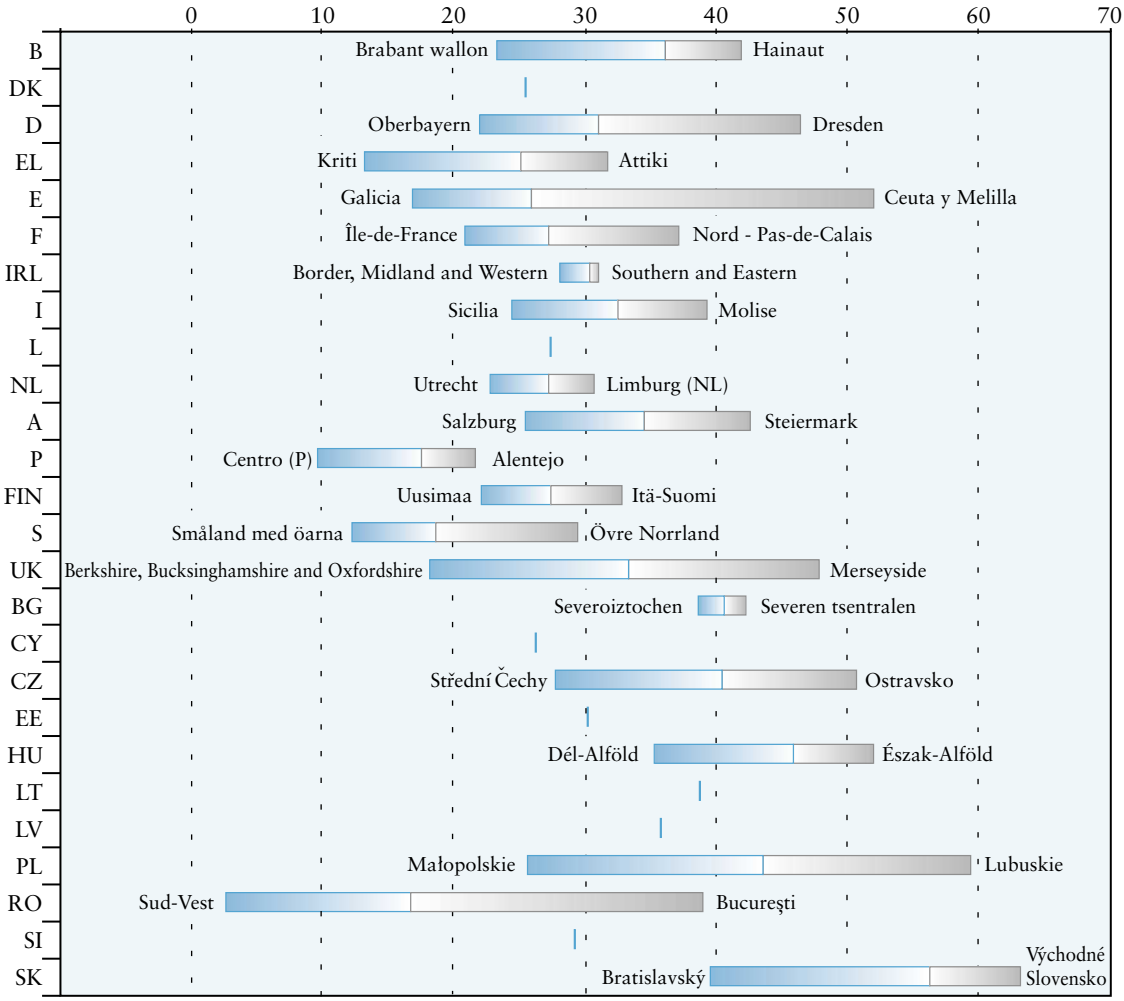
The regions in a single country sometimes present contrasts in how employment rates vary with education levels. Thus, in Romania, Poland and Spain, the scale of the differences exceeds 30 points.

In Bulgaria, Ireland, Italy, the Netherlands, Portugal and Finland, the regions are more uniform, with differences of less than 15 points.


Employment rate of population 25–64 years old
with high level of education
Spring 2001 — NUTS 2
> 88
86–88
84–86
80–84
≤ 80
Data not available
DEB: NUTS 1
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, May 2003

**Map 5.5**

## Graph 5.2 — Difference in the employment rate by educational attainment level: high and low (population aged 25–64) NUTS level 2, 2001



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# SCIENCE AND TECHNOLOGY

6

# Introduction

One of the strategies identified by the Lisbon Summit in March 2000 in order to make the European Union the most competitive economy, capable of a rapid response to the changing requirements of the global marketplace, was greater emphasis on Europe's transition to a knowledge-based economy.

At the Barcelona Summit, the European Council remarked that a significant boosting of the overall spending on research and development (R & D) and innovation in the EU would be necessary in order to close the gap between the EU and its major competitors. The objective agreed by EU governments at Barcelona was to increase R & D spending to 3 % of GDP by 2010, with two thirds of this new investment to come from the private sector.

It is evident that economic growth is increasingly related to the capacity of an economy to change and to innovate. Considerable effort should be put into creating an environment that encourages research, thus facilitating the transition to a knowledge-based economy. Such a policy needs statistical information on science and technology, a wide field that includes data on research, patents, high-tech manufacturing sectors, and high-tech and knowledge-intensive services.

The best-performing economic sectors from the point of view of research and innovation are those known as high technology. Such sectors have been defined for both manufacturing and services (more information on the definition may be found in the methodological notes). For this reason, this edition of the regional yearbook focuses on the same sectors as the last edition.

Innovation is a process that requires investment, for example in key aspects such as education and R & D, which may be difficult to measure as an input. On the other hand, we can measure the number of patents as an intermediate element of this process. Some other indicators can be used in order to measure the performance of the innovation process, for example employment in high- and medium-high-tech manufacturing sectors and in high-tech and knowledge-intensive services.

This chapter examines the dynamism of regions from the point of view of regional indicators such as human resources in science and technology (S & T), employment in high- and medium-high-tech manufacturing sectors and in high-tech and knowledge-intensive services.

The reference year is 2001 for data on employment; for data on patents, 2001 provisional data are used.

# Human resources in science and technology

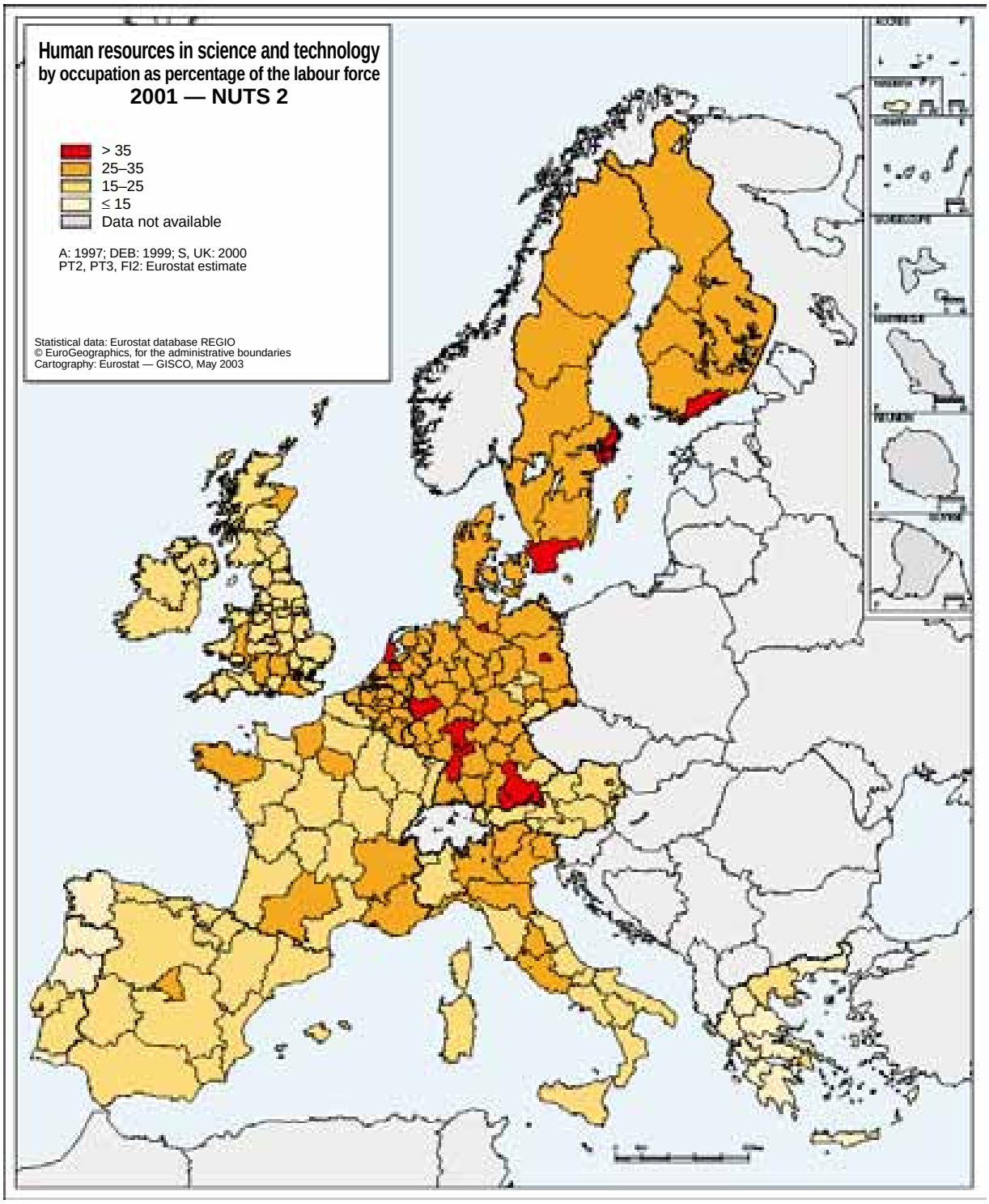
In recent years, there has been increasing recognition of the importance of human capital as an engine of growth and it became very important to quantify these highly qualified staff in order to see to what degree the countries, and, in particular, individual regions, have the capacity to turn the human potential into innovative practice.

Map 6.1 represents the percentage of the labour force working in an S & T occupation, as a professional or as a technician according to the international standard classification of occupations (ISCO) definition. Only a few countries show a very high percentage (over 35 %) of the labour force working in an S & T occupation: six regions in Germany (e.g. Berlin, Oberbayern and Karlsruhe), two each in the Netherlands (e.g. Noord-Holland) and Sweden (e.g. Sydsverige) and one in Finland (Uusimaa). With the exception of three German regions, all the remaining regions in these four countries also show high percentages (more than 25 %).

The rest of the European regions record an average percentage of between 15 and 25 %, with some exceptions in Portugal (e.g. Norte and Centro), Greece (e.g. Kriti and Peloponnissos) and Spain (Galicia), where the percentage in some regions is below 15 %.

Map 6.2 shows the percentage of the population aged between 25 and 64 who have a third-level education.

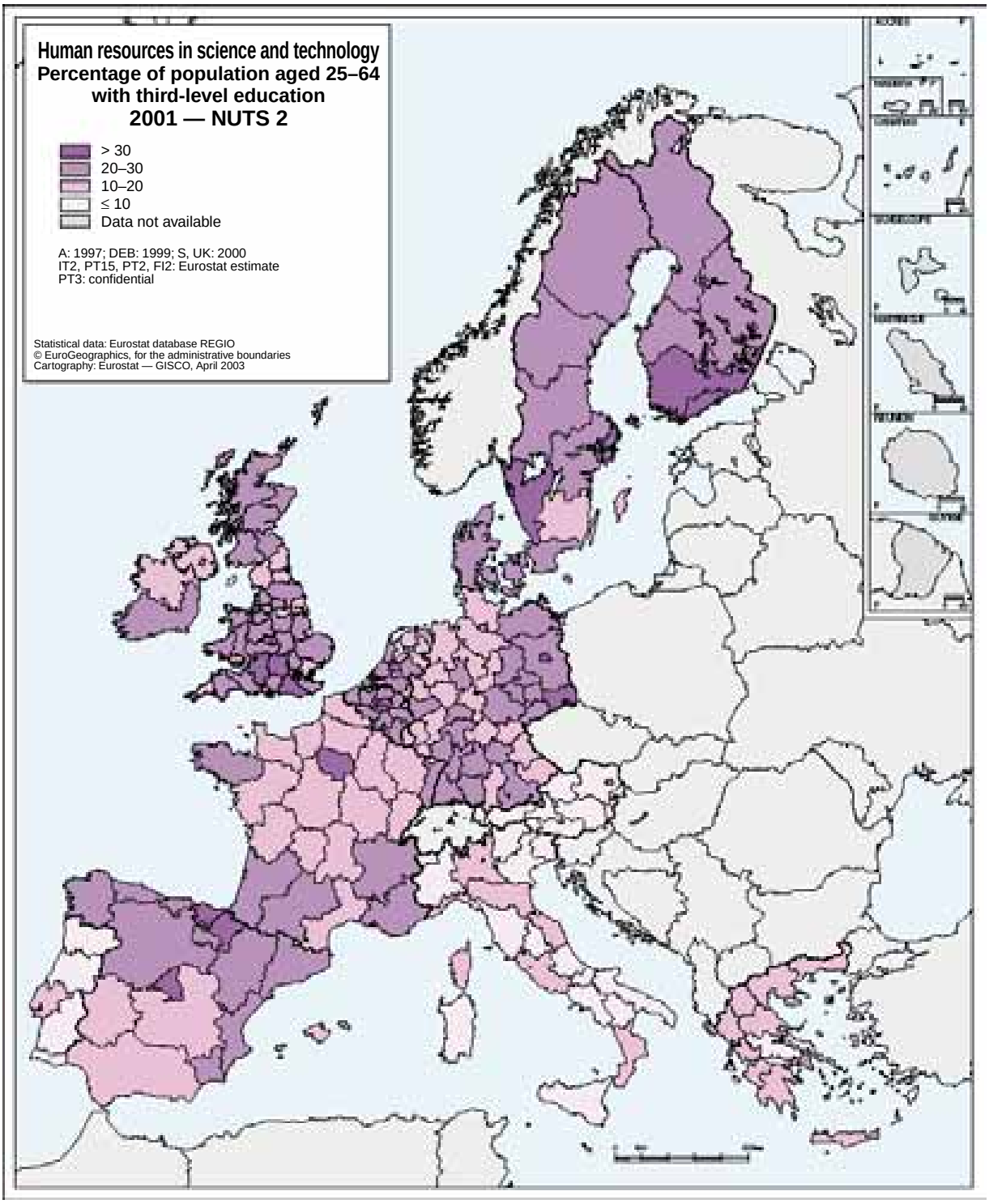
As in previous years, in 2001 some countries again show a concentration of highly educated inhabitants in the capital regions when compared to the rest of the country. Examples include Berlin in Germany, Comunidad de Madrid in Spain, London in the United Kingdom, Uusimaa in Finland and Wien in Austria.




**Map 6.1**

High levels of populations who have a third-level education are also noticeable in all Finnish regions and in the regions of the former East Germany.

In Spain, the northern and eastern part of the country dominates, particularly País Vasco and Comunidad Foral de Navarra.


Human resources in science and technology
Percentage of population aged 25–64
with third-level education
2001 — NUTS 2
> 30
20–30
10–20
≤ 10
Data not available
A: 1997; DEB: 1999; S, UK: 2000
IT2, PT15, PT2, FI2: Eurostat estimate
PT3: confidential
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, April 2003

**Map 6.2**

# Employment in high-tech and knowledge-intensive fields

The importance of high- and medium-high-tech manufacturing sectors and high-tech and knowledge-intensive services has increased considerably in the last few years and has a significant impact on the structure and organisation of employment.

Map 6.3 classifies European regions with regard to the level of employment in high- and medium-high-tech manufacturing sectors, expressed as a percentage of total employment.

In 2001, at the EU level, 12 million people were employed in these manufacturing sectors, which is 7.6 % of total employment.

There are noticeable disparities across EU regions: the ratio of employment in these sectors ranged from 0.7 in Extremadura (Spain) to 21 % in Stuttgart (Germany). The region with the highest ratio of people employed in high- and medium-high-tech manufacturing sectors was Stuttgart, which recorded 393 000 people in these sectors.

In all, 13 of the top 20 regions are located in Germany; there are two each in France, Italy and the United Kingdom and one in Spain (see Table 6.1).

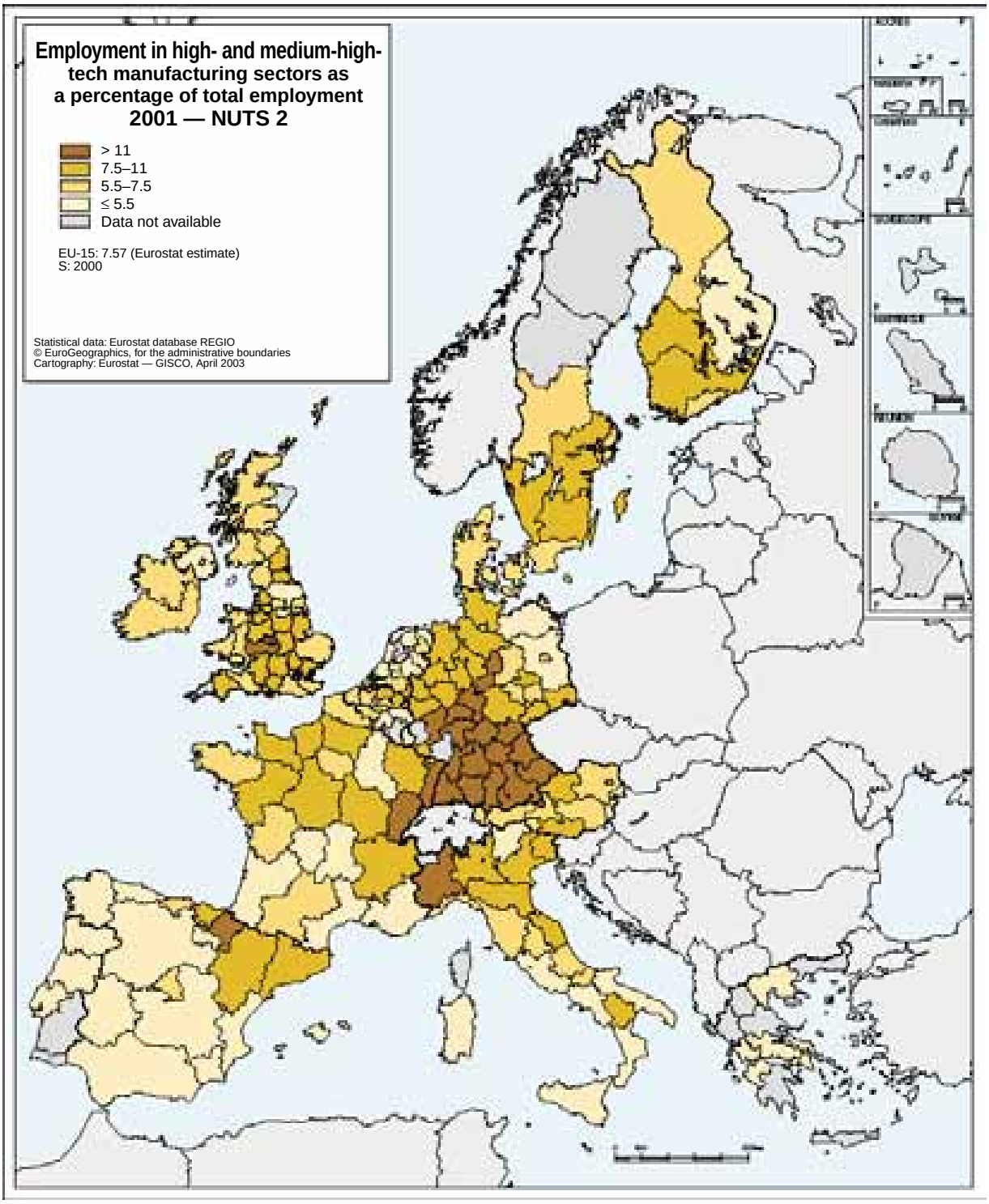
In Italy, the highest rates are in the northern part of the country, with the exception of Basilicata in the south, which has almost 11 %.

With the exception of Denmark, Greece, Ireland and Portugal, all countries have at least one region with more than 7.5 % of all employees employed in high- and medium-high-tech manufacturing sectors

**Table 6.1 — Top 20 regions for employment in high- and medium-high-tech manufacturing sectors (1)**

| | Code | NUTS 2 region | Employment in high- and medium-high-tech manufacturing | | |
|---|---|---|---|---|---|
| | | | 1 000 | Percentage of total employment | Percentage of employment in manufacturing |
| 1 | DE11 | Stuttgart | 393 | 21.0 | 58.1 |
| 2 | DE14 | Tübingen | 152 | 18.1 | 51.1 |
| 3 | DE91 | Braunschweig | 123 | 17.8 | 61.7 |
| 4 | DEB3 | Rheinhessen-Pfalz | 152 | 17.0 | 59.3 |
| 5 | DE12 | Karlsruhe | 209 | 16.9 | 55.2 |
| 6 | FR43 | Franche-Comté | 82 | 16.6 | 54.2 |
| 7 | DE22 | Niederbayern | 92 | 16.2 | 49.8 |
| 8 | DE26 | Unterfranken | 96 | 15.6 | 19.3 |
| 9 | DE25 | Mittelfranken | 118 | 14.6 | 49.7 |
| 10 | DE27 | Schwaben | 122 | 14.4 | 47.6 |
| 11 | DE13 | Freiburg | 139 | 14.1 | 46.3 |
| 12 | IT11 | Piemonte | 245 | 13.8 | 44.8 |
| 13 | UKG1 | Herefordshire, Worcestershire and Warwickshire | 81 | 13.3 | 57.2 |
| 14 | DE21 | Oberbayern | 270 | 13.0 | 57.4 |
| 15 | DE71 | Darmstadt | 230 | 13.0 | 58.6 |
| 16 | FR42 | Alsace | 99 | 129 | 48.6 |
| 17 | UKG3 | West Midlands | 134 | 11.9 | 48.8 |
| 18 | IT2 | Lombardia | 428 | 10.9 | 34.0 |
| 19 | DEA2 | Köln | 197 | 10.7 | 48.9 |
| 20 | ES51 | Cataluña | 263 | 10.6 | 37.7 |

(1) With at least 80 000 people working in high- and medium-high-tech manufacturing sectors.
Exceptions to the reference year 2001 — Swedish regions: 2000; Koblenz, Trier, Rheinhessen-Pfalz: 1999.

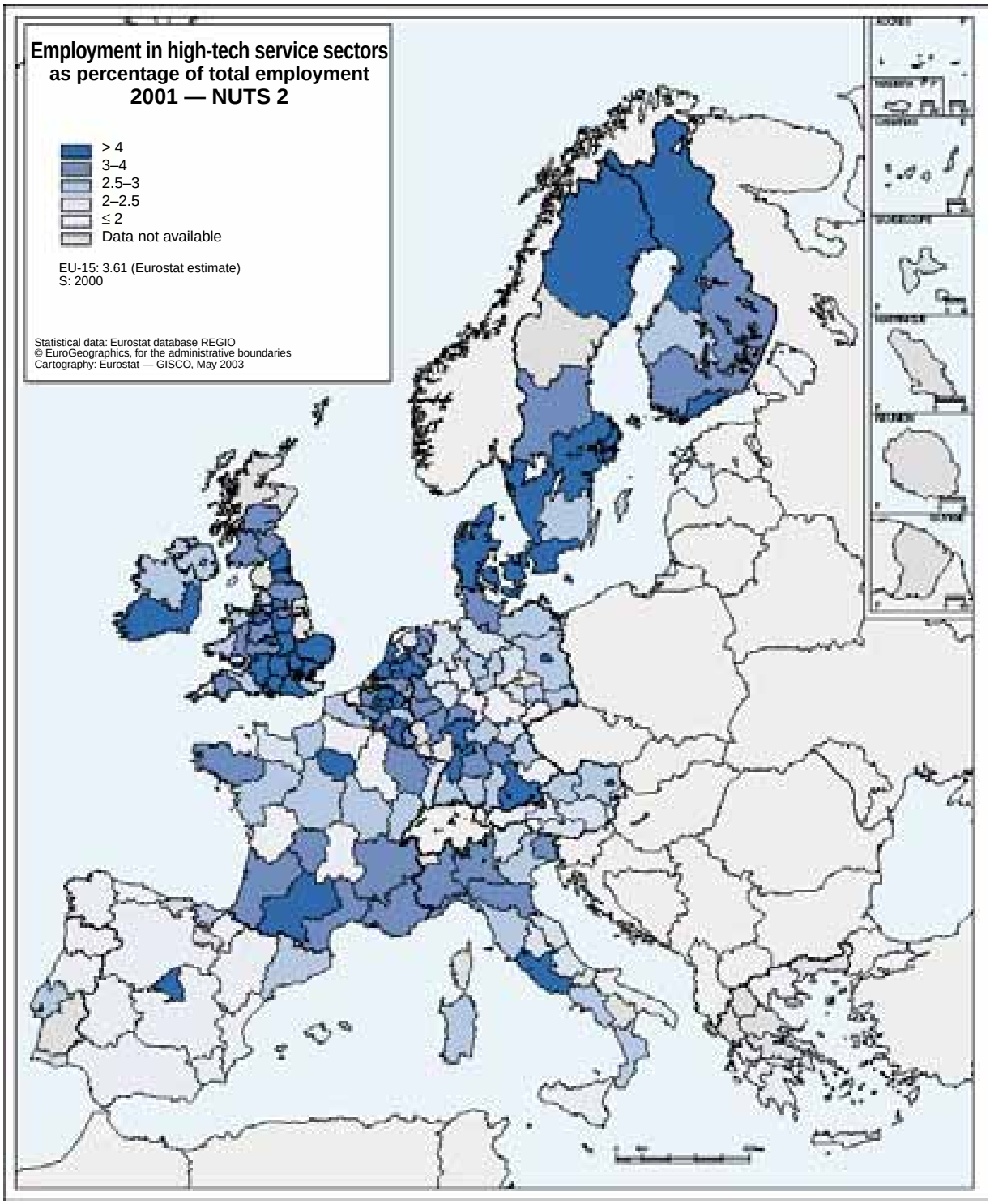



**Map 6.3**

Map 6.4 portrays the European regions in terms of the level of employment in high-tech services.

The proportion of employment in high-tech services varies across the EU regions, ranging from 0.9 % in Extremadura (Spain) to 10.3 % in Berkshire, Buckinghamshire and Oxfordshire (UK)

The higher-ranking regions are widespread all over Europe, but are particularly dominant in northern Europe (e.g. Sweden, Finland, Denmark, the UK and Ireland) and in southern France. The capital regions again show a concentration of persons employed in high-tech services.




**Map 6.4**

Table 6.2 shows that employment in high-tech services is focused in the UK, which includes 8 of the leading 20 regions.

Knowledge-intensive services (KIS) are defined according to the proportion of employees with at least third-level education. Map 6.5 shows the employment in KIS across European regions.

Employment in KIS is becoming increasingly important. At the EU level, in 2001, there were 53 million people employed in these services, which is 33 % of total employment.

**Table 6.2 — Top 20 regions for employment in high-tech services (1)**

| | Code | NUTS 2 region | Employment in high-tech services | | |
|---|---|---|---|---|---|
| | | | 1 000 | Percentage of total employment | Percentage of employment in services |
| 1 | UKJ1 | Berkshire, Buckinghamshire and Oxfordshire | 120 | 10.3 | 13.6 |
| 2 | SE01 | Stockholm | 79 | 8.4 | 9.9 |
| 3 | UKH2 | Bedfordshire and Hertfordshire | 66 | 7.8 | 10.4 |
| 4 | FR1 | Île-de-France | 383 | 7.5 | 9.2 |
| 5 | BE24 | Vlaams Brabant | 32 | 7.2 | 8.9 |
| 6 | ES3 | Comunidad de Madrid | 151 | 7.1 | 9.6 |
| 7 | NL31 | Utrecht | 42 | 7.1 | 8.9 |
| 8 | UKI1 | Outer London | 154 | 7.1 | 8.5 |
| 9 | FI16 | Uusimaa (Suuralue) | 52 | 7.1 | 9.0 |
| 10 | UKI1 | Inner London | 88 | 6.9 | 7.9 |
| 11 | UKJ3 | Hampshire and Isle of Wight | 55 | 6.1 | 8.3 |
| 12 | UKJ2 | Surrey, East and West Sussex | 77 | 6.0 | 7.6 |
| 13 | UKH1 | East Anglia | 62 | 5.6 | 7.9 |
| 14 | IT6 | Lazio | 109 | 5.6 | 7.2 |
| 15 | DE71 | Darmstadt | 97 | 5.5 | 7.8 |
| 16 | AT13 | Wien | 41 | 5.4 | 6.8 |
| 17 | UKK1 | Gloucestershire, Wiltshire and North Somerset | 59 | 5.3 | 7.0 |
| 18 | DE12 | Karlsruhe | 65 | 5.2 | 8.5 |
| 19 | DE21 | Oberbayern | 108 | 5.2 | 7.9 |
| 20 | FR62 | Midi-Pyrénées | 52 | 5.0 | 7.4 |

(1) With at least 30 000 people working in high-tech services.
Exceptions to the reference year 2001 — Swedish regions: 2000; Koblenz, Trier, Rheinhessen-Pfalz: 1999.

Inner London (UK), with 61.1 % of all employment in knowledge-intensive services, is the EU region with the highest proportion of people working in these sectors, followed by Stockholm (Sweden) and Outer London (UK).

Knowledge-intensive services dominate in northern Europe, especially in Sweden (e.g. Stockholm and Mellersta Norrland), Denmark, the United Kingdom (e.g. Inner London and Outer London), Belgium (e.g. Vlaams Brabant) and the Netherlands (e.g. Utrecht). Southern parts of France score highly as well.

A number of other clusters can be identified, such as in Spain (Comunidad de Madrid), in Germany (Berlin and Hamburg), in Italy (Lazio and Calabria), Austria (Wien) and Greece (Attiki). Again, regions containing the capital tend to have higher rates.

# Patent applications

Map 6.6 shows the dominant sector for each region according to the international patent classification (IPC).

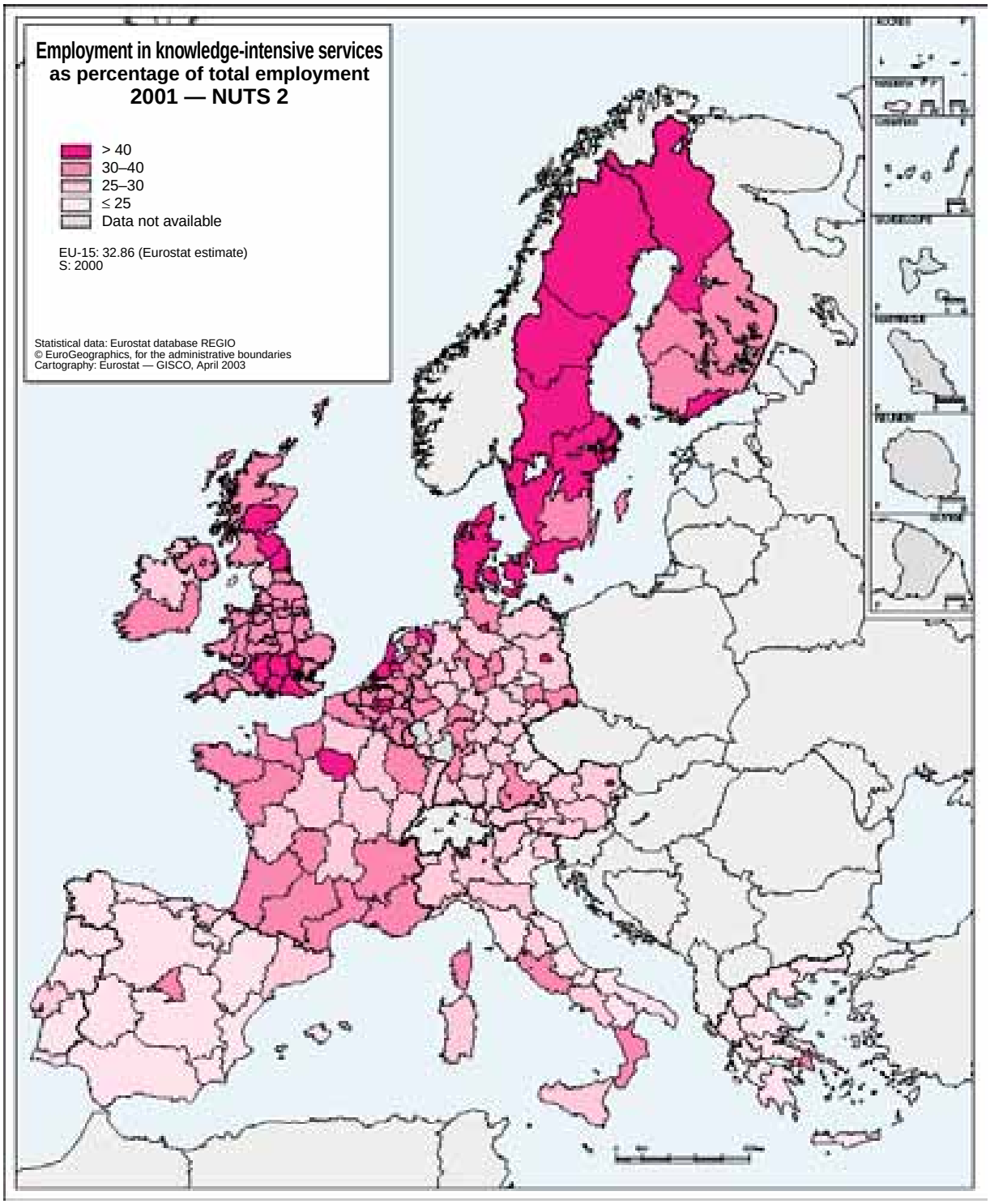
Each of the colours refers to specialisation in a particular IPC sector. By contrast, the intensity of the colours on the map depends on the number of patent applications, a light colour meaning that the number of patent applications is 10 or less and a darker one implying that there are more than 10 patents within the dominant IPC sector in the region.

The most widespread IPC sector across European regions is that of 'performing operations and transporting', particularly in France, Germany, Austria and northern Italy.

Only one European region (Väli-Suomi in Finland) records a predominance of patent applications in the textile and paper sector.

A high degree of specialisation in electricity occurs in the northern regions of Finland and Sweden. Several German regions also show specialisation of patent applications in this sector, for example Oberbayern and Dresden.

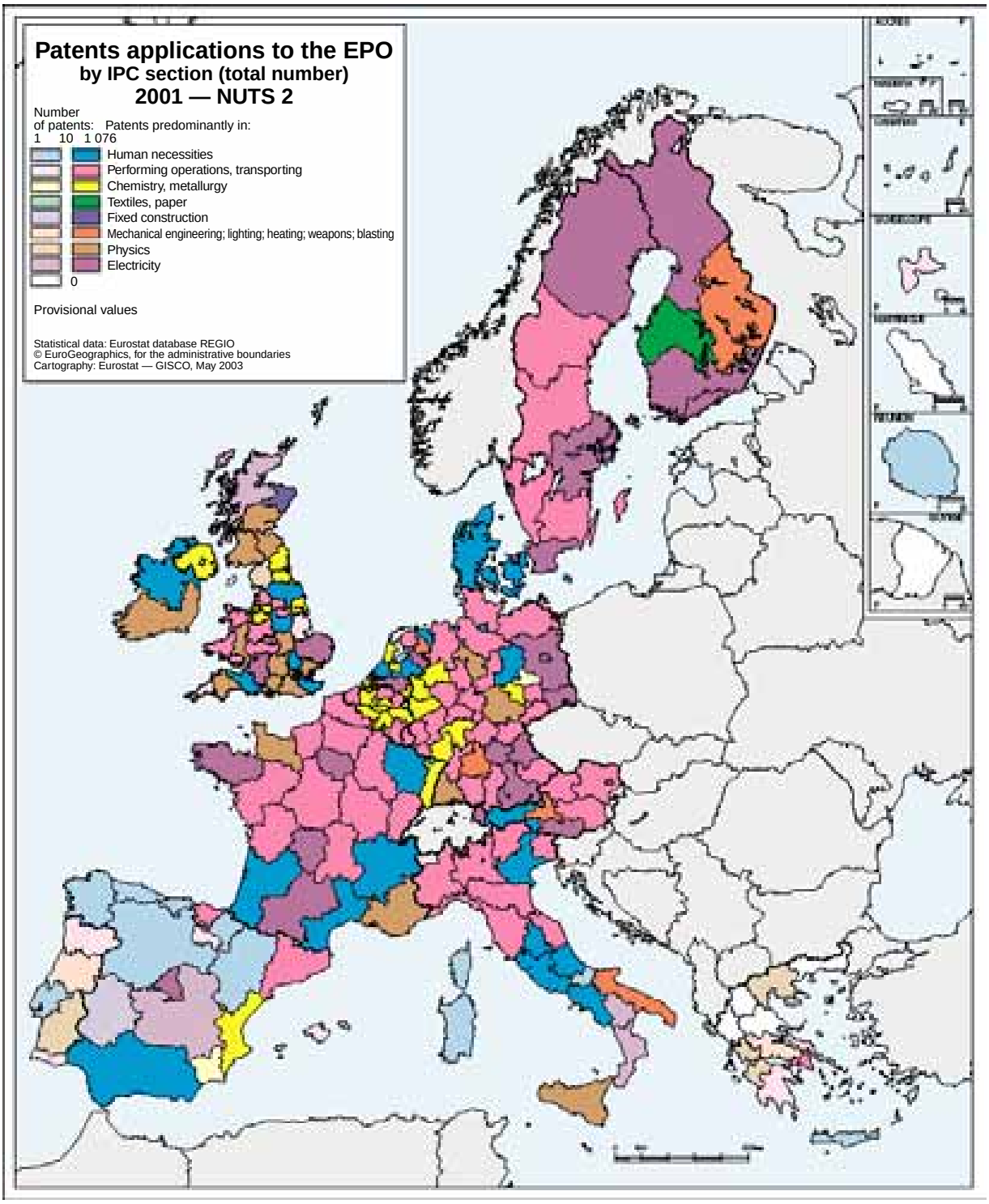
There are some smaller clusters of patent applications relating to chemistry and metallurgy, for example in Belgium, UK (Northern Ireland), Germany, Spain and France.




**Map 6.5**

The Iberian peninsula is dominated by light colours, meaning that there is a low degree of specialisation, with the exception of Andalucía (specialisation in human necessities), Comunidad Valenciana (chemistry, metallurgy), Cataluña and País Vasco (predominant in performing operations and transporting).

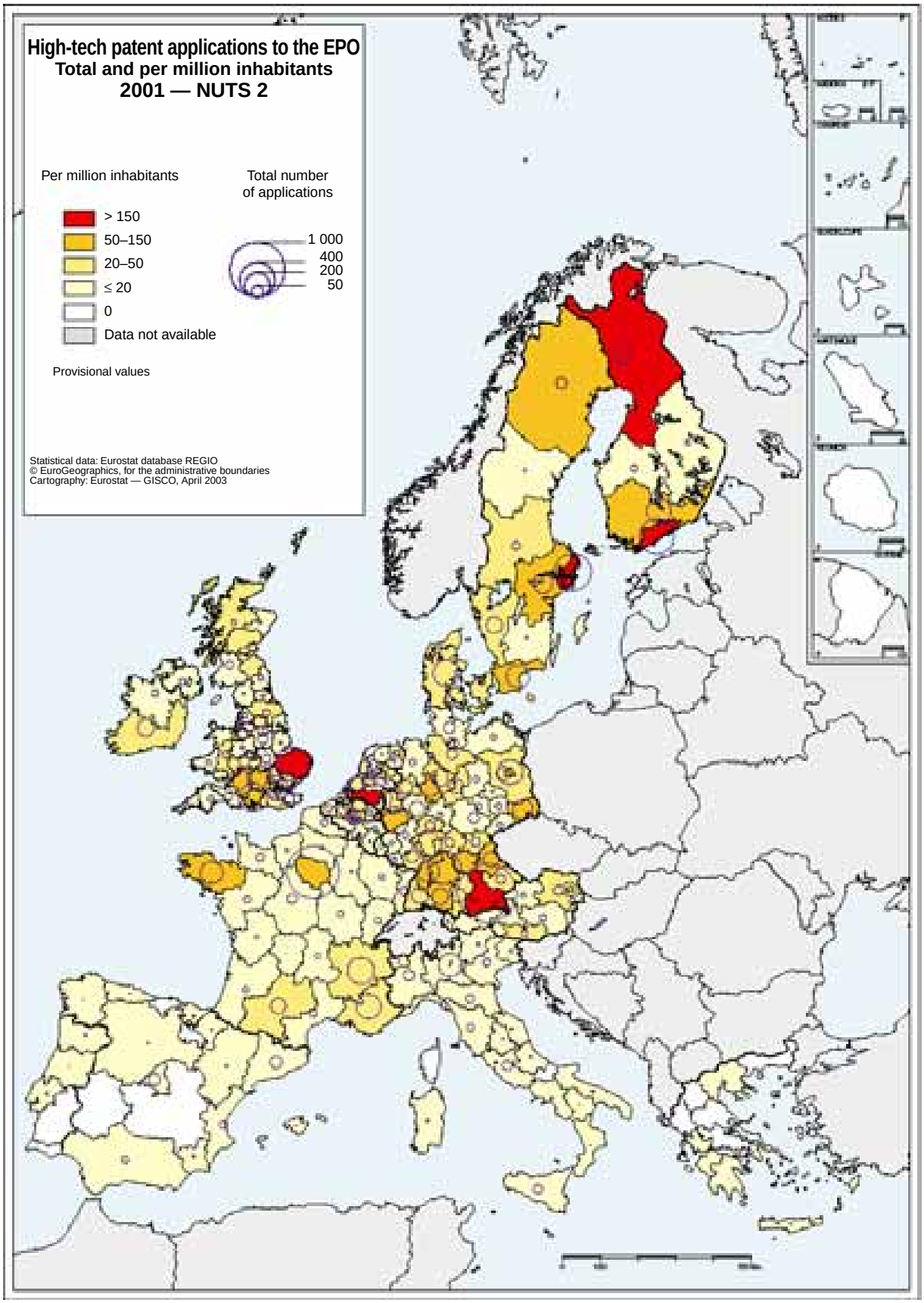
Map 6.7 presents the patent applications in high-tech sectors in both absolute terms and per million inhabitants.




**Map 6.6**

The low population in some regions, such as Pohjois-Suomi in Finland, explains why a low score in terms of the total number of patent applications may coincide with a high score expressed as patent applications per million inhabitants.

At the other extreme, there are some regions with a high population density such as Île-de-France (France) with 886 applications, which is, in relative terms, only 81 patent applications per million inhabitants.


High-tech patent applications to the EPO
Total and per million inhabitants
2001 — NUTS 2
Per million inhabitants
> 150
50–150
20–50
≤ 20
0
Data not available
Provisional values
Total number of applications
1 000
400
200
50
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, April 2003

**Map 6.7**

Oberbayern in Germany and Noord-Brabant in the Netherlands show a very large number of patents and also a high score expressed as patent applications per million inhabitants, despite a dense population within the region.

South European regions show rather low ratios of patent applications per million inhabitants as well as in the total number of applications.

# Methodological notes

The maps in this chapter are compiled from New-Cronos: Theme 9 — Science and technology/ domains HRST, EHT and Patents.

Data on human resources in science and technology (HRST) are collected in line with the recommendations of the *Manual of human resources devoted to S & T* (Canberra manual). HRST by occupation (HRSTO) are classified according to the international standard classification of occupations (ISCO) developed by the International Labour Organisation (ILO).

Human resources in science and technology by occupation include those people working in S & T occupations, i.e. ISCO major group 2 (professionals) and ISCO major group 3 (technicians and associate professionals).

The population with third-level education includes those persons belonging to ISCED categories 5A, 5B and 6.

HRST and data on employment in high-tech sectors are extracted from the Community labour force survey (CLFS). The CLFS data are based on a sample of the population and, therefore, the results are subject to the usual types of error associated with sampling techniques, as well as to a number of other non-sampling errors. All results conform to the Eurostat guidelines on sample size and therefore are not published if the degree of sampling error is likely to be high. Due to low sample sizes, data quality problems arise in certain regions (see the information given in New-Cronos).

A patent is a public title of industrial property conferring on its owner the exclusive right to exploit the invention for a limited area and time. Patents are the most widely used sources of data for measuring innovative activity and technological development, as well as for comparisons of technology growth. The patent data reported here include the patent applications filed at the European Patent Office (EPO) during the reference year, classified according to the inventor's region of residence and to the international patents classification of applications.

High-tech patents are counted in accordance with the trilateral statistical report definition, where the following technical fields are included: computer and automated business equipment, micro-organism and genetic engineering; aviation; communication technology; semiconductors; lasers.

The high-tech economic sectors are defined in terms of the R & D intensity of the sector, following the definition applied by the Organisation for Economic Cooperation and Development (OECD — 1997). The R & D intensity is calculated as the ratio of the sector's R & D expenditure to its value added. To this is added the indirect R & D intensity, which expresses the R & D ratio of the input to the sector, relating both to intermediary products and to capital investments. Applying this approach to the manufacturing sectors of the European economic activity classification NACE Rev. 1, there are 10 main high- and medium-high-tech sectors identified: aerospace; computers and office machinery; electronics/communications; pharmaceuticals; scientific instruments; motor vehicles; electrical machinery; chemicals; other transport equipment; non-electrical machinery.

Three NACE service sectors have been identified as being 'high-tech', these being post and telecommunications, computer and related activities and research and development.

As R & D intensity does not serve as a suitable indicator with regard to services, a broader definition of knowledge-intensive services (KIS) has been proposed, based on the concept of knowledge intensity, which includes the proportion of employees with at least third-level education. Knowledge-intensive services include: water transport, air and space transport, post and telecommunications; financial intermediation; computer and related activities; research and development; real estate; renting and business activities; education; health and social work; recreational, cultural and sporting activities, radio and television activities; libraries, archives, museums, etc.

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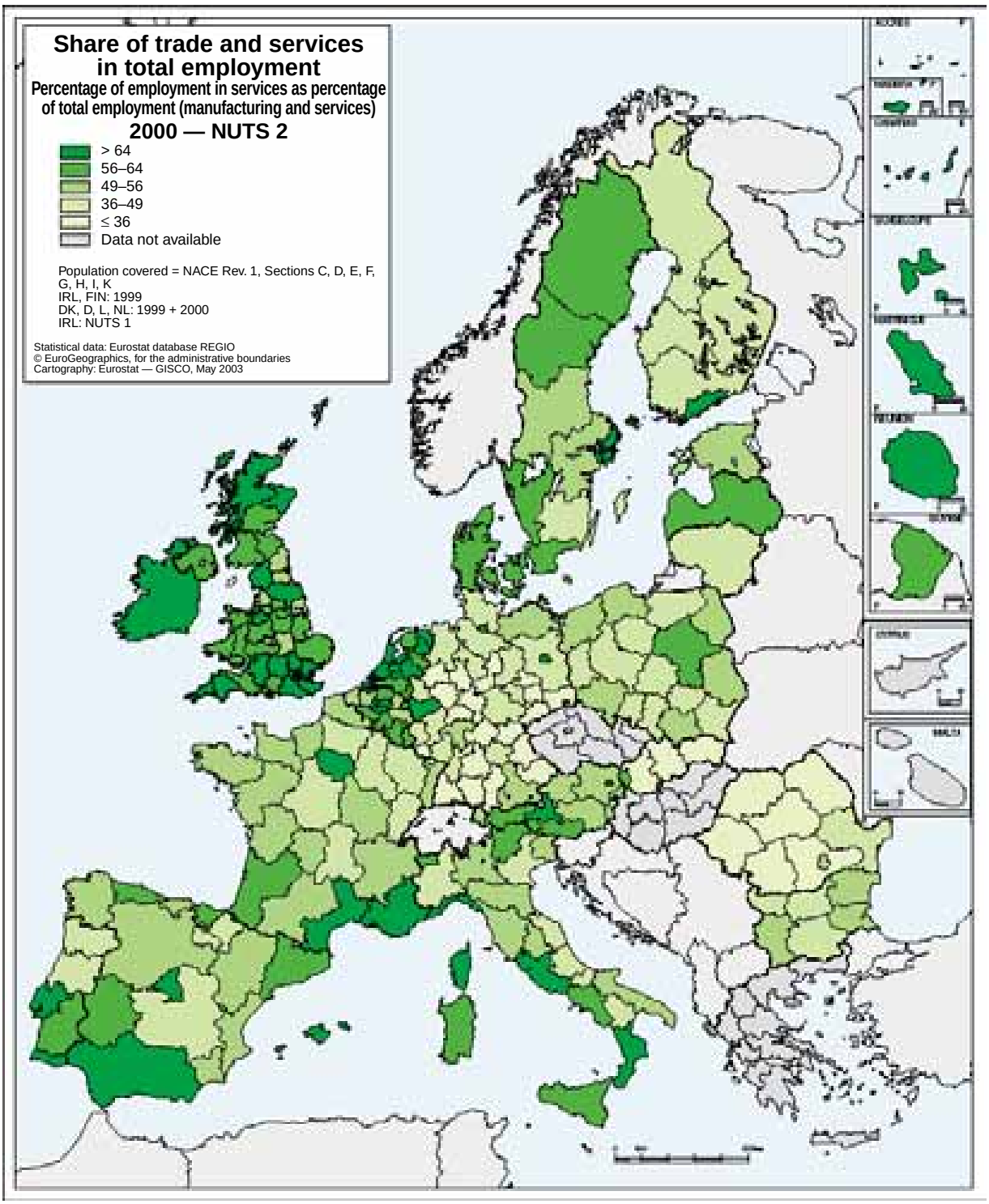
# STRUCTURAL BUSINESS STATISTICS

7

# Introduction

Regional business statistics are a vital source of information for anyone requiring details of economic activity in the European regions. How is employment changing in the regions? What are wage rates and investment rates in any particular region or sector? A detailed analysis of the structure of the European economy by sector is possible only at regional level. In fact, it often happens that a country's flagship industry is concentrated in a few regions, and, conversely, within a very dynamic country, there may be regions where economic growth is lagging because there is a crisis in certain key sectors in those regions.

Maps 7.1, 7.2, 7.3 and 7.4 have been based on structural business statistics (SBS) at regional level which are available in NewCronos in the SBS




**Map 7.1**

domain, theme4/sbs/region, and in the REGIO domain, theme1/regio/sbs-r. The maps presented here are a brief summary of the available regional business statistics. The full database has much more information.

Regional business statistics are presented not only for the EU Member States, but also for accession countries, for which data availability is currently almost as good as for Member States. In the case of Bulgaria and Hungary, however, business data were not yet available when this publication was prepared.

# Services are the largest employer in the regions

Map 7.1 shows the share of trade and services in non-financial market employment in the regions of Europe.

'Employment' refers to persons in employment, i.e. those working in the unit concerned and those working outside the unit while remaining part of it and being paid by it. The map shows results for all the market sector, with a rough distinction between industry and services. Industry is taken to be Sections C, D, E and F and services Sections H, I and K of NACE Rev. 1. However, this analysis may be broken down for each sector at a detailed level of economic activity using the REGIO database in NewCronos.

Traditionally, the German economy, which focuses on manufacturing, is contrasted with the UK economy, which is to a greater extent geared to services. This national generalisation broadly applies at local level in these two countries as well, but there are a few UK regions, most of them in the centre and west (such as Leicestershire, Rutland and Northamptonshire, and West Wales and the Valleys), which are almost as industrialised as German regions.

The pattern of employment in France is unlike that in any other EU country. In terms of total employment, jobs in services are particularly evident around the capital, whereas there are much fewer in the rest of the country. This high proportion of services in the Île-de-France region is due to the marked concentration of the population in that region, with the major industrial areas now being some way from the capital. Map 7.2 shows that these jobs in services tend to be more skilled than those in other French regions.

The coastal regions of the Mediterranean have a particularly high concentration of services, with a band stretching from Algarve in Portugal, via Andalucía, Provence-Alpes-Côte d'Azur, Lazio and Campania, to Calabria in the south of Italy. Corse (Corsica) and Sardegna (Sardinia) also have a high density of jobs in services. How should this grouping of jobs be interpreted? On the one hand, these are very much tourist regions and, on the other hand, the influence of traditional, job-intensive sectors such as retail trade or sea transport is still felt. As Map 3.1 on per capita gross domestic product in Chapter 3 shows, the south of Italy is still desperately trying to catch up with the economy in the north of the country, where the high level of industrialisation is evidence of a dynamic economy.

In Spain, France and Italy, there is a sharp contrast between a very highly industrialised area in the north of the country and another in the south which is more geared to trade and services. In France, the Languedoc-Roussillon and Provence-Alpes-Côte d'Azur regions are very service intensive.

Belgium, the Netherlands and the north of Sweden also have very service-intensive regions. In the Netherlands, in particular, there is a great deal of commercial and transport activity around the ports of Amsterdam and Rotterdam, i.e. in the Noord-Holland and Zuid-Holland regions.

The regions of the accession countries are generally more heavily industrialised than the EU average. Nevertheless, services predominate in Latvia and in the region of Mazowieckie in Poland.

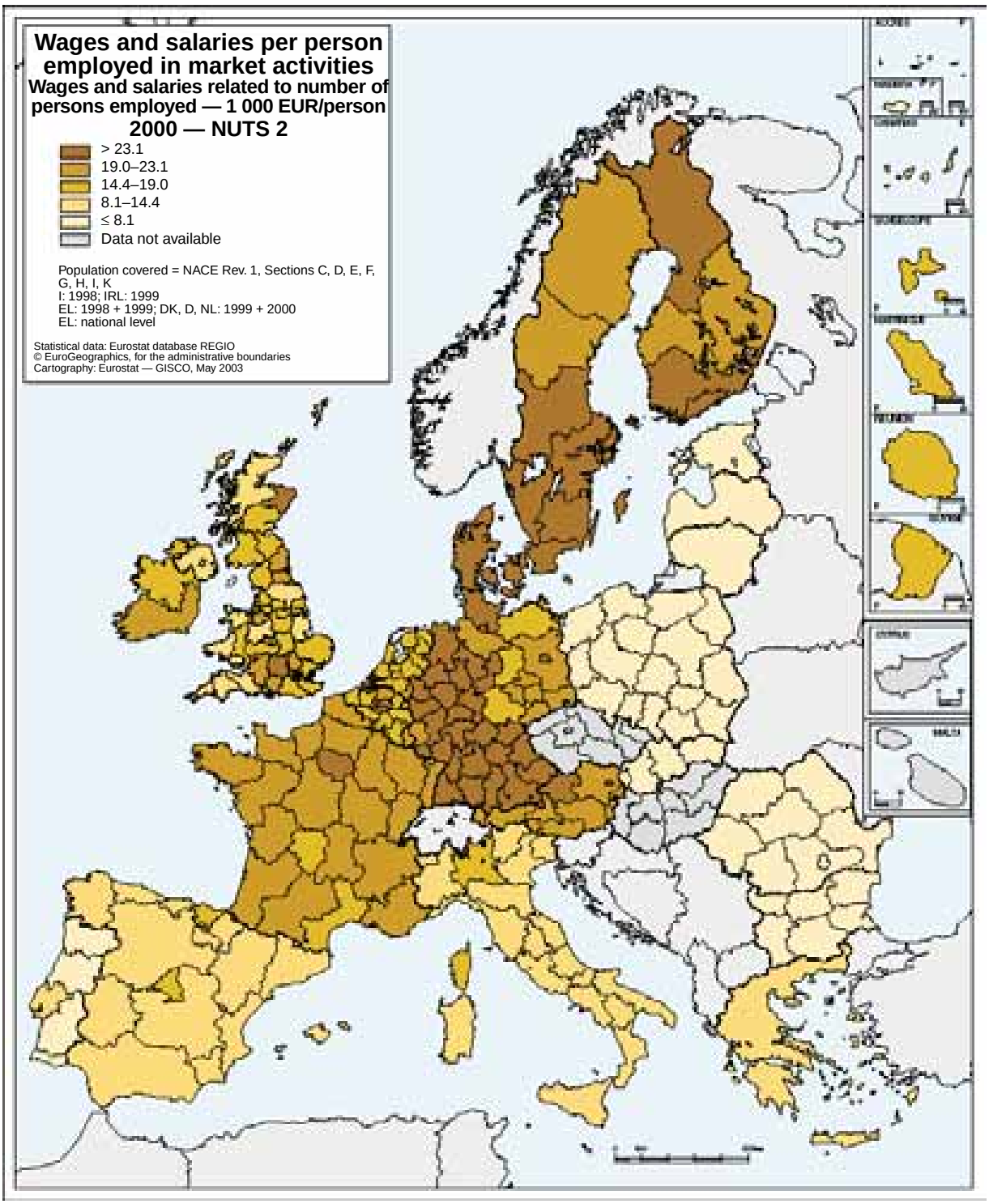
# Employees better paid around the capital cities

Map 7.2 shows wages and salaries per capita for the whole of the non-financial market sector. 'Wages and salaries' means all sums in cash and benefits in kind paid to persons who are counted as employees, including home workers, in return for their labour during the accounting year, whether they are paid by the hour, by output or at

piece rates, and whether or not they are paid regularly.

Wages and salaries per capita are a good proxy for the qualification of the labour force in industry in the region in question, i.e. the average wage or salary received by a person working in that sector of activity. According to how they are assessed by an observer, high average wages and salaries in a region or a country may, as has been suggested, denote a qualified workforce, but they may also make a region less competitive.

There is, in general, a remarkable variety of wages and salaries in Europe, and in the euro zone in particular. In a unified monetary zone, differences




**Map 7.2**

in wages and salaries or in productivity can no longer be masked by exchange rate fluctuations. While it is true that wage and salary levels are by no means the only criterion of competitiveness, this noticeable difference between regions will have economic consequences in the long term in an area where people and capital can circulate freely.

In Spain, Italy and Portugal, in particular, average wages and salaries are under EUR 17 000 per capita and no region stands out by virtue of really high pay.

Nevertheless, average wages and salaries per capita may show marked imbalances between regions within a single country. In Île-de-France, pay is much higher than in other regions of the country. In fact, there are an enormous number of highly skilled jobs in this region, particularly in the head offices of the country's major businesses. Similarly, in Finland, wages are higher in the Uusimaa region than in the rest of the country. In general, wages and salaries are highest in the regions closest to the capital cities, with the striking exception of Portugal and the Lisboa e Vale do Tejo region, which includes Lisbon.

The proximity of northern Europe seems to be having an effect in Spain and Italy, where wages and salaries are highest in the north of the country. In Italy, the higher level in the north and in Lombardia is to some extent a sectoral effect: in the north, industry is more productive and employees are better paid than in the traditional regions of the south.

Pay levels are lower in the former East Germany than in the rest of the country. In fact, the old *Länder* contrast with both the eastern areas of the country and the rest of Europe in that wages and salaries are fairly high in all regions, in particular around Stuttgart and Darmstadt (including Frankfurt as a financial centre). This high level is largely due to the method of wage negotiation in Germany, where trade unions play an important part. This is typical of 'Rhineland capitalism', where pay is negotiated through collective agreements rather than at branch or business level. In this respect, it differs from Anglo-Saxon capitalism.

Users who are interested in further details could usefully break down this study on wages and salaries in the regions at sectoral level using the REGIO database. It is at this sectoral level, in particular, that regional competitiveness can be assessed. For example, users will be able to find relative pay levels in the automobile industry in Piemonte in Italy and in Niedersachsen in Germany.

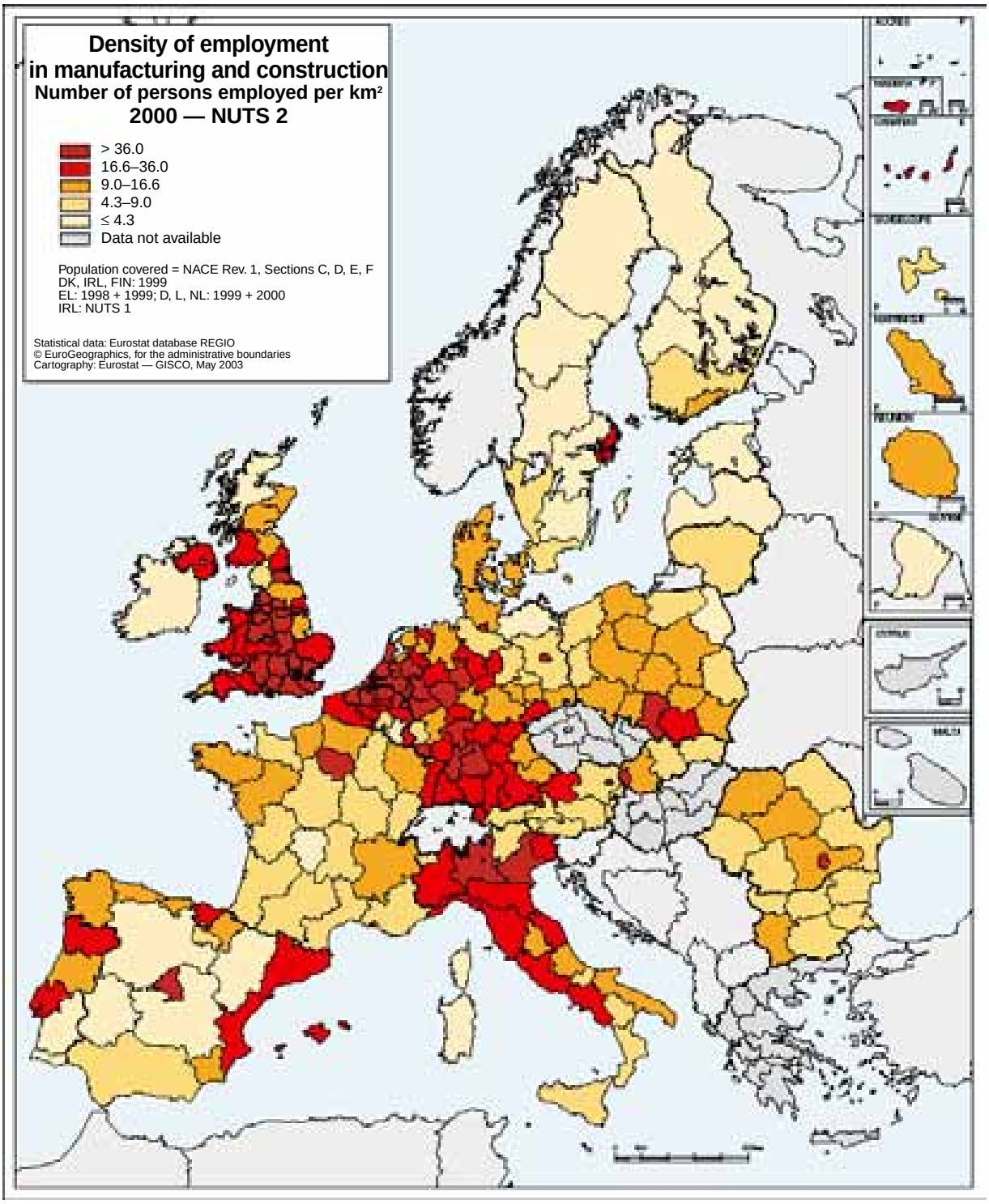
Throughout the regions of the accession countries, average salaries are well below the EU average. The disparity is emphasised by the fact that, in this study, salaries are calculated in euro using a nominal exchange rate, i.e. not taking into account purchasing power parities. Were these parities to be taken into account, there would definitely be a smaller gap in salaries between Member States and accession countries. Nevertheless, Chapter 3 demonstrates that even once the purchasing power parities have been taken into account, the accession country regions remain overall poorer than those in Member States.

# Employment in industry unevenly divided among the regions

Map 7.3 shows the density of employment in industry in Europe, i.e. the number of industrial jobs per km$^2$. 'Industry' is used here in the broad sense, covering Sections C, D, E and F of NACE Rev. 1, i.e. mining and quarrying, manufacturing and construction. Many of the regions with high job density also have a high population density, but we have already seen that some regions may be poor in terms of industrial jobs, but rich in terms of services jobs.

The north of Italy, the west of Germany, Belgium and the Netherlands are highly industrialised regions with job density in most cases higher than 20 industrial jobs per km$^2$. Similarly, the eastern coast of Spain, the Madrid region and País Vasco are more highly industrialised than the rest of the country.

The regions around capital cities generally have both high job density in industry and the higher wages and salaries which go with skilled jobs. This is the case in Paris, in particular, with Île-de-France, Madrid with Comunidad de Madrid and Helsinki with Uusimaa. Head offices and senior management tend to be located in capital cities.




**Map 7.3**

Employment density and high salaries do not necessarily go hand in hand, however. Salaries are fairly low in certain regions of central England, even though these have high industrial employment density. In East Midlands (United Kingdom) or Lisboa e Vale do Tejo in Portugal, the predominant industries are labour intensive and, as a result, average wages and salaries are fairly low despite high industrial job density.

Southern Poland, particularly the regions of Sląskie and Małopolskie that surround the city of Krakow, has an especially high level of employment in industry. This is also the case for Bucureşti in Romania, the region of Západné Slovensko

around the Slovak capital of Bratislava and for the region of Yugozapaden in the south-west of Bulgaria.

# Capital-intensive industries in the regions

Map 7.4 shows the rate of investment in manufacturing industry, i.e. physical investment in relation to employment in industry. It illustrates the increase in capital associated with each person in employment in industry in the regions. The investments in question are those made during the reference period in all kinds of tangible goods, i.e. all those purchased from third persons or produced for own account (capitalised production of tangible goods) which have a useful life of more than one year.

Since this investment rate is likely to fluctuate markedly from one year to the next, the capital intensity of a given region cannot necessarily be inferred from the fact that investment may have been high in 2000. Investment flows would have to be looked at over several years to enable capital stock figures to be calculated.

The data shown here are business statistics, which are not, as has already been suggested, the same as national accounts. But investment is still one of the major components of gross domestic product, along with household consumption and the trade balance. Thus, those regions which invest the most are often the wealthiest, as can be seen from the similarity with the map showing per capita GDP.

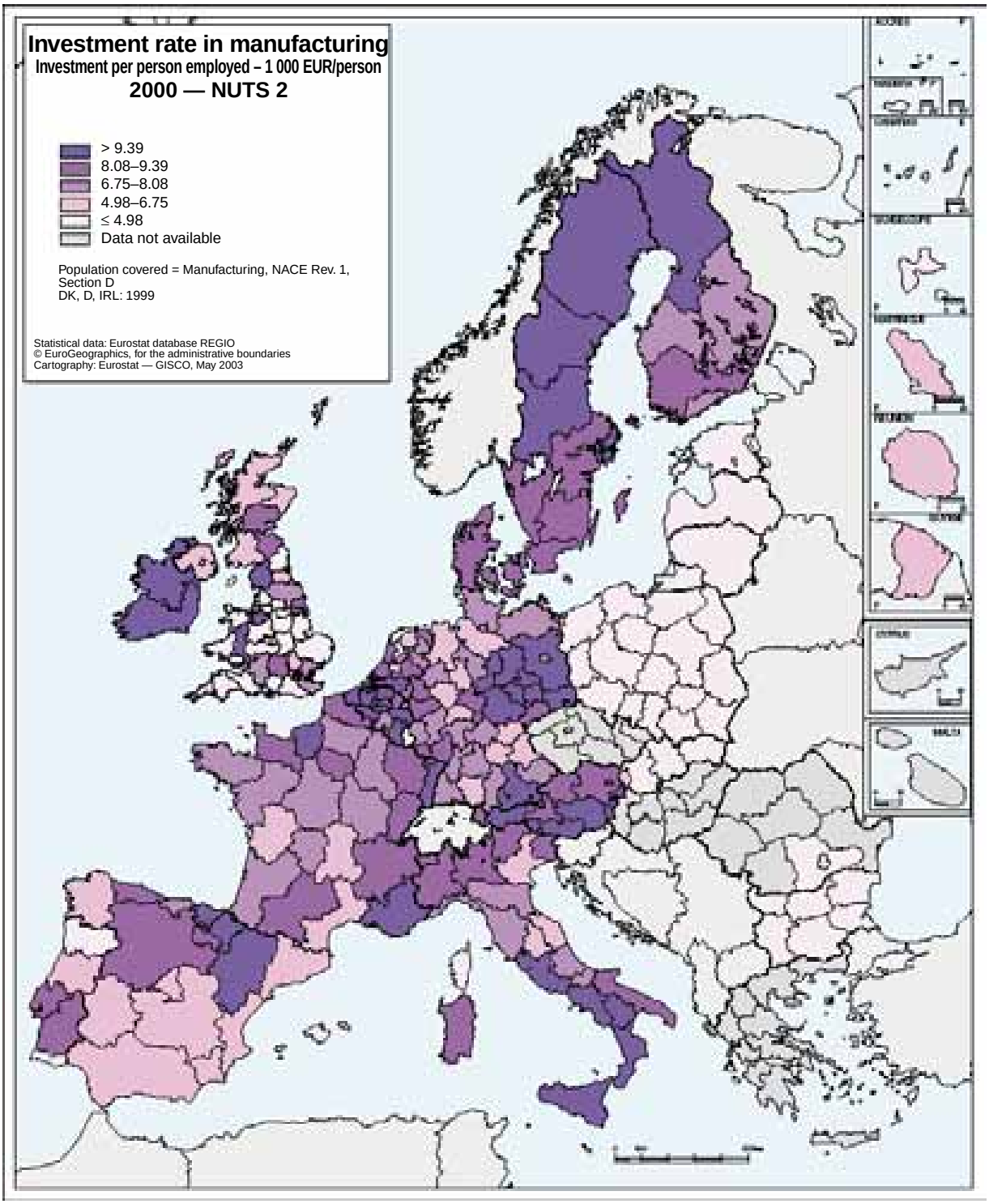
A few results stand out, however. The former East Germany invests more than the former West Germany, which is more highly geared to light industry. Investment is particularly high in the Halle and Dresden regions. It is also fairly high in relation to the European average in the north of Italy and in all the Austrian regions — Kärnten in particular — with the exception of the area around the capital, Vienna. Finally, in contrast to their counterparts in Ireland, the industries in the south and the centre of the United Kingdom invested surprisingly little in 2000.

The relatively low per capita investment in the accession countries is further emphasised by the fact that the exchange rates used do not take purchasing power parities into account.

# Conclusion

Domains SBS: theme4/sbs/region and REGIO: theme1/regio/sbs-r offer users who are interested in regional sectoral data a detailed, harmonised overview of economic activity by sector in the regions. Those who wish to know more can use the full database, of which the four maps presented here give only a brief view. In particular, they can compare per capita wage costs from one region of Europe to another or observe the regions' relative specialisation in different sectors of the economy.

To take one example: Which are the main European regions specialising in the chemical industry? Users can establish how employment in this field is distributed within the different regions of Europe. They can also compare the relative share of chemical industry jobs in total industrial employment within the different regions. They can look at investment in the regions in a given year and at investment in the past, because it does have a substantial cyclical component. Finally, they can correlate employment in the regions with the number of local units, and this provides a good proxy value for the concentration of the sector with the average size of the local units in the sector in the region.


Investment rate in manufacturing
Investment per person employed – 1 000 EUR/person
2000 — NUTS 2
> 9.39
8.08–9.39
6.75–8.08
4.98–6.75
≤ 4.98
Data not available
Population covered = Manufacturing, NACE Rev. 1, Section D
DK, D, IRL: 1999
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, May 2003

**Map 7.4**

## Methodology of regional business statistics

The regional data collected under the SBS regulation are the number of local units, employment, wages and salaries, and material investment.

The statistics are in the main available from reference year 1995. However, 1995–98 was a transition period in implementation of the regulation, during which the national statistical institutes adapted to a system complying with Council Regulation (EC) No 58/97.

Availability is better from 1999, the first reference year after the transition period. The quality is also better. For example, for the first time, the Belgian data for 1999 cover all enterprises' local units. In previous years, the population covered by Belgian regional statistics was limited to local units of enterprises with more than 20 employees. Similarly, for the first time, the German data cover all local units as from reference year 2000, whereas German regional statistics in previous years covered only local units in enterprises with over 20 persons in employment.

Regional statistics also comprise the third of the four sections of the SBS collection. The first two are the national and size-class series (the results of small and medium-sized enterprises in particular) and the last consists of the other structural series (such as statistics on environmental protection expenditure).

Regional business statistics are broken down by region (NUTS 2 level) and activity (NACE Rev. 1, two- or three-digit level, depending on the sector). The population covered is market employment in the non-financial sectors, corresponding to NACE Rev. 1 Sections C to K excluding J, which covers the financial sectors.

The collection unit is the local unit. In most cases, its principal activity is calculated at local level, but in some countries the principal activity which counts is that of the enterprise of which the local unit forms a part, given that an industrial enterprise may consist of several local units. As the statistical unit is not the same in the two collections, the results broken down by size class (available in NewCronos in the domain sizclass: theme4/sbs/sizclass) and by region may diverge to some extent, even if the scale is the same. This divergence is no reflection on the quality of either collection.

Value added, on the other hand, is not recorded at local level under the SBS regulation, but is calculated at enterprise rather than local unit level. Business statistics differ from national accounts (which calculate a regional gross domestic product) in that they are drawn directly from the data observed and have not undergone any economic integration.

eurostat

# TRANSPORT

8

# Introduction

Like EU regional policy, EU transport policy depends on having reliable, up-to-date transport statistics available in the European Union. Growth in the transport sector is closely linked to growth in the economy as a whole.

Since the 1970s, there has been a steady increase in both passenger and goods transport. An efficient infrastructure is needed to cope with the increase in mobility and the rise in passenger and goods flows. It is not merely the liberalisation of the single market which has led to an increase in the volume of traffic: changes in the structure and location of manufacturing industry, changes in production processes leading to a need for just-in-time deliveries, increased leisure time and higher disposable incomes also play a part in these developments.

Although relatively dense in the EU as a whole, the transport network has not been developed in all regions to the same extent: infrastructure capacity reflects differences in supply and demand, as well as in population density and the degree of urbanisation and industrialisation.

Eurostat's regional transport statistics hope to make a contribution in this field by presenting quantitative information on a range of infrastructure aspects along with specific flows of goods and passengers.

# Methodological notes

Regional transport statistics and the metadata which go with them can be found on two sites in the NewCronos reference database. Theme 7 (Transport) contains NUTS 2 indicators in the 'Tranlink' domain showing the infrastructure of road, rail and inland waterway networks, vehicle numbers, journeys by lorry, road safety and the transport of passengers and goods by sea and by air. The same data are available under Theme 1 (General statistics) in the REGIO database.

The NewCronos database has a total of 19 tables on regional transport statistics.

In seven tables, the same variables are at present divided into Member States and accession countries. With EU enlargement next year, the tables for the accession countries will be merged with those of the Member States.

Journeys by lorry at present cover only the regions of the current Member States.

There are four tables each in NewCronos for freight transported by sea and by air and for passengers, but the methodologies are different. Since reference year 1999, these data have been obtained from surveys of ports and airports carried out by Eurostat under existing legislation.

All tables contain annual data and, apart from the tables on regional sea and air transport (with new methodology) and the table on safety, they start with reference year 1978. National traffic flows from one region of a country to another are no longer included in REGIO but can be found in simplified form in Theme 7 (Transport) in the domains 'Road', 'Rail' and 'Inlandww'. Here, the 'Aviation' and 'Maritime' domains also offer further data on traffic flows between airports.

The maps and graphs below give an overview of regional transport statistics, which can then be compared with other regional data in NewCronos, so that readers can investigate the interactions which may help explain the differences noted between the regions.

# Transport infrastructure

Overall, the EU has a dense transport network, which is being expanded as a result of increasing demand for both passenger and goods transport services.

Information on road, rail and inland waterway networks can be found in the NewCronos database at NUTS 2 level. In all tables, the unit is kilometres of route length.

Roads are divided into motorways and other roads. Railway links are classified according to two criteria: two or more tracks, and whether or not they are electrified. Data on inland waterways (navigable canals and navigable rivers and lakes) are patchy because many Member States have no significant network. The data sent by the Member States make no distinction, either, between high-capacity broad canals and lower-capacity narrow ones.

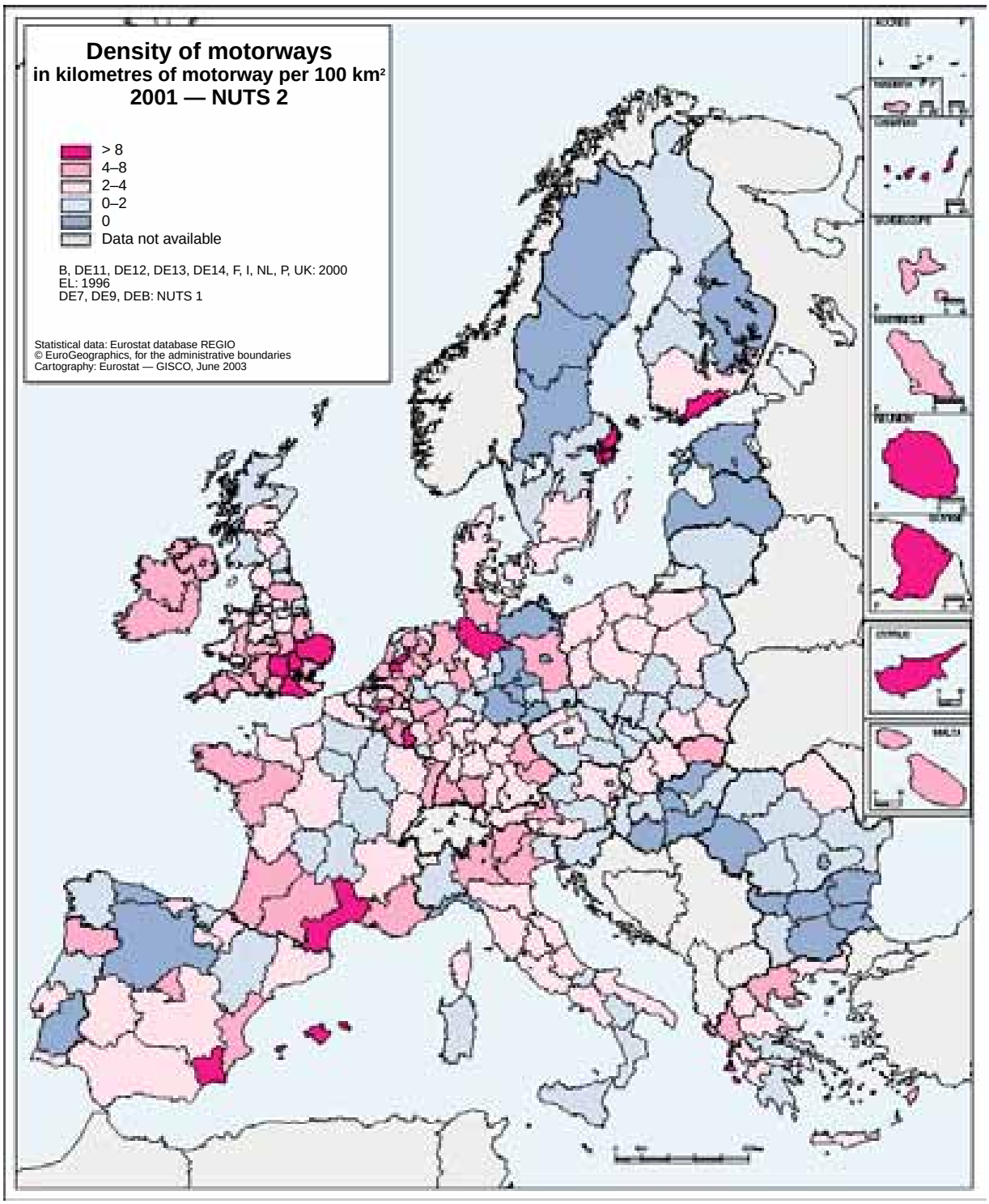
The next section gives an overview of the European road network, looking at motorway density in particular.

# Road network

An extensive network of major roads and motorways generally gives regions a competitive and developmental advantage.

Map 8.1 shows the density of the motorway network in the NUTS 2 regions in 2001, expressed as kilometres of motorway per 100 km².

There are definitional reasons why certain areas in the north of the United Kingdom are white on the map: the dual-carriageway roads there do not qualify as motorways. A further point to note is that area-based indicators in small regions, in particular, may lead to relatively high values.




**Map 8.1**

- Very high motorway density in many cases indicates a high level of urbanisation, as can be seen in the central regions of the Netherlands.
- Regions which include major conurbations may well have high motorway densities, too. These are frequently regions with a great deal of commuter activity, such as the Vlaams Brabant region around Brussels.
- Some regions which include important industrial areas also have a very dense network of motorways. Examples would be Greater Manchester (including Manchester), Merseyside (including Liverpool) and West Midlands in the United Kingdom.
- Conurbations just as often have high motorway densities. There are numerous examples of this: Vienna in Austria, Hamburg, Bremen and Düsseldorf in Germany, Bratislava in Slovakia, the Spanish region Comunidad de Madrid, Lisboa e Vale do Tejo (including Lisbon) in Portugal, and Île-de-France in France.
- Similarly, in some countries, regions which include important ports have extensive motorway networks for onward transport of goods unloaded. Examples would be Nord-Pas-de-Calais in France, some regions in Vlaams Gewest in Belgium and Liguria in Italy.
- Motorway densities are also noticeably high in the German Saarland region and in the Spanish region País Vasco.
- Sweeping around the Mediterranean coast from Comunidad Valenciana in Spain through the highly developed region of Cataluña and Provence-Alpes-Côte d'Azur to Sicilia, an arc of regions with relatively high motorway densities reflects the importance of a modern transport infrastructure in tourist areas.
- Peripheral regions in Greece, Sweden, Poland, Romania and the United Kingdom, have low motorway densities, as do island regions such as Corse (France), Sardegna (Italy) and Kriti (Greece).
- With the exception of Estonia and the Slovakian region of Bratislavsky, many regions in the accession countries have a less dense motorway network, and are comparable with those regions in the Member States which have lower levels of urbanisation (most regions in Spain, France, Ireland and Portugal).

# Railway network

The indicator showing the number of inhabitants per kilometre of railway is a measure of the accessibility of the railway network. It takes account of population density and is thus more informative than the length of the network per unit of area.

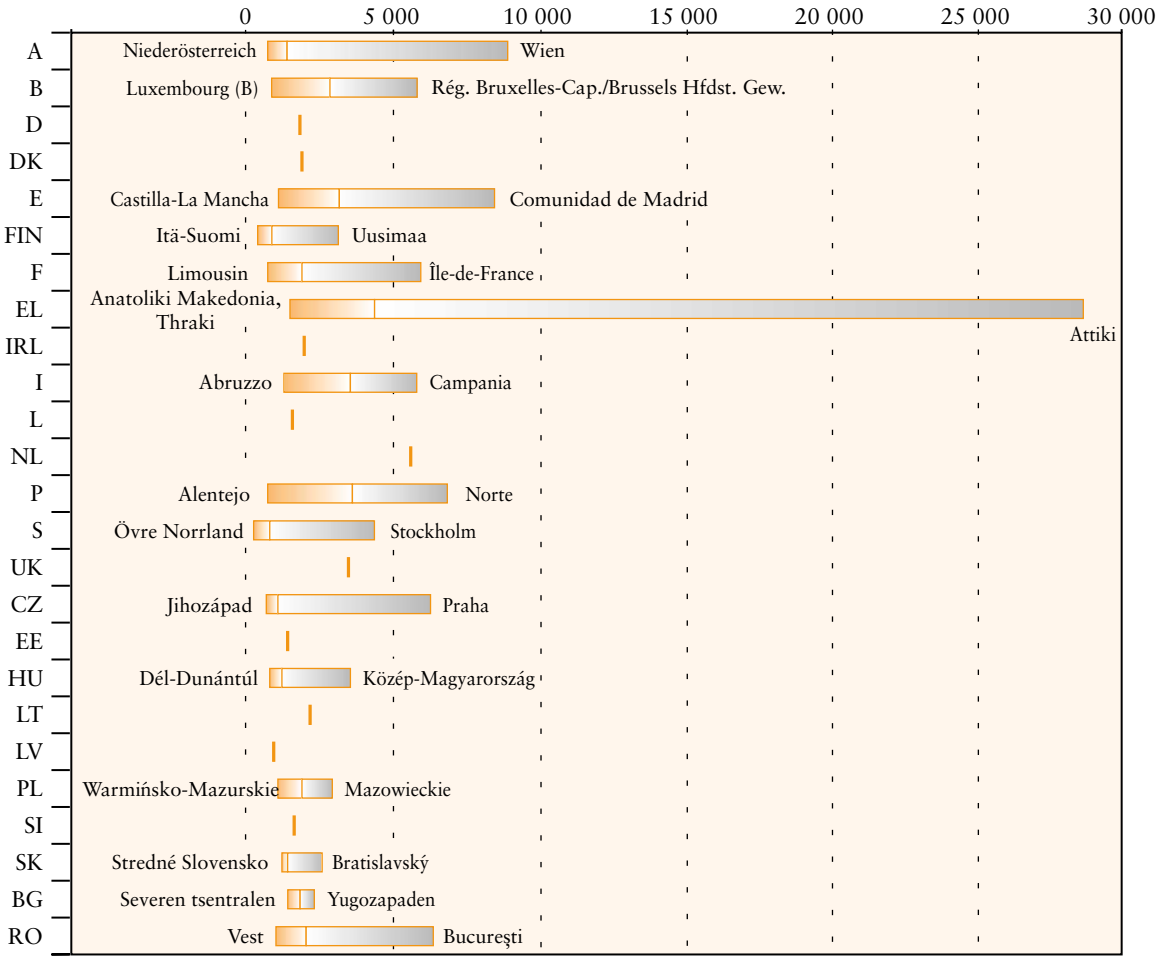
Graph 8.1 shows this indicator for the NUTS 2 regions. For each Member State (i.e. all those which can be broken down into NUTS 2 regions), the regions with the highest and lowest values have been graphed, along with the national average (the broken orange vertical line). This indicator is extremely stable over time since — in contrast to road building — it is comparatively rare for sections of railway to be closed or new sections opened.

- It is striking that the range of the indicator for the regions varies enormously from one country to another. Whereas in Greece the number of inhabitants per kilometre of railway network and thus accessibility is on a scale from 1 485 to 28 709, the difference is smallest in Bulgaria, ranging from 1 473 (Severen tsentralen) to 2 357 (Yugozapaden). The relatively thinly populated areas in the north of Greece, Anatoliki Makedonia, Thraki, contrast with the densely populated region of Attiki which includes Athens.
- Owing to their relatively high population densities, capital cities tend to have a very high density value. Interestingly enough, in a few cases the regions with the lowest national values are those immediately surrounding these conurbations (Berlin and Brandenburg, Vienna and Niederösterreich, Comunidad de Madrid and Castilla-La Mancha).
- Since there are no NUTS 2 regions for Denmark or Luxembourg, only the national averages have been given.

# Transport equipment

This may be defined as all vehicles carrying goods and/or passengers, and hence covers buses, lorries, trains, inland waterway vessels, aircraft, semi-trailers, railway wagons, bicycles and two-wheeled motor vehicles, as well as passenger cars.

## Graph 8.1 — Regional variation in per capita access to railways, NUTS level 2, 2001 (inhabitants per km of railway)




NB: F: 2000; A: 1997; population: 2000.

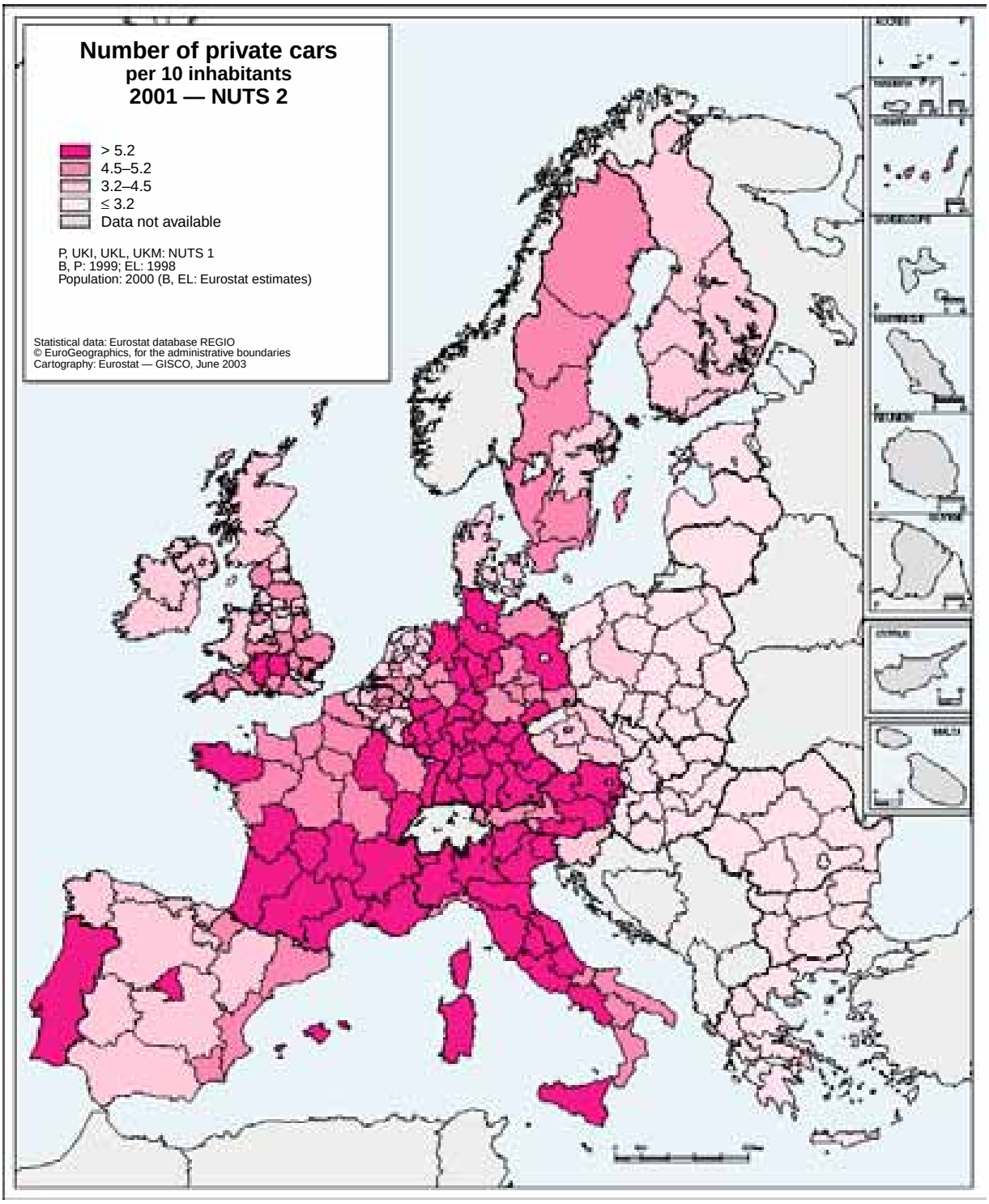
NewCronos has regional data on vehicles at NUTS 2 level divided by category of vehicle: passenger cars, buses, goods vehicles, road tractors, special-purpose road vehicles, trailers, semi-trailers and motorcycles.

This section, however, covers only one of these indicators, namely passenger cars.

Map 8.2 shows the passenger car fleet measured in terms of the number of private cars per 10 inhabitants. This mobility indicator, which also continues to show a rising tendency, ties in closely in many cases — but not in all, as the map shows — with the level of economic development in a region (measured by GDP per capita — see also Chapter 3). There are many German regions which could be quoted as examples, with high values for both GDP and numbers of cars, whereas most Greek regions have low values for both indicators.

However, Map 8.2 shows that there are also a few regions which do not follow this trend.

- In general, larger city core regions have an extensive local public transport network, and the number of cars in these regions may thus be on the low side. Insufficient parking places or very high parking costs in city centres also lead to a drop in the number of cars per head of the city population. The age and social structure of the urban population may also have an effect. At the same time, car density is in many cases relatively high in regions around large cities, reflecting the amount of commuter traffic. Examples would be Berlin with the surrounding region of Brandenburg and Bremen with its surrounding regions in Germany, London with the South-East and Eastern regions and Vienna with Niederösterreich in Austria.




**Map 8.2**

- In the larger NUTS 2 regions which have a core city and an extensive hinterland, car density tends to be distributed more or less evenly. This is the case in Comunidad de Madrid and Île-de-France, where these factors more or less balance each other out.
- High car density may also indicate relative prosperity, particularly in regions with comparatively high average incomes such as the Grand Duchy of Luxembourg, numerous German regions which include major financial centres in the *Länder* of Bayern, Baden-Württemberg, Rheinland-Pfalz, and Niedersachsen and Praha in the Czech Republic.
- The recent expansion of the automobile industry may in some European regions also be a

motor for higher car density. This is the case in the eastern German regions, in Chemnitz in particular.

- Regions whose economies are very much dependent on tourism also seem to have high car densities. The Spanish, French and Italian Mediterranean regions in particular (including the island regions), in some of which there are large numbers of residents who are retired foreign nationals, have a relatively large car fleet.
- In a few thinly populated regions, a car may be essential if the population is to be at all mobile. Such areas include the central Spanish regions around the Comunidad de Madrid, the French regions of Champagne-Ardenne, Auvergne, Limousin and Midi-Pyrénées, and those Finnish and Swedish regions which are outside the capital cities.
- Car density in the central European regions from Estonia to Greece have comparable values, between 3.2 and 4.5 passenger cars per 10 inhabitants.

# Sea transport

Sea transport statistics by region exist in NewCronos at the NUTS 2 level for both passengers and freight. They provide information on goods and passengers transported in the various regions. In NewCronos, two time series go with these indicators. One goes back to 1978 and ends with reference year 1998. Since 1999, a new methodology has been used in the Member States to obtain these regional statistics, which are also shown in separate tables in the database. The two time series are no longer directly comparable owing to the differences in methodology. In the case of the accession countries, these data are still compiled on the basis of questionnaires.

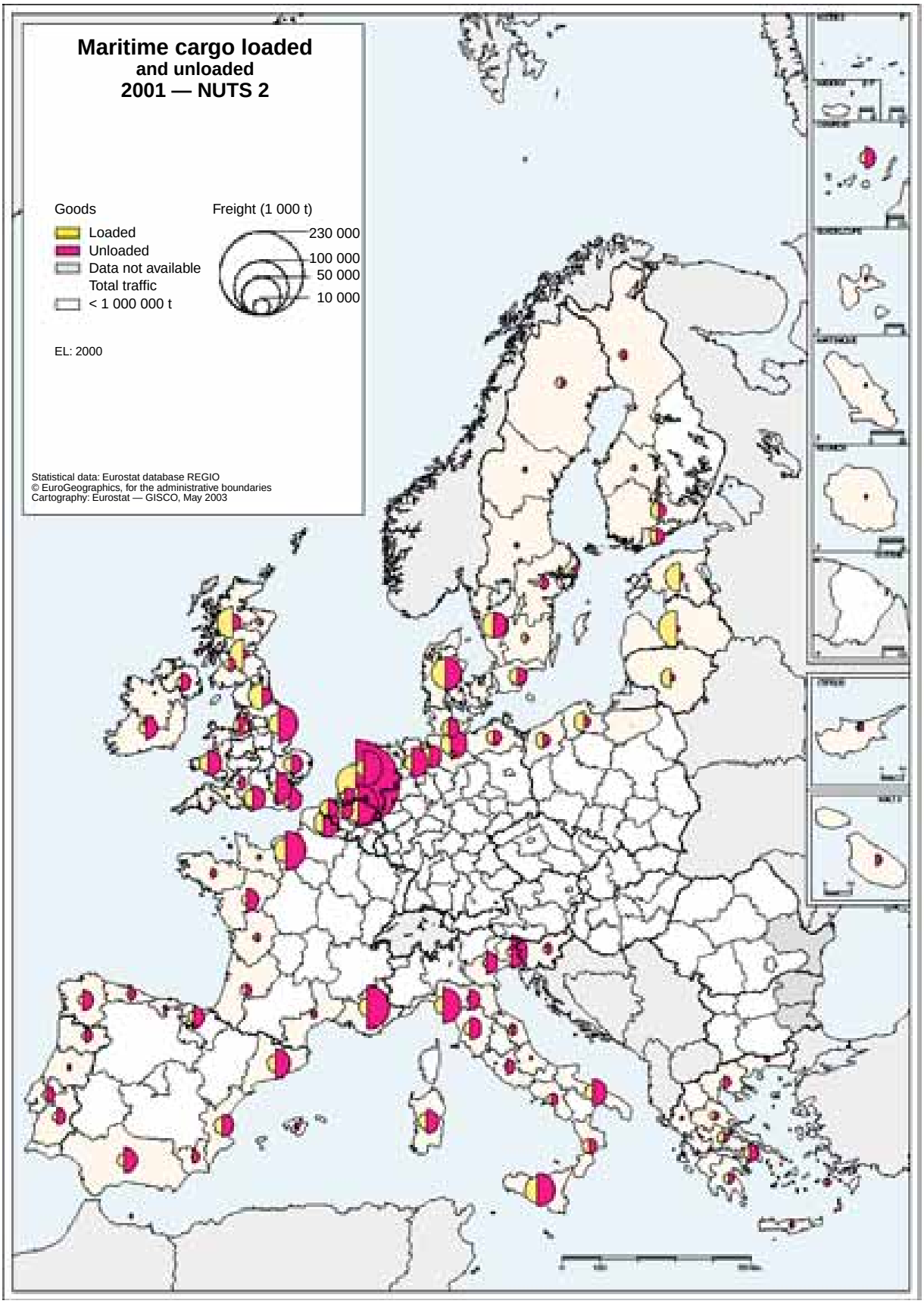
The present regional data on passengers and freight transported come directly from surveys of sea ports conducted under current legislation (Council Directive 95/64/EC). The methodology for intraregional traffic is thus the same at both national and NUTS 2 levels (eliminating the double counting which had existed hitherto).

The data collected under the above Council directive are obtained only for ports handling passengers or freight in excess of a certain threshold. Traffic at small ports is not taken into account, and so Eurostat's aggregate regional values are not necessarily identical to national totals. However, the regional distribution of the volume of traffic can be represented fairly accurately.

Finally, in the data now collected on regional passenger and freight volumes transported by sea, ports are allocated to the NUTS regions on the basis of geography alone, and not with reference to economic interrelationships (as was the case in the past).

The passenger data are divided into passengers boarding and passengers disembarking and freight data in Map 8.3 are divided into tonnes of freight loaded and unloaded. The information in the map refers only to coastal regions with freight ports.

- One striking feature is the marked concentration of substantial volumes of goods unloaded in the region of Zuid-Holland, which includes the port of Rotterdam. This region has over three times the volume of the next highest EU region. The Antwerpen region, with the port of Antwerp, is a further example of this regional centralisation. The effect of these enormous volumes of freight and the need for onward transport has a noticeable impact on goods traffic through much of the European Union.
- In most European coastal regions, many more goods are unloaded than are loaded, a clear indication of the EU economy's import dependency.
- There are some regions, however, where more goods are loaded than unloaded, including the northern regions of Highlands and Islands, Eastern Scotland, Tees Valley and Durham (United Kingdom) and Estonia, Latvia and Lithuania and the Polish coastal regions. The figures in this case show a close correlation with the highly developed industry in those regions and the presence of natural resources, which, in many cases, are transported by sea so that the products can be marketed. A similar argument applies to the Baltic regions and to the region of Zuid-Holland, namely that these are important for onward transport (with very good connections to other modes of transport).
- There are only a few regions where the volumes of freight loaded and unloaded are roughly equal, notable examples being Denmark and the Swedish regions of Sydsverige and Västsverige.


Maritime cargo loaded
and unloaded
2001 — NUTS 2
Goods
Loaded
Unloaded
Data not available
Total traffic
< 1 000 000 t
Freight (1 000 t)
230 000
100 000
50 000
10 000
EL: 2000
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, May 2003

**Map 8.3**

- Some ports are known for environmentally sustainable 'short sea shipping' (including between rivers and seas). Considerable volumes are transported in this way, influencing the spatial distribution pattern illustrated.
- The ratio of goods unloaded to goods loaded is particularly unbalanced in island regions, i.e. more goods are unloaded than loaded (e.g. in Sardegna in Italy, Islas Baleares in Spain and Kriti in Greece). This could well tie in with the main branch of the economy in these regions, namely tourism, and indicate the possible stocking of supplies and equipment. In contrast, these regions seem to produce no freight for shipping.
- Övre Norrland in northern Sweden has similarly high figures for the loading of freight, even though it is very thinly populated. This is probably due to the production of large volumes of raw materials.

# Air transport

NewCronos contains regional statistics at NUTS 2 level on the transport by air of passengers and freight. Two series are also 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.

In EU Member States, the present methodology obtains regional statistics on passengers and freight directly from data collections relating to airports for which there is a legal basis (Regulation (EC) No 437/2003 of the European Parliament and of the Council). This type of data collection ensures that the national and regional data published by Eurostat tally, which was not always the case hitherto. Traffic within a single NUTS region, i.e. between airports belonging to the same NUTS region, is ascertained correctly with the current methodology, which was not the case in the time series from 1978 to 1998, owing to double counting, which frequently overestimated values.

As with transport by sea, data on air transport are collected only for airports which exceed specific threshold values for passengers and freight. This may, of course, lead to differences if national transport figures are aggregated from regional data and compared with total traffic at national level. Traffic at small airports is not taken into account. However, the regional distribution of the volume of traffic can be represented fairly accurately

The data on airports also are now allocated to NUTS regions on the basis of geography, ignoring the economic interrelationships which were taken into account in the past. In the case of the accession countries, these data are still compiled on the basis of questionnaires.

The data on passengers are divided into passengers boarding and passengers disembarking.

The data included hitherto in NewCronos on transit passengers cannot be estimated at present owing to a lack of available data using the new methodology.

Map 8.4 illustrates and analyses air passenger transport.

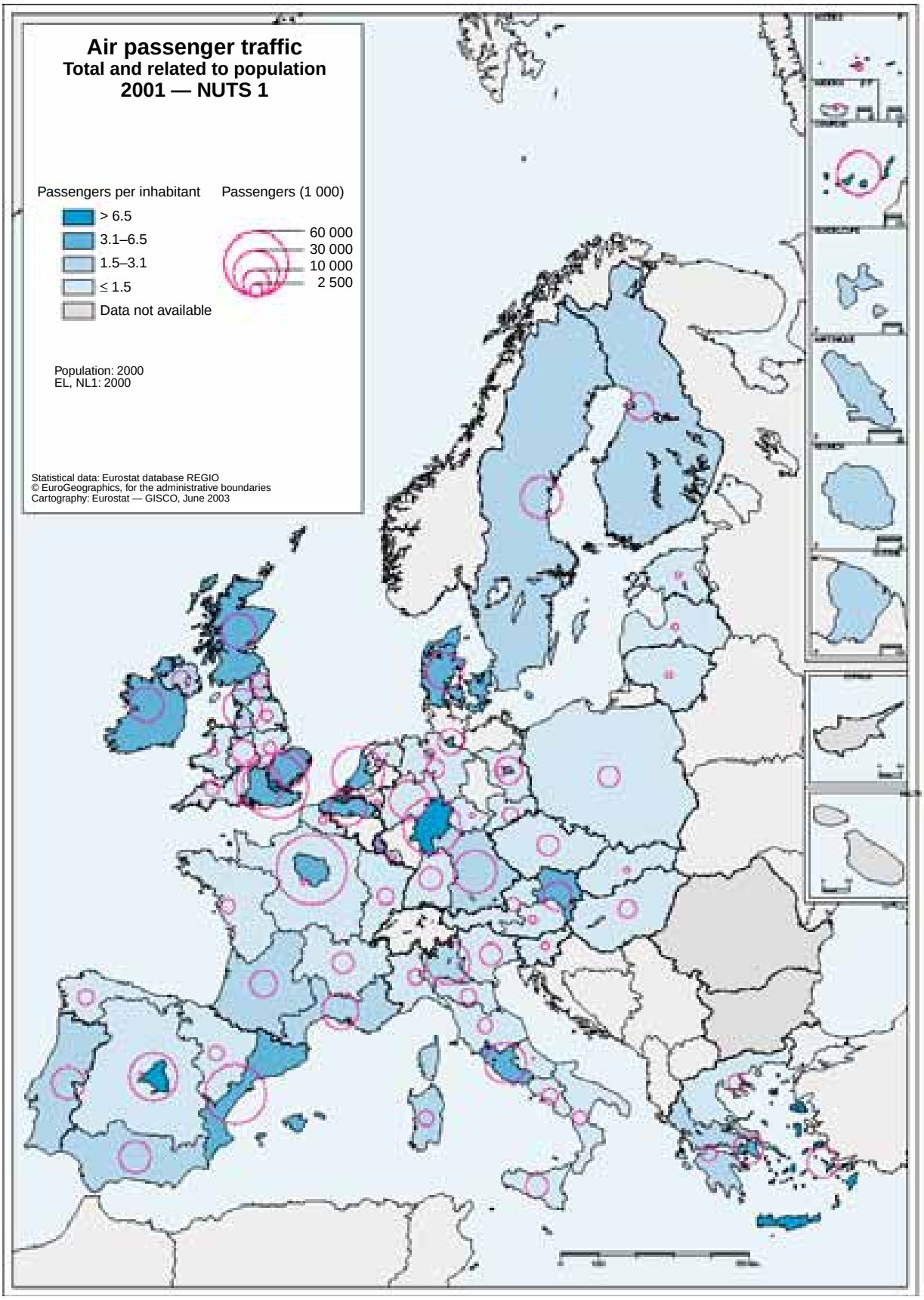
Although data on regional air transport are prepared at NUTS 2 level, the catchment area for a major airport (i.e. the area from which it draws its customers) will in most cases be much larger than this regional level. For Map 8.4, therefore, NUTS 1 regions have been chosen. The area of the circle represents the total number of passengers using the airports in the NUTS 1 region concerned.

London's five international airports are divided up over three NUTS 1 regions (Eastern, London and the South-East).

For Denmark, Ireland, Luxembourg, and Sweden, the NUTS 1 level is the national level.

There is only one value available covering the whole of the French overseas departments (*départements d'outre mer*), and the total passenger figures are thus not shown here by region.

- Bassin parisien is a good example of how airports can attract customers. Although this catchment area is much larger than the Île-de-France region, which it entirely surrounds, its own air transport needs are almost entirely met by Paris airports within Île-de-France.
- The region which includes the capital city cannot always be assumed to be a country's busiest air transport region. In Spain, the tourist region of Este has higher absolute figures than Comunidad de Madrid. The picture is similar in Germany, where Hessen, whose economy is highly developed and which includes the financial centre of Frankfurt, which is responsible for extensive business traffic, has an enormous volume


Air passenger traffic
Total and related to population
2001 — NUTS 1
Passengers per inhabitant
> 6.5
3.1–6.5
1.5–3.1
≤ 1.5
Data not available
Passengers (1 000)
60 000
30 000
10 000
2 500
Population: 2000
EL, NL1: 2000
Statistical data: Eurostat database REGIO
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, June 2003

**Map 8.4**

of traffic (both in terms of absolute numbers and per capita), as well as acting as a hub for long-distance flights. Business traffic is without doubt the reason for the high volumes of traffic in the Italian region of Lombardia, in which Milan is situated, and in the Netherlands regions of Utrecht, Noord-Holland and Zuid-Holland around Amsterdam.

- Increased passenger traffic in island regions correlates closely with the most important branch of the economy in these regions, namely tourism. Examples are Nisia Aigaiou, Kriti in Greece and Canarias in Spain, where the figures for air passengers per inhabitant are particularly high.

# Safety

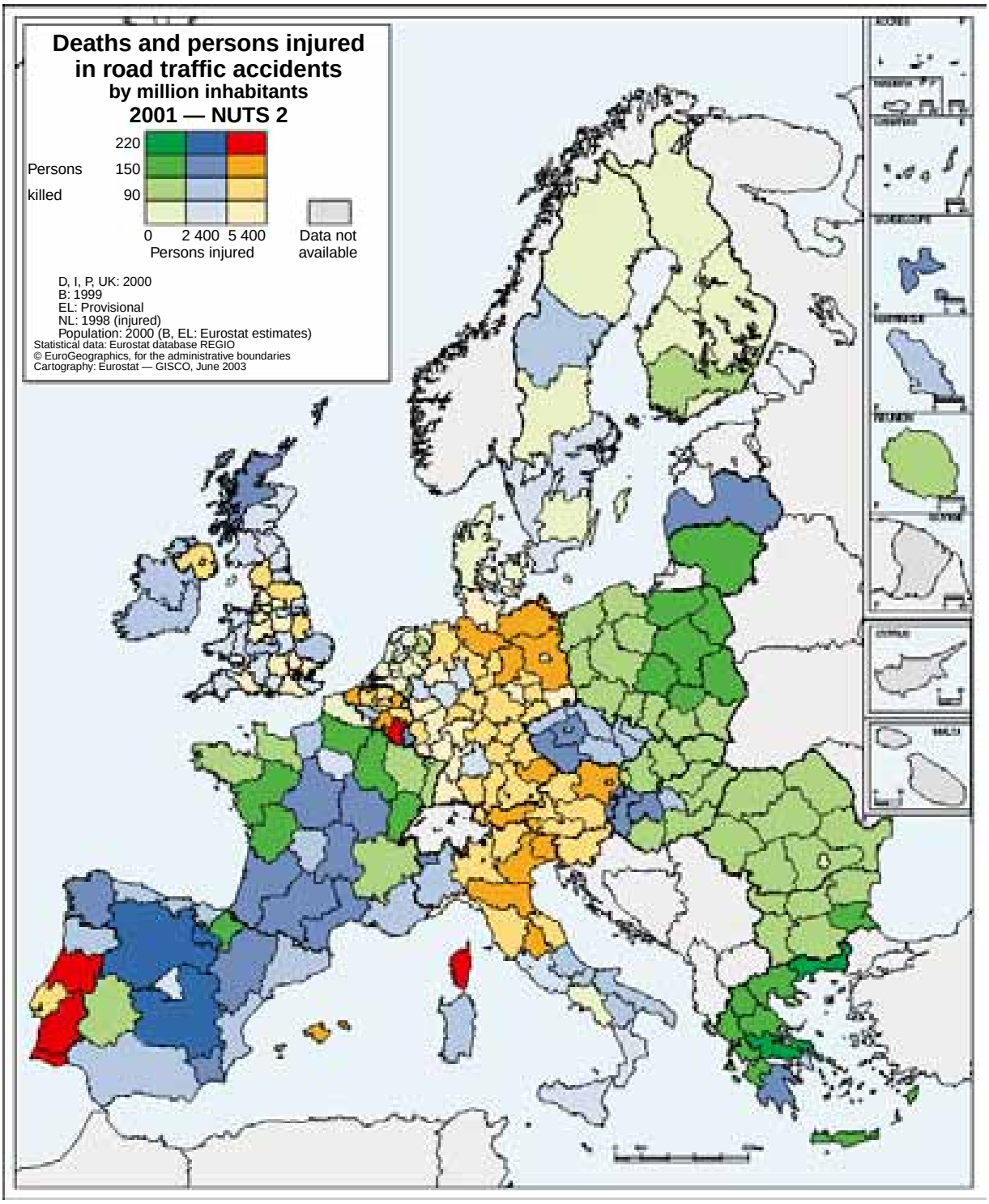
In the NewCronos database, safety is covered at regional level in terms of numbers of persons killed and injured in road accidents. The data are collected at NUTS 2 level, with series going back to 1988.

Map 8.5 classifies the regions according to the ratio of persons killed and injured in road accidents to the total population in the region concerned. Relating the figures to the population smooths out the differences arising from the fact that some areas have a larger population than others.

The deeper the colours on the map, the more persons killed in accidents. At the same time, the number of persons injured in accidents increases as the colours of the regions change from green (via blue) to red. The dark red regions are thus those where accidents have the most serious consequences, as regards both deaths and injuries.

The standard definition of a road accident death covers all deaths within 30 days of the accident. However, this definition is not applied in all Member States, and so some countries which apply a shorter time span have comparatively low indicators. Corrective coefficients for use in these cases are available in the REGIO reference guide, but the data used here have not been adjusted with these coefficients.

- The number of persons killed and injured in accidents varies considerably from one region of Europe to another, from 21 deaths in accidents and 3 007 persons injured per million inhabitants in Ceuta y Melilla in Spain to 369 deaths and 7 253 persons injured per 1 million inhabitants in Alentejo in Portugal.
- The ratio of persons killed to persons injured in traffic accidents also varies considerably. Road accidents have the most serious consequences in the Portuguese regions of Centro, Alentejo and Algarve and in the Belgian region of Luxembourg and the French region of Corse. Both numbers killed and numbers injured are highest in these regions.
- There are very high figures for traffic deaths (over 220) but comparatively few persons injured (under 2 400) in the Greek regions of Anatoliki Makedonia, Thraki and Sterea Ellada, indicating that the chances of survival after a road accident are comparatively low.
- The central European regions from Lithuania to the Greek region of Kriti have a similar pattern to the above in that road traffic accidents are generally fatal and comparatively few people survive their injuries, although the number of persons killed is generally on the low side (90–220 per million inhabitants). Along this axis, it is only in Latvia and the Greek region of Peloponnissos that fatalities and injuries are both high.
- There are over 220 deaths and between 2 400 and 5 400 persons injured in the Spanish regions of Castilla y León, Castilla-la Mancha and La Rioja.
- There are noticeably few people killed and injured in accidents in many of the regions of the Netherlands, in the Swedish regions of Stockholm, Norra Mellansverige and Övre Norrland, in the three northern Finnish regions and Uusimaa, in the Italian region of Campania and in the French region of Nord-Pas-de-Calais, as well as in the Romanian region of Bucureşti.
- In contrast, many more persons survive their injuries in many west German regions from Münster to Freiburg and in central regions in the United Kingdom from Lancashire to Surrey and East and West Sussex, as well as in the Italian region of Liguria.
- Regions surrounding major conurbations such as Comunidad de Madrid in Spain, Berlin in Germany, Brussels in Belgium, Wien in Austria, Praha in the Czech Republic and Bucureşti in Romania, generally have fewer deaths and injuries than areas around them, possibly because people living in the cities make greater use of




**Map 8.5**

public transport, average speeds are lower and there are more motorways.

- In island regions where tourism is important, such as those in France and Greece, the impact of the seasonal influx of tourists on the high values for these indicators should not be underestimated, but owing to the reference to the population figures this effect has not been taken into account here.

It would not be logical to reduce the causes of deaths and injuries in road traffic accidents to only a few factors, since the reasons are generally to be found in a number of different factors. The following could play a part (but the list is not exhaustive): driver training, observance of speed limits and restrictions on drivers' alcohol consumption, increasing car ownership, vehicle quality, distance travelled, antiquated road networks,

national safety standards, the presence of well-equipped and well-trained rescue services, etc.

# Conclusion

In many respects, regional transport statistics show trends which could also be ascertained from economic indicators, and this illustrates the close link between these two fields, a link which is particularly clear if regional infrastructure, car ownership and numbers of passengers and goods transported are correlated with regional gross domestic product (GDP). In many cases, this comparison shows an increase in traffic coupled with growth in the economy. It is also clear that this trend does not arise from individual traffic flows but from networks which are linked to one another, in which integration is essential.

The patterns of distribution shown here also indicate that there are direct links between the transport variables covered, and that economic development in the regions is essentially underpinned by an adequate transport infrastructure. Conversely, a lack of appropriate infrastructure may be a limiting factor in regional development. It has also become clear that, owing to their disproportionately high volumes of traffic, certain regions are much more seriously affected by environmental problems than fringe regions which have less traffic.

For the accession countries, the pattern of distribution is similar to that of the Member States, except that the volume of traffic is not concentrated to the same extent on regions with highly developed economies.

eurostat

# HEALTH

9

# Introduction

The regional health indicators for the European Union, developed by Eurostat to help set objectives in the field of health, comply with standardised definitions and methods which aim to make comparisons possible. If they are to yield high-quality, comparable information on the general health of the population, the data will have to be comparable from one region to another and reflect changes over time. The main non-medical factors governing the health of the population at regional level will also have to be taken into account.

Regional-level health statistics cover two separate aspects. On the one hand, there are data on mortality and morbidity, where the illnesses or diseases in question are defined according to an international classification and comparable methods of diagnosis. The first two sections of this chapter deal with these statistics. Eurostat also collects health sector data on infrastructure, in the broad meaning of the term, and on staffing in the health sector. The third section of this chapter analyses these figures.

# Comments on methodology

The provision of medical and hospital services at national and regional levels is closely linked to total expenditure on healthcare. Between 1980 and 2000, the share of GDP spent on healthcare increased in most Member States, but since healthcare is organised and defined differently at national or regional level, it is difficult to interpret comparisons between countries, whether they relate to figures on given dates or to tendencies (for example, where should the dividing line be drawn between health services and social services?). The EU's healthcare systems depend more and more on gate-keeping and referral systems to ensure that they function properly and that there is continuity of care. Structures for public health differ markedly across countries and public health activities as a whole are highly fragmented, with various authorities involved. Most secondary care is provided by general hospitals. Daycare hospitals and day surgery are gradually emerging as alternatives to inpatient care in countries such as Belgium, Denmark, France, Ireland, Italy, the Netherlands and the United Kingdom. Day surgery is growing in importance in Germany, Luxembourg and Portugal, but remains uncommon in Greece and Spain. There is also an increasing tendency to locate specialised mental healthcare within general hospitals, to coordinate provision with community care and to close down large psychiatric institutions. With regional governments becoming more important, the regions are also increasingly important for the political and administrative management of health issues.

## (a) Socio-health regions

Socio-health regions are defined in very different ways from one regional, provincial or local government to another or from one Member State to another. With regional governments becoming more important, the regions are also increasingly important in Europe as units for the political and administrative management of health issues. In Spain, for example, regional governments have acquired a great deal of autonomy, one practical effect of which is that they manage the whole of the health budget. The situation is very similar in Belgium. Since 1996, France's healthcare reform, introduced to put healthcare planning on a regional footing, has allowed hospitals to be responsible for allocating the budget. Healthcare management is also being drastically reorganised in the United Kingdom, with NHS trusts having varying levels of responsibility. In other Member States, such as the Netherlands and Sweden, the municipalities are responsible for healthcare.

Hence, the difficulty with statistics on health and on medical/health/hospital services at regional level stems from the fact that regional, provincial or local government statistics or the regional breakdown which is of interest to health authorities in the Member States do not coincide with the NUTS and problems may arise with cross-referencing to compare regional statistics.

## (b) Mortality indicators

Eurostat collects data on the absolute number of deaths (at national level and at NUTS 1 and NUTS 2 regional levels). Coding is based on the **primary cause of death** (Section B) on the death certificate. The causes of death are defined on the basis of the World Health Organisation's (WHO) **international classification of diseases (ICD)**, with all the Member States using the 9th or 10th revision. The standardised death rate (SDR) is a weighted mean of age-specific death rates. The

weighting factor is the age distribution of the population whose mortality is being observed. Comparing the SDRs of two or more populations (at the NUTS 2 level in the present publication) means comparing a combination of different age-specific death rates and different population structures which do not reflect the 'real' mortality differences, but also include the effect of the population structure on the total number of deaths and on the crude death rates. 'Premature' mortality (before the age of 65) is in many cases linked to a cause of death whose frequency could be reduced by a change in behaviour (alcoholism, smoking, violent deaths) and that behaviour is in turn linked to social, economic and cultural risk factors. Typologies by cause of death and by age define 'mortality profiles' showing excess mortality or lower death rates than expected. These have been drawn up using ascending hierarchical classification methods, a 'tree' for which is shown on each map.

### (c) Tuberculosis indicators

At national level, it is the WHO programme of collaborating centres for the surveillance of tuberculosis in Europe (EuroTB) which aims to monitor tuberculosis and standardise methods of surveillance. It is largely financed by the European Union (Directorate-General for Health and Consumer Protection) and is managed jointly by the Institut de veille sanitaire (InVS) in France and the Royal Netherlands Tuberculosis Association (KNCV) in the Netherlands. The 51 countries in the WHO Europe region are taking part in the project. At regional level, it is Eurostat which collects surveillance data based on the EuroTB protocols. The criterion for notifying a case of the disease is the presence in a culture of tuberculous bacilli (*Mycobacterium tuberculosis bovis* or *africanum)*. Under Commission Decision 2002/253/EC of 19 March 2002 laying down case definitions for reporting communicable diseases to the Community network, the Member States have to send in information on the epidemiological development and emergence of public health threats due to communicable diseases. Tuberculosis is one of the diseases for which notification is mandatory in the EU.

### (d) Resource indicators

For the indicators of available health resources used in this publication, Eurostat collects regional-level statistics on healthcare workers (numbers of doctors and of other professions) and numbers of hospital beds.

At national level, it collects data on numbers of doctors divided according to existing definitions (**doctors qualified to practise**, who may be working, retired, unemployed or abroad, **practising doctors**, who are those consulted by patients in a hospital, in the doctor's surgery or elsewhere, or **active doctors**, i.e. those employed in the health sector. At regional level, information is not always available in terms of these three concepts, and, in this case, the Member States establish the number of doctors in each region on the basis of different concepts and registers. In most Member States and candidate countries, the number of doctors refers to the number of **practising doctors**. In Belgium, Italy, the Netherlands and Finland, it refers to **doctors qualified to practise** and in Spain to **active doctors**. Ireland and the United Kingdom include the public sector only.

The data on numbers of beds reported to Eurostat are normally presented in the form of annual average numbers of beds used during the reference year, or according to recording concepts or budgetary or planned approval. Not all the figures are readily comparable and they should be interpreted with care, since the definitions of 'hospital' and 'hospital bed' vary from one Member State to another. In general, however, differences in numbers of beds are affected by accounting practices (annual average, years ending 31 March or 31 December, 'official', 'budgetary' or 'planned' beds). Only beds used for full inpatient accommodation are counted. The 'total inpatient care beds' covers all beds in general hospitals (with the exception of cots for infants in good health) and in specialised hospitals, psychiatric hospitals and other establishments treating those with mental disorders, nursing homes, etc. Hospital beds available for nursing care during the day, in medical centres for children, in crèches under medical supervision and in establishments for those with sensory deficiencies are not necessarily included.

## Mortality in the EU regions

By adjusting for the effects of population structure, standardised rates can be used to highlight geographical inequalities in the risk of death. After standardisation by age, the rates vary in a

ratio of 1:2. The geography which emerges is very different from that highlighted by crude rates. There is generally excess male mortality, with rates up to twice as high as those for women. Despite these differences, most of the worst-affected regions have high rates for both men and women.

## Disparities in mortality linked to an accumulation of factors

Many of the regions most affected are those whose economies are lagging. In Germany, France and the United Kingdom, the regions which used to have heavy industry and that are now changing to other types of employment, such as Saarland, Nord-Pas-de-Calais, Lancashire and Yorkshire, have high mortality rates for both men and women. The same applies to eastern Germany, Andalucía (Spain) and Campania (Italy), which, within the countries concerned, are relatively poor regions badly hit by unemployment at present. However, this socio-economic factor is not sufficient in itself to explain mortality levels. The correlation between socio-economic level and level of mortality is not always a close one. Denmark, one of the richest Member States, ranks on a par with Portugal and Ireland where mortality is concerned and, conversely, Greece has below-average mortality overall, at the same level as Sweden. The mountainous European regions (Alps, Pyrenees and Peloponnese) are favourably situated, unlike the former industrialised regions. As well as socio-economic and environmental factors, which frequently interact, one key feature determining differences in mortality is health practices. Differences in mortality figures from one region to another may also reveal inequalities in efficiency or access to healthcare in the European Union.

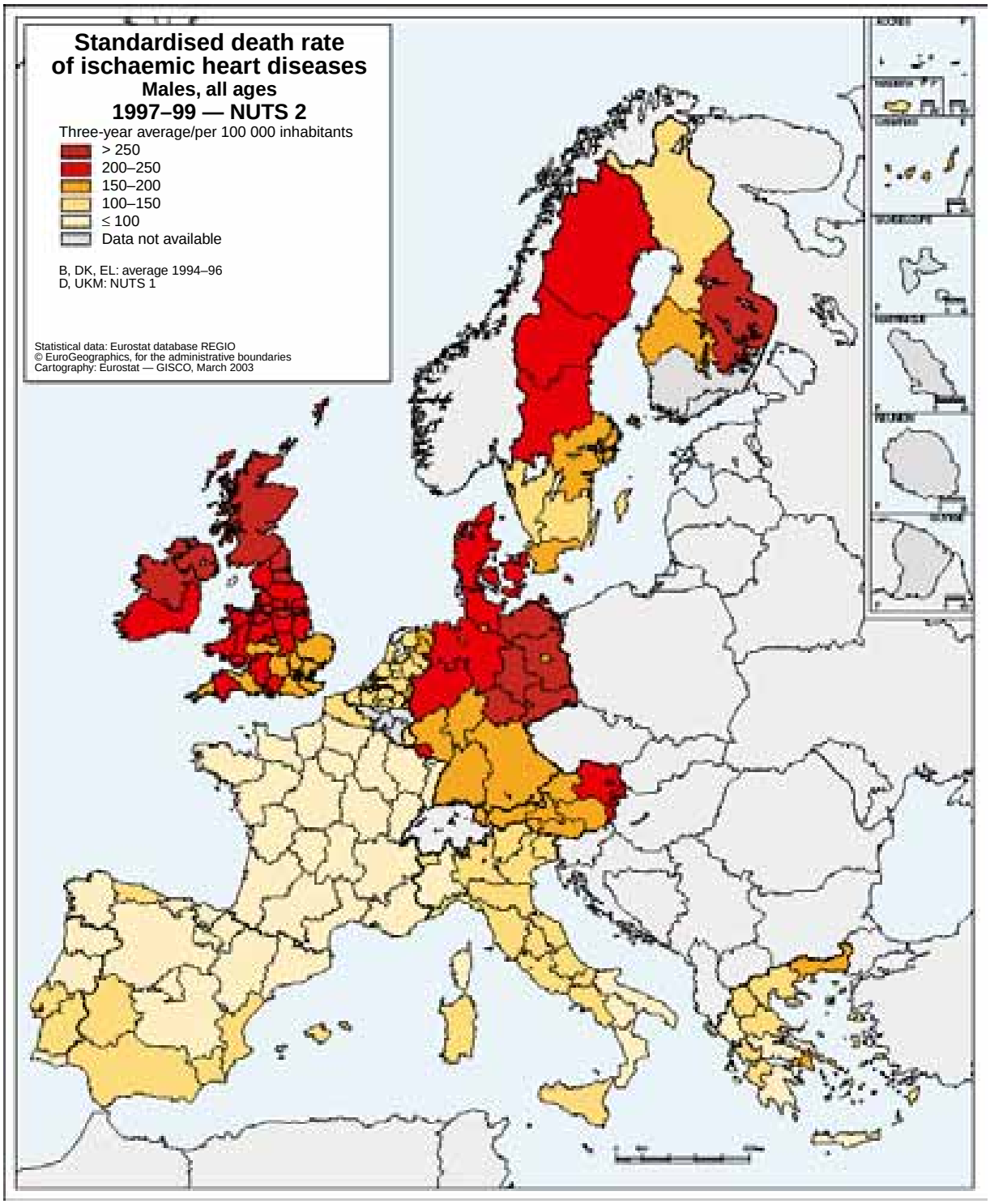
## Widespread excess male mortality, but varying from one Member State to another

Even after adjusting for age structures, differences in mortality between men and women are on the increase. The high proportion of women in the older age groups in the European population explains the similarity between male and female crude rates. But for any given age, the risk of death is much higher for men. Although there is generally excess male mortality in the EU as a whole, the gap is larger in some Member States than others, being widest in France, Finland and Spain, while Sweden, the United Kingdom, Denmark and Greece have relatively low excess male mortality ratios.

## Split geography for ischaemic heart disease

The contrast between the north and the south of the European Union, in particular for mortality linked to diseases of the circulatory system viewed as a whole, is, in fact, largely determined by the geography of ischaemic heart disease, which is similar for both sexes (see Maps 9.1 and 9.2) and is highly specific. There are two opposing groups of countries, one which has clear excess mortality, made up of the British Isles, the Scandinavian countries, the Netherlands and the Germanic countries, and the other with lower-than-expected mortality, comprising Luxembourg, Belgium and the Mediterranean countries including France. There are noticeable contrasts between these two groups, with rates up to five times higher for men and seven times higher for women in one group than in the other. In the south, France, northern Spain and Portugal have the most favourable European rates. In the north, the northernmost regions along with the eastern *Länder* and Saarland in Germany, and Wien are particularly badly affected.

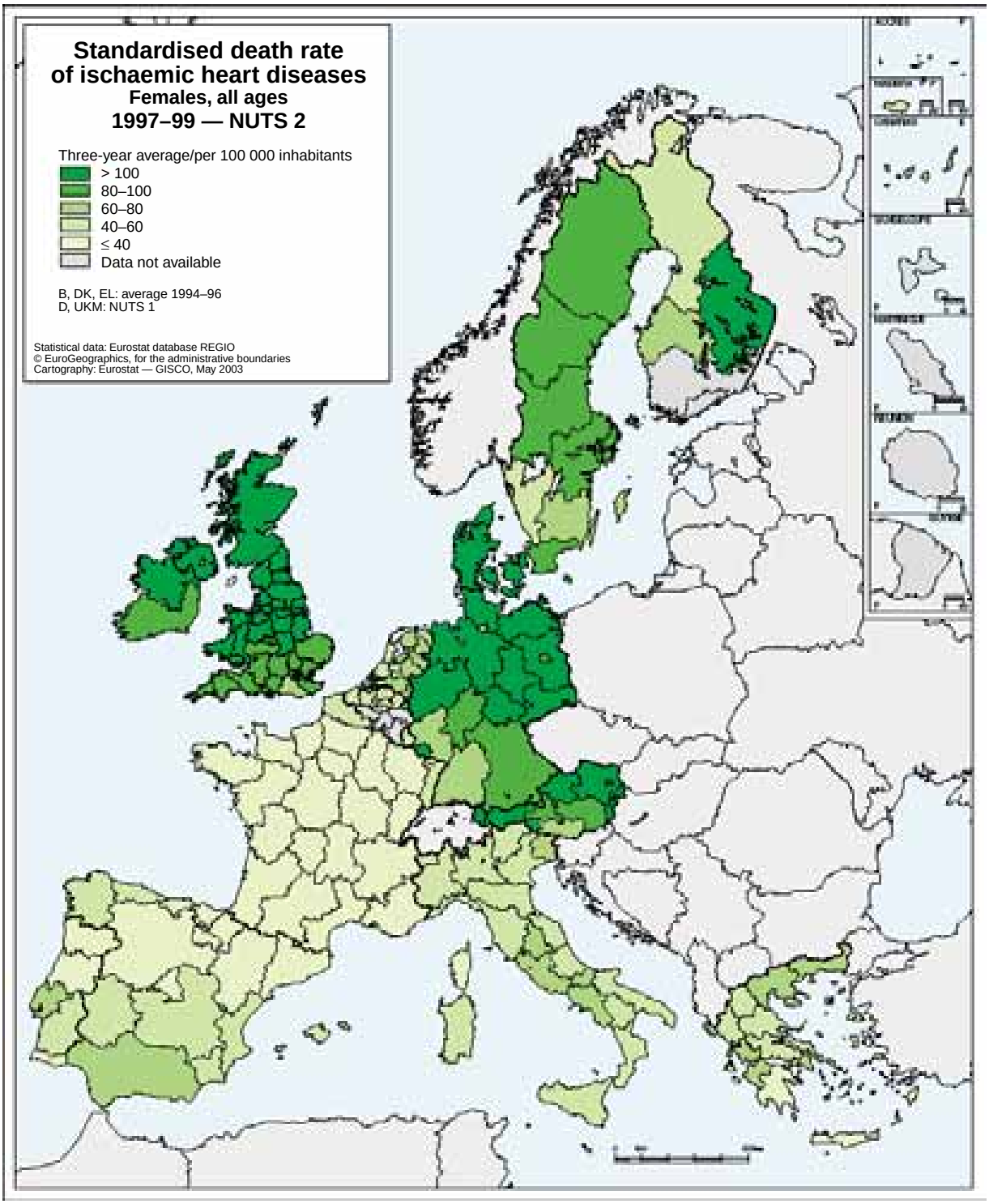
Before these disparities can be interpreted in the light of risk factors or characteristics of healthcare systems, the comparability of certification practices has to be examined. For example, some sudden deaths for which heart disease is responsible may be recorded — depending on certification practice — as ill-defined causes of death or infarction. A recent study comparing France and the United Kingdom showed, however, that, even when data were adjusted according to firm hypotheses, death rates were still much lower in France. Apart from these potential methodological biases, the differences between Member States in deaths from ischaemic heart disease may be explained by eating habits, such as a rich or unbalanced diet with too much fat in the northern Member States. Finally, with ischaemic disease, and infarction in particular, death is sudden, in many cases occurring before the patient reaches hospital. The question of the density of healthcare services, their quality and how quickly patients receive care, both at the time of the attack (emergency services) and upstream (hospital cardiology departments) should also be taken into account as explanatory factors, but specific studies are needed.




**Map 9.1**

## A marked correlation for men between industrial and urban areas and the level of mortality from respiratory tract cancers

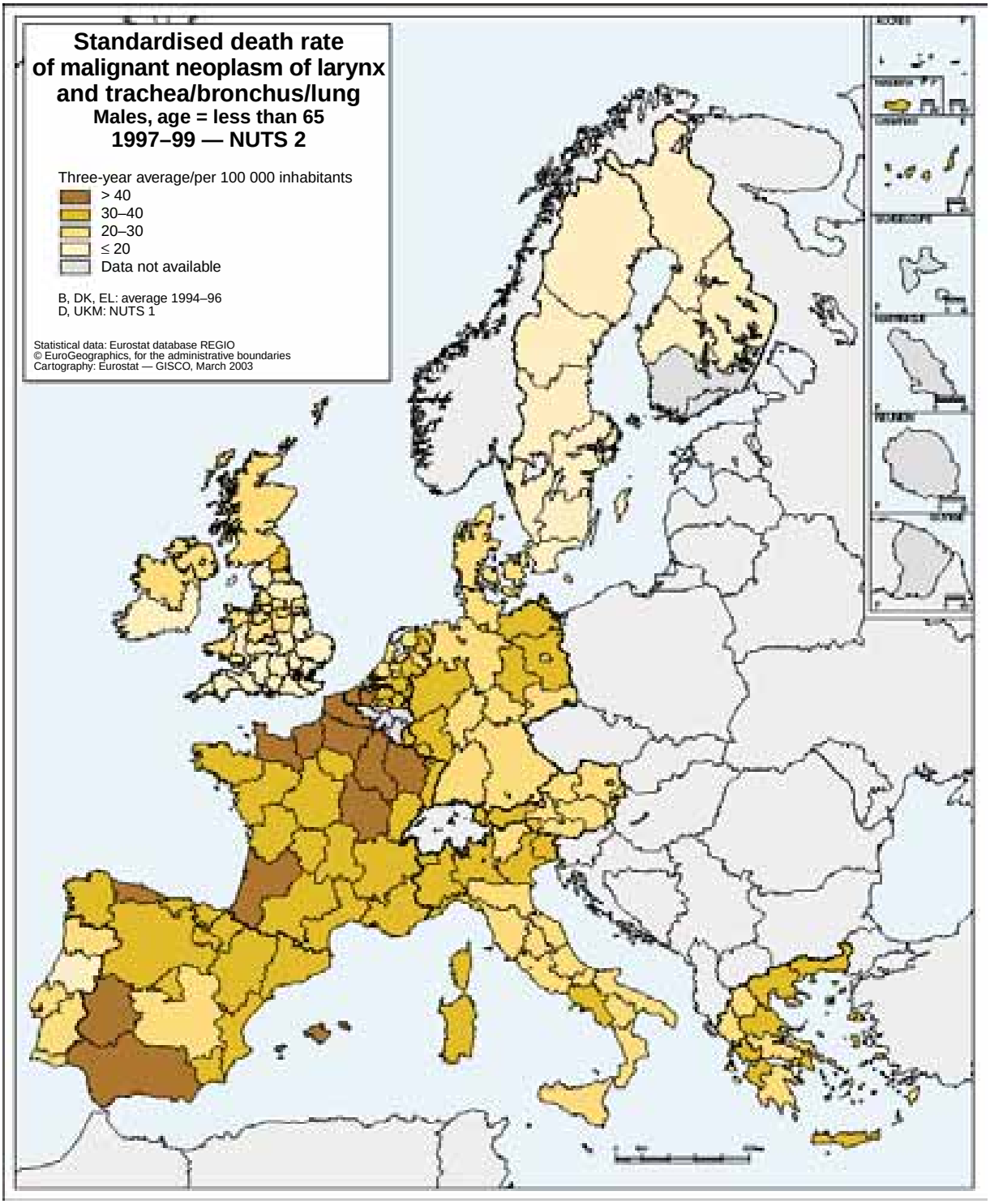
Mortality rates in the male population vary in a ratio of 1:4 according to region. There are noticeable contrasts within national borders (see Map 9.3). Deaths from cancers of the respiratory tract are frequent before the age of 65 (survival times for this type of cancer are short). A map showing the breakdown of premature mortality rates would be very different from the map of mortality at all ages. The northernmost Member States with their relatively low figures contrast with the rest of the European Union. Despite the marked disparities within most Member States, there are national tendencies. In France, for example, the rates are high in all regions. Geographical overlaps across national borders should also be




**Map 9.2**

considered. The majority of coastal regions and Mediterranean islands have excess mortality, from Andalucía to Campania, as do the Atlantic regions from Galicia to Bretagne. With the exception of Austria and Portugal, all countries in the south have high rates, whereas in the northern EU countries the rates are lower than might be expected. Sweden and Finland appear to be very uniform, whereas within the British Isles there are some notable disparities although the mortality level is on the whole low.

The link between smoking and death from respiratory cancer is now well established. Regions with excess mortality are those where tobacco consumption is or has been higher than elsewhere. However, we do not have sufficiently reliable data on the history of tobacco consumption in European regions to allow an accurate measure of this

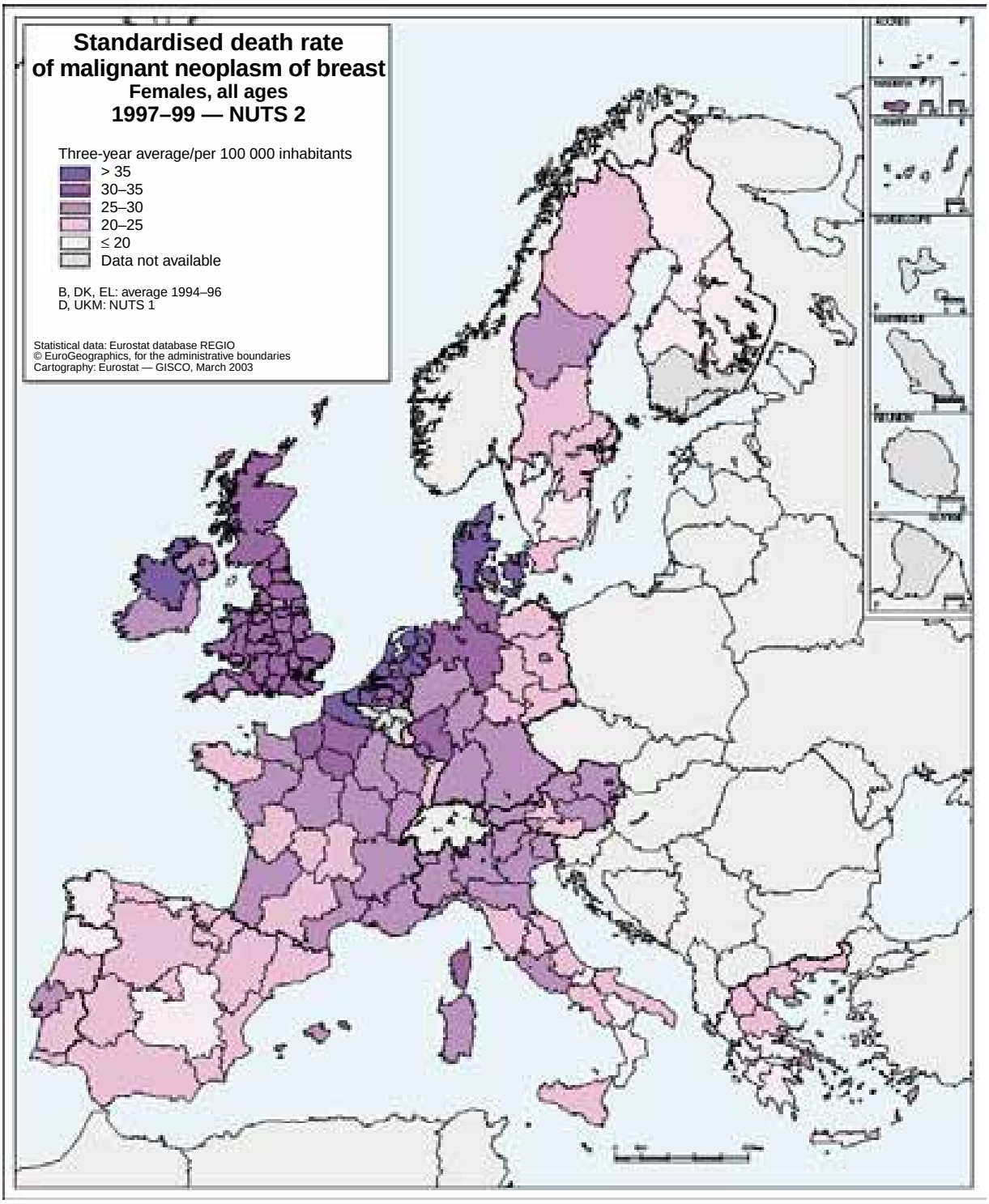



**Map 9.3**

correlation. In industrial areas, the high death rates from respiratory cancer probably indicate mortality in a male population with both high tobacco consumption and more frequent exposure to a polluting environment at work.

## Breast cancers: sharp geographical distinction

Breast cancers are the commonest of cancers affecting women, responsible for more than 4 % of deaths in the female population of Europe. They frequently affect young women: over half of deaths occur before the age of 65. This pathology is the main cause of female mortality between the

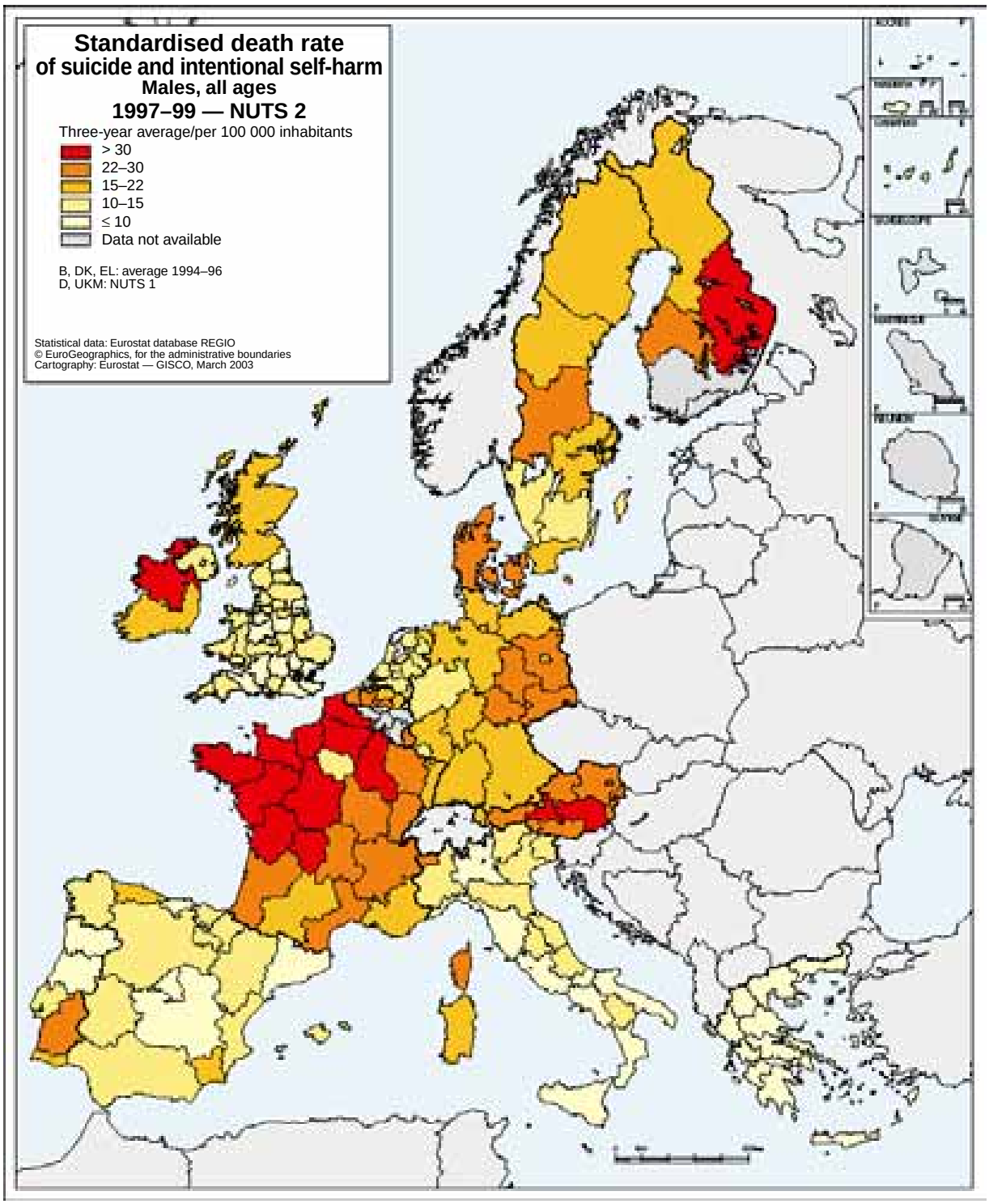



**Map 9.4**

ages of 45 and 64 (over 12 % of deaths). Although the geography of female mortality from breast cancer shows clear gradations, differences in mortality within Europe are noticeably less marked than with other cancers, in particular those of the respiratory tract or upper aerodigestive tract. Death rates are low, in a ratio of 1:2.6, compared with those for these other cancers.

The regional map of breast cancer (see Map 9.4), which is similar for all ages taken together and for persons below the age of 65, shows that the geographical breakdown is not random and that there is a certain amount of continuity. One vast area where there is excess mortality is made up of Denmark, which has the highest rates in Europe, Belgium, the west of Germany, the north of

France, the north of Italy, Luxembourg, the Netherlands, Austria and the British Isles. In the rest of the EU, rates are much lower, especially in Greece, Spain, Finland and Sweden. In Portugal, there is a marked contrast between the north and the south, with the northern regions having lower rates. The Mediterranean islands — Corse, Sardegna, Sicilia and Islas Baleares but excluding the Greek islands — show similar and relatively high rates, higher than in the countries to which they belong. With the exception of Germany, France, Italy and Portugal, where there are noticeable regional contrasts, the breakdown of the level of mortality from breast cancer is generally in line with national trends. There are several recognised risk factors for breast cancer and the geographical breakdown reflects the uneven spread of these factors. Hormonal factors and

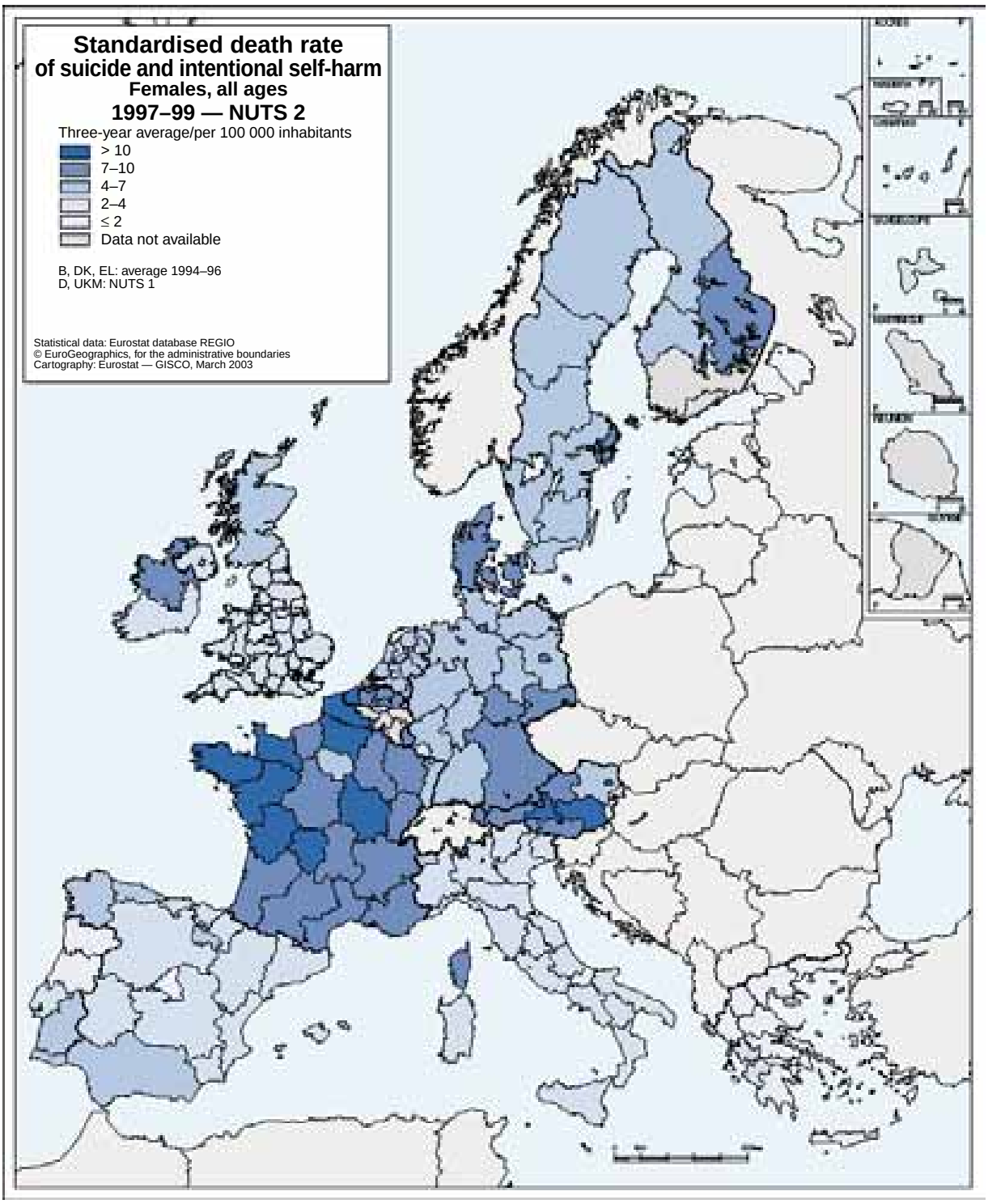



**Map 9.5**

excessive consumption of fats are frequently mentioned as being likely to increase the risk of breast cancer, whereas the consumption of fresh food and green vegetables is thought likely to lower the risk. Genetic factors are also quoted as a risk factor, but more rarely.

## Maps showing suicides reveal national tendencies

Suicide has a major impact on premature mortality. It is the second most important cause of death among young people aged 15–24, after road accidents. Three quarters of suicides are in the population aged under 65. Excess male mortality is very high, with an average European rate




**Map 9.6**

which is 3.3 times higher than that for women. Male and female rates vary in a ratio of 1:20 and 1:50 respectively, depending on the region. Although male rates are much higher, in most European regions there is a correlation between male and female rates (see Maps 9.5 and 9.6). Finland, which has more suicides than any other country in Europe, has high rates in all regions. It is the only European country where suicide is the prime cause of death among young people aged 15–24, ahead of road accidents. The French and Austrian regions as a whole also have high rates, but they are lower in Alsace, Île-de-France and Midi-Pyrénées. The rates are close to the European average in Belgium, Denmark, Germany, Ireland, Luxembourg and Sweden. In Germany, the highest rates are in the *Länder* in the east for men and in urban *Länder* for women. In the Netherlands, the rates are higher for women than for men. Male rates in the Netherlands are close to those in the United Kingdom. These two countries, in the north of the EU, are the exception in having suicide rates which are low in general. The main contrast in the EU is between the southern Member States — Greece, Spain, Italy, and Portugal — and the rest of Europe. In the southern countries, in Greece in particular among the female population, suicide has very little impact on mortality. There are a few nuances, however. The rate is higher in the north of Italy than in the south and, conversely, in Portugal the rates are higher in the south than in the north for men. In Galicia and Asturias, the rates are higher than in other Spanish regions.

It is very difficult to interpret these marked disparities. Among causes of death overall, suicide has led to more discussion than any other as regards the validity of the data both within Member States and in terms of international comparability. The problems raised have to do with the lack of specific criteria for reporting cases of suicide and the lack of autopsies which would enable causes of death to be checked more efficiently, especially in cases where intention is not clear. The propensity to report a death as suicide may also depend on the type of doctor in charge of certification or the socio-demographic characteristics of the deceased. Finally, this propensity may vary in line with cultural or religious criteria. The very low rates recorded in southern countries may thus be due in part to under-reporting. Most studies conclude that deaths by suicide have been underestimated in official statistics, but differences in mortality levels are such that the differences observed cannot be explained altogether by biases in reporting.

# Incidence of tuberculosis in EU regions

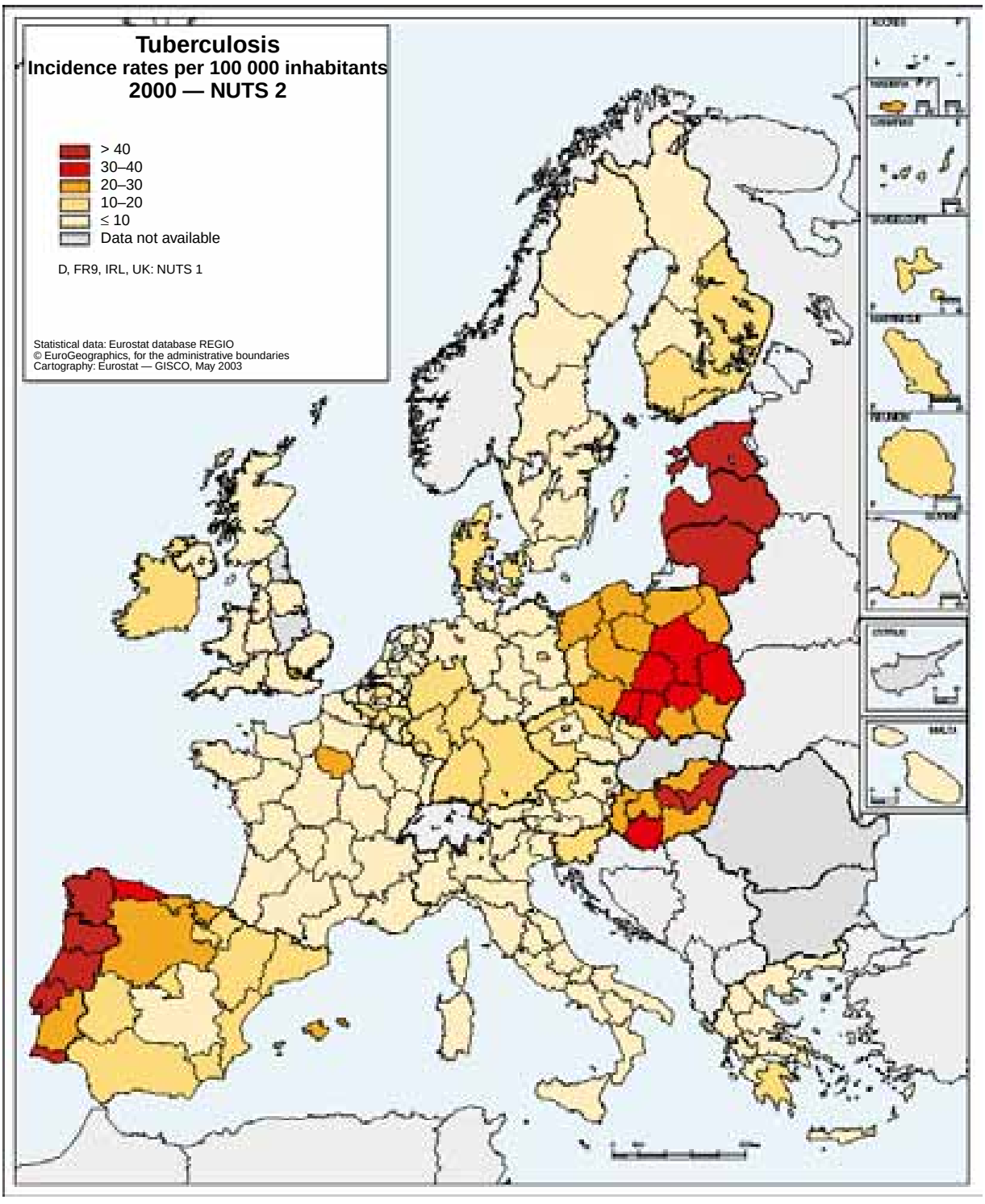
## The return of tuberculosis

In the industrialised countries, the steady decline in the incidence of tuberculosis came to an end at the start of the 1990s, reflecting problems in organising the anti-tuberculosis campaign and exacerbated by the epidemic of HIV infection. As the InVS in France indicated, 20 years ago it was 'politically correct' in Europe to consider that tuberculosis was well on the way to being eradicated (and the figures really did show this), that it was a Third World infectious disease. Many of the structures for combating tuberculosis had been dismantled, and few structures outside hospitals were able to look after patients suffering from it. In addition to these basic factors, there are others which helped this disease to make such a strong comeback: human migration, much of it between countries with a high prevalence of tuberculosis and the EU countries which have a low prevalence; the fact that the population is not adequately covered by health services, especially in isolated rural areas and on the outskirts of major conurbations; the HIV pandemic; the decline in resources allocated to public healthcare programmes to control tuberculosis. The emergence of HIV infection means that seropositive patients frequently develop tuberculosis. The economic crisis of the 1980s in the industrialised countries led to an increase in poverty which, in turn, led to the return of tuberculosis, a disease linked to poverty. Success in controlling tuberculosis depends very much on improvements in socio-economic conditions.

## Cases of tuberculosis reported in 2000

In 2000, 46 846 cases of tuberculosis were reported in the EU, i.e. 12.4 cases per 100 000 inhabitants. Between 1995 and 2000, the rates notified fell by 3 % per annum overall in the WHO western Europe region but increased in Denmark, Luxembourg, Norway and the United Kingdom owing to a rise in the number of cases among people born in other countries. According to EuroTB,

the annual fall in the number of cases is higher in nationals (– 7 %) than in people from other countries (– 1.5 %) (data from 10 countries). In central Europe, annual rates fell by 3 to 6 % in nine countries and increased by 2 to 4 % in Bulgaria and Romania. In the east (former USSR countries), the rates in 2000 were 57 % higher than in 1995, with annual average increases ranging from 5 to 12 % in most countries. In the EU, the incidence is currently falling, after stabilising and then rising in many countries at the end of the 1980s and the start of the 1990s. In many EU countries, however, there is a worsening tendency owing to the increasing numbers of cases reported in patients of foreign origin. The rates were lower than 20 per 100 000 inhabitants in all countries except Spain (21.3) and, the highest of all, Portugal (44.1). Between 1995 and 2000, the incidence fell




**Map 9.7**

by 15.9 %. Exceptions were Denmark, Greece and Spain.

At regional level (see Map 9.7), there are high levels of incidence in regions where there are major cities (Île-de-France, Greater London, Lisboa e Vale do Tejo, Région de Bruxelles-Capitale/Brussels Hfdst. Gew., etc.) contrasting markedly with other regions in the same country (especially in France and the United Kingdom). Elsewhere, the Baltic regions (Estonia, Latvia and Lithuania) and many of the Polish regions (in particular Łódzkie, Świętokrzyskie and Mazowieckie) and Hungarian regions (in particular Közép-Magyarország and Észak-Alföld) also have a very high incidence. Finally, almost all the Portuguese regions (especially Algarve, Lisboa e Vale do Tejo, Norte and Centro) and some Spanish regions (Ceuta y Melilla, Galicia and Principado de Asturias) are clearly above the European average. The distribution of cases is very uniform in remaining Member States other than Germany and Finland, where there is a noticeable contrast between regions in the north and the south.





# Healthcare resources in the EU regions

## Changes in the number of doctors

There has been a steady increase in the number of practising doctors/physicians in most Member States over the past 20 years. The number of doctors qualified to practise is higher than the number actually practising in all countries even though the ratio reported in 2000 varies from one country to another. In Luxembourg, there are comparatively few differences, whilst in Spain they are substantial. Density rates for practising doctors (doctors per 100 000 inhabitants) have increased in all Member States and all the candidate countries over the past 20 years. In 1999, Greece reported rates above 400. In five Member States (Belgium, Germany, Austria, Luxembourg and France), there were over 300 practising doctors per 100 000 inhabitants. In two Member States (the Netherlands and the United Kingdom), the rates were below 200 but the figures for Ireland and the United Kingdom refer only to doctors working in the National Health Service and are therefore not strictly comparable. However, the wide range of densities for doctors may also be explained by differences in healthcare systems.

In some Member States, studies suggest that the number of doctors might increase (need for certain specialists, increased need in the long-term care sector, for example) and in others (the United Kingdom, for example) discussions are under way on the need for more general practitioners and specialists due to the lack of housemen in hospitals. The density rates for doctors qualified to practise vary from 250 per 100 000 inhabitants in Ireland to 599 per 100 000 in Italy, the range being much higher than for practising doctors.

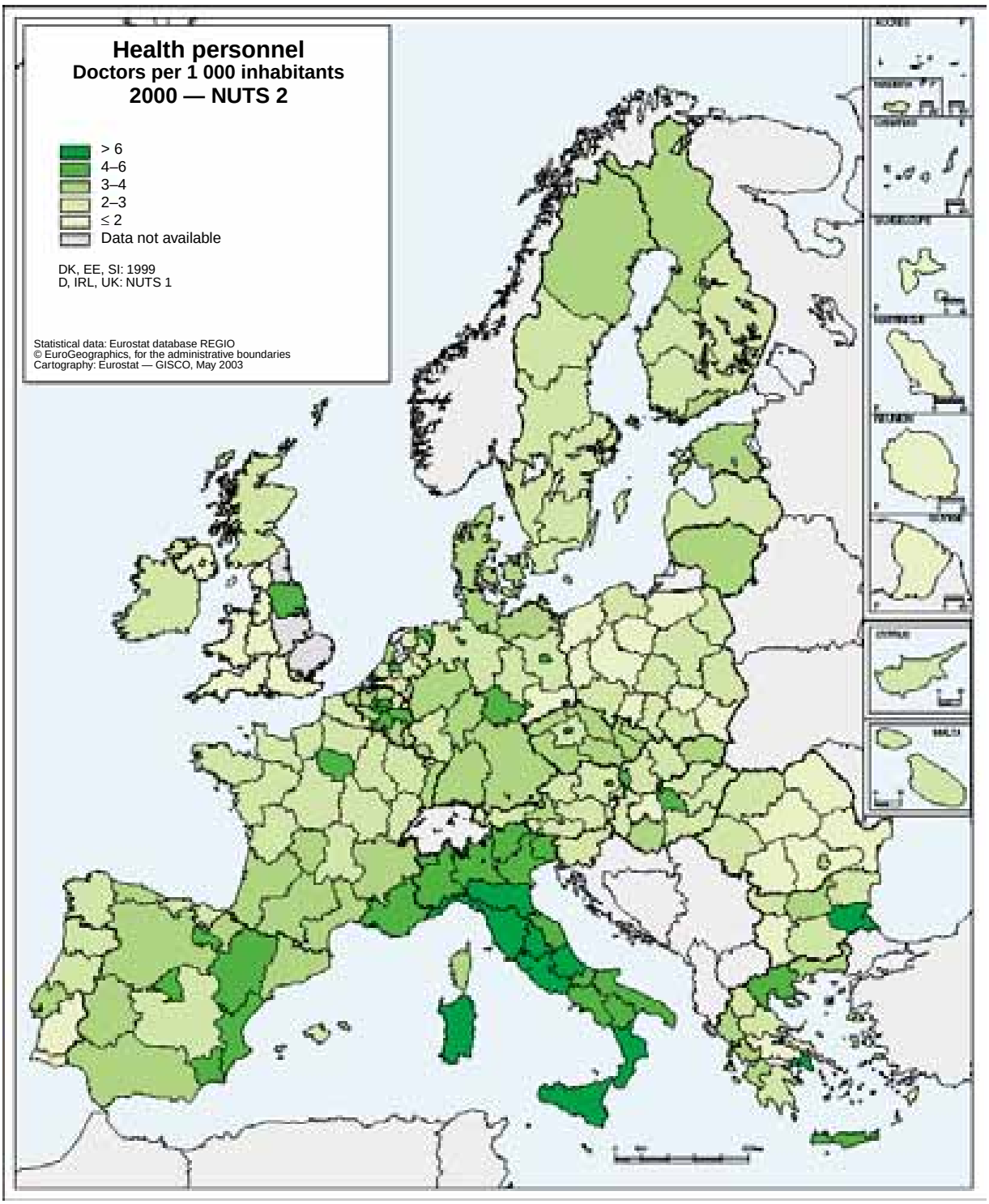
The relevant map (Map 9.8) shows the average regional density of doctors per 1 000 inhabitants using data at the NUTS 2 level for 2000. In some Member States, the rate is fairly uniform from one region to another, whilst in other countries it varies. It is in metropolitan areas such as Île-de-France (France), Lazio (Italy), Région de Bruxelles-Capitale/Brussels Hfdst. Gew. (Belgium), Attiki (Greece), Wien (Austria), Comunidad de Madrid (Spain), Praha (Czech Republic), Bratislavsky (Slovakia), Berlin and Hamburg (Germany) that the density rates are highest. Compared with 1986, the figures have risen in almost all Member States' regions. The lowest figures are in areas with low population density. In most Italian regions and in northern Spanish regions, there is a high density of medical staff and these regions are net 'exporters' of doctors to other regions, in particular to the United Kingdom. This phenomenon is even more noticeable as regards nursing staff. The high density of doctors in the Greek regions of Attiki and Kentriki Makedonia (which include the cities of Athens and Thessaloniki respectively) may be explained by the existence of less strict legislation on recognition of medical qualifications obtained in the candidate countries. Nevertheless, there are no noticeable differences between EU regions and the regions of countries which have applied to join the EU. All regions seem to have a sufficiently high density of doctors with the exception of a few in Greece, Portugal, Romania and the United Kingdom.

## Changes in the number of hospital beds

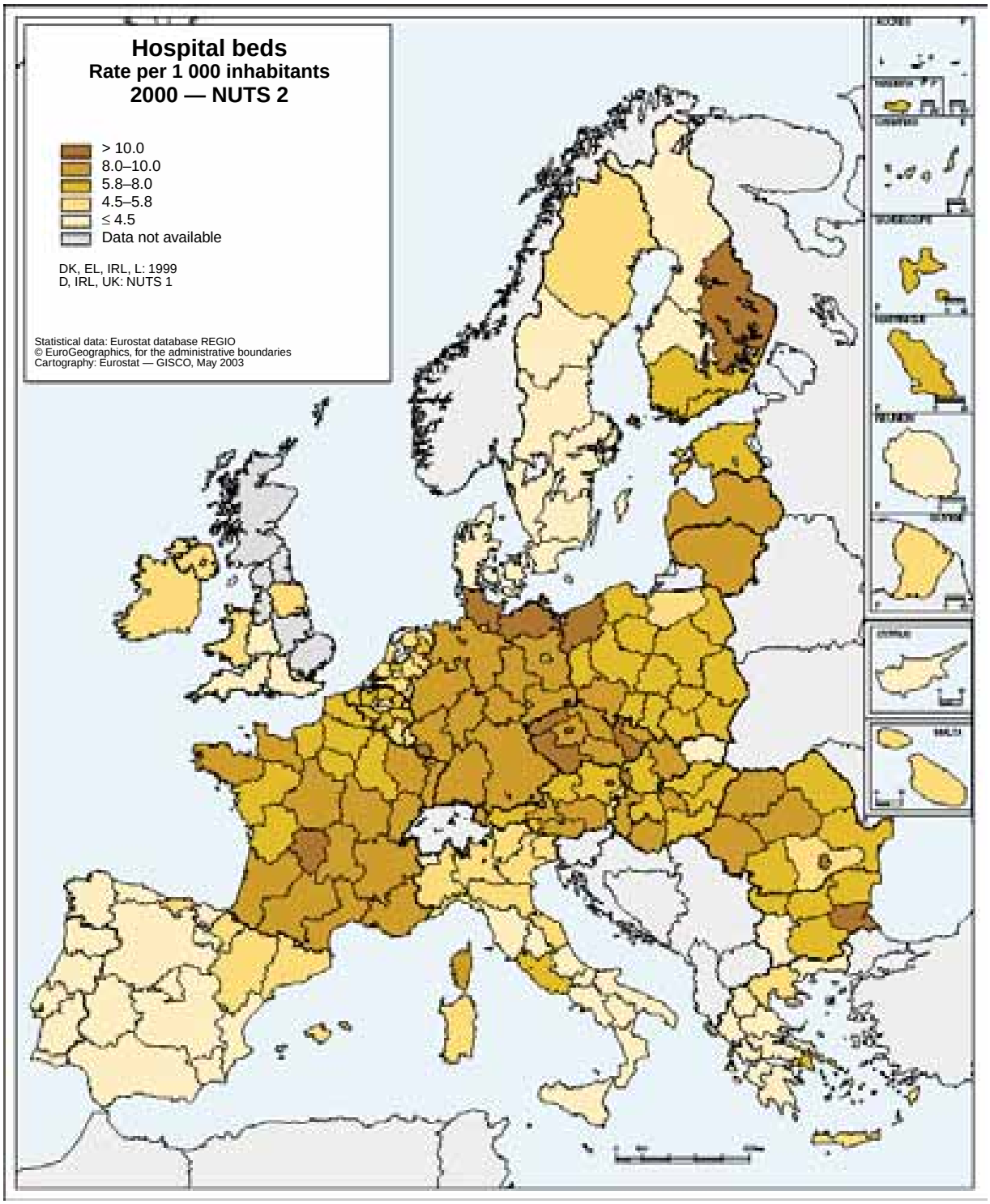
The number of hospital beds per capita shows a quite different trend. Over the period 1980–2000, the number of beds declined sharply in most Member States. For the EU as a whole, there was a 30 % drop, probably due largely to the fact that stays in hospital were cut from 17.4 days in 1980 to under 11 days in 1997. In many countries, the length of time patients spend in hospitals has declined substantially over the past 30 years. At the

same time, there is now less difference from one country to another. In 1980, the highest value (23.2 days) was recorded in Luxembourg and Sweden, and was over 2.4 times higher than the lowest value (9.8 days) recorded in Ireland. In 1996, the highest value was 15.3 days (Luxembourg) and the lowest 7.2 days (Denmark).

A further reason for this tendency lies in the growing financial constraints of the 1990s, which everywhere led to a rationalisation of healthcare services. The increasing demand for healthcare for elderly people, often suffering from chronic disability or illness, was in most cases met by a transfer of beds for acute or psychiatric care to beds for long-term care, with a steady fall in total numbers. Available resources expressed as the number of hospital beds per capita vary noticeably from one Member State to another. Nevertheless, the




**Map 9.8**




**Map 9.9**

supply of hospital services at national and regional levels correlates closely with total expenditure on healthcare.

In Sweden, the United Kingdom and Spain, the number of beds per 100 000 inhabitants is lower than in any of the other Member States (359, 408 and 409 respectively in 1999/2000), whilst it is highest in France (820). These figures include both public and private hospitals, but differ as regards the inclusion of clinical beds and daycare beds. The difference in bed density is still substantial, even if differences in definition are not taken into account.

The share of gross domestic product (GDP) which the Member States spent on healthcare in 1998/2000 ranged from 6 to 10.4 %. There is a certain north–south (plus Ireland) divide, but the difference is not great. Healthcare expenditure

accounted for a higher share of GDP in Germany (10.3 %), France (9.5 %) and Denmark (8.3 %) than in Slovakia (5.9 %) or Poland (6.2 %). Between 1980 and 2000, the healthcare share of GDP rose in most Member States. The level of expenditure depends partly on the prices of goods and services and partly on quantities supplied. In this sector, the problem generally arises because the output of 'health' cannot be measured directly. Whereas figures for goods and prices are readily available in most sectors of the economy, it is impossible to record items such as outpatient or hospital services directly. However, it should be stressed yet again that differences in the way in which healthcare is organised and delimited at national or regional level (e.g. where should the dividing line be drawn between health services and social services?) make it difficult to interpret comparisons between countries, whether these are of figures on given dates or of trends.

The north–south divide applies to hospital beds (see Map 9.9), but with certain provisos. The German, French, Austrian and Finnish regions (headed by Mecklenburg-Vorpommern, Wien, Itä-Suomi, Saarland and Limousin) have a high density of beds, in marked contrast to the Spanish, Portuguese and Greek regions (Algarve and Sicilia, in particular), the United Kingdom and Ireland. Certain border regions such as Yugoiztochen (Bulgaria) or Itä-Suomi (Finland), which border on Turkey and Russia, respectively, also have a density higher than other regions owing, possibly, to inflows of patients from these neighbouring countries.

It is in Spain that the density of beds per 1 000 inhabitants is most uniform (between 3 and 5) whilst it varies most in Austria (between 6 and 12). The number of beds per 1 000 inhabitants is highest in relation to the EU average in Austria, France and Germany and lowest in Spain, Portugal and some regions of Greece. The tendency is very different as regards the number of hospital beds per inhabitant. Between 1986 and 2000, this figure fell noticeably throughout the EU (from 8.3 beds to 6.3). Here, again, there are no noticeable differences between the EU regions and the regions in the candidate countries. All the regions in the latter have a bed density which, in many cases, is higher than in the EU regions. Examples are Severozápad and Střední Morava (Czech Republic), Bratislavský (Slovakia), Bucureşti (Romania) and Zachodniopomorskie (Poland).

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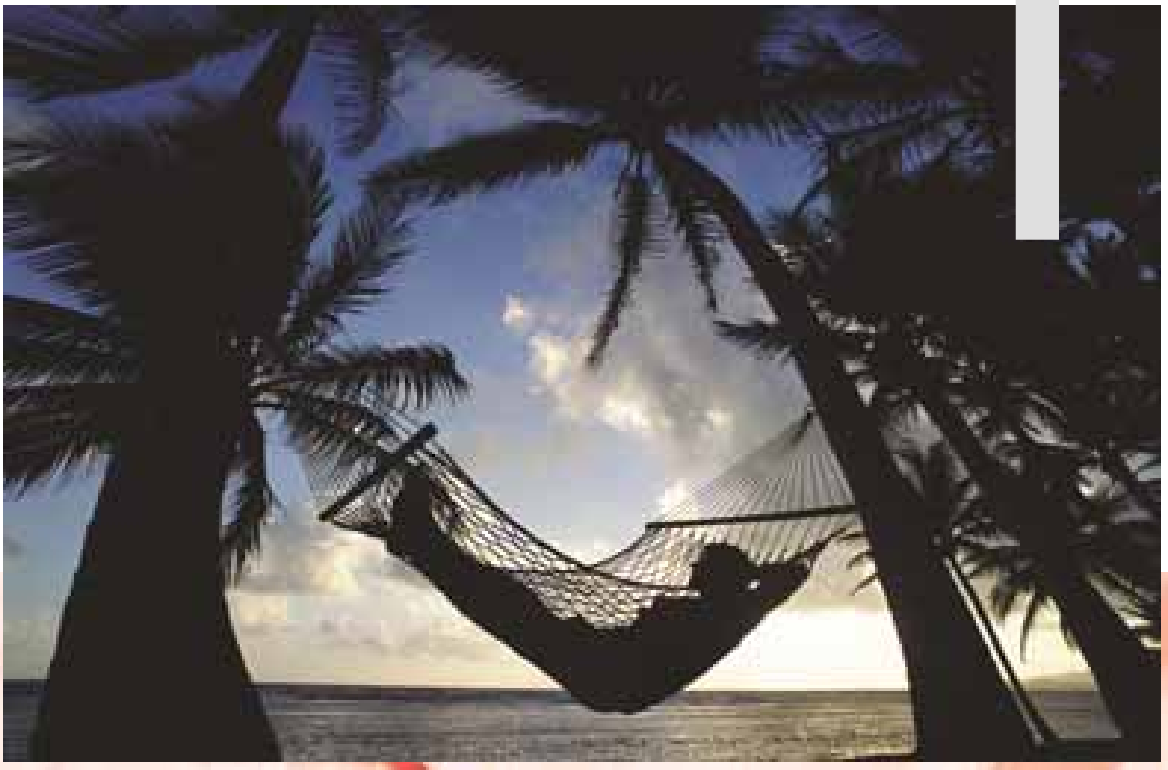
# TOURISM

10



# Introduction

At the time of the foundation of the European Community, tourism was limited in volume by financial constraints and geographically by transport limitations, frontier formalities and linguistic barriers. In the European Union of 2003, the picture is very different. Package holidays provide affordable access to geographically remote parts of the Union, while widespread car ownership and a good network of motorways has made frequent shorter holidays in nearby regions possible. With the accession of the Nordic countries to the Schengen Agreement, border formalities are fewer than ever or non-existent and language skills are increasingly valued in the tourist trade. These trends have been accompanied in parallel by the emergence of many European regions with a pronounced orientation towards tourism, in terms of both the infrastructure provided for visitors and the importance of the tourist industry for the region's economy.

Eurostat has collected statistics on tourism at regional level since 1994. The coverage is twofold: capacity and occupancy. Capacity refers to the accommodation infrastructure that is available to the tourist in the region concerned. Occupancy provides statistics on the number of nights spent in hired accommodation in a particular region.

Since the enlargement process is ongoing, Eurostat has recently started to collect data from the future member countries. For the first time, these data are included in the respective maps.

# Methodological notes

Although throughout this chapter, for reasons predominantly of cartographic clarity, the regional level adopted for the analyses is that of NUTS 2, Eurostat's REGIO database, in fact, contains extensive data at NUTS 3 level.

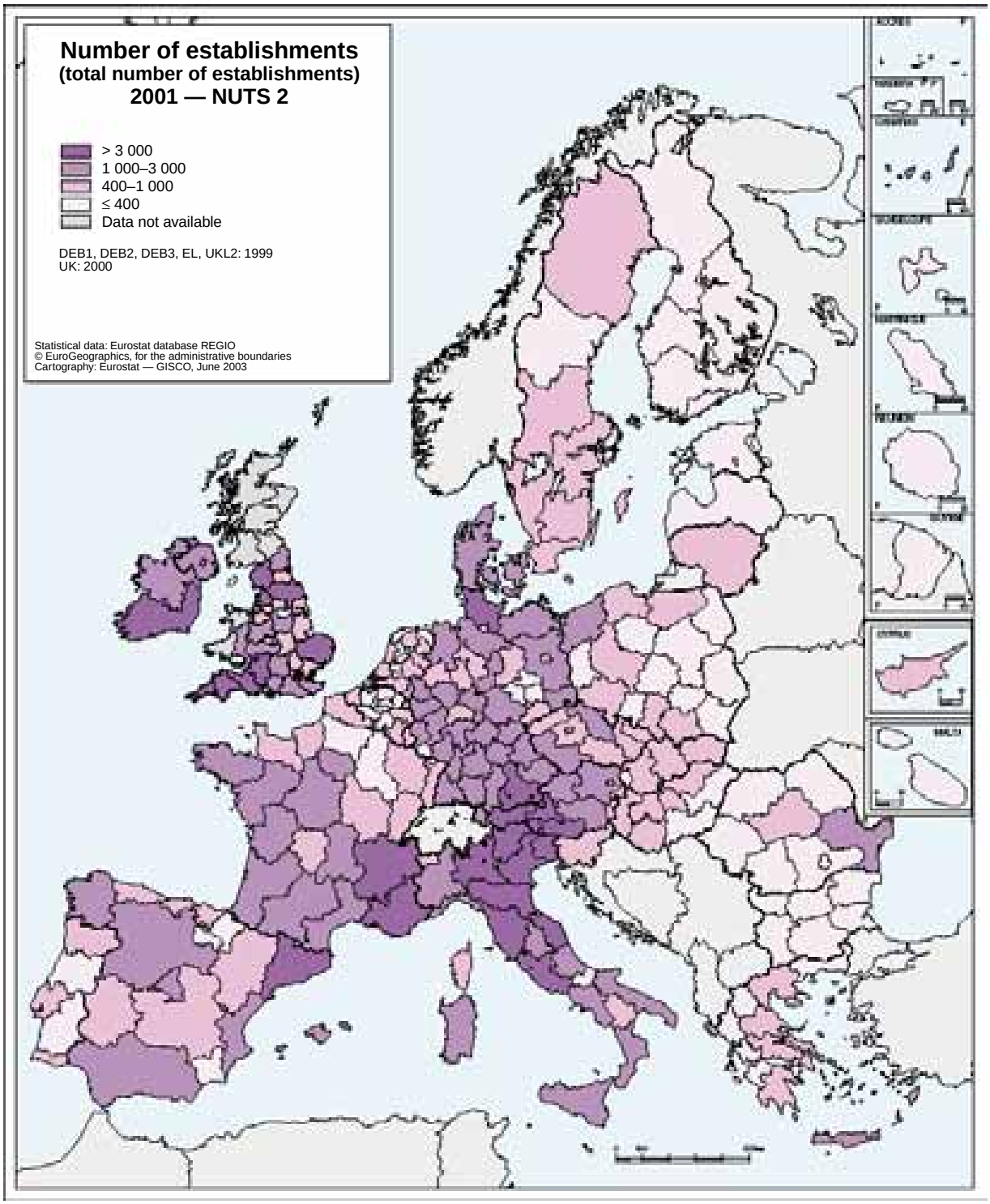
# Capacity (infrastructure) statistics

Map 10.1 clearly illustrates the total number of bed places per region. It becomes evident that most of the accommodation establishments are to be found in tourist regions, above all in northern and central Italy, southern France and north-east Spain as well as in Vorarlberg and Tirol in Austria and Bayern in Germany. Regions with a lower density of hotels are to be found in Portugal and in central France, as well as in parts of eastern Germany.

Amongst the accession countries, those with the largest tourism capacity are the Czech Republic (Severovychod), Poland (Zachodniopomorskie) and Hungary (Nyugat-Dunántúl). To give an idea of their capacity, the Czech Republic and Poland can be compared to Ireland or the Netherlands, while Hungary's tourist capacity is comparable to Belgium's.

Turning specifically to campsites, Map 10.2 examines the availability of this kind of accommodation, but in a form which takes account of the region's permanent population. Unsurprisingly, urban areas, especially regions around capitals like London, Berlin or Vienna, have few campsite places per head of population. Darker shaded areas of the map indicate regions with a much greater per capita prevalence of campsites.

- Although all of France has, in general, an excellent supply of sites, they are concentrated particularly on the Atlantic seaboard, from Bretagne to Aquitaine, and in Languedoc-Roussillon on the Mediterranean.
- In Belgium, there are especially two distinct high-density camping zones. West-Vlaanderen on the North Sea coast is similar to neighbouring Zeeland in the Netherlands, while the high number of campsites in the province of Luxembourg, in the Ardennes, is a pattern that continues into the Grand Duchy of Luxembourg, and, to some extent, into the region of Trier in Germany.
- Mountainous terrain can also be popular with campers, as is evident from Kärnten in Austria and Valle d'Aosta in Italy.
- Although France's Corsica (Corse) has a relatively good supply of campsites, this is not true of a number of other island holiday destinations in the Mediterranean, such as Crete (Kriti) in Greece, the Balearic Islands (Islas Baleares) in Spain or Sicily (Sicilia) in Italy. It is probable that package holidays combining flights with hotel accommodation explain the pattern.

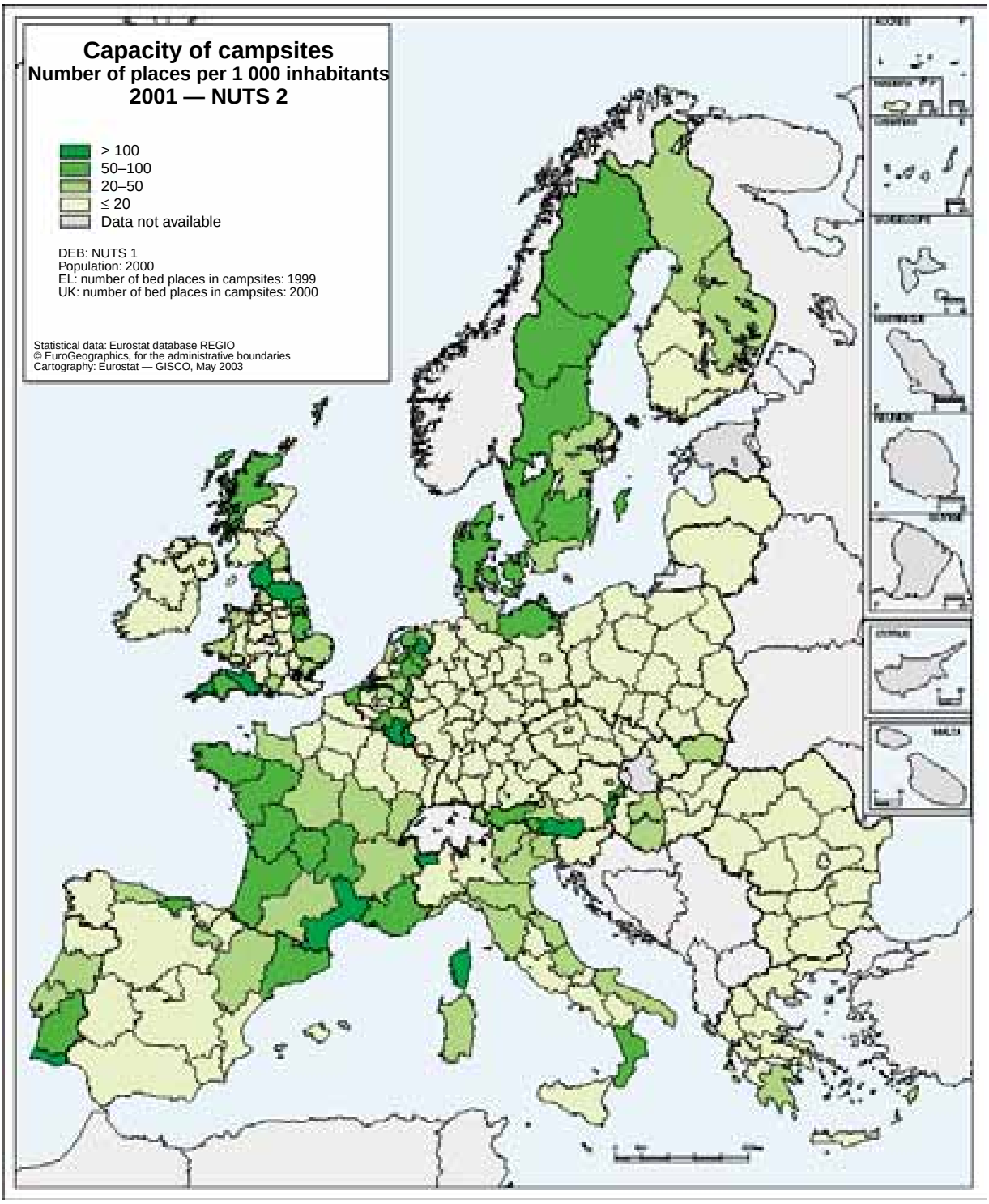



**Map 10.1**

- In the candidate countries, the highest number of bed places in campsites per capita can be found in Hungary (Közép-Dunántúl and Dél-Dunántúl) and in Slovakia (Vychodné Slovensko). These regions are comparable as regards the capacity of campsites to regions such as Antwerpen (Belgium), Bourgogne (France) or Lisboa (Portugal).

In a similar way to Map 10.2, the number of hotel beds in a particular region is shown in Map 10.3 as a proportion of the region's population.

Some classic destinations for package holiday flights, such as the Balearic Islands in Spain and Algarve in Portugal do indeed have a very high supply of hotel accommodation per head of

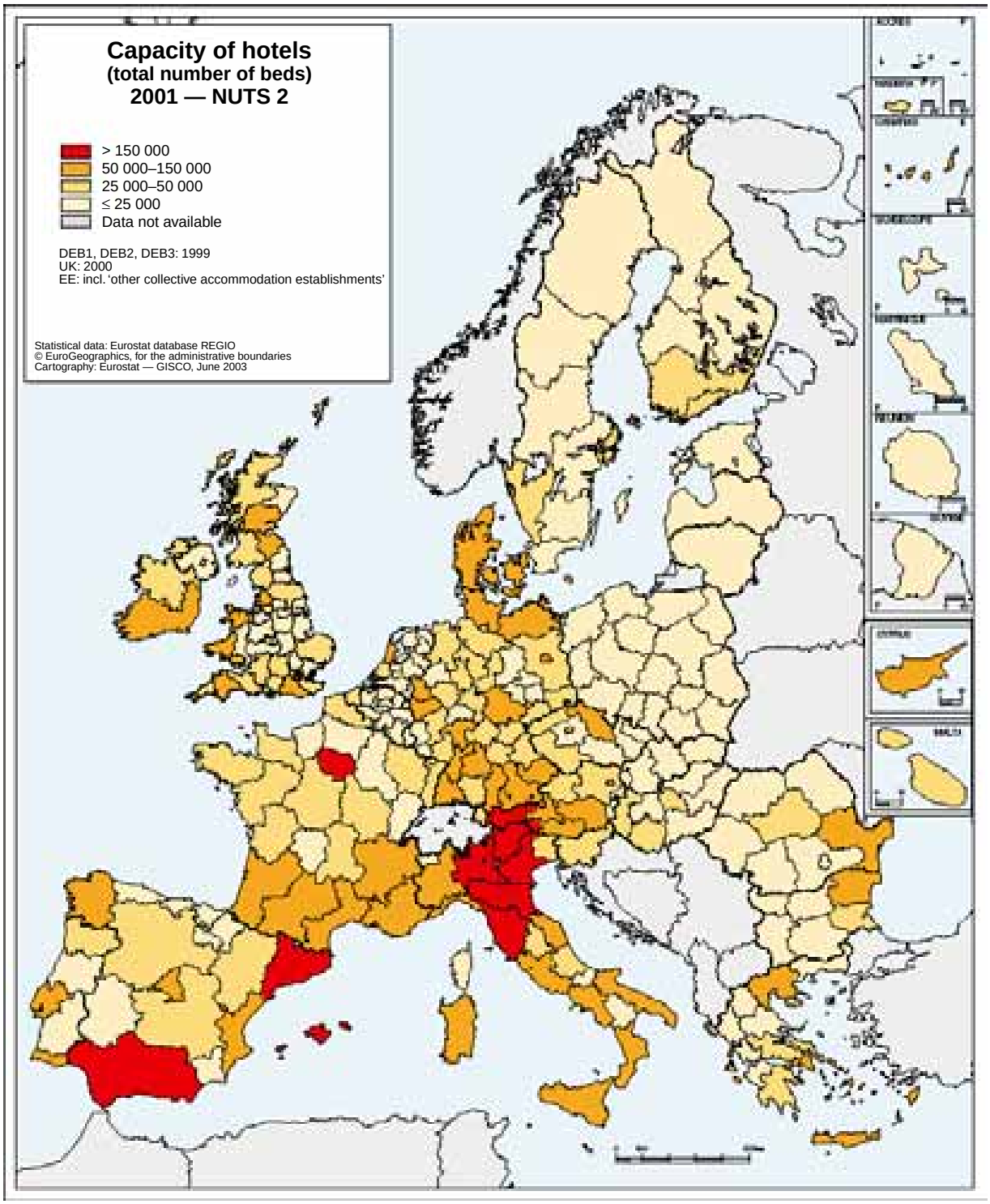



**Map 10.2**

population. To these traditional destinations in the European Union, one can add the island of Cyprus which has a hotel capacity similar to Algarve.

That tourism can be a year-round phenomenon is shown in a typical way by the two parts of the Tirol region in Austria.

Many holidaymakers do not, of course, fly to their destination, especially on shorter breaks, which are becoming more and more popular. A number of regions with an extensive hotel infrastructure lie within comfortable driving range of major concentrations of urban population. Examples include West Wales and the Valleys, and

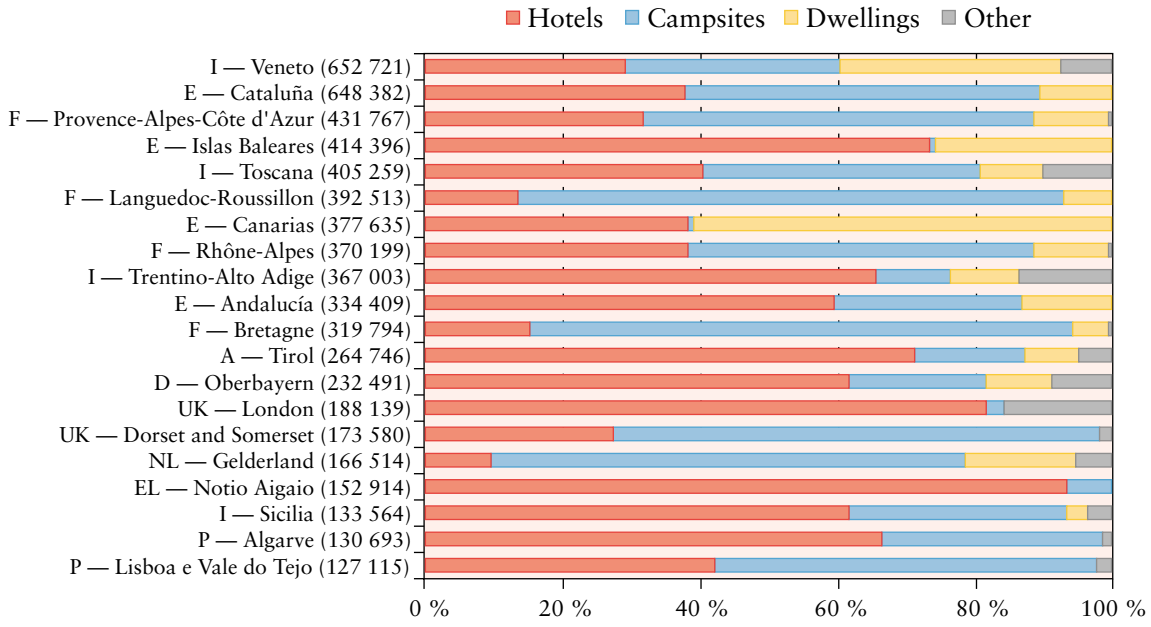



**Map 10.3**

Dorset and Somerset in the United Kingdom and the Black Forest region in Germany. However, central Sweden is also quite attractive for short holiday breaks.

While urban centres generally rank low in hotel beds per head of population, in Europe there are a number of cities which are of such extreme importance in world as well as European tourism that they defy this trend. London and Greater Paris are the most striking examples.

**Graph 10.1 — Top 20 tourist regions; bed places by accommodation type, 2001 NUTS level 2**




# Occupancy data

While tourist infrastructure figures, such as those examined in Maps 10.1 to 10.5, yield an indication of the accommodation capacity available in a specific region, it is important to know the extent to which this capacity is actually used. Some measure of occupancy is therefore required. At NUTS 2 level and for the years 1994–2001, the REGIO database holds data on arrivals and nights spent. These figures are further broken down into residents and non-residents. Non-residents are defined as persons of a nationality other than that of the country in which the region is located.

Given that this indicator is measured here on a per capita basis, regions of high population density, such as those that include Madrid and the Ruhr region in Germany, do not rank high in terms of total nights spent.

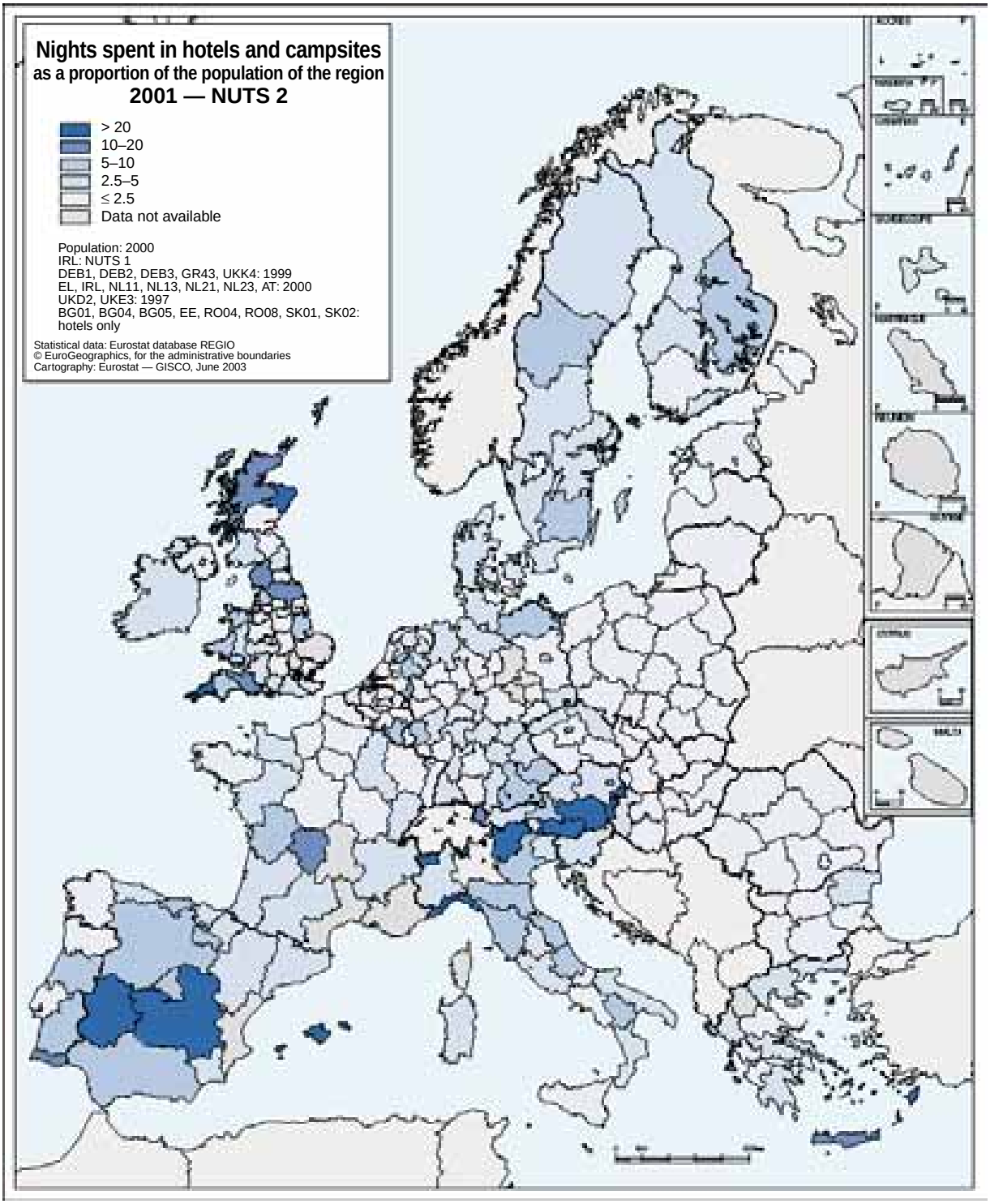
The most striking feature of Map 10.4 is an almost continuous belt of higher-than-average occupancy, probably reflecting summer family holidays, that runs from France's Mediterranean coasts to Marche in Italy and Comunidad Valenciana in Spain.

Within easy travelling distance of the heavily populated regions of Germany and the Benelux countries, Mecklenburg-Vorpommern, south-east Bayern and the Trier region, the Grand Duchy of Luxembourg and the Luxembourg province of Belgium may owe their higher ranking to the accessibility of these regions for short breaks and also longer holidays.

Winter rather than summer holidays are probably the key factor in explaining the zone of high occupancy in Austria's four westernmost regions and the mountainous Italian regions of Valle d'Aosta and Trentino-Alto Adige.

A very different picture emerges if the domestic tourist traffic is excluded. Certain regions of high population density such as the Paris region, Vienna in Austria and Inner London are clearly key destinations for foreign visitors, as is the Brussels region, due to the fact that business tourists come to the 'capital city of Europe', and the region of north-east Spain.

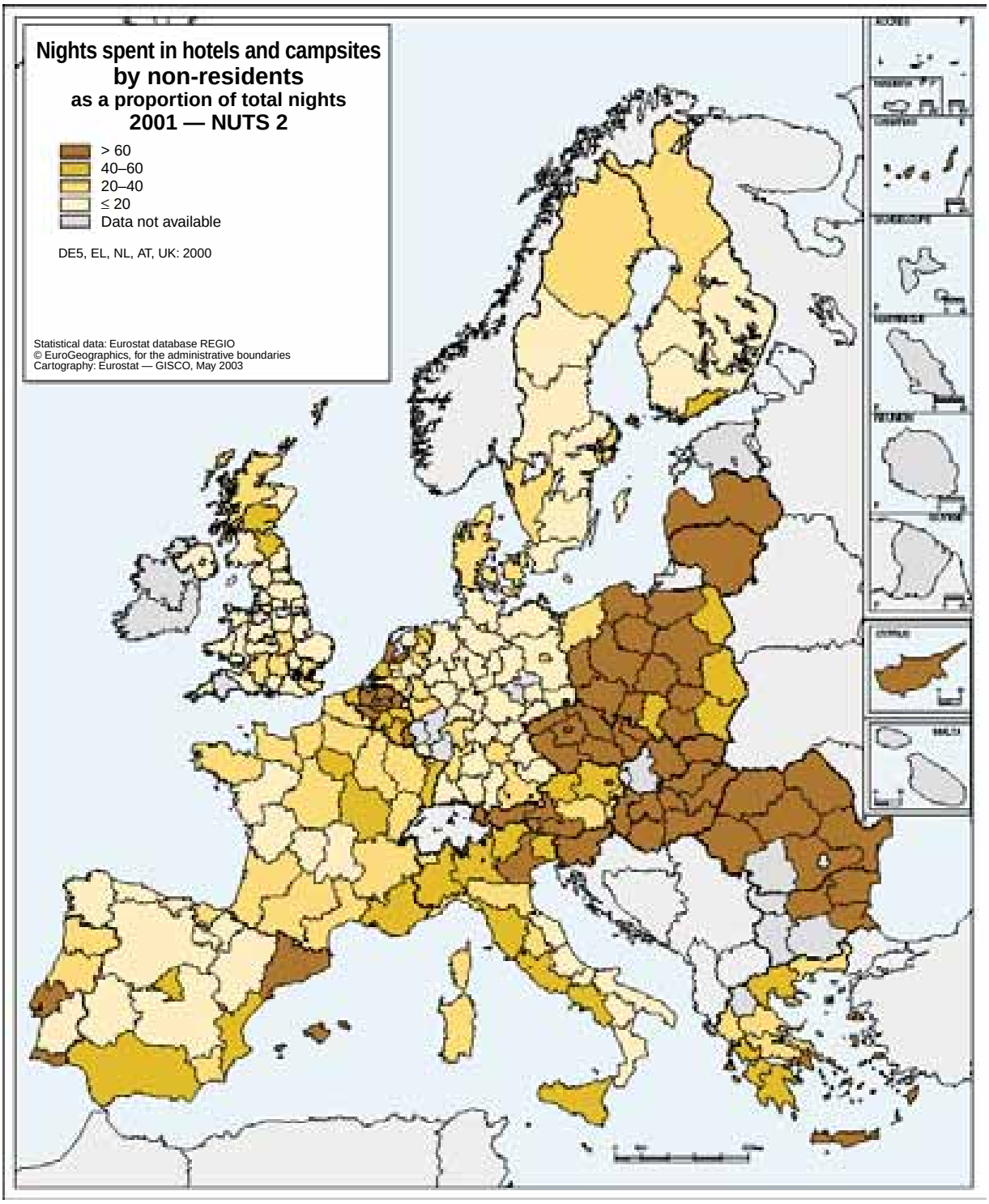
As regards the situation in the accession countries, it is clear that the largest proportion of nights spent by foreign visitors is in hotels and campsites. Holiday dwellings play a very limited role, which is in contrast to most tourist regions in the European Union.




**Map 10.4**

# Conclusion

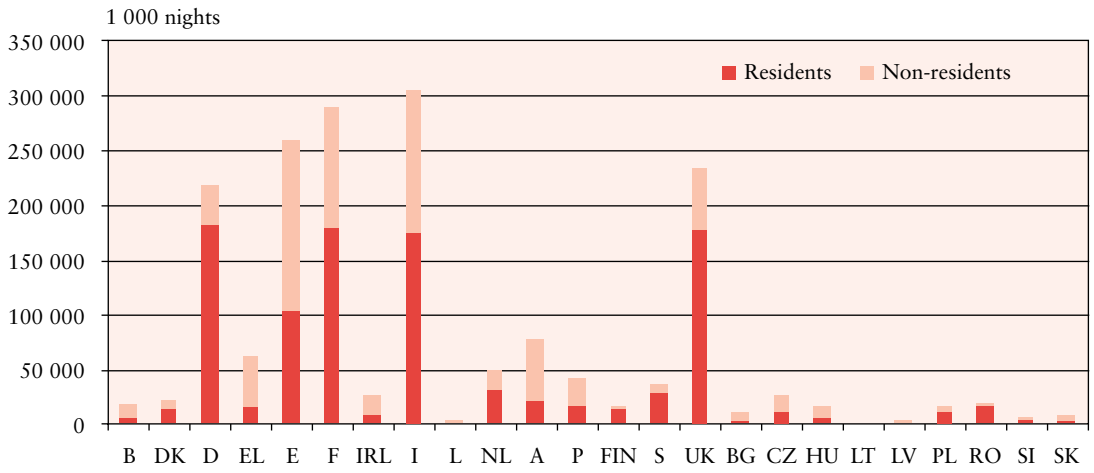
The above examples are intended merely to highlight a few of the many possible ways of analysing tourism effects in the regions of the EU and the accession countries. They show clearly that the effect of tourism in the European regions is becoming increasingly evident, and that regions which are not dominated by tourism today are trying to attract more and more tourists by means of package tours, special events, etc. Especially the tendency of more and shorter trips encourages regions to promote their attractiveness. The above examples are no substitute for detailed analysis.




**Map 10.5**

We hope, however, that they will encourage readers to probe deeper into the regional data and to make many further interesting discoveries.

## Graph 10.2 — Inbound and domestic tourism in 2001: nights spent in hotels and campsites by residents and non-residents




**NB:** EL, IRL, A, UK: 2000.

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# URBAN STATISTICS

11

# Background

The prime objective of European regional policy is to improve social and economic conditions within the European Union whilst reducing the disparities between regions. Since much of the EU is urbanised, cities and towns play an important role in the search for a better social and economic balance in the Union. Whereas cities were largely ignored when regional policies were devised in earlier years, major changes are currently taking place in this field.

The results of the pilot phase of the 'Urban Audit' (see regional yearbook 2002, Chapter 11) showed clearly that serious economic and social inequalities exist at city as well as at regional level, in some cases even more noticeably. Political action is thus justified. There are obvious inequalities from one city to another in the EU, as well as within one and the same city.

The 1998/99 pilot phase of the Urban Audit showed that it was possible to collect and present data for a wide range of indicators on a consistent pan-European basis. After completion of the audit in the spring of 2000, the European Commission therefore decided to continue the project, to create a sound quantitative basis for future regional policy.

The analysis which followed, assessing the pilot phase results in detail, led to a series of conclusions regarding the list of variables collected, the list of cities taking part and the spatial dimension for the next phase, Urban Audit II.

The work on the Urban Audit II project is described below.

# Tight schedule

Since the results of Urban Audit II are to form the basis for future European regional policy, it was important for the Commission to include the first results of the survey in the next cohesion report, which is due to come out in November 2003. Hence, the first results had to be available by July 2003 to enable the report to be drafted.

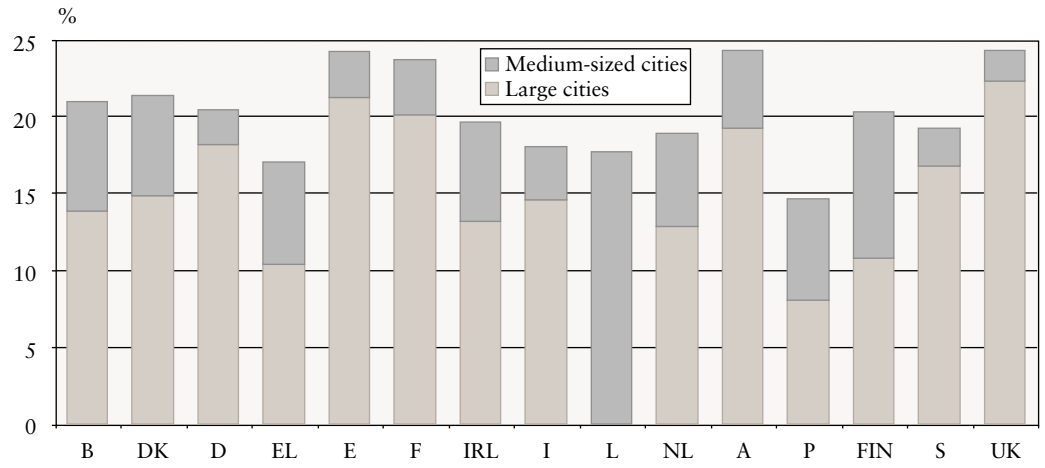
Since the actual work of collecting the necessary data and figures could not begin until the autumn of 2002, there was a good deal of pressure on all those taking part to complete on time what was, and still is, groundbreaking work from the statistical point of view. However, there is good reason to hope that the first comparable results of the second Urban Audit will be available in the summer of 2003.

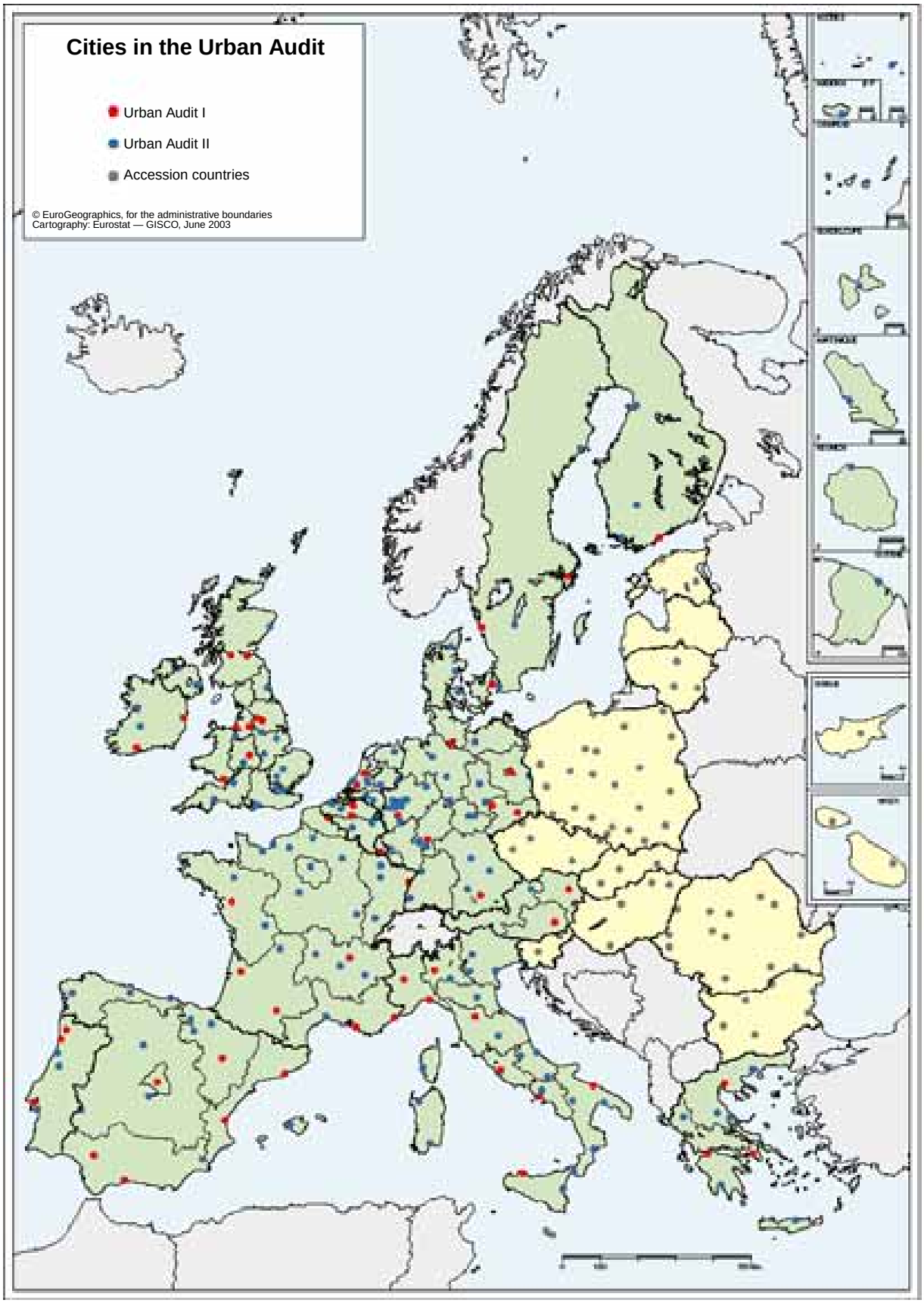
These first data could not be reproduced in this yearbook, since they were not available before it went to print, but they may be requested from Eurostat. However, the 2004 yearbook will certainly include interesting examples of Urban Audit II results.

# Selection of cities

For the Urban Audit pilot phase, it was decided to include the largest conurbations in the European Union, but to exclude London and Paris, since it was considered too difficult to cover these two cities in a one-year pilot project. They will, of course, be included in Urban Audit II, and many other major European cities will be added.

**Graph 11.1 — Urban audit II population coverage**




Cities in the Urban Audit
Urban Audit I
Urban Audit II
Accession countries
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, June 2003

**Map 11.1**

One specific focal point, however, will be medium-sized cities (50 000 to 250 000 inhabitants), which were not well covered in the pilot phase even though a substantial proportion of the EU population lives in such cities. Detailed information on the various aspects of the quality of life in these cities is of enormous value for urban policy support schemes at European level.

A total of 189 cities in the European Union are taking part in the Urban Audit II project, covering 21 % of the population.

At the same time, a separate Phare programme has begun in order to add fresh information on urban topics by supplying new statistical data on some 60 cities in the accession countries. Urban statistics for these countries were not available by the summer of 2003, but it is hoped that all the hard work of colleagues there will result in comparable data by the end the year. It will be extremely interesting to compare the results of the accession countries with those of the Member States.

With comprehensive figures for considerably more than 200 European cities, a solid database is being created which will doubtless shed light on the specific requirements of future regional policy affecting cities.

The map shows all the cities in Urban Audit II, noting those which took part in the pilot phase. It shows that the selection achieved a good geographical distribution.

It is important to be clear at this point that the results of Urban Audit II are not specifically intended to pick out certain cities or parts of cities for future support programmes. In some circumstances, such an objective would distort the results. Rather, Urban Audit II aims to provide a sound basis for the quantitative figures which will be the cornerstone of future regional policy decisions.

# Spatial units

As in the first phase, there are three levels of spatial unit at which the relevant data are collected. The first is the 'central city' or 'core city', i.e. the administrative unit for which extensive data are generally available. In countries where that concept does not exist as such (Portugal and the United Kingdom), a few adaptations were made.

Next, the 'larger urban zone' (LUZ) is investigated, i.e. data are compiled which include the 'hinterland'. The urban zone is defined with reference to the functional urban region, taking particular account of commuter flows.

Finally, as already mentioned, inner-city social and economic discrepancies are to be measured, with data collected on individual parts of cities, which should have between 5 000 and 40 000 inhabitants in all the cities investigated to ensure that the results are comparable.

In a few cases, it was extremely difficult and expensive to define urban zones and, even more, individual areas or parts of cities. It became clear that particular geographical and administrative circumstances which had developed in the Member States over many centuries often require special solutions. Urban zones and parts of cities were delimited primarily as a way of finding spatial units for which the results were sufficiently comparable from one country to another.

Comparability of results is without doubt the main quality requirement of the Urban Audit results. It is extremely important for data use, but, at the same time, the most difficult requirement to fulfil.

# The variables

In the Urban Audit pilot phase, around 480 variables were collected. The degree of response from the cities ranged from nil to complete coverage, but was frequently on the low side. On the basis of a detailed analysis, Eurostat decided to drop some 300 of the variables for Urban Audit II, but to add 150 new ones which had not been available to measure important phenomena in the pilot phase. Thus for Urban Audit II 'only' 333 variables are being collected, but Eurostat hopes that the degree of coverage will be extremely high.

1. DEMOGRAPHY
    - 1.1. Population
    - 1.2. Nationality
    - 1.3. Household structures
2. SOCIAL ASPECTS
    - 2.1. Housing
    - 2.2. Health
    - 2.3. Crime
3. ECONOMIC ASPECTS
    - 3.1. Labour market
    - 3.2. The business world
    - 3.3. Income and poverty
4. CIVIC INVOLVEMENT
    - 4.1. Elections
    - 4.2. Local government
5. TRAINING AND EDUCATION
    - 5.1. Educational opportunities
    - 5.2. Level of education achieved
6. ENVIRONMENT
    - 6.1. Climate
    - 6.2. Air quality and noise
    - 6.3. Water
    - 6.4. Waste disposal
    - 6.5. Construction
    - 6.6. Consumption of energy
7. TRAFFIC AND TRANSPORT
8. IT INFRASTRUCTURE
9. CULTURE AND RECREATION
    - 9.1. Cultural facilities available
    - 9.2. Tourism

The variables selected cover a wide range of social and economic conditions in the cities and should provide a solid basis for measuring the quality of life in Europe's cities in quantity terms.

Below is an overview of the content of the Urban Audit II project.

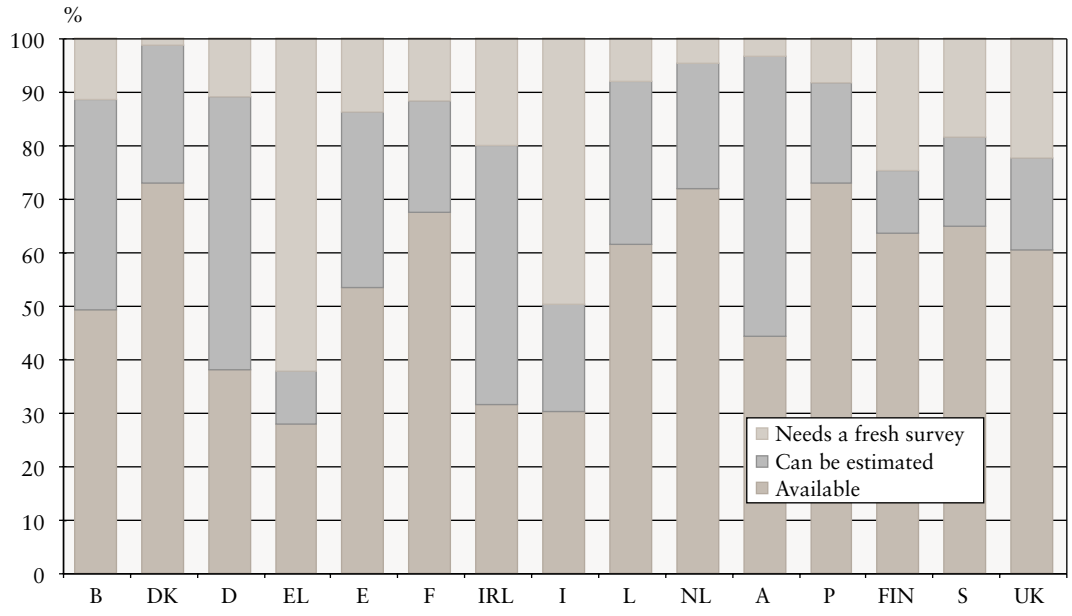
A detailed check on the 333 variables showed that some of the data are already available in the various countries somewhere in existing databanks (type A). Other variables can be estimated, since similar data are available; advanced estimation procedures could be used here (type B). For a third group of variables, fresh data have to be collected in a new survey (type C), since the data are not available and it is not possible to obtain sufficiently good estimates by any other means. The classification of variables into three groups differs, of course, from one country to another (see Graph 11.2).

The graph shows that, in the Scandinavian countries, France and the United Kingdom, many variables are already available, whereas in Greece, Ireland and Italy a large percentage have to be estimated or collected from scratch the next year.

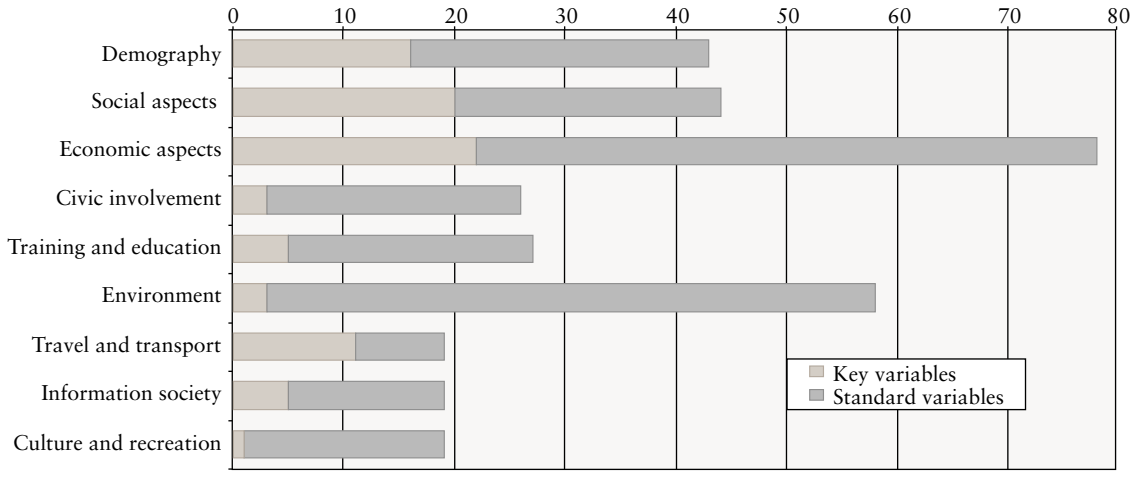
It quickly became clear that it was impossible within the narrow time frame (starting in October 2002 with the data required in June 2003) to carry out new statistical surveys. For the summer of 2003, no type C variable data were therefore to be expected. These statistics were to be collected afresh as from the end of 2003, with the first figures likely to be ready in mid-2004 at the earliest.

A complete estimate of all type B variables was not possible within a few months, either. Thus, 75 'key' variables were identified, to be considered as particularly important. Priority was to be given to estimating these by the summer of 2003 wherever possible.

**Graph 11.2 — Classification of urban audit variables**



**Graph 11.3 — Number of variables by topic**




Graph 11.3 shows the number of variables (key and standard) per topic.

# Organisation

It is not possible to put together all these variables from 189 cities unless all those involved work together in partnership. In particular, there must be close cooperation between the national statistical offices and the cities.

To this end, national Urban Audit coordinators (NUACs) have been appointed for each country, to act as links between the cities, the national statistical offices (or the bodies responsible for data collection at national level) and Eurostat. The Commission has given the national statistical offices financial support to enable them to compile at least all key variables by June 2003 at the latest.

Regular meetings of all those involved ensure that information is channelled between the Commission (REGIO and Eurostat), the national offices, the cities and specialists in methodology under contract to assist with estimates of the type B variables.

# Next steps

The Urban Audit II project has not yet been completed. The first data quality checks have been carried out, but further careful checks are needed on consistency and other quality characteristics.

In addition, data from the 1999/2000 pilot phase have to be checked and improved where necessary, so that they can be analysed over time in the future.

Further reliable indicators have to be calculated from the 333 variables to be published on the Internet. Finally, the Urban Audit II results have to be analysed carefully so that sound conclusions can be drawn for future regional policy.

Also, type C variables will need to be collected very soon.

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# HOUSEHOLD ACCOUNTS

12


# Income of private households and gross domestic product

## Introduction

One of the aims of studying regional statistics is undoubtedly to try and provide some information on the wealth of regions. Adam Smith entitled his major work in the field of economics *The wealth of nations*, and it is but a small step from the nation to the region, especially as the nation State becomes less and less important with European integration and the wealth of the regions moves centre stage.

The key, and by far the most frequently used, indicator to measure the wealth of regions is regional gross domestic product (GDP). GDP is often expressed in purchasing power standards (PPS) and per capita to make the figures comparable between regions. Regional GDP is covered in Chapter 3 of this publication.

GDP at regional level is calculated using the output approach. It is the total value of the goods and services produced in a region by persons employed in the region. When considering to what extent GDP contributes to the wealth of the regions, this depends on the generation of income for private households, even if the multitude of interregional links and measures taken by the State do now mean that there is absolutely no guarantee that this income actually reaches the inhabitants of a region.

Regional per capita GDP has some undesirable features, one of which is that a 'place-of-work' figure is divided by a 'place-of-residence' figure. This inconsistency is of relevance wherever there are commuter flows — i.e. people who work in one region but live in another. The most obvious example is the UK Inner London region, which has by far the highest regional per capita GDP. This GDP is not, however, directly translated into income for the inhabitants of Inner London, as thousands of commuters journey to work into London every day, but live in neighbouring regions. Hamburg and Vienna offer other examples of this.

Given this and other conceptual weaknesses involved with GDP, it therefore seems worthwhile to take a closer look at household income distribution.

## Household income distribution

In market economies, which also have State redistribution mechanisms, a distinction is made between two types of income distribution.

The **primary** distribution of income indicates the income of private households generated from market transactions, i.e. trade in the factors of production and goods. The 'resources' side includes the compensation of employees, i.e. income from the sale of labour as a factor of production. Private households can also receive property income, and there is also, of course, income in the form of an operating surplus or self-employment income. Any interest payable is recorded as a negative item. The balance of these transactions is termed the **primary income** of private households.

**Table 12.1 — Primary distribution of household income in accounts format**

| Uses | Resources |
|---|---|
| D.4. Property income | B.2/B.3. Operating surplus/self-employment income |
| *B.5. Primary income (balance)* | D.1. Compensation of employees |
| | D.4. Property income |

The primary income is the point of departure for the **secondary** distribution of income, which denotes the State redistribution mechanism. All social benefits and transfers other than in kind are now added to primary income, and it is from this total that households have to pay taxes on income and wealth, pay their social contributions and effect transfers. The sum remaining after these transactions have been carried out, i.e. the balance, is called the **disposable income** of private households.

**Table 12.2 — Secondary distribution of household income in accounts format**

| Uses | Resources |
|---|---|
| D.5. Current taxes on income, wealth, etc. | B.5. Primary income |
| D.61. Social contributions | D.62. Social benefits other than social transfers in kind |
| D.7. Other current transfers | D.7. Other current transfers |
| *B.6. Disposable income (balance)* | |

## Primary income and the disposable income of private households as income distribution balances

Eurostat uses NUTS level 2 data for the above-mentioned variables. These data are, of course, of interest in themselves, but primary income and disposable income are the main pillars of these accounts.

Before these parameters can be compared, a quick digression is required to look at the unit used to express this income in a meaningful manner so that the corresponding comparisons make sense.

For the purposes of making comparisons between regions, regional GDP is generally expressed per capita and in purchasing power standards (PPS) so that volume comparisons can be made. The same process should thus be applied to the private household income parameters so that these can then be compared with regional GDP and with one another.

There is a problem with this. PPS are designed to apply to GDP as a whole. The calculations use the expenditure approach and PPS are also only subdivided on the expenditure side. In the regional accounts, on the other hand, the expenditure approach is not used — at least not for the EU regions — as this would require data on import and export flows at regional level. These data are not available, so regional accounts are only calculated from the output side. This means, however, that there is no exact correspondence between the income parameters and the PPS. PPS only exist for private consumption.

It can, however, be assumed that these conceptual differences are of little importance and the income parameters of private households should be converted with the consumer components of PPS and called purchasing power consumption standards (PPCS).

## Results for 2000

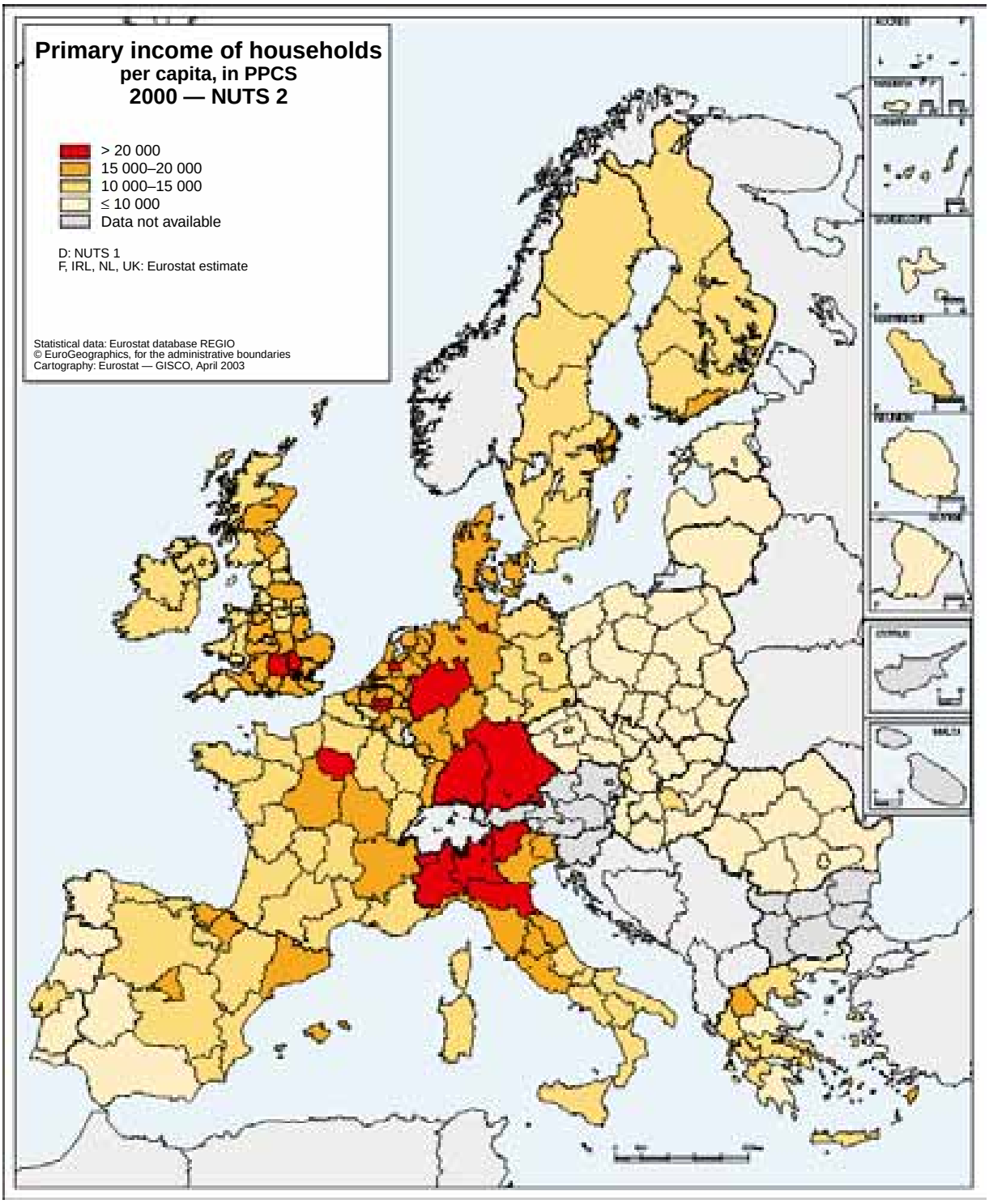
The two maps on the following pages show the regional distribution of primary income (Map 12.1) and the regional distribution of disposable income (Map 12.2) at European level. Eurostat does not yet currently have complete NUTS level 2 data at its disposal. It hopes to have data for Austria by summer 2003. Only NUTS level 1 data are available for Germany. The data for France, Ireland, the Netherlands, Portugal and the United Kingdom were estimated by extrapolation for 2000. There are no data for Bulgaria, Cyprus, Malta, Slovenia and Turkey.

Analysis of the regional distribution of primary household income indicates that there are 'islands of prosperity' such as the London, Paris and Brussels regions, northern Italy and south Germany, as well as Utrecht and Nordrhein-Westfalen and the city states of Bremen and Hamburg. However, when we move from primary income to disposable household income, we find much greater uniformity. Here, there are no discernible patterns or structures, and the redistributing influence of the State is clear to see.

A reference framework is always required to interpret results. We use two types of reference here. First of all, the relationship between primary income and disposable household income is discussed and then the ratio of income to regional GDP is examined.

There are large differences in the ratio of disposable income to primary income. These are shown in Map 12.3. The greatest difference is in the Stockholm and Helsinki capital regions, where households are left with the lowest levels of primary income. This clearly demonstrates the strong influence of the State in the Nordic countries.

There are also, however, some regions in which the disposable income of households is higher than their primary income on account of social benefits other than social transfers in kind and

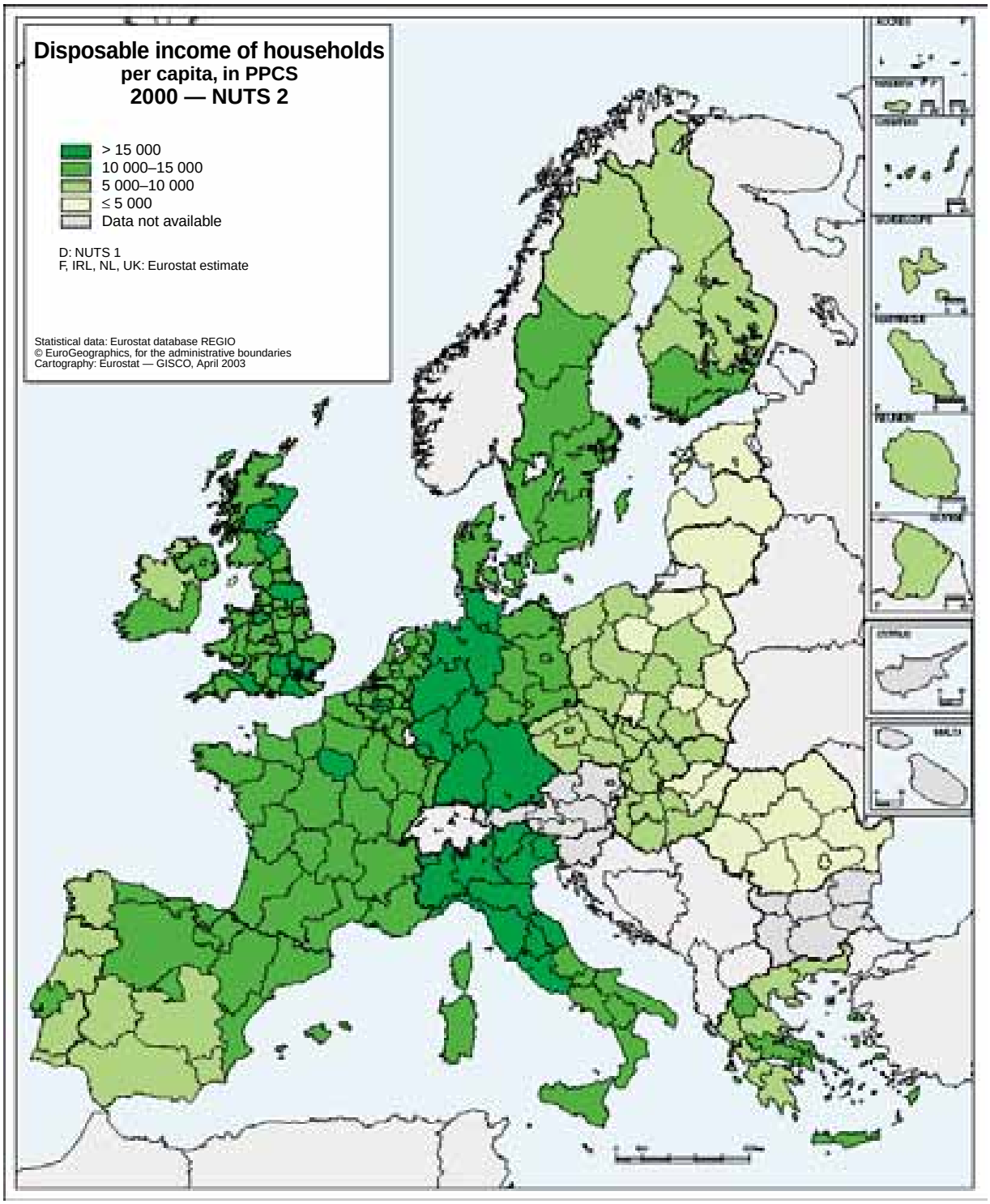



**Map 12.1**

other transfers. It is they then who profit from State redistribution policy.

Primary income exceeds disposable income for households in five Greek regions, six Polish regions and six UK regions. Romania has two such regions and France, Hungary and Italy one each. In Germany, there are three *Länder* where this ratio is over 100 %.

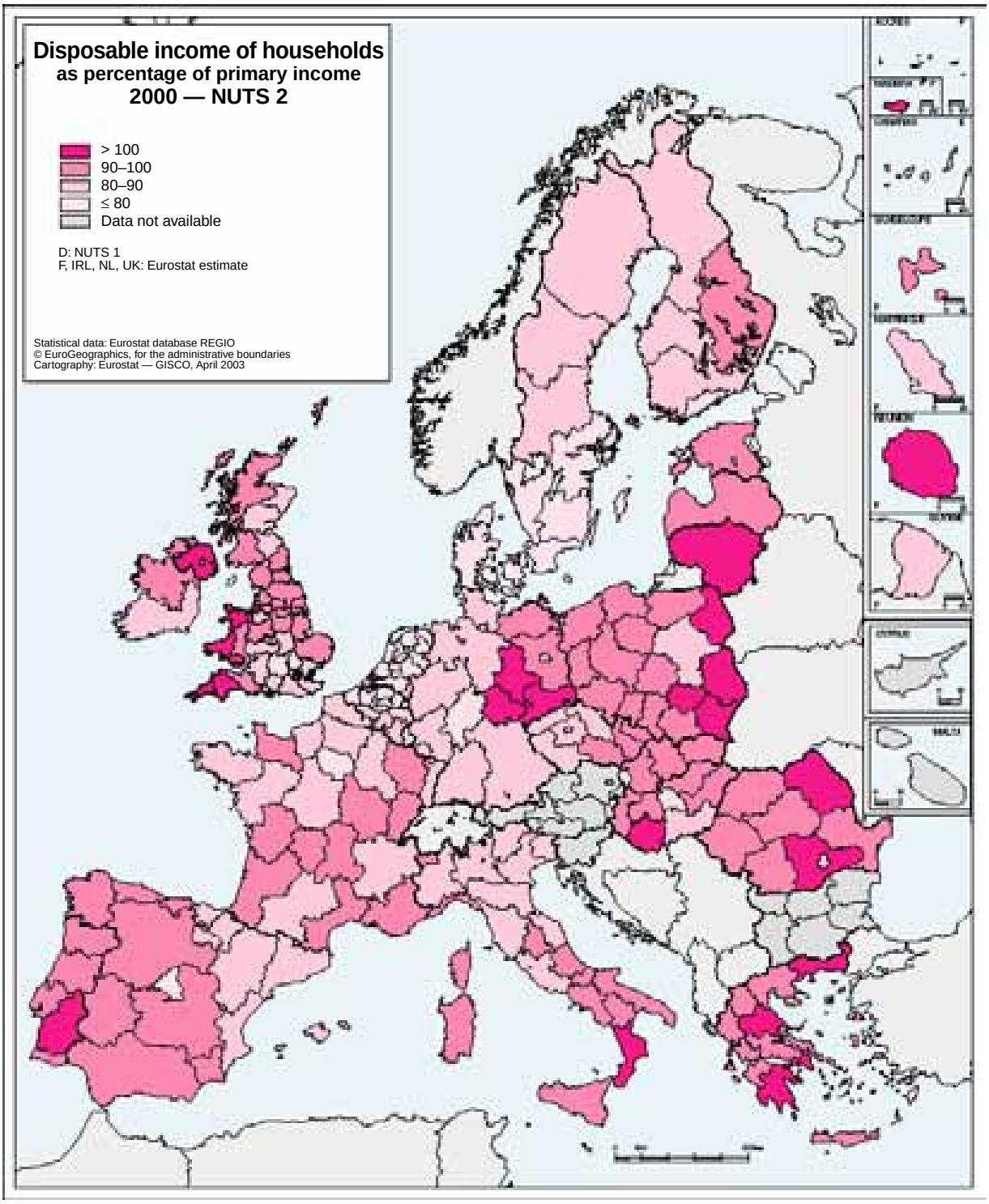
The ratio of disposable income to regional gross domestic product is also of particular interest. This is significant because regional GDP per capita is an important indicator in determining European structural policy. Regions receive (amongst other things) regional aid when their regional GDP is below 75 % of the EU average. Capital regions often have a high regional GDP. It can be




**Map 12.2**

seen from Map 12.4 that this high GDP is generally not reflected in disposable household income. This applies both for the EU regions and for the two highlighted candidate country regions of Praha and Bratislavsky, which have a very high per capita GDP.

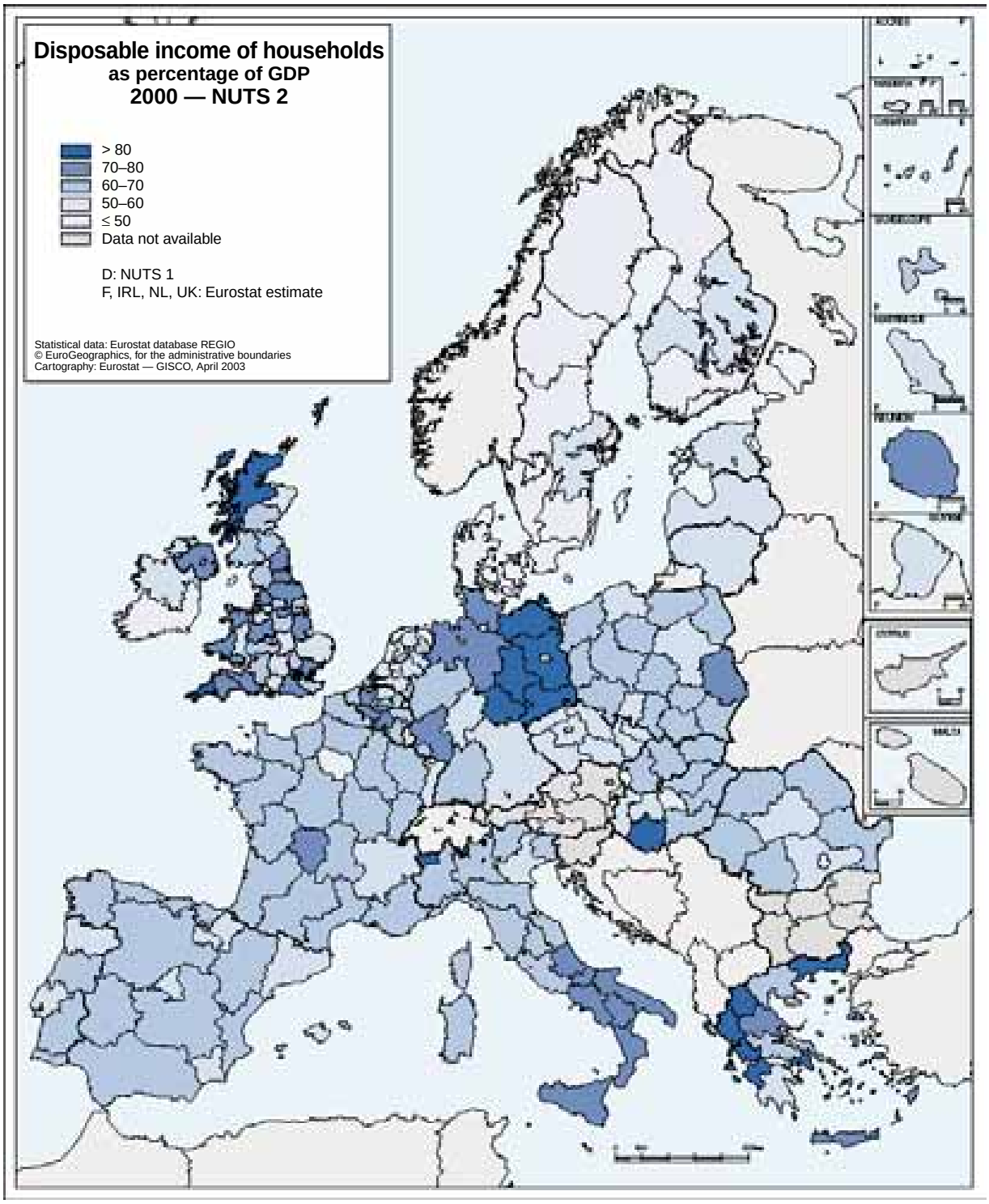
At the other end of the scale, there are regions where the ratio for the region is much more favourable. Two Greek regions head this list, but this situation can also be seen in the United Kingdom and the east of Germany. It is clear that taking this indicator as the basis also changes the relative position of a region within Europe.




**Map 12.3**

In conclusion, it can be seen that there are significant differences within Europe in the proportion of disposable household income which remains following the State redistribution of household primary income. Per capita disposable household income is also very different from regional GDP. The clear conclusion from these observations is that, whilst comparing regions within the one country provides meaningful information, comparisons between regions in different countries are very problematic.

It is noticeable that disposable household income is particularly low in countries where State activity is very high. This would seem to suggest that in




**Map 12.4**

these instances the State claims a very large proportion of income. On the other hand, this does not mean that these regions are particularly poor as they may perhaps benefit considerably from this State activity in the form of non-monetary services, such as roads and kindergartens. The next section attempts to analyse this aspect in more detail, presenting experimental calculations which seek to counterbalance these distortions.

# How rich are Europe's regions?

## Experimental calculations

### Introduction

How rich are Europe's regions? To answer this question, we need first of all to explain what is meant by the terms 'Europe', 'region' and 'rich'. Europe is defined here as the European Union plus the candidate countries. This is not a formal definition, but is based on the availability of comparable data. The NUTS classification (nomenclature of territorial units for statistics) is used to define the regions, with the analysis focusing only on NUTS 2 regions. The term 'rich', however, is not so easy to define. In this case, it should not be used in terms of wealth, but in terms of income. Wealth only plays a role in so far as it can generate income, for example interest income. We would, however, like to go one step further and regard income, in economic theory terms, as something which is important in that it allows people to consume and provides utility. Using this definition, public goods, for example, which are provided free of charge also provide utility and in this sense should also be regarded as a special type of income.

This work is based on currently available data. It is a pragmatic analysis which does not seek to describe the theoretically best indicator, but to develop an indicator which uses the available information in as meaningful a manner as possible.

### Disposable household income

The arguments presented above with regard to regional GDP are well enough known and have already been discussed at length. This is why regional accounts were included in the ESA 95 delivery programme, which is compulsory for Member States. The information to be provided includes disposable household income. The fact that this figure is residence based means that it can easily be divided by the number of people in a region.

As shown in the first section of this analysis, the proportion of disposable income in GDP varies enormously from country to country. In Sweden and Finland, it is around 45 %, in France, Spain and the United Kingdom it is about 60 %, followed by Germany and Italy at approximately 65 %, and in Greece it is over 70 %.

These huge differences make it difficult to compare (or rank) regional disposable household income. Differences between countries relating to fixed capital consumption and primary income balances or the balance of transfers to/from abroad are not taken into consideration, and the whole issue of differences in government activity, in particular, is completely neglected.

If such a comparison is nonetheless drawn, as in the first section, the regions of Sweden and Finland end up in the bottom third of the table, as the State accounts for a large slice of economic performance in these countries, thus leaving households with less income at their disposal.

It should, however, be borne in mind that the slice taken initially by the State is then given back in one form or another. State activity is generally for the benefit of citizens with the result, for example, that less of their disposable income has to be spent. One example should make this clear: if the State uses its income to finance good and cheap childcare facilities, then private households do not need to purchase this service at a high cost on the private market. Equally, a good public transport system reduces private expenditure on cars. Many other examples could also be given. To sum up, however, it can be established that comparing regional disposable income does not reflect the actual prosperity of a region, which should be expressed in the consumption of private and public goods and services.

### The two-stage approach

In the national accounts approach, there are clearly defined systems of equations. Taking regional gross domestic product as the point of departure, the balance of income from abroad is certainly relevant for households as it expands their consumption capacity. Fixed capital consumption, on the other hand, is regarded as a social cost which reduces the household's consumption capacity when its capital stock remains constant. The balance of these transactions gives the net national income at market prices. The net national income at market prices now has to be corrected for transfers to or from abroad. This then gives the disposable income of all sectors of the economy.

Following the national accounts approach, the path from GDP to disposable household income is thus as follows:

The difference between the disposable income of all sectors and the disposable income of private households corresponds to the disposable income of other sectors. It is therefore useful first of all to get an idea of the figures involved. Disposable household income in the European Union is by far

| | | |
|---|---|---|
| | Gross domestic product at market prices | |
| | + | |
| | Balance of primary income from rest of the world | |
| | – | |
| | Fixed capital consumption | |
| = | Net national income at market prices | |
| | – | |
| | Balance of current transfers to/from rest of the world | |
| = | Disposable income of all sectors | (100 %) |
| | – | |
| | Disposable income of financial/non-financial corporations and private non-profit organisations | (average **4 %**) |
| | – | |
| | Disposable income of the State | (average **25 %**) |
| = | Disposable income of private households | (average **71 %**) |

the largest component of total disposable income, and makes up an average of 71 % of the total, within a range of 56 to 78 %. General government disposable income accounts for 25 % (ranging from 19 to 36 %). The rest makes up the rather modest average total of 4 %, the range here running from 2 % in France to 14 % in the Netherlands.

Moving on to the regional distribution of these components, figures are available for the regional distribution and level of disposable household income, but no data are currently available for the regional distribution of disposable income for other sectors — a heading which includes the operating surplus and property income of corporations, and State activity. The latter includes redistributive activities, infrastructure, defence expenditure, etc. All these transactions benefit private individuals in one form or another. This also applies to the operating surplus and property income of corporations, as these do ultimately also belong to private individuals. Information is not, however, available on the regional distribution and relative magnitude of these two components. These components do, nonetheless, contribute substantially to wealth in the regions, and ignoring them makes it considerably harder to compare two regions from different countries.

Taking the arguments presented above into account, the following procedure is now proposed:

1. The disposable income of households is divided amongst the regions in accordance with the regional structure, which is already known.

2. The difference between the 'disposable income of all sectors' and the 'disposable income of households' is then broken down per capita across the population of the individual regions in each country.

This is the easiest and most transparent method of dividing up the remaining balance. Information is not available on the regional breakdown of these parameters, so it is assumed that, on average, State activity benefits each citizen of a region equally. This involves the assumption that each of the regions within the country has the same age structure — a bold, but not totally unrealistic assumption. The problems are somewhat greater when it comes to the operating surplus and property income, but, given the total lack of other data here upon which to compile a regional structure, the per capita approach is again adopted.

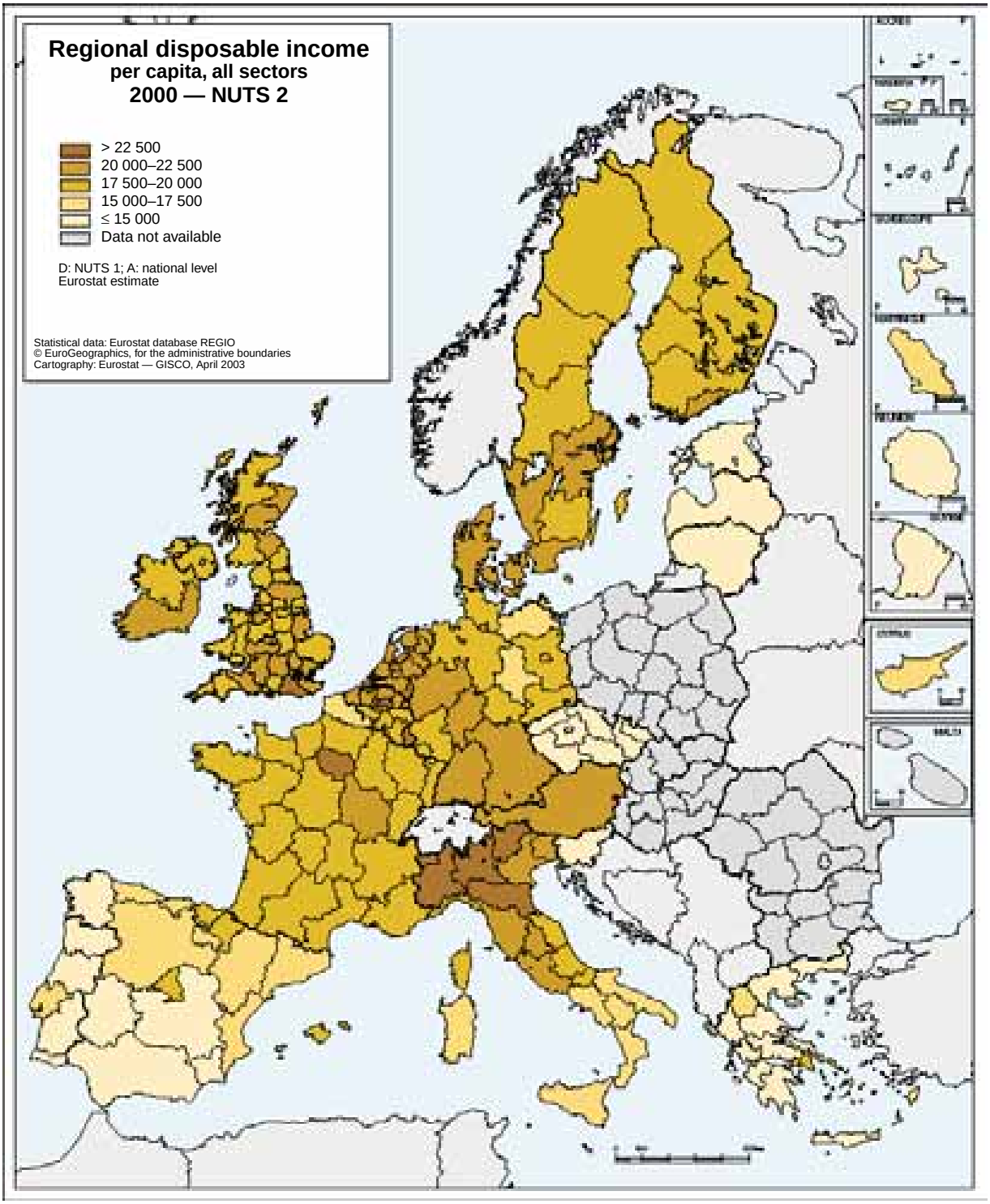
This approach seems to be easier to justify for the State sector than for private organisations. However, given how low a percentage of the total figure is involved (4 % on average), this has only a marginal influence on the results. Experiments with other distribution keys, such as value added or persons in employment, resulted in a virtually identical regional structure. The per capita approach was therefore chosen for transparency

reasons. The sum of activities 1 and 2 is divided by the number of persons living in a region. The figure used here is the average annual population, which is also the denominator for GDP per capita.

## Results

Caution should still be exercised in interpreting the initial results for this new indicator. Austria was not able to submit data, a gap which is due to be filled by summer 2003. Germany was granted an exemption allowing it to submit only NUTS level 1 data — i.e. for the *Länder*. There are no regional data available yet for disposable household income in Bulgaria and Turkey.

There are unfortunately no national accounts data available for Cyprus, Hungary, Malta,



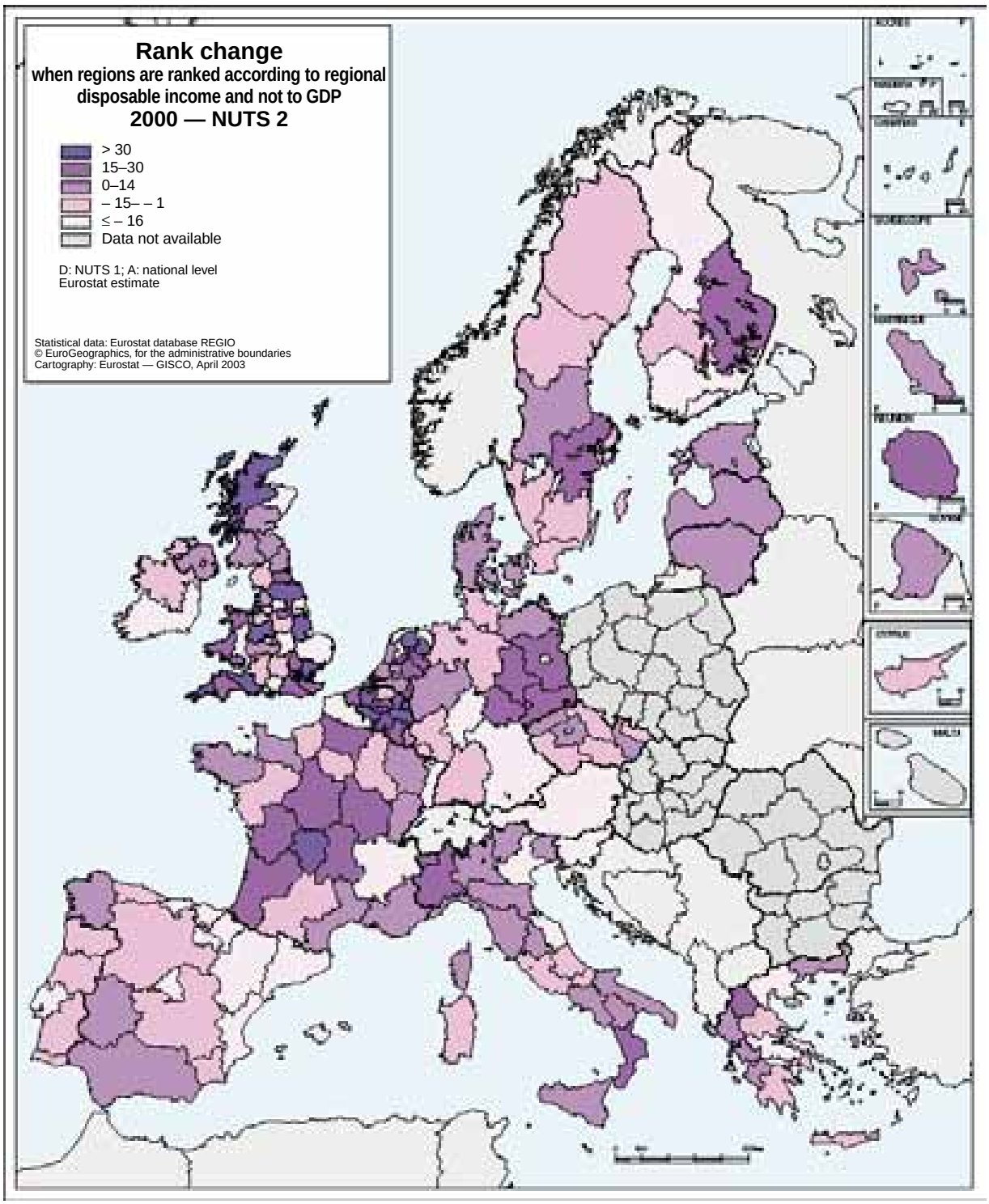

**Map 12.5**

Poland and Slovakia, although regional data on households do exist. These gaps are also due to be filled shortly. The data from this first cycle are also still subject to revision.

Map 12.5 shows the regional distribution of this new indicator. Subject to the abovementioned reservations, it is possible to state the following.

The Grand Duchy of Luxembourg is clearly the richest region in Europe. This finding comes as no surprise and has been confirmed by other studies.

What is, however, astonishing is the performance of northern Italian regions, with 5 of the 11 top-ranking regions being in Italy. One reason for this could be the fact that the State redistribution pol-




**Map 12.6**

icy in Italy has a lower regional impact than in other countries, although it should be pointed out again here that the State's share of disposable income was divided up per capita. It may well be that regional redistribution is carried out in some other way.

It is also clear that there are significant improvements in the relative positions of regions bordering on central London, and the fact that the Outer London region alone is up 87 places is clearly the result of commuter flows. This climb up the rankings is shown in Map 12.6.

Commuters also undoubtedly play a role in Flevoland and Namur, which each rise about 60 places in the rankings.

There is a significant level of regional redistribution in Germany. The five new *Länder* improve by an average of around 15 places, whilst Hesse and Berlin lose out badly, as do some of the larger-by-area *Länder*, such as Bayern (down 20) and Baden-Württemberg (down 6). In terms of relative position, the largest falls are recorded by the capital regions of Praha (Czech Republic) and Comunidad de Madrid (Spain).

It is possible that this approach still needs to be refined. Nor are all the data complete. The initial results of these calculations do, nonetheless, appear plausible and help to provide a more objective comparison of Europe's regions.

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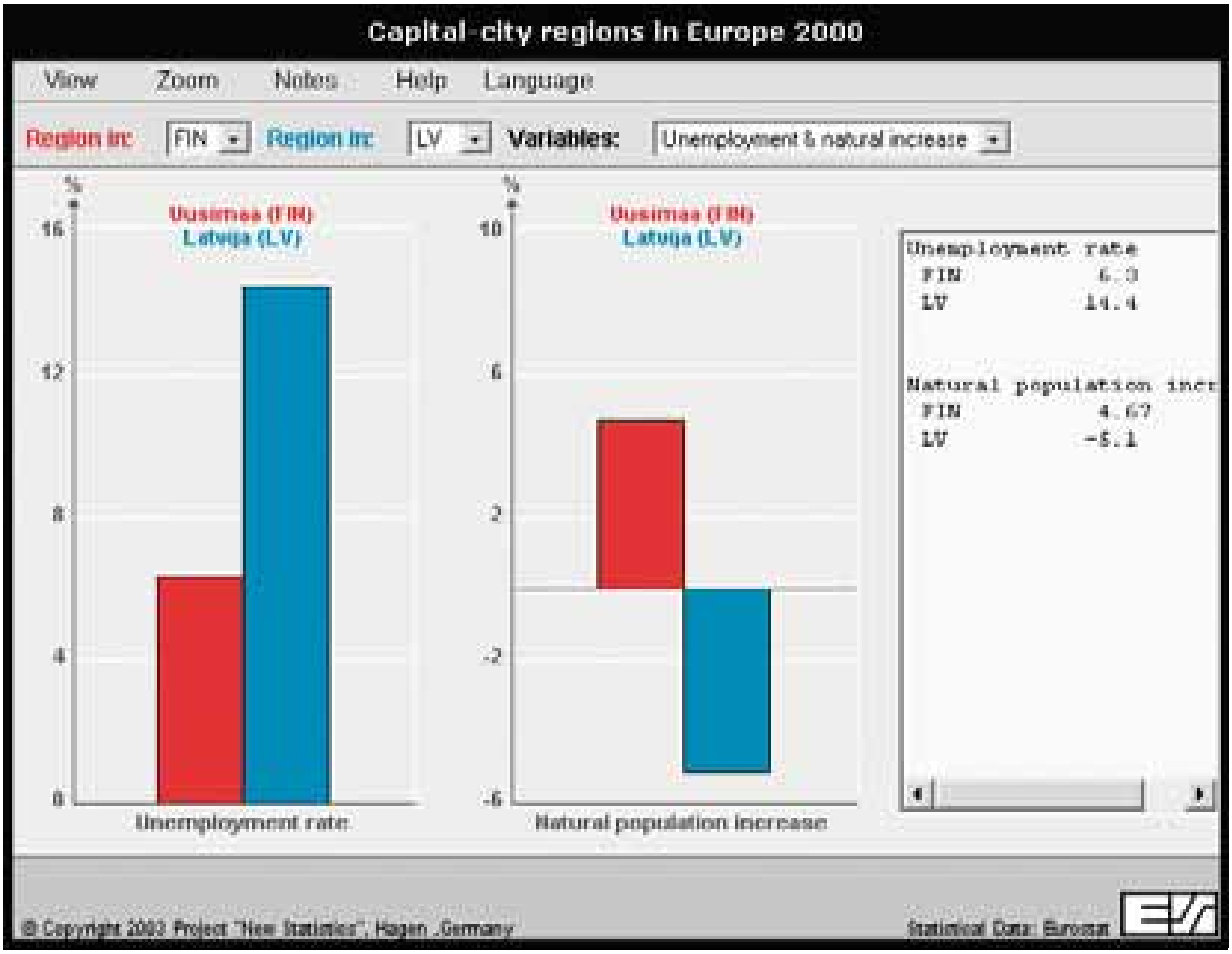
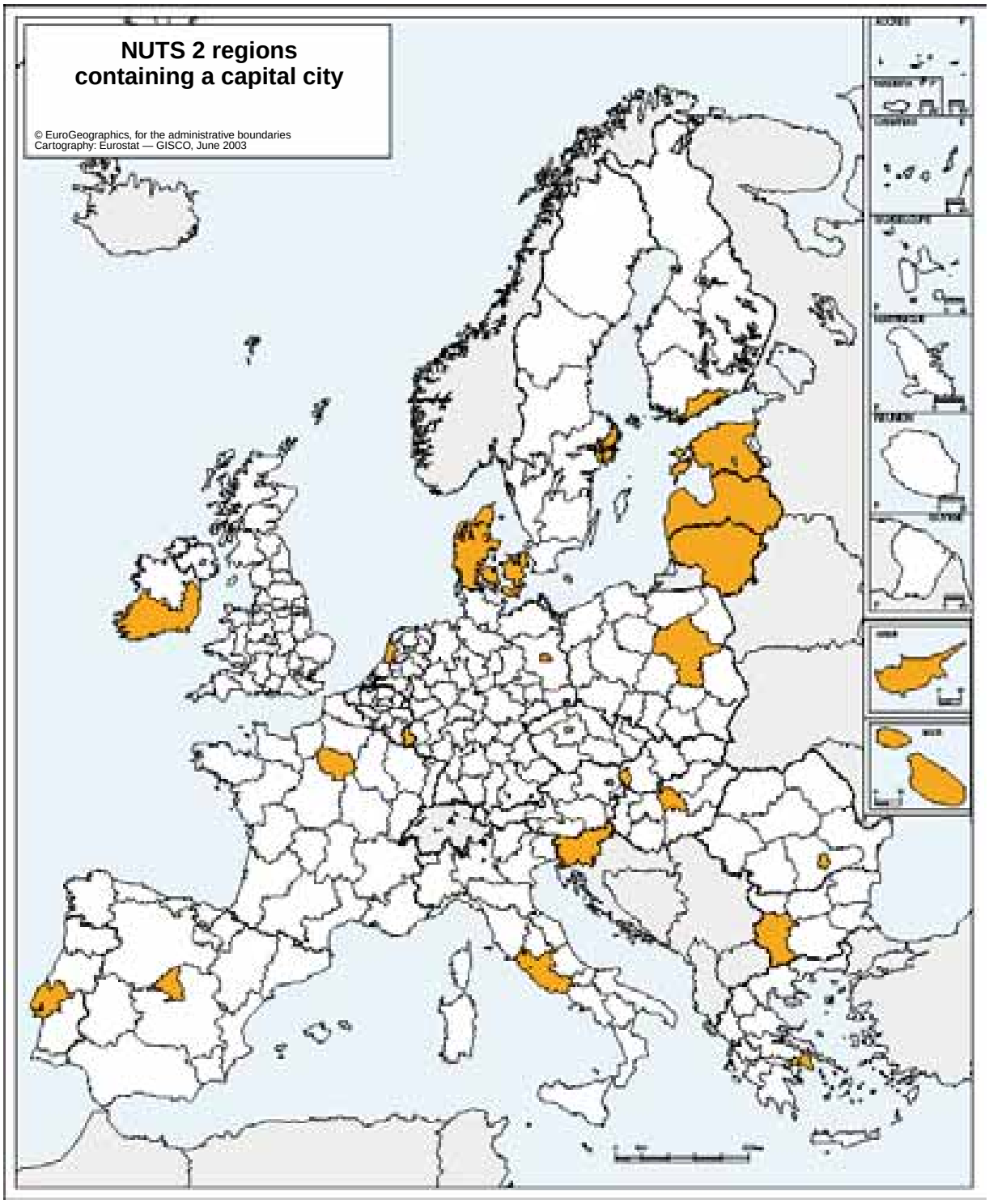
# INTERACTIVE DATA PRESENTATION




NUTS 2 regions
containing a capital city
© EuroGeographics, for the administrative boundaries
Cartography: Eurostat — GISCO, June 2003

# Interactive visualisation of regional data

For the first time, the CD-ROM enclosed with the regional yearbook contains not only static PDF files but also an applet which gives access to an interactive and user-friendly graphical presentation of regional differences. The visualisation is carried out by means of bar charts complemented by tabular numerical information. The regions selected for inclusion are the NUTS 2 regions that contain the capital cities of the 15 Member States and 11 of the 12 accession countries. It is important to note that these regions are not the same as the capital cities themselves. In certain cases (such as Inner London), the city and its suburbs extend far beyond the NUTS 2 region containing the heart of the city. By contrast, some other NUTS 2 regions in the selection may be vastly bigger than the capital city. In the case of two current Member States (Denmark and Luxembourg) and no fewer than five of the accession countries shown (Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia), the whole country is a NUTS 2 region.

The applet allows you to explore the data by 'playing' with them (without having to do any programming) and to focus on the differences and similarities between these regions, always allowing for the abovementioned disparity in the nature of certain regions. In many cases, the maps and commentaries contained in the rest of the yearbook will allow the information for the 'capital-city' region to be placed in its national context.

# How to use the applet

The applet is stored on the CD-ROM as a folder of files. When you open the folder, click on 'CapitalCityEU.htm' in order to get the applet started.

The application offers two different views of the data. Via the 'View' button, you may switch from one perspective to the other.

The first 'View' option ('comparison of regions' is the default option) enables you to compare **all EU Member States** or, alternatively, **all accession countries** considered with respect to **one** of eight social and economic variables.

- The applet opens as a bar graph displaying the variable 'population' in each of the capital-city regions in the EU. Via the pull down menu 'Variable', you may switch to a graphical comparison of the same EU regions with respect to seven other variables — offering you a total of eight different bar charts.
- Alternatively, rather than choosing EU countries, you can select (via the pull down menu 'country set') the accession countries and compare the capital-city regions of these countries with respect to one of the eight variables. This generates eight further graphs to study.

The second 'View' option (comparison of variables) enables you to compare **any** of the 27 regions with **any other** of the 27 with respect to **pairs of two variables:**

- The default for this view of the data is a comparison of the Austrian and Belgian capital-city regions with respect to the variables pair 'population' and 'population density'. You may now choose via the pull down menus 'Region 1' and 'Region 2' any other region combination and visualise the differences with respect to these two variables. This yields 27 x 26 = 702 visualisations, each containing two bar charts.
- You may now also compare all combinations of capital-city regions with respect to three other pairs of variables, namely the pairs 'total area' and 'agricultural area', 'unemployment rate' and 'natural population increase rate' or 'GDP' and 'number of cars per 10 inhabitants', respectively. In total, 3 x 702 = 2 106 further graphs can be selected, each again consisting of two bar diagrams.

The explanations above are also accessible in a more condensed form by activating the 'Help' function of the applet. Finally, there are explanatory texts and methodological comments which are accessible via the button 'Notes'.

# EUROPEAN UNION: NUTS 2 regions

**BE Belgique-België**
**BE1 Région de Bruxelles-Capitale/Brussels Hfdst. Gew.**
**BE2 Vlaams Gewest**
BE21 Antwerpen
BE22 Limburg (B)
BE23 Oost-Vlaanderen
BE24 Vlaams Brabant
BE25 West-Vlaanderen
**BE3 Région wallonne**
BE31 Brabant wallon
BE32 Hainaut
BE33 Liège
BE34 Luxembourg (B)
BE35 Namur
**DK Danmark**
**DE Deutschland**
**DE1 Baden-Württemberg**
DE11 Stuttgart
DE12 Karlsruhe
DE13 Freiburg
DE14 Tübingen
**DE2 Bayern**
DE21 Oberbayern
DE22 Niederbayern
DE23 Oberpfalz
DE24 Oberfranken
DE25 Mittelfranken
DE26 Unterfranken
DE27 Schwaben
**DE3 Berlin**
**DE4 Brandenburg**
**DE5 Bremen**
**DE6 Hamburg**
**DE7 Hessen**
DE71 Darmstadt
DE72 Gießen
DE73 Kassel
**DE8 Mecklenburg-Vorpommern**
**DE9 Niedersachsen**
DE91 Braunschweig
DE92 Hannover
DE93 Lüneburg
DE94 Weser-Ems
**DEA Nordrhein-Westfalen**
DEA1 Düsseldorf
DEA2 Köln
DEA3 Münster
DEA4 Detmold
DEA5 Arnsberg
**DEB Rheinland-Pfalz**
DEB1 Koblenz
DEB2 Trier
DEB3 Rheinhessen-Pfalz
**DEC Saarland**
**DED Sachsen**
DED1 Chemnitz
DED2 Dresden
DED3 Leipzig
**DEE Sachsen-Anhalt**
DEE1 Dessau
DEE2 Halle
DEE3 Magdeburg
**DEF Schleswig-Holstein**
**DEG Thüringen**
**GR Ellada**
**GR1 Voreia Ellada**
GR11 Anatoliki Makedonia, Thraki
GR12 Kentriki Makedonia
GR13 Dytiki Makedonia
GR14 Thessalia
**GR2 Kentriki Ellada**
GR21 Ipeiros
GR22 Ionia Nissia
GR23 Dytiki Ellada
GR24 Sterea Ellada
GR25 Peloponnissos
**GR3 Attiki**
**GR4 Nissia Aigaiou, Kriti**
GR41 Voreio Aigaio
GR42 Notio Aigaio
GR43 Kriti
**ES España**
**ES1 Nordeste**
ES11 Galicia
ES12 Principado de Asturias
ES13 Cantabria
**ES2 Noreste**
ES21 País Vasco
ES22 Comunidad Foral de Navarra
ES23 La Rioja
ES24 Aragón
**ES3 Comunidad de Madrid**
**ES4 Centro (E)**
ES41 Castilla y León
ES42 Castilla-La Mancha
ES43 Extremadura
**ES5 Este**
ES51 Cataluña
ES52 Comunidad Valenciana
ES53 Islas Baleares
**ES6 Sur**
ES61 Andalucía
ES62 Región de Murcia
ES63 Ceuta y Melilla
**ES7 Canarias**
**FR France**
**FR1 Île-de-France**
**FR2 Bassin parisien**
FR21 Champagne-Ardenne
FR22 Picardie
FR23 Haute-Normandie
FR24 Centre
FR25 Basse-Normandie
FR26 Bourgogne
**FR3 Nord-Pas-de-Calais**
**FR4 Est**
FR41 Lorraine
FR42 Alsace
FR43 Franche-Comté
**FR5 Ouest**
FR51 Pays de la Loire
FR52 Bretagne
FR53 Poitou-Charentes
**FR6 Sud-Ouest**
FR61 Aquitaine
FR62 Midi-Pyrénées
FR63 Limousin
**FR7 Centre-Est**
FR71 Rhône-Alpes
FR72 Auvergne
**FR8 Méditerranée**
FR81 Languedoc-Roussillon
FR82 Provence-Alpes-Côte d'Azur
FR83 Corse
**FR9 Départements d'outre-mer**
FR91 Guadeloupe
FR92 Martinique
FR93 Guyane
FR94 Réunion
**IE Ireland**
**IE01 Border, Midland and Western**
**IE02 Southern and Eastern**
**IT Italia**
**IT1 Nord-Ovest**
IT11 Piemonte
IT12 Valle d'Aosta
IT13 Liguria
**IT2 Lombardia**
**IT3 Nord-Est**
IT31 Trentino-Alto Adige
IT32 Veneto
IT33 Friuli-Venezia Giulia
**IT4 Emilia-Romagna**
**IT5 Centro (I)**
IT51 Toscana
IT52 Umbria
IT53 Marche
**IT6 Lazio**

**IT7 Abruzzo-Molise**
IT71 Abruzzo
IT72 Molise
**IT8 Campania**
**IT9 Sud**
IT91 Puglia
IT92 Basilicata
IT93 Calabria
**ITA Sicilia**
**ITB Sardegna**
**LU Luxembourg (Grand-Duché)**
**NL Nederland**
**NL1 Noord-Nederland**
NL11 Groningen
NL12 Friesland
NL13 Drenthe
**NL2 Oost-Nederland**
NL21 Overijssel
NL22 Gelderland
NL23 Flevoland
**NL3 West-Nederland**
NL31 Utrecht
NL32 Noord-Holland
NL33 Zuid-Holland
NL34 Zeeland
**NL4 Zuid-Nederland**
NL41 Noord-Brabant
NL42 Limburg (NL)
**AT Österreich**
**AT1 Ostösterreich**
AT11 Burgenland
AT12 Niederösterreich
AT13 Wien
**AT2 Südösterreich**
AT21 Kärnten
AT22 Steiermark
**AT3 Westösterreich**
AT31 Oberösterreich
AT32 Salzburg
AT33 Tirol
AT34 Vorarlberg
**PT Portugal**
**PT1 Continente**
PT11 Norte
PT12 Centro (P)
PT13 Lisboa e Vale do Tejo
PT14 Alentejo
PT15 Algarve
**PT2 Açores**
**PT3 Madeira**
**FI Suomi/Finland**
**FI1 Manner-Suomi**
FI13 Itä-Suomi
FI14 Väli-Suomi
FI15 Pohjois-Suomi
FI16 Uusimaa
FI17 Etelä-Suomi
**FI2 Ahvenanmaa/Åland**
**SE Sverige**
SE01 Stockholm
SE02 Östra Mellansverige
SE04 Sydsverige
SE06 Norra Mellansverige
SE07 Mellersta Norrland
SE08 Övre Norrland
SE09 Småland med öarna
SE0A Västsverige
**UK United Kingdom**
**UKC North-East**
UKC1 Tees Valley and Durham
UKC2 Northumberland and Tyne and Wear
**UKD North-West**
UKD1 Cumbria
UKD2 Cheshire
UKD3 Greater Manchester
UKD4 Lancashire
UKD5 Merseyside
**UKE Yorkshire and the Humber**
UKE1 East Riding and North Lincolnshire
UKE2 North Yorkshire
UKE3 South Yorkshire
UKE4 West Yorkshire
**UKF East Midlands**
UKF1 Derbyshire and Nottinghamshire
UKF2 Leicestershire, Rutland and Northamptonshire
UKF3 Lincolnshire
**UKG West Midlands**
UKG1 Herefordshire, Worcestershire and Warwickshire
UKG2 Shropshire and Staffordshire
UKG3 West Midlands
**UKH Eastern**
UKH1 East Anglia
UKH2 Bedfordshire and Hertfordshire
UKH3 Essex
**UKI London**
UKI1 Inner London
UKI2 Outer London
**UKJ South-East**
UKJ1 Berkshire, Buckinghamshire and Oxfordshire
UKJ2 Surrey, East and West Sussex
UKJ3 Hampshire and Isle of Wight
UKJ4 Kent
**UKK South-West**
UKK1 Gloucestershire, Wiltshire and North Somerset
UKK2 Dorset and Somerset
UKK3 Cornwall and Isles of Scilly
UKK4 Devon
**UKL Wales**
UKL1 West Wales and the Valleys
UKL2 East Wales
**UKM Scotland**
UKM1 North-Eastern Scotland
UKM2 Eastern Scotland
UKM3 South-Western Scotland
UKM4 Highlands and Islands
**UKN Northern Ireland**

# Regions in the candidate countries

NOTE: The following list of regions in the candidate countries is intended to assist the reader to locate on the maps regions that are mentioned in the text. It is not an official list.

The current state of the nomenclature of statistical regions in the candidate countries may be consulted on the Eurostat site at: http://europa.eu.int/comm/eurostat/ramon/nuts/splash_regions.html

| Code | Country | Level 2 regions |
|---|---|---|
| | **Bulgaria** | |
| BG | BALGARIJA | |
| BG01 | | Severozapaden (North-West) |
| BG02 | | Severen tsentralen (North Central) |
| BG03 | | Severoiztochen (North-East) |
| BG04 | | Yugozapaden (South-West) |
| BG05 | | Yuzhen tsentralen (South Central) |
| BG06 | | Yugoiztochen (South-East) |
| | **Cyprus** | |
| CY | ΚΥΠΡΟΣ/CYPRUS/KIBRIS | |
| | **Czech Republic** | |
| CZ | ČESKÁ REPUBLIKA | |
| CZ01 | | Praha |
| CZ02 | | Střední Čechy |
| CZ03 | | Jihozápad |
| CZ04 | | Severozápad |
| CZ05 | | Severovýchod |
| CZ06 | | Jihovýchod |
| CZ07 | | Střední Morava |
| CZ08 | | Moravskoslezko |
| | **Estonia** | |
| EE | EESTI | |
| | **Hungary** | |
| HU | MAGYARORSZÁG | |
| HU01 | | Közép-Magyarország |
| HU02 | | Közép-Dunántúl |
| HU03 | | Nyugat-Dunántúl |
| HU04 | | Dél-Dunántúl |
| HU05 | | Észak-Magyarország |
| HU06 | | Észak-Alföld |
| HU07 | | Dél-Alföld |
| | **Lithuania** | |
| LT | LIETUVA | |
| | **Latvia** | |
| LV | LATVIJA | |

| Code | Country | Level 2 regions |
|---|---|---|
| | **Malta** | |
| MT | MALTA | |
| | **Poland** | |
| PL | POLSKA | |
| PL01 | | Dolnośląskie |
| PL02 | | Kujawsko-Pomorskie |
| PL03 | | Lubelskie |
| PL04 | | Lubuskie |
| PL05 | | Łódzkie |
| PL06 | | Małopolskie |
| PL07 | | Mazowieckie |
| PL08 | | Opolskie |
| PL09 | | Podkarpackie |
| PL0A | | Podlaskie |
| PL0B | | Pomorskie |
| PL0C | | Sląskie |
| PL0D | | Świętokrzyskie |
| PL0E | | Warmińsko-Mazurskie |
| PL0F | | Wielkopolskie |
| PL0G | | Zachodniopomorskie |
| | **Romania** | |
| RO | ROMÂNIA | |
| RO01 | | Nord-Est |
| RO02 | | Sud-Est |
| RO03 | | Sud |
| RO04 | | Sud-Vest |
| RO05 | | Vest |
| RO06 | | Nord-Vest |
| RO07 | | Centru |
| RO08 | | Bucureşti |
| | **Slovenia** | |
| SI | SLOVENIJA | |
| | **Slovakia** | |
| SK | SLOVENSKÁ REPUBLIKA | |
| SK01 | | Bratislavský kraj |
| SK02 | | Západné Slovensko |
| SK03 | | Stredné Slovensko |
| SK04 | | Východné Slovensko |