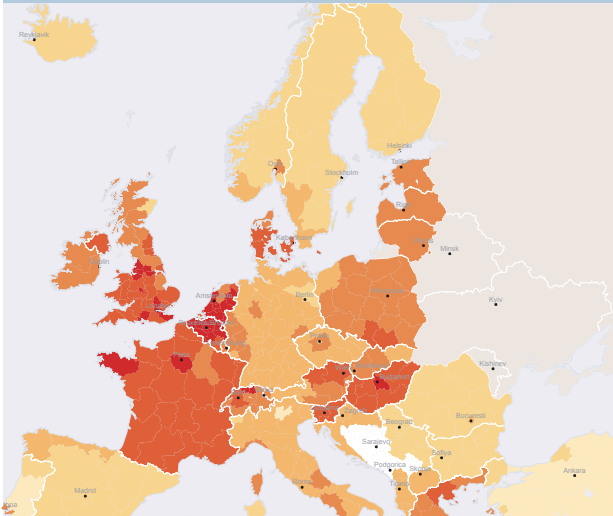


- Services of General Economic Interest
- Social Services of General Interest



Energy · Water ·
 Sewage · Waste · Motorways · Roads ·
 Busses · Transport · Postal activities ·
 Telecommunicaton · Broadband · Education ·
 Schools · Hospital beds · Doctors · Nurses ·
 Child care · Employment agencies ·
 Veterinary offices · Broadcasting ·
 Culture · Sport stadiums ·
 Accessibility



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im Bundesamt für Bauwesen
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European Atlas of Services of General Interest



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European Atlas of Services of General Interest

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Editorial board

Antonia Milbert (BBSR)

Christopher Smith (e.f.)

Dear Reader:

Services of general interest (SGI) has widely come to be regarded as covering the arrangements, tasks and functions assumed to be of essential importance to citizen welfare, quality of life and participation, as well as to the general functioning of societies at a level of development and quality corresponding to Community visions and goals (the European model of society). Their assumed importance poses an obligation on public authorities to ensure their provision according to certain standards in respect of quality, availability, accessibility and affordability – in defense of “general interest” (the implementation of fundamental citizen rights and, in EU terms; the achievement of economic, social and territorial cohesion).

The term SGI was coined within the EU context and, as such, does not reflect traditional national terminologies in policy terms or fit easily into scientific literature in areas like social policy and spatial planning. Moreover, because of its essentially ‘politicised’ nature no agreed or recognised official definition. Furthermore, the territorial evidence to support the implementation, monitoring

and evaluation of territorial policy measures, in respect of SGI, remains insufficient. Therefore, in 2010, ESPON launched the project “Indicators and perspectives for services of general interest in territorial cohesion and development” (SeGI).

The purpose of the project is to deliver an overview of the current territorial situation of services of general interest in Europe, in particular focusing on:

- Existing definitions and classifications of services of general interest, and how they can be applied from a territorial cohesion and development point of view.
- Indicators and how they can be used to measure the level of services of general interest.
- Mapping the current situation of services of general interest throughout Europe, for instance studying the distribution of services and what kind of areas of specialisation can be detected.
- Studying territorial development potentials and constraints in different areas in Europe, focusing on current trends, as well as different territorial development paths and the relationship between territorial governance and services of general interest.

What can be expected of this atlas? The atlas summarises all of the maps of the conceptual indicator set constructed using currently available statistics. The atlas contains well known indicators like the length of motorways and available hospital beds as well as seldom used indicators like veterinary offices and the number of nurses and midwives. The atlas represents a broad range of SGI and therefore provides a broad overview of the regional supply of services in the EU 27+4. Nevertheless, due to data gaps, some service sectors are still missing and thus the creation and acquisition of more and better data still remains desirable. An introductory chapter explains the concepts, definitions and methods developed in the SeGI project, explaining both the findings made and the constraints encountered in defining and measuring SGI.

Unsurprisingly, the maps show the existence of significant national differences in service supply. Beyond a common understanding of the essential importance of SGI for citizen welfare and for development and after 20 years of market liberalisation national societies still basically organise SGI in different ways. With this in mind we hope that the atlas will be useful for politicians, practitioners, administrators and other stakeholders working with services of general interest as well as for scholars in the field.

The work with this atlas has been lead by Antonia Milbert and Ina Marie Breuer (Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), Bonn, Germany) as a part of the project activity 2 (indicators and maps) in the SeGI project. Olaf Foss (Norwegian Institute for Urban and Regional Research (NIBR), Oslo, Norway), Alois Humer (Institute for Geography and Regional Research at the University of Vienna, Austria), Pedro Palma (Centre of Geographical Studies (CEG) at the University at Lisbon), Piotr Rosik and Marcin Stepniak (Institute of Geography and Spatial Organisation at the

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Polish Academy of Sciences, Warsaw, Poland), and Mr Xabier Velasco (Sustainable Land and Housing Corporation of Navarre, Spain) have all contributed with valuable input and expertise to this atlas.

This atlas has been financed by the ESPON 2013 Programme and this financial support is gratefully acknowledged. Texts, maps and conclusions stemming from research projects under the ESPON programme presented in this atlas do not necessarily reflect the opinion of the ESPON Monitoring Committee.

Dr. Daniel Rauhut, Associate Professor

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Services of general Interest - concepts, definitions and methods

■ SGI – an operational definition for scientific purposes

In the literature and official documents on SGI in the EU context the term ‘services’ is seldom if ever contested or even discussed. However, the national and EU regulatory SGI frameworks generally address specific industries or sectors (the supply side; the service providers etc.). ‘Sectors’ seems to be the most frequently used term alongside ‘services’ while terms like industries, areas, arrangements, undertakings, institutions, enterprises, missions, objectives and functions are also frequently employed. In principle, most services are potentially essential/of general interest since history shows that ongoing socio-economic and technological change imposes new requirements and needs to be fulfilled as prerequisites for individual quality of life, as well as for a well-functioning and sustainable economy. Changes in the way wealth is produced, in the division of labour, in the product life cycle, and not least in the environmental imperative of ‘serving’ the products from long before birth until well after death, including the sustainable management of raw materials, energy consumption, product utilisation and waste, continuously places new types of services at the centre of the system of wealth production. Many services have become indispensable - in terms of the production of the goods and services necessary - to fulfil basic needs and secure environmental sustainability (Giarini 2009).

According to a pragmatic approach, a wide tentative and ‘additive’ perception of the actual European landscape of policies and practices related to SGI and related concepts, NACE Rev 2 classes are included in the universe of potential SGI if they may be roughly judged to satisfy the following broad criteria – based on literature/document surveys and

the common judgment of the project group:

1. Are represented among the typical services of the ‘welfare states’ in the various EU27+4 countries
2. Are representing other services subjected to political/legal public intervention in a ‘SGI-context’ in the various EU27+4 countries
3. Are included in sectors already classed as SGEI (under sector legislation) in EU
4. Are representing areas/sectors exemplified as (potential) SGI in EU documents related to SGI.

In this project we choose the NACE Rev 2 (Statistical classification of economic activities in the European Community), Eurostat 2008, as our point of departure, acknowledging that certain analytical purposes may require a somewhat different approach. NACE is mandatory within the European Statistical System and ensures the delivery of comparable statistics at the European level and, more generally, at world level also.

■ Defining SGI indicators

First, the operational definition outlines the entities or units of services, the abovementioned NACE classes. Secondly, each service has to be disaggregated into its main standards which are availability, accessibility, affordability and quality. The measures of each standard differ: availability will involve the counting of units; accessibility will specify the rela-

tive distance in length or in time; affordability will be indicated by a monetary measure while quality remains difficult to translate directly into quantitative measures. No indicator can however adequately express all of these aspects at the same time. Therefore, the ideal matrix of indicators is build with reference to the NACE classes and, in particular, to the four standards for each class.

In statistical terms we define the four aspects of SGI as follows:

Availability: Does the service exist, in accordance to NACE classification system, in the region? Do such facilities exist, and if so, how many of them are there? To what extent does this service exist (e.g. quantities like length, personnel)?

These available indicators express only the presence or absence of certain services in the region (number of local units) and, to some extent, their ubiquity (in terms of persons employed). They are not however able to say whether the amount of the service provided is ‘sufficient’. Identifying sufficiency or a basic minimum level of service is a political and societal question and, as such, in a democratic environment, must be answered at the member state level. Thus only the variance of supply and/or service availability will be addressed here.

Ideal matrix of SGI indicators

SGI unit 2 classes	NACE Rev	Standards/dimensions of SGI			
		availability	accessibility	affordability	quality
D 35.11					
D 35.12					
....					

Source: own illustration

In SeGI availability is mainly related to the presence of SGI providers (firms) within NACE Rev 2 classes (cf. above) and preferably some proxy measure of “adequacy” (like employment, capacity). For some categories of SGI the location of provider units is less relevant, like certain network services (Internet providers/telecommunication, electricity etc.) and other measures of availability are required.

Accessibility: Are the region’s services, in accordance with the NACE classifications, easily accessible to the citizens/beneficiaries? How far do the citizens/beneficiaries have to walk or to drive to reach such service facilities? How much time do they have to spend accessing them?

Accessibility denotes the degree of ease and convenience (absence of different barriers; spatial, temporal, monetary, cultural, others) by which the potential beneficiaries are able to obtain and utilize the available service. An important dimension of accessibility is the product of transport and transport policies/planning (networks, stations, modes, frequency, speed, pricing, universal design etc.). Notwithstanding the broad definition of accessibility forwarded by Penchansky/Thomas (1981) who define access with reference to the so-called five A’s - affordability, availability, accessibility, accommodation and acceptability - in what follows, accessibility will also be used in its narrow sense relating to the overcoming of physical distances. This is consistent with the already voluminous literature on quantitative accessibility analysis. Most measures used refer to potential accessibility by measuring distances in length (km), time (driving distance) or share of population living within distinct distances. Driving distance by car is the most often used mode of transportation in the literature (Milbert et al. 2013). Within

the SeGI project it was only feasible to undertake the accessibility indicators/analysis for five case study areas because of data restrictions and computing/work capacities.

Affordability: Are certain services to be paid for or supplied on a free of charge basis – and if they do incur a charge is this paid by the customers themselves, by the local authorities or by the state? How expensive are charged for services? Does the price point or charge for a service render it fair and equitable – i.e. accessible to all - or does it effectively exclude people on price? Does the price or charge for a service vary between regions or is it more or less the same within states? What differences do exist between states and regions?

If more than one provider offers a certain service in a region its price or the charge made for it is much more likely to vary within a region. Additionally, services in a private market may also vary over time. In relation to certain services the local authorities remain able, to a certain degree, to set their own charges. Moreover, it should also be understood that the level of charges set does not necessarily represent either its true cost or its affordability to the producers. For health services Thiede/Akweongo/McIntyre (2007) define affordability as the ‘degree of fit’ between the costs of utilising health care services and the individuals’ ability to pay. The indicators of SGI affordability are represented by means of only a few selected indicators on prices/price levels and on investments. Regional and national disparities in the prices of and/or charges for certain services may be determined by i) differences in the costs of supply and ii) differences arising due to cultural and political/moral values.

Quality: The perceived ‘quality’ of a service is a subjective value related to many different aspects like accommodation, security, predictability, appearance and acceptability. Accessibility can also be related to this. As regards SGI, quality standards are influenced by historical experience and follow peoples’ varying expectations. Furthermore, statements in respect of quality are altered by the existence of different situations and views; does one need to make use of a certain service or not? Is the quality of a certain service evaluated from insights, experience or on the basis of second hand information alone?

Hitherto little research has been done on the quality of services. Research in this field is generally based either on one-dimensional self-reported measures or on few attempts to construct multidimensional measures. The latter remain (Parasuraman/Zeithaml/Berry 1985). Rate of use and outcomes are weak indicators used to represent the multidimensional construct of ‘quality’. Nevertheless, comparable information on the quality of services in Europe remains difficult to access. Within the context of the SeGI project however the quality aspect in relation to services had to be set aside because of the lack of suitable indicators.

■ The representation of SGI by service availability in the EU 27+4

If only availability is quantifiable for European regions are these measures sufficient to describe regional disparities in respect of SGI across Europe? If it is only the absolute numbers of local units of certain services in NUTS 2 regions that are available nothing can actually be said about the regional concentration of these units. How important then is the notion of the centrality or de-centrality of the units for their accessibility?

There is some evidence that land use and location of facilities are coinciding and are developing by the increase of transportation hubs (Bailly 2009, Polzin 1999). Nevertheless, White (1979) argues that accessibility is not a sufficient criterion for the location of facilities; instead greater attention should be given to facility linkage or facility agglomeration while the significant effect of multi-purpose trips on use and accessibility is described by Erwing (1994). Furthermore, the influence of new technologies (especially information technologies, ICT) on the use of transport and on traffic is often stated. Coulelis (2000), moreover, argues that new technologies will be an important alternative to physical traffic if the notion of accessibility is to change in a more sustainable manner.

On the basis of the accessibility analysis in the five case study areas of the SeGi project we find a high correlation between the availability and accessibility of certain services. Perhaps the clearest interaction here is that between the availability of and accessibility to motorways. The accessibility of motorway hubs increases with the density of the motorway-network. The effect is even higher on the value of the maximum travel time to the nearest motorway hub. There is also a strong relation between the availability of hospital beds and accessibility to hospitals. Again, the relation is stronger reflecting the maximum travel time and weaker on the average travel time in the region.

The economies of scale will also have an effect on prices/running costs and therefore an influence on the cost side of affordability. In addition, some aspects of quality are dependent on availability: waiting times for the service and productivity increase with its availability which has implications for quality etc.

These hypotheses however need to be supported by empirical tests in future research. At best, with the indicators of SGI availability presented here it is only possible to describe regional distribution and differences in Europe in an approximate manner.

■ Mapping SGI in the EU 27+4 - the structure of this atlas

The Commission Green Paper roughly identifies three categories of SGI according to “the need and intensity of Community action and the role of the Member States” (European Commission 2003):

- *Services of general economic interest (SGEI) provided by large network industries*
- *Other services of general economic interest*
- *Non-economic services and services without effect on trade*

This project defines Services of General Interest as

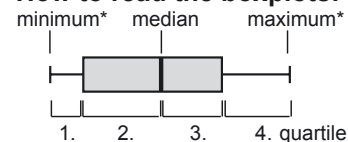
- *Services of General Economic Interest – SGEI* - (containing gas, electricity, postal service, transport, ICT and electronic communications, plus water and waste management),
- *Social Services of General Interest – SSGI* - (including labour market services, education, health care, child care, social care, (social) housing and social assistance services).

The atlas follows the categorisation of the project and is structured in two main sections: SGEI and SSGI.

The core component of any atlas is its maps. The maps in this atlas show the regional variation of service supply, mainly on the NUTS 2 level and for statistics with less regional differentiation on the NUTS 0 level. Further figures and illustrations enhance the information on the regional distribution of services in the EU 27+4. The so called boxplots in particular illuminate the often significant regional variation both between and within the countries involved. Boxplots plot the minimum, the median and the maximum value and the limits of the quartiles of the ordered regional values of each country with data. They supplement the maps with information on the uneven distribution of such services especially in the upper and lower classes hidden in the maps.

The atlas also contains the results of the accessibility analysis undertaken within five case study areas of the SeGi project. A typology map of SGEI and SSGI summarises the information on regional supply in respect of services.

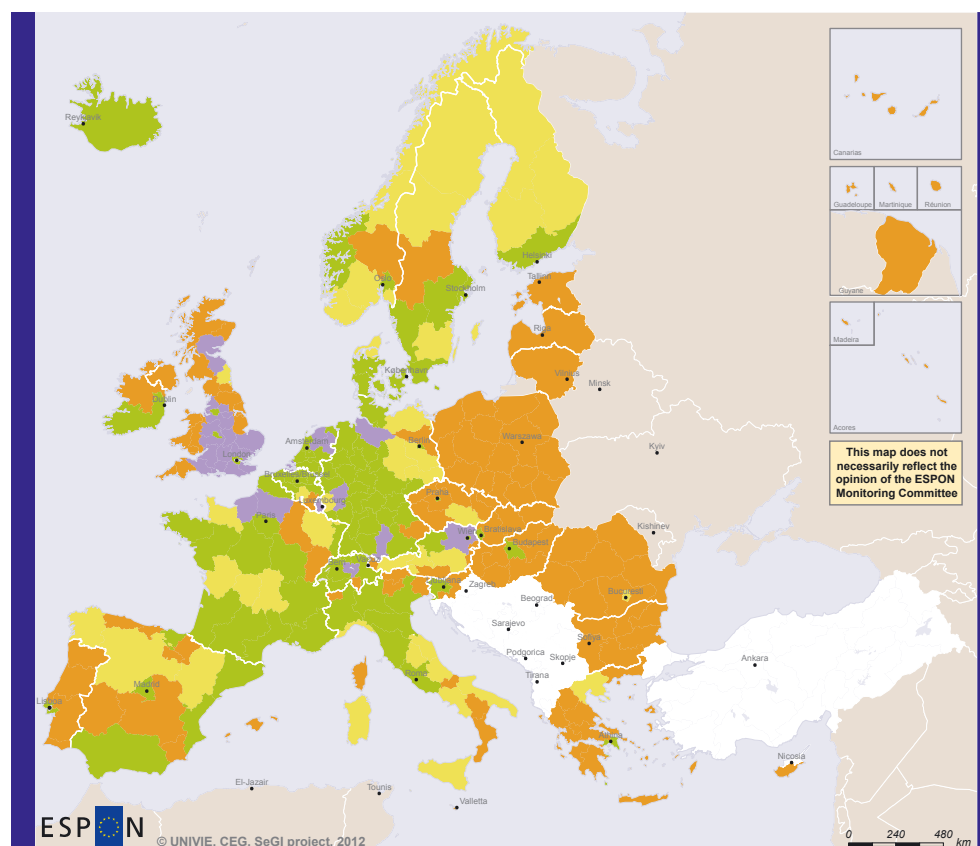
How to read the boxplots:



* outliers and extrem values are extracted from the figure for better outline
 quartile: share of 25% of all values in an ascending order
 countries with only one NUTS 2 region are expressed by the median line

Services of General Interest – a typology

'Services of General Interest' is a framing term for a multitude of heterogeneous policies. According to EU terminology, two main domains of Services of General Economic Interest (SGEI) and Social Services of General Interest (SSGI) can be distinguished. While individual SGI – such as transportation, education, healthcare etc., – each follow their own logic and territorial appearance, a comprehensive view of the regional situation in respect of SGI provision as a whole can only be provided on the basis of a combined set of indicators. The regional typology of Services of General Interest classifies the European NUTS 2 regions into four groups, according to the regional situation as regards SGEI and SSGI compared to the the EU 27+4 average (Humer/Palma 2013). Western Germany, northern Italy, many French regions as well as the densely populated regions of Northern Europe and of Iberia are above average in both domains, while regions in the new EU member states – with the exception of the capital regions in Slovenia and Hungary – as well as peripheral regions across the British Isles and on the Iberian peninsula score worse in both sections, showing negative values in both domains. In respect of SGEI, positive values can at least be recorded for the predominantly suburban areas of Austria, Germany and the UK. On the contrary, as regards SSGI, positive values are generally to be found in the more peripheral areas of the EU 15 member states – such as in the Nordic periphery, the Alpine regions, eastern Germany, northern Spain or southern Italy. This may indicate a strong national commitment to SSGI provision, particularly in the context of trying to counteract territorial disadvantages – which would be more difficult in the technical infrastructure related domain of SGEI.



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Regional level: NUTS 2
 Source: EUROSTAT, 2011
 Origin of data: EUROSTAT, 2011
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Cross of SGEI and SSGI index

- positive SGEI index and positive SSGI index
- positive SGEI index and negative SSGI index
- negative SGEI index and positive SSGI index
- negative SGEI index and negative SSGI index
- no data

SGEI Indicators (Z-transformed; i.e. expresses deviation from mean in standard-deviation)

1. Length of motorways in km per 1.000 km² in 2009
2. Percentage of households with access to broadband in 2010
3. Persons employed per 100.000 inh. in PR and consultancy in 2009
4. National public expenditures on economic affairs per inh. in 2009

SSGI Indicators (Z-transformed; i.e. expresses deviation from mean in standard-deviation)

5. Students in pre-primary edu. per 100 inh. of resp. age-group in 2009
6. Students in upper secondary edu. per 100 inh. of resp. age-group in 2009
7. Students in tertiary edu. per 100 inh. of resp. age-group in 2009
8. National public expenditures on education per inh. in 2009
9. Available hospital beds per 100.000 inh. in 2008
10. Physician and doctors per 100.000 inh. in 2008
11. Professional nurses and midwives per 100.000 inh. in 2008
12. National public expenditures on health care per inh. in 2009

1 Services of General Economic Interest

- 1.1 Energy supply
- 1.2 Electricity prices
- 1.3 Water supply
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- 1.5 Waste collection
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- 1.13 Access to motorways
- 1.14 Access to airports
- 1.15 Postal and courier activities
- 1.16 Postal and courier prices
- 1.17 Telecommunication activities
- 1.18 Telecommunication prices
- 1.19 Access to broadband
- 1.20 Regional typology of economic SGI

1 Services of General Economic Interest

■ The term services of general economic interest (SGEI) emerged from within EU policy practice and is used but not defined by the EU Treaty. “However, in Community practice there is broad agreement that the term refers to services of an economic nature which the Member States or the Community subject to specific public service obligations by virtue of a general interest criterion. The concept of services of general economic interest thus covers in particular certain services provided by the big network industries such as transport, postal services, energy and communications. However, the term also extends to any other economic activity subject to public service obligations.” (European Commission 2003: 7).

There is no distinct differentiation between economic and non-economic services, either at EU level or in the member states. “At EU level, SGEI are essentially governed by two provisions: the submission to competition rules subject to art. 86(2) (somewhat

reinforced by art. 16, but its legal use and consequences seem limited) and the fact that state aid distorting competition is prohibited in so far as it affects trade between Member States.” (European Parliament 2005: 9).

Thus SGEI are related to market industries and market regulations having an effect on trade but this classification remains vague as non-economic services are generally also partly or totally market-related. The Green Paper, in the main, treats the services provided by large network industries as being of general economic interest. Since the 1980s a strategy of increasing market opening has been employed in this field and thus a comprehensive regulatory framework was required. The industries involved include telecommunications, postal services, and electricity, gas and transport industries. “These industries have a clear Community-wide dimension and present a strong case for developing a concept

of European general interest. This is also recognized in Title XV of the Treaty, which gives the Community specific responsibility for trans-European networks in the areas of transport, telecommunications and energy infrastructure, with the dual objective of improving the smooth functioning of the internal market and strengthening social and economic cohesion.” (European Commission 2003: 10).

Furthermore, other services of economic interest such as waste management and water supply though not subject to community regulation are nevertheless part of the internal market and are therefore classified as being of economic interest.

Within the green paper these two categories are distinguished from all other services of non-economic interest. Within the SeGI project and in this atlas these services are classified altogether as SEGI.

1.1 Energy supply

■ As Europe is not a primary energy producer and it now faces increasing competition for such scarce resources from the newly emerging economies like China and India it is clear that pan-European solutions in the energy field are likely to become increasingly necessary. The EU Commission's Green paper (2006) "A European Strategy for Sustainable, Competitive and Secure Energy" deals with this complex and multifaceted challenge. The paper highlights the three main targets of the Union's energy policy which are sustainability, competitiveness and security of supply. The policy should include, a plan to develop competitive and sustainable energy sources with a low level of carbon dioxide emissions, the placing of a limit on the level of energy demand in Europe and a worldwide effort, led by the EU, to contain climate change and improve local air quality levels (Stübgen 2008: 24).

On the issue of competitiveness however the deregulation of the energy market must produce direct benefits for consumers as well as to the economy in general. Supportive investments in environmentally-friendly energy production and energy efficiency must also be made. The effect of higher international energy prices on citizens and on the economy should be limited and Europe's leading position in energy technology maintained (Stübgen 2008: 26). To ensure the ongoing provision of energy an integrated approach should be pursued which includes measures to suppress demand, a diversification in the mix of energy sources through the increased use of domestic and renewable energies and a diversification of import sources and routes.

Electricity and other forms of energy are crucial for both households and the business community and its provision is thus a basic service. The availability of a regional supplier is, moreover, crucially important for

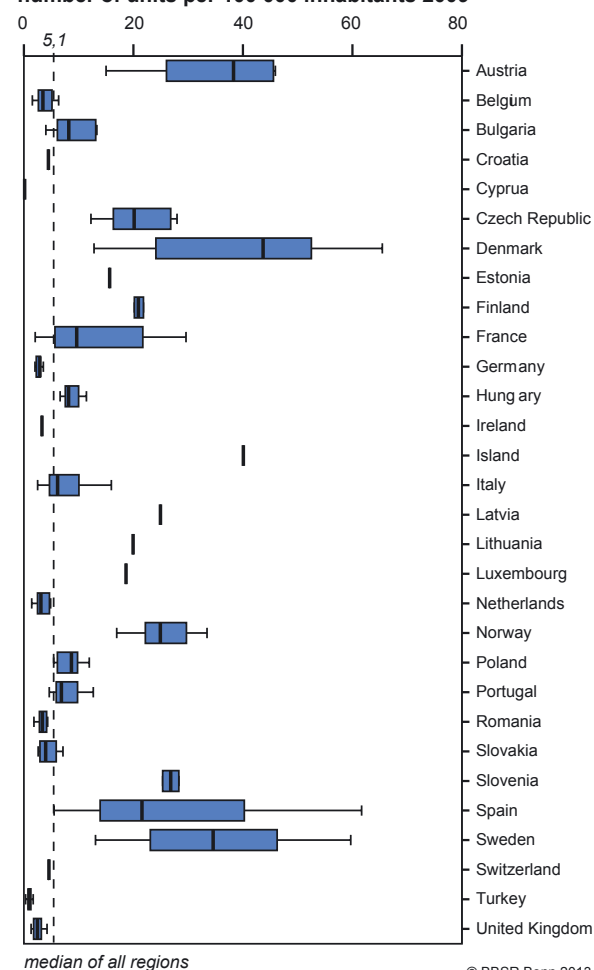
the provision of this service as are the stability of the service and the fact that it is offered at a reasonable price. In some countries market liberalisation has led to a concentration rather than a diversification of suppliers and to the creation of natural monopolies or oligopolies situation among the few suppliers. The low number of local units could however indicate a concentration of companies in another region and not necessarily a situation of under-supply to the local population. The number of units is less relevant for supply but mainly impacts price through competition and reflects market power.

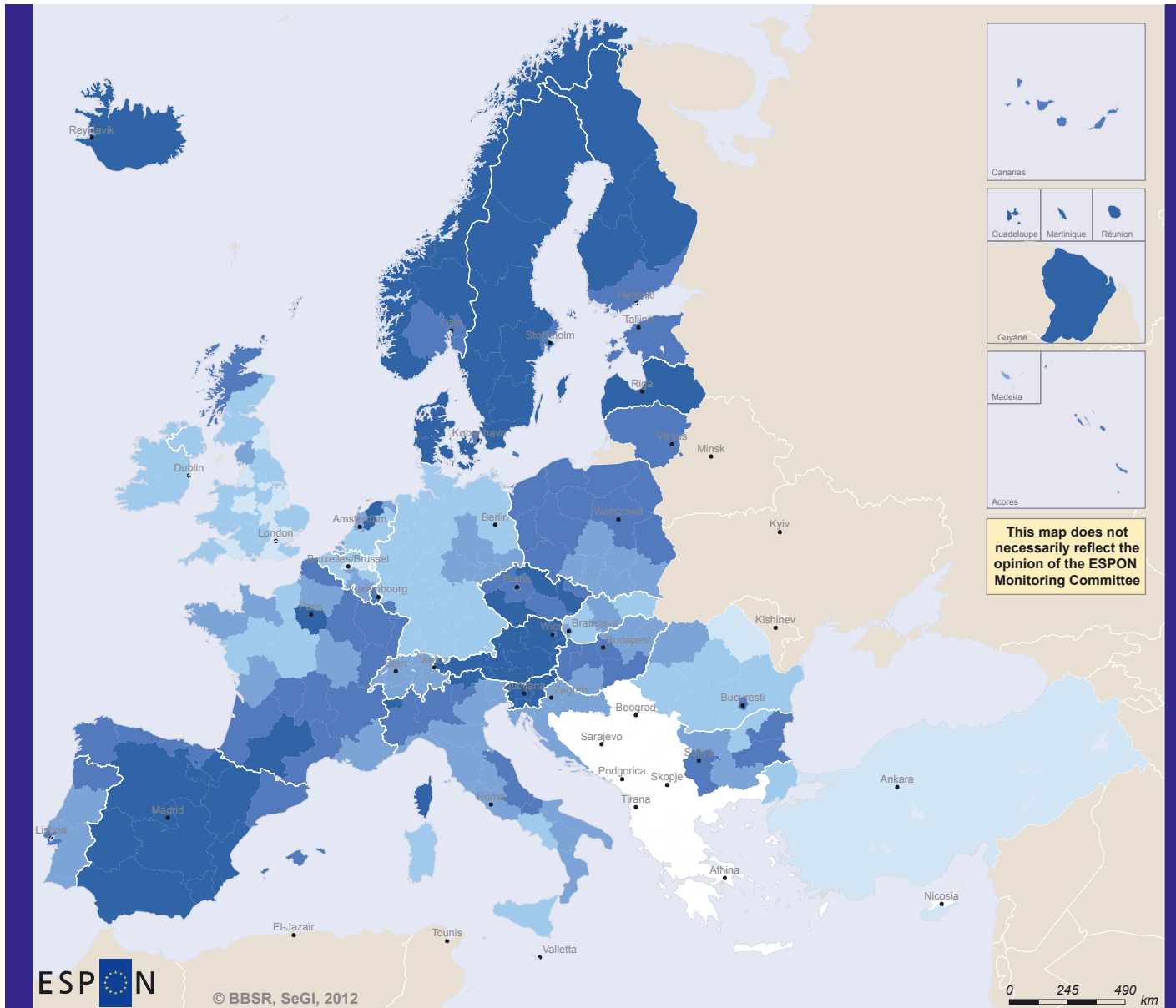
As energy supply is a net infrastructure the location of the company, in terms of provision, is not the most important aspect, rather, it is more important that the system is effective and user friendly. Is each household and/or company connected to the energy system? Does the quality of the system meet current standards?

The number of local units does not say anything about the effectiveness and quality of the system. Furthermore the indicator does not show whether the local units are sufficient to meet the needs of the population or if there is a gap in the provision. The adoption of a more sustainable approach to energy production and consumption could however help to deliver a more decentralised method of supply, though the regional distribution pattern is generally dependent on the energy source. In recent years an increasing number of municipalities have sought to escape from their over-dependency on energy companies by building up their own systems (such as district heating) to supply the local population. This is an interesting development particularly as the thrust in service provision since the 1980s has undoubtedly been in the opposite direction with public services increasingly being privatised

(e.g. telecommunications, traffic and water). The figure shows that there are several countries with significant variations in the number of units. In Spain for example the number of units ranges from 5.1 to 62. The median for all European regions however is 5.1 units.

Electricity, gas, steam and air conditioning supply – number of units per 100 000 inhabitants 2009





Energy supply

Local units active in supplying electricity, gas, steam and air conditioning per 100 000 inhabitants, 2009

- up to less than 2
- 2 up to less than 4
- 4 up to less than 8
- 8 up to less than 20
- 20 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

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Regional level: NUTS 0/NUTS 1/NUTS 2 (2006)*
Source: Eurostat database, 2011
Origin of data: Eurostat, 2009*

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* Croatia, Ireland and Switzerland: NUTS 0;
Germany: NUTS 1
Belgium: Prov. Luxembourg and
Prov. Brabant Wallon: average of these two regions
Denmark, France, Italy, Lithuania, Netherlands,
Norway: 2008
Iceland, Turkey: National Statistical Offices 2009

1.2 Electricity prices

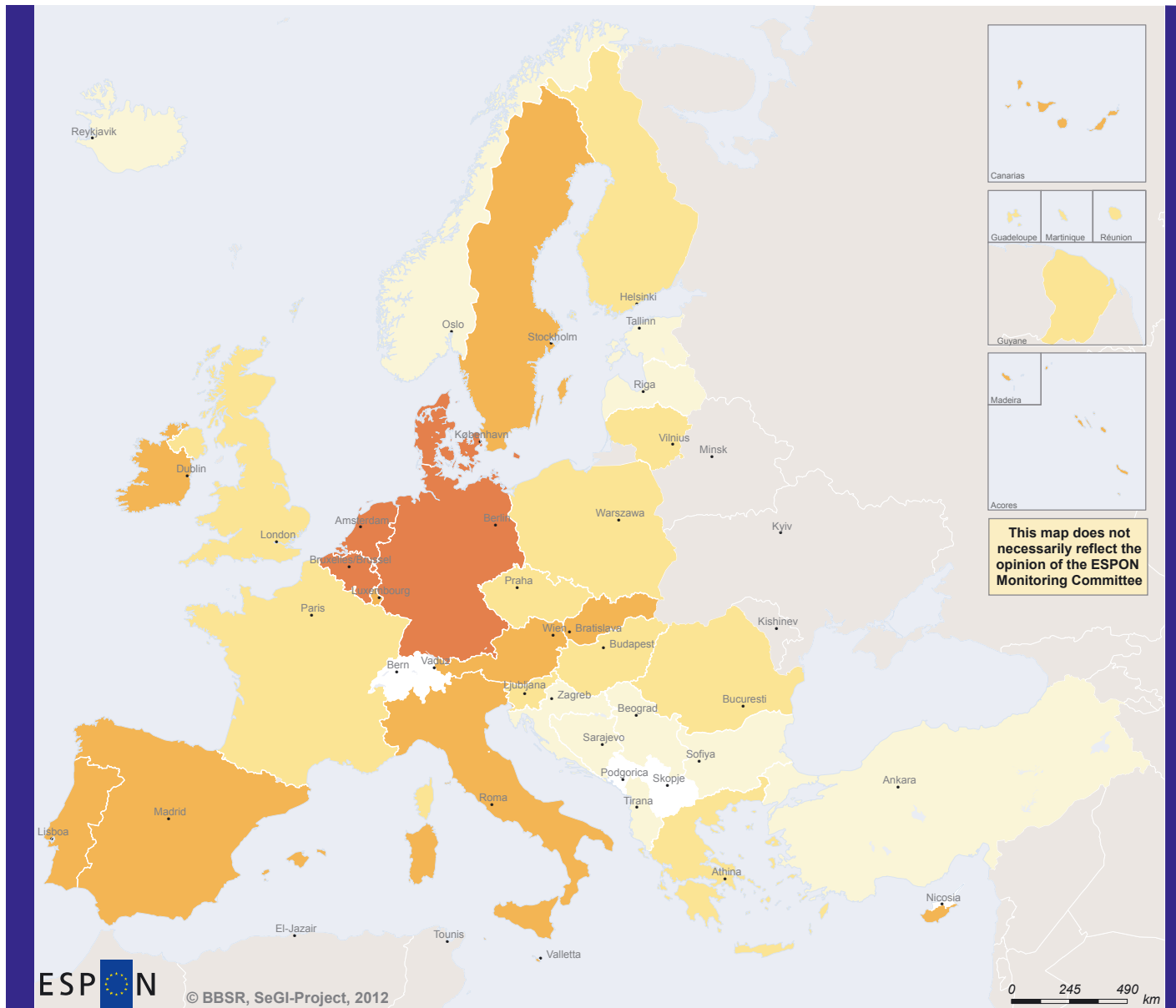
■ The provision of electricity is crucial for an adequate living standard and a functioning economy. Having no access to the electricity system would constrain the development of regions and people. Access alone is not however the only issue here as it is equally important to be able to afford the demanded price.

The Netherlands, Belgium, Germany and Denmark show the highest electricity prices for households. The reasons for this, in the main, relate to taxes which, for instance, accounted for 40.8 % of the price in Germany in 2009. In Denmark the electricity price per kWh is 0.26 € which is a difference 60 % of the cost of electricity to consumers is government tax. Most European countries do not have access to sufficient indigenous energy resources to satisfy demand without imports. This has a significant effect on prices. In addition, the antiquated infrastructure endowments in the energy provision field have to be renovated in order to ensure ongoing provision at an adequate level, thus generating further costs usually linked to higher prices for consumers.

In the 1990s several EU directives were enacted which promoted the liberalisation of the service sector, including energy provision, across all EU member states. The main goal of this policy at the EU level was to create a single European market in energy in which borderless and market-based service provision, without national limitations, became a reality. Thus energy provision is clearly no longer only a municipal concern. Instead of legal monopolies and derogations from EU rules for the providers of public services competition between several providers should be encouraged. As a result of these liberalisation tendencies however, especially in the case of net infrastructures like energy, telecommunications and water provision a trend towards market concentration and private oligopoly become apparent. In Germany two electricity providers dominate over 60 % of the market. Of the original nine electricity providers only four remain to share the current market. It is, moreover, questionable whether this development is still conducive to competition and thus to lower prices for consumers. In Germany the liberalisation of the energy market led to lower prices but really only industrial enterprises. Households, in reality, rarely benefited. The industrial sector does, nevertheless, carry much more weight than the household sector in negotiations with the energy providers, probably because it is more unified and better organised (rls Standpunkte 11/2004).

Countries with lower incomes (the Western Balkans, Bulgaria and Turkey) also show lower prices for electricity. The very low prices in Iceland however are explainable by their high rate of own produced renewable energy like geothermal or water energy. 25 % of the country's electricity production comes from geothermal energy (National Energy Authority, 2013). Also Norway has a high average rate of electricity self-sufficiency, almost solely based on renewable energy (hydro power). Some liberalisation and common networks with neighbouring countries has led to rising prices the later years, but electricity prices are still in the lowest category.

The indicator does not show whether people are excluded from the electricity system because of the price structure in their countries. As such, we have to assume that prices across Europe are affordable for the majority of people. Another weakness however is that it is not discernible, by means of this indicator alone, the number of properties not connected and/or useable/habitable without electricity or running water?



Electricity prices

Electricity prices in € per kWh, 2010

- up to 0,12
- 0,13 up to 0,18
- 0,19 up to 0,22
- 0,23 up to 0,31
- no data

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Regional level: NUTS 0
Source: Eurostat database, 2011
Origin of data: Eurostat, 2010*
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* Energy in Central & Eastern Europe 2012: Albania, Bosnia&Herzegovina, Croatia, Montenegro, Serbia, Turkey

1.3 Water supply

■ The European and global economy is dependent on natural resources like fuels, minerals, soil, air and biomass and of course water while pressure on these resources is growing faster than ever as the newly industrialising countries strive to match the prosperity and consumption levels of the developed countries. The over-intensive use of resources however stresses the planet and increasingly threatens the security of supply. Resource consumption to the extent undertaken previously is now simply no longer possible. Thus finding a more efficient way to use precious resources is now a major point of departure in the establishment of future economic, social and environmental targets for the European Union particularly in relation to the Europe 2020 strategy (European Commission COM(2011) 21, 26.01.2011).

The provision of fresh water is, by any means of measurement, essential for an adequate standard of living. The treatment of used water resources is important to protect the environment and necessary for its reuse or recycling. After an informal congress of the European Council on environmental issues in 2011 the council noted that the availability and quality of water resources is of essential importance for sustainable development and for an environmentally sound economy. Given the existence of many different threats such as consistent population growth, increasing urbanisation and environmental pollution, water resources have to be protected through different political instruments such as the EU Water Framework Directive. In November 2012 the European Commission informed other EU institutions in a Blueprint to safeguard Europe's water resources, (European Commission COM(2012) 673 final, 12.02.2013) about the status of Europe's water resources as well including the problems and solutions faced by this sector. This document clearly states that water management involves much more

than distribution and treatment alone, it also includes land-use and spatial planning and cooperation between the member states.

Due to the EU liberalisation and de-regulation policy the water sector now also has to deal with a number of additional developments. A new EU directive is (at current time of writing) close to being adopted which would require all such services to be tendered across the whole of Europe. Because of the ongoing financial and debt crises many municipalities are being forced to privatise their water provision (dradio 2013). Before the EU started to discuss this issue however England and Wales had, in 1989, already privatised their water provision. The privatised regional water providers are regulated by an administrative body which is responsible for the setting of price limits. Nevertheless, up to the end of the 1990s the price of water increased by up to 40 % which led to numerous households being disconnected for non-payment (WSI Mitteilungen 2/2004).

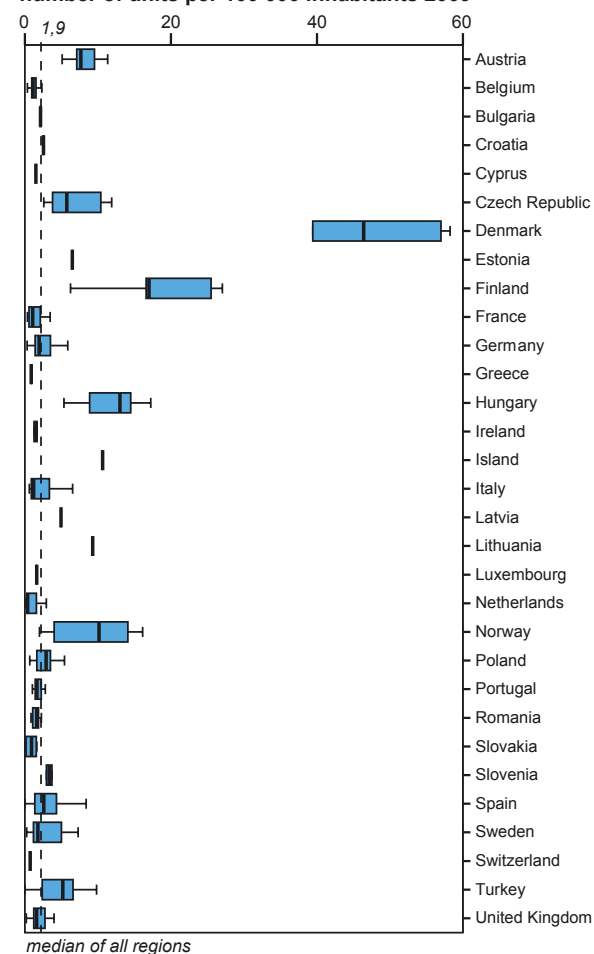
Fresh water cannot be transported over large distances. Therefore one expects an even distribution of this service and a rural-urban gradient in terms of the number of units per inhabitant. But the collection of water is also dependent on natural resources. This gradient is not however observable in all countries. Further regional concentration aspects may be due of changes in the organisation and liberalisation of the market. Similar to the indicator for energy supply this indicator does not show the efficiency and quality of the infrastructure. Furthermore, it is not immediately obvious whether the citizens have access – in a physical way as well as in regard to the affordability aspect – to water provision.

Denmark shows by far the highest number of local units and also a large variation within the country.

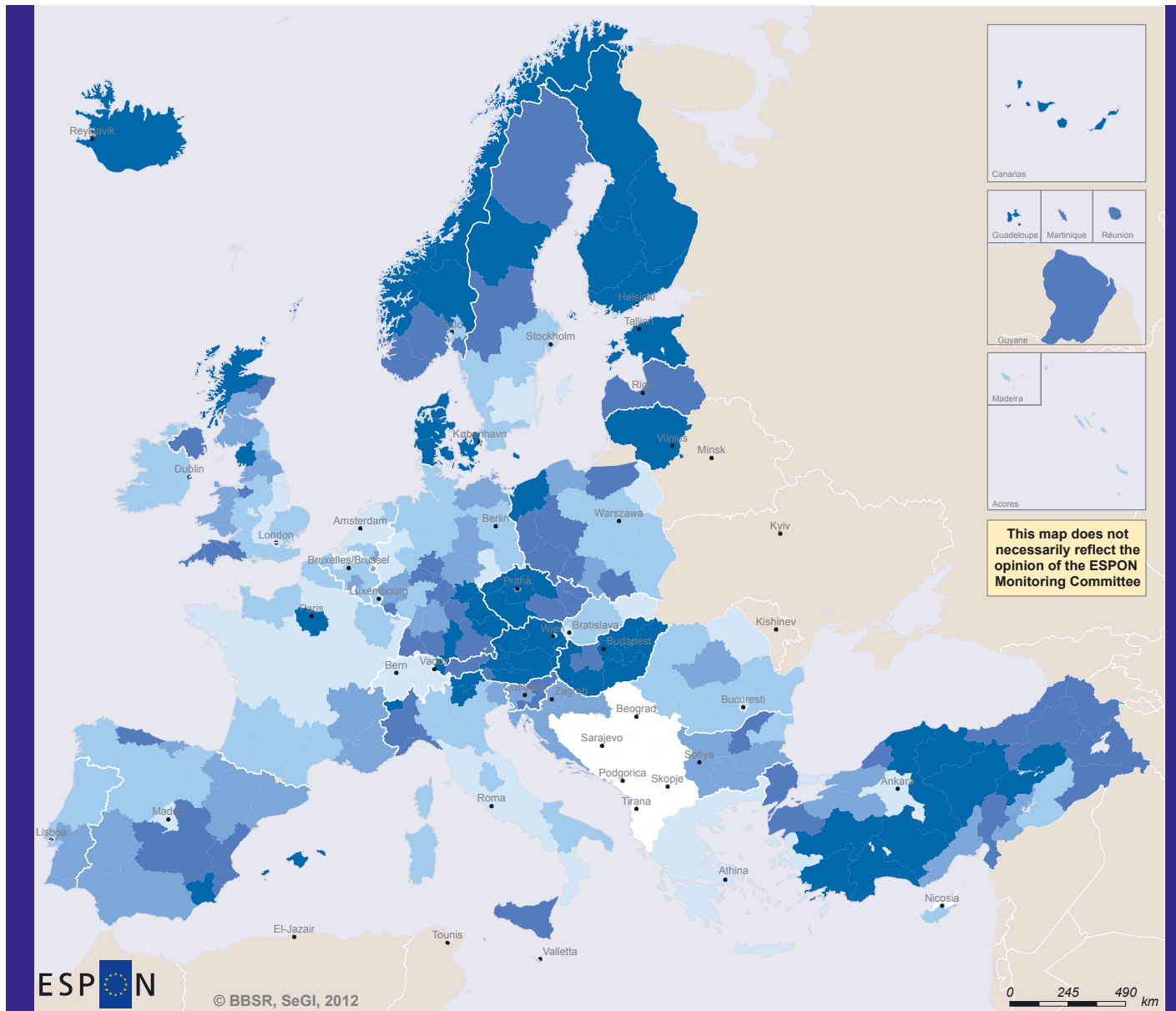
The median for all regions is 1.9 units.

However, the map reflects large national differences in the organization of water supply; regional/municipal, centralized/local, public/private and regarding the dominant sources of water supply. There are many questions for further research.

Water collection, treatment and supply – number of units per 100 000 inhabitants 2009

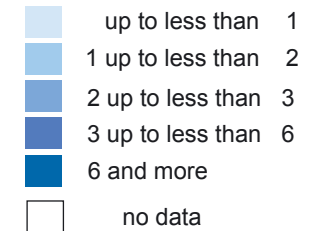


median of all regions



Water supply

Local units active in water collection, treatment and supply per 100 000 inhabitants, 2009



This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Croatia, Greece and Switzerland: NUTS 0;
 Germany, Denmark, France, Ireland, Italy, Lithuania, Netherlands, Norway: 2008
 Belgium: Prov. Luxembourg and Prov. Hainaut: average of these two regions;
 France: Martinique, Guyana and Réunion: average of these three regions;
 Germany: Berlin, Brandenburg, Bremen, Hamburg and Schleswig-Holstein: average of these five NUTS 1-regions;
 Italy: Molise and Calabria: average of these two regions;
 United Kingdom: Leicestershire, Rutland and Northants and Lincolnshire: average of these two regions; London: NUTS 1
 Iceland, Turkey: National Statistical Offices 2009

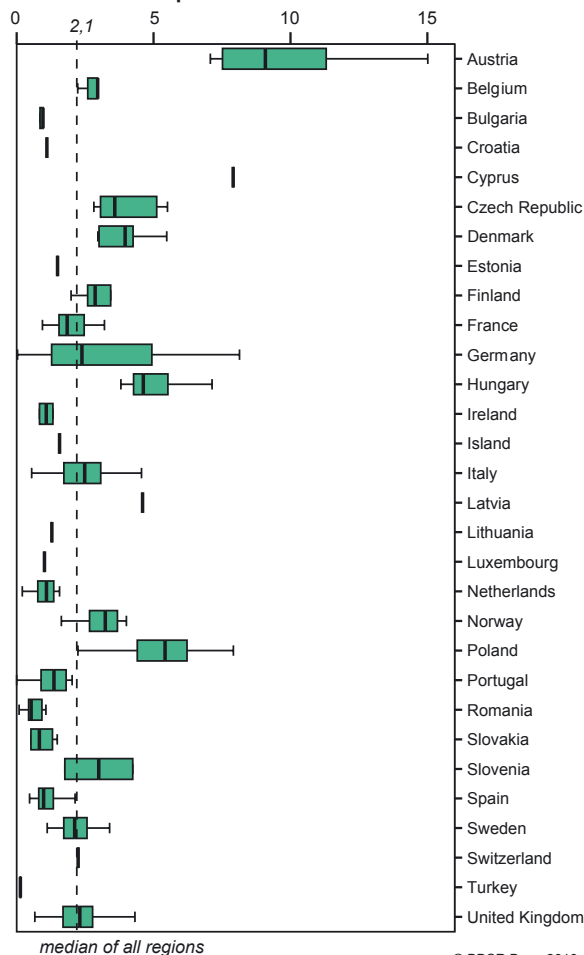
1.4 Sewage treatment

■ Sewage from households and from the industrial sector causes water pollution through eutrophication which has led to the increasing growth of algae and to significant levels of damage in respect of both the biological balance and the quality of the affected waters. As such, it is important to negotiate EU-wide policies relating to the treatment of polluted water. Indeed, in 1991 the EU negotiated and subsequently adopted the council directive on urban waste water treatment which concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors. The objective here is to protect the environment from the adverse effects of waste water discharges. The directive consists of four main principle obligations planning, regulation, monitoring and information and reporting.

In some countries water supply and sewage supply are managed by the same units/enterprises or institutions (e.g. Germany); in many other countries this strong relationship does not exist. Furthermore the providers differ in their organisational form e.g. whether they are publically or privately run. As with water supply, the municipal sector remains the primary owner of waste water treatment facilities in many regions as this continues to be seen as a basic service for the population.

Eastern European countries like Poland, the Czech Republic and Hungary but also Austria, Latvia and Cyprus show the highest number of local units per 100 000 inhabitants, whereas Portugal, Spain, Ireland and Turkey have the lowest numbers. The figures show that Austria and Germany have the biggest variations in the number of local units.

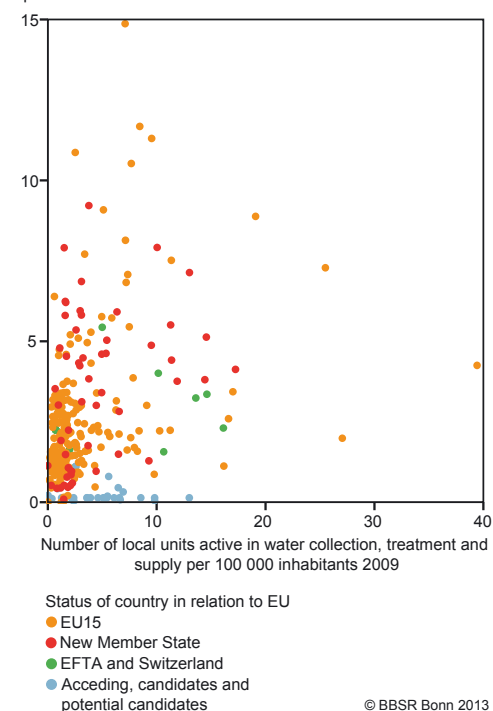
Sewage treatment and supply – number of units per 100 000 inhabitants 2009



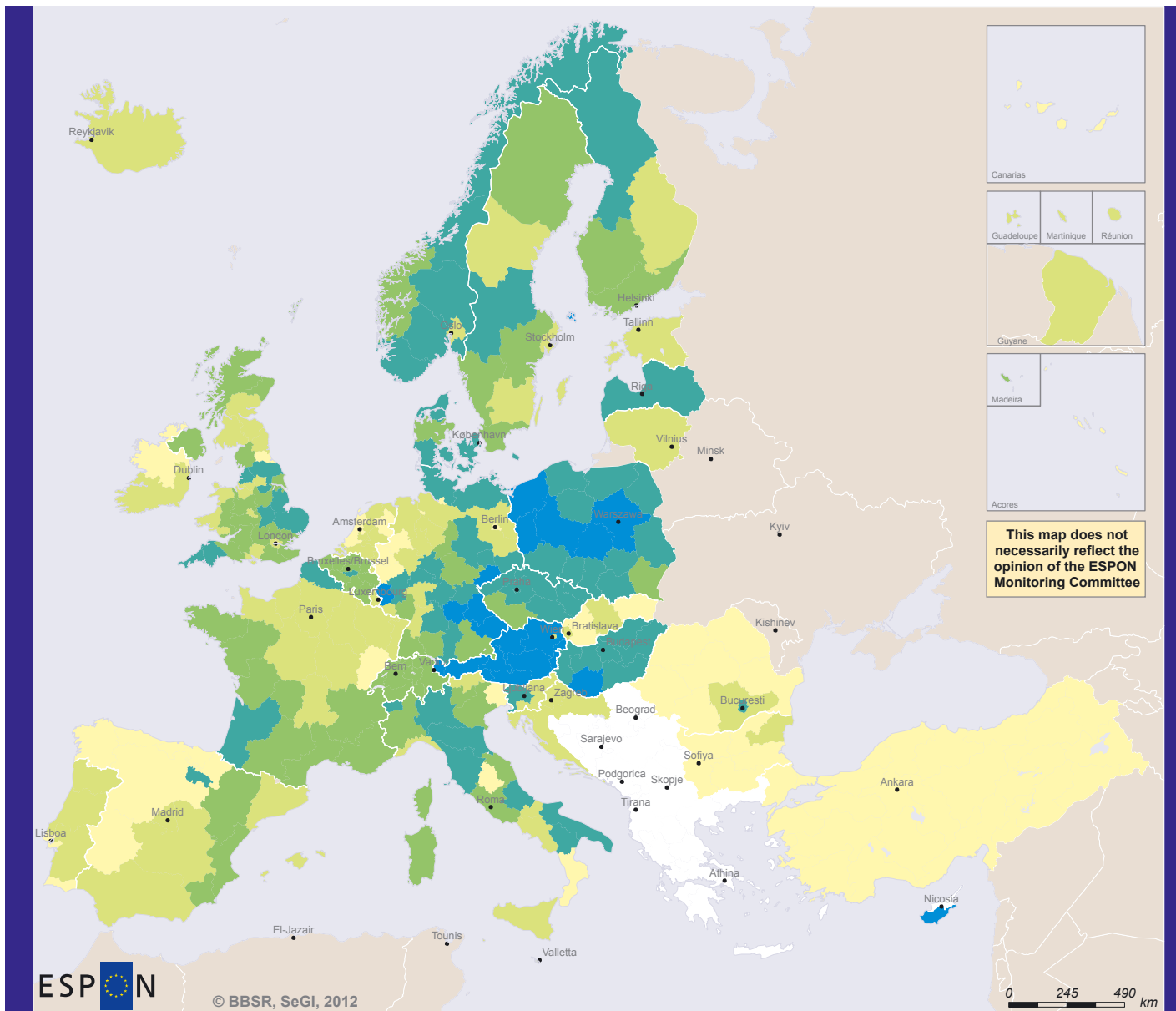
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Regional correlation of water supply and sewage treatment

Number of local units active in sewage treatment and supply per 100 000 inhabitants 2009



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Sewage treatment

Local units active in sewage collection, treatment and supply per 100 000 inhabitants, 2009

- up to less than 1
- 1 up to less than 2
- 2 up to less than 3
- 3 up to less than 6
- 6 and more
- no data

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* Croatia and Switzerland: NUTS 0; Denmark, France, Italy, Lithuania, Netherlands, Norway: 2008
 Belgium: Vlaams Gewest NUTS 1, Prov. Luxembourg and Prov. Hainaut: average of these two regions;
 Bulgaria: Severozapaden, Severen tsentralen and Yugoiztochen: average of these three regions;
 France: Champagne-Ardenne and Bourgogne: average of these two regions, Guadepoupe, Martinique, Guyana and Réunion: average of NUTS 1;
 Germany: Brandenburg NUTS 1, else disaggregation by data from national statistics;
 Italy: Molise and Campania: average of these two regions;
 Slovakia: Západné Slovensko and Východné Slovensko: average of these two regions;
 United Kingdom: Leicestershire, Rutland and Northants and Lincolnshire: average of these two regions; North Eastern Scotland and Highlands and Islands: average of these two regions
 Iceland, Turkey: National Statistical Offices 2009

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 Origin of data: Eurostat, 2009*
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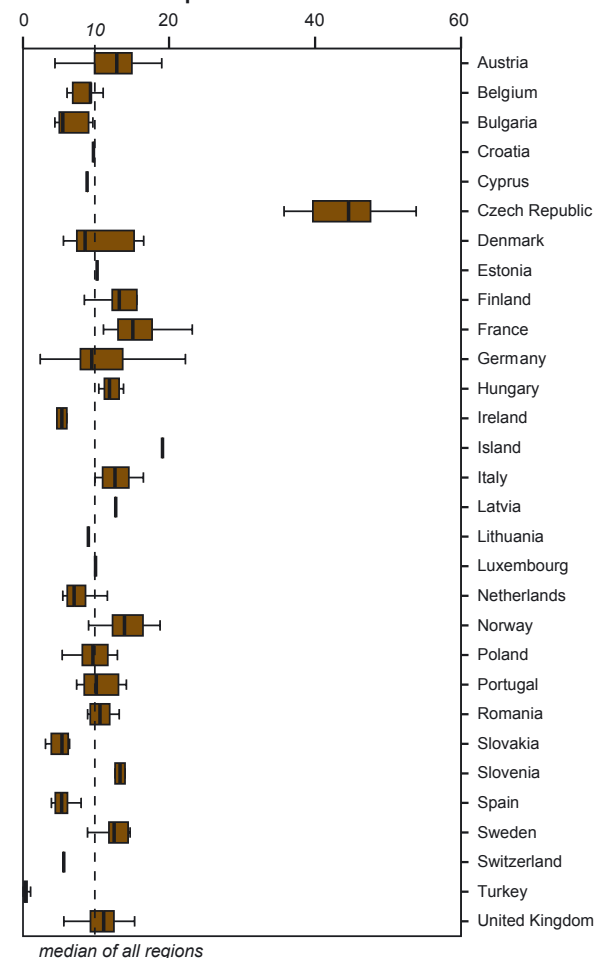
1.5 Waste collection

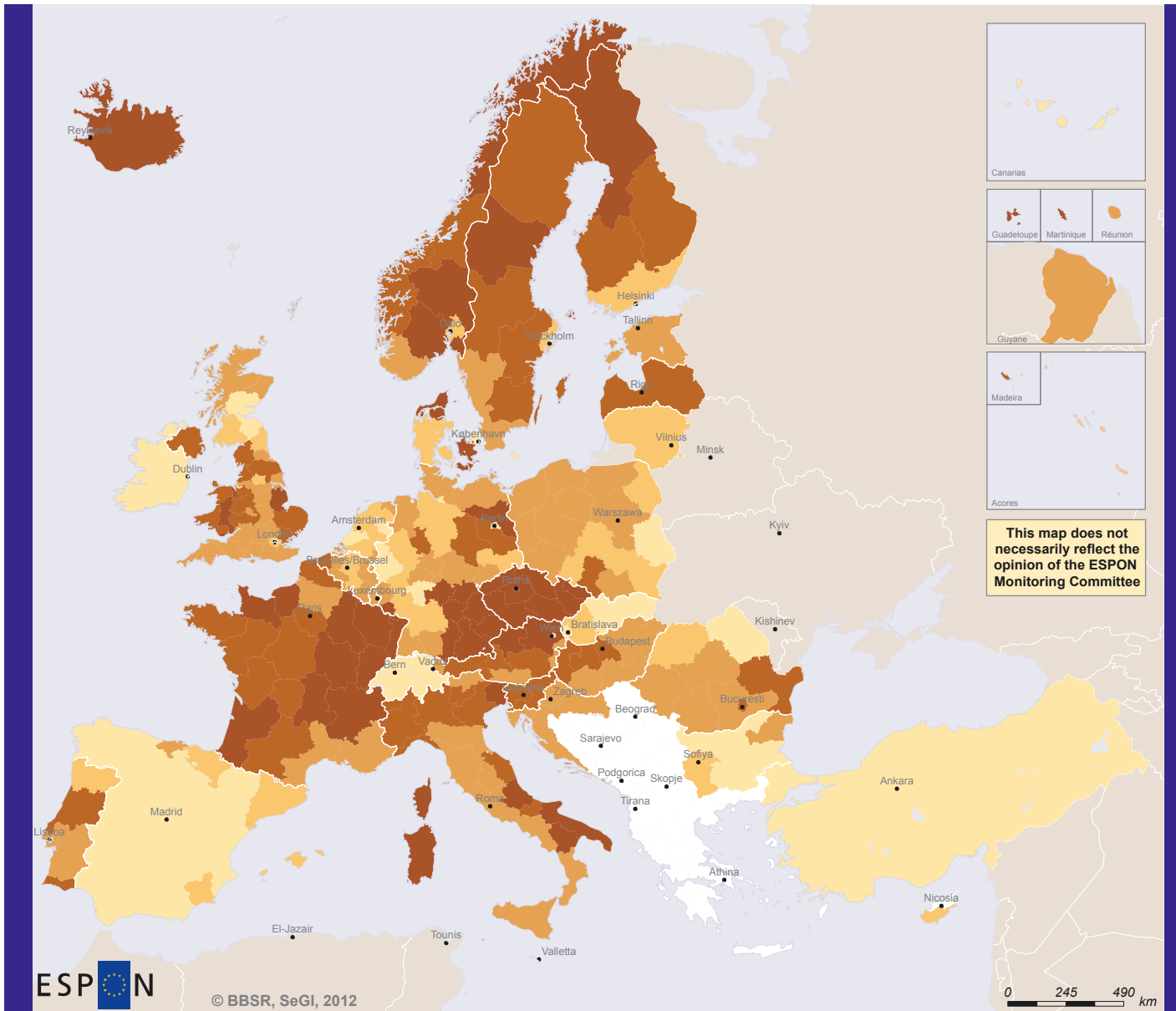
Each EU citizen produces half a tonne of household rubbish and all member states produce up to three billion tonnes of waste every year. This huge amount shows how important it is to have effective management of and legislation on, waste and related aspects. The main aim of EU waste management policies is to reduce the environmental and health impacts of waste and turn Europe into a recycling society, avoiding waste and using unavoidable waste as a resource wherever possible. A much higher level of recycling and minimising the extraction of additional natural resources has to be achieved. The EU's Sixth Environment Action Programme from 2002 to 2012 emphasises waste prevention and management as one of its top priorities ensuring that economic growth does not simply lead to the production of ever more waste. In 2005 the Thematic Strategy on Waste Prevention and Recycling resulted in the revision of the Waste Framework Directive. The revision brought up a modernisation of waste management as it marks a shift away from waste as an unwanted burden to the seeing of waste as a valued resource. The directive focuses on waste prevention which is the best option followed by re-use, recycling and other forms of recovery and disposal such as landfill which is viewed as the last resort. For the EU member states the target is to recycle 50 % of their municipal waste and 70 % of their construction waste by 2020 (EU Commission 2010).

It is expected that waste collection and treatment activities are equally available over the area and show a rural-urban gradient in terms of the number of units per inhabitant. This gradient is not observable in all countries beyond the obvious large national level differences. This may be due to the fact that the basic characteristics of this industry differ markedly from country to country, the undifferentiated nature of the data on hazardous and non-hazardous waste and the particular regional distribution of the recycling industry included in the numbers.

The median for all regions is around ten units per 100 000 inhabitants. The Czech Republic shows the highest amount with an average of over 40 units. The variations across the EU countries are not that noticeable. The Czech Republic, Denmark and Germany have the largest variations in the number of units.

Waste collection, treatment and disposal – number of units per 100 000 inhabitants 2009





Waste collection and treatment

Local units active in waste collection, treatment and disposal per 100 000 inhabitants, 2009



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Source: Eurostat database, 2011
Origin of data: Eurostat, 2009*
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* Croatia and Switzerland: NUTS 0;
Denmark, France, Ireland, Italy, Lithuania,
Netherlands, Norway: 2008
Belgium: Prov. Luxembourg and Prov. Hainaut:
average of these two regions
Iceland, Turkey: National Statistical Offices 2009

1.6 Density of motorways

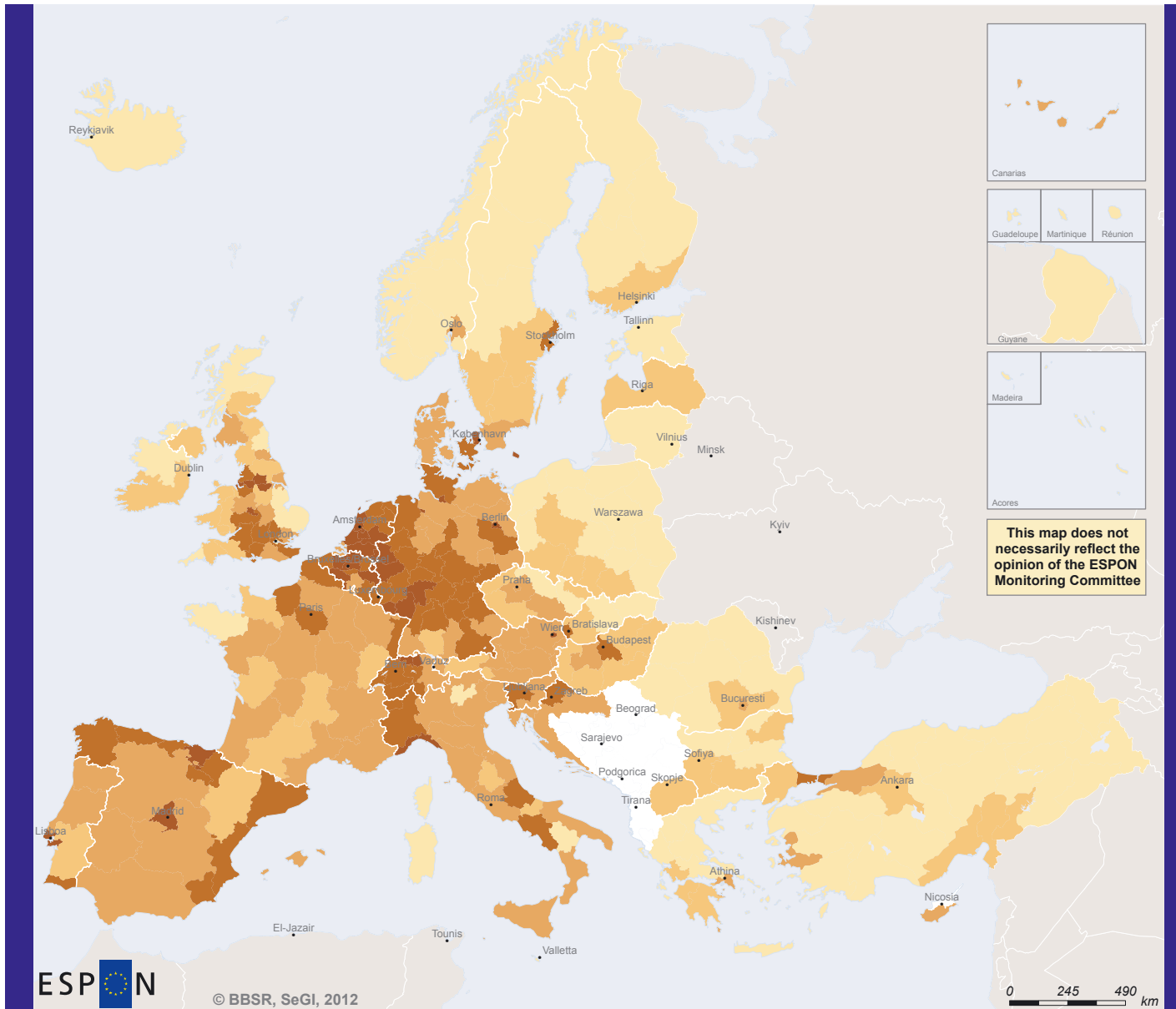
■ An efficient transport infrastructure is essential in ensuring the mobility of goods and passengers and is therefore a key factor in Europe's economy. Almost 46% of intra-EU goods transport is by road. The dominance of road transport is even clearer in the case of intra-EU passenger transport where almost 74% is by car and another 8% by bus and coach. These numbers show the importance of road transport as an economic sector employing about five million people across the EU and generating 2% of its GDP. Road transport is more flexible than other types of transport and is therefore able to link all regions of the EU to each other and to the principle transport nodal points. The road transport sector is however currently facing multiple challenges. On the one hand, roads are becoming increasingly congested but on the other hand, one out of four heavy goods vehicles still runs empty. Road safety is, in addition, an important aspect for users and constant infrastructure investments are necessary to make roads more secure. Another clear challenge is the seemingly ever-rising price of oil and the continuing dependency on oil. Transport needs to become cleaner and less dependent on hydrocarbons and this needs new technologies and a more efficient public transport system (European Commission: Road transport – A change of gear, 2012).

Motorways, in statistical terms, are roads which (i) are provided with separate carriageways for traffic in two directions, separated from each other, either by a dividing strip not intended for traffic, or exceptionally by other means; (ii) have no crossings at the same level with any road, railway or tramway track, or footpath; (iii) are specifically sign-posted as a motorway and are reserved for specific categories of road motor vehicles (Eurostat's Concepts and Definitions Database, 2012).

The map clearly shows that motorways are mainly situated in urban areas with a high population density. Almost all European capital regions show the highest motorway density of the country. Industrialised, economically strong and densely populated areas like the south of Spain, the region of Turin, Genoa and Milan, the Ruhr region and Frankfurt, the region of Manchester and Liverpool and also Istanbul show a very high number of kilometres. Sparsely populated areas, such as can be found in the Nordic countries, and very rural regions in Turkey and Eastern Europe show by far a lowest number of kilometres of motorway.

The Netherlands sees the largest regional variation ranging from around 20 km up to 120 km per 1 000 km². The United Kingdom also shows a significant level of variation from regions without any motorways to regions with up to 100 km per 1 000 km². The median for all European regions is 18.7 km.





Density of motorways

Length of motorways in km per 1 000 km², 2009

- up to less than 3
- 3 up to less than 6
- 6 up to less than 18
- 18 up to less than 27
- 27 and more
- no data

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Regional level: NUTS 2 (2006)
Source: Eurostat database, 2011
Origin of data: Eurostat, 2009*

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* Portugal 2004, Denmark, Ireland, Italy and Slovenia 2008,
Greece, Makedonia, Liechtenstein: digital data service (DDS) 2010,
Iceland, Malta: National Statistical Offices

1.7 Density of roads

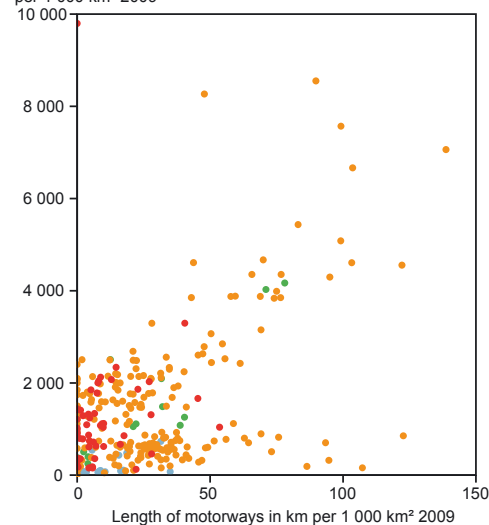
■ The Eurostat database combines all roads not fulfilling the definition of motorway into that of “other roads”. This category therefore contains a wide range of qualitatively good or bad paved roads. For rural regions and areas with geographical specificities (mountainous, island) moreover the category “other roads” plays an important role in the functioning of the economy and of everyday life more generally.

In comparison to the map of motorways this map shows that regions and countries with a small motorway net often provide a higher or denser net of other roads. These other roads can also be fast roads with more than one lane in each direction. Both indicators, taken together, show that only sparsely populated areas in Northern Norden, Turkey and some of the Balkan states have a small road-net.

The Netherlands, Switzerland and the United Kingdom see the largest variations in the number of kilometres within the country. In the Dutch regions this ranges from 1 800 km up to 5 000 km per 1 000 km², in Switzerland from 900 to 4 000 km, and in the United Kingdom from 900 to almost 4 000 km. Some countries with rather fewer motorways like Poland, France and Greece thus show a higher number of other roads. The median for all regions is by 854 km per 1 000 km².

Regional correlation of motorways and other roads

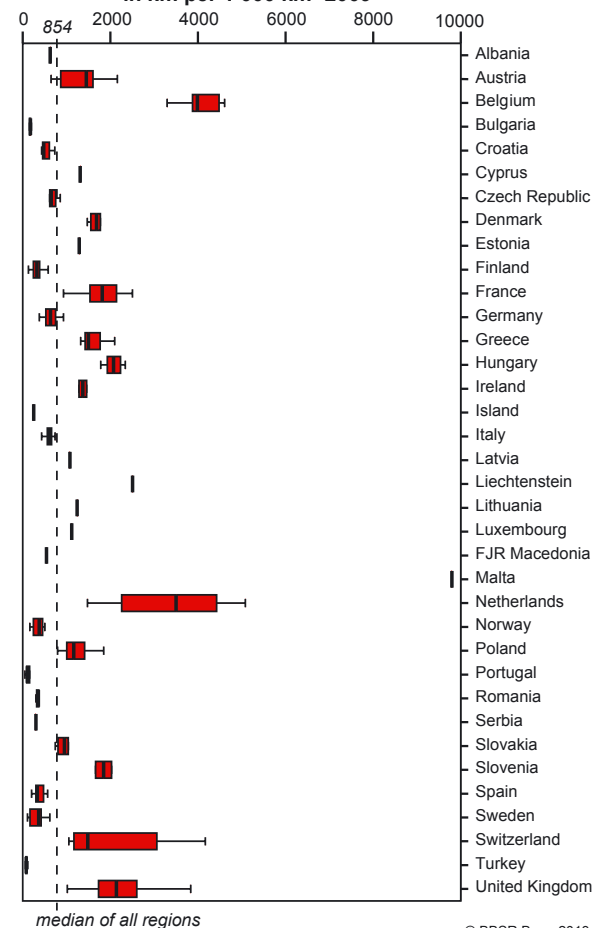
Length of tarred roads other than Motorways in km per 1 000 km² 2009



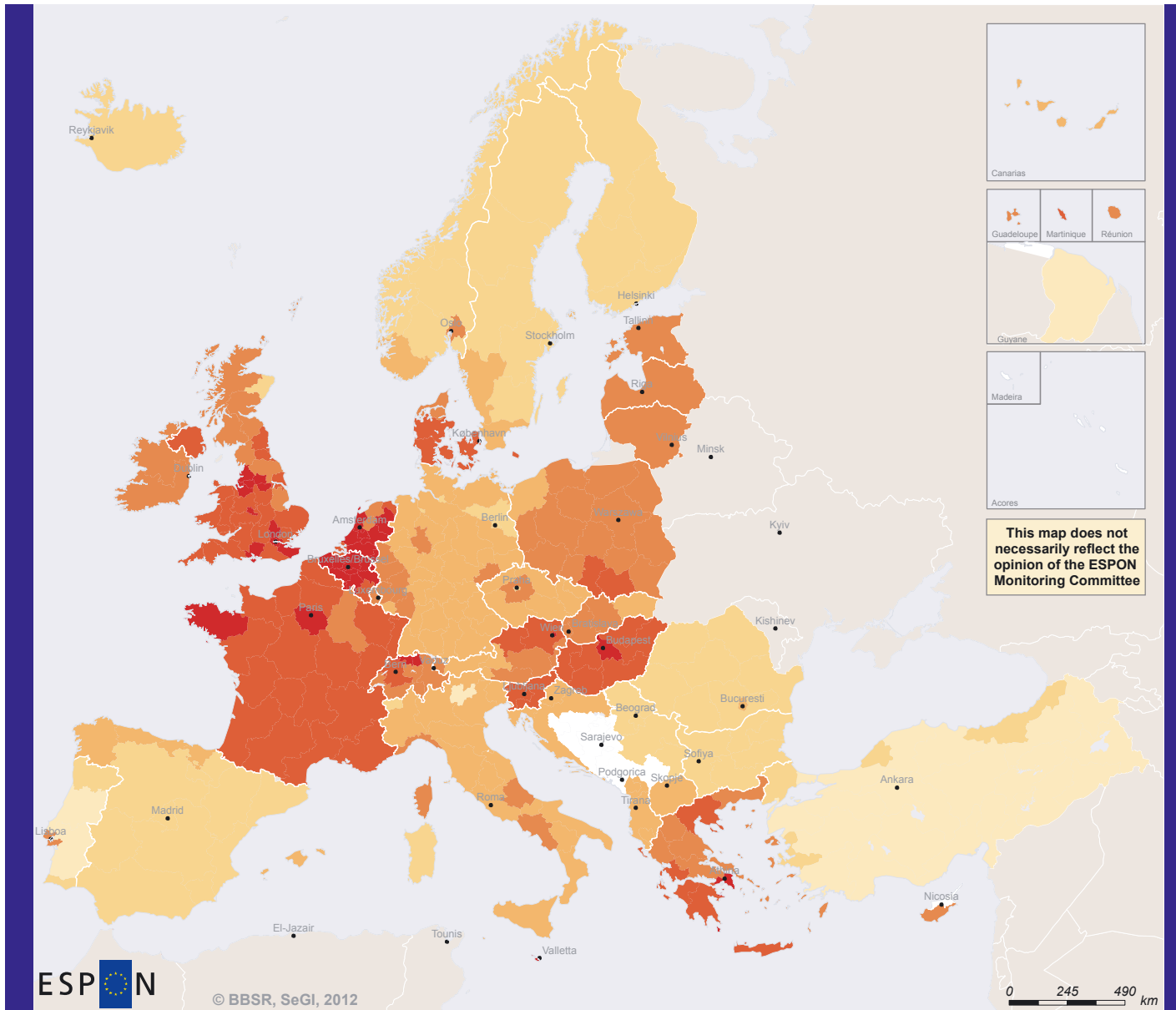
Status of country in relation to EU
 ● EU15
 ● New Member State
 ● EFTA and Switzerland
 ● Acceding, candidates and potential candidates

Data: Eurostat and DDS
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Length of tarred roads other than motorways in km per 1 000 km² 2009



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Density of roads

Length of tarred roads other than motorways in km per 1 000 km², 2009

- up to less than 100
- 100 up to less than 400
- 400 up to less than 800
- 800 up to less than 1 500
- 1 500 up to less than 2 500
- 2 500 and more
- no data

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Origin of data: Eurostat, 2009*
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* Portugal 2004, Denmark, Ireland, Italy and Slovenia 2008,
Greece, Makedonia, Liechtenstein: digital data service (DDS) 2010,
Albania: NUTS 0

1.8 Busses and motor coaches

■ Beyond rail and individual road transport, collective transport by busses and coaches plays an important role in many countries. Installing railway tracks is expensive and complex especially in rough terrain like mountainous regions. Busses and coaches can compensate for the missing rail transport infrastructure and are important for linking together of regions and people. In the EU, 7.9% of intra-EU passenger transport is conducted by busses and coaches. In addition to their important role in connecting regions busses also help reduce traffic volumes related to private car use.

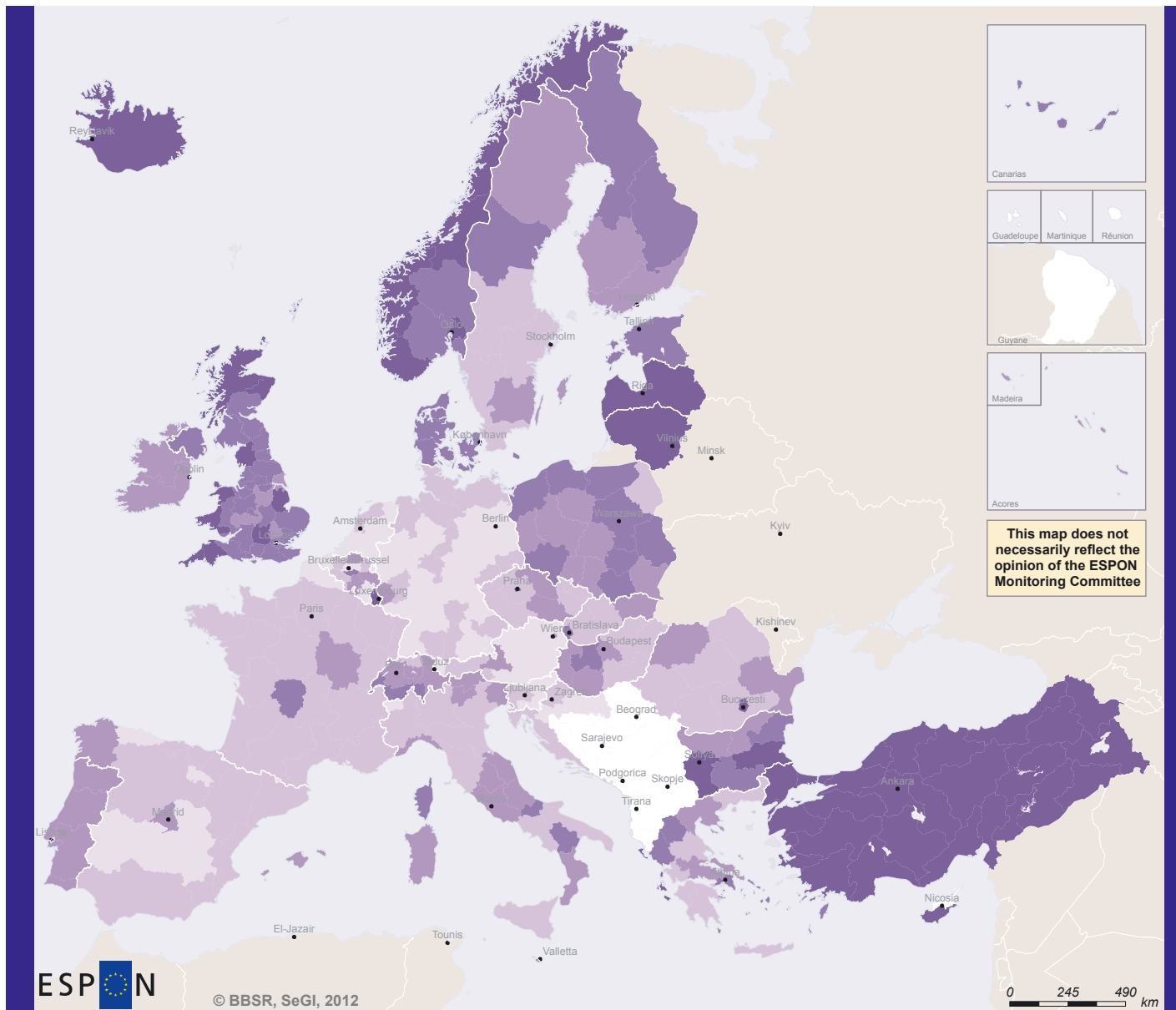
In regions with rough terrain like Iceland, Scotland and the coastal areas of Norway busses are very common as a mode of transport. In Norway the railway ends in the north in the city of Bodø, Nordland county, and thus the counties of Troms and Finmark have no railways at all. It is likely that in such places there is either no railway system at all or only limited routes. Turkey and the Baltic states also have a high

number of busses per 100 000 inhabitants. Germany has traditionally had only a small number of busses and coaches for long distance travel as the state-owned enterprise Deutsche Bahn was given a legal guarantee that they would be the only transport provider on the routes they serve. That means that bus enterprises were forbidden from offering a connection when the route was already served by Deutsche Bahn. This law was however abolished in 2012 so it is likely that the number of busses will increase in the future.

Turkey shows by far the strongest variations across all of the countries. The number of busses range from 400 in one region to 1 200 in another which is above the median for all European regions. The median is 191 busses per 100 000 inhabitants though all regions in Bulgaria, Finland, Norway and the United Kingdom exceed the average. All regions in the Netherlands and Germany however record values below the median.

Busses, motor coaches and trolley busses – number per 100 000 inhabitants 2009





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 Source: Eurostat database, 2011
 Origin of data: Eurostat, 2009*
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* Denmark, Ireland and Portugal: NUTS0;
 Germany - Brandenburg: NUTS 1;
 Portugal: 2002
 Iceland: National Statistical Office 2009

1.9 Land transport

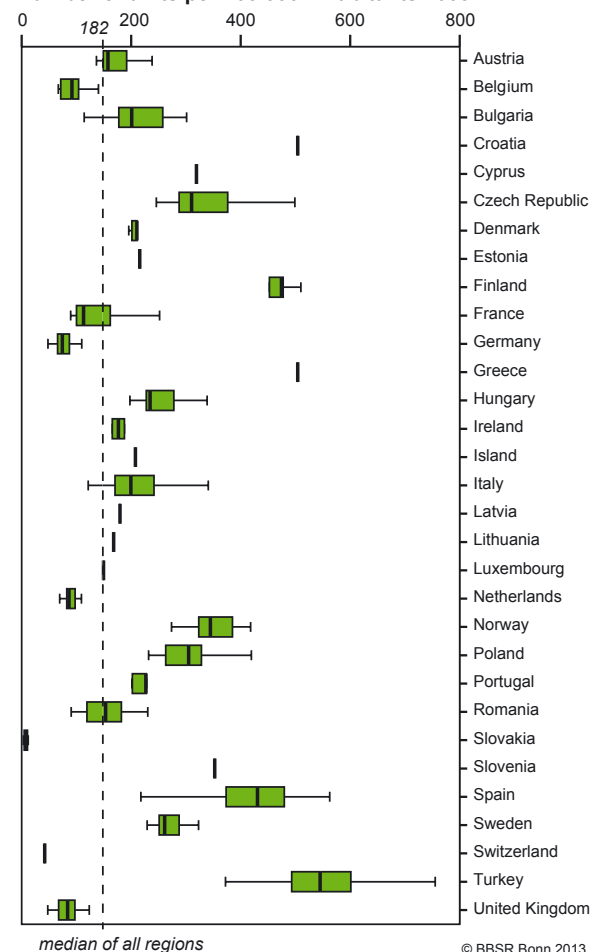
Land transport is passenger and freight transport by road and rail. Roads and railways are important infrastructure elements in the “smooth operation of the internal market, for the mobility of persons and goods and for the economic, social and territorial cohesion of the European Union” (European Commission Mobility and Transport, 2013). The 27 EU member states include five million kilometres of paved roads and 212 800 kilometres of railway tracks. The European Union established the trans-European transport network in order to create a single, multimodal network integrating land, sea and air transport. This should guarantee the fast and easy mobility of goods and people between member states and to other international connections. This transport network is a key element of the Lisbon Strategy in its promotion of competitiveness and employment and it will also help in the attainment of Europe 2020 objectives such as territorial cohesion. The European Commission regards the removal of bottlenecks and the construction of missing infrastructure links as an essential of its strategy to ensure that Europe fulfils its economic and social potential. In addition however energy efficiency requirements and climate change challenges have also to be taken into account in order to ensure that the transport network is sustainable. It is expected that the traffic volumes will double by 2020 which will require enormous investments to be made in regards to the completion and modernisation of the transportation network. For the period 2010 to 2030 it is estimated that the investment volume will be over € 1.5 trillion.

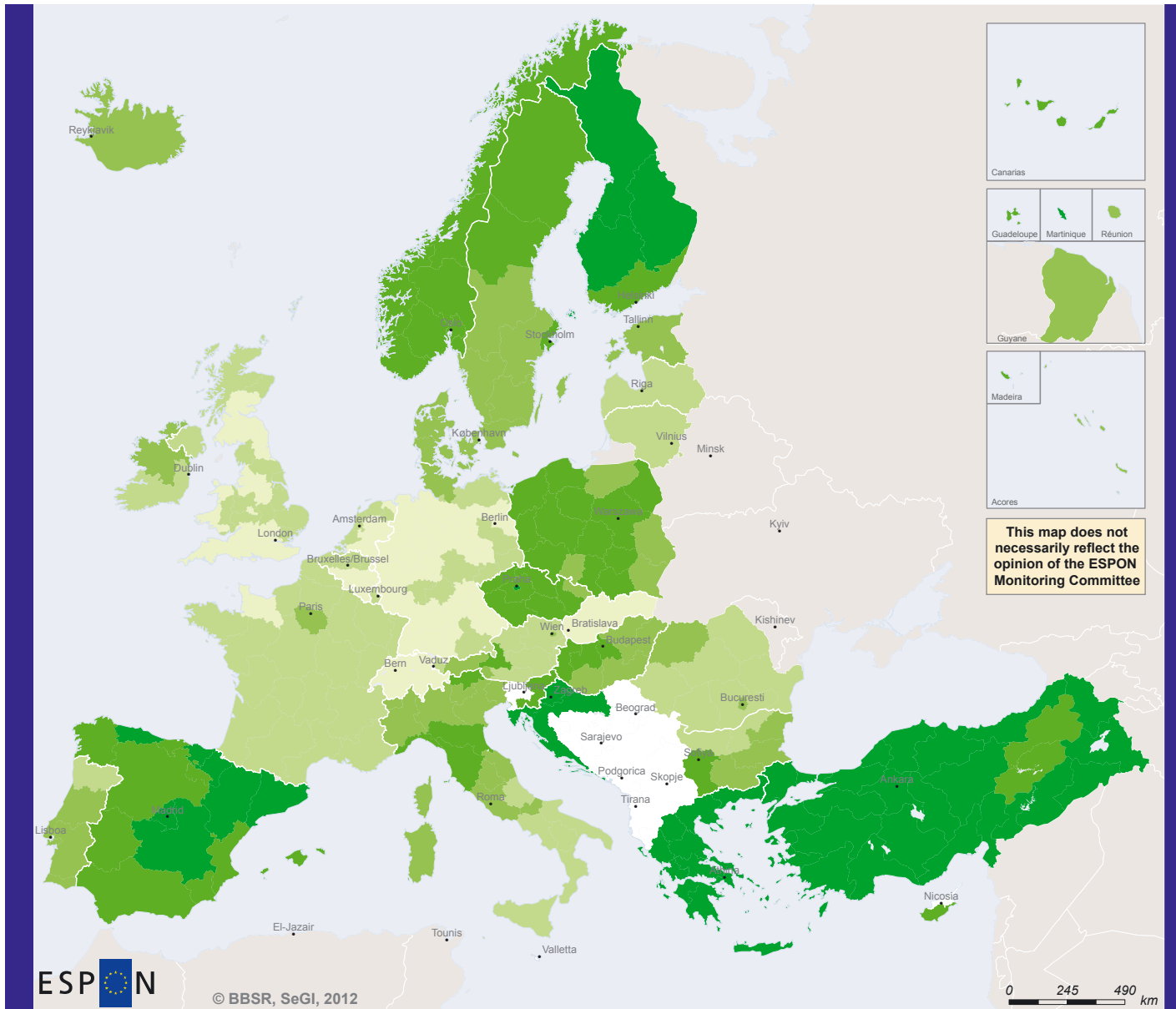
The European Commission has expressed several objectives in respect of road and rail infrastructures. Land transport should be “a mobility that is efficient, safe, secure and environmentally friendly” (European Commission Mobility and Transport, 2013). For the development of a strong and competitive rail transport industry the Commission concentrates on three major aspects: opening up the rail transport market to competition, improving the interoperability and safety of national networks and developing rail transport infrastructure.

The number of local units active in land transport per capita shows significant national level differences. Taking into account the fact that in countries with a low number of units per capita land transport is very important the map indicates sectorised centralisation and decentralisation.

Variations within countries are however usually quite small. Turkey and Spain have the most significant variations ranging from between 370 units and 770 units per 100 000 inhabitants in the case of Turkey and between 217 and 560 units for Spain. The median for all European regions is 182 units while in countries like Belgium, Germany, the Netherlands and the United Kingdom all regions show values below the median.

Land transport – number of units per 100 000 inhabitants 2009





Land transport

Number of local units active in landtransport and transport via pipelines per 100 000 inhabitants, 2009

- up to less than 90
- 90 up to less than 180
- 180 up to less than 270
- 270 up to less than 450
- 450 and more
- no data

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Regional level: NUTS 0/NUTS 2 (2006)*
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Origin of data: Eurostat, 2009*

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* Greece and Switzerland: NUTS0
Denmark 2008
Iceland, Turkey: National Statistical Office 2009

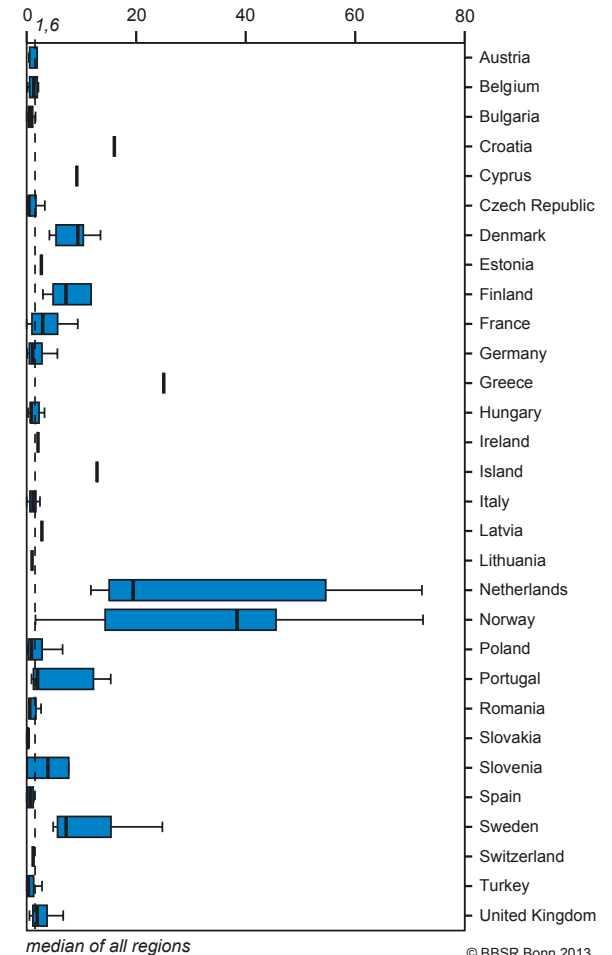
1.10 Water transport

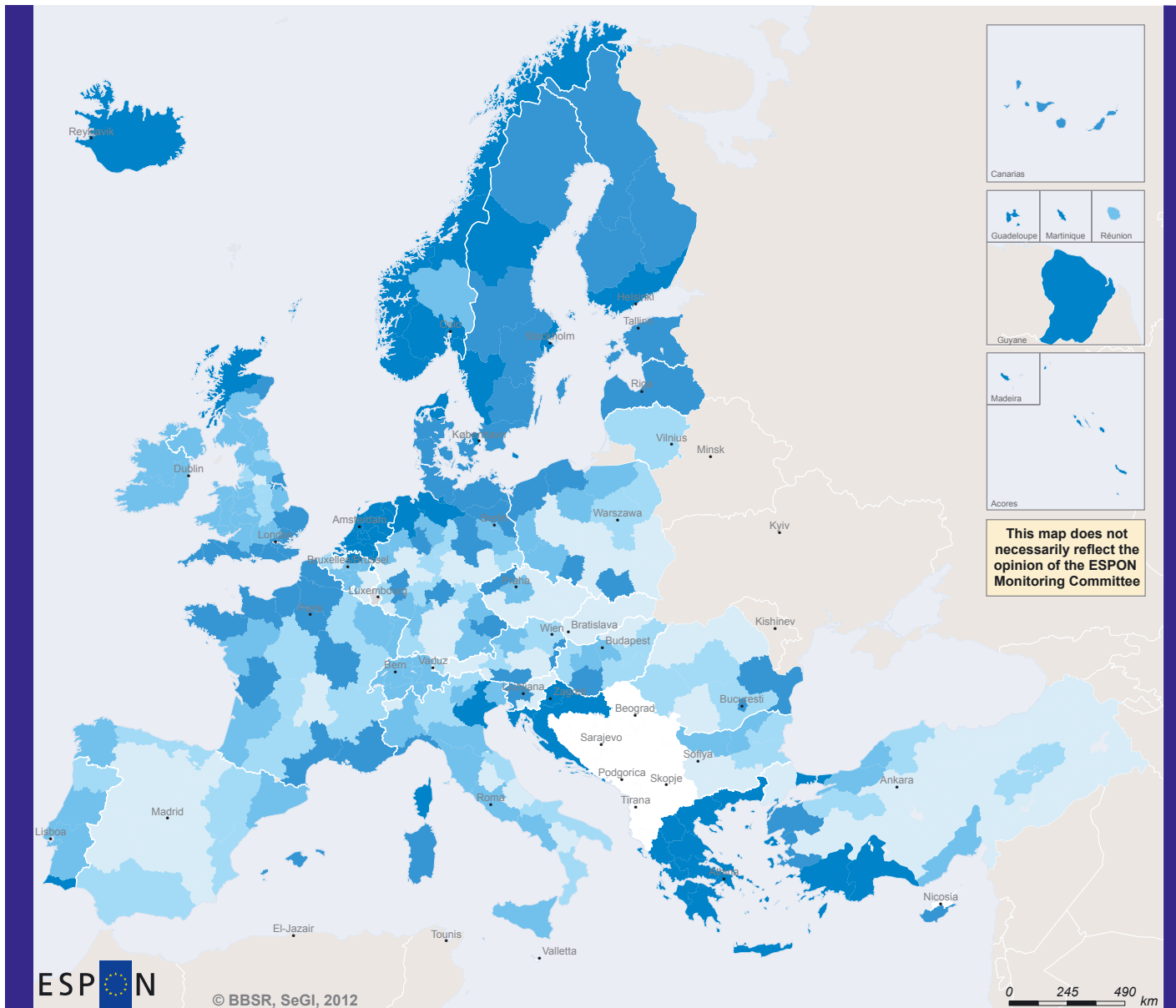
■ Turning to water transport, including freight and passenger mobility, a distinction must be made between maritime and inland waterway transport on rivers and channels. Maritime transport is an important factor in helping link the population of mainland Europe with that of its islands and remote regions. Forty percent of freight within Europe is transported by sea and 400 million passengers embark and disembark in European ports. For the effective operation of maritime transport it is essential to have strict safety rules to prevent sub-standard shipping, reducing the risk of maritime accidents and minimising its impact on nature. In order to achieve and guarantee these objectives the EU Commission has set out its Maritime Transport Strategy 2018, a ten-year approach designed to strengthen the competitiveness of the sector with regard to environmental issues. In addition, inland waterways play an important role in the European transportation system. More than 37 000 kilometres of navigable rivers and channels criss-cross the territories of the member states and there is clearly potential to increase the share of inland waterway mobility as a competitive alternative to rail and road transport as it is more environmentally friendly in terms of energy consumption, noise and gas emissions than either road or rail. The EU commission, moreover, estimates that “its

energy consumption per km/ton of transported goods is approximately 17 % that of road transport and 50 % of rail transport” (European Commission Mobility and Transport, 2013).

Local units active in the water transport sector are naturally located in coastal regions and in regions with navigable rivers and channels. The map clearly shows the important role of the coastline and some of the main rivers connected with water transport such as the Rhine, Loire, Elbe and Danube. The major gateways to the global water transport system are also clearly highlighted with the highest number of active local units per inhabitants. The most significant variations are clearly in Norway and the Netherlands which range from 11 units to 72 units per 100 000 inhabitants in the case of Netherlands and from 1.6 to 72 units in Norway. The median for all European regions is by only 1.6 units with all regions of Denmark, Finland and Sweden lying above the median. It is however remarkable that countries like Spain, Turkey and the United Kingdom have a comparatively small variation meaning that the units active in water transport in these countries are rather uniformly distributed. This is however probably because these countries have an extensive amount of coastline in relation to their total land area.

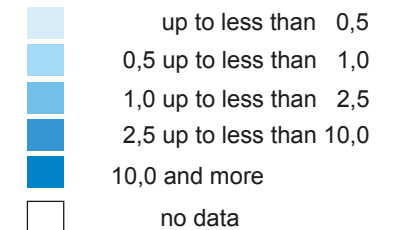
Water transport – number of units per 100 000 inhabitants 2009





Water transport

Number of local units active in water transport per 100 000 inhabitants, 2009



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* Croatia, Greece, Ireland, Slovakia and Switzerland: NUTS0;
 Denmark: 2008
 Italy: Molise and Calabria: average of these two regions;
 Spain: Principado de Asturias and Cantabria: average of these two regions;
 Pais Vasco and Aragon: average of these two regions
 National Statistical Offices 2009: Iceland, Turkey

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Regional level: NUTS 0/NUTS 1/NUTS 2 (2006)*
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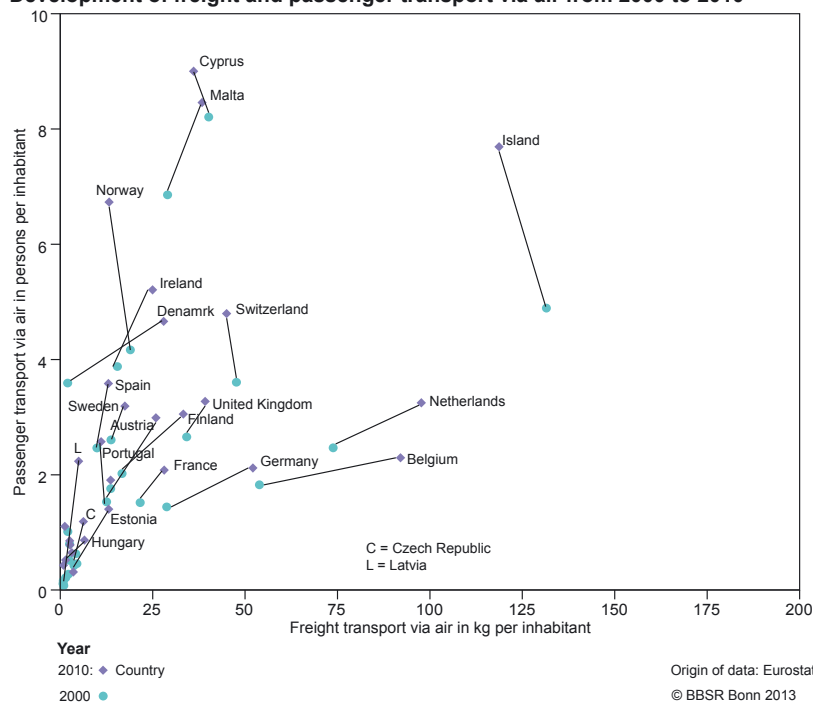
1.11 Air transport

■ Air as a mode of transport is clearly increasing in importance given the number of persons employed in the aviation industry. 5.1 million jobs are supported by aviation which contributes € 365 billion, or 2.4 % to European GDP (European Commission Mobility and Transport, 2013). It is expected that global air transport will grow by 5 % annually until 2030 thus necessitating the drawing up of certain rules and regulations. The linkage of people and regions is important both for Europe's integration and its global competitiveness and air transport plays a crucial role in this process. The EU liberalised the aviation market through three successive activities which covered air carrier licensing, market access and fares. This was also part of a broader strategy of creating a single Euro-

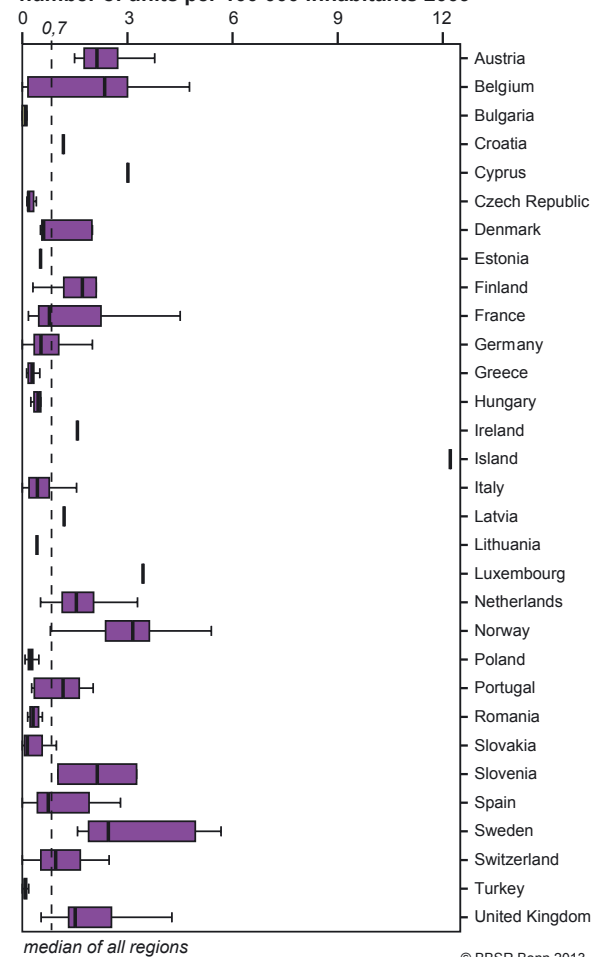
pean market. Heavy airspace congestion forced the EU to launch the Single European Sky (SES) initiative launched initially, in 2004. In 2009, however, a second initiative was launched with an emphasis on the environment and cost efficiency.

Most active local units are concentrated around international airports. Additionally, in regions with airports of national importance many local units are also active. For this reason the map clearly shows an urban-rural gradient. Exceptions here include the large Nordic countries where air transport usage for the internal passenger and freight transport is more common, practical and efficient over the large distances than land transport.

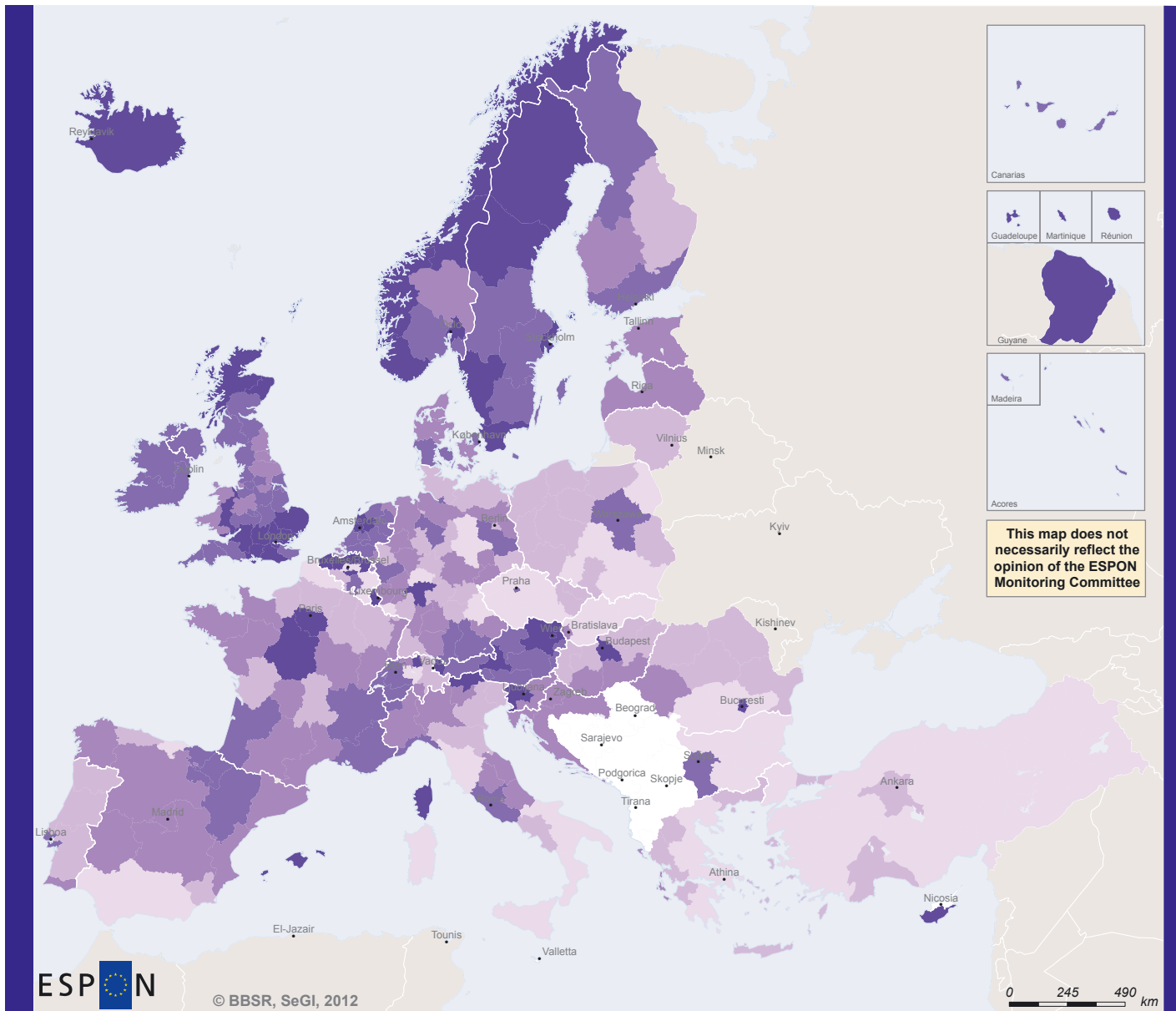
Development of freight and passenger transport via air from 2000 to 2010



Air transport – number of units per 100 000 inhabitants 2009



Variations within countries are not particularly large. Belgium, France and Sweden have a less equal distribution. In France and Belgium air activities are concentrated in the capital regions whereas other countries generally have more cities and regions active in air transport.



Air transport

Number of local units active in air transport per 100 000 inhabitants, 2009

- up to less than 0,2
- 0,2 up to less than 0,5
- 0,5 up to less than 1,2
- 1,2 up to less than 2,2
- 2,2 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Croatia and Ireland: NUTS0;
 Denmark: 2008
 Belgium, Greece, Slovakia and Switzerland: disaggregation of NUTS 0 data by national statistics;
 Italy: Basilicata and Calabria: average of these two regions;
 Umbria and Marche: average of these two regions;
 Valle d'Aosta and Liguria: average of these two regions;
 Spain: Noreste and Centro: NUTS 1
 National Statistical Offices 2009: Iceland, Turkey

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 Origin of data: Eurostat, 2009*
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1.12 Access to railway stations

The density of the railway network in all case studies may be regarded as sufficient. The population weighted average travel time to the nearest railway station is about 10 minutes. The best accessibility results are achieved in Eastern Austria and Dél-Alföld. Both regions have a very dense railway network mainly due to the fact that this region was part of the same state during the period of the era of the Austro-Hungarian Dual Monarchy. However after Trianon Treaty of 1920 which oversaw the end of the First World War in Eastern Europe, and the breakup Austria-Hungary, major railway lines e.g. Szabadka (Subotica) - Arad - Nagyvárad (Oredera) and Újvidék (Novi Sad) - Kolozsvár (Cluj-Napoca) were lost to the newly created successor states and the well developed structures fell apart. In Dél-Alföld more than ten railway lines cross the whole area and nearly all bus or railway stops or stations can be reached within 15 to 30 minutes. This high density of railway lines helped provide a link between remote farmsteads and the city centres. In recent years however several stops have been terminated and indeed even whole lines closed. In certain cases in Dél-Alföld the fre-

quency of services has been reduced while private vehicles now taking over at the expense of all types of public transport. As regards Eastern Austria, in the southern part of the region there are almost no train connections. This part of Eastern Austria was once a part of Hungary and train connections to Vienna or Graz were never constructed. In the northern part the region however the main North-South connection in Austria (between Graz and Vienna) leads directly through the case study region.

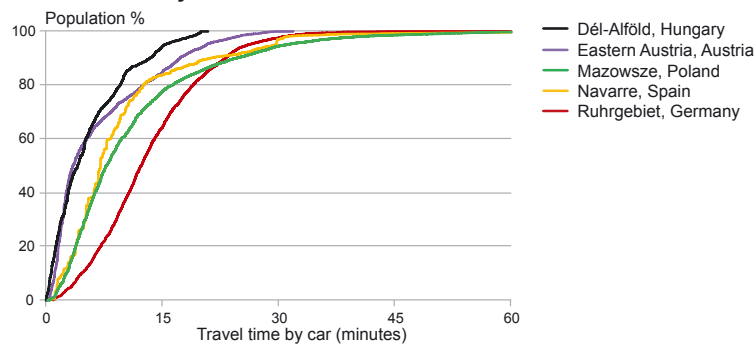
In Navarre the median travel time for the population and for raster cells differs significantly. This means that the poorest level of accessibility to the railway system is in the most sparsely populated areas and in the eastern part of the region in particular. The existing railway network is currently being improved as a new High Capacity Corridor for passengers and goods will eventually connect Navarre to other Spanish and European regions (the Basque Country, Barcelona, Madrid and EU-France through Irun). The radial railway net structure of Navarre is similar to that in the Mazowsze region. However, in both

Navarre and Mazowsze the maximum travel time to the nearest railway line in the regional periphery exceeds 70 minutes.

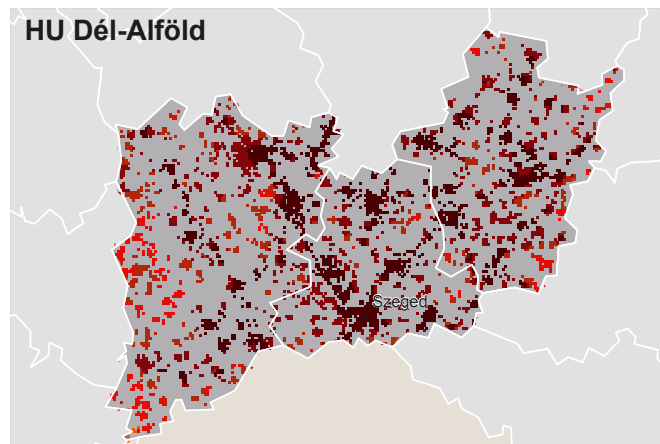
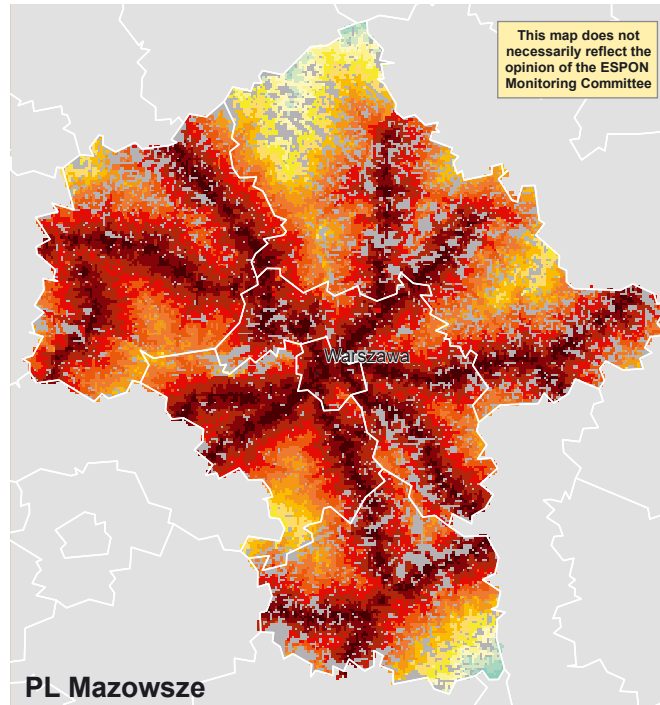
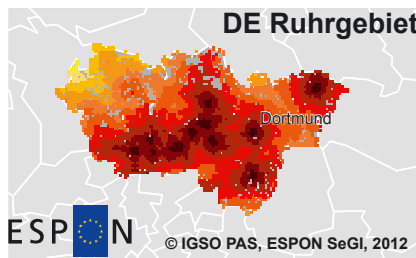
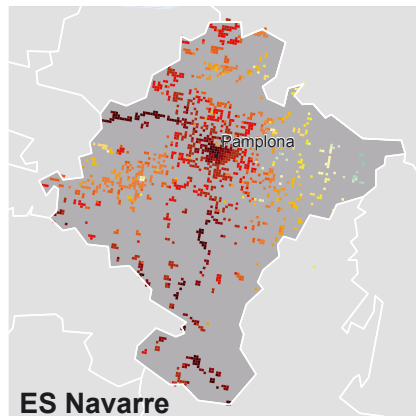
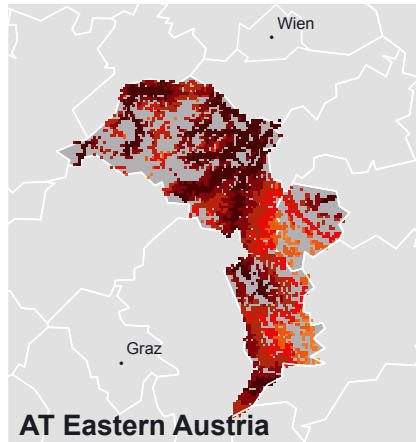
Surprisingly, in the north-western part of Ruhrgebiet region the maximum travel time to the nearest railway line exceeds 45 minutes. This area is poorly connected to the main and predominantly inter-regional fast lines connecting the North and South of Germany. Furthermore rail traffic in Germany has clearly, over time, been reduced in importance with the rise of individual motorised traffic.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data in respect of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. Where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to railway stations

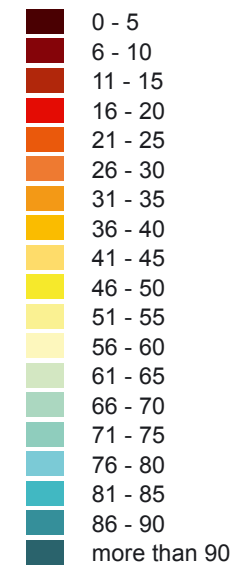


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	5,5	6,7	11,0	9,6	13,2
Minimum travel time of last population decile	15,0	17,3	24,4	21,1	23,1
Maximum travel time to the nearest service	20,9	31,9	83,8	73,9	47,7
Median travel time for population	10,1	3,4	7,7	7,0	12,2
Median travel time for raster cell	6,3	9,1	17,1	17,9	17,5
Standard deviation of travel time for raster cells	5,1	6,8	12,8	13,3	8,6



Accessibility to railway stations

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

1.13 Access to motorways

■ In general, in all five case studies at least one motorway is in operation. However, the regions vary in terms of motorway density from the very dense motorway network in Ruhrgebiet, through moderate motorway density in Navarre and Eastern Austria to the relatively low density in Mazowsze and Dél-Alföld. Therefore the population weighted average travel time differs between about 4 minutes for Navarre up to 47 minutes in Dél-Alföld. In particular in Mazowsze and Dél-Alföld the grid-based assessment shows that travel times to the nearest motorway entry point of over 60 minutes are quite common.

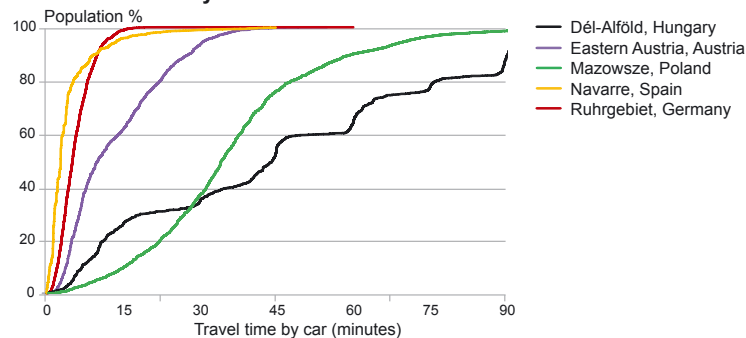
In Navarre, as well as in Mazowsze, the motorway network has a radial structure with the respective cores in Pamplona and Warsaw. In the case of

Navarre the motorways lead to the neighbouring autonomous communities and to France. In Mazowsze the few sections of existing motorways and express roads still do not lead to neighbouring regions. In the Mazovian voivodeship symptoms of polarisation can still be observed in relation to transport investment needs. For this analysis several express roads in Mazowsze can be seen to be fulfilling the function of motorways but are not included in the official Eurostat statistics because they do not fulfil the statistical criteria to qualify as 'a motorway'. This has to be kept in mind when comparing the results of the accessibility analysis with the map of motorway availability.

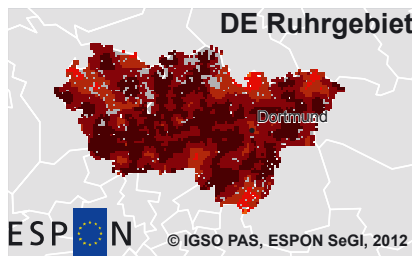
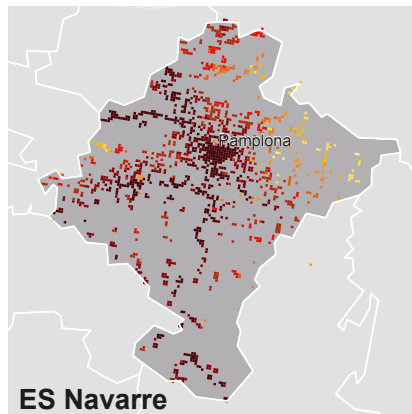
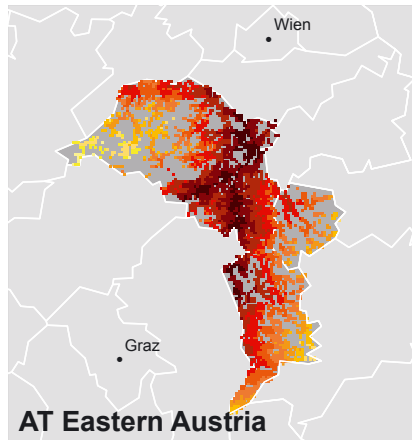
The worst situation is in Dél-Alföld region where the travel time to the nearest motorway entry point often exceeds 90 minutes. The situation is most unfavourable in Békés County where no motorway or quasi-motorway exists at all.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data in respect of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. Where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to motorway hubs

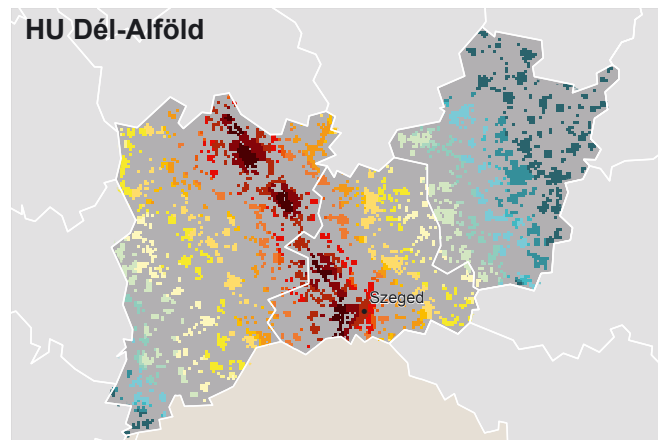
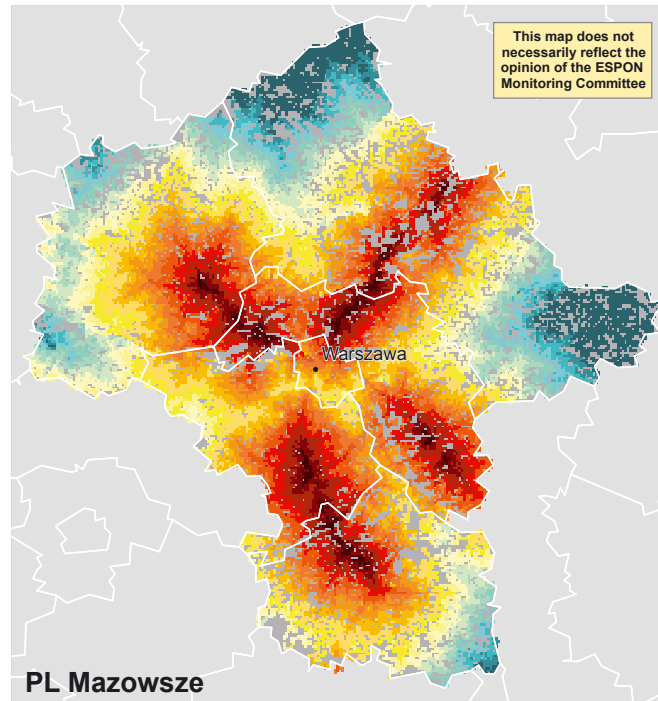


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	46.7	13.4	36.5	4.3	5.6
Minimum travel time of last population decile	90.3	28.0	60.2	9.7	10.0
Maximum travel time to the nearest service	135.0	54.8	125.5	55.7	22.1
Median travel time for population	44.2	10.1	34.3	2.7	5.0
Median travel time for raster cell	45.5	17.8	40.9	7.9	5.8
Standard deviation of travel time for raster cells	32.1	10.4	24.1	10.6	3.7



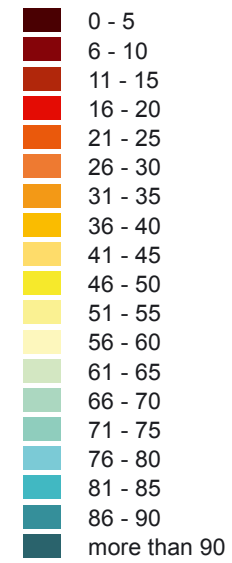
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Accessibility to motorways

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

Source: IGSO PAS, University of Vienna, Nasuvinsa, BBSR & PlanIdea, 2012
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1.14 Access to airports

■ The travel time to airports varies considerably between the case study regions (see map 5). Noain airport near Pamplona in Navarre is well located and was renewed in 2011. In addition, Navarre has two other national airports located close to its regional border. Navarre's accessibility to airports is thus very good; in fact, it is nearly as good as the accessibility to airports in the Ruhrgebiet region where three international airports are in operation. The population weighted average travel time to the nearest airport in both regions is below 30 minutes and below 50 minutes at its maximum.

For Mazowsze and Eastern Austria the population weighted average travel time is between 50 and 60 minutes. In Eastern Austria there are motorway links to the airports located beyond the region (Wien and Graz). However, in the north-western parts of Eastern

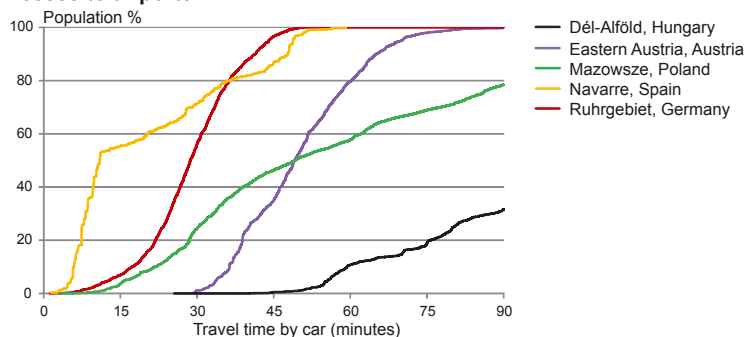
Austria accessibility to airports remains low. Accessibility to airports in the Mazowsze region significantly improved after the opening of Modlin airport, located north of Warsaw, in June 2012. However, people living in the southern and eastern parts of the region still suffer from very poor accessibility to their nearest airport.

The poorest accessibility to airports is to be found in Dél-Alföld in Hungary. The population weighted average travel time here exceeds 130 minutes rising to a maximum of 3 hours. The nearest international airport is Liszt Ferenc International located in Budapest. The median for the population is also higher than the median for raster cells. The reason for this is that the best accessibility to the nearest international airport, due to its proximity to Liszt Ferenc airport, is in the north-western part of Dél Alföld, which is sparsely

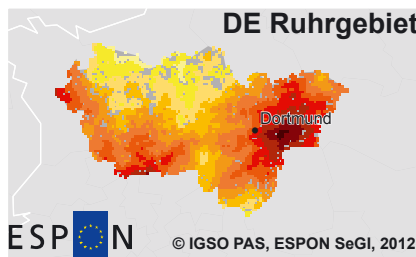
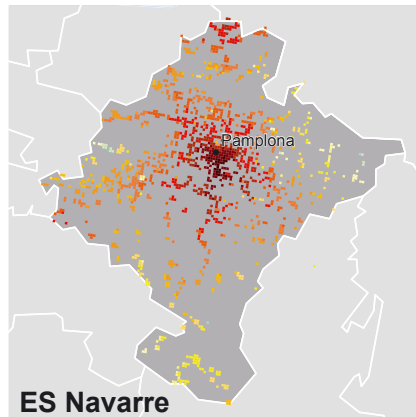
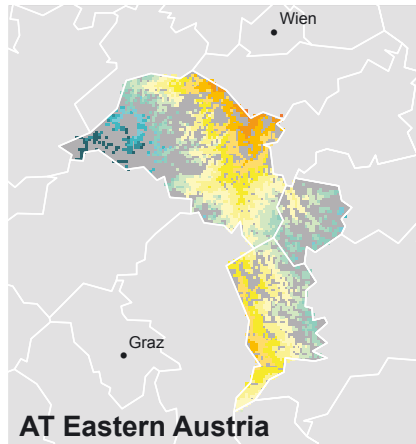
populated. The situation is bad in the area to the east of Szeged because of Szeged airport's status as "a non-public airport with the right to temporary border opening" while Kecskemét airport is a military one.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data for street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. In cases where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, via the shortest path segment.

Access to airports

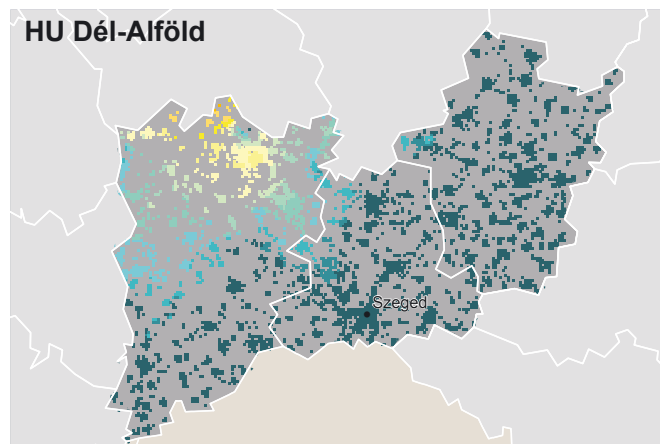
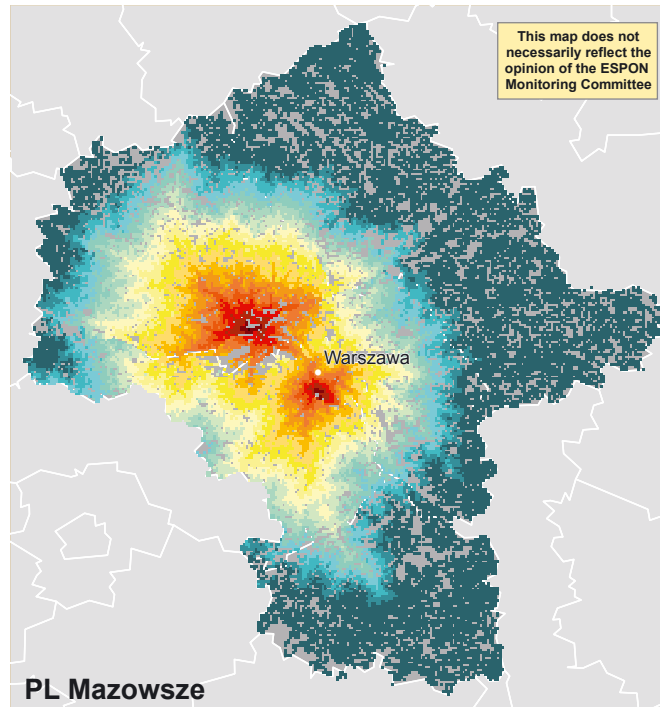


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	131,2	50,1	58,9	20,4	28,9
Minimum travel time of last population decile	185,0	65,0	112,1	47,8	41,4
Maximum travel time to the nearest service	185,0	103,7	191,8	71,0	55,3
Median travel time for population	150,3	49,4	49,2	10,9	29,7
Median travel time for raster cell	112,2	56,0	82,6	26,6	30,1
Standard deviation of travel time for raster cells	48,9	12,0	33,8	12,9	10,5



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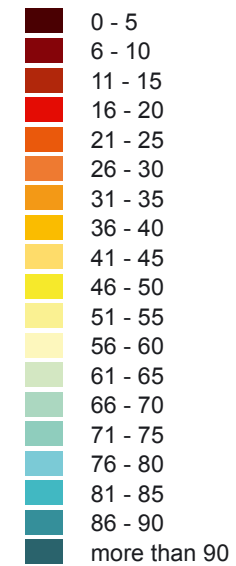
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Accessibility to airports

Travel time by car (minutes)



- Main cities
-  Unpopulated case study area
-  ESPON area
-  Non-ESPON countries

1.15 Postal and courier activities

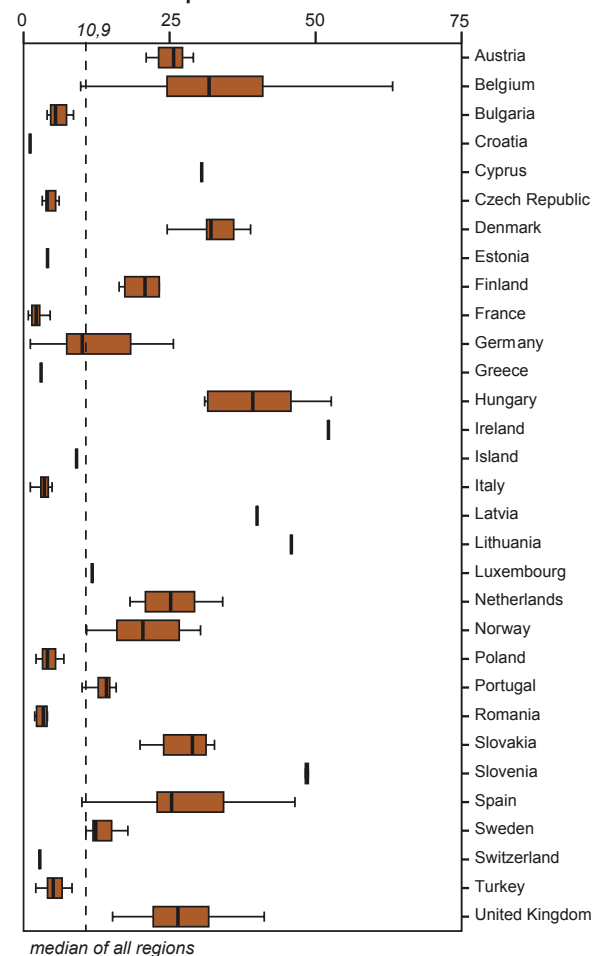
■ As early as in 1991, in a Green Paper, the European Commission stated its intention to promote greater competition in the postal services sector across the Union. Basic postal services in particular were still effectively organised in public monopolies though special services like express mail were already privatised by this. The Commission insisted, as had occurred in other sectors, on creating a Single Market with a reasonable price throughout the Union. From the beginning it was obvious that such a universal service needed restrictions on free competition by establishing a standard reserved area for letters. The access conditions for licensed operators were facilitated. In 1997 the directive (Directive 97/67) on common rules for the development of an internal market in postal services and the improvement of the service quality were adopted. As some member states had already established a competitive postal market and other countries wanted to protect their public postal operator the directive is a compromise between these two oppositional opinions (Brandt 2007; Geradin & Humpe 2002).

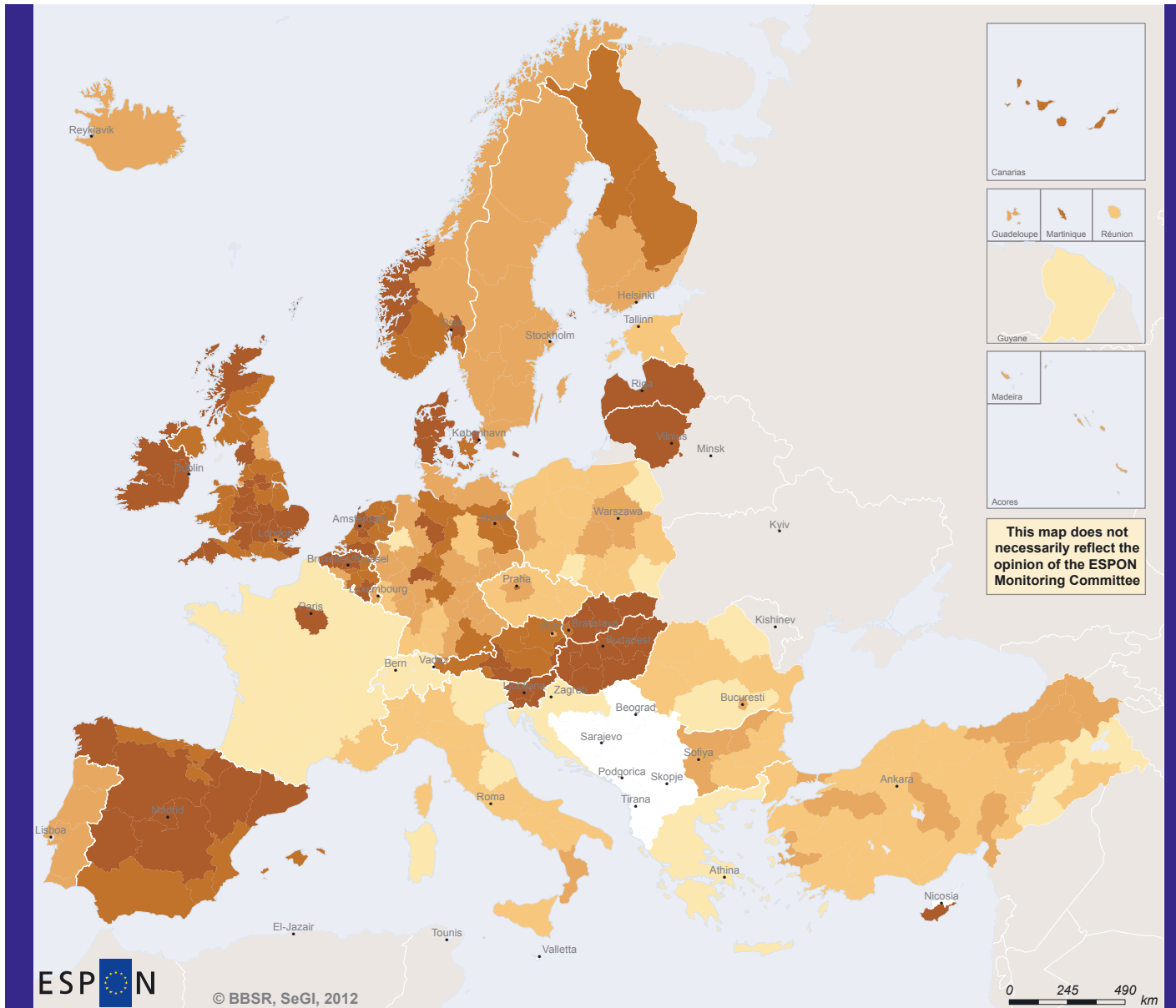
The level of supply in respect of local postal and courier service units is highly country specific. Within countries however the level of variation is quite low. A small number of units per inhabitants means that one unit has to supply more households and enterprises and probably also service a larger area. The distribution pattern in France is highly specific with a high level of supply in the capital region and very low levels of supply in all other regions. With such a specific distribution it is clear that postal and courier services do not show any correlation to indicators of settlement structure or territorial trends.

The specific distribution pattern in France is characterised by a small variation within the country and plentiful supply in the capital region. It is however highly questionable whether this distribution pattern means that inhabitants outside Paris and the Île de France suffer from a postal service that is limited in some way or whether we can even talk about under-supply. France has the most dense postal network in Europe. One third of the public outlets are in partnership with other businesses, known as Agences Postales (postal agencies) or Relais Poste (postal intermediaries). In smaller villages, for example, it would not be unusual to find such services offered in a bakery or other private enterprise. This could perhaps be explained by the fact that there are specific features here, in administrative terms, which lead to a blurred census of units. Belgium, Hungary and Spain have the highest national level variation. In Belgium for example the level of variation ranges from only 9.77 units per 100 000 inhabitants in the province Hainaut to more than 60 units in the province of Oost-Vlaanderen.

In some countries separate local postal outlets are closed down and replaced by 'post-in-shop' (outlets integrated i.e. in grocery shops). These units are most probably listed as 'retail trade'. This is more and more the case in rural Norway, Austria, Germany and other countries.

Postal and courier activities – number of units per 100 000 inhabitants 2009





Postal and courier activities

Number of local units active in postal and courier services per 100 000 inhabitants, 2009

- up to less than 3
- 3 up to less than 6
- 6 up to less than 18
- 18 up to less than 27
- 27 and more
- no data

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* Croatia, Greece and Switzerland: NUTSO
Denmark 2008
Iceland, Turkey: National statistical offices 2009

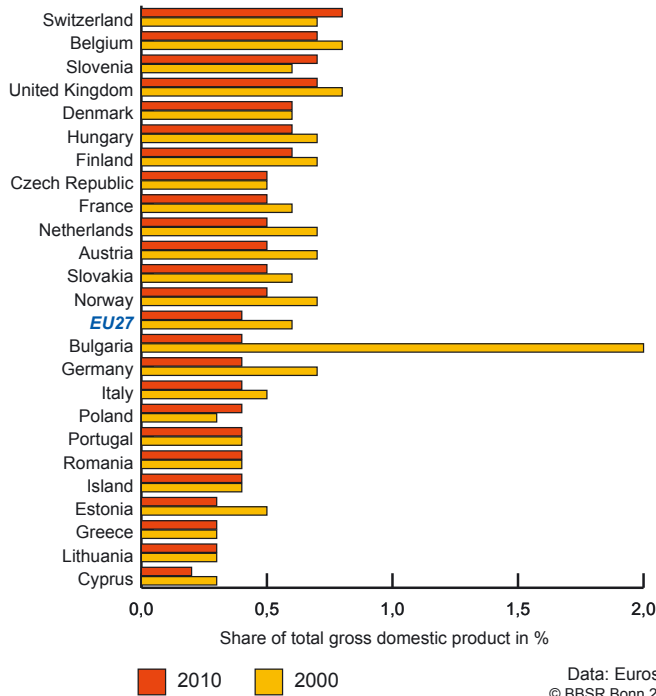
1.16 Postal and courier prices

■ In the course of the liberalisation process a standard reserved area for letters were established to protect the basic universal service of postal delivery. In 2008 this restriction was abolished but the state still has the duty to ensure the existence of such a universal service with a nationwide provision. The price structure differs enormously throughout Europe. In Slovenia and Macedonia the price for a standard domestic letter (less than 20g) is up to €0.30 whereas

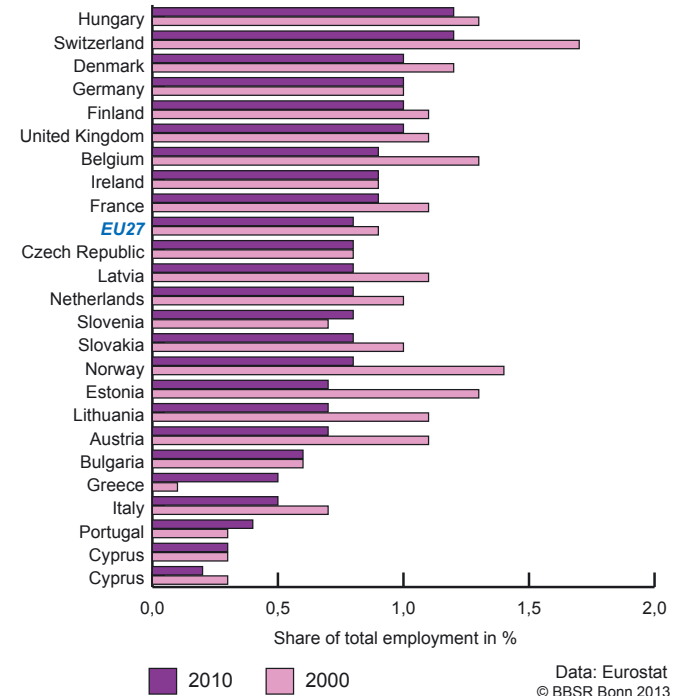
the population in Scandinavian countries as well as in Switzerland and Belgium have to pay up to €0.75. Despite the liberalisation process many of the former state-owned postal services still belong, in terms of a majority share, to the state (e.g. France, Germany and the UK).

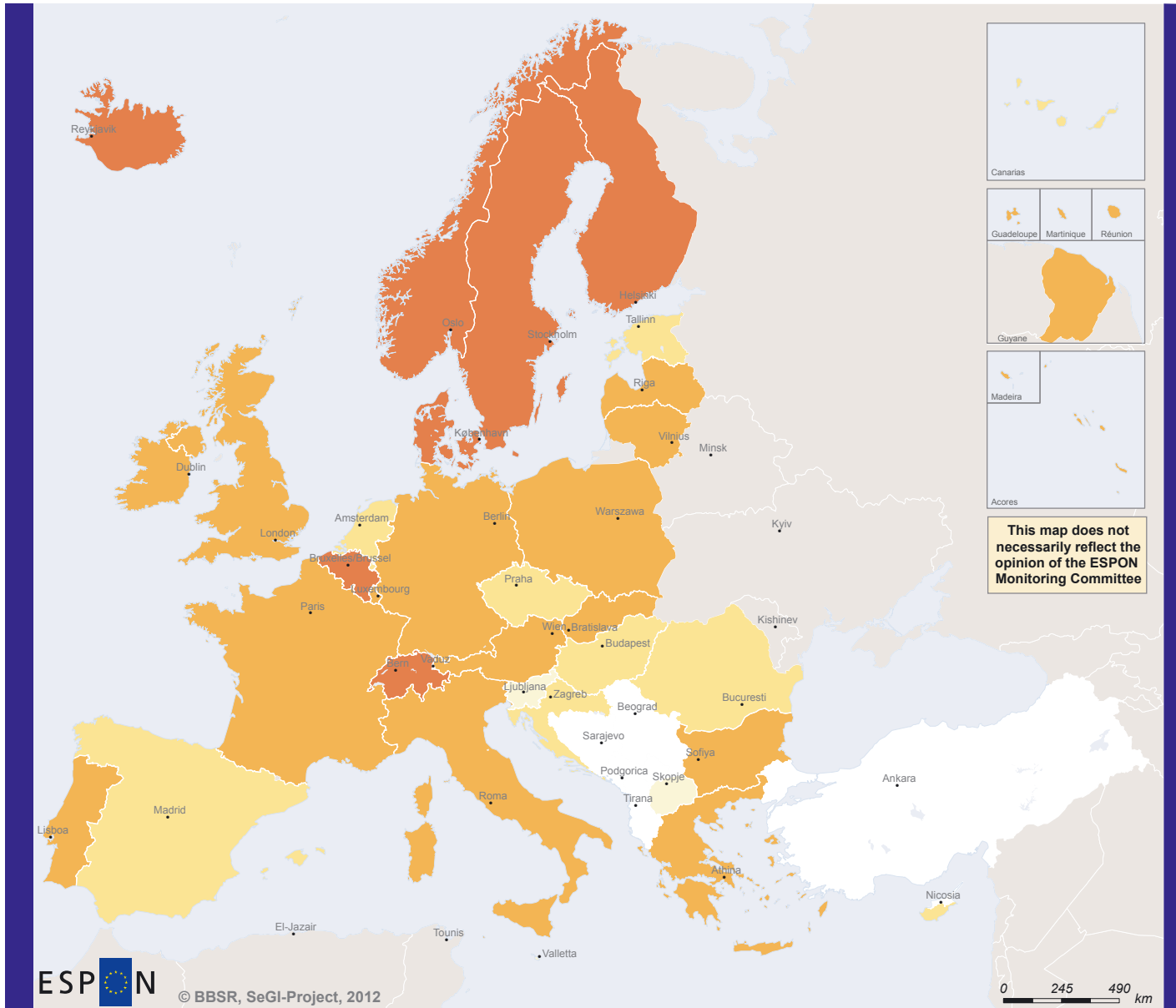
Even in an era of electronic mail traditional postal mail is still important for companies, authorities and the population more generally. Nevertheless, fees for standard letters (stamps) are rather low. More expensive are letters offering special service (delivery just in time, non-standard letters) and fees for packages (with or without insurance of the content). These tariffs are so manifold that comparable statistics are missing.

Gross domestic product of the postal and courier service sector



Employment in the postal and courier service sector





Postal and courier prices

Price for a standard domestic letter less than 20 g in €, 2010

- up to 0,30
- 0,31 up to 0,45
- 0,46 up to 0,60
- 0,61 up to 0,75
- no data

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*Iceland, Italy, Norway: 2007,
Switzerland: Swiss Post

1.17 Telecommunication activities

■ The European Commission first discussed the liberalisation of the telecommunication sector in 1987 under the rubric of the single European market. In the following years several directives, resolutions and papers were produced on the development of a common market for telecommunications services and equipment. The objectives of these directives and of EU policy in general in this sector are to guarantee access to basic services (telephone, fax, internet access and free emergency calls) at affordable prices for all customers, and specifically for persons with disabilities. Additionally, competition should be further encouraged by the reduction of the market dominated position of former national monopolistic telecommunications companies which remain market-dominant in some services like high-speed internet connection.

The information technology sector is an important component of the European strategy for economic growth (Europe 2020) particularly in the form of the Digital Agenda in which strategies and actions are outlined to maximise the benefits of the digital revolution. The European Commission has also expressed the aim of closing the digital gap that still exists between core and peripheral regions and between prosperous and less prosperous inhabitants. In order to promote an efficient and competitive European economy companies and individuals have to have access to a cheap and high-quality communications infrastructure with a wide range of services. Addition-

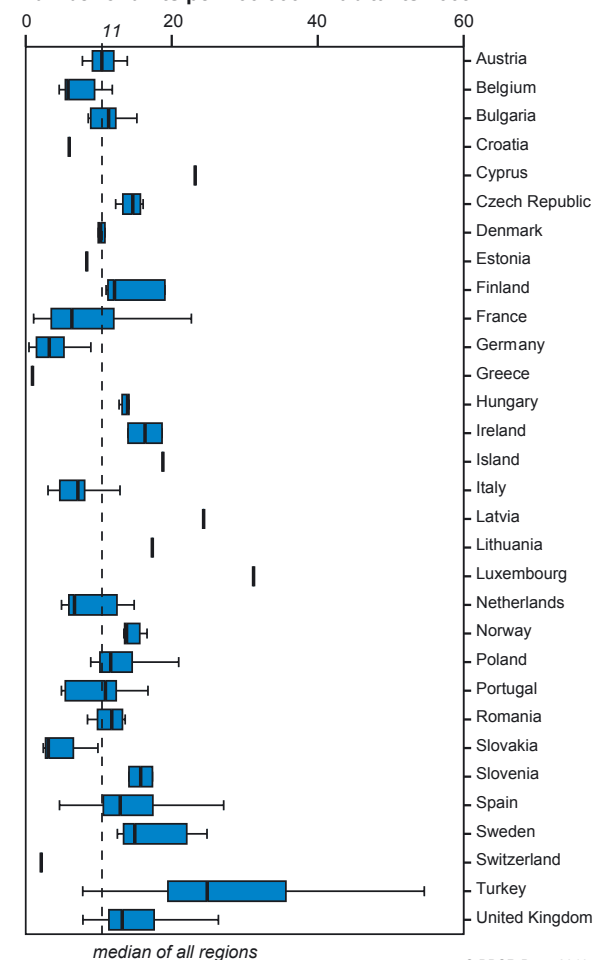
ally, everybody needs to have the ability to live and work in the information era. The EU seeks to achieve this through following actions: fair prices for using mobile phones abroad, supporting internet access in poorer (often remote) regions, promoting the distribution of fast broadband connection to households, and supporting the development of e-commerce.

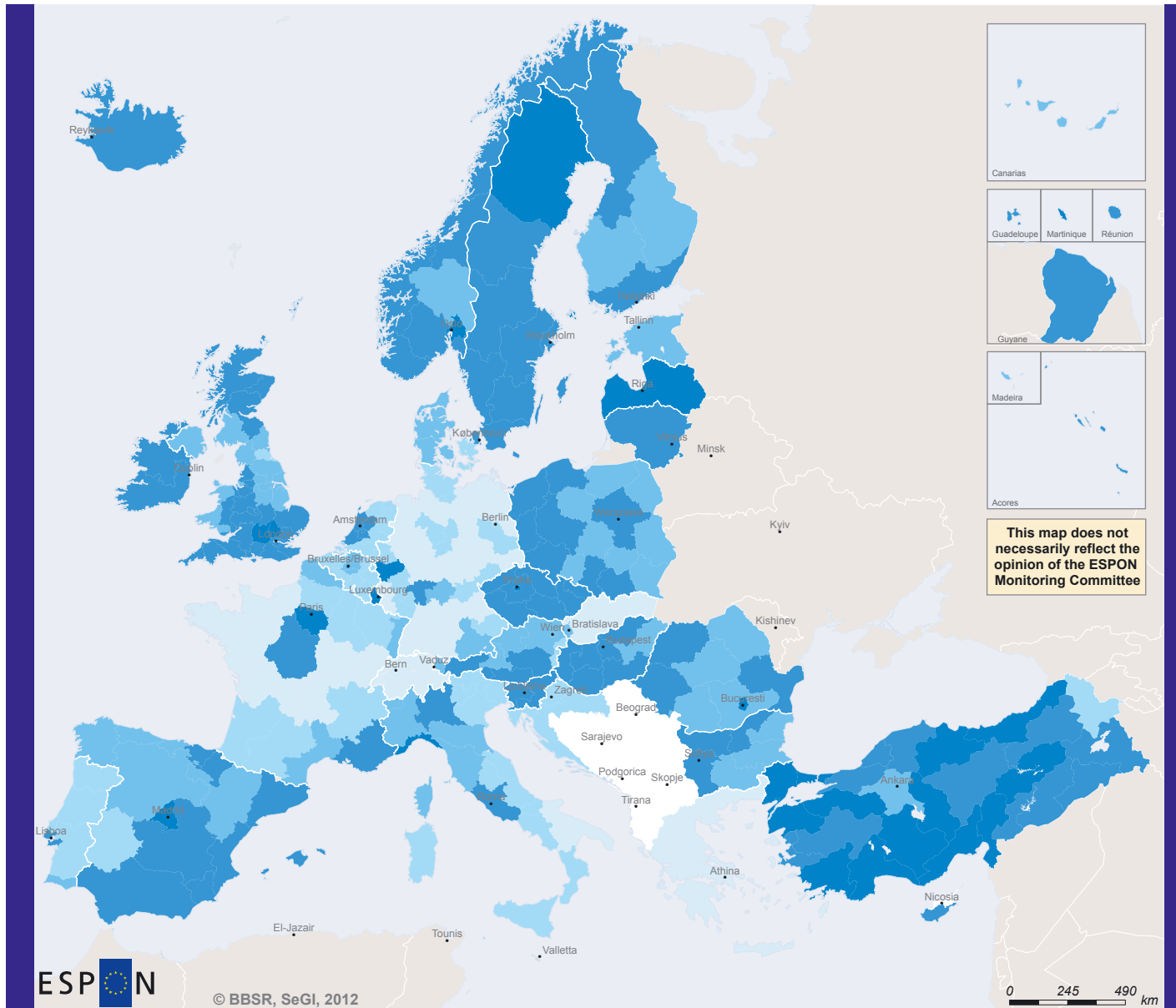
As with other services dependent on net-infrastructure, like energy supply, telecommunications services do not require a dedicated local/regional service provider. This indicator thus shows the sectored and regional concentration of the service and not under- or over-supply. Moreover, questions of appropriate price and stability and quality of the service are clearly here more important than the physical proximity to a supplier.

Nevertheless, provider units may be important local and/or regional sources of employment and income and having therefore secondary regional-economic effects like attracting highly qualified personnel. The presence of telecommunication providers in regions – and this is also the case for other services - therefore are of great importance to regional development.

Many countries show significant variations in their provision with local units active in the telecommunications sector. Indeed, in Turkey provision ranges from 7.8 to 54.6 units per 100 000 inhabitants. The median for all regions is 11 units.

Telecommunication activities –
number of units per 100 000 inhabitants 2009





Telecommunication activities

Number of local units active in telecommunication per 100 000 inhabitants, 2009

- up to less than 4
- 4 up to less than 8
- 8 up to less than 12
- 12 up to less than 24
- 24 and more
- no data

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* Croatia, Greece and Switzerland: NUTS0,
Belgium - Région Wallonne: NUTS 1
Denmark 2008
Iceland, Turkey: National Statistical Offices 2009

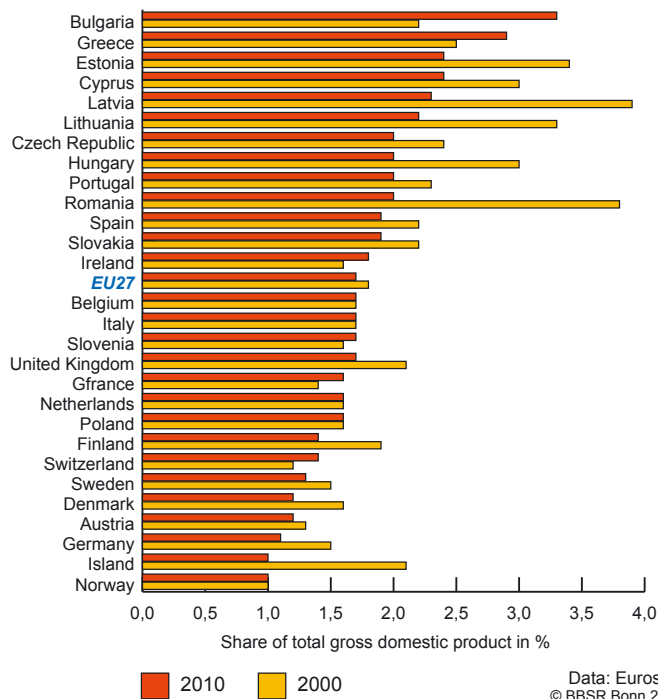
1.18 Telecommunication prices

■ As noted previously, one of the main objectives of the European Union in this area is to guarantee fair prices for access to the telecommunications infrastructure thus making it affordable for all. Moreover, in terms of the basic functioning of the economy 'traditional' phone calls remain important as this service guarantees fast and uncomplicated contact.

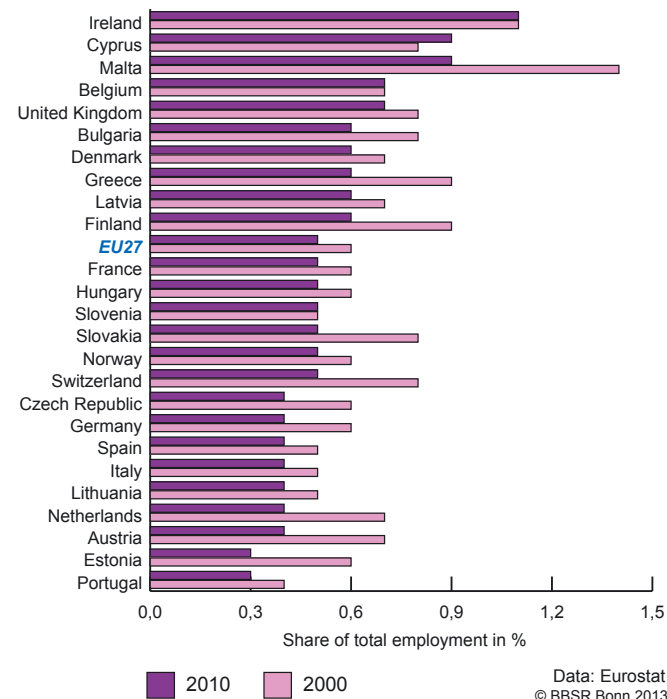
Prices for local calls vary significantly across Europe. It is however questionable whether this indicator (from 2008, except for Iceland) really shows the current situation as flat-rate charges for telephone calls have existed now for some years. Thus, as 'charging by the minute' is becoming ever rarer this indicator is rapidly losing its value.

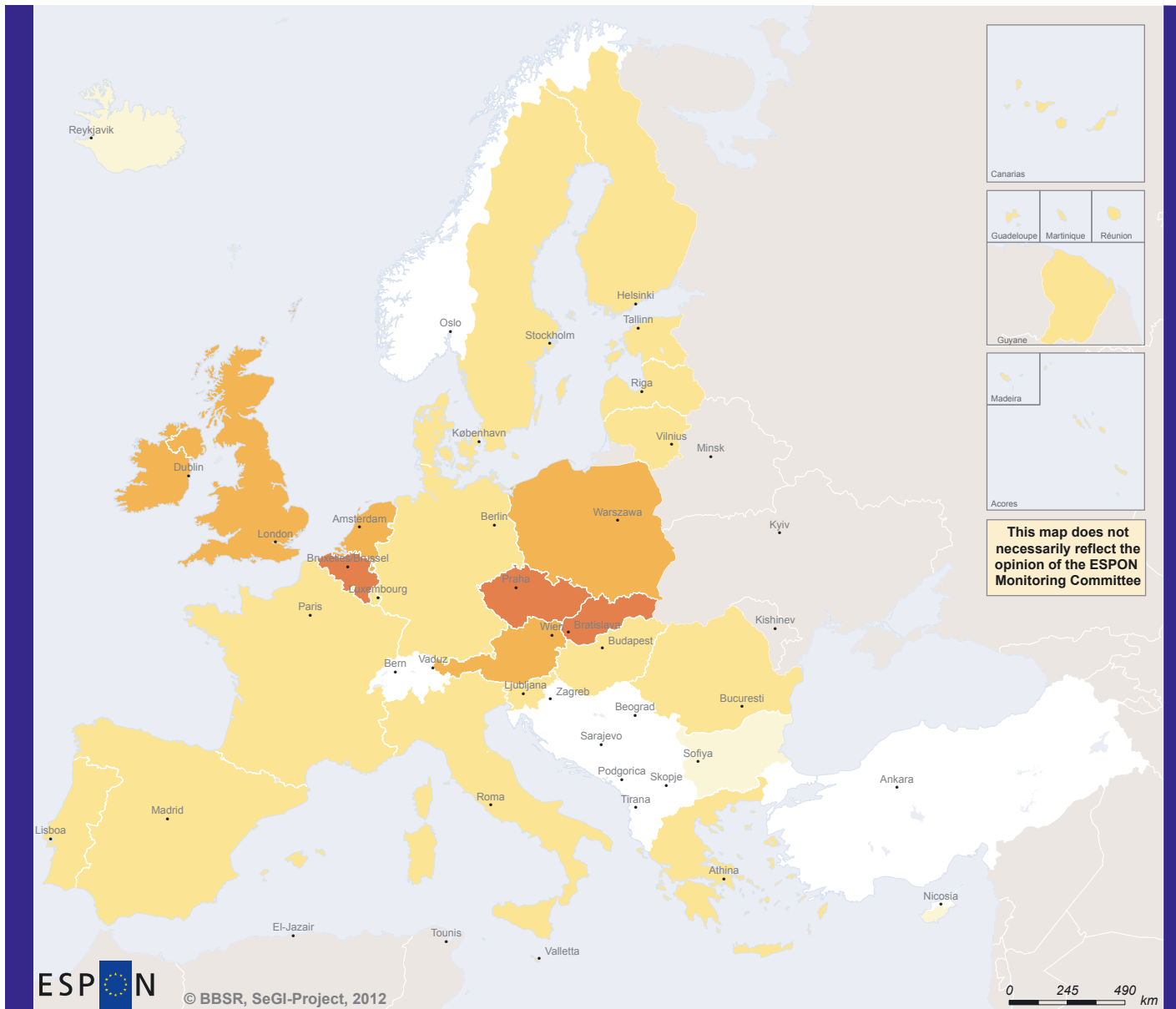
Furthermore, the price structures for both fixed and mobile and internet telecommunication are so complex and vary and change so rapidly, that this indicator loses of value.

Gross domestic product of the telecommunication service sector



Employment in the telecommunication service sector





Telecommunication prices

Costs for local calls of 10 minutes in €, 2008

- up to 0,20
- 0,21 up to 0,40
- 0,41 up to 0,60
- 0,61 up to 0,76
- no data

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Regional level: NUTS 0
Source: Eurostat database, 2011*
Origin of data: Eurostat, 2008
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* Iceland: National Statistical Office, 2011

1.19 Access to broadband

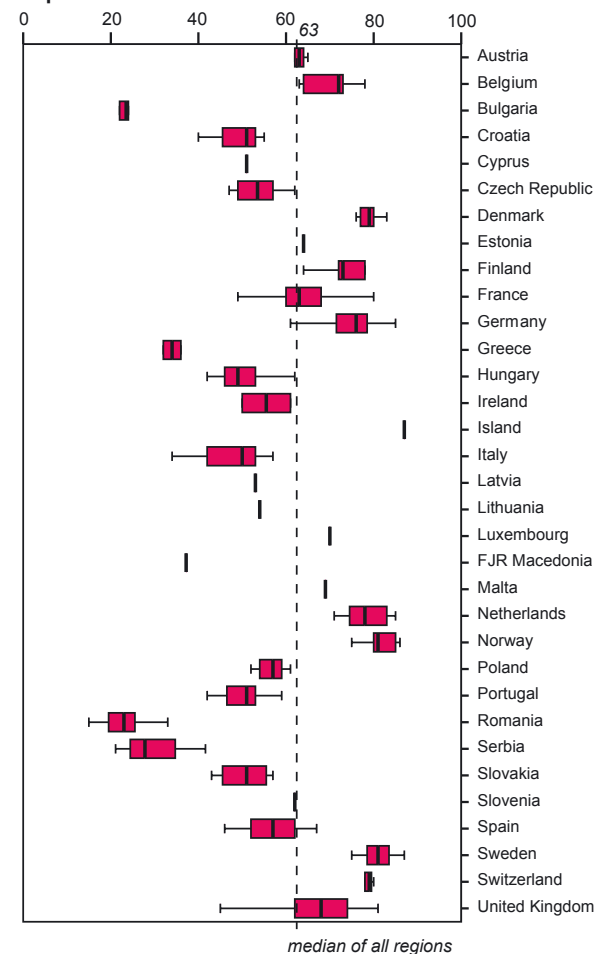
■ Broadband access is seen as the most important internet technology offering fast, cheap and constant online communication. The map shows that particular Northern and Central European countries already have a high level of broadband access. In Southern and Eastern European countries however it is still necessary to extend access to the technology to large numbers of people. The EU regards broadband connections for schools, universities, libraries, museums and other similar institutions as essential in enabling and facilitating a generation which is completely familiar with modern communications technologies. 96% of all schools in the EU are connected to the internet and already some 67% have access to broadband. Another development implemented in some EU member states (e.g. Sweden) is the offering of some health-related services for citizens over the internet. Information about illness prevention, online medical records, remote consultations and electronic reimbursement of medical expenses are new services which should make the

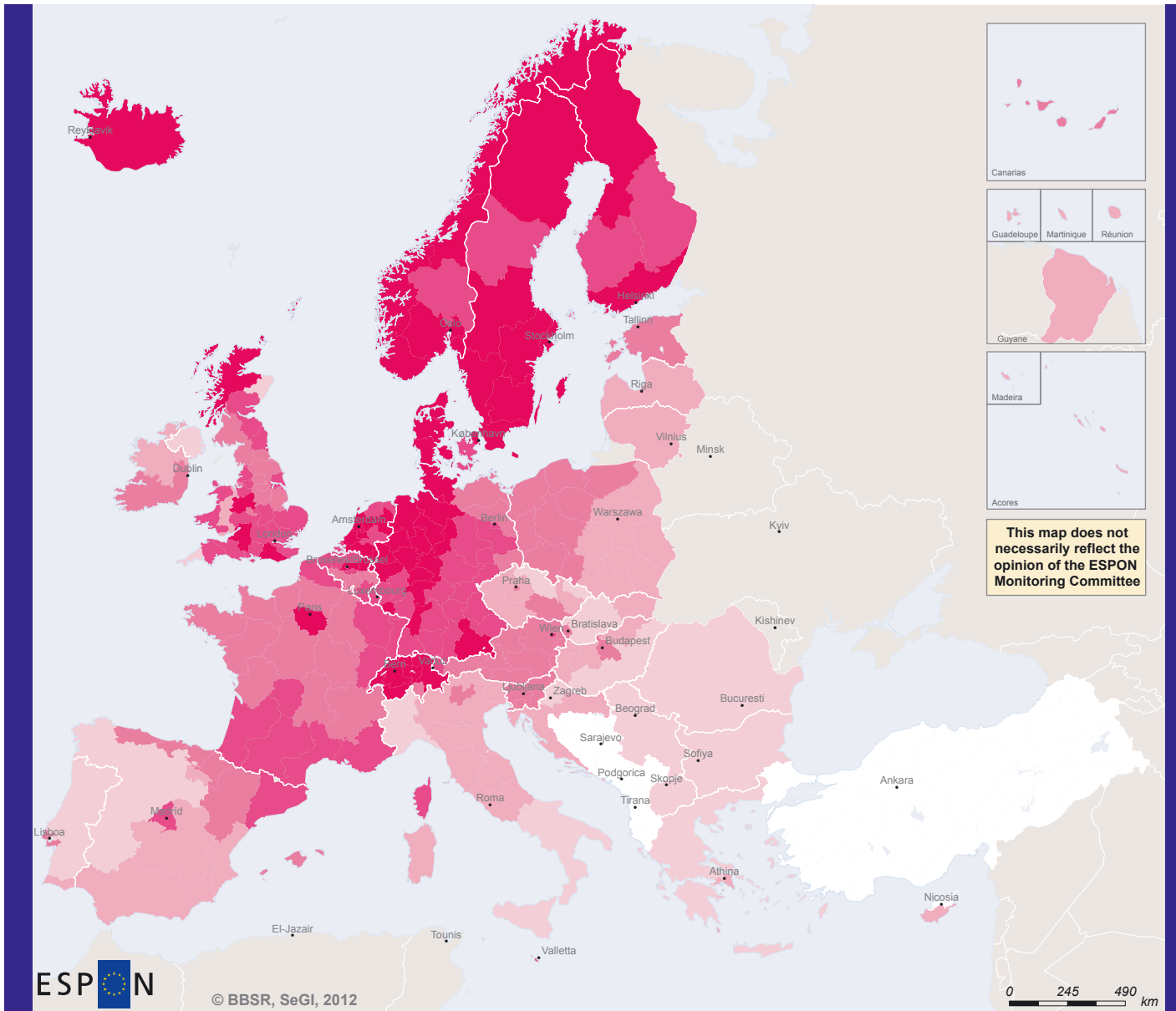
health system easier to access for patients and more manageable for medical staff.

Fast data transmission is crucial for many enterprises. 'Broadband' generally implies quick data transmission rates but it is not a fixed term. The International Telecommunications Union defines all lines with a transmission rate of 2048 kBit/s as 'broadband'. Even if the original data were collected by an EU-wide annual survey some national differences exist in the definition of broadband thus making regional comparison difficult. The compensatory indicator of households with internet access regardless of speed of the connection – same source - had to be rejected due to a general lack of data.

Variations within countries are explainable in relation to the mismatch between urban and rural areas which remain less well connected, as regards broadband, than urban areas.

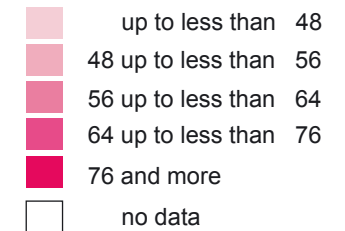
Households with access to broadband in percent of all households





Access to broadband

Households with access to broadband in percent of all households, 2010



* Switzerland: National Statistical Office 2010, NUTS 0;
 Germany: disaggregation of NUTS 1 data by national data;
 France, Poland and Slovenia: NUTS 1;
 Serbia: National Statistical Office 2010;
 United Kingdom: 2008 and 2009

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Regional level: NUTS 2 (2006)*
 Source: Eurostat database, 2011
 Origin of data: Eurostat, 2010*
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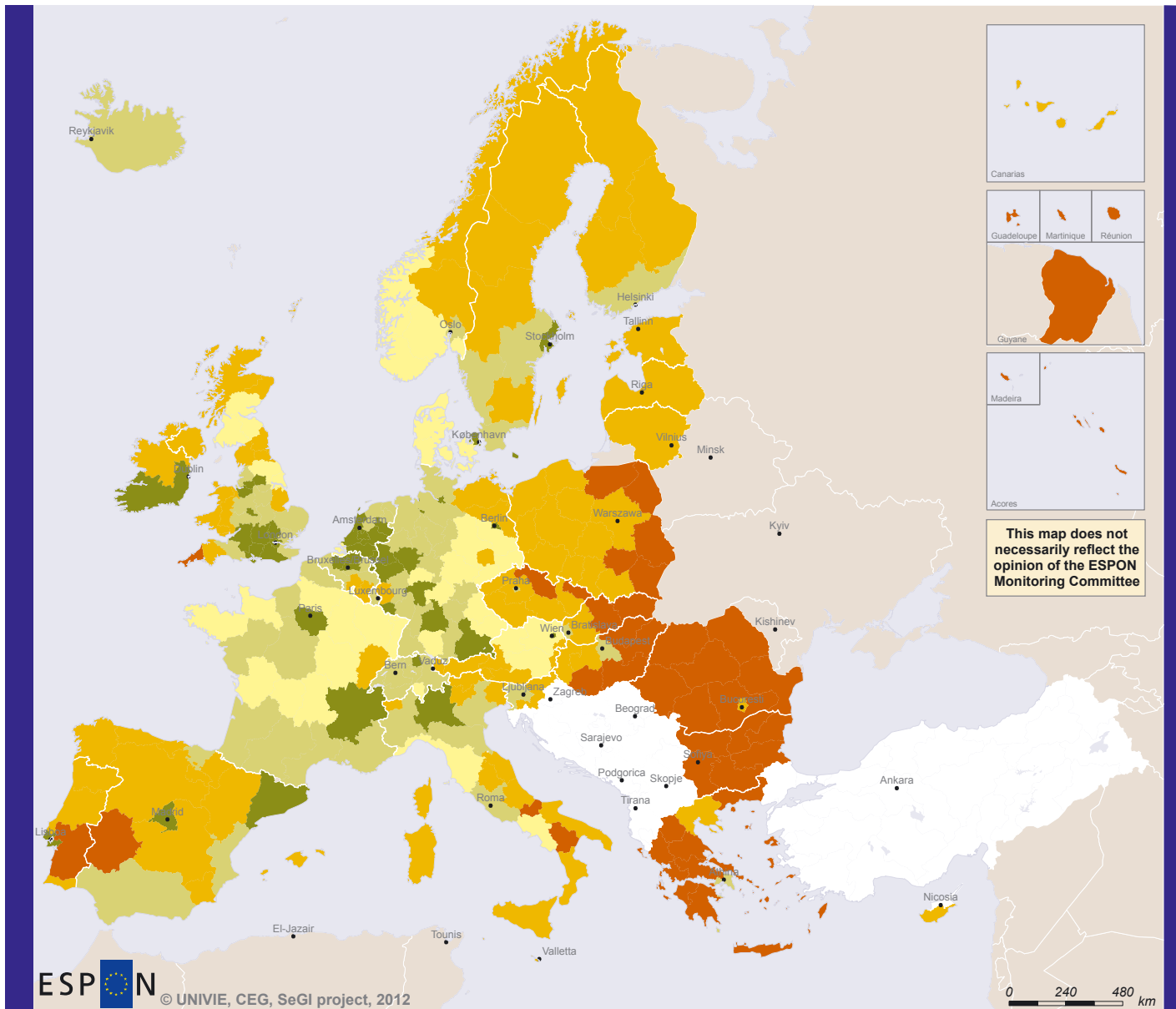
1.20 Regional typology of economic SGI

■ The regional typology on Services of General Economic Interest is based upon three SGI indicators on transportation, business support and communications. Highly ranked transport and high quality ICT infrastructures as well as a communicative business sector are taken into account to express the relative performance of European NUTS 2 regions as regards SGEI. The chosen SGI are characterised as supporting the basic needs of businesses and enterprises and promoting sound market conditions in terms of production and delivery from the supply side while also meeting the necessary conditions in terms of demand from the user side. In short, they are of key importance in establishing and running a business and generally interacting in the (labour) market. In addition to the three indicators mentioned it is necessary also to integrate a fourth indicator which then allows for the efforts made by the national government in

terms of SGEI to be taken into consideration. The indicator refers to public financing, more specifically, national public expenditures in economic affairs per capita. The use of this input indicator allows for an important distinction to be made according to the investment level and the efforts made by the public authorities to improve SGEI. The four indicators have been standardised by Z-transformation and additive scores calculated for every region that represents the deviation from the European average. The resulting index was then used to split the European regions into five types.

On a broad European scale, the EU 15 member states display a rather better performance on SGEI while in the new EU member states it is mostly only the capital regions that are above the European average. On a regional level, it is generally the metropolitan ar-

reas that score higher. Most countries show a pattern where the capital regions are ranked higher than other regions – most obviously in the geographical outer rim of the EU27+4 area such as in Finland, Sweden, Norway and the UK as well as in the Mediterranean countries like Spain, Portugal and Greece. In some cases (such as Berlin or Lisbon) there is even a gravity effect in terms of the capitals' neighbouring regions displaying the lowest national performance. The 'island' territorial type is below the European average since high connectivity infrastructures with a wide operating range, such as motorways, are delimited on these territories. The hypothesis that SGI for businesses 'follow' their costumers is more likely in this respect than assuming a 'trailblazer' role for these SGI. This means that regions of high economic power also trigger and foster the enhancement of Services of General Economic Interest.



Regional typology of SGEI

Standard-deviations from European average

- below average (-5,2 to -2,5)
- moderately below average (-2,5 to -0,5)
- around average (-0,5 to 0,5)
- moderately above average (0,5 to 2,5)
- above average (2,5 to 11,2)
- no data

Indicators

(Z-transformed; i.e. expresses deviation from mean in standard-deviation)

1. High ranked transport infrastructure
(Length of motorways in km per 1 000 km², 2009)
2. High quality ICT infrastructure
(Percentage of households with access to broadband, 2010)
3. Vital business surrounding
(Persons employed per 100 000 inhabitants in PR and consultancies, 2010)
4. Public finance
(National public expenditures on economic affairs per inhabitant, 2009)

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Regional level: NUTS 2
Source: EUROSTAT, 2011
Origin of data: EUROSTAT, 2011
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2 Social Services of General Interest

- 2.1 Enrolment in pre-primary schools
- 2.2 Enrolment in upper-secondary schools
- 2.3 Enrolment in tertiary education
- 2.4 Access to primary schools
- 2.5 Access to secondary schools
- 2.6 Access to tertiary education facilities
- 2.7 Hospital beds
- 2.8 Hospital beds in psychiatric care
- 2.9 Doctors and physicians
- 2.10 Nurses and midwives
- 2.11 Access to hospitals
- 2.12 Access to pharmacies
- 2.13 Prices private health care
- 2.14 Care of children below 3
- 2.15 Care of children above 3
- 2.16 Employment agencies
- 2.17 Veterinary offices
- 2.18 Broadcasting
- 2.19 Theatres, operas and museums
- 2.20 Sport stadiums
- 2.21 Expenditures for social housing
- 2.22 Regional typology of social SGI

2 Social Services of General Interest

■ “Services of general interest of a non-economic nature and services without effect on trade between Member States are not subject to specific Community rules, nor are they covered by the internal market, competition and State aid rules of the Treaty. However, they are covered by those Community rules that also apply to noneconomic activities and to activities that have no effect on intra-Community trade, such as the basic principle of non-discrimination.” (European Commission 2003: 11). This group of SGI has no official other definition than not being ‘of economic interest’. This Green Paper evoked a debate summarized in a White Paper (2004) focusing on the

role, importance and principles of Social Services of General Interest (SSGI). “Social services of general interest have a specific role to play as an integral part of the European model of society.” (European Commission 2004: 16). Social services are mainly assumed to include health services, long term care, social security, employment services, and social housing. Their importance for social cohesion and protection is confirmed by the Social Agenda (2005) of the European Community. But within this document the non-confirmation of the separation of SGI or SSGI from SEGI becomes evident: It is thus indicated that also social services may be classed as SGEI.

In accordance with the White Paper and within the context of the SeGI project, in addition to social services, all services were automatically included in SSGI as not being already classified with the SEGI group. Therefore, in this atlas – based on the definitions in the SeGI project – SSGI includes the following services education, health, employment services, care, security, broadcasting, culture and sports (recreation) activities and (social) housing.

2.1 Enrolment in pre-primary schools

Education and knowledge (the ingenuity and invention of the population) is perhaps the EU's most valuable asset, and a necessary precondition for the creation of a knowledge-based highly competitive economy on the one hand (European Council: 2012) and every citizen's right to attain the skills and abilities necessary for active citizenship and personal fulfilment on the other (European Council: 2010). The focus on this EU strategy starts with good access to good quality pre-schools. Early education prior to the compulsory school starting age is increasingly seen as providing the fundamental bedrock for pupils' subsequent success at school.

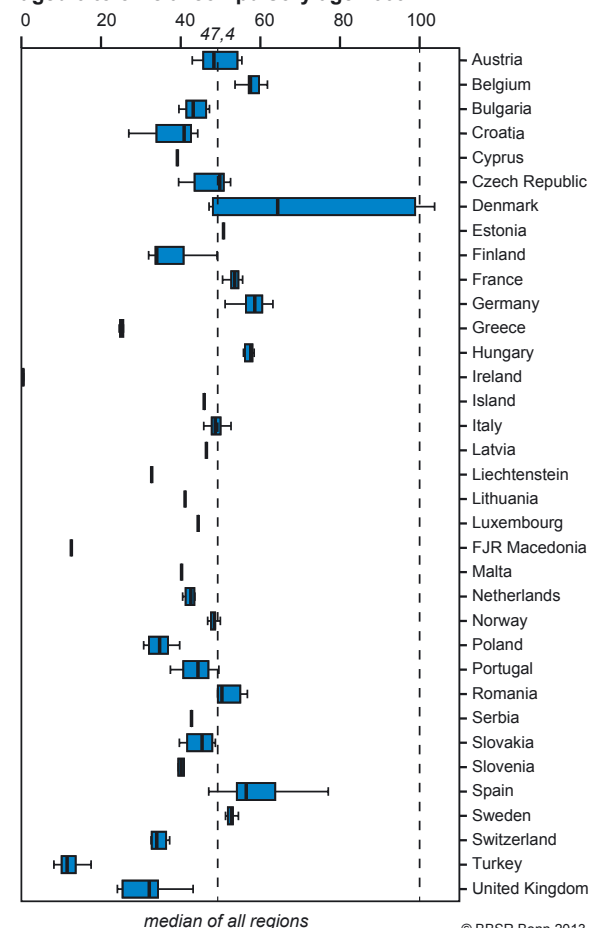
The enrolment of children of the relevant age in pre-primary schools is a sub-optimal indicator for the availability of pre-primary schools in the regions. Enrolment measures the share of children attending a pre-primary school and not the number of and the level of access to pre-primary schools for children in the region. High enrolment rates do, however, indicate a better level of access to pre-primary schools on the assumption that small children in particular are prevented from travelling far between home and school. On the contrary, low enrolment rates indicate low availability and poor access to pre-primary schools on the assumption that this service is highly valued and strongly desired by parents.

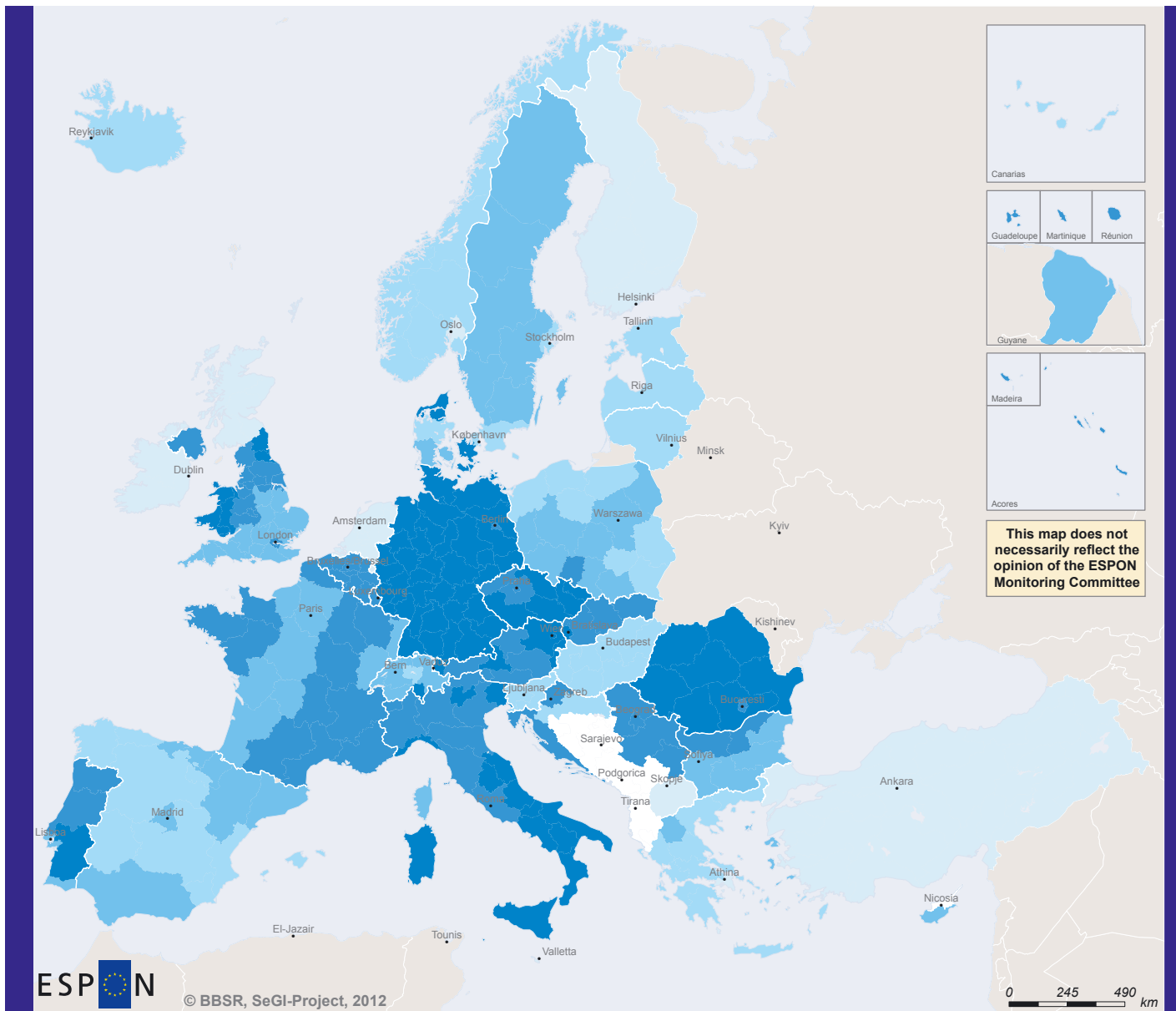
Enrolment data also shows the existence of significant differences between countries but lower differences within countries with Denmark being the exception here. The statistics on pre-primary schooling remain however somewhat problematic as regards international comparisons. In many countries pre-primary schools and childcare are not

statistically differentiated; in Germany the recorded high enrolment rates are due to the guarantee of half day childcare for all children aged 3 to 5 and increasing participation rates for children below 3 years in childcare schemes. In most countries pre-primary schooling is optional but the practise is very different amongst countries: In Ireland pre-primary schooling is optional for smaller children but children of age 4 and 5 attend a primary school (Department of Education and Skills, Ireland). Furthermore Ireland separates statistically between pre-primary schools and kindergartens/care and therefore the rate of pre-primary enrolment is artificially low compared to other countries. In Poland pre-schooling or kindergartens are restricted to children of at least 3 years (Polish EURYDICE Unit: 5.2.2012) as in many other countries the official age for the commencement of childcare and pre-primary schooling is 3 years. In Denmark however children of only six months can begin childcare and pre-schooling. Denmark has the highest rates for all states and has a long tradition of pre-school education as a right, indeed, dating back to 1976 (Eurydice: 2009); Nordjylland, moreover, also caters for children from Midtjylland and thus has a rate above 100%.

As regards European cohesion significant differences exist between countries in terms of laws, rights and habits in respect of pre-schooling. An early start from just a few months after birth until compulsory schooling age is not common across the EU27+4 and therefore the availability of pre-primary schools and childcare display significant differences. For additional information on early schooling see also the qualitative indicators of childcare in chapter 2.14 and 2.15.

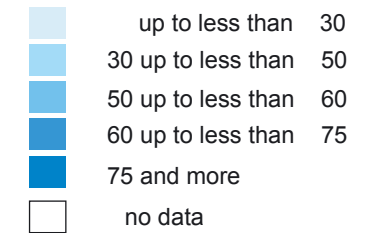
Children in pre-primary schools per 100 children aged 0 to official compulsory age 2009





Enrolment in pre-primary schools

Students of pre-primary schools per 100 inhabitants in relevant age, 2009



Relevant age:

- 0 - 4 years: Malta, Netherlands
 - 0 - 5 years: Denmark, Hungary, Norway, Spain
 - 0 - 6 years: Finland
 - 1 - 5 years: Croatia, Iceland, Slovenia
 - 1 - 6 years: Estonia, Latvia, Lithuania, Sweden
 - 2 - 5 years: France, Belgium
 - 3 years: Ireland
 - 3 - 4 years: United Kingdom
 - 3 - 5 years: Austria, Cyprus, Czech Republik, Germany, Greece, Italy, Luxembourg, Montenegro, Portugal, Romania, Serbia, Slovakia, Switzerland, Turkey
 - 3 - 6 years: Bulgaria, Poland
 - 4 - 5 years: Liechtenstein
- Source: Eurydice

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Regional level: NUT2/NUTS1 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2009*
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* Serbia: National Statistical Office; NUTS 0, Germany: disaggregation of NUTS 1 data with data from Federal Statistical Offices, Greece: 2008, United Kingdom: NUTS 1,

2.2 Enrolment in upper-secondary schools

■ Upper secondary education embeds general education after compulsory age and vocational training. The Council highlights the qualitative importance of higher upper secondary education, vocational training and apprenticeships to labour market needs as being crucial for the Europe 2020 objectives, the strengthening of the state and the averting of future crises (European Council: 2012).

Enrolment is a sub-optimal indicator for the availability of upper secondary schools. Assuming that in the upper secondary education sector a higher inter-communal and inter-regional division of providing/teaching special skills/professions the international variation of enrolment rates is moderate with few exceptions. Again there are differences in the organisation of upper secondary education which explains the differences in enrolment rates. Moreover, the option to begin and conclude higher levels of education beyond the regular or commonly stipulated ages makes the harmonisation of this indicator difficult.

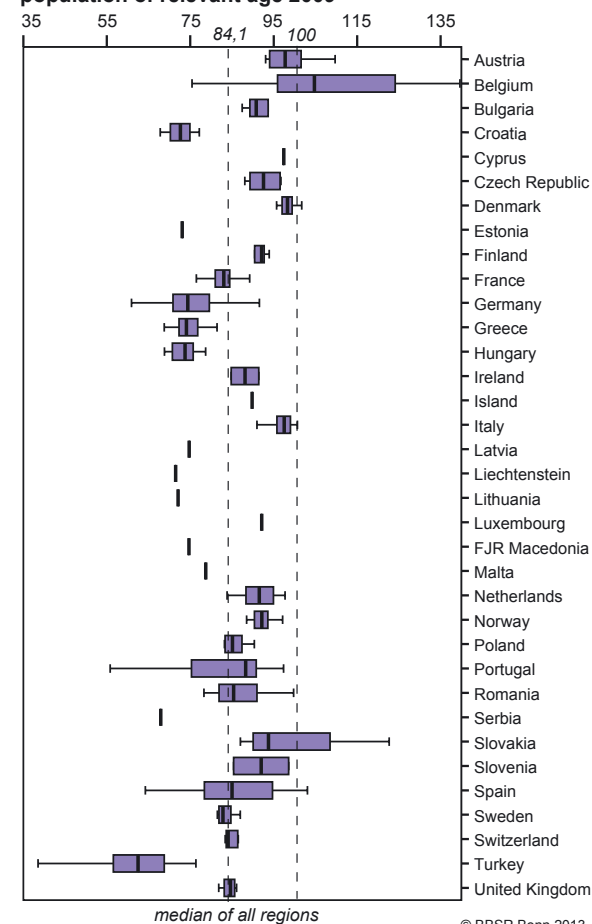
In Belgium the opportunities for students to attend general secondary schools and upper, mainly technical or vocational secondary schools overlaps age groups; this explains the high enrolment rates in Belgium over 100 %; additionally, in Belgium, the French, Flemish and German speaking communities are themselves responsible for education which, in part, explains the variation between the NUTS 2 regions (Flemish EUYRIDICE report 2010). Although in Swit-

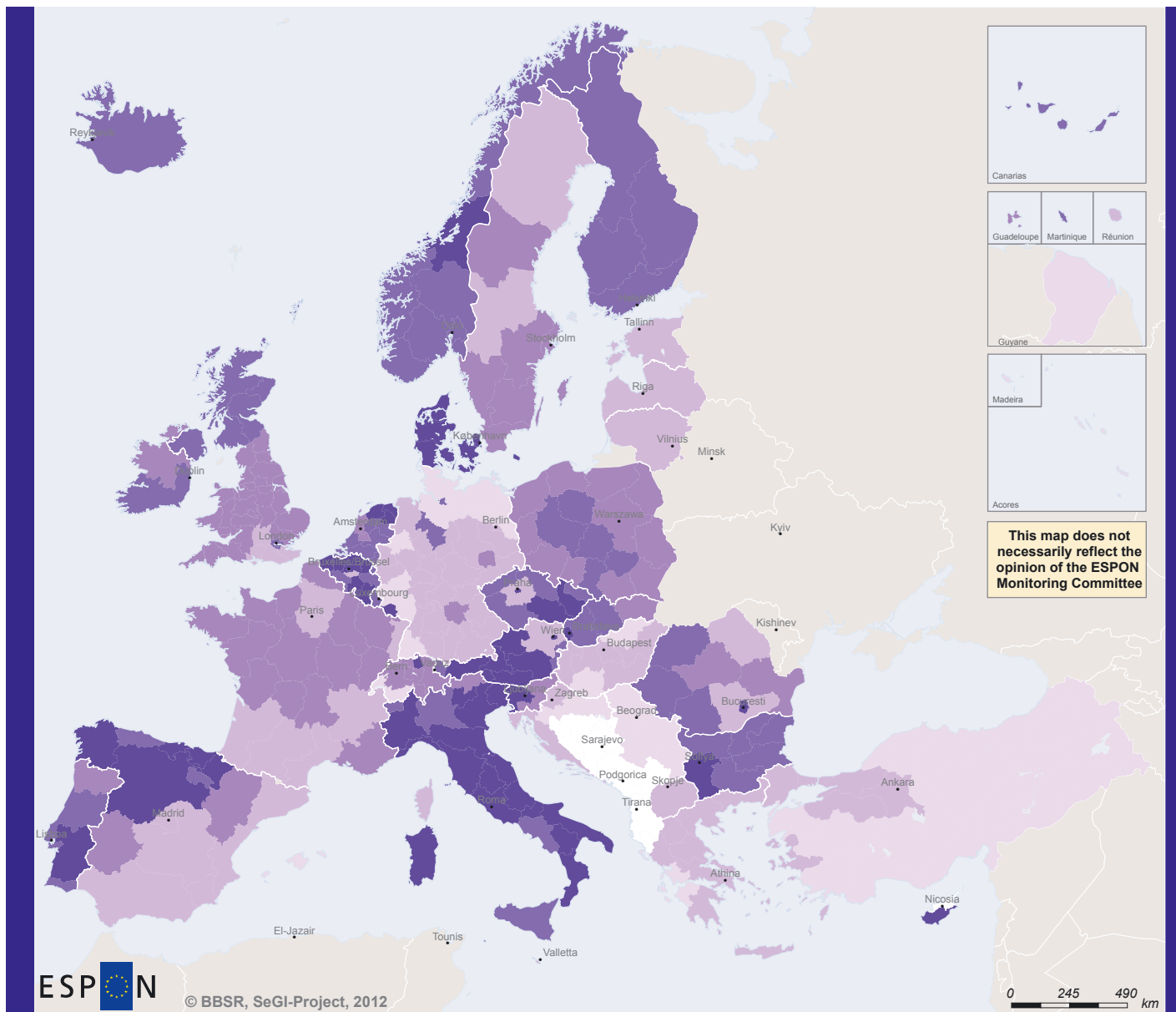
zerland the cantons are responsible for education at this level regional rates vary by only +/- 4 % with Zurich and Région lémanique as exceptions in both directions (educa: 7.2.2013). Some countries show a national level in respect of enrolment rates below the European average (i.e. Germany, Greece, Hungary, Croatia, Serbia and Turkey). In some of these countries the political promotion of tertiary education in the last years may be the reason. Despite initiatives on gender equity beginning as far back as 1927 and set as their highest objective in 2002 by the Turkish Ministry of National Education the participation of women in upper and higher education in Turkey remains below average (Fitzpatrick/Rahman/Esen 2009).

In many countries the enrolment rate is coherent with more rural regions as professional training in upper secondary schools is a substitute for the absence of tertiary education while also complementing the requirements of the regional labour market. But because of significant national level differences the European-wide correlation with the settlement structure is low.

As it is the existing organisational differences which, in the main, produce the recorded statistical differences, primarily in respect of inter-regional differences in availability, and of the standard of upper secondary education should be recognised as a concern in respect of Europe's cohesion policy.

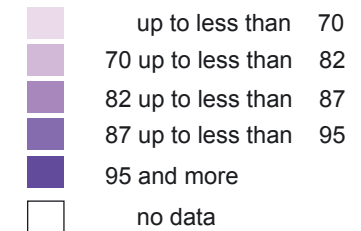
Students in upper secondary schools per 100 population of relevant age 2009





Enrolment in upper-secondary schools

Students of upper-secondary schools per 100 inhabitants in relevant age, 2009



Relevant age:

- 14 - 18 years: Croatia, Italy, Liechtenstein, Serbia, United Kingdom, Turkey
- 14 - 19 years: Belgium, Finland, Hungary, Iceland
- 15 - 17 years: Cyprus, Ireland
- 15 - 18 years: Austria, Bulgaria, Czech Republic, France, Greece, Luxembourg, Netherlands, Switzerland
- 15 - 19 years: Iceland, Portugal, Slovakia, Slovenia, Sweden
- 16 - 18 years: Lithuania, Malta, Spain
- 16 - 19 years: Croatia, Denmark, Estonia, Germany, Latvia, Norway, Romania

Source: Eurydice

2.3 Enrolment in tertiary education

■ Tertiary education covers institutions of higher education academically as well as professionally. It is, moreover, particularly relevant to the Europe 2020 goals. At the EU level the 'Bologna process' is part of the attempt to further foster tertiary education by enabling a higher share of the population to attain tertiary degrees, increasing the outcomes of tertiary education and the mobility of students, researchers and staff in Europe (EACEA P9: 2012).

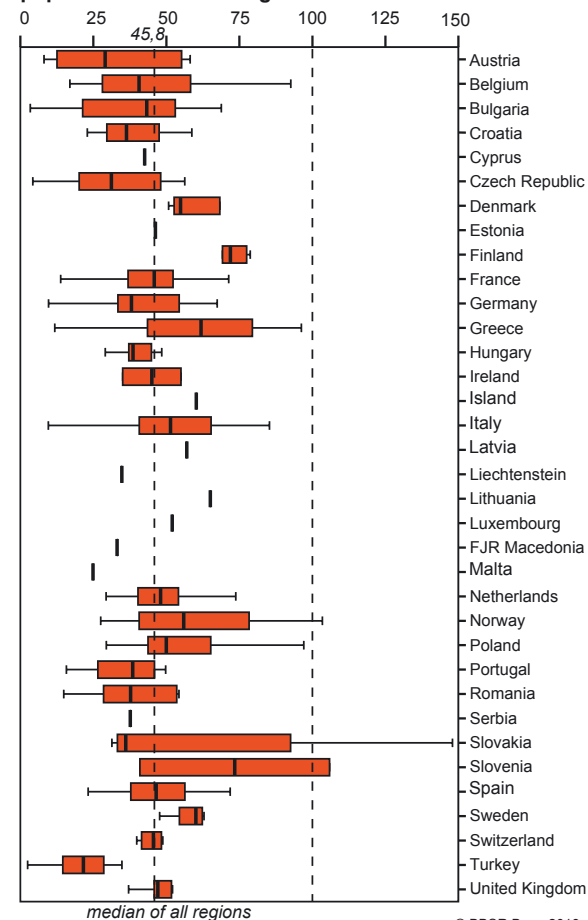
Enrolment is a sub-optimal indicator for the availability of tertiary educational institutions. But, on the assumption that students aiming at higher education are very mobile, the rates indicate what regions have institutions of tertiary education and how many student places they provide for or on top of the regional population of the relevant age. The option to commence and conclude tertiary education beyond the regular or common age limits however make the harmonisation of this indicator difficult.

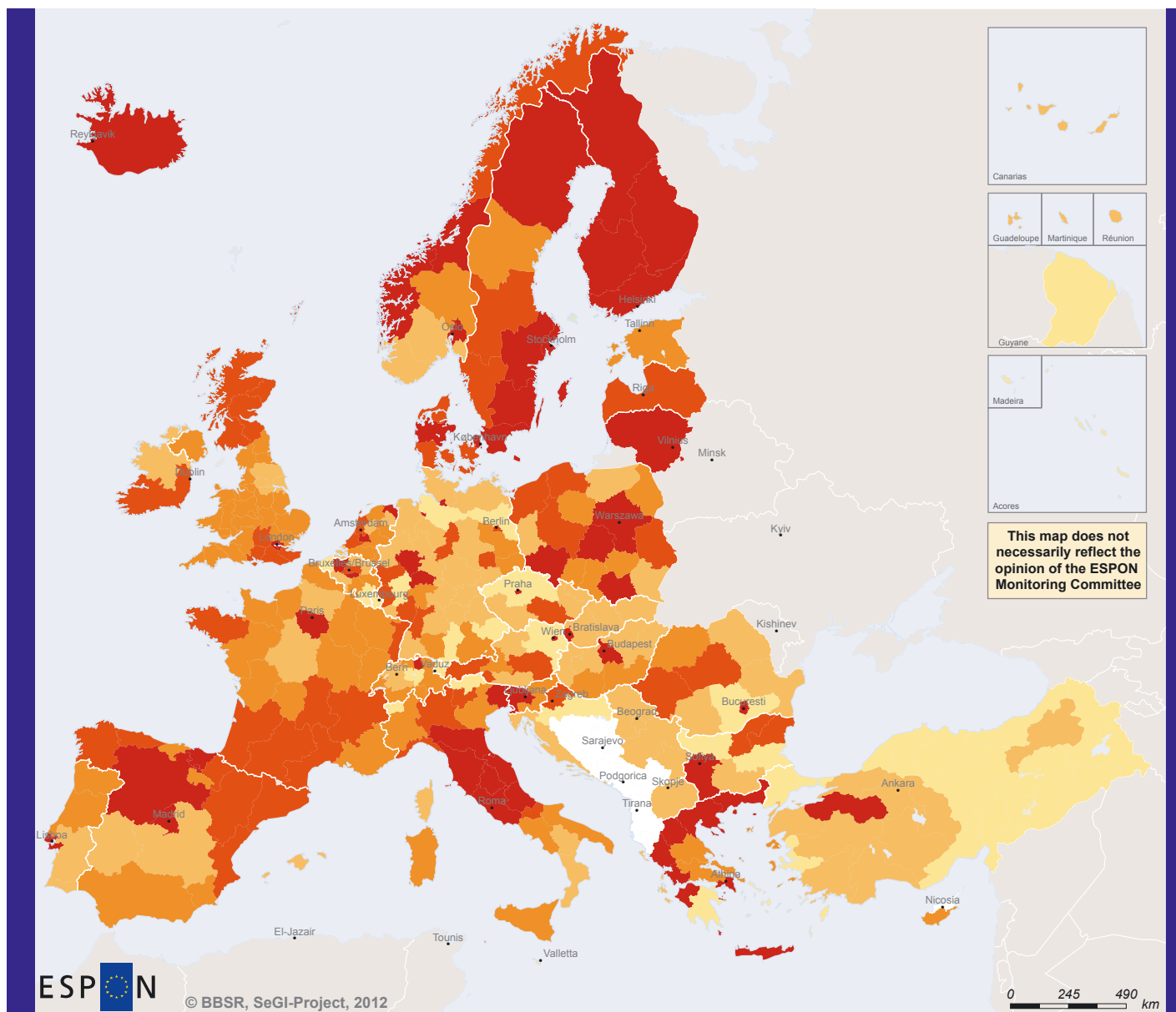
Nearly all countries show a more or less significant variation in their enrolment rates indicating that institutions of tertiary education are unevenly distributed across the country. In some countries there is a strong gradient between the capital region and periphery: in Bratislava, Slovakia, for instance we find most of that country's major universities, the same is true for Romania in Bucharest. In Turkey the centre

of academic education is not the capital region but Bursa with Uludag University, one of the largest universities in Turkey. On the contrary, in the UK, tertiary education institutes are evenly distributed over the country so that over all regions the enrolment rate varies by around 30 %-points and not exceeding 70 %, even in Greater London.

The universities dominate this sector. They are mainly located in cities and urban regions. Some universities have a long history and these old university towns tended not to be strong economic hubs during the industrial era so there is often no correlation to economic growth (0.126) and only a weak correlation to R&D expenditures (0.289). Without saying, there are also developments in the other direction, Cambridge, for example. Young adults entering or passing through tertiary education are so mobile that the regional absence of tertiary educational institutions is not an obstacle to attaining them. Such institutions are however often of significant importance for their regional labour markets often as primary or dominant employers. Taking into account the fact that start ups and other economic activities associated with a tertiary education facility are often located in close proximity to other institutions of tertiary education these regions undoubtedly have a competitive advantage over regions which lack these services.

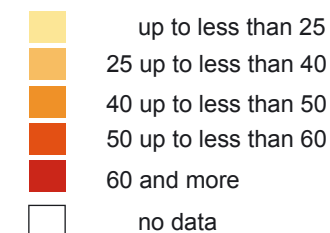
Students in tertiary education per 100 population of relevant age 2009





Enrolment in tertiary education facilities

Students of tertiary education facilities per 100 inhabitants in relevant age, 2009



Relevant age:

- 18 - 22 years: France, Liechtenstein, Switzerland, United Kingdom
- 18 - 23 years: Austria, Cyprus, Hungary, Ireland, Netherlands, Portugal, Romania, Spain
- 18 - 24 years: Belgium, Czech Republic, Estonia, Greece, Malta, Turkey
- 19 - 23 years: Denmark, Luxembourg
- 19 - 24 years: Bulgaria, Croatia, Finland, Germany, Kroatia, Iceland, Italy, Latvia, Lithuania, Macedonia, Norway, Poland, Serbia, Slovakia, Slovenia, Sweden

Source: Eurydice

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2.4 Access to primary schools

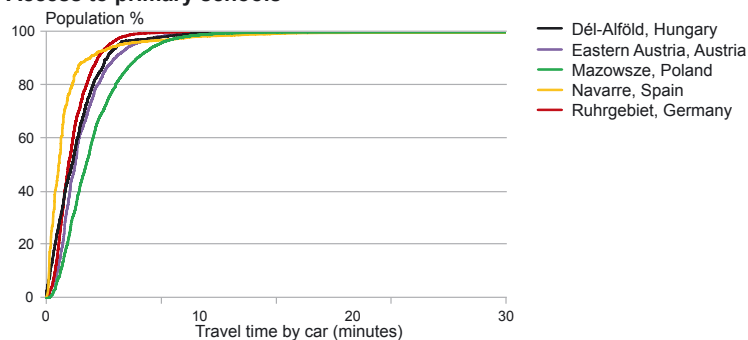
Primary schools are accessible within 10 minutes in most areas across all of the case study regions. The population-weighted average travel time is one and half minutes in Navarre (dense network of 217 primary schools in this region) to slightly over 3 minutes in Mazowsze. However, for pupils living in the peripheries of these two regions travel time to the nearest primary school is much higher exceeding 30 minutes in the peripheral parts of Mazowsze and up to 45 minutes in the peripheral part of Navarre (west of Pamplona). The lowest maximum travel time is observed in Ruhrgebiet given its high population density and in Dél-Alföld where all children have the opportunity to access the nearest primary school in a time below 15 minutes. In Dél-Alföld, in most municipalities, children can attend school locally until age 14 (secondary education).

Some 80% of the population in each case study region have access to the service within eight minutes or less by car. Regionally specific conditions rather than settlement structure seem to be of higher importance in relation to the time required to access a service as the comparison of Navarre and Dél-Alföld, each with rather similar settlement structures, denotes. The map thus confirms the assumption made above that pre-primary and primary schools are easily accessible everywhere because small children are generally prevented from travelling long distances between home and school. Nevertheless, one has to keep in mind here that the shortest travel times are measured by car. This analysis does not however consider questions of frequency and easy access by public transport, or freedom of choice questions relating to not opting for the nearest school or the influence of changes on the nature of accessibility over the last decade. Indeed, with respect to demo-

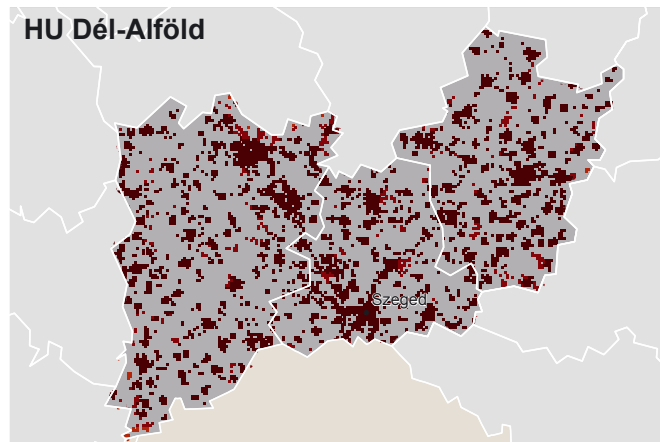
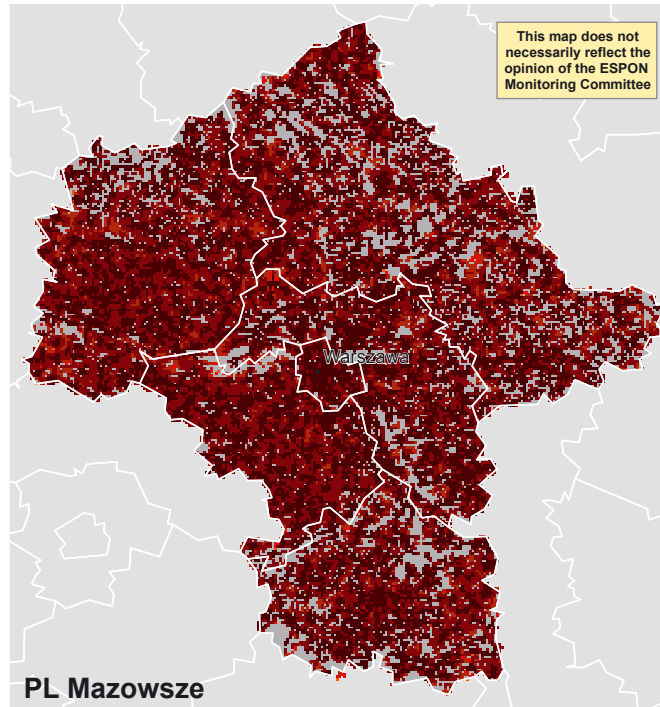
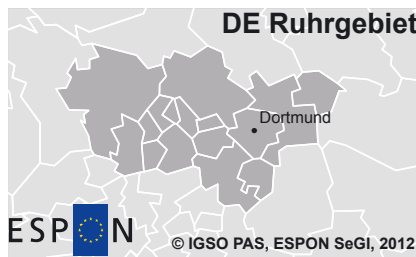
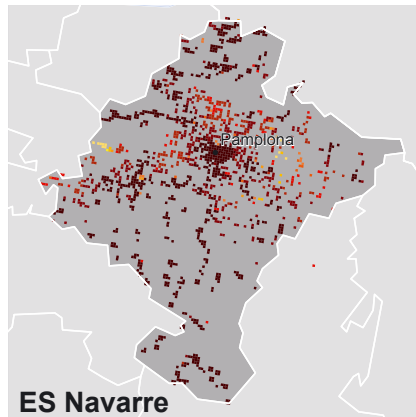
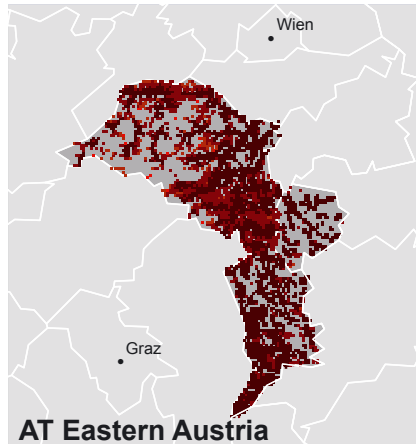
graphic changes in particular, the closure of many primary schools has had a significant impact on the accessibility of this basic service. Reflecting the importance of early education for educational output, and on the self-fulfilment of children, policy makers should ensure that easy access to primary schools remains a high public policy priority.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. In cases where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to primary schools

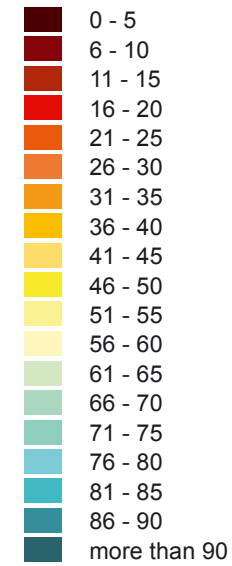


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	2,0	2,3	3,1	1,5	1,8
Minimum travel time of last population decile	8,4	4,5	5,9	2,8	3,4
Maximum travel time to the nearest service	15,0	19,7	30,2	45,5	12,5
Median travel time for population	5,5	1,9	2,6	0,9	1,5
Median travel time for raster cell	2,7	3,7	5,1	4,2	2,3
Standard deviation of travel time for raster cells	1,9	2,8	2,7	6,8	1,8



Accessibility to primary schools

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

2.5 Access to secondary schools

■ The best access to secondary schools is in Ruhrgebiet and Navarre. In both cases the population-weighted average travel time is below 3 minutes. In Ruhrgebiet almost all of the inhabitants enjoy excellent access to secondary schools. Travel time to the nearest secondary school is slightly higher, varying between 5 and 13 minutes, for only around 10% of the population of the Ruhrgebiet region. The very good level of accessibility to secondary schools in Navarre of only 2-3 minutes average travel time (to 117 secondary schools) attracts more than 33,000 students. The level of accessibility to secondary schools is high despite the sparse population. In Mazowsze, the situation is moderate due to the fact that secondary schools are to be found in each commune (powiat) or sometimes even in each municipality (gmina). However, the inhabitants of the municipalities located near the voivodeship borders do not have as good a level of access to secondary schools.

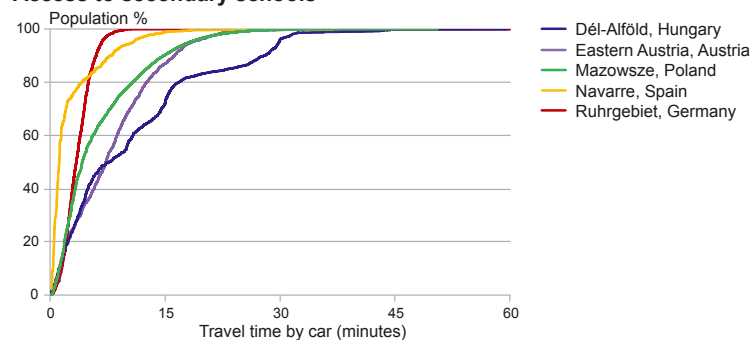
In general, in all cases except that of Ruhrgebiet, the maximum travel time to the nearest secondary school for people living in peripheral areas is 40 to 60 minutes. The longest travel time is in the peripheral fringe of the western and eastern parts of Dél-Alföld region where the population-weighted average travel time is, at maximum, close to one hour. Dél-Alföld region has however seen a significant growth in the range of secondary level education over the last ten years and the number of municipalities with secondary schools has increased.

The map illustrates that secondary schools display a higher level of centralisation than primary schools even if where the secondary school provides only a basic or compulsory (lower secondary level) education. Keeping in mind that in secondary schools children of 10/12 up to 14/16 years are educated there travel times of more than 45 or even 60 minutes

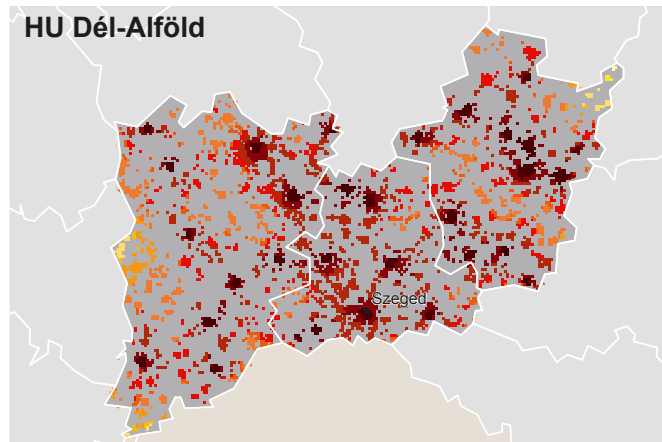
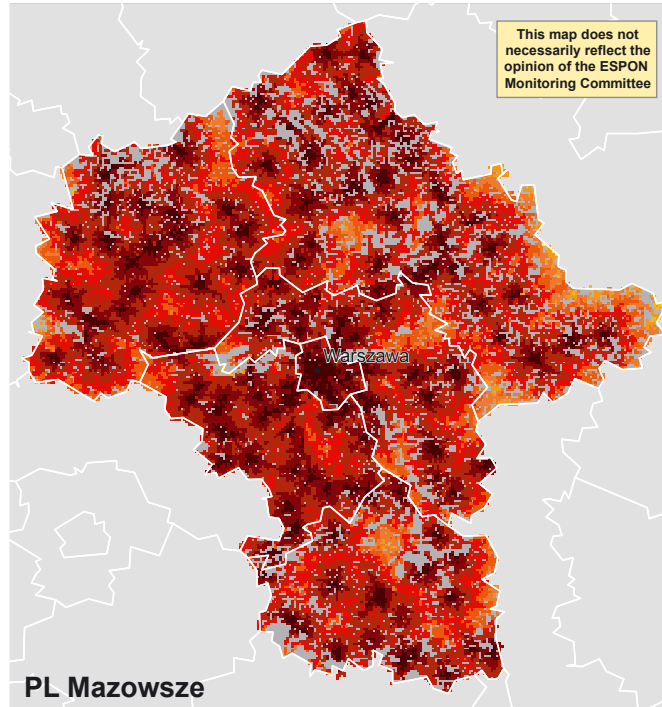
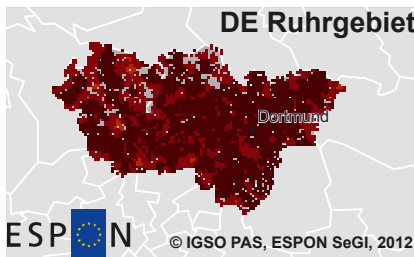
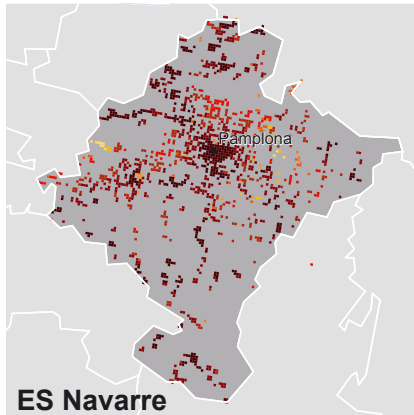
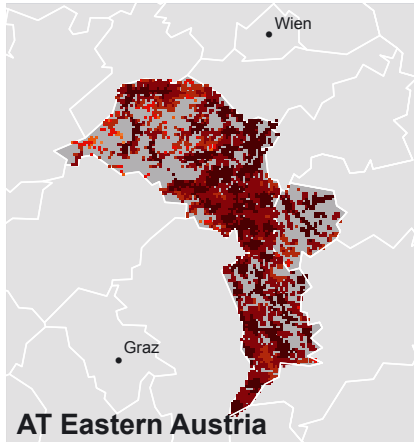
are generally viewed as unsatisfactory. Limitations on the frequency of and accessibility to public transport amplify the unsatisfactory nature of these travel times further. Policy makers should, in light of ongoing demographic changes, therefore ensure that easy access to secondary school is maintained at least at current levels and is even improved in some areas.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. In cases where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through shortest path segment.

Access to secondary schools

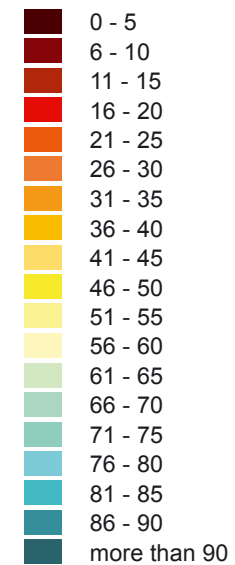


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	10,7	8,0	6,3	2,6	2,8
Minimum travel time of last population decile	28,2	16,2	14,7	7,8	5,3
Maximum travel time to the nearest service	59,7	43,8	50,5	48,7	12,9
Median travel time for population	12,7	7,2	4,1	1,2	2,4
Median travel time for raster cell	14,0	11,5	12,6	7,5	3,7
Standard deviation of travel time for raster cells	9,1	7,1	6,2	7,2	2,2



Accessibility to secondary schools

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

2.6 Access to tertiary education facilities

Access to services of high centrality varies more than that of low and medium centrality. The level of access however decreases with the distance to the location of the facility. The level of accessibility to tertiary education centres in those areas of Eastern Austria located far from Vienna or Graz is low because Austrian universities are, in the main, located in the big, central agglomerations. In Dél-Alföld the location of tertiary education establishments is determined by the dominance of Szeged, where some 27 000 students study. In the western and north-eastern parts of the region there are areas with no tertiary institution accessible within 45 minutes by car. The variation between municipalities is therefore very large.

However, the population-weighted average travel time to the nearest tertiary level establishment in Navarre is only 5 and a half minutes. The reason for

this is that Navarre has 3 universities in the main urban settlements (Pamplona and Tudela) as well as 25 other tertiary institutions across the region. Moreover, there are other Universities located in close proximity in the neighbouring regions.

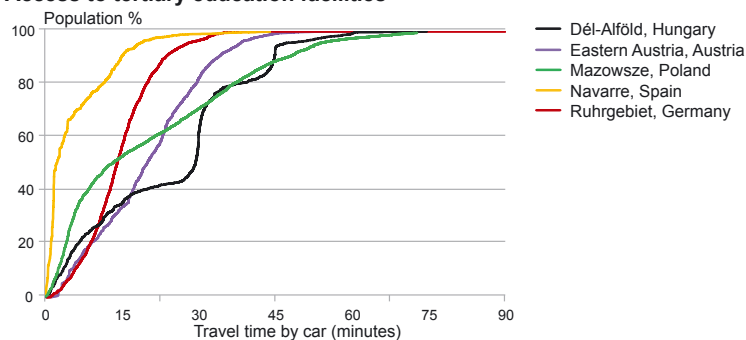
In Mazowsze, there are tertiary institutions in each of the former (pre-1989) voivodeships and also in a few other cities. Access is very good in close proximity to large or medium-sized towns across all parts of the region. However, at the regional periphery on the western and eastern fringes, students and academic and non-academic staff need more than ninety minutes to access the nearest tertiary institutions.

If students are unsatisfied with the travel times they are old enough and mobile enough to move into the city where the facility is located. Travel times to tertiary education facilities can also however be inter-

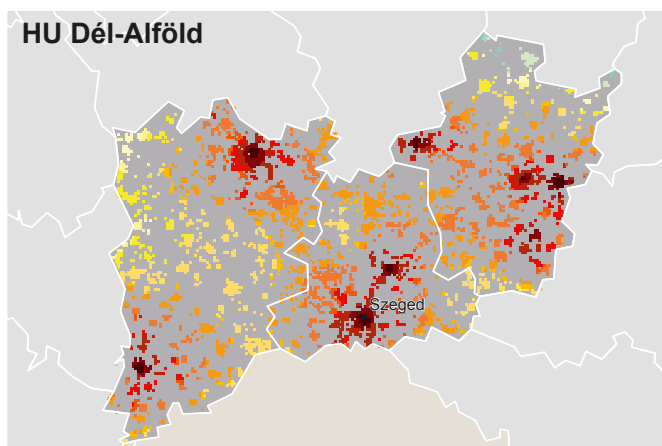
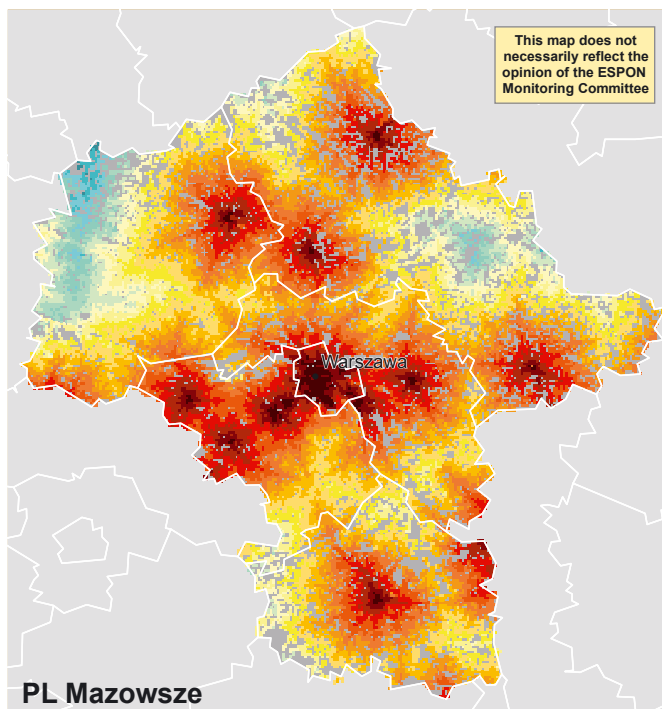
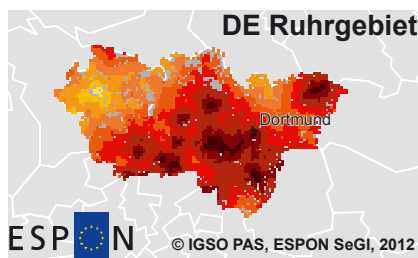
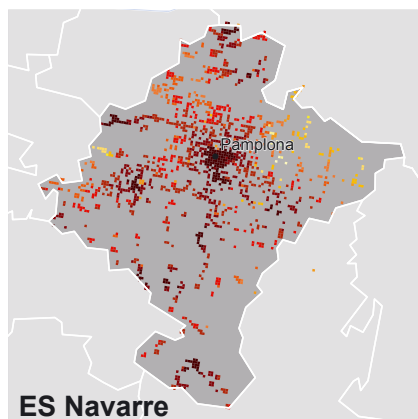
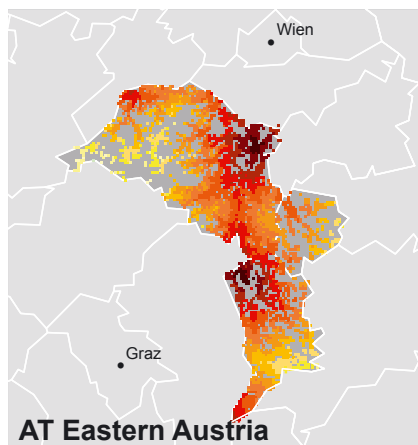
preted as an economic asset. Start-ups, institutional and entrepreneurial partnerships tend to be more numerous the closer provider and customers are. In the 1960s and 1970s the decentralisation of tertiary institutions was used in numerous countries as a political strategy to promote regional development.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. In case where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to tertiary education facilities

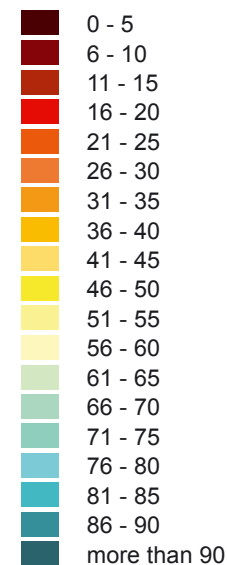


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	24,2	19,8	19,9	5,5	14,5
Minimum travel time of last population decile	44,8	33,6	46,8	14,8	23,3
Maximum travel time to the nearest service	74,6	61,5	89,0	60,0	42,4
Median travel time for population	29,5	19,8	12,7	2,1	14,0
Median travel time for raster cell	30,0	26,4	34,9	12,3	17,6
Standard deviation of travel time for raster cells	12,9	10,1	15,4	9,4	8,1



Accessibility to tertiary education facilities

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

2.7 Hospital beds

■ The EU's basic policy approach here is improving in the general level of health and increasing the healthy life years. This approach however needs the support of a sustainable and efficient healthcare system. Putting such a system in place is however a difficult task because all EU countries must face up to the ongoing process of demographic change while also seeking to utilise the rapid developments in new technologies in this field (EC 2007). Only 3% of EU's annual health budget accrues to health prevention with the other 97% going to health care and treatment (EC 2007). The number of hospital beds is one pillar of the regional healthcare system. Available beds equate to the total number of beds regardless of hospital specialisation. But curative beds per capita and available beds per capita are highly correlated (0.820) so that there is no additional regional information to be gained by differentiating between curative and total bed numbers.

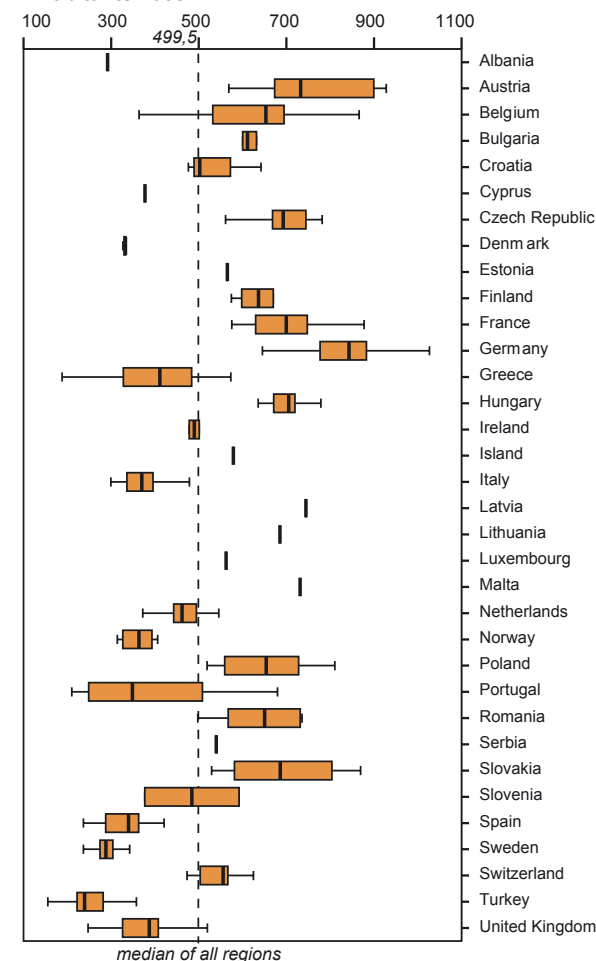
The large national level differences in provision and approach reflect deeper organisational differences in the various healthcare systems. The regional medium in the EU 27+4 plus the candidate countries is 500 beds per 100 000 inhabitants. In all new member countries (except Slovenia) and in some EU15 countries (Austria, Belgium, France, Germany and Finland) nearly all regions exceed this level. In Austria and Germany the high number of beds is associated with the long hospitalisation of in patients (OECD 2012). In those EU15 and EFTA states which have a lower level of available beds the variation across regions is also rather low except in Greece and Portugal. The (po-

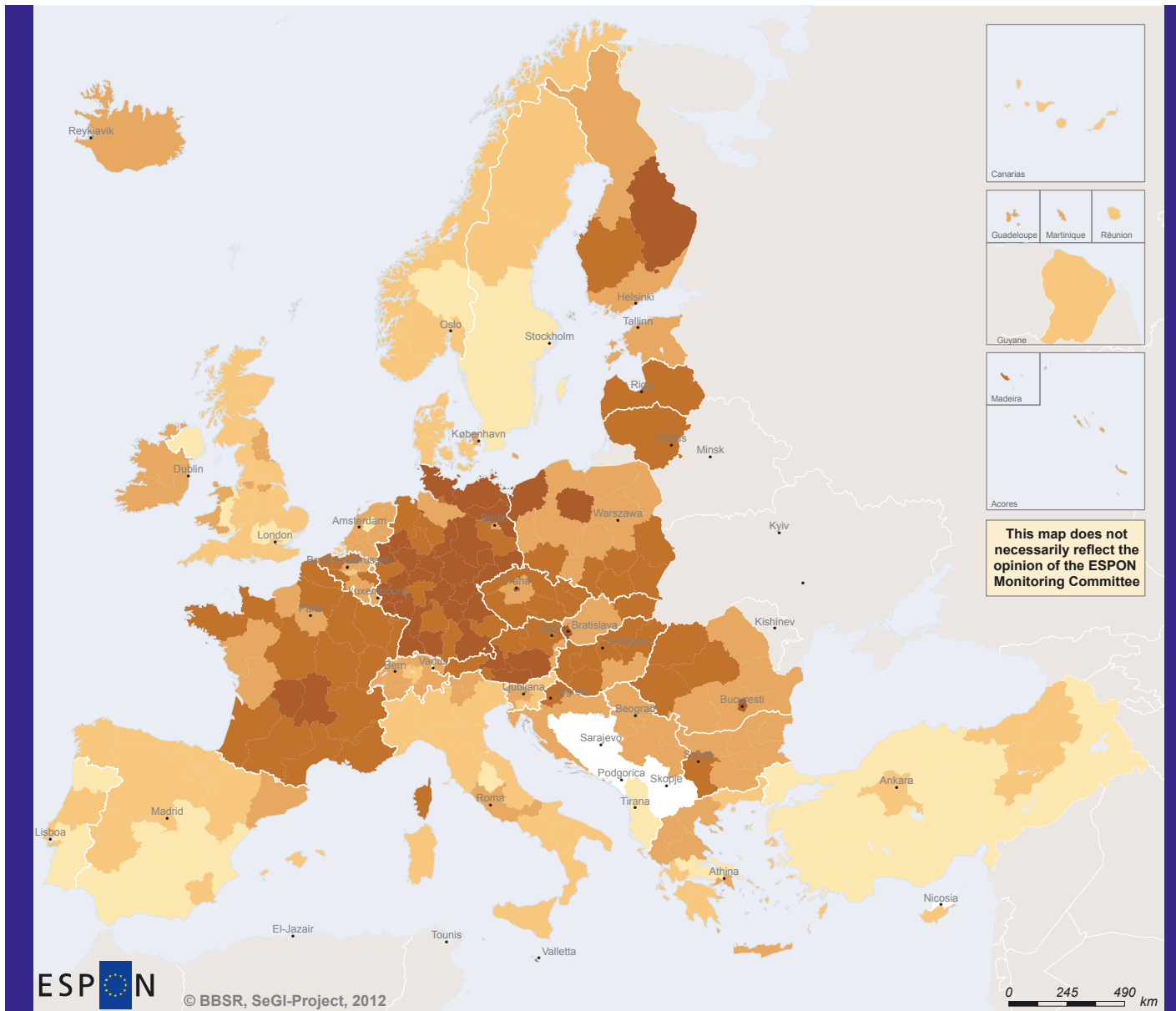
tential and) candidate countries show a lower level of hospital bed availability. Healthcare systems and health investments are significantly influenced by national economic performance (GDP) but GDP cannot explain all level differences or differences in health organisation. The organisational reforms introduced since the 1990s and the ongoing re-organisation of service provision from public to private – and in particular the 'mix' arrived at – explain most national differences (Micheli et al. 2003).

Nearly all countries have reduced the number of available beds per capita in the last decade in nearly all regions; exceptions here include Greece (increase in 8 of 13 regions), Turkey (increase in 21 of 26 regions) and the United Kingdom (increase in 8 of 37 regions). The pressure to reduce the number of beds does however increase in times of financial crisis. The reduction in beds is accompanied by an increase of ambulant surgeries, the implementation of new technologies and an increase in bed occupancy rates (OECD 2012).

Regarding European cohesion and the preparation required for an ageing population there is no strong correlation between the regional availability of hospital beds and the percentage of the population above 65 years (0.271) except across the regions of (potential) candidate states where the correlation is very strong (0.797). Furthermore, the regional reduction in hospital beds is not related to demographic changes in terms of increases in the share of the population above 65 years.

Available hospital beds per 100 000 inhabitants 2008





Hospital beds

Available hospital beds per 100 000 inhabitants, 2008

- up to less than 300
- 300 up to less than 420
- 420 up to less than 640
- 640 up to less than 800
- 800 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Albania, Iceland, Serbia: World bank data 2007, NUTS 0,
 Germany: disaggregation of NUTS 1 data by data from the Federal Statistical Offices,
 Netherlands: disaggregation of 2008 NUTS 0 data by NUTS 2 data of 2002,
 Estonia: National Statistical Office: 2006
 United Kingdom: disaggregation of 2009 data for England by data of National Statistical Office



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Regional level: NUT2/NUTS1 (2006)
 Source: Eurostat databank 2011, National statistical offices*
 Origin of data: Eurostat 2008*
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2.8 Hospital beds in psychiatric care

■ The availability of psychiatric care is here measured by the number of beds per 100 000 inhabitants. The statistic includes beds in mental health and substance abuse hospitals and beds in psychiatric departments of general hospitals and in speciality hospitals (Eurostat: 13.2.2013a).

The map shows the existence of significant national differences. Some of these differences are simply statistical anomalies: in some countries the data only refer to the public sector and excludes beds in private hospitals (Cyprus, UK – Scotland), only the beds in specialist psychiatric care hospitals are included and beds in psychiatric departments in general hospitals are excluded (Germany, Turkey) or beds in mixed psychiatric–neurological departments are excluded (Austria) and the inclusion/exclusion of substance abuse/drug addiction treatment is differently treated (Eurostat: 13.2.2013a).

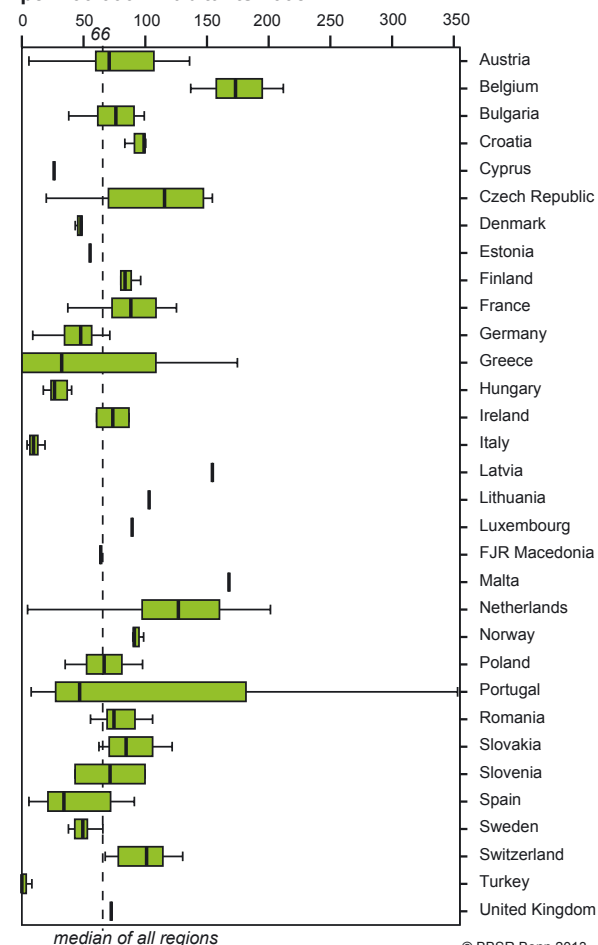
Another reason for these national differences relates to the historical development of, and the changes that occurred following the deinstitutionalisation of psychiatric care across Europe. Deinstitutionalisation involves a reduction in the number of long-stay psychiatric hospitals or asylums and a move towards greater community care and the provision of a comprehensive range of services and points of contact, with contributions from different professionals and

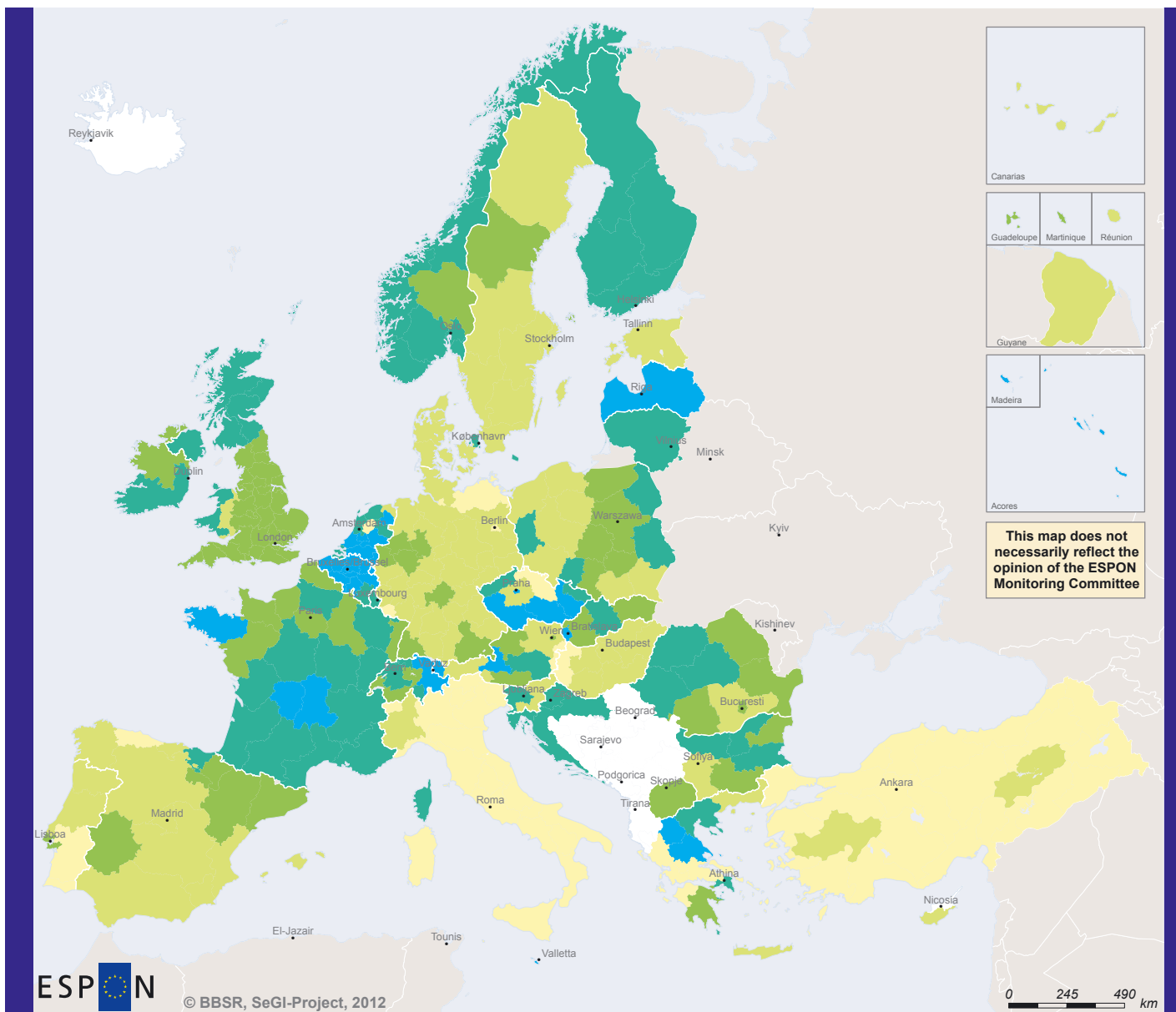
sufficient links to other sectors such as housing and employment (McDaid/Thorncroft 2005: 1) as well as the integration of psychiatric care into general health services (WHO 2001: 89 f.)

In general, the regional variation of the availability of psychiatric beds is much higher than that for hospital beds in total. “Where hospital stays are required, they should be as brief as possible, with services provided in normal community settings rather than in remote, isolated locations.” (McDaid/Thorncroft 2005: 6, see also WHO 2001). But in many countries psychiatric hospital care is concentrated in specific regions, often in rural locations. E.g. former and redundant tuberculosis rehabilitation hospitals in the Black Forest in Germany were transferred into psychiatric care hospitals. Indeed, the WHO still recognises an urban-rural imbalance in mental health care (WHO 2001: 88).

Even if psychiatric hospitalisation is only one pillar of mental health care, the variation seen in terms of this indicator clearly indicates the uneven availability of mental health care. This assumption is affirmed by the WHO’s observation that scarcity and/or the re-directing of funds impedes the process of deinstitutionalisation and the move towards a comprehensive mental health care system available and accessible to all.

Hospital beds of psychiatric care per 100 000 inhabitants 2008





Psychiatric care beds

Hospital beds of psychiatric care per 100 000 inhabitants, 2008

- up to less than 20
- 20 up to less than 60
- 60 up to less than 80
- 80 up to less than 120
- 120 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

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Regional level: NUT2/NUTS1 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2008*
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* Germany: disaggregation of NUTS 1 data by data from the Federal Statistical Offices.
Netherlands: disaggregation of 2008 NUTS 0 data by NUTS 2 data of 2002,
Estonia: National Statistical Office: 2006
United Kingdom: data only for England, Wales, Scotland and North-Ireland

2.9 Doctors and physicians

■ The number of doctors and physicians is an indicator of the strength of primary healthcare services and the first point of contact for patients. Doctors and physicians here embed practitioners as well as all kinds of specialists in the system. The definition of 'medical specialist' however differs substantially across Europe; therefore comparing or making a distinction between 'practitioners' is rather difficult even if the latter are mainly those in charge of the first patient contact (Eurostat: 13.2.2013b). Physicians and family doctors in particular play a key role as they use a "consultation process, which establishes a relationship over time", which "deals with health problems in their physical, psychological, social, cultural and existential dimensions" and has "a specific responsibility for the health of the community" (WONCA Europe 2002).

The regional supply average is 308 physicians and doctors per 100 000 inhabitants with a normal deviation on the national level of 200 (Montenegro and Serbia) up to about 400 (Ireland, Norway and Greece). Only Albania, Bosnia & Herzegovina and Turkey show a lower supply level at 100-150 doctors and physicians. Such differences can however be caused by statistical anomalies, by some country specifics – e.g. in Italy every pharmacy has to employ one physician – and moreover by different health systems, standards (minimum physician-to-patient ratios) and health outcomes such as "[...] that the number of physicians per capita is inversely associated with avoidable mortality" (Simoens/Hurst 2006: 15).

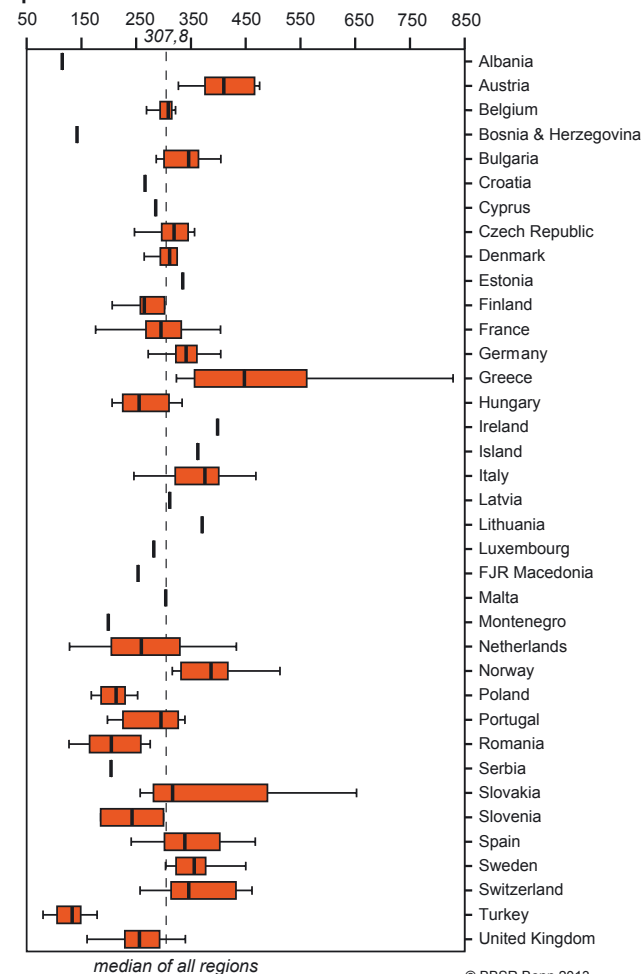
The regional differences partly exceed these national differences. A high level of regional variability shows Greece with a span between 324 (Kriti and Dytiki

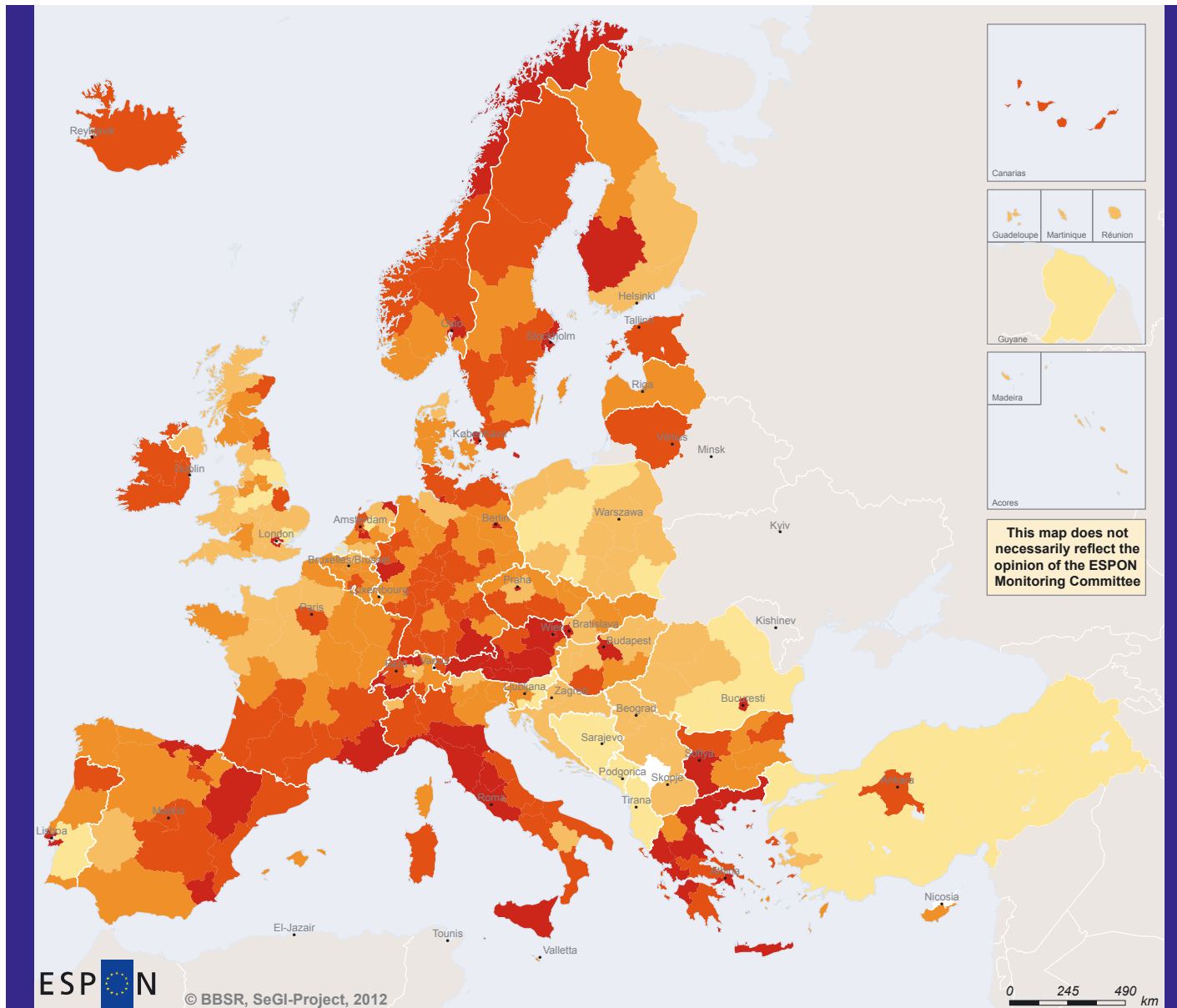
Makedonia) and 829 (Attiki), Slovakia (257 in Západoé Slovensko up to 653 in Bratislavský kraj) and Netherlands (128 in Flevoland up to 433 in Utrecht). In the other countries the differences are significant but not as high as in these three examples. "Most OECD countries experience inequities in the geographical distribution of their physician workforce. To tackle this difficulty, a mix of educational policies, regulatory policies and financial policies has been used with some success in a number of countries" (Simoens/Hurst 2006:4).

In most countries the number of doctors per inhabitant increases with population density. In other words: rural regions have a lower number of doctors and physicians per inhabitant than urban regions. Finland, Spain and Turkey however display no such relationship while France, Italy and Poland only a weak relationship in this regard. On the national level, and for a small sample of countries, the OECD found a significant negative correlation in respect of physician density and waiting times for elective surgery (Simoens/Hurst 2006). Therefore the question arises whether this relationship is also valid for the rural-urban-differences.

Furthermore, in countries with a high number of physicians and doctors they tend to work more hours per week (especially in France, Belgium and Germany). These countries finance health services in part through payment by fee-for-service. All in all, as the supply of doctors increases so does the number of visits by a doctor (Simoens/Hurst 2006). To prove these findings on a regional level more research is however necessary.

Number of doctors and physicians per 100 000 inhabitants 2008





Doctors and physicians

Doctors and physicians per 100 000 inhabitants, 2008

- up to less than 200
- 200 up to less than 280
- 280 up to less than 330
- 330 up to less than 400
- 400 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Albania: World bank data 2009,
 Bosnia and Herzegovina: World bank data 2005,
 Belgium: disaggregation by number of employed in health sector,
 Germany: disaggregation of NUTS 1 data by data from the Federal Statistical Offices,
 Ireland: NUTS 0, Luxembourg: 2007,
 Montenegro: World bank data 2007,
 Macedonia 2006, Malta 2009,
 Serbia: World bank data 2007: NUTS 0,
 United Kingdom: disaggregation of data for England and Wales by data from national Statistical Office

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Regional level: NUT2/NUTS1 (2006)
 Source: Eurostat databank 2011, National statistical offices*
 Origin of data: Eurostat 2008*
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2.10 Nurses and midwives

■ Nurses and midwives are responsible for a great part what is called primary care, independently of whether they are employed by hospitals, by mobile care services or work as freelancers.

The number of nurses and midwives per capita shows significant national differences and can also, in places, show a high regional variation. The highest nurse-population-ratios can be found in Belgium, Denmark, Ireland, Iceland, Norway and Switzerland. Most of these countries rank highly in the Euro Health Consumer Index (Björnberg 2012). Research results also indicate that in patients' satisfaction and health outcomes are strongly related to nurse-patient-ratios, nursing skills, nurse job satisfaction and burnout independent of health organisation schemes and country (Aiken/Clarke/Sloane 2002).

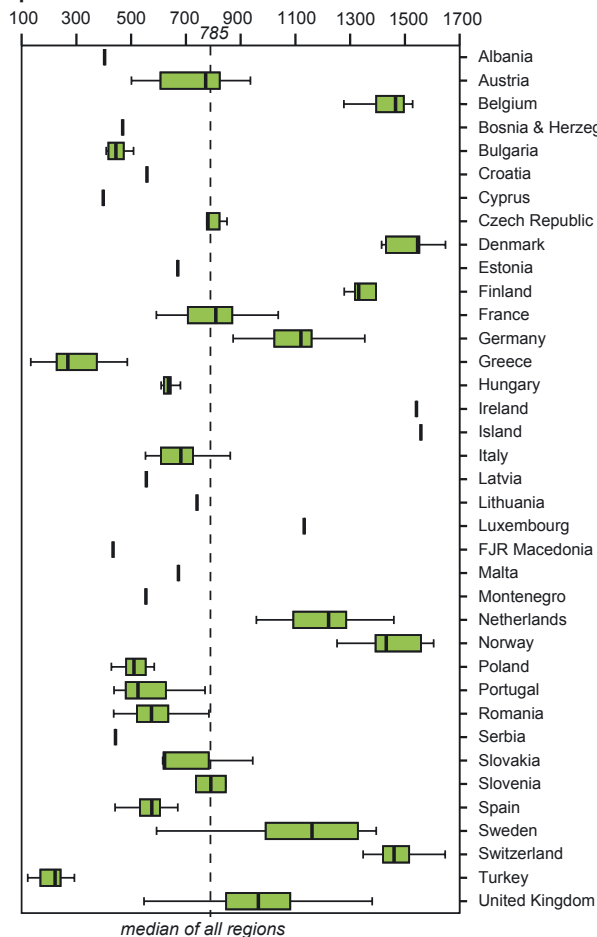
Europe-wide these regional variations neither reflect the supply of hospitals (correlation coefficient to available hospital beds per capita 0.160) nor of doctors and physicians (correlation coefficient 0.283). But there are countries with a high positive correlation between nurses and doctors including a high correlation also to hospital beds (Austria, Bulgaria, Czech Republic, Greece, Romania and the United Kingdom among others) which indicates the complementary function of nurses. On the other hand few countries (Denmark, Finland, Sweden and to a smaller extent also Norway) show a strong negative correlation in terms of the regional supply of nurses in relation to the number of doctors and of hospital beds. Particularly in sparsely populated areas nurses have a compensating function in the sense that they have more competences and responsibilities in relation to patients than nurses in other parts of the country or in other countries. This concept of an AGnES-practice assistant (Berg et al. 2009) or a wider nursing role (Caldow et al. 2007) are also discussed

in other countries with problems in providing a sufficient level of provision in terms of health care in rural areas.

The Eurostat (13.2.2013b) statistic does not differentiate between nurses and midwives. It can be as-

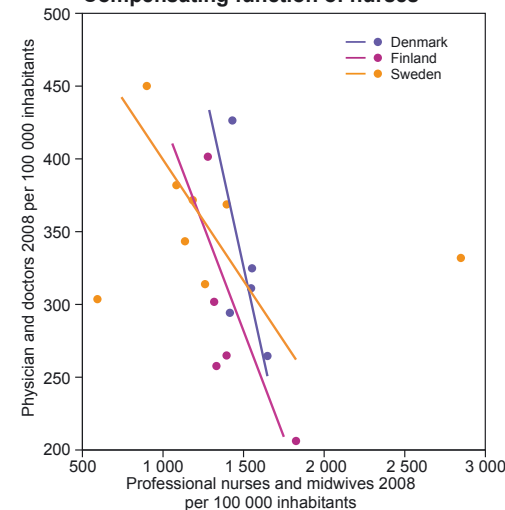
sumed that in most countries the share of midwives in this total number is around 2% (National Statistical Office of Switzerland) up to around 5% (Nursing and Midwifery Council, United Kingdom).

Number of nurses and midwives per 100 000 inhabitants 2008

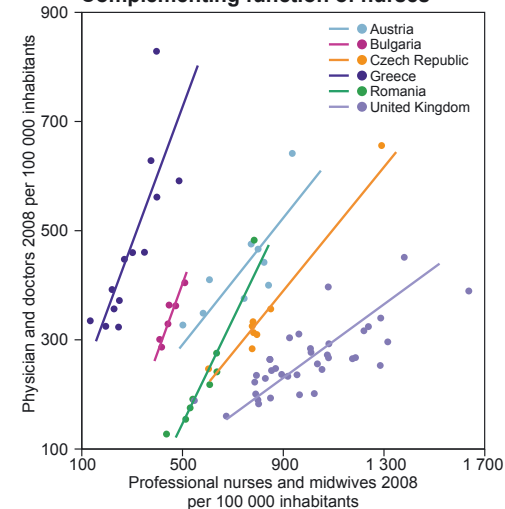


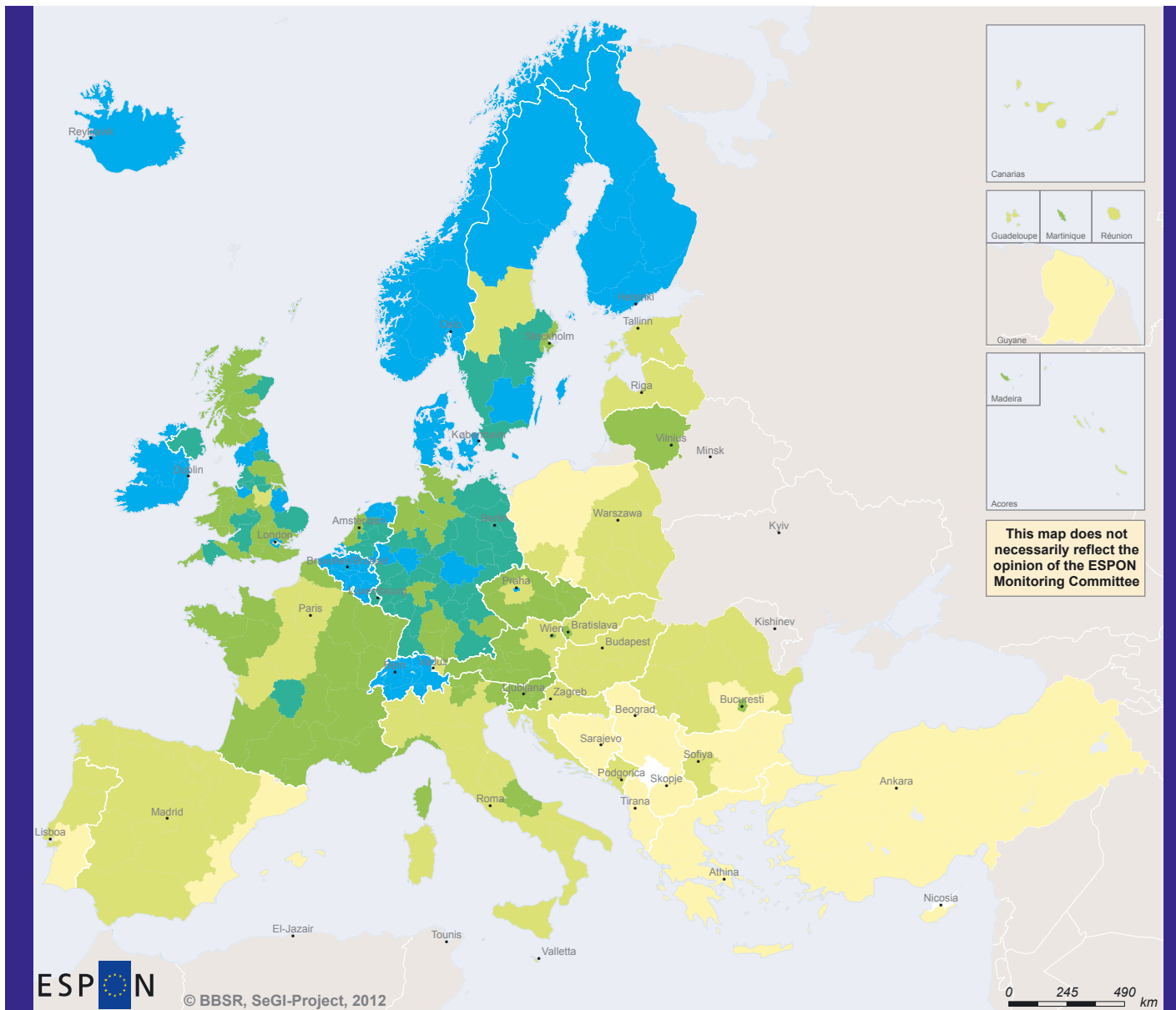
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Compensating function of nurses



Complementing function of nurses





Nurses and midwives

Nurses and midwives per 100 000 inhabitants, 2008

- up to less than 500
- 500 up to less than 720
- 720 up to less than 1000
- 1000 up to less than 1250
- 1250 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Albania: World bank data 2009,
 Bosnia and Herzegovina: World bank data 2005,
 Belgium: World bank data 2004, disaggregation by number of employed in health sector,
 Switzerland, Spain, Finland: disaggregation by number of employed in health sector,
 Germany: disaggregation of NUTS 1 data by data from the Federal Statistical Offices,
 Ireland: NUTS 0, Luxembourg: World bank data 2007,
 Montenegro: World bank data 2007,
 Macedonia: World bank data 2006
 Serbia: World bank data 2007: NUTS 0,
 Sweden: World bank data 2006, disaggregation by number of employed in health sector,
 Slovakia: disaggregation by number of employed in health sector,
 United Kingdom: disaggregation of data for England and Wales by data from national Statistical Office

2.11 Access to hospitals

■ In general, accessibility to hospitals in each of the analysed regions is high. The population average travel time is very low in the Ruhrgebiet case (about five and half minutes). In Eastern Austria, Navarre and Mazowsze the population-weighted average travel time is higher and varies between 10 and 12 minutes which is also a satisfactory result. In Eastern Austria there are 13 hospitals which are distributed evenly across the district capitals. Only in the northern parts of the region is the travel time to the nearest hospital close to, or longer than, 30 minutes. In Poland hospitals are located, in general, in each commune (powiat). However, in the northern part of Mazowsze people need more than 60 minutes to access the nearest hospital.

In terms of accessibility to hospitals the north-eastern part of Dél-Alföld in Hungary is the area exhibiting the worst situation. The maximum travel

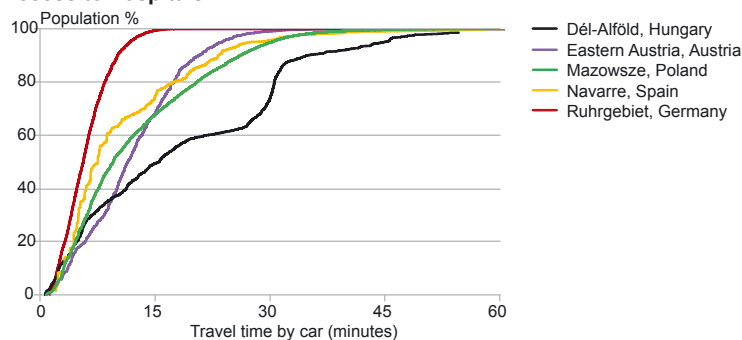
time to the nearest hospital there exceeds 74 minutes. For emergency cases however travel times are lower. The calculation here is focused on the so-called weighted hospital centres according to the new health (hospital) infrastructural hierarchy. The emergency air service is well developed and even specified medical centres in Budapest, Kecskemét or Pécs are accessible within 20-30 minutes via air. A similar situation prevails in the eastern part of Navarre where the inhabitants of this peripheral area need more than one hour to travel to the nearest hospital. In the northern and south-western parts of Navarre inhabitants have access to hospitals located very close to the border in the neighbouring regions.

Accessibility to hospitals is frequently afforded great public and political attention as already Smith (1979, quoted in Josef/Phillips 1984: 51) stated: "Health care is perhaps the most 'basic' of all services, for on this may depend whether a newly-born child lives or

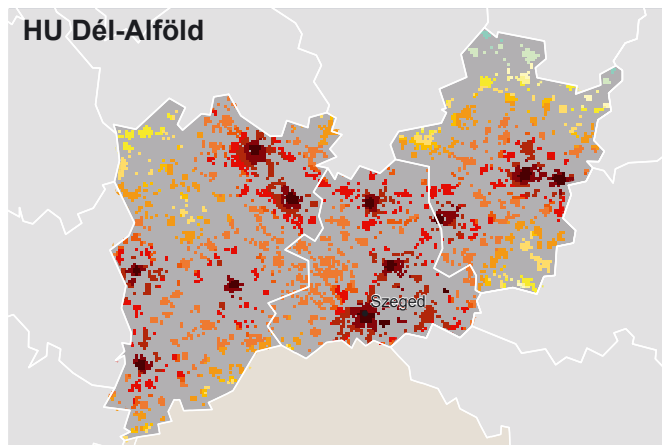
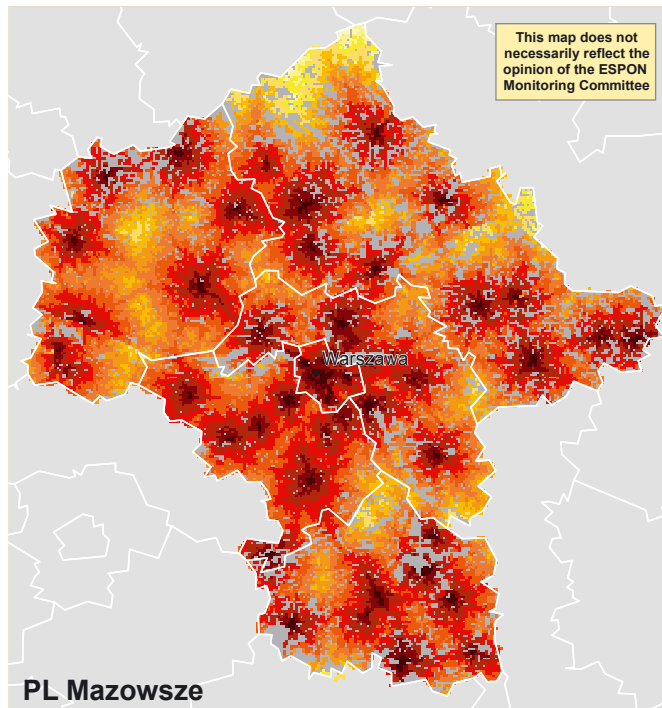
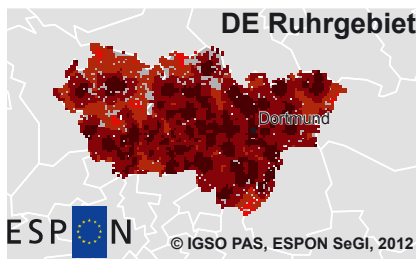
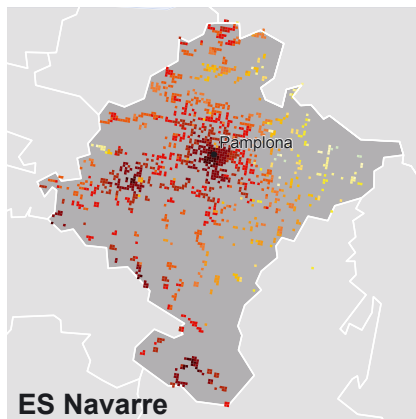
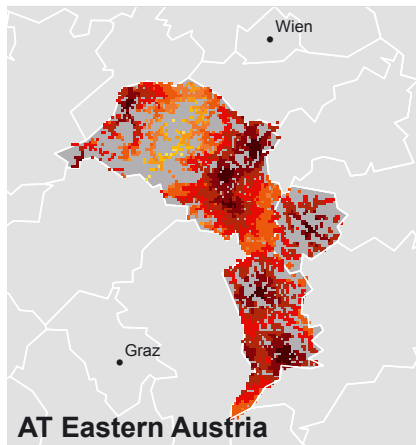
dies, whether we survive illness or accident and, if we recover, whether we retain full use of essential faculties or suffer permanent handicap". (General) Hospitals should be accessible in reasonable and live-saving time for all inhabitants. Some of the areas in the case study regions already exceed these limits; in other parts of Europe the situation may be as bad or even worse.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. Where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to hospitals

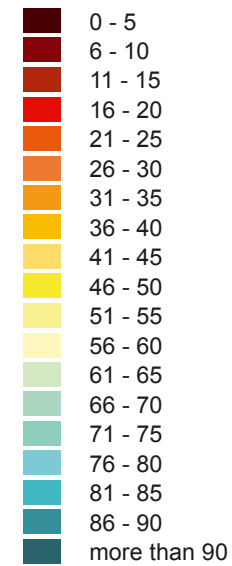


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	17,9	11,4	11,8	10,2	5,4
Minimum travel time of last population decile	34,1	20,0	25,5	22,6	9,5
Maximum travel time to the nearest service	74,6	46,2	60,3	65,9	20,0
Median travel time for population	16,6	10,8	8,9	7,0	5,0
Median travel time for raster cell	26,2	15,4	21,2	18,9	6,8
Standard deviation of travel time for raster cells	12,6	7,4	9,0	12,0	3,5



Accessibility to hospitals

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

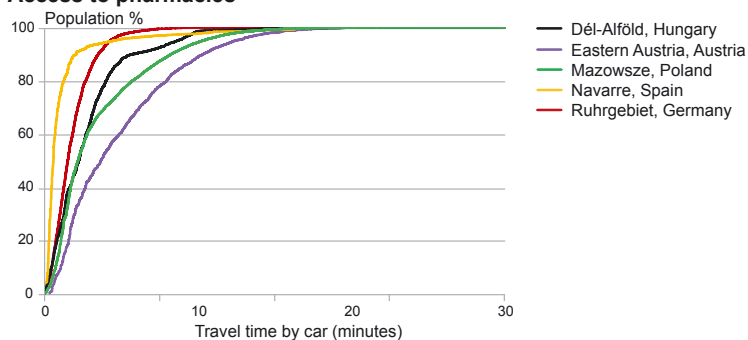
2.12 Access to pharmacies

■ Accessibility to pharmacies is relatively high in all analysed regions. The population-weighted average travel time is from one minute in Navarre - there are 599 pharmacies in the Navarre region - to close to 5 minutes in Eastern Austria. The maximum travel time to the nearest pharmacy is lower than 15 minutes in Ruhrgebiet and exceeds 30 minutes in Mazowsze and Navarre, and is very close to 30 minutes in Eastern Austria and Dél-Alföld. In Eastern Austria the poorest access to pharmacies is in the north-western part of the region. However, most hospitals which are distributed quite evenly across Eastern Austria run a pharmacy and provide first aid services especially 'out-of-hours' and at weekends, when accessibility to pharmacies and doctors is limited.

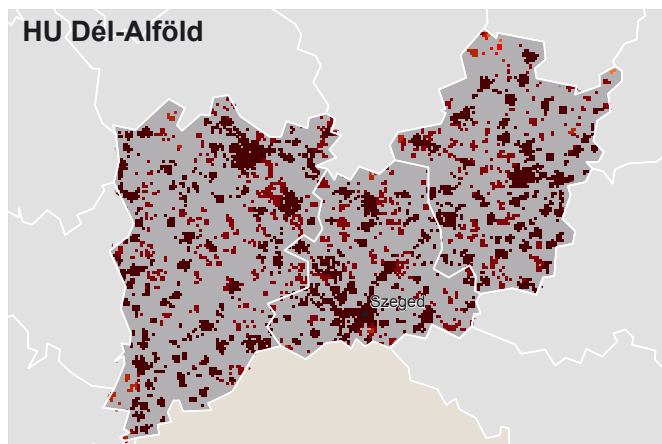
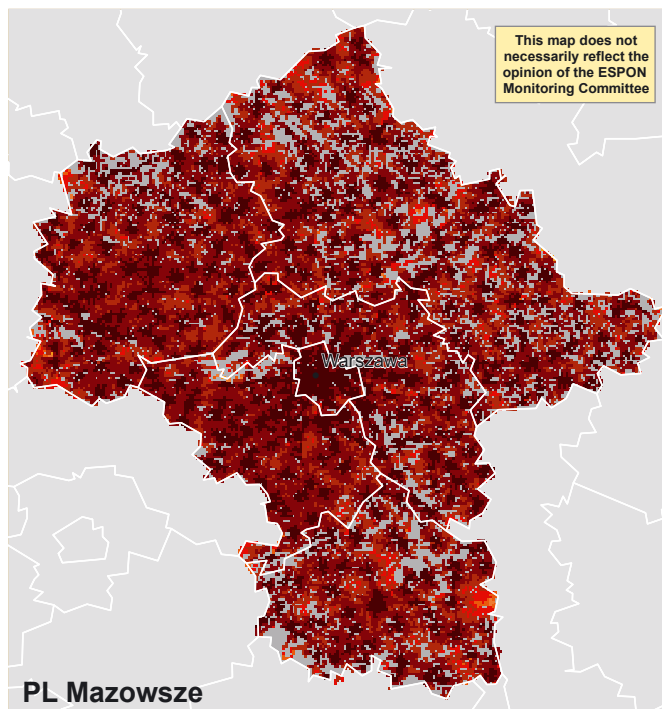
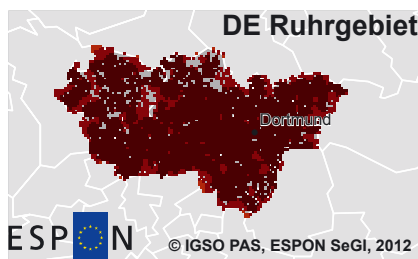
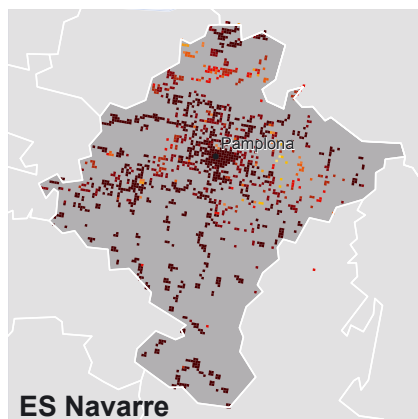
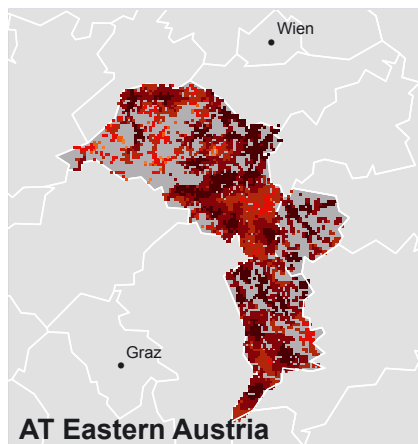
Around 80 % of the population in most case study regions have access to this service within five minutes or less, in Eastern Austria within eight minutes or less. Pharmacies in the EU “[...] supply in the order of 80 per cent by volume and value of all pharmaceuticals used in member states. Throughout most of mainland Europe the historic role of pharmacists in ensuring the safe manufacture and supply of medicines has traditionally been separate from the part played by the medical profession in diagnosing illness and determining treatment” (Taylor/Mrazek/Mossialos 2004: 197). As pharmacists have extensive knowledge of the appropriate use – and misuse- of pharmaceuticals their accessibility is of high importance in health care terms particularly in relation to medical care and self-care as their expertise on the appropriate use and supply of pharmaceuticals cannot be totally replaced by e-commerce models in, for example, remote rural areas.

Accessibility is expressed as distance-to-nearest-provider in terms of travel time in minutes by car. The analysis uses the GEOSTAT 2006 population grid dataset within one square kilometre cells and the latest available data of street network and provider layers. The analysis incorporates only populated cells. The centroid of each populated raster cell is treated as a travel origin. Where the centroid is located outside the existing road network, it is connected to the nearest segment of the network artificially, through the shortest path segment.

Access to pharmacies

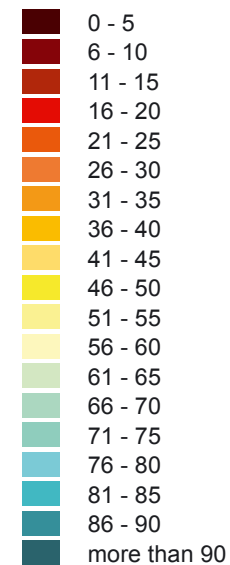


	Dél-Alföld	Eastern Austria	Mazowsze	Navarre	Ruhrgebiet
Population weighted average travel time	2,8	4,8	3,4	1,2	1,8
Minimum travel time of last population decile	5,7	10,3	8,2	2,0	3,5
Maximum travel time to the nearest service	29,5	29,2	32,0	41,2	14,4
Median travel time for population	2,2	3,6	2,2	0,6	1,5
Median travel time for raster cell	3,8	7,8	7,3	3,5	2,6
Standard deviation of travel time for raster cells	2,9	4,6	3,7	6,6	2,1



Accessibility to pharmacies

Travel time by car (minutes)



- Main cities
- Unpopulated case study area
- ESPON area
- Non-ESPON countries

2.13 Prices of private health care

Expenditures on health care by private and by public investors are highly correlated (0.69) what this means is that countries with high public expenditures per capita tend also to have high private expenditures. As the data situation is somewhat better for the private sector this indicator is chosen representing the level of health expenditures per inhabitant. The share of private health investments of total investments varies between 5% (Iceland) up to 60% (Montenegro) for all 28 European countries with data for both sectors in 2010. Therefore for Finland, Iceland, Ireland, Italy and United Kingdom the expenditures per capita are underestimated by the private sector.

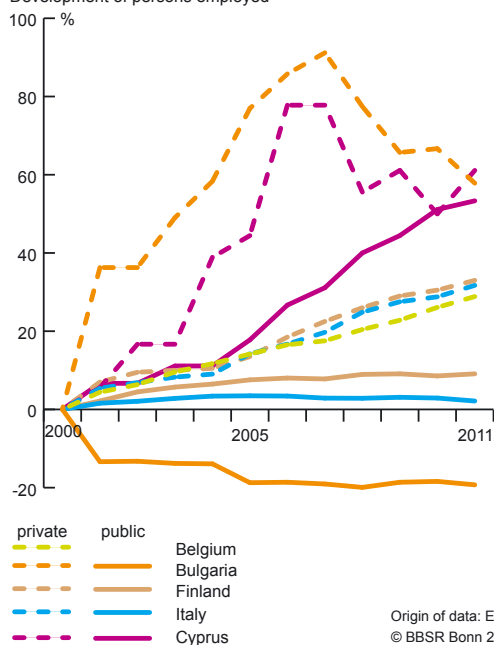
Public expenditures per capita show a high correlation to the nurse-population-ratio (0.812; private expenditures 0.318) on a national level but no correlation to the other health care supply indicators of available beds and doctors and physicians per capita.

Private expenditures on health services give no direct or indirect information on the affordability of health services for the population. In most countries they do not necessarily say anything about the real affordability of health care. Neither is the absolute level a sufficient measurement of the effectiveness and quality of the health system. "There is

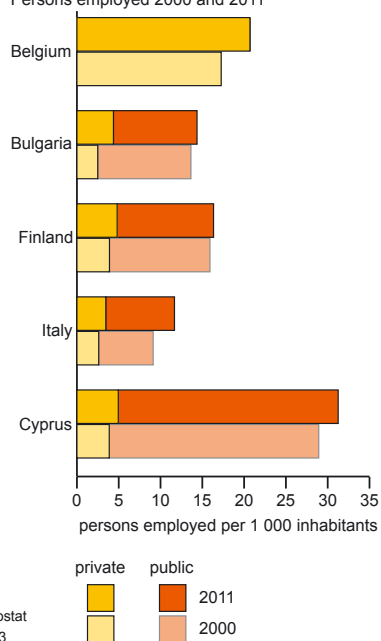
no correct level of health system investment; it is for societies, through the democratic process, to choose how and how much to invest. However, the weight and range of evidence makes it clear that societies should be investing in health systems as part of societal efforts to enhance health and wealth and to achieve societal well-being" (McKee/Lesso/ Figueras 2012: 288). Therefore health expenditure can be seen as an indicator of the societies' will to spend on health care. It is not the exact numbers but rather the relative levels that are, therefore, the interesting information on country specific priority on the societal health.

Employment in the private and public health sector of selected countries

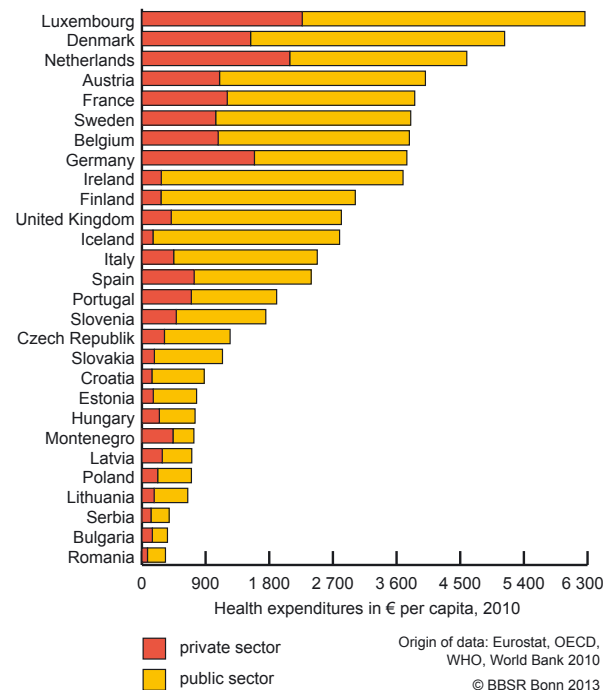
Development of persons employed

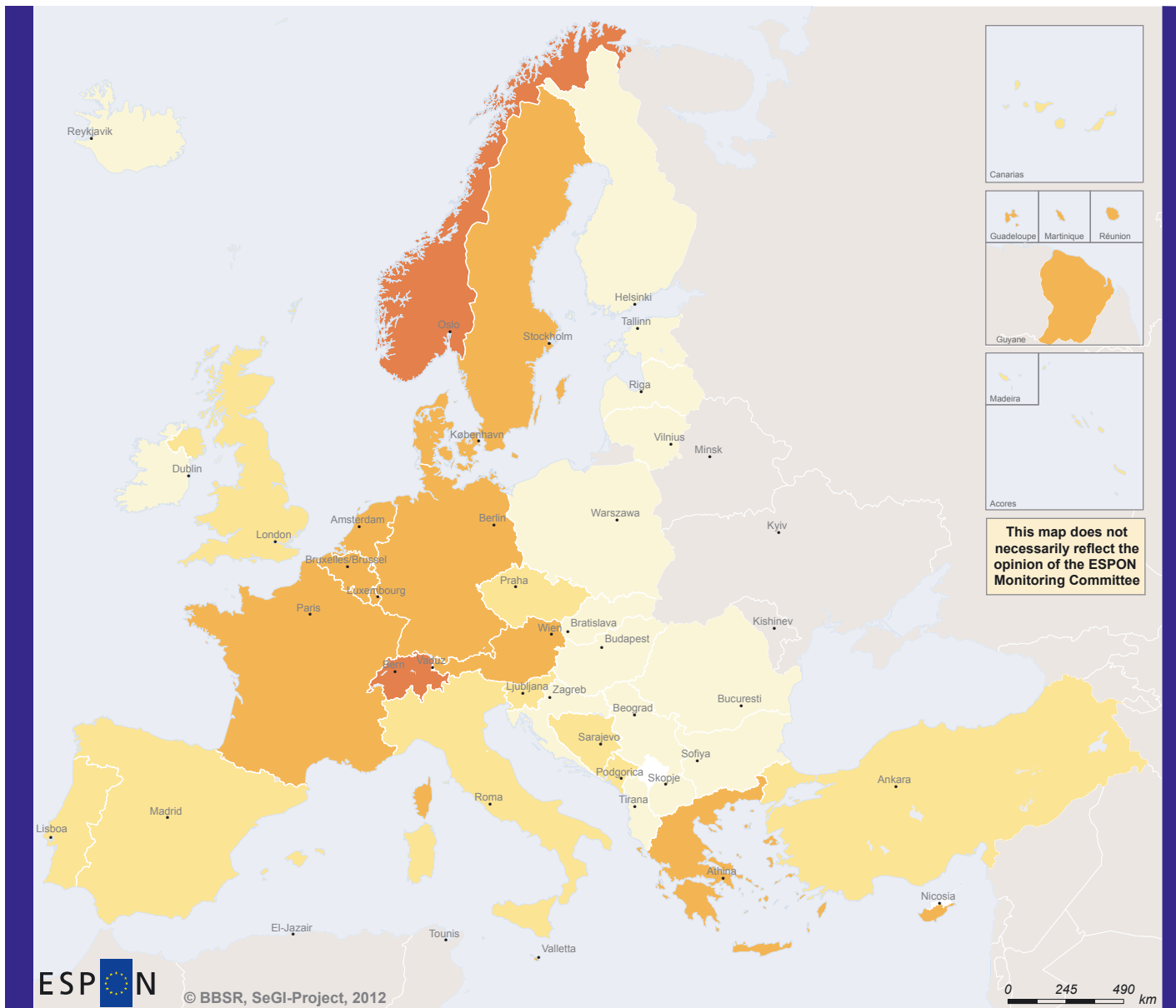


Persons employed 2000 and 2011



Health expenditures





Health care expenditures

Private health care expenditures in € per inhabitant, 2010

- up to 300
- 301 up to 1000
- 1001 up to 2300
- 2301 up to 6150
- no data

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* Eurostat 2010: Bulgaria, Latvia, Lithuania, Romania
 World Bank 2010: Albania, Bosnia&Herzegovina, Cyprus, Greece, Macedonia, Malta, Montenegro, Norway, Switzerland, Turkey
 OECD 2010: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Luxembourg, Netherlands, Poland (2002), Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom
 WHO 2010: Croatia, Serbia

2.14 Care of children below 3 years of age

Child care has at least three main functions: First, child care facilities are places for children to learn and to play with children of the same age; they are therefore institutions of early education – an aspect of their function that is now attracting increasing political and public attention. Secondly, the increase in mothers' participation on the labour market and the general European concept of the adult-worker demands that non-family public or private organised child care is available as a pre-condition. In Germany, 30 percent of the regional variability of female labour participation can be explained by the regional variation of children below 3 years in full-time day care (Milbert 2010). Furthermore, there is empirical evidence to suggest that "[...] the lower the share of the household income controlled (i.e. earned/owned) directly by the mother, the higher the vulnerability of

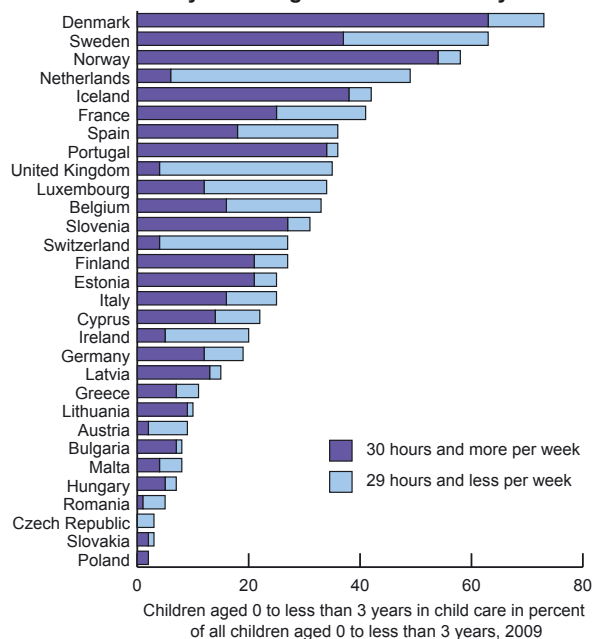
children (as well as of mothers) to poverty" (Saraceno 2011:90). Following this, non-family child care services have a third function of protecting children from poverty and supporting child equality.

The variation in the number of young children in care, and especially in full-time day care, is very high across Europe. This reflects the different attitudes prevailing towards the question of whether and for how long, young children should be cared for outside their family homes. Non-family care of young children below the age of 3 is very common in Scandinavia and the Benelux countries and above average in Portugal, Spain and Slovenia. Children are not however in full-time-care in all these cases. While in Denmark and Norway child care of more than 30 hours per week is common, in Sweden the share of part-time care is higher. In the Netherlands nearly

50 % of all children below 3 years are in child care but only 6 % in full-day-care. The highest rates of children in full-day-care are to be found in Denmark, Norway, Iceland, Portugal and Slovenia.

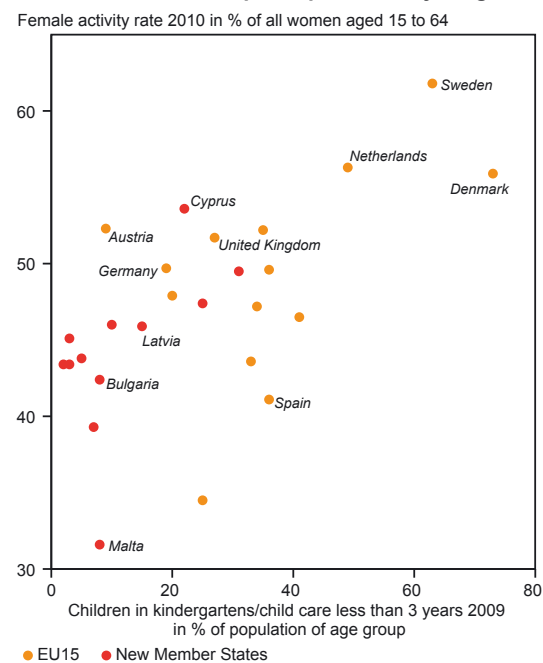
In general, the female activity rate increases with the percentage of young children in non-family care. But half day care often only allows parents to work part time. Indeed we find empirical evidence for this in the strong correlation between children below 3 years of age in care for less than 30 hours per week and the percentage of part-time jobs in the EU (correlation coefficient 0.835). The Commission briefly mentions the relationship between labour participation and care responsibilities but does not introduce the availability of the high quality care problematic into the key actions of its strategy for equality between women and men 2010-2015 (EU 2010).

Children below 3 years of age in half and full day care

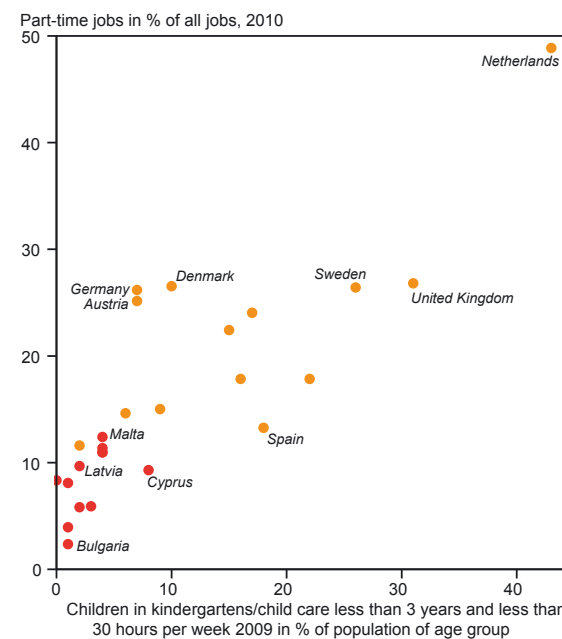


Source: Eurostat, Norwegian Statistical Office © BBSR Bonn 2013

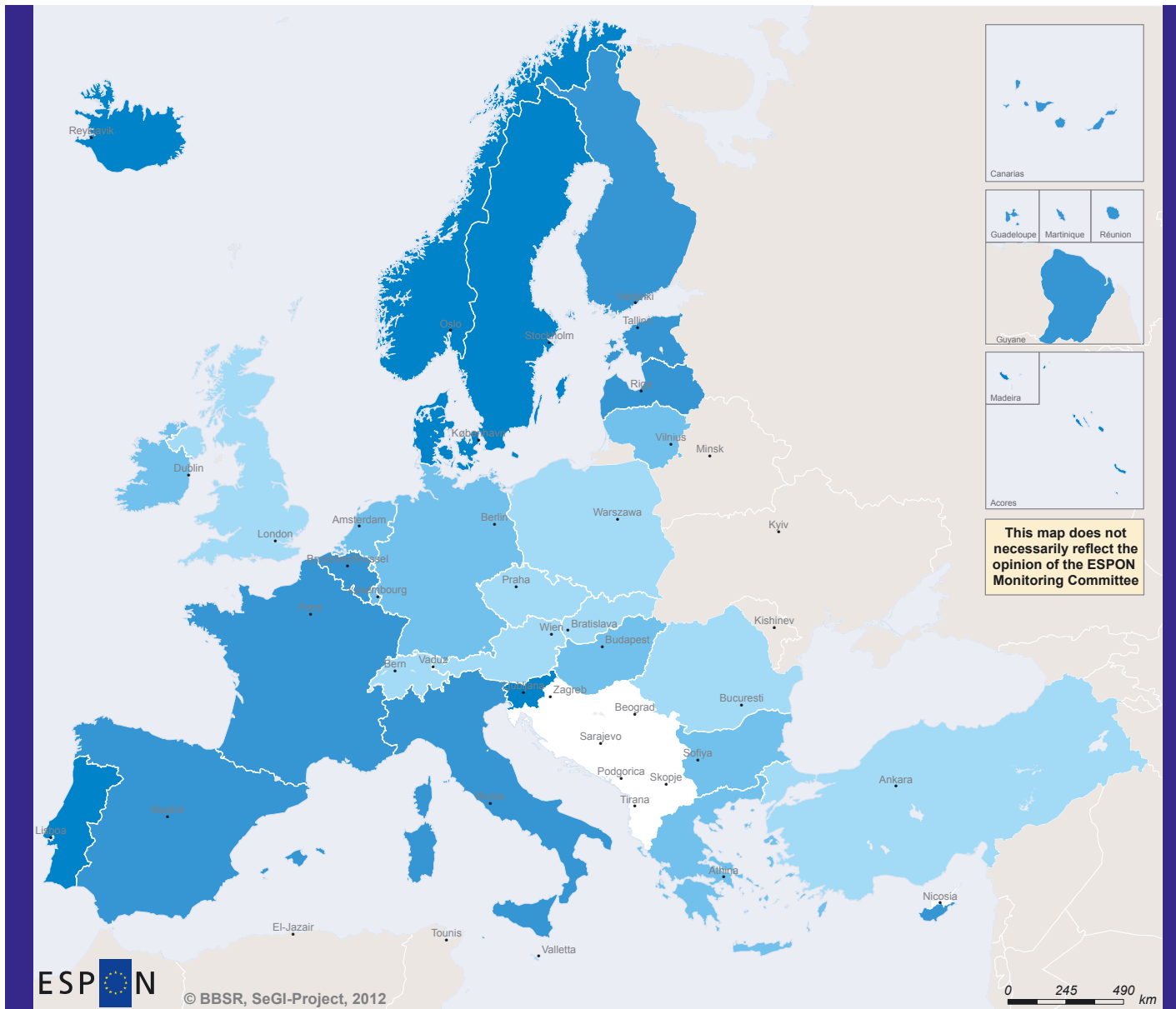
Female labour market participation and young child care in EU



Legend: ● EU15 ● New Member States



Source: Eurostat databank © BBSR Bonn 2013



Care of children below 3

Children less than 3 years in kindergartens/child care for 30 hours and more per week in % of population of age group, 2009

- up to less than 4
- 4 up to less than 12
- 12 up to less than 26
- 26 and more
- no data

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Regional level: NUT0 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2009*
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* Norway: National Statistical Office 2011

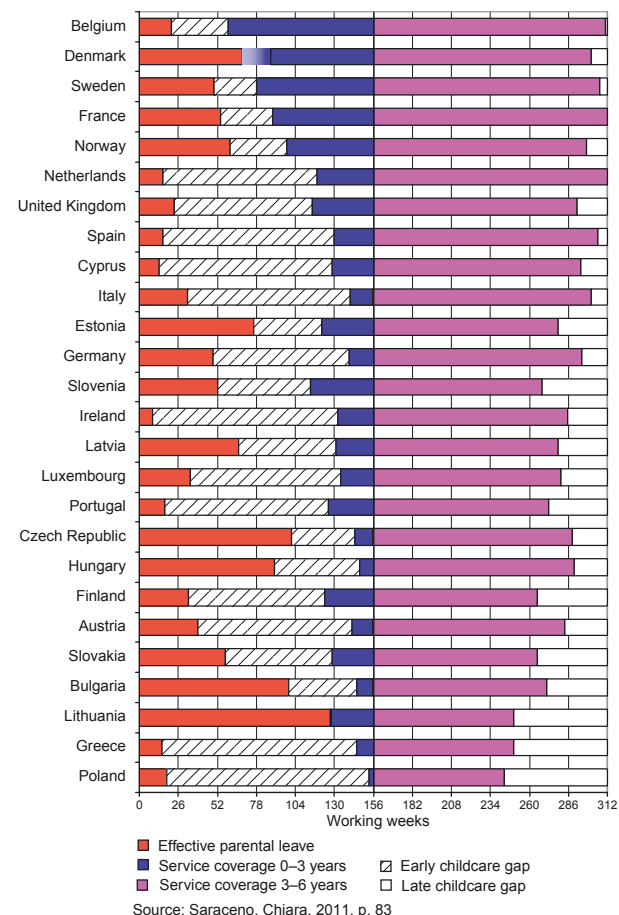
2.15 Care of children above 3 years of age

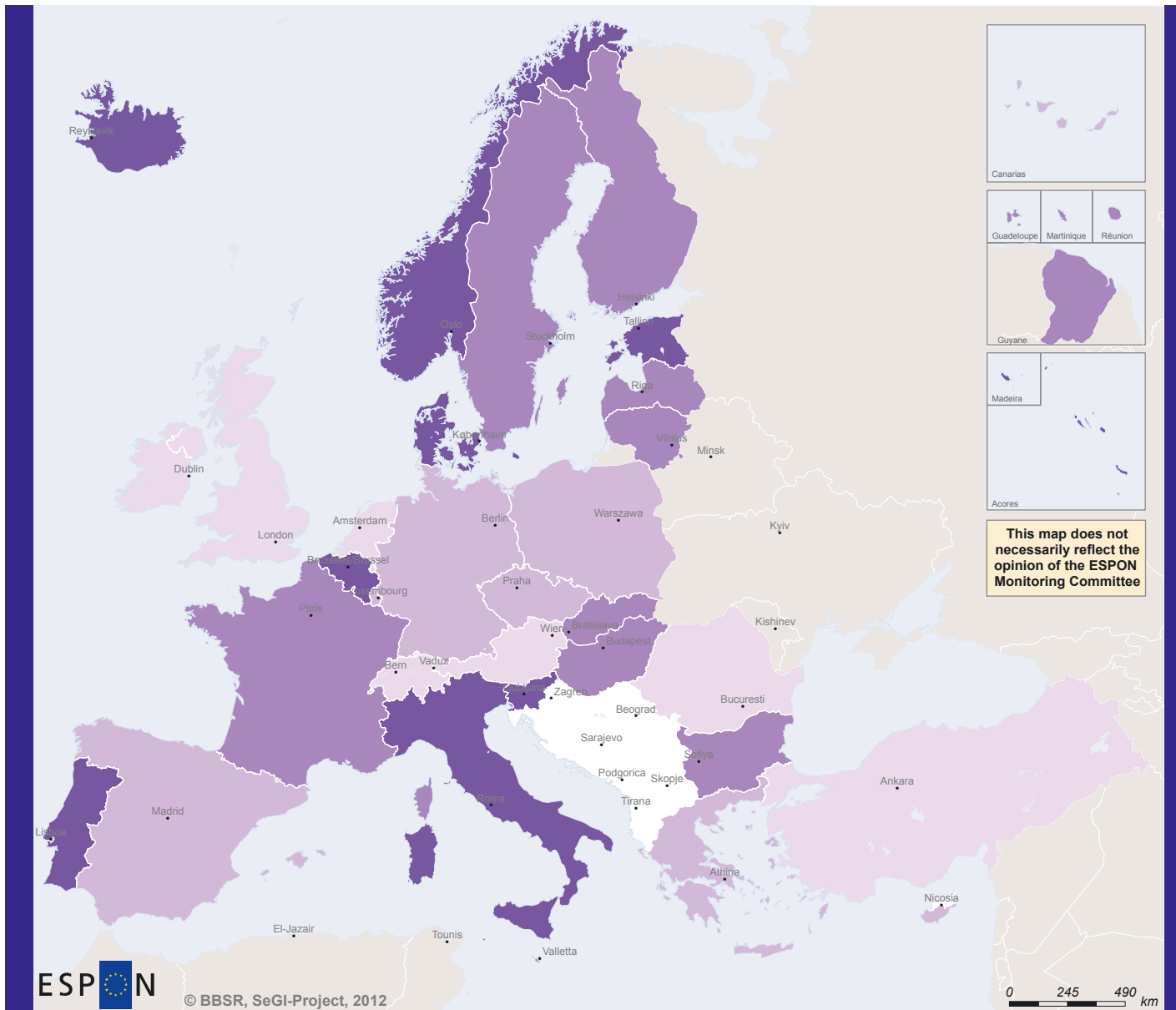
■ Non-family care of children three years and above is much more common and socially accepted than that of younger children. On average 80 % of all children from 3 years up to compulsory schooling age are in day-care. In Norway, Iceland and Belgium their share is close to 100 %, only in a few countries is this number below 75 % (Bulgaria, the Czech Republic, Greece, Lithuania, Poland, Romania and Turkey). Again, there are significant differences among the share of children in part-time and in full-time care. Despite a care rate of more than 75 % in Austria, Ireland, Netherlands and Switzerland the percentage of children in care for more than 30 hours per week is very low.

The influence of the non-family care of children of 3 years and above on the female activity rate is less than that of younger children but a half-day care routine still hampers parents' ability to work full-time. Child care and parental leave regulations are very different across Europe. The early and late child care gaps have a significant effect on the equality of labour market participation in respect of women and men (Saraceno 2011).

Child care for children of 3 years plus and pre-primary education are not strictly separated, either in practical or statistical terms. Therefore the educational aspects of early child care are much more evident than that of the younger children. This map is therefore also a qualitative addition to pre-primary enrolment (Cf. comments to 2.1).

Childcare coverage through 'effective leave' and publicly financed services





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Regional level: NUT0 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2009*
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* Norway: National Statistical Office 2011

2.16 Employment agencies

■ Paid work is the basis for economic and social participation. In industrialised societies, to be in an employment relationship is a fundamental human need. Consequently, the European Employment Strategy (Goetschy 1999) does not only relate to the economic aspects of employment but also to the interconnection of employment and social protection policies (Casey 2004).

Employment agencies cover a large range of activities related to employment including vacancy advertising, job placements, procuring training e.g. for the unemployed with low skills and for the long-term unemployed, finding positions in temporary employment and contract work, payment of unemployment benefits and registration and statistical duties. Temporary and contract work is often handled by private agencies, the other services are predominantly the responsibility of public authorities/agencies. Eurostat statistics do not explicitly distinguish between public and private agencies nor between public sector provided services and private sector for-profit services. Nevertheless, employment agencies play an important role in procuring jobs for the unemployed and/or work-seekers.

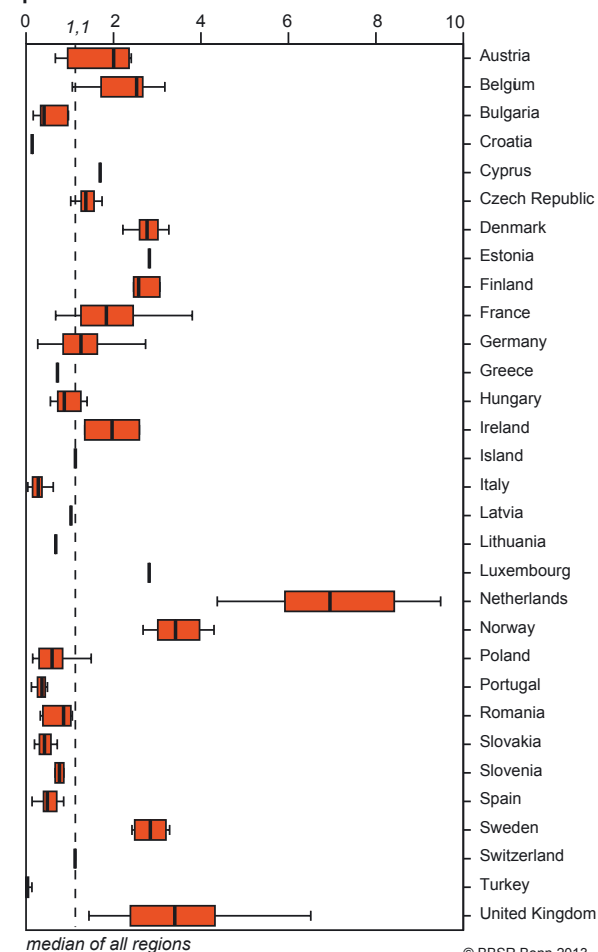
Medium correlations between the number of employment agencies per capita and GDP per capita (0.529), the labour participation rate (0.455), unemployment

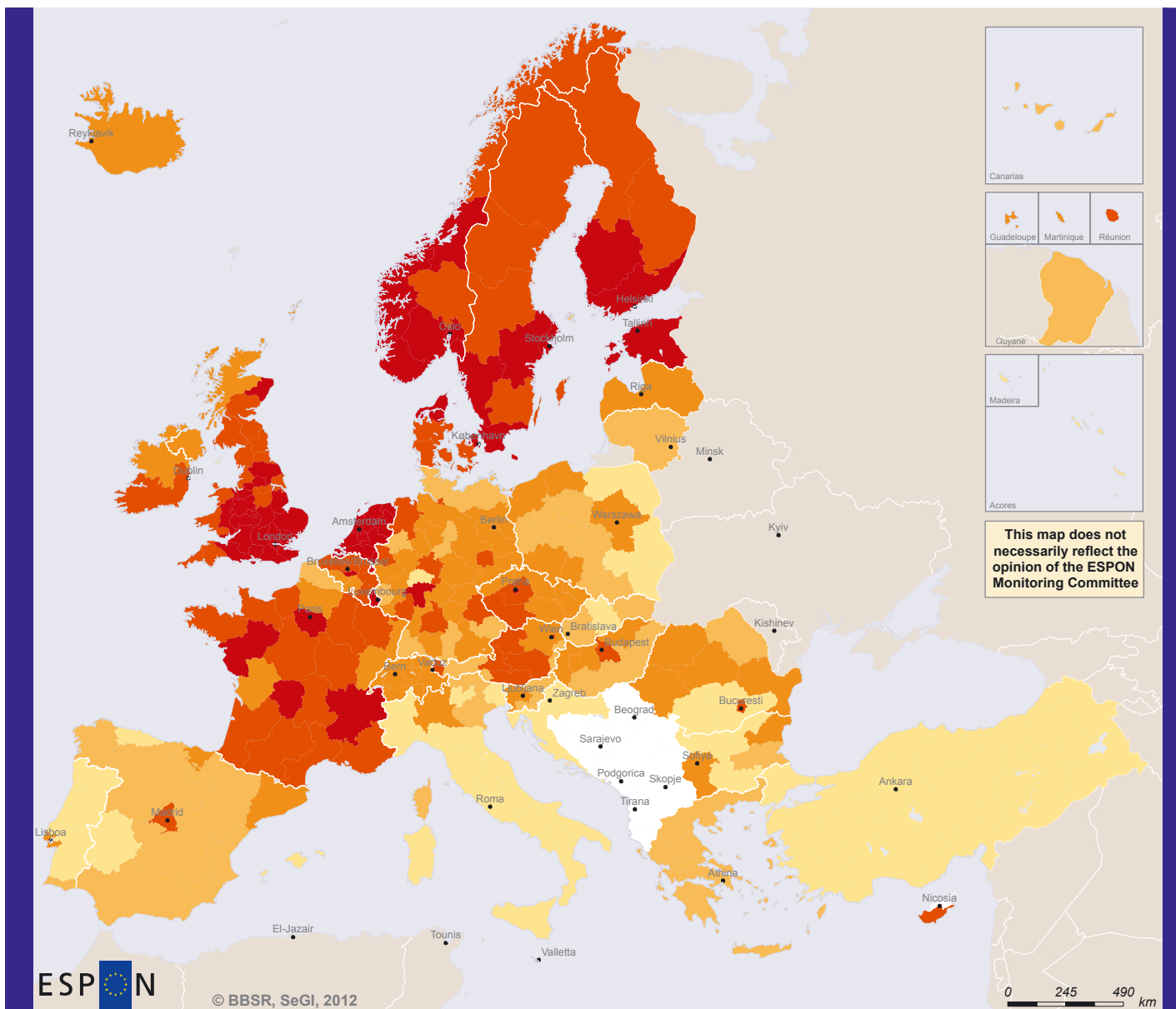
rate (-0.344) and female unemployment rate (-0.361) reinforce the economic impact of these agency-provided services.

Each region should provide at least one unit, depending on region size and the size of the labour market even more units may however be necessary to provide a good level of access to this service. Each unit should provide sufficient consultants to supervise job applicants. This request is related to the governmental and supervising services of matching jobs with job-seekers and administering benefits. With the exception of eight regions in Turkey all other regions provide at least one agency. In the majority of regions one agency serves up to 50 000 inhabitants. In the Netherlands, Norway, Sweden (to some extent) and the United Kingdom the number of agencies per 100 000 inhabitants exceeds 3. Additionally, in the Netherlands and the United Kingdom the regional variation is very high.

The greater number of agencies in the north and in central Europe may be an expression of the increasing staffing industry. In Germany, Italy and Spain the market was actively deregulated such that the temporary and contract work sector has become an important agent of change in relation to wider labour market liberalisation (Peck/Theodore/Ward 2005).

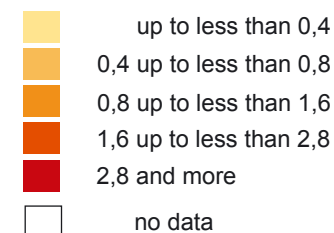
Employment agencies, number of local units per 100 000 inhabitants 2009





Employment agencies

Local units active in employment agencies per 100 000 inhabitants, 2009



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Regional level: NUTS 0/NUTS 1/NUTS 2 (2006)*
Source: Eurostat database, 2011
Origin of data: Eurostat, 2009*
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* Croatia, Greece and Switzerland: NUTS 0;
Denmark: 2008
Iceland, Turkey: National Statistical Offices

2.17 Veterinary offices

■ Veterinarians serve ill pets and farm animals. While veterinary services for pets are in the main provided in private offices and by private sector veterinarians handling the health of farm animals has a wider public importance including tasks such as veterinary surveillance, disease vector control, vaccinations, the inspection of livestock products and veterinary research and extension.

The indicator is built around the number of veterinary offices per 100 000 households and farms. This denominator is a substitute for the total number of pets and farm animals as Eurostat documents only cattle and horses.

On average 32 offices are available per 100 000 households and farms. Significant variation exists among countries and regions which often do not simply reflect urban-rural (farms) differences. Only some regions with extensive livestock farming is the number of veterinary offices high, e.g. in Belgium, Ireland, Sierra de Gata in Spain and Portugal and in Emilia Romagna in Italy.

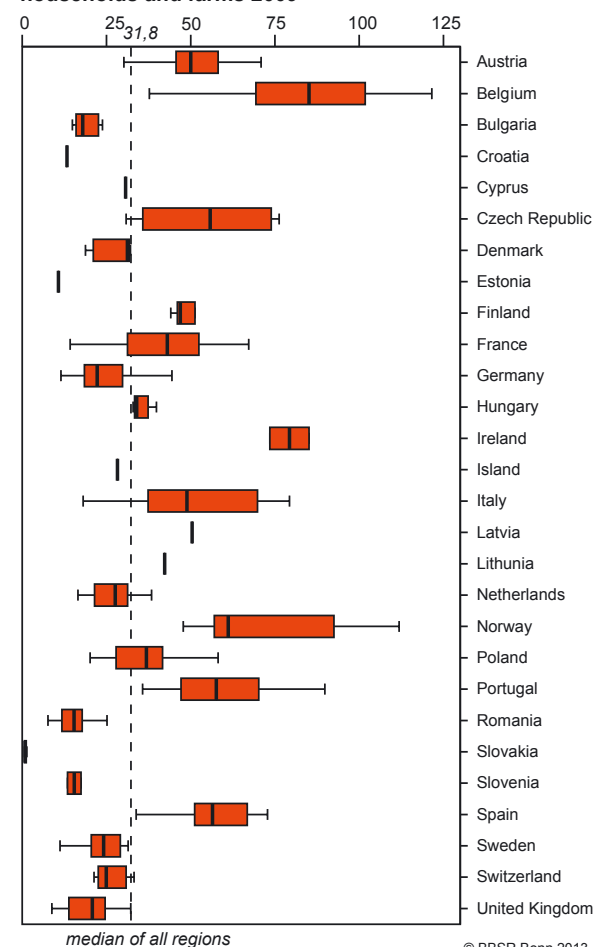
In most countries and regions veterinary services are organised by small offices with, on average, 2.5 persons employed per office. There are a few exceptions: in the United Kingdom, Croatia and Denmark the offices are larger with between 6 and

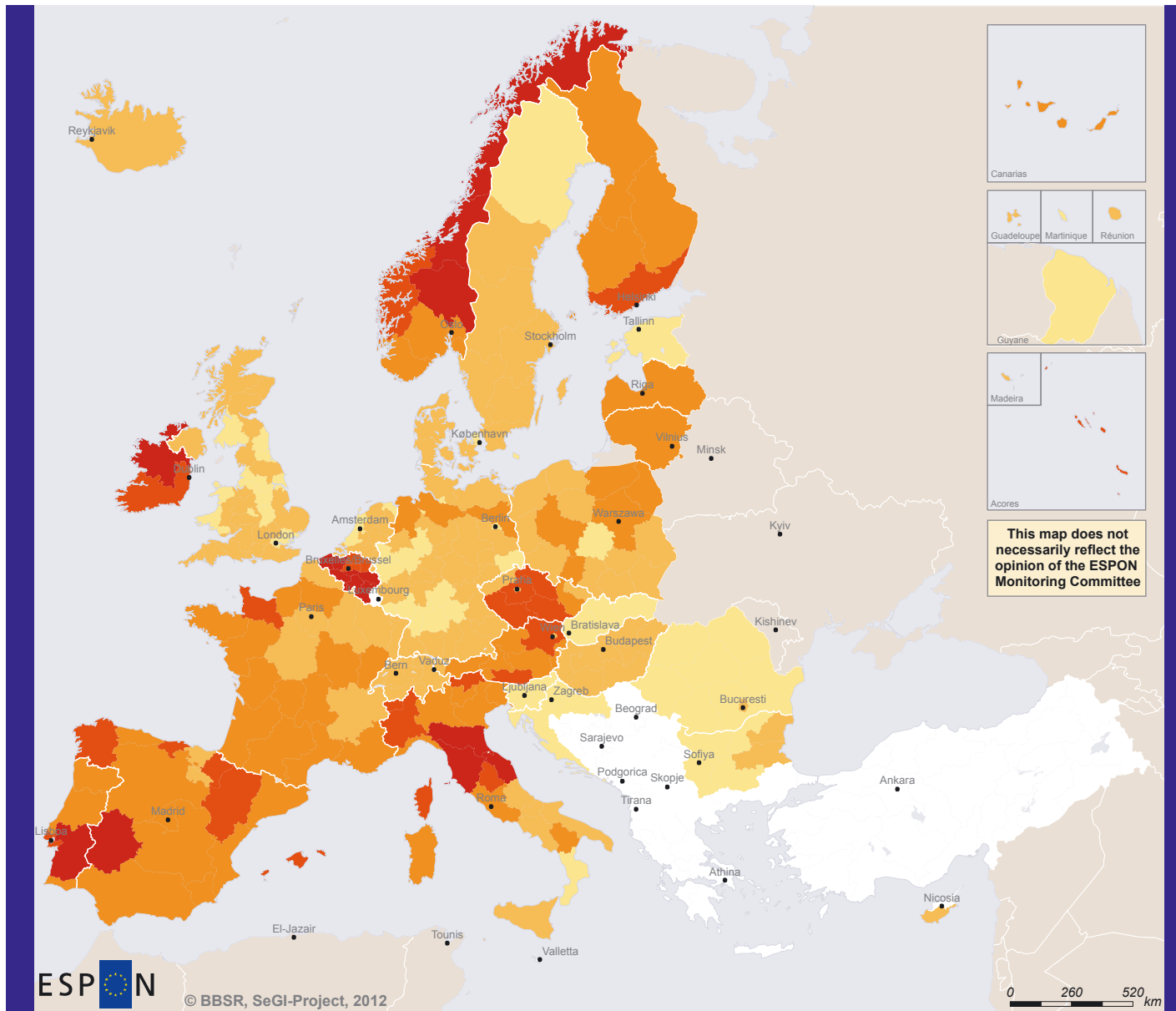
18.7 persons employed per office. Therefore in these countries the low availability of veterinary offices is underestimated by the relatively better staffed offices. Slovakia, with the lowest number of veterinary offices, also shows a low number of veterinary staff per households and farms and therefore the worst provision of this service of all countries and regions considered.

Unfortunately, statistics on veterinary staff numbers are even more difficult to obtain than those on the number of local veterinary units. Staff numbers reflect even more the need for veterinary services in livestock farming regions than the number of units (e.g. Denmark, the Netherlands, the United Kingdom and Ireland, and the regions of Münster, Weser-Ems and Ober- and Niederbayern in Germany).

Regarding farm animals and livestock Umali/Feder/deHaan (1994) found out that the representation of public veterinary action by private offices is dependent on several factors e.g. size of the livestock enterprises in the locality, the nature of potential or actual diseases, and the types of animals raised in the production systems. "Thus, in areas where private veterinary work is unprofitable or where other types of market failure occur, economic or social concerns may make some type of public intervention necessary" (Umali/Feder/deHaan 1994).

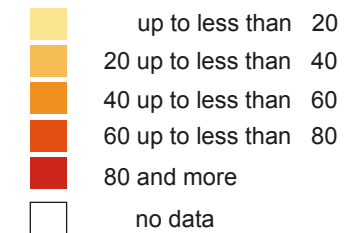
Veterinary offices per 100 000 households and farms 2009





Veterinary offices

Veterinary offices per 100 000 households and farms, 2009



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* Veterinary offices: 2009, households: 2001, farms: 2007, Croatia: NUTS0, farms and households 2008, Iceland: National Statistical Office, farms and households 2009, Switzerland: National Statistical Office, veterinary offices 2010, farms and households 2007, Sweden: households 2008: National Statistical Office, disaggregation by population, Bulgaria: households 2005, National Statistical Office, disaggregation by population, Germany: households 2001, GfK market research company, France: households of the overseas departments: National Statistical Office, disaggregation by population, Belgium: households 2003: National Statistical Office, disaggregation by population, Norway: farms 2004, National Statistical Office



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Regional level: NUT2/NUTS0 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2009, 2007 and 2001*
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2.18 Broadcasting

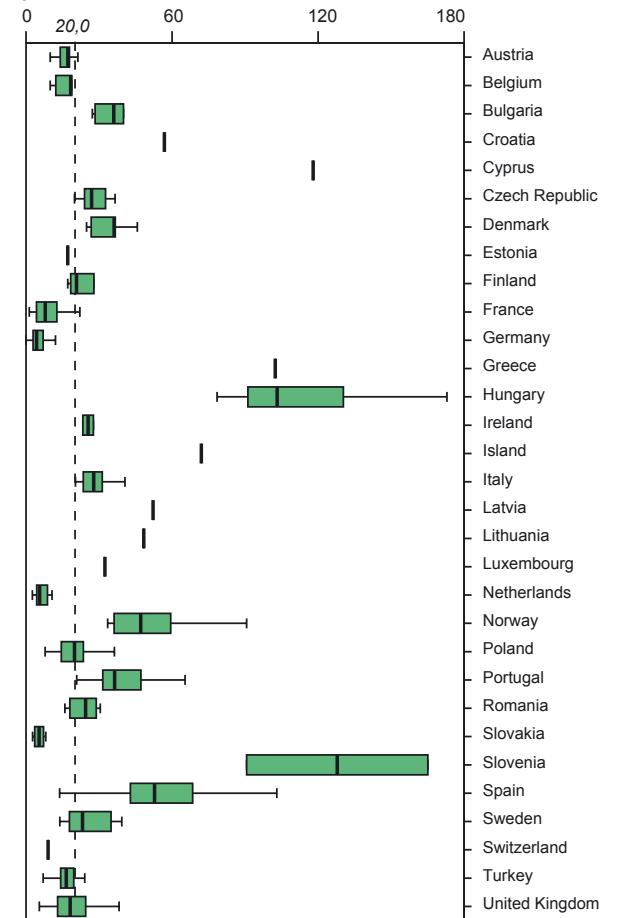
■ Broadcasting is seen as an important information service providing local to international news and cultural, social and democratic education (European Parliament 1996; Harrison/ Woods 2001). Audiovisual broadcasting thus receives legitimization as a public service and the state funding that goes with it. Another argument for public funding is the guarantee of broad access and, respectively, the inclusion of all population groups. Nevertheless, the Treaty of Amsterdam emphasises the importance of public service broadcasting but sees the determination of its scope remain with the member states (Harrison/ Woods 2001).

In contrast to theatres, museums and other art facilities, as well as sport halls and stadiums, access to culture via broadcasting is easily accessible as soon as a transmit-receiver is installed in the home. Yearly 'licence' fees to support public broadcasting fund this system. Nevertheless, public broadcasting takes up only 25% of the EU average of all broadcasting activities (Bardoel/d'Haenens 2008). Commercial broadcasting and pay-TV reduce accessibility for all social population groups. "The dilemma of programme quality versus popular reach has become bigger than ever before" (Bardoel/d'Haenens 2008: 351).

Some countries offer a great range of local and regional radio and TV broadcasting activities (Croatia, Greece, Portugal, Spain, and also to some extent in Scandinavia and some East-European countries). In other countries this service is more concentrated in terms of big units (Germany, France) and/or additionally concentrated regionally (France: region Île de France). The average size of broadcast stations in Germany, is on average, higher than in the other European countries and varies most. The regional concentration in Germany is the result of the federal responsibility for broadcasting and results in bigger stations in each federal state and few small stations in some regions. On the other hand, one finds countries like Spain and Italy with an, on average, higher number of smaller broadcasting stations in every region.

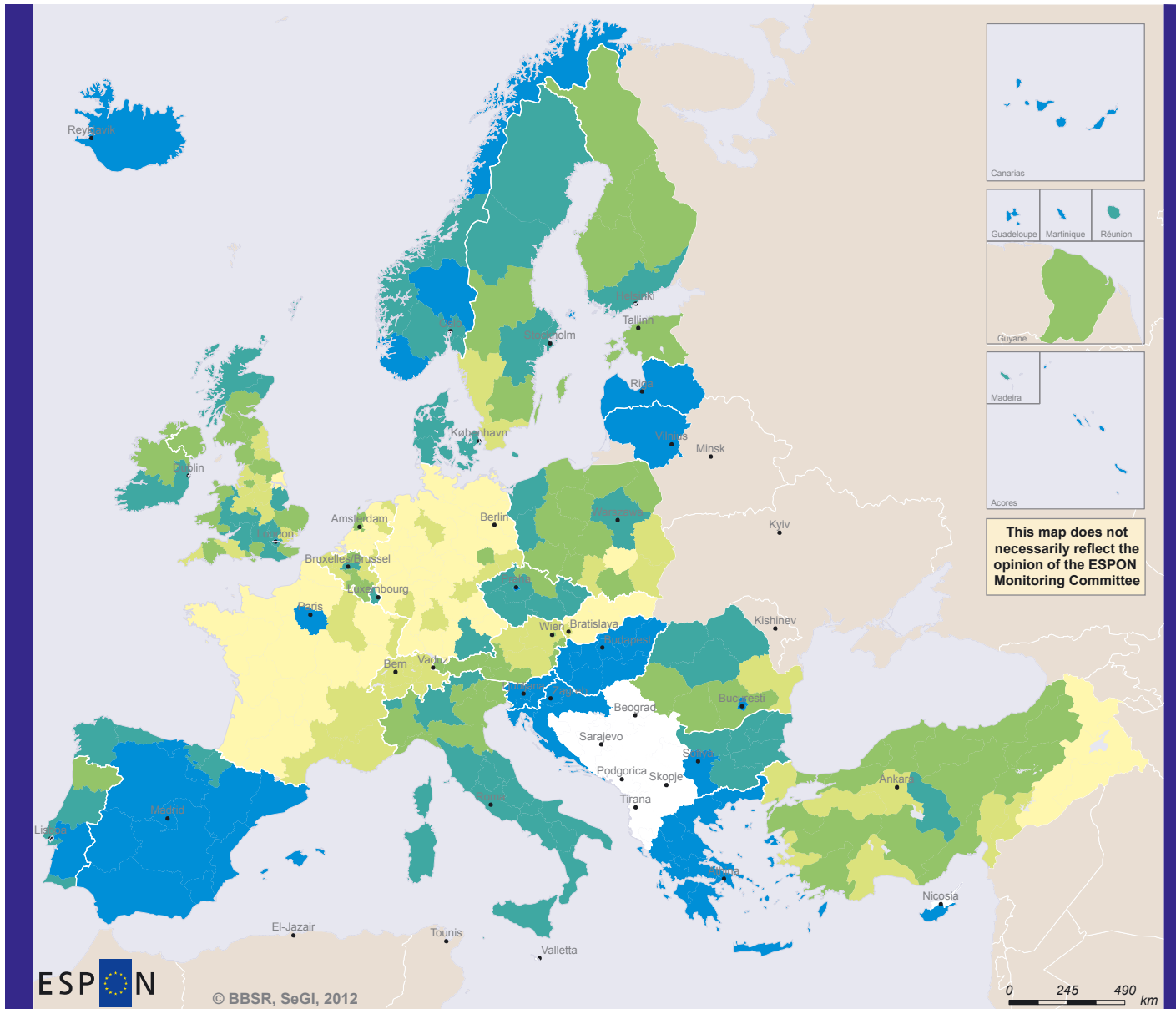
Whether a less concentrated organisational structure, in terms of broadcasting, coincides with increased reference to regionally-specific information, culture and news however needs further clarification. In other cases a clustering of broadcasting industries may already take place as, for instance, in the region/city of Cologne (Germany) or in Brussels (Belgium).

Radio and television broadcasting stations per 100 000 inhabitants 2009



median of all regions

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Broadcasting

Local units active in radio and television broadcasting per 100 000 inhabitants, 2009

- up to less than 0,8
- 0,8 up to less than 1,6
- 1,6 up to less than 2,4
- 2,4 up to less than 4,8
- 4,8 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

* Croatia, Greece and Switzerland: NUTS 0; Denmark: 2008
 Belgium: Prov. Limburg, Prov. Oost-Vlaanderen and West-Vlaanderen: average of these three regions; Prov. Brabant Wallon, Prov. Luxemburg and Prov. Namur: average of these three regions;
 Germany: Brandenburg NUTS 1; Darmstadt and Gießen: average of these two regions;
 Turkey: National Statistical Office

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Regional level: NUTS 0/NUTS 1/NUTS 2 (2006)*
 Source: Eurostat database, 2011
 Origin of data: Eurostat, 2009*
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2.19 Theatres, operas and museums

■ Cultural leisure activities are at the top of the hierarchy of personal needs. Culture is not only a source of refreshment and delight but also of intellectual and democratic education and dispute. “[...] culture can be regarded as an “ambassador” and as a vehicle for European “values” (tolerance, democracy, diversity and pluralism, etc.) and its “way-of-life” (European Commission 2006: 29).

For a long time this was sufficient as an explanatory statement in its support. Increasingly however the economic impact of ‘culture’ – direct and indirect – plays a major role in the political support of arts and culture: “In terms of the strategic objectives of cultural policy, the most important historical trend is the shift from the social and political concerns prevailing during the 1970s to the economic development and urban regeneration priorities of the 1980s” (Bianchini 1993: 2).

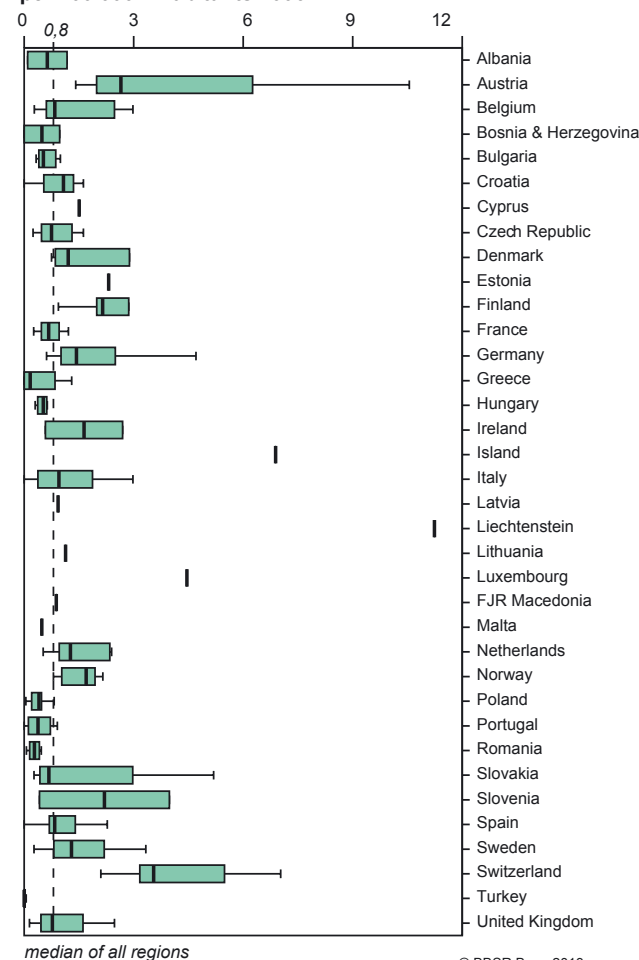
The direct economic impacts are estimated to be around 2.6% of EU GDP (European Commission 2006: 61); the indirect economic impacts include the attraction of a creative labour force for other branches due to the existence of a vivid cultural live in close proximity to residential districts on the one hand and the attraction of tourists on the other. Furthermore cultural activities inspire innovation in the ICT sector (European Commission 2006) and have the potential

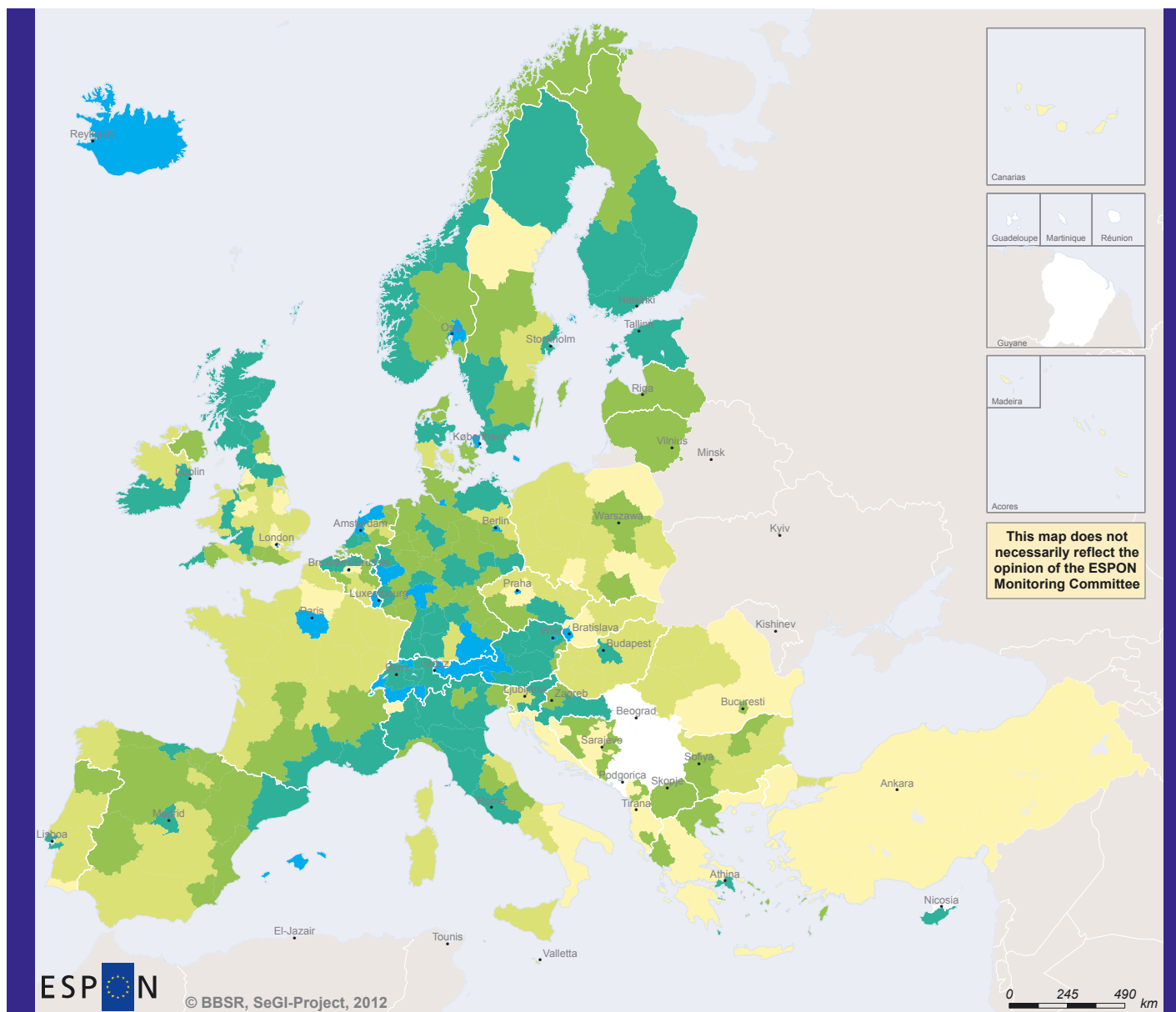
to substitute for job loss in other industries – at least in urban centres (Bianchini 1993).

The medium correlation of the number of theatres, operas, museums and art galleries with the GDP per capita of 0.603 indicates first the concentration of art/cultural activities in the most prosperous regions and secondly the dependence of cultural life on the capital – both regional and individual financial resources. Theatres, operas, museums and galleries with a national/international reputation are now an integral part of the metropolitan functions. But cultural facilities are also concentrated in areas of some touristic potential. Both aspects are indicated by a correlation of 0.490 to the settlement structure and underpin the abovementioned indirect economic effects of cultural activities.

A high level of variation exists between countries and between regions. The European average is 0.8 facilities per 100 000 inhabitants. 30 of 315 regions have no facilities; the majority of them are in Turkey. The regions with the highest cultural activities are capital regions like inner London (20.8), Berlin (14.7), Vienna (10.6), Brussels (8.6) and Prague (7.3) but also other urban and dense regions like Friesland in the Netherlands (19.2), Cologne in Germany (11.2) or Région lémanique in Switzerland (7.0).

Theatres, operas, museums, art galleries per 100 000 inhabitants 2006





Culture facilities

Theatres, operas and museums and art galleries per 100 000 inhabitants, 2006

- up to less than 0,3
- 0,3 up to less than 0,8
- 0,8 up to less than 1,5
- 1,5 up to less than 4,0
- 4,0 and more
- no data

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Regional level: NUT2 (2006)
Source: BBSR (ed.): Metropolräume in Europa. Analysen Bau.Stadt.Raum Bonn 2010
Origin of data: Performing Arts Yearbook for Europe 2006, Artfacts.Net Ltd, Artnet Worldwide Corporation
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2.20 Sport stadiums

Besides nutrition, physical activity is one of the major tools for enhancing health; more than half of all European citizens practice sports on a regular basis (European Commission 2007). Sports have an educational function in terms of instilling an understanding of fairness, solidarity and tolerance. Sports therefore have an integrative stimulus. European sports – in particular football – are a source of identification (European Commission 2007).

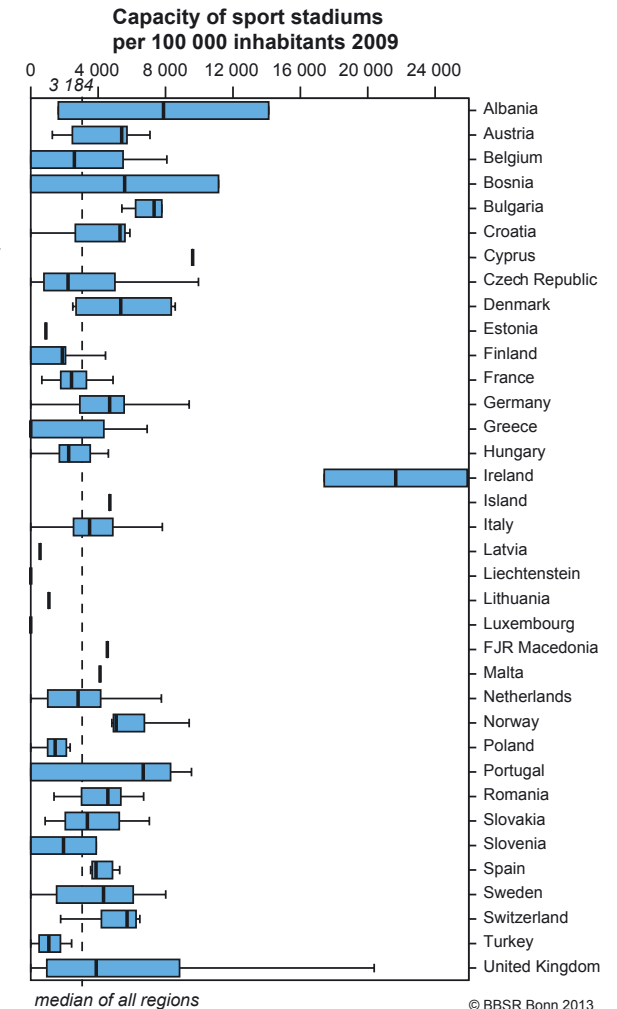
But sports have also to face up to increasing commercialisation and other threats such as doping, racism, violence and money laundering (Arnaut 2006; European Commission 2007). Therefore the European Treaty of Lisbon includes a paragraph on protecting the physical and moral integrity of sportsmen and –women, especially the youngest among them (European Parliament, 2008: Article 165.2). The commercialisation of sports moreover threatens its basic function in terms of social inclusion by potentially excluding poorer citizens.

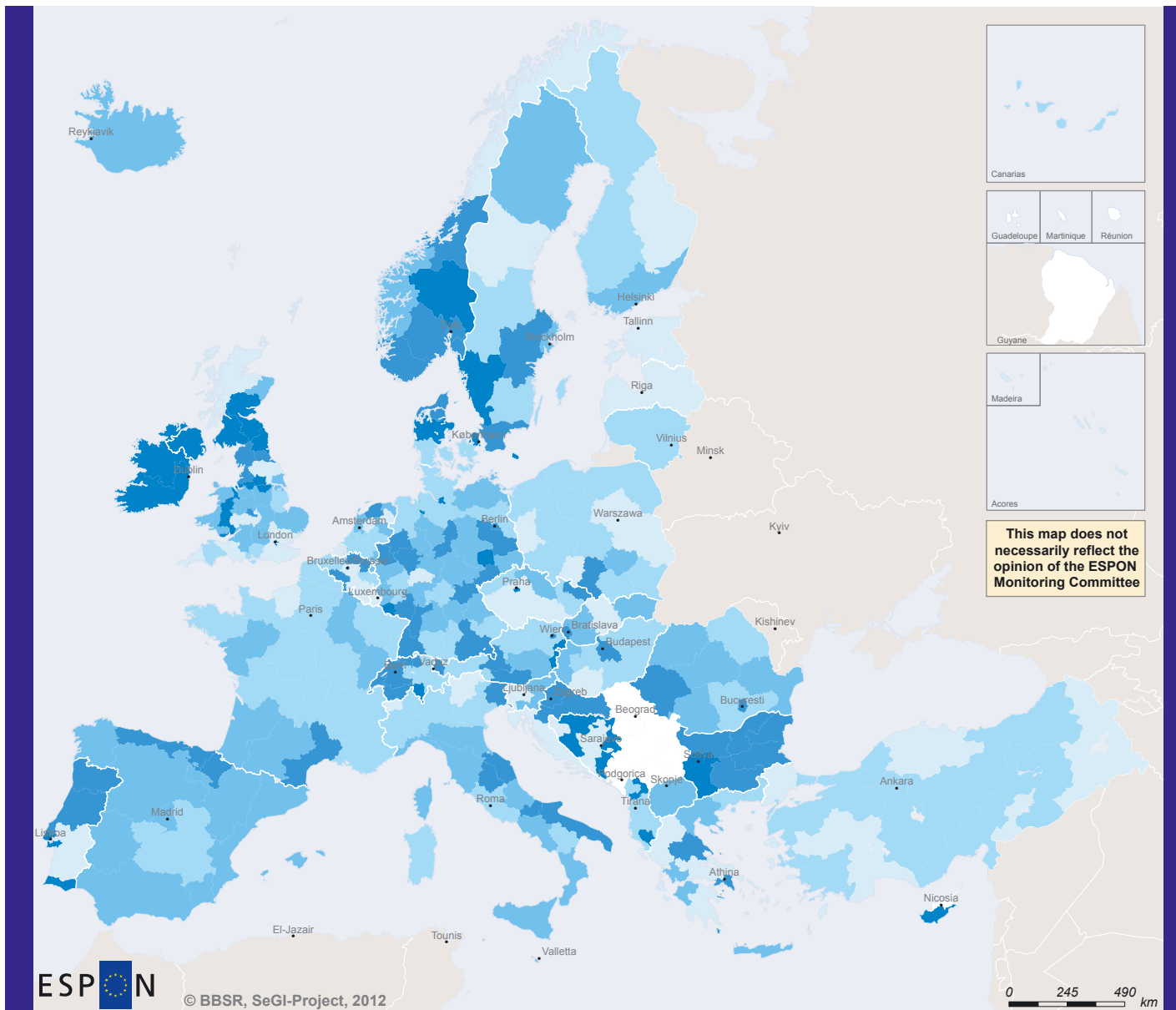
The indicator presented here is however suboptimal in terms of its ability to document the availability of regional facilities for sporting and/or leisure activity. The indicator shows the seats/capacities in sport stadiums – attending (as spectators) football matches and other sports competitions is a leisure activity but is probably more comparable with cultural leisure

activities as it focuses on ‘viewing’ rather than ‘participating’.

Many sports stadiums - and football clubs - have long traditions. Football emerged as a leisure activity for the industrial working classes during the period 1870-1900, as such it is not surprising that it is correlated to traditional ‘industrial’ urban areas. Therefore, big football stadiums are not automatically located in most big cities. As such, the regional distribution of stadium capacity does not follow settlement or economic structures (no correlations with territorial trend indicators). The capacity does not reflect the distribution of the stadiums and capacities within a region. Nevertheless, nearly all countries show, more or less, a concentration of stadium capacities in their area in urban regions.

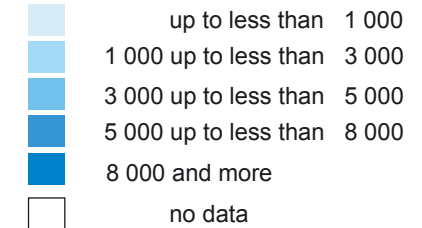
Local or regional sports stadiums can have a significant economic importance: “Sport is a dynamic and fast-growing sector with an underestimated macro-economic impact, and can contribute to the Lisbon objectives of growth and job creation. It can serve as a tool for local and regional development, urban regeneration or rural development” (European Commission 2007: 10).





Sport stadiums

Sport stadiums: capacity per 100 000 inhabitants, 2009



This map does not necessarily reflect the opinion of the ESPON Monitoring Committee



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Regional level: NUT2 (2009)
Source: BBSR (ed.): Metropolräume in Europa. Analysen Bau.Stadt.Raum Bonn 2010
Origin of data: www.worldstadiums.com
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*For most countries a minimum of 10 000 capacity is required for listing

2.21 Expenditures for social housing

Despite crucial differences in social housing programmes across Europe there are some main developments that are common (van der Heijden 2002):

- a shift from a broad social housing programme after World War II towards market-oriented policies, beginning in the 1960s, and recommencing in the 1990s;
- a promotion of home ownership, in nearly all countries, but to different extents;
- directing public subsidies for low income households to compensate for increasing housing costs and therefore directing subsidies from object to subject funding.

Information and data on social housing remains scarce. As the subject funding or compensation

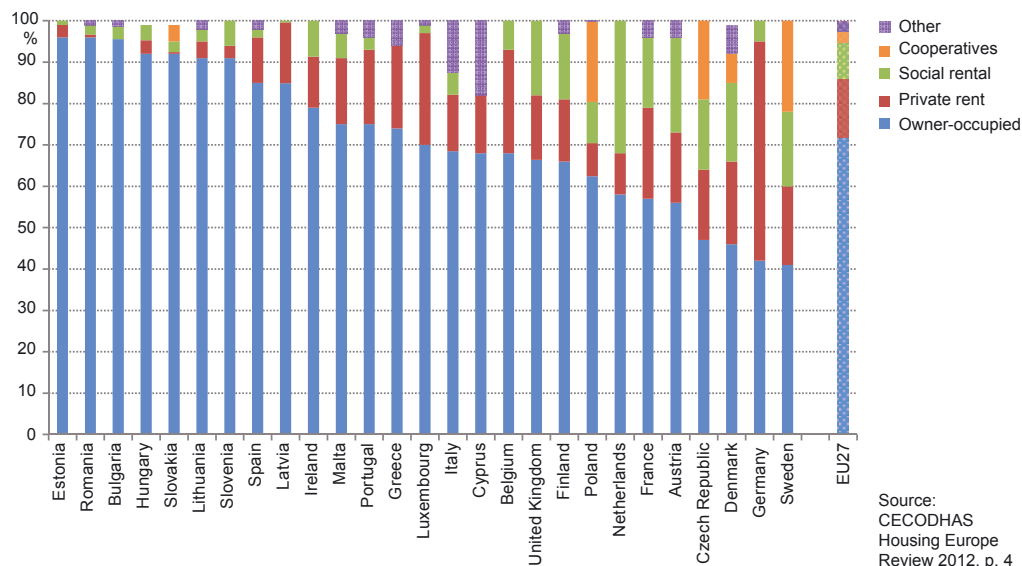
transfers for low income households in all countries increases the expenditures for housing and social exclusion in the framework of expenditures on social protection may be an appropriate indicator. These expenditures cover direct transfers to beneficiaries and investments in estate.

Crossing the expenditures on social housing and the share of social rental stock in the EU there is no correlation between expenditures and social stocks. Except in Cyprus, most new member states dispense low transfers for housing to low income households. Additionally, except in Poland and the Czech Republic, the stocks of social rents are low. The higher the share of owner-occupied housing the lower is the reason for public intervention in the housing market. This is the case in most new member countries except Poland and the Czech Republic (Pettini/Laino 2012).

There is however something of a sharp borderline in respect of social rental stock, either 10 % of total stock or below, or 16 % and above. In the latter group we have the Nordic member states plus, the United Kingdom, France, the Czech Republic, Austria and the Netherlands. Nearly one third of the Dutch housing stock is in the social rent category.

Despite the fact that the European Parliament has underlined the notion that certain services, including social housing, should be excluded from the scope of competition rules a growing market is emerging in respect of private financing for social housing (Whitehead 2003).

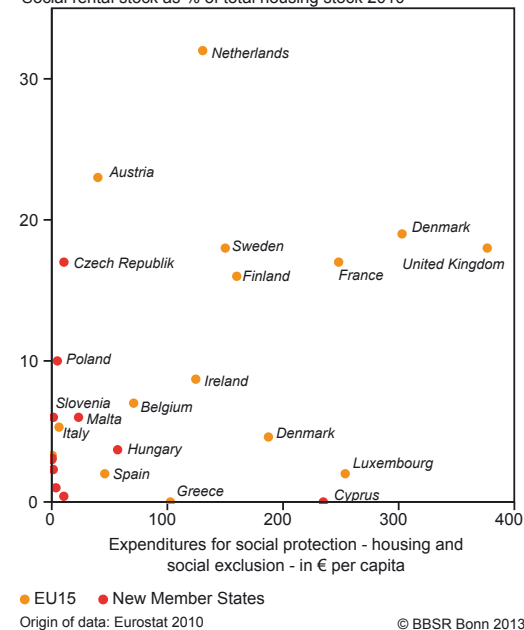
Tenure split in the 27 EU member states as a percentage of the total housing stock



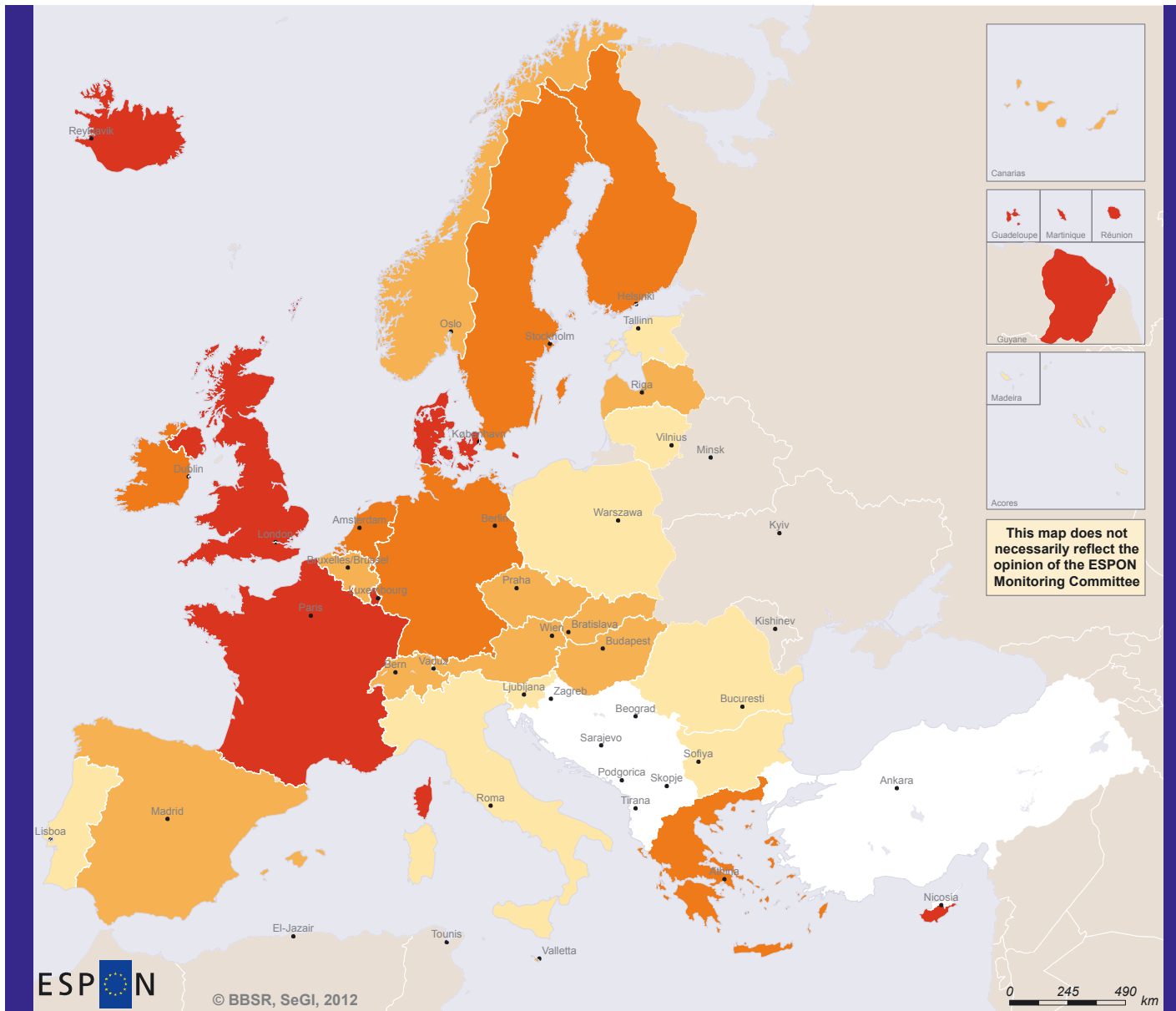
Source:
CECODHAS
Housing Europe
Review 2012, p. 4

Relation of social housing expenditures and social rental stock

Social rental stock as % of total housing stock 2010



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Expenditures for social housing

Expenditures of social protection for housing and social exclusion in € per inhabitant, 2009

- up to less than 10
- 10 up to less than 100
- 100 up to less than 200
- 200 and more
- no data

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

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Regional level: NUTS0 (2006)
Source: Eurostat databank 2011, National statistical offices*
Origin of data: Eurostat 2009*
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* Switzerland: 2008;
Slovakia: 2004

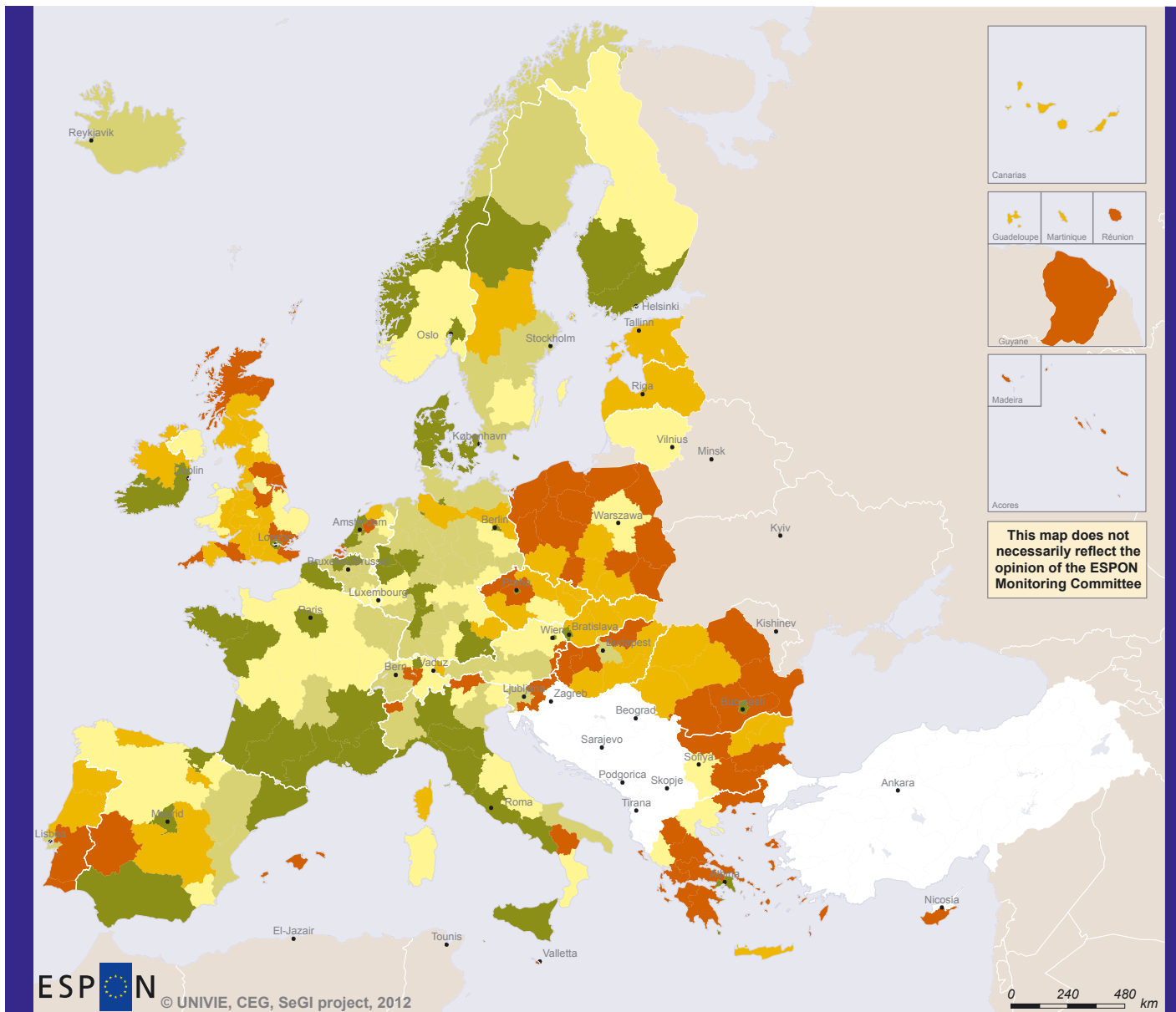
2.22 Regional typology of social SGI

■ This typology on Social Services of General Interest is based on the important sub-domains of educational and health care services. In the case of educational services, enrolment figures in the non-compulsory schooling of pre-primary, upper-secondary and tertiary education have been taken into consideration. While attainment rates for compulsory schooling would provide a predictable result, a focus on non-compulsory schooling allows for a better evaluation of educational SGI in terms of their acceptance and attractiveness. The higher the rate, the better the standard of SSGI provision that can be assumed, not only in terms of availability but also of the accessibility and attractiveness of the educational SGI. In the case of health care, indicators for basic treatment went into the calculation. The availability of primary, main and also additional care is a general interest for all citizens and of core importance in social terms. In addition to each of these indicators on educational and health care services, it is necessary

to integrate a fourth indicator which then allows for the efforts undertaken by the national government in terms of SSGI. The indicator refers to the public financing, more specifically, national public expenditure on education and health. The use of these two input indicators allows for an important distinction to be made in relation to the investment level and the efforts made by the public authorities to improve and maintain SSGI. The eight, in total, indicators have been standardised by Z-transformation and an additive score has been calculated for every region that represents the deviation from the European average. The resulting index was then used to split the European regions into five types.

With the exception of Ile de France (positive index of 8.7), all NUTS 2 regions stay within the range -4 to +5 standard deviations from the European average. The NUTS 2 regions of Ireland show the most heterogeneous picture with educational SGI below

or far below the European average but health care SGI above or even far above the average. Otherwise, NUTS 2 region are fairly similar in both underlying indices of educational and health care SGI. Taking this into account, the aggregated regional index of social SGI highlights regions far above the average in Spain, Italy, France, Benelux, Germany and the North and in national capital cities regions (like London, Prague, Vienna, Bratislava and Bucharest). Regions far below the European average in a combined view on the domains of social SGI are mostly located in Eastern and Southern Europe. Peripheral regions of e.g. Poland, Romania, Bulgaria, Greece and Portugal are however joined by some regions in the UK. A group of states in the North and Baltic region, as well as France, Belgium and Austria are interesting because they do not register any far below average values. Contrary to this e.g. Spain and Greece display the full range between below and above the European average as regards the index of SSGI.



Regional typology of SSGI

Standard-deviations from European average

- below average (-3,9 to -1,5)
- moderately below average (-1,5 to -0,5)
- around average (-0,5 to 0,5)
- moderately above average (0,5 to 1,5)
- above average (1,5 to 8,7)

no data

Indicators

(Z-transformed; i.e. expresses deviation from mean in standard-deviation)

1. Attainment of lower education
(Students in pre-primary education per 100 inhabitants of resp. age-group, 2009)
2. Attainment of higher education
(Students in upper-secondary education per 100 inhabitants of resp. age-group, 2009)
3. Attainment of tertiary education
(Students in tertiary education per 100 inhabitants of resp. age-group, 2009)
4. Public finance
(National public expenditures on education per inhabitant, 2009)
5. Availability of main health care
(Available hospital beds per 100 000 inhabitants, 2009)
6. Availability of primary health care
(Physicians and doctors per 100 000 inhabitants, 2009)
7. Availability of additional care
(Professional nurses and midwives per 100 000 inhabitants, 2009)
8. Public finance
(National public expenditures on health care per inhabitant, 2009)

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Regional level: NUTS 2
Source: EUROSTAT, 2011
Origin of data: EUROSTAT, 2011
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