



NORDREGIO
Nordic Centre for Spatial Development

State of the Nordic Region 2013

Johanna Roto, Julien Grunfelder and Linus Rispling (eds.)

Analyses and text: Julien Grunfelder, Johanna Roto, Linus Rispling,
Alexandre Dubois, Ingrid H.G. Johnsen, Lise Smed Olsen, Ryan Weber

NORDREGIO REPORT 2014:1



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Data and maps provided by: Johanna Roto, Julien Grunfelder, Linus Rispling and Gustaf Norlén
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Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and the Faroe Islands, Greenland, and Åland. *Nordic co-operation* has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

Nordic co-operation seeks to safeguard Nordic and regional interests and principles in the global community. Common Nordic values help the region solidify its position as one of the world's most innovative and competitive.

The Nordic Council

is a forum for co-operation between the Nordic parliaments and governments. The Council consists of 87 parliamentarians from the Nordic countries. The Nordic Council takes policy initiatives and monitors Nordic co-operation. Founded in 1952.

The Nordic Council of Ministers

is a forum of co-operation between the Nordic governments. The Nordic Council of Ministers implements Nordic co-operation. The prime ministers have the overall responsibility. Its activities are co-ordinated by the Nordic ministers for co-operation, the Nordic Committee for co-operation and portfolio ministers. Founded in 1971.

Nordregio – Nordic Centre for Spatial Development

conducts strategic research in the fields of planning and regional policy. Nordregio is active in research and dissemination and provides policy relevant knowledge, particularly with a Nordic and European comparative perspective. Nordregio was established in 1997 by the Nordic Council of Ministers, and is built on over 40 years of collaboration.

Stockholm, Sweden, 2014

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Preface

In order to develop and implement successful regional development strategies Nordic professionals and policymakers need to see their area in a larger context. One of the main prerequisites for this is the ability to access up to date and reliable statistical information. Such information is available in Nordregio's database, which is the only complete database that covers the whole Nordic region with regard to comparable socio-economic data on the municipal and regional levels.

This report is the thirteenth volume in the series "Regional Development in the Nordic countries", which has, since 1981, supplied practitioners with comprehensive analyses of the Nordic regional development scene. It incorporates the latest available statistics with analyses on population structure and migration and labour market trends as well as economic status and performance.

The themes of the chapters have been selected in relation to Nordregio's thematic focus areas, database activities and to existing development patterns as described in the Nordic cooperation programme for regional policy 2013 – 2016. Each of the chapters can be read either as an independent article, thus giving the reader the opportunity to focus on those topics that he/she is especially interested in, or as part of a coherent report.

The State of the Nordic Region 2013 divides the Nordic countries into 1221 municipalities and 78 regions. Division into labour market and NUTS2 regions has also been used when insufficient data was available at the municipal or administrative regional level. In order to set the development status and trends in a wider perspective, comparisons with Nordic and European averages are presented when relevant.

The report has been compiled by a team of Nordregio staff members under the editorship of Johanna Roto (until December 2013), and Julien Grunfelder and Linus Rispling (from December 2013). Julien Grunfelder has also written the introductory first chapter which provides an overview of the various types of regions in the Nordic countries, while Johanna Roto, Linus Rispling and Gustaf Norlén were responsible for the statistical material. Chris Smith was responsible for language editing.

Chapters 2-4 deal with demographic development. In chapter 2 Johanna Roto describes the main driving forces behind trends in population change in the Nordic countries during the last decade. In chapter 3, Johanna Roto and Julien Grunfelder describe how changes in age structure, especially the increasing share of elderly people, are distributed and how they affect the dependency ratio. In recent decades migration has been the main driver of population change in the Nordic countries. In chapter 4 Julien Grunfelder explains the flows of international migration and its regional distribution.

Chapters 5-7 deal with employment and jobs. Generally, the employment rate in the Nordic countries is high compared to other European countries, but the regional differences are significant. In chapter 5 Linus Rispling provides an overview of these differences and how they relate to the main sectors of employment. Chapter 6, also written by Linus Rispling, summarises the Nordic picture on unemployment, people in labour market measures and on sickness or activity leave. One of the most important factors when it comes to employment and competitiveness is the educational level of the labour force. In chapter 7 Julien Grunfelder provides an overview of the regional distribution of highly educated people and shows how this is related to the location of universities and other educational institutions.

Chapters 8-11 deal with economic development. In chapter 8 Alexandre Dubois describes the basis for regional differences in GDP and productivity while also indicating how the Nordic regions are performing in comparison with other European regions. How have the Nordic regions managed the economic crisis? This is the key question for chapter 9 written by Ingrid Johnsen. Chapter 10, written by Lise Smed Olsen, explores regional innovation and entrepreneurship as well as investments in research and development. Finally, in chapter 11, Ryan Weber discusses Nordic green growth as a policy concept and how it can be measured and assessed.

Stockholm, January 2014
Kjell Nilsson, Director of Nordregio

Chapter 1: Introduction

Author: Julien Grunfelder

Map and data: Julien Grunfelder

The Nordic region

This report covers a number of topics at the scale of the entire Nordic region. The Nordic region refers to the five Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), Faroe Islands, Greenland and Åland Islands. The reference to the Western Nordic region can also be found throughout the report: it corresponds to Faroe Islands, Greenland and Iceland. The chapters present elements on demography, employment and economy using various scales of analysis within the Nordic region. Analyses with data on municipal, regional and national levels for the five Nordic countries are developed in each chapter. Furthermore, in most cases, the available data also allows to consider Faroe Islands, Greenland and Åland Islands as separate entities from their sovereign state. Most of the data were collected from the national statistical institutes (NSI's) and Eurostat, and were harmonised afterwards by Nordregio. Captions below figures and tables specify if any additional data source has been used. A short comparison within the broader context of the EU27 (now EU28) is also, where appropriate, included in the chapters.

NUTS classification in a Nordic context

Each country within the Nordic region has its own administrative structure which is the result of its organisational history including a number of often quite recent reforms at different scales. These administrative structures are the basis for the NUTS (Nomenclature of territorial units for statistics) classification, a hierarchical system dividing up member and non-member countries on the European continent into statistical units for research purposes. The NUTS classification is the 'base layer' of most of the maps in this report and is valid until the end of 2014. Note that most of the time the NUTS classification follow the existing administrative division. However, it does some time differ for a limited number of cases. For instance, Denmark has 98 municipalities and is divided in 99 LAU (Local admin-

istrative Units) in the NUTS classification.

Below is a short overview of the current administrative context and NUTS classification in each of the five Nordic countries, including specific details of the changes in terms of administrative units that occurred in the period 2010-2013.

Denmark is divided into regions (regioner) and municipalities (kommuner). In addition, Faroe Islands and Greenland are two autonomous self-ruled territories. The regions' primary task is to manage the healthcare system, though they also have a role in the social sector and in regional development. Municipalities in Denmark have a great number of roles including, social services, employment and integration, economic development and the school system among others. The NUTS structure divides the country into 5 NUTS 2 (regions), 11 NUTS 3 (sub-regions), 99 LAU 1 (municipalities) and 2143 LAU 2 (parishes). No changes occurred in the Danish (including Greenland and the Faroe Islands) administrative structure during the period 2010-2013.

Finland is divided into state provinces (suuralueet), regions (maakunnat), sub-regions (seutukunnat) and municipalities (kunnat). Finland has one autonomous territory: Åland Islands. The municipalities levy taxes and have an important role in the local welfare system. The regions have a role in education, health and regional planning. The Åland Islands have an autonomous status and have their own self-governing authorities and the right to pass certain laws in a number of areas. The NUTS structure divides the country into 2 NUTS 1 (mainland Finland and Åland Islands), 5 NUTS 2 (major regions), 19 NUTS 3 (regions), 70 LAU 1 (sub-regions) and 336 LAU 2 (municipalities). One recent change has occurred at the regional scale: Itä-Uusmaa region merged with Uusimma region in 2011 while there have also been 21 mergers or boundary changes at the municipal level during the period 2010-2013.

Iceland is divided into municipalities (Sveitarfélög). The municipalities have responsibility for local matters such as social welfare and healthcare, education, culture and infrastructure. The NUTS structure divides the country into 2 NUTS 3 (main territorial units), 8

LAU 1 (statistical regions) and 79 LAU 2 (municipalities). There have been 2 mergers at the municipal scale during the period 2010-2013.

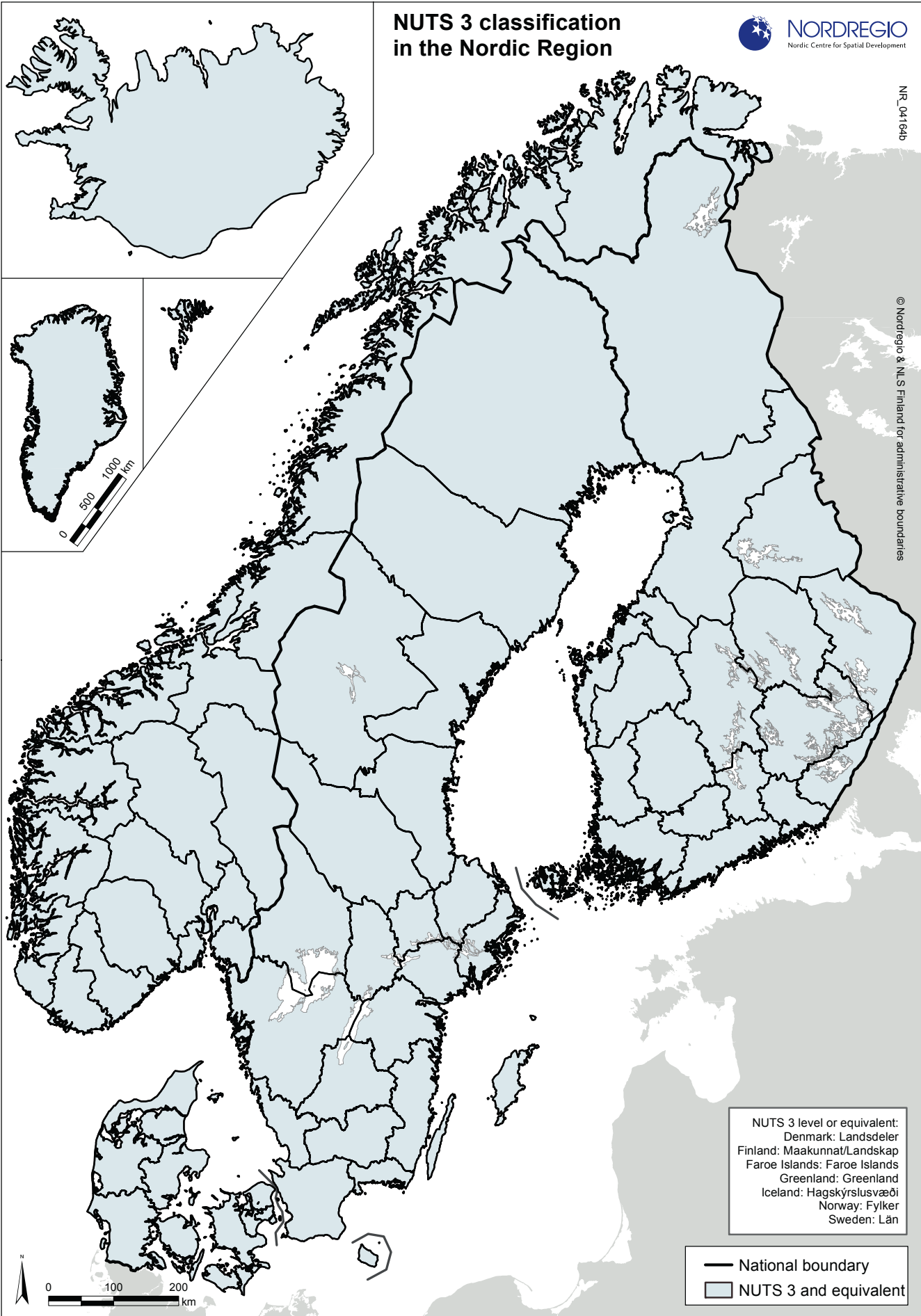
Norway is divided into counties (fylker) and municipalities (kommuner). In addition there is the island group of Svalbard, which is not included in this report. The counties exercise responsibility in the fields of higher education, culture, transport and social services, while the municipalities deal primarily with planning and welfare-related issues. The NUTS structure divides the country into 7 NUTS 2 (regions), 19 NUTS 3 (counties, including Svalbard), 89 LAU 1 (sub-counties) and 428 LAU 2 (municipalities). There have

been 3 mergers at the municipal level during the period 2010-2013.

Sweden is divided into counties (län) and municipalities (kommuner). The counties have a role in certain social welfare matters and in regional planning while the municipalities play a role in a large number of local matters such as education, care of the elderly and local infrastructure among others. The NUTS structure divides the country into 3 NUTS 1 (supra-regions), 8 NUTS 2 (regions), 21 NUTS 3 (counties) and 290 LAU 2 (municipalities). There have been no changes in administrative units during the period 2010-2013.

Figure 1.1: NUTS 3 classification in the Nordic Region

NUTS 3 classification in the Nordic Region



NUTS 3 level or equivalent:
 Denmark: Landsdeler
 Finland: Maakunnat/Landskap
 Faroe Islands: Faroe Islands
 Greenland: Greenland
 Iceland: Hagskýrslusvæði
 Norway: Fylker
 Sweden: Län

— National boundary
 □ NUTS 3 and equivalent

Chapter 2: Population change and urbanisation

Author: Johanna Roto

Maps and data: Johanna Roto

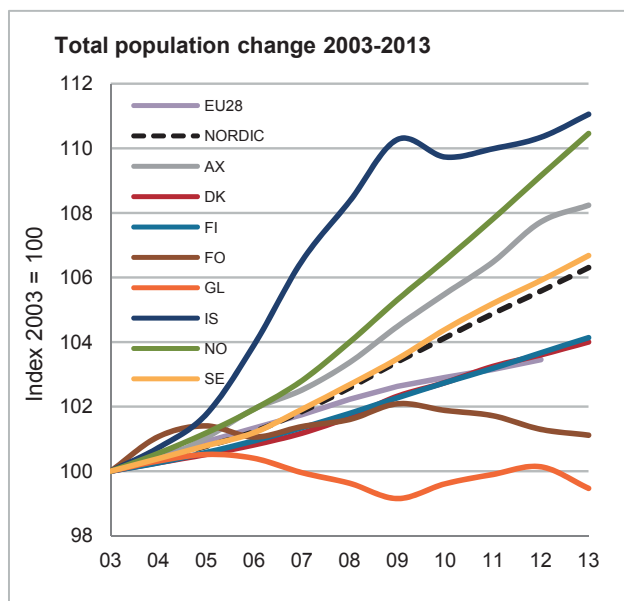
Rising numbers, a higher concentration on fewer city regions and the increasing importance of migration are the characteristic features of population change in the Nordic Countries over the last ten years, seen both from the countries themselves and from the wider European point of view. At the beginning of 2013 approximately 26.1 million people lived in the Nordic Countries, an increase of 1.6 million people since 2003. This chapter provides an overview of how, over the last five and ten year periods, the main population change trends have impacted on the population distribution while also identifying the main drivers of this change.

A rising and increasingly concentrated population

During the period 2003-2013 the Nordic population grew by approximately 0.63% per annum. This was more than 40% faster than the average in the European Union (28 countries) with a 0.38% growth rate. At the Nordic national level, Denmark and Finland saw a total population increase around average EU rates. In Iceland and Norway however the population increase has been rapid, above 1% per annum over the period. Nevertheless, it remained below the level of population increase in Luxembourg, Ireland, Spain and Cyprus. In Sweden the population change rate has followed the Nordic average rate. In the Faroe Islands and Greenland the population change over the last ten years has been rather stable, with a minor increase in the Faroe Islands and minor decrease in Greenland (figure 2.1).

At the municipal and regional levels the differences in the rates of change are marked. Taken as a group half of the Nordic municipalities experienced a population increase while the other half experienced a decrease. At the regional level seven out of ten regions saw an increasing population, but in most of the regions this growth was only taking place in the regional centre and in its commuting catchment area.

Figure 2.1: Total population change in the Nordic Countries in relation to the Nordic and EU28 averages.



Source: NSI's and Eurostat

When looking at the population increase in the Nordic countries in terms of absolute numbers, the importance of a few city regions should be highlighted. In figure 2.2 the 'growth areas' - where the population increase corresponds to approximately 80% of the total increase over last ten years - are marked. In Denmark, Finland and Sweden two to three growth areas can be identified whereas in Norway the growth areas are more numerous. In Iceland approximately 90% of the population increase occurs in the Greater Reykjavik area.

Share and size of population in larger labour market areas is increasing

Overall population change is a combination of natural population change (the difference between births and deaths) and net migration (the balance between in-migrants to, and out-migrants from, the region). Up to the end of the 1980s natural population increase was, in general, by far the major component of population increase in Europe. Since then, decreasing fertility rates and increasing life expectancy has resulted in demographic ageing across Europe and thus in the increasing importance of international migration which has altered this picture significantly with migration now being the major component of population change. This is the case also in the Nordic Countries although Nordic birth rates remain high when viewed from the wider European point of view. Only France, Ireland and the United Kingdom have comparably high fertility rates. From the regional point of view the rate of natural population increase is particularly important in the West-Nordic region and in Finnish Pohjanmaa where high birth rates partly compensate for out-migration and thus maintain the trend towards a total population increase.

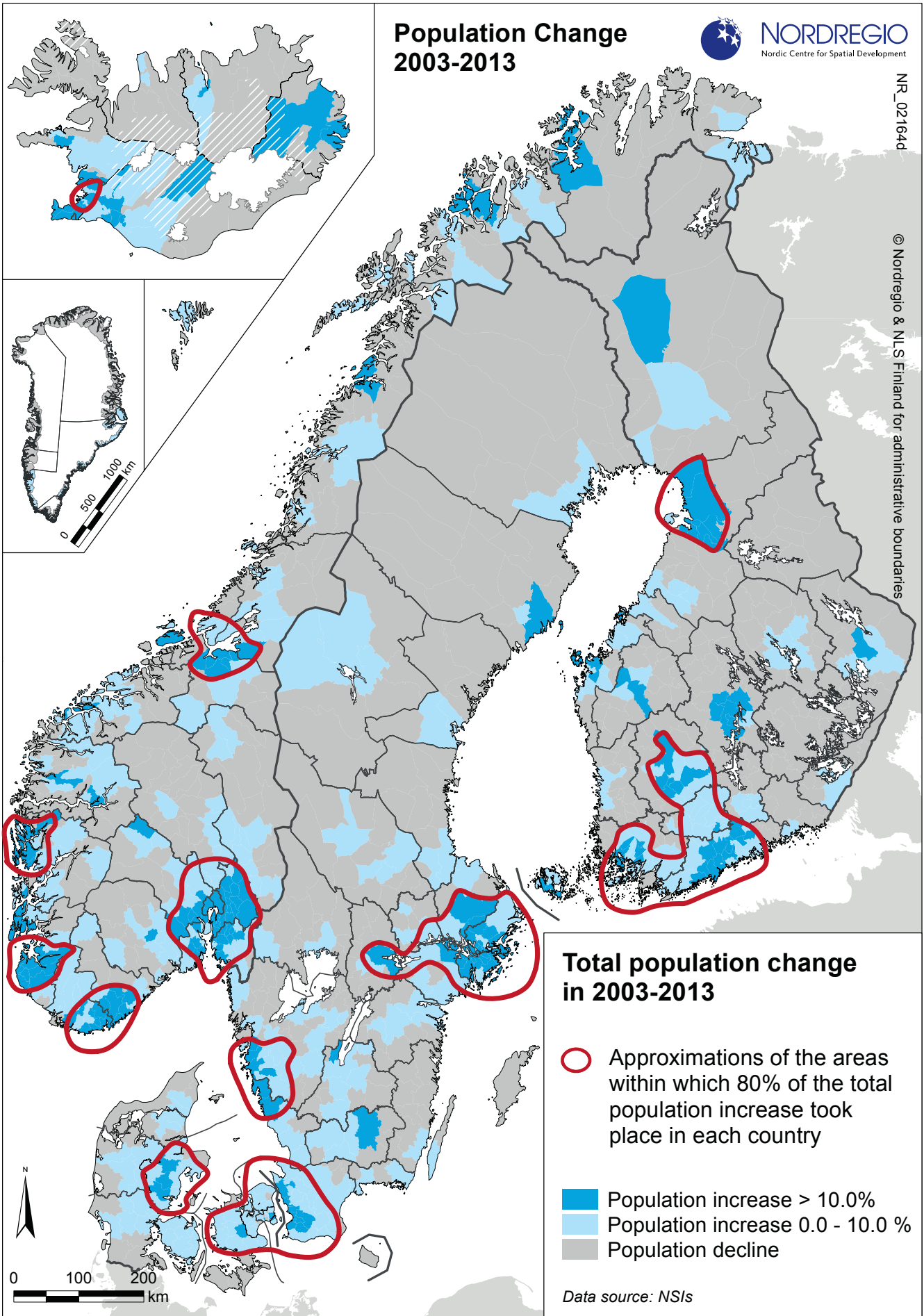
Figure 2.3 combines the main components of population change for Nordic local labour markets (LLM). At the Nordic level, the total population change during the period 2008-2013 was 0.7% per annum. 0.2% of this was a result of natural population change with 0.5% resulting from net migration. At the LLM level, 44% of Nordic labour markets experienced a population increase over the period 2008-2013. As the labour markets of the capitals and other larger cities are few in number whereas the small rural 'one municipality'

labour markets are more numerous the fact that 86% of the Nordic population is living in the LLMs with an increasing population perhaps gives a better indication of the dynamics at play here. In general, the capital and larger city LLMs increased in population both due to natural increase and net migration whereas in smaller and medium-sized towns with a population increase this increase occurred only because of positive net migration, mostly from abroad. At the same time, domestic out-migration is the primary explanation for population decline in these medium-sized towns and in the rural areas. Natural change follows the same pattern. Larger city regions are better able to attract younger population and thus nativity is also higher than in medium-sized towns and rural areas where low birth rates and an increasingly elderly population are speeding the overall population decline.

In the period 2008-2013 the highest population increases were recorded in the Norwegian city regions of Stavanger, Oslo and Bergen and in Stockholm. Malmö-Lund and Gothenburg in Sweden, Oulu and Helsinki regions in Finland and many other larger Norwegian city regions such as Ålesund and Trondheim, were also among the best Nordic performers with a better than 1% per annum increase over the last five years. The highest natural increase rates in the same time period are to be found in the Reykjavík, Oulu and Stavanger regions and in small rural regions both in Iceland and Greenland while the highest in-migration rates can be found in Oslo, Stavanger, Stockholm and in a number of small Norwegian LLMs. In contrast to this, small rural and sparsely populated LLMs have generally experienced population decreases. In the last five years the most significant decreases took place in small municipalities in Northern and Eastern Finland, Northern Sweden and in the Icelandic countryside.

Figure 2.2: Nordic growth regions 2003-2013. The Nordic municipalities showing a population decrease are marked in grey. The municipalities with a population increase between 0 and 10% are marked in light blue with darker blue referring to municipalities with a population increase over 10%. In addition, the figure also highlights those areas where approximately 80% of the total population increase occurs in each country.

Population Change 2003-2013



Population Change 2008-2013 by main components in Local Labour Markets

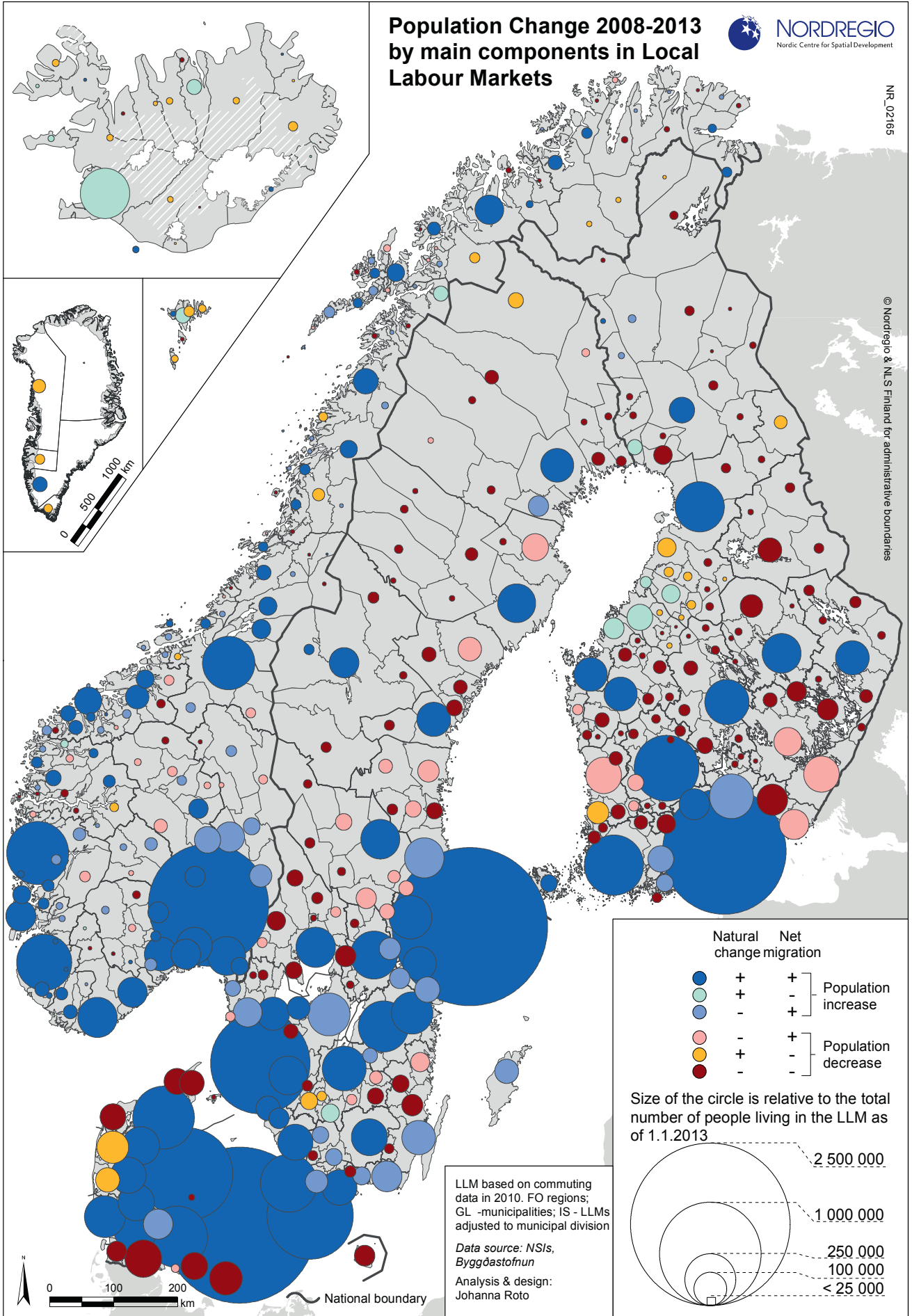


Figure 2.3: Overall population change, natural population change plus net migration on local labour markets.
For more information on local labour markets (LLM) and the methodology used, see Nordregio Working Paper 2012:13.

Chapter 3: Population ageing

Authors: Julien Grunfelder & Johanna Roto

Maps and data by: Julien Grunfelder & Johanna Roto

Healthier and wealthier elderly people result in the ageing of the general population structure. How does this trend affect the dependency ratio and how is the elderly population distributed over the regions? This chapter aims to answer, at least in part, these questions.

Spatially unbalanced share of the elderly

The share of the elderly population is the percentage of the total population, aged 65 and over. The average in the Nordic region was 18.1% in 2013 (figure 3.1). Most of the regions in Denmark, Finland and Sweden have an elderly population share above the Nordic average while most of Norway as well as the West Nordic region have an elderly population share below the Nordic average. The elderly population share has increased by 2.8% on average, across the Nordic region, during the period 2008-2013. The most significant increases took place in regions surrounding capital cities, in South-West Finland, most parts of Denmark, Iceland, Greenland and the Faroe Islands. The trend in the Nordic countries is similar to that experienced by most European countries, where a similar increase in the number of elderly people was recorded and where population projections for the year 2060 suggest that the elderly share of the population will be double that of today (Eurostat, 2013). Low fertility rates and increasing life expectancy are two of the factors explaining the ageing

of the European population. Even though high fertility rates can be found in the Nordic region, from 1.73 children per woman in Denmark to 2.04 in Iceland in 2012 (Eurostat, 2013) compared to the EU average of 1.57 (value for 2011, Eurostat, 2013), current fertility rates are not sufficient to compensate for a rapidly ageing population, especially in rural and peripheral parts of the Nordic region where the out-migration of younger people continues to be an important factor.

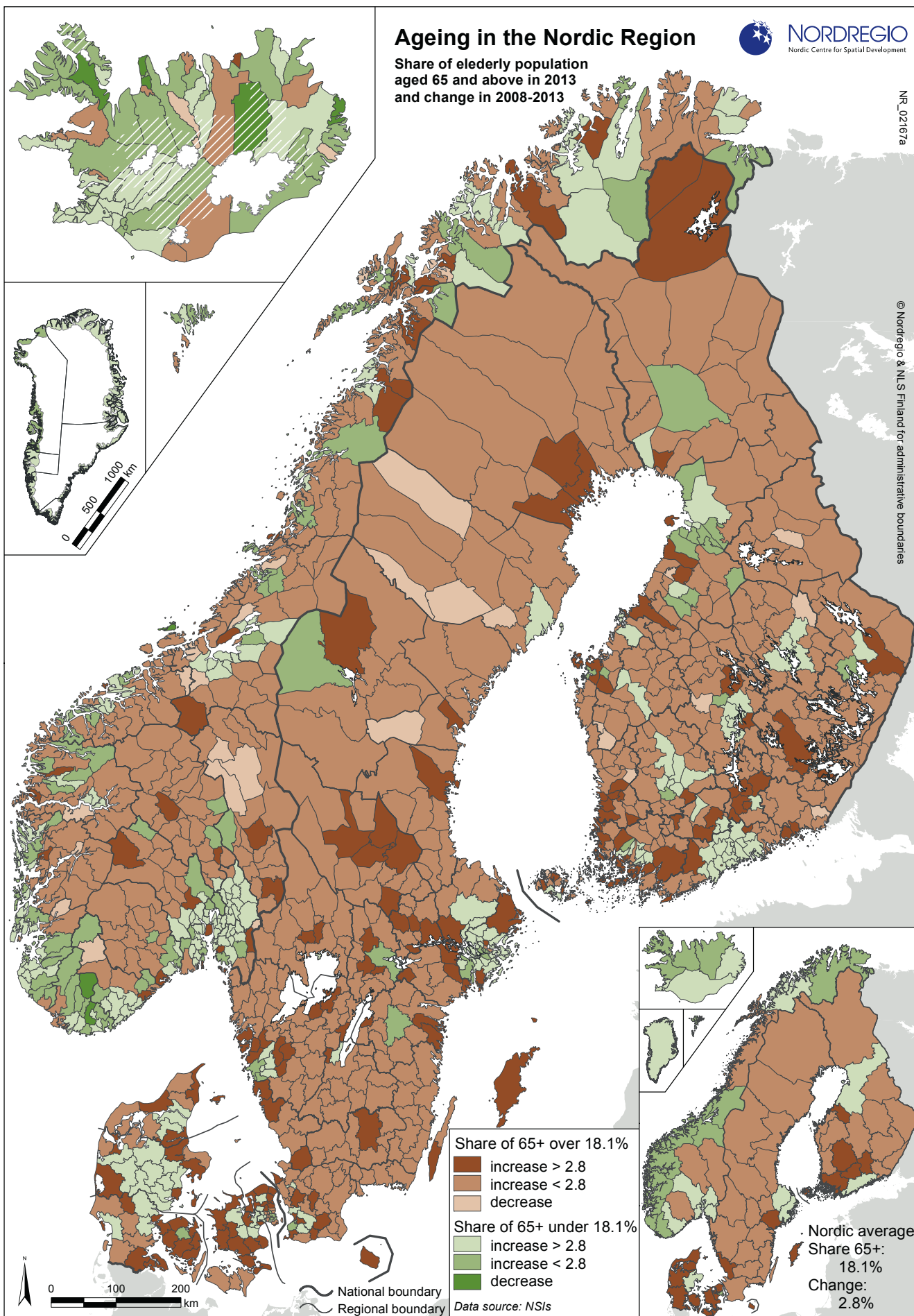
Looking at the municipal scale in the whole region highlights a divide between urban and rural areas. The elderly share population is higher in rural and peripheral areas than in urban areas. Significant increases do also occur in rural and peripheral areas, as well as in another specific context, namely, in those municipalities in close proximity to the capital regions encompassing the four largest Nordic cities. This trend highlights the phenomenon of counter-urbanisation where the elderly moved out of the city centres. The proportion of elderly people is not only increasing in most of these municipalities but the process is occurring faster than ever before. While the generally older age structure has the largest potential impact on the welfare burden in rural areas of Finland and Sweden, the relative increase in the elderly population is actually greatest in Iceland, Greenland and in the commuting areas of Copenhagen and Helsinki, namely, in those regions where the age structure is currently still quite young in a Nordic context.

Ageing in the Nordic Region

Share of elderly population aged 65 and above in 2013 and change in 2008-2013

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High elderly dependency ratio in rural Sweden and Finland

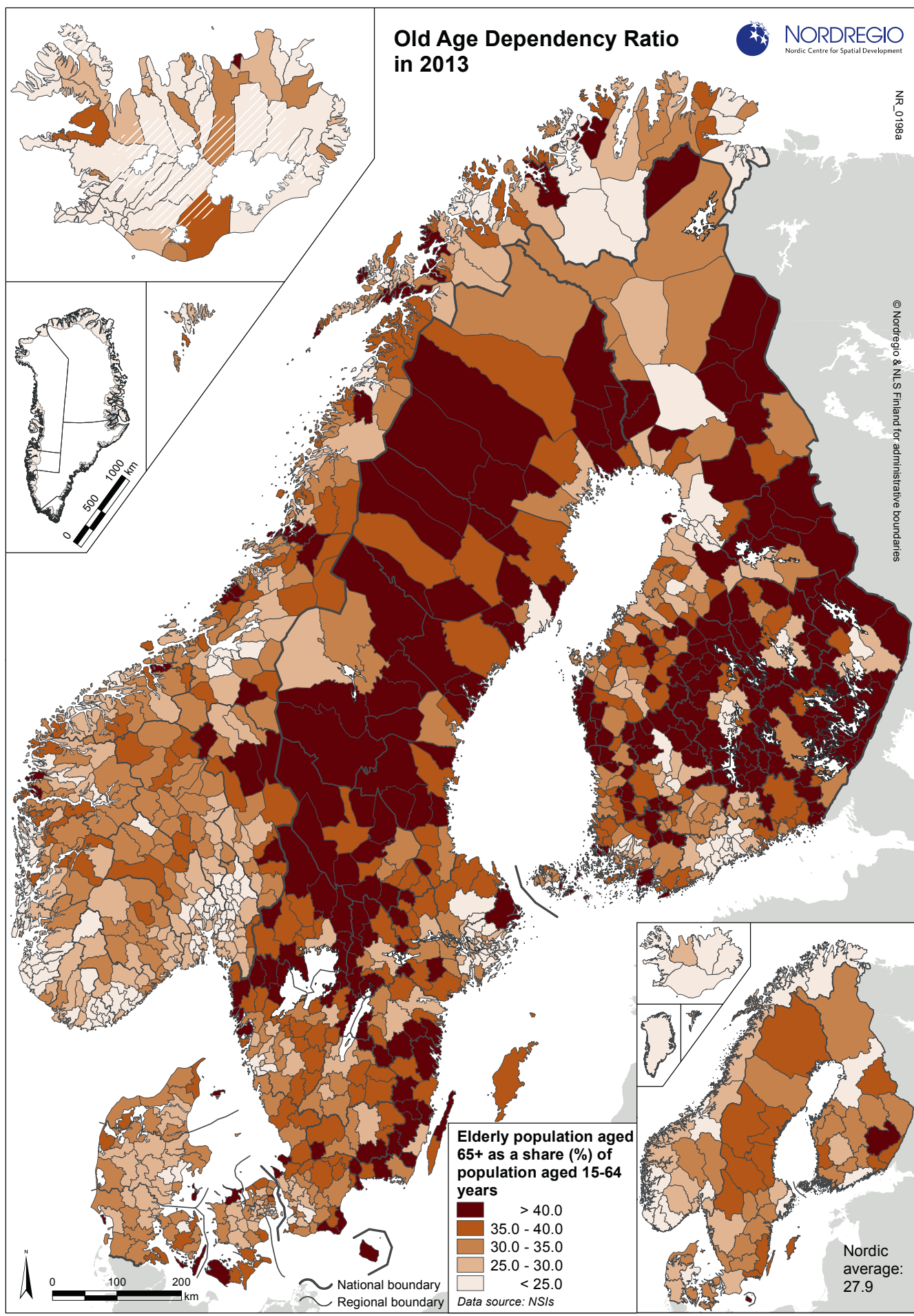
The dependency ratio is a measure showing the number of dependents (aged 0-14 and over the age of 65) to the total population in working age (aged 15-64). An old age dependency ratio (or elderly dependency ratio) is the ratio of the population aged 65 and over to the population in working age. This indicator focuses on the elderly in order to gain further insight into the nature of the ageing population phenomenon, specifically, how important the share of elderly people is in relation to the younger population and the impact of a rise in this indicator on the general age structure. The higher the share of the elderly population, the larger the dependency burden on people who are in the labour market will be.

The map on the old age dependency ratio (figure 3.2) below indicates the situation pertaining to 2013. There

were, on average, 27.9 people aged 65 and above for every 100 people aged between 15 and 64 in the Nordic region in 2013. This represents something of a significant increase as the ratio was only 24 people in 2002. The proportion is relatively high in most of the regions of Finland and Sweden with, respectively, ratios of 27.7 and 29.2 in 2012 (table 3.1). The headline figure is also above the European average of 26.8 in 2012 (Eurostat, 2013), and well above the old-age dependency ratio of Denmark (26.7), Norway (23.3) and Iceland (18.9). As for the elderly population share, the old age dependency ratio is greater in rural and peripheral areas than in urban areas, with again a higher share in rural and peripheral municipalities in both Finland and Sweden. These two countries also have the highest shares of population aged 80 and above in the Nordic region (respectively 4.9 and 5.3 in 2012) and the lowest young age dependency ratios (Eurostat, 2013).

Figure 3.1: Share of elderly population aged 65 and above in 2013 and changes in 2008-2013

Old Age Dependency Ratio in 2013



The importance of the future retirees

The impact of an ageing population is not only relevant to the current generation of elderly people, but even more so in terms of the fast-growing group who will retire in the coming years. For this reason it is important to gain further insight into the 55-64 age-group (figure 3.3). The map indicates that the average ratio was 12.5% in 2013 and that the highest shares were to be found mainly in much of Finland, Norrbotten and Bornholm. This particular age group is larger in the Nordic region than in the rest of Europe which means that the number of people reaching retirement age in the region will grow significantly in the coming years. The impact at the municipal level is less clear cut with

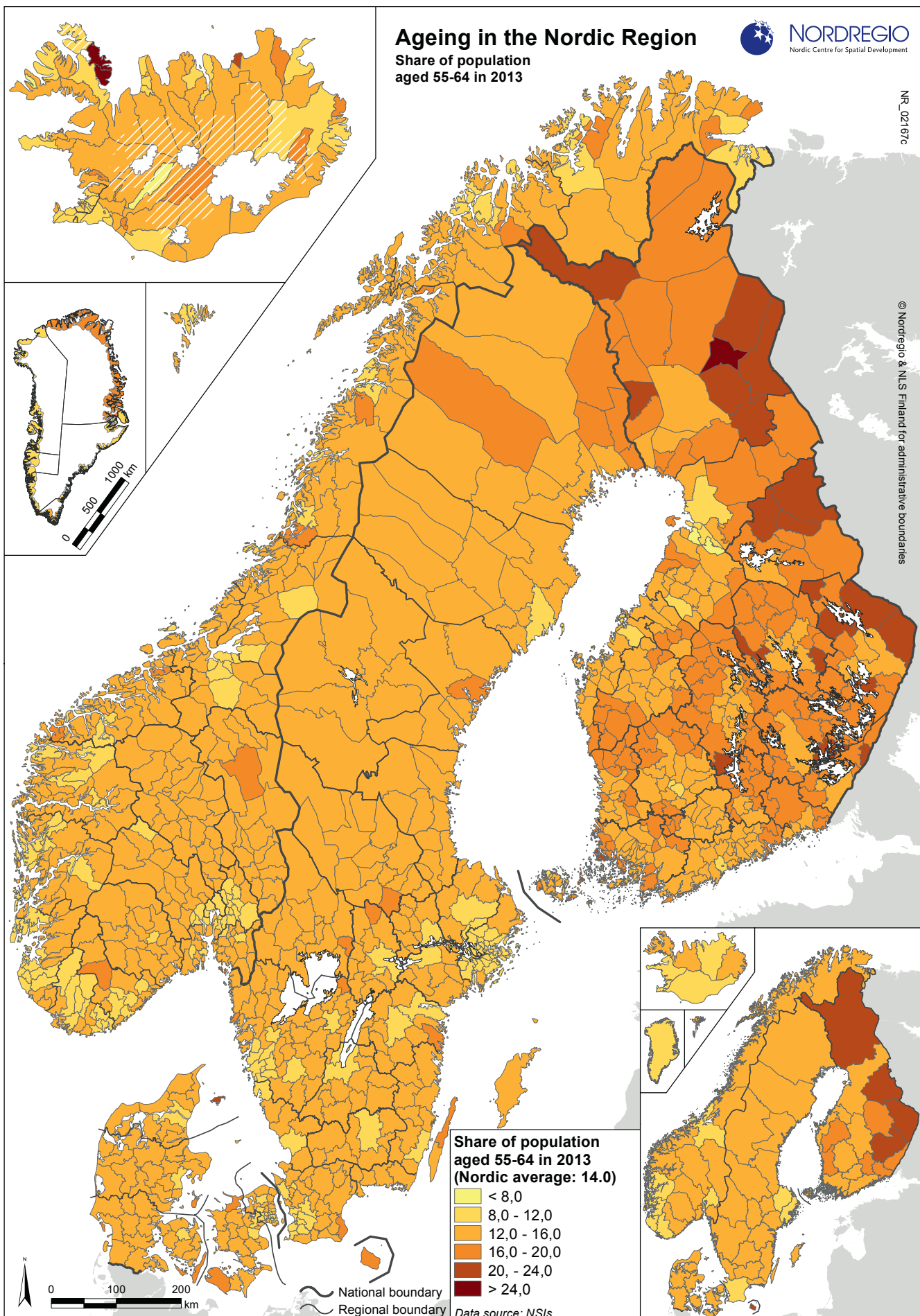
values ranging from 6 to 26% in 2013. The change of scale indicates the challenging situation in eastern and northern Finland at the regional level as indeed we can see from the map. It also highlights the existence of some relatively high ratios in some parts of Iceland, Greenland, and in the peripheral islands of Denmark.

It is also important to be aware of the likely size of the future labour force available to replace the group of people currently approaching retirement. In the Nordic region, the generation currently entering the labour market is relatively large. Taken together with increases in productivity it is argued that this could be large enough to compensate for the coming number of retirees although in practice this is only likely to be possible in urban areas.

Figure 3.2: Old age dependency ratio in 2013

Ageing in the Nordic Region

Share of population aged 55-64 in 2013



Share of population aged 55-64 in 2013 (Nordic average: 14.0)

- < 8,0
- 8,0 - 12,0
- 12,0 - 16,0
- 16,0 - 20,0
- 20,0 - 24,0
- > 24,0

— National boundary
— Regional boundary

Data source: NSIs

The impact of demographic changes and their policy implications

The existence of an increasing share of the elderly population that is both wealthier and healthier than that of previous generations is an obvious example of the success of Nordic welfare policies but is, paradoxically, often viewed more in terms of an economic burden on society due to the costs associated with caring for these dependent people (Hörnström & al., 2013). An ageing population is assumed to increase the level of demand for health and elderly care and to increase the burden on the pension system. Moreover, the current age-related territorial pattern in the Nordic region showing a relatively high proportion of young people in urban areas and older people in peripheral and rural areas is highly likely to persist and probably even become stronger in the coming decades. When the share of the labour force-aged population is decreasing at the same time as the number of pensioners is increasing the ability to maintain acceptable service provision levels and to recruit (and pay for) a qualified labour force is likely to become ever more challenging. In regions and municipalities with few young people and a negative recorded population change, this also means that the tax base is diminishing and that fewer people are available to work in fields such as health and elderly care. At the same time, the decreasing proportion of children in the population affects the other end of the welfare services life spectrum, as it becomes more difficult to offer good quality services, such as those associated with educational opportunities, in smaller municipalities (Hörnström & al., 2013). Immigration to the Nordic region compensates in part for the national decreases in the labour force-aged population, but the immigrant workforce could be better utilised. During the period 2006–

2010, the vast majority of Nordic municipalities witnessed a positive flow in terms of international migration. Indeed, a more inclusive approach and the various initiatives used to facilitate the entry of migrants into the labour market as well as their integration into society more generally are often highlighted as solutions to the lack of available domestic labour and the need to fill the skills gap, especially in smaller rural and peripheral municipalities (Hörnström & al., 2013).

These changes in the demographic pattern will have a large impact on a variety of policy areas, not least by combining with other factors to pose important challenges for the welfare system. To address challenges such as the rapidly ageing population, a number of policy initiatives have been undertaken on the European, Nordic and national levels. National governments in the Nordic countries have addressed the challenge of the ageing population through measures such as reforms of the pension system. National governments are addressing the challenge of a smaller labour force because of an ageing population by taking initiatives to improve working conditions, enhance labour immigration and increase various forms of co-operation in organising welfare services. Inter-municipal co-operation is already a common strategy in the Nordic region to provide good quality welfare services of various types, despite higher demand and a diminishing local tax base. Municipalities co-operate to reduce costs and increase efficiency in welfare service provision. In addition, technical and e-health solutions, particularly in rural and peripheral areas, are frequently used and are under continuous development. In border regions, especially in peripheral and rural areas, co-operation across national borders can compensate for the lack of a critical mass of people to maintain good-quality welfare services (Hörnström & al., 2013).

Figure 3.3: Share of population aged 55-64 in 2013

References:

Eurostat (2013). European social statistics. European Commission. Luxembourg: Publications Office of the European Union.

Hörnström, L., Roto, J., Korkka, A. & Sahlander C. (2013). *The Impact of Demographic Change in Nordic Regions (Nordregio News Publication issue 3, June 2013)*. Stockholm: Nordregio. Retrieved from <http://www.nordregio.se/Publications/Publications-2013/Nordic-Population-Ageing--Challenge-and-Opportunity/>

Chapter 4: The impact of migration

Author: Julien Grunfelder

Maps and data: Julien Grunfelder & Johanna Roto

Although migration remains the primary driver of population change in the Nordic region regional differences are apparent. How are these differences manifest and how have changing international migration flows impacted on this broader picture?

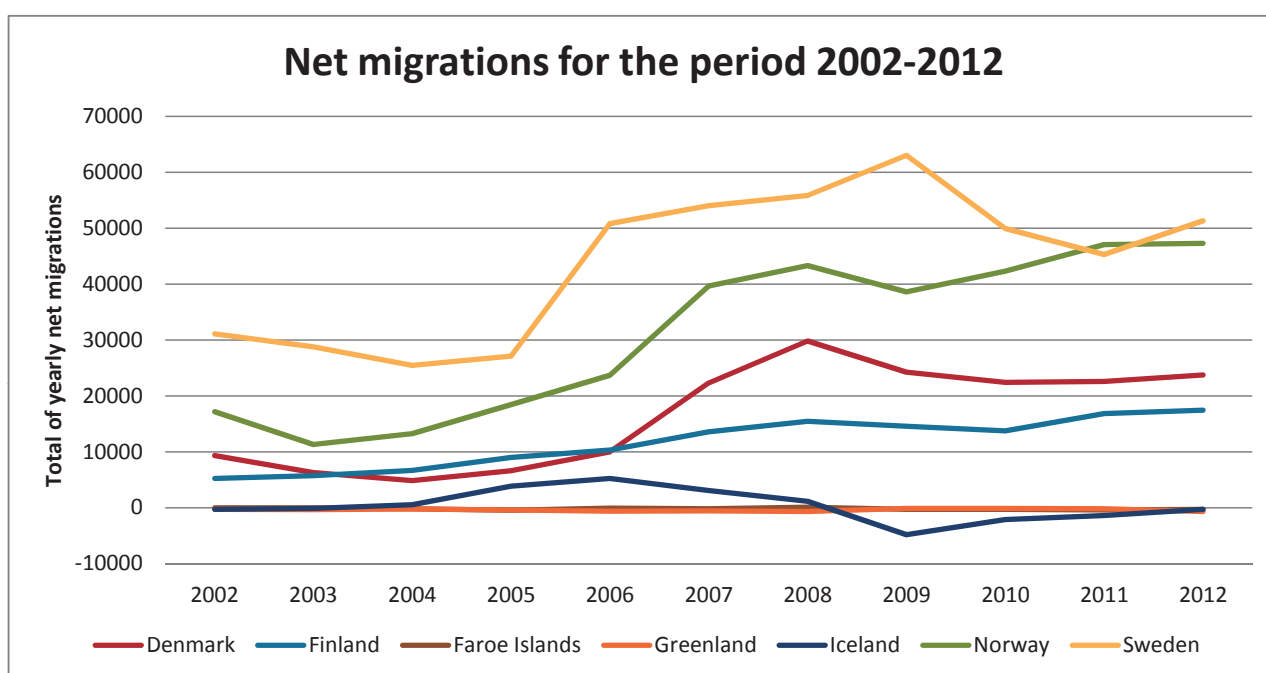
Migrations to already affluent urban areas

Net migration expresses the difference between immigration and emigration in an area over a set period of time. During the period 2002-2012, net migration has been in surplus for the Nordic region with a net value of more than 1.1 million migrants. The situation however varies significantly. Two main groups can be distinguished: Denmark, Finland, Norway and Sweden have a positive balance of net migration while the Faroe Islands and Greenland experienced negative net migrations and Iceland only a marginal surplus. This clearly illustrates that smaller and more isolated areas are losing out to their larger neighbours across the Nor-

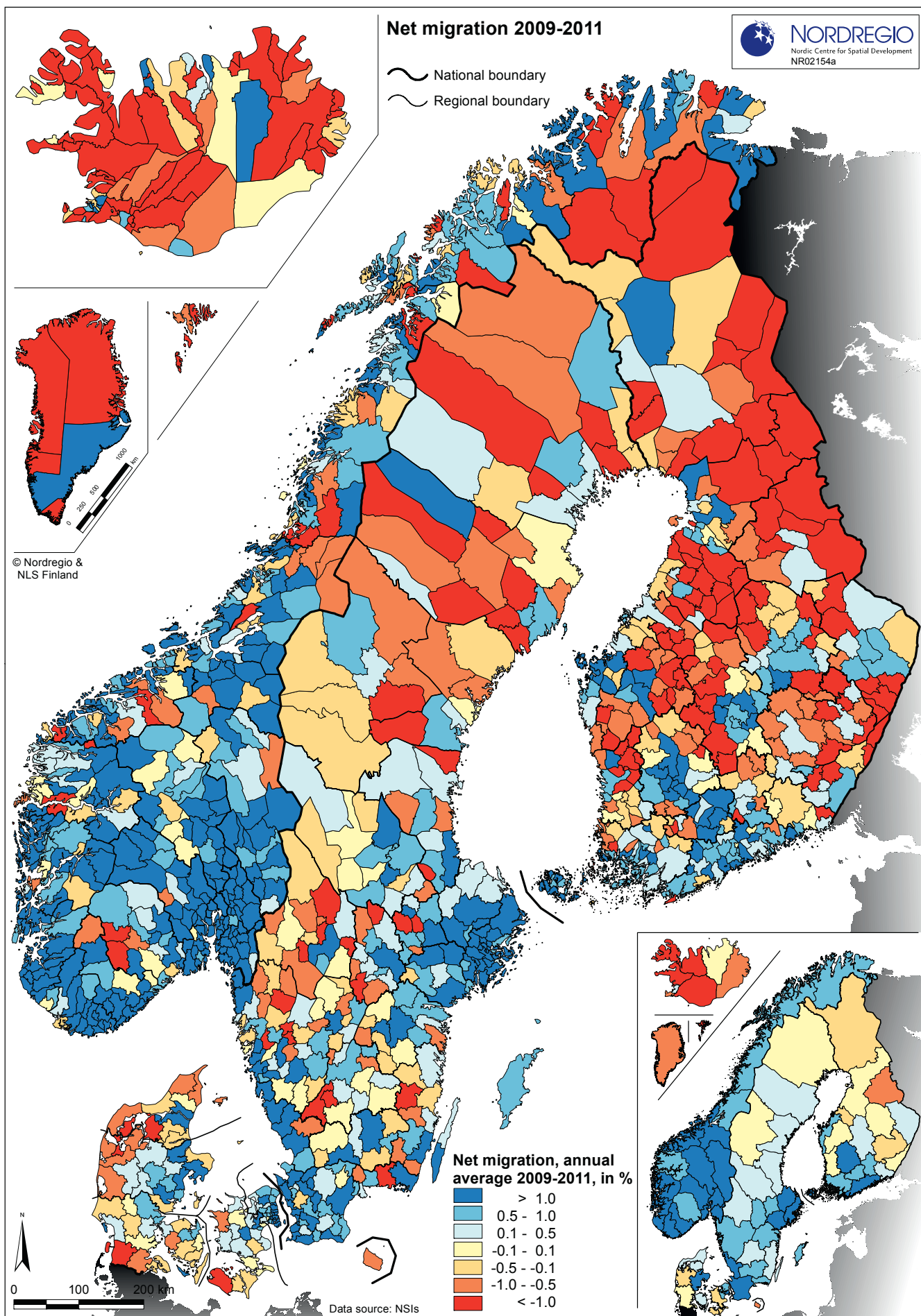
dic region in the ongoing migration competition. The financial crisis had a significant impact on the intensity of the migration flows to and from the Nordic region. In Iceland, 2009 saw net migration shift from a positive to a negative trend. In Norway, 2009 saw a marked reduction in net migration (-11%), with Sweden in that year being the only Nordic country to continue experiencing an increase (+13%) though in this same year the rate of out-migration for Greenland was less than in the preceding years (figure 4.1).

The map on net-migration (figure 4.2) illustrates the trends within a two year period after the beginning of the financial crisis, i.e. between 2009 and 2011. Within each domestic context however the types of migration have the same basic characteristics. Those regions experiencing negative net migration generally have a rural setting, are often peripherally located and are usually characterised by sparsely populated areas. Regions experiencing positive net migration have a more urban context and are situated mainly within the capital and metropolitan regions of the country or autonomous

Figure 4.1: Net migration for the period 2002 to 2012



Source: NSI's. Note: Finland includes Åland.



entity concerned. The territories most marked by out-migration are the insular territories of the West Nordic region as well as those situated in the northern half of both Finland and Sweden where net migrations are lower than 1% annually. The Norwegian situation is rather different as most of its territory experienced surplus in migration flows.

This basic pattern is repeated when we turn to the broader European context which sees most of the large urban areas having a positive net-migration balance, especially in Western Europe. The results of the ESPON DEMIFER project on the impact of migrations on population change moreover confirm this view, noting that migration “will benefit the already affluent regions, whereas poorer regions will lose population due to migration” (ESPON, 2011).

The Nordic region, despite the challenges it faces in respect of the ongoing depopulation of rural areas, generally experienced a positive migration trend during this period in much the same way as most other countries in Western Europe. Indeed, the Nordic capital regions were among the fastest growing regions in Europe in this period. As such, when compared to regions in the Eastern European countries (including the Eastern regions of Germany), the development trends for many regions in the Nordic countries are basically positive, though significant challenges remain for the most peripheral parts of Sweden, Denmark and Finland.

Domestic and international migrations to growing labour markets

Domestic migration is the migration that takes place from one administrative unit to another one (usually a region) within the same country. The map (figure 4.3) below illustrates domestic (and international) net migration in 2011. This clearly shows an out-migration surplus in rural and peripheral regions and an in-migration surplus in urban regions on the Nordic local labour market level. Those flows correspond in the main to two groups of migrants. The first group is the young-aged population moving to a larger urban centre where a wide range of opportunities are likely to be available to pursue higher level education. The second group corresponds to retirees, who tend to move to

more rural areas close to the main urban regions in order to enjoy a more relaxing environment and benefit from more affordable real estate.

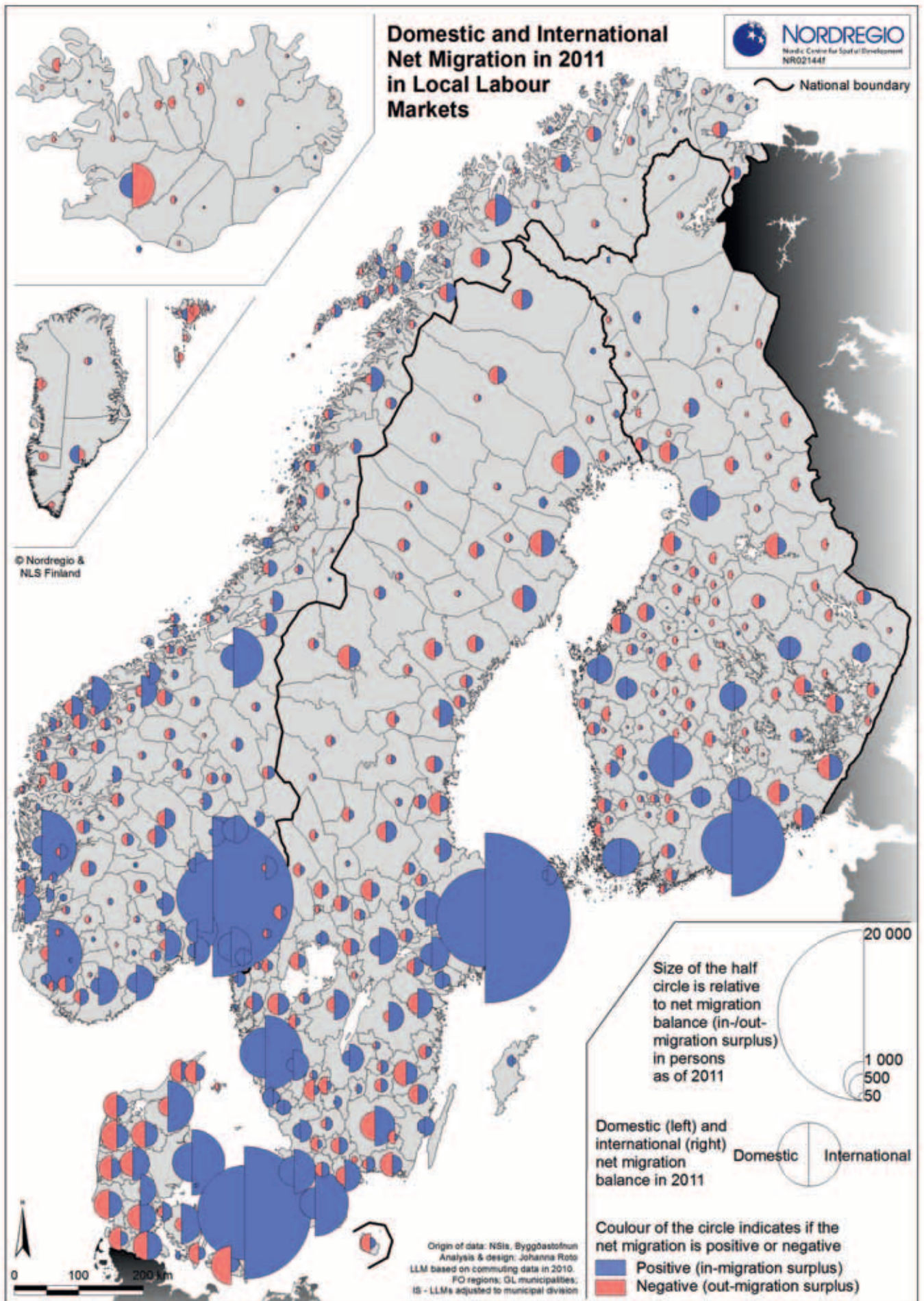
International migrations are migrations which occur across national borders. In 2012, there was an in-migration surplus of about 140 000 people in the Nordic region. 25% of all international migrations in the region occur within its external borders. Two countries however stand out as attracting the majority of these international migrants, namely Sweden and Norway, each of which saw a surplus of around 50 000 international migrations in 2012. Denmark and Finland performed only half as well while the Faroe Islands, Greenland and Iceland did have an out-migration surplus. One important element that is illustrated on the following map (figure 4.3) is that every single local labour market in Denmark, Finland, Norway and Sweden has an in-migration surplus of international migrants. The vast majority of immigrants to the Nordic region settle in the capital regions. Looking in detail at international net migration into Nordic labour markets, this migration to city labour markets is the main reason for the recorded population increases which were, on average, 0.5% annually during the period 2007-2011.

Finally, flows of international migrants to rural areas are generally connected with local labour markets where major industrial activities and mega-projects (mining, oil, gas offshore fields, etc.) or low-paid jobs (fish processing, seasonal jobs and farming) can be found. These migrants are predominantly men who are more or less isolated from the local communities and who will move to another region for a new job once their current employment contract is concluded.

Impacts on population structure and policy implications

The Nordic urban regions show a clear hierarchy that is most advantageous for the larger cities. The overall trend towards an older population is notable especially in the rural and peripheral areas of Finland and Sweden. The main challenge for policymakers is the ongoing depopulation of the already most sparsely populated areas, which will likely continue to suffer from out-migration flows in the future, especially in relation to the younger generation and people in the productive

Figure 4.2: Net migration 2009-2011



age range. The ageing of the population will thus be further reinforced, increasing the challenges posed in respect of service provision and the maintenance of the infrastructure of the welfare system, especially within the health sector (Hörnström & al., 2013). The larger cities are also likely to face challenges relating to the influx of residents in the 15-24 year old age group (Hansen & al., 2011). Local, regional and national policymakers thus it seems have a choice, either they can support the structured and organised closure of (parts

of) the region or they can make a dedicated effort to revitalise it.

These domestic migrations can, to some extent, be foreseen since they are part of the domestic demographic structure of the social and educational systems. Focusing on those age groups entering and leaving the labour market in the near future can thus help policymakers to better address such potential challenges.

Figure 4.3: Domestic and International net migration in 2011 in local labour markets

References:

ESPON (2011). Impact of Migration on Population Change (ESPON DEMIFER Policy Brief, September 2011). Luxembourg: ESPON.

Hansen, K.G., Rasmussen, R.O. & Roto, J. (2011). Demography in the Nordic Countries – A synthesis Report (Nordregio Working Paper No. 2011.9). Stockholm: Nordregio. Retrieved from <http://www.nordregio.se/en/Publications/Publications-2011/Demography-in-the-Nordic-countries---A-synthesis-report1/>

Hörnström, L., Roto, J., Korkka, A. & Sahlander C. (2013). The Impact of Demographic Change in Nordic Regions (Nordregio News Publication issue 3, June 2013). Stockholm: Nordregio. Retrieved from <http://www.nordregio.se/Publications/Publications-2013/Nordic-Population-Ageing--Challenge-and-Opportunity/>

Chapter 5: Employment and jobs

Author: Linus Rispling

Maps and data: Gustaf Norlén, Linus Rispling & Johanna Roto

By current international standards Nordic labour markets show positive signs in several respects. Despite the recent crisis, a large share of the population is employed, the share of women in the labour market is among the highest in the world and Nordic companies are well positioned in the increasingly service-oriented global market. Notwithstanding this however, even in the Nordic region significant regional disparities remain while, in addition, the EU's employment goals for 2020 have not been fully reached.

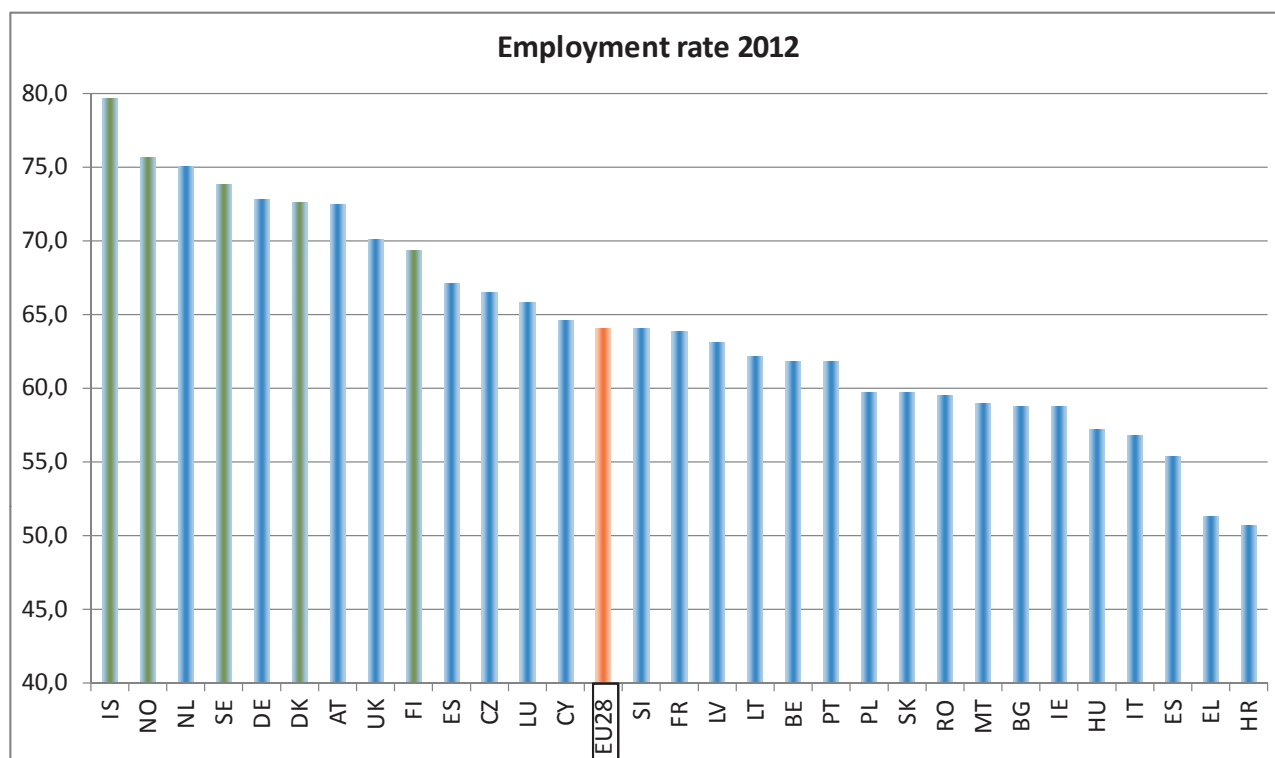
The Nordic region's employment rates in a European perspective

Employment rates are of interest for a country or region in the sense that the group of employed persons support dependents, such as the unemployed and other

groups that are not part of the work force (the sick, the disabled, students and pensioners). The employment ratio is calculated by dividing the number of employed persons by the total working age population (usually persons aged 15-64 years). The higher the employment rate the more likely it is that dependents can be effectively supported.

Despite the economic crisis which hit the Icelandic economy particularly hard in 2007-2008, by 2012 Iceland had recorded a higher employment rate than the EU28 states or indeed the other Nordic countries (figure 5.1). Norway, which for several years has enjoyed one of Europe's top employment rates, managed the crises with only limited changes on the labour market and in 2012 had an employment rate higher than any of the EU28 countries. From a European perspective, employment rates in the Nordic countries are, in general,

Figure 5.1: Employment in European countries in 2012, official Eurostat/LFS figures on national level.



Source: Eurostat/LFS. Note: Finland: Includes Åland Islands. Faroe Islands, Greenland: Not included in official data

high and especially so compared to the countries of southern and eastern Europe which have experienced dramatic changes in their labour markets during the economic downturn. Sweden and Denmark were, together with Netherlands, Germany and Austria, the EU countries with highest employment rates in 2012, each recording scores above 72%. Finland had an employment rate of 69.4%, which is still well above the EU28 average at 64.1%.

According to the above-mentioned 2012 figures of the Nordic countries only Norway and Iceland are currently in line with the European Commission's employment target for 2020, which is part of the 'Europe 2020' Strategy. The strategy states that 75% of the working-age population (20-64 years) should be in work. The Netherlands (75.1%) was however the only EU country that met this target in 2012.

Employment in Nordic regions and municipalities

The average Nordic employment rate in 2012 was 72.8% for the population aged 15-64 years.¹ Of the Nordic regions, employment rates well above 75% are found in Iceland (Austurland and Vesturland) but also in the Åland Islands, Faroe Islands and parts of Norway, Sweden and Denmark. In Norway, employment rates above 75% are found in Troms fylke and across the southern half of the country, with the exception of the southernmost regions and of Hedmark to the east (figure 5.2). Sweden's regions have similarly high rates in five northern regions as well as along a southern line from the west coast to the east coast, from Halland and through the Småland regions to the island of Gotland. Regional rates above 75% in Denmark exist for Nordsjælland, Østsjælland and Vestjylland. The lowest regional employment rates among Denmark's regions are to be found on Fyn (68.9%) and Bornholm (69.6%).

Only four Nordic regions have employment rates below the EU average of 64.1%. One of these is Greenland. However, in the case of Greenland only cities are

included in the employment figures. The other regions below the EU average are the Finnish regions of Pohjois-Karjala, Kainuu and Lappi. Finland's regions generally display lower rates in a Nordic context with no region above 75%. Compared to the major part of the Nordic region and also in view of other labour market perspectives (i.e. unemployment) there are also notable discrepancies between the Finnish regions, ranging from a 61.5% employment rate (Pohjois-Karjala) to 73.7% (Pohjanmaa). Iceland, however, has even more significant variations in employment rates between its regions.

Finland and Iceland also generally have the lowest employment rates on the municipal level in the Nordic region. Compared to other parts of the Nordic region, none of the Danish municipalities stand out in terms of having low employment rates. The lowest in Denmark is Lolland in the Vest- og Sydsjælland region (just above 64%). Similarly, the lowest performing municipality in Norway is Stor-Elvdal in Hedmark, which nevertheless maintains a high rate (close to 70% employment) when compared to other Nordic municipalities. Among Sweden's regions, Skåne has the lowest employment rate (just below 69%). This low figure is mainly due to Malmö municipality's rate of about 60%, which is the lowest of all Swedish municipalities. Although Malmö is a city municipality, the general pattern is that the Nordic municipalities with lowest employment figures are predominantly rural.

Some municipalities that are considered peripheral in a national geographical context do however stand out, often displaying higher employment rates than the peripheral regions in which they are included. This is the case for several mining towns or tourist destinations. For example, Kittilä in Finland, which plays host to the Levi resort. Levi is the country's downhill skiing centre and thus has an employment rate that is more than ten percent points higher than that for the surrounding Lappi region. Similarly, the mining municipalities of Kiruna and Gällivare in northern Sweden have significantly higher employment rates than those for the surrounding Norrbotten region.

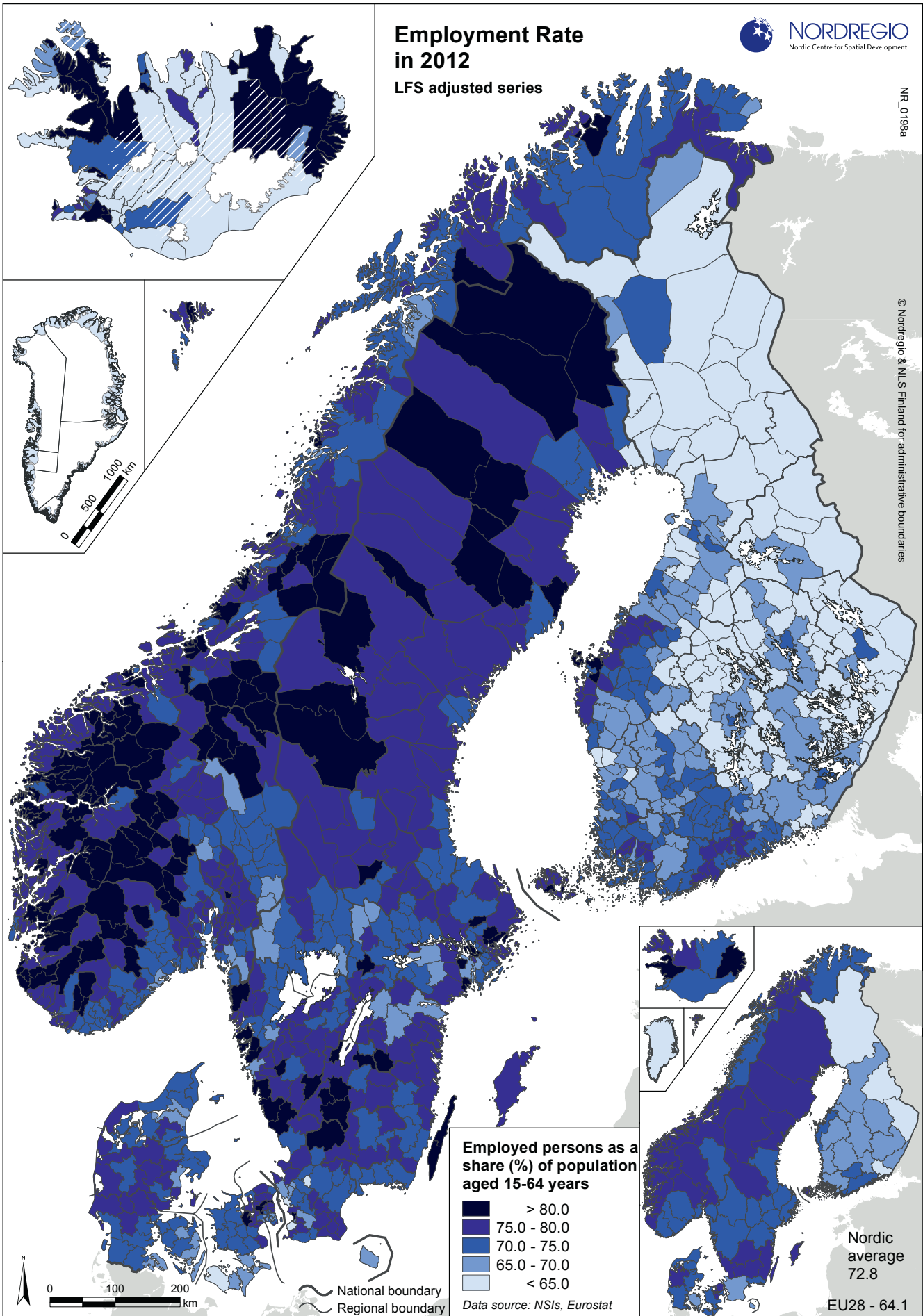
¹ Figures harmonised by Nordregio, based on Eurostat/LFS and National Statistical Institute (NSI) data.

Figure 5.2: Employment rate in 2012

**Employment Rate
in 2012**
LFS adjusted series

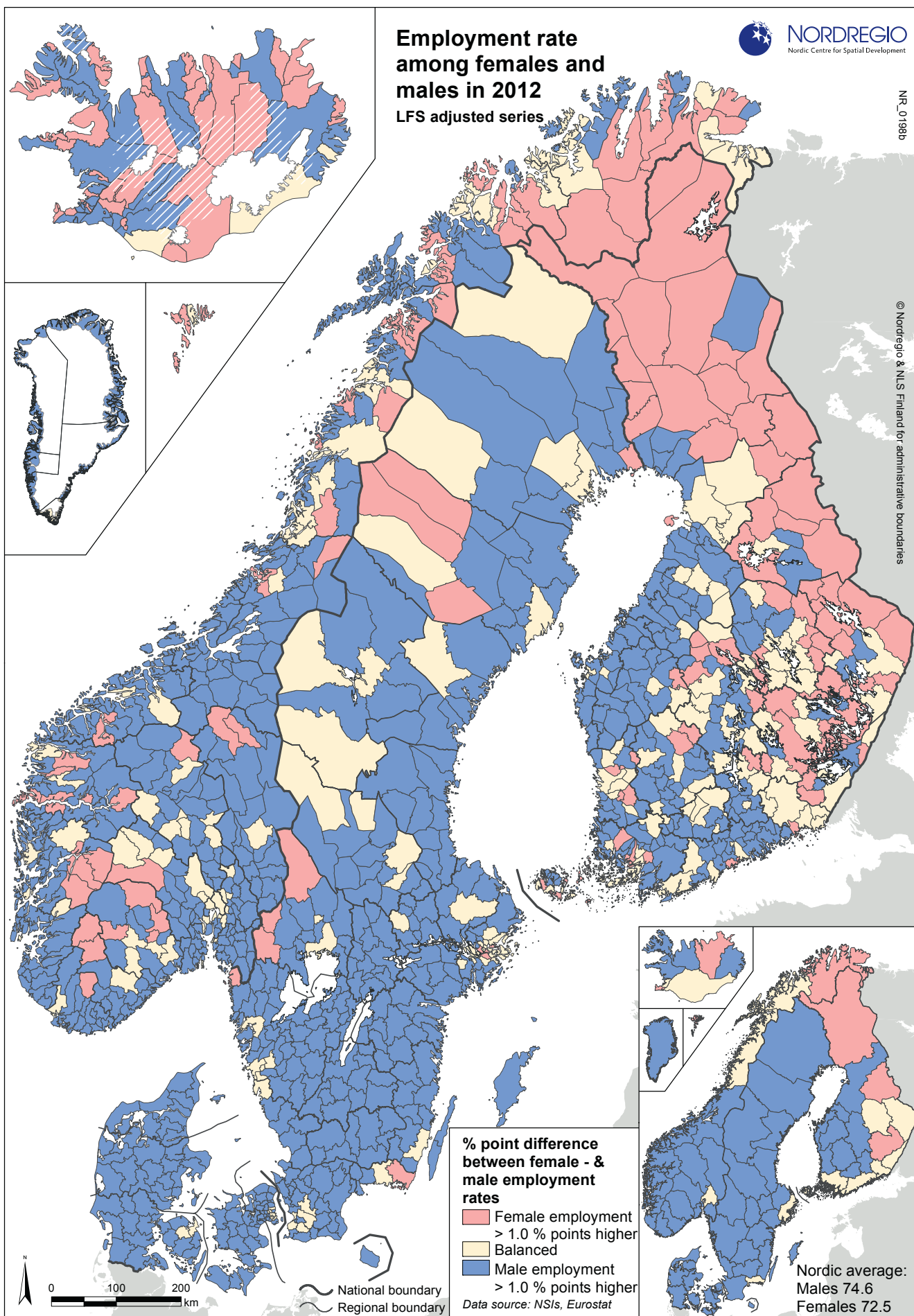
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Employment rate among females and males in 2012

LFS adjusted series



Employment among females and males

Historically, the Nordic countries have been at the forefront when it comes to female participation in the labour market. Labour markets with a gender imbalance, where fewer women participate than men is not only an issue of economics (more persons in work equates to higher levels of productivity, i.e. higher GDP) but also a matter of equality. By international standards, the Nordic countries continue to retain their vanguard position with a high proportion of females in the workforce. For example, among the OECD countries, Finland, Iceland, Norway, Sweden and Denmark are all among the top grouping of countries with regard to the employment rate for women, with only Switzerland, Canada and the Netherlands competing at a similar level. Furthermore, the difference between the employment rate of women and the total employment rate is smaller for the Nordic countries and Estonia when compared to other OECD states.²

Notwithstanding this however males remain the dominant group across the Nordic region when female and male employment rates are compared. The Nordic average employment rate for females in 2012 was 72.5% while for men it was 74.6%. As figure 5.3 shows, the male employment rate is at least one percentage point higher in most of Sweden, Denmark and Greenland, and in a large part of Norway, while Finland and Iceland show some interesting regional variations. The Faroe Islands stand out in the sense that even on the national level; the female employment rate is more than one percentage point higher than the male rate.

Interestingly, the capital regions of Iceland, Norway,

Sweden and Finland all have a balance between female and male employment rates. This reflects well the variety to be found in these capital region labour markets which attract both highly qualified professional positions and 'traditional' jobs for both males and females thus creating an 'equal opportunities' environment able to attract both sexes to these areas. Other regions with balanced rates are relatively few in number: Suðurland in southern Iceland, Nordland and Troms in northern Norway, Blekinge in south western Sweden, the Åland Islands, and five regions in southern and eastern Finland: Varsinais-Suomi, Kymenlaakso, Pohjois-Savo, Etelä-Karjala and Pohjois-Karjala.

Other than the Faroe Islands, mentioned above, a few regions in Finland (Kainuu, Etelä-Savo and Lappi), one in Norway (Finnmark) and two in Iceland (Reykjanes and Norðurland eystra) have female employment rates that are more than one percentage point higher than the male rate.

In Finland female employment rates were higher than male employment rates in some regions with low overall employment rates. This can in the main be explained with reference to two issues. Firstly, there is the basic issue of gendered labour markets in relation to structural change. More females than males tend to work within the 'welfare and other services' sectors and it is these types of jobs that have 'filled the gap' since the onset of decline in the traditional industry sector. Secondly, given this gendered split between the public and private sectors, the post-2008 economic crises hit males harder. Many jobs were lost in the private sector, particularly in export-oriented industries, whereas, initially at least, jobs within the public sector (i.e. health-care and education) were not so severely impacted.

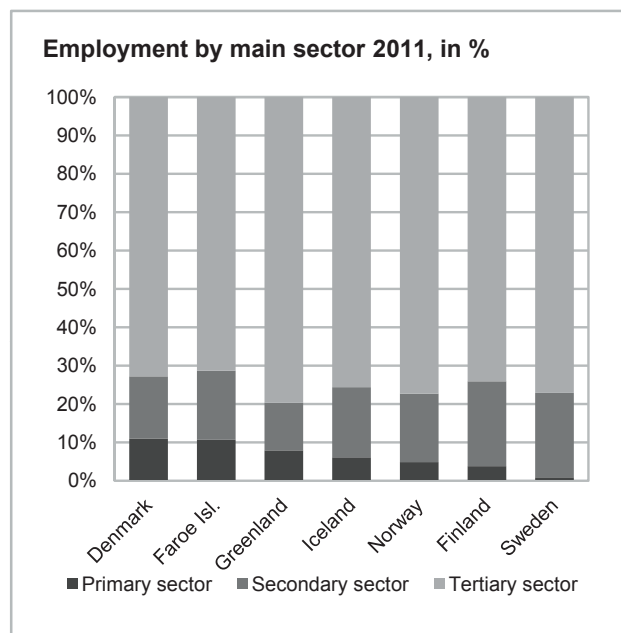
Figure 5.3: Employment rate among females and males in 2012

2 OECDiLibrary, Employment and Labour Markets: Key Tables from OECD. Tables "4. Employment rate: % of working age population" & "5. Employment rate of women: % of female population (15-64)"; <http://www.oecd-ilibrary.org> ; path: Statistics / Employment and Labour Markets: Key Tables from OECD.

Main sectors of employment

As in most developed countries, the Nordic countries have in recent decades increasingly adopted an economic model which is to a significant degree based on the service or tertiary sector. This change probably began as early as the 1950s when the primary sector, based on agriculture, began to shrink. Since the 1990s moreover, the secondary sector, based mainly on manufacturing and construction, has also come to play a substantially smaller role in the Nordic economies. This picture is also reflected in the structure of the labour force. The Faroe Islands has the smallest service sector in the Nordic region, but in 2011 despite this being the case it still accounted for 71.3 % of the Faroese labour force (figure 5.4). Thus the overall sectoral structure is rather similar across both the Nordic countries and their regions.

Figure 5.4: Employment by main sector in 2011.



Source: NSI's. *Note:* Finland: Includes Åland Islands. Sweden: Mining & quarrying included in Secondary sector

The primary sector (including the subsectors of agriculture, forestry, fishing, mining and quarrying) is still relatively strong in agriculture-rich Denmark, where 11.0% of the labour force is employed in the primary sector. Of the Danish regions, only the Copenhagen area has a smaller share of employed persons in the primary sector than the national average. The Faroe Islands (10.6%) and Greenland (7.9%) also have high employment shares in the primary sector. For both of these countries fishing and similar activities (such

as aquaculture) are by far the most important subsectors of the primary sector. While Norway has, in total, a fairly small proportion of employed persons in the primary sector (national average 4.9%), one region, Rogaland, stands out with a primary sector employment share of 12.7%. Not only does Rogaland have, compared to all other Norwegian regions, the highest number of employees in agriculture and fishing it also has by a large margin, given its position as the most important Norwegian region for oil and gas extraction, the largest number of employees in the “mining and quarrying” subsector. Finland displays a low national average (3.8%) in respect of employment in the primary sector, but four regions, with a tradition in forestry, have numbers exceeding 8.0 %: Kainuu, Keski-Pohjanmaa, Etelä-Pohjanmaa and Etelä-Savo.

Finland (22.1%) is the Nordic country with highest share of employed within the secondary sector, followed by Iceland (18.3%). Iceland's high percentage is mainly due to the country's large share of the global fish processing industry.

The tertiary sector contains service subsectors such as health care and other social benefits, teaching, as well as retail and wholesale, plus administration, etc. Not surprisingly, the regions in the Nordic region with the highest shares of employees within the tertiary sector are the capital regions. On the national level, Greenland actually has the highest share of employed within the tertiary sector (about 80%). However, as only cities in Greenland are included in the employment rates, i.e. the hunting villages outside cities are excluded, the overall rate for services is skewed upwards. In addition, and again unlike the Nordic countries, Greenland has a very large share (more than half) of its tertiary sector employees employed in the public administration subsector. In the other parts of the Nordic region, wholesale and retail trade and/or healthcare are the primary employment areas in the tertiary sector.

Employers in the Nordic region

Moving to an international perspective, in table 5.1 the Nordic countries' largest companies, in terms of the number of global employees, are listed. Norway and Finland have one company each on the top ten list; Denmark has two and Sweden six. The largest employer by far among the Nordic countries is the Danish facility services company ISS, with more than 500 000 employees internationally. ISS is followed by Securitas, with about 280 000 employees worldwide, and Møller-Maersk with 121 000 employees.

Table 5.1: The largest employers in the Nordic countries in 2012 by number of employees.

Rank	Company	Country	Number of employees
1	ISS A/S	Denmark	536 731
2	Securitas AB	Sweden	279 641
3	A.P. Møller – Mærsk A/S	Denmark	121 000
4	Ericsson Telefon AB LM	Sweden	112 758
5	Nokia Oyj	Finland	112 256
6	Volvo AB	Sweden	102 082
7	H & M Hennes & Mauritz AB	Sweden	72 276
8	Electrolux AB	Sweden	59 478
9	Skanska AB	Sweden	56 618
10	Helse Sør-Øst RHF	Norway	56 519

Source: *largestcompanies.se*. **Note:** “Number of employees” refers to average number of employees according to company reports, November/December 2012

Telecommunications companies Ericsson and Nokia are placed fifth and sixth, and followed by four Swedish companies in the vehicle (Volvo), retail (H & M),

household appliance (Electrolux) and construction (Skanska) sectors. Norway’s company on the top ten list is public enterprise Helse Sør-Øst, which operates hospitals and pharmacies in Southern Norway.

In table 5.2 the top performing Nordic companies are placed in an international context. Forbes has ranked the world’s biggest companies, based on sales, profits, assets and market value, and in this table the top Nordic companies from that ranking are listed. The ten top Nordic companies are positioned between 38 and 286 on the world ranking list, which shows that the relatively small Nordic countries retain a strong position in the globalised business world. The character of the industries in the top ten list reflects the importance of the service sector in the Nordic region today; as six of the top ten companies are active in the banking sphere of the economy, while the tenth placed company is TeliaSonera the Swedish telecommunications company, which was created by the merger of Swedish Telia and Finnish Sonera. The top Nordic player is the Norwegian governmental oil and gas company Statoil while the other companies on the Nordic top ten list are the Danish transportation company Møller-Maersk and the Swedish Volvo Group.

Neither Finland nor Iceland has a company on the Nordic top ten list. The top Finnish company, insurance group Sampo, is ranked 13th in the Nordic list.

Table 5.2: Nordic top companies included on the Forbes list of ‘The World’s Biggest Public Companies’ 2013.

Nordic Rank	Company	Country	World Rank	Industry
1	Statoil	Norway	38	Oil & Gas Operations
2	Nordea	Sweden	118	Regional Banks
3	Møller-Maersk	Denmark	133	Other Transportation
4	Volvo Group	Sweden	210	Heavy Equipment
5	DNB	Norway	219	Regional Banks
6	SEB	Sweden	243	Major Banks
7	Svenska Handelsbanken	Sweden	247	Major Banks
8	Swedbank	Sweden	265	Major Banks
9	Danske Bank	Denmark	285	Major Banks
10	TeliaSonera	Sweden	286	Telecommunications services
13	Sampo	Finland	430	Diversified Insurance

Source: *Forbes*.

Note: Ranking based on sales, profits, assets and market value of the companies

Chapter 6: 'Non-employed' groups

Author: Linus Rispling

Maps and data: Linus Rispling & Johanna Roto

This chapter aims to broaden our understanding of the status of that segment of the population in the Nordic regions designated as non-employed. From a European perspective, the Nordic region has navigated the crisis that emerged in 2007-2008 rather well, and despite increased unemployment generally still record lower unemployment figures than the EU average, with Norway being the prime example. When, however, we take into account those persons who take part in labour market measures or receive activity and sickness compensation, this notion of post-crisis Nordic success in terms of employment levels can be challenged. Greater scrutiny is required.

Increases in unemployment, but numbers remain below the EU average

Unemployment remains a much discussed topic of societal importance in today's Europe, a discussion which the emergence of the global economic crisis succeeded in throwing into even sharper relief. Compared to other European states, the Nordic region has navigated the crisis rather well. According to Eurostat's LFS adjusted unemployment figures, the EU28 unemployment average was 10.5% in 2012, while the Nordic countries had an average of 7.0%.³

Despite such relatively low unemployment figures from a European perspective, the average Nordic unemployment rate was still 2.0 percent higher in 2012 than in 2008 (6.9% compared to 4.9%). The Faroe Islands, although still close to the Nordic average unemployment rate in 2012, have experienced a substantial increase in unemployment since the onset of the crisis, going from a very low unemployment rate of 1.6% in 2008 up to 5.2% in 2012. Similar drastic increases between 2008 and 2012 (above 3.0%) occurred in most Danish and some Icelandic regions, as well as in the

Swedish region of Kronoberg. At the other end of the scale, Norwegian Finnmark, Nord-Trøndelag, Sør-Trøndelag and Troms as well as Finnish Kainuu and Swedish Norrbotten are the only Nordic regions which experienced a positive change in unemployment figures between 2008 and 2012. The star performers in terms of seeing, on the municipal level, a reduction in unemployment rates between 2008 and 2012 have been some small rural municipalities, especially in Finland, however in many cases this was simply a by-product of out-migration.

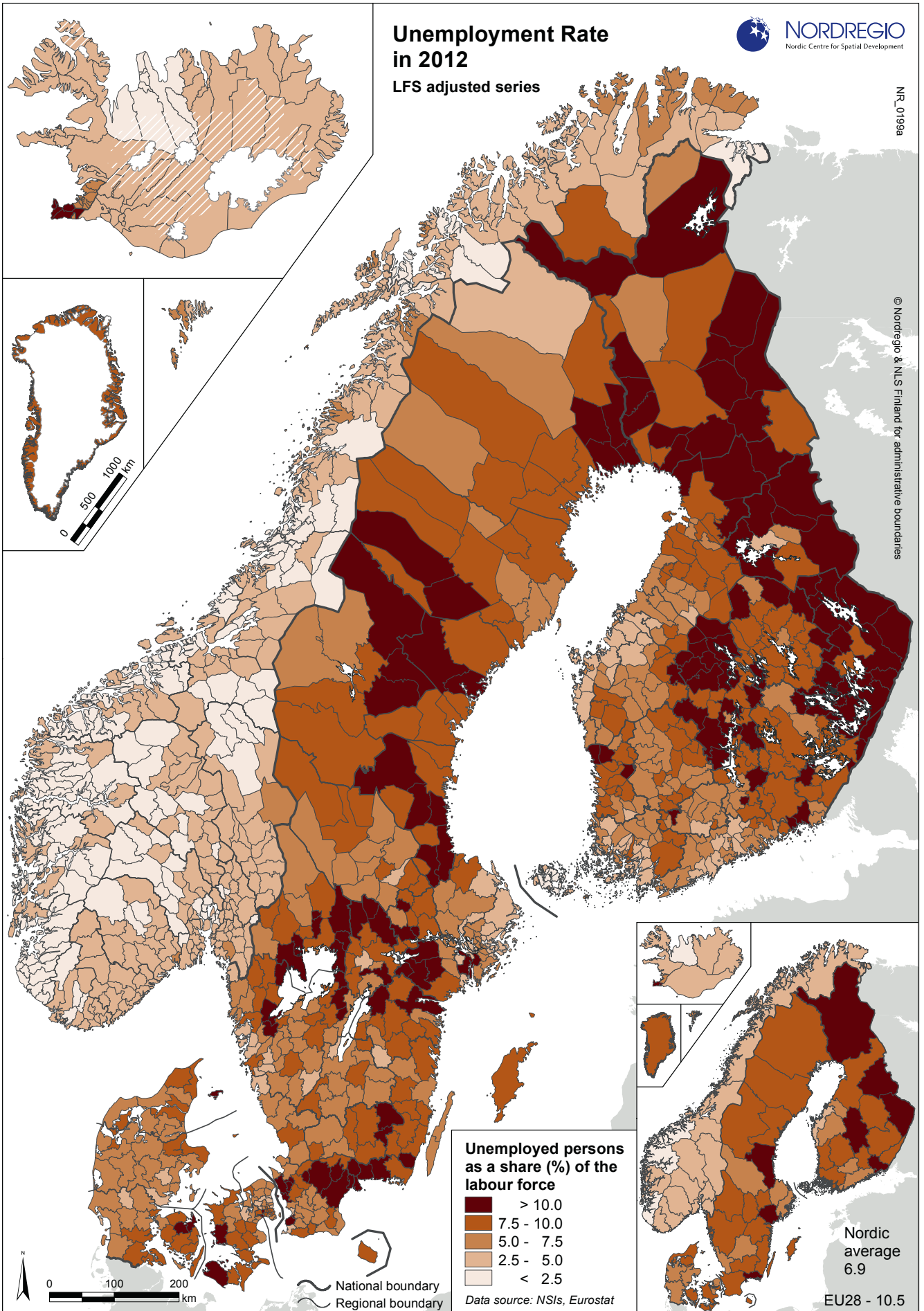
The lowest unemployment figures in the Nordic regions in 2012 were found in a number of Norwegian regions, the Åland Islands as well as the north-western Icelandic regions of Norðurland vestra and Vestfirðir (figure 6.1). At the national level Norway stands out with particularly low regional rates, ranging from 4.3% (Østfold region) at the highest to 2.2% (Rogaland and Sogn og Fjordane regions) at the lowest. For Finland, Sweden and to some extent also for Denmark, the geographical pattern is unbalanced with discernibly low unemployment rates in large parts of the city regions while some other parts of these countries have much higher rates. The highest Nordic regional unemployment figures in 2012, above 10.0 %, were to be found in Sweden (in the counties of Södermanland, Blekinge and Gävleborg) and Finland (Keski-Suomi, Lappi, Kainuu and Pohjois-Karjala) as well as in the Icelandic region of Suðurnes, south-west - but within commuting distance - of Reykjavík, which was severely impacted by the economic crisis and which is still recovering.

The highest municipal unemployment rates in 2012 were generally found in some of the northern municipalities of Sweden and Finland, with Salla in Lappi, Finland, being highest at almost 18.0%. Southern exceptions in Sweden include individual municipalities with an industrial heritage such as Trollhättan and Landskrona and in Finland several municipalities in the eastern regions of Kainuu and Pohjois-Karjala.

³ For the Nordic region, figures were harmonised by Nordregio, based on Eurostat/LFS and National Statistical Institute (NSI) data.

Unemployment Rate in 2012

LFS adjusted series



Challenged groups among the unemployed

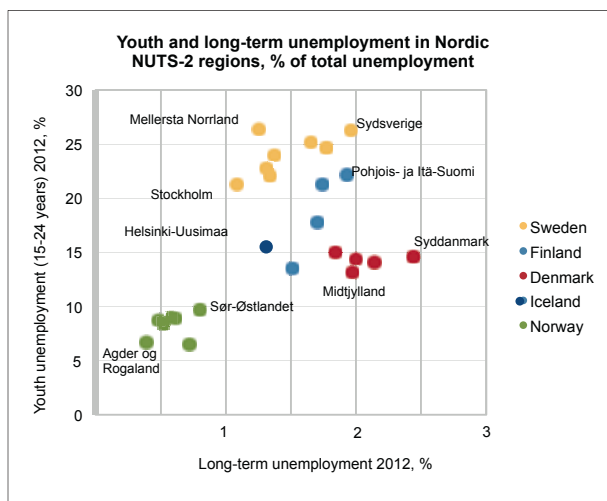
Unemployment in the Nordic regions takes on different expressions, as the unemployment structure varies both between countries and regions. In addition, a different focus often exists within the Nordic region in respect of which particular groups present the greatest challenge in tackling unemployment. As such, in recent years the focus in Finland has been on the long-term unemployment while in Sweden it has been placed on youth unemployment. In figure 6.2 comparable Nordic regions, following the European “NUTS-2” regional classification, are positioned according to their youth unemployment rates (vertical axis) and long-term unemployment rates (horizontal axis), based on harmonised Eurostat data for 2012.

In the chart, regions of a specific country tend to form a cluster of their own, thus showing the country’s relative position in regards to long-term and youth unemployment, respectively. For example, Norway’s regions are all positioned in the lower left corner, having long-term and youth unemployment rates lower than any other Nordic NUTS-2 regions.

Perhaps most striking from a Nordic perspective is that Swedish regions show particularly high youth unemployment rates. Only two Finnish regions, Pohjois- ja Itä-Suomi and Länsi-Suomi, are on par with any of the Swedish regions in this respect. Denmark, on the other hand, sees its regions positioned in the middle of the vertical axis (youth unemployment) but quite far to the right of the horizontal axis, i.e. the Danish regions all have relatively high long-term unemployment rates, but lower youth unemployment than any of the Swedish or Finnish regions. It is worth noting that Denmark has seen a sharp increase in high long-term unemployment rates as late as 2011 and 2012, while Sweden and Finland experienced increases in long-term unemployment rates immediately after the economic crisis (in 2010), which have since stabilised.

Finland’s pattern in the chart is quite polarised. Helsinki-Uusimaa has relatively low rates and is the one Nordic region (together with Iceland; national level data only) that is closest to the Norwegian regions. The other three Finnish regions, however, have discernibly higher rates: the long-term unemployment figures are on a par with, or, in the case of Pohjois- ja Itä-Suomi, similar to those of the Danish regions.

Figure 6.2: Youth and long-term unemployment in Nordic NUTS-2 regions, % of total unemployment.



Source: Eurostat. Note: Åland Islands, Faroe Islands, Greenland: No comparable data

Towards a better understanding of the term ‘non-employed’ in the Nordic labour market context

The Europe 2020 Strategy notes that EU Member States must establish measures to integrate “vulnerable groups” into the labour market. As a guideline to the EU headline target aim to raise the employment rate for persons aged 20-64 to 75% by 2020, it is stated that Member States should pay particular attention to the employment of “those furthest away from the labour market”.⁴ Persons that are part of labour market measure programmes or who receive activity or sickness compensations could be seen as such “vulnerable groups”, as they are positioned in the periphery of the labour market. Low labour market measures or activity or sickness compensation rates thus show a region’s ability to integrate such groups into the labour market.

There is a tradition within the Nordic region of combating unemployment with labour market measures (in most Nordic countries organised by the Public Employment Services), such as training schemes, job coaching and employment subsidies, especially for the long-term unemployed. The recipients of such measures are not however included in the unemployment

4 COUNCIL DECISION of 21 October 2010 on guidelines for the employment policies of the Member States (2010/707/EU). Guideline 7: Increasing labour market participation of women and men, reducing structural unemployment and promoting job quality. Retrieved from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:308:0046:0051:EN:PDF>

Figure 6.1: Unemployment rate in 2012

statistics. This is also the case with persons receiving “activity” or “sickness” compensations (often organised by the Social Insurance Agencies), which aim to train and/or rehabilitate the unemployed or those on long-term sick leave in order to facilitate their return back into the labour market.

As such then, by combining data from national institutions on labour market measures and activity/sickness compensation in the Nordic countries, Faroe Islands, Greenland and Åland Islands, a broader picture can be painted of those currently termed ‘not employed’.

Persons in labour market measures: regional disparities in Sweden and Iceland

Labour market measures include activities such as internships, courses and start-up business assistance.⁵ The Nordic countries had an average rate of persons in labour market measures (as a share of persons aged 15-64 years) of 2.3% in 2012 (figure 6.3).

Sweden shows a pattern similar here to that of the unemployment map. There are geographically dispersed imbalances with clusters of municipalities with

high rates in the south east (Blekinge region and north eastern Skåne), parts of southern mid-Sweden (especially Södermanland and Östergötland) as well as the Gävleborg, Västernorrland and Jämtland (eastern part) counties. The lowest rates in Sweden are found in two regions surrounding the capital, Stockholm and Uppsala counties (both 2.0%).

Denmark’s regions all have low rates while Denmark itself boasts the lowest national average in the Nordic region (0.9%). From a relative Nordic perspective, Norway has higher labour market measures rates than unemployment figures, while the opposite picture prevails for Finland. Among the Finnish regions, particularly low rates are found in the Åland Islands (0.3%), followed by the capital region Uusimaa and the central coastal region Pohjanmaa. Norway’s two best performing regions are Rogaland (1.6%) and Sogn og Fjordane (1.7%), while Vestfold has the highest rate (3.0%).

In relation to the other Nordic countries, Iceland has a high average rate, 6.0%. This may be due to the fact that Iceland was hardest hit by the financial crisis. The highest rates are found in three regions surrounding the capital region, where much of the country’s population is settled, Höfuðborgarsvæðið, Suðurnes and Vesturland. Furthermore, the Icelandic regions show very disparate rates, ranging from 12.1% in the above-mentioned Suðurnes region to 2.1% in the southern region of Suðurland.

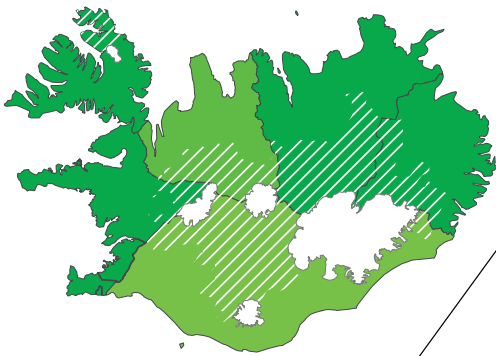
⁵ In Swedish the measures are typically referred to as “program med aktivitetsstöd”, in Norway “arbeidsmarkedstiltak”. No data is available for Greenland and Faroe Islands.

Figure 6.3: Persons in labour market measures in 2012.
Note: Greenland, Faroe Islands: No data

Persons in labour market measures in 2012*

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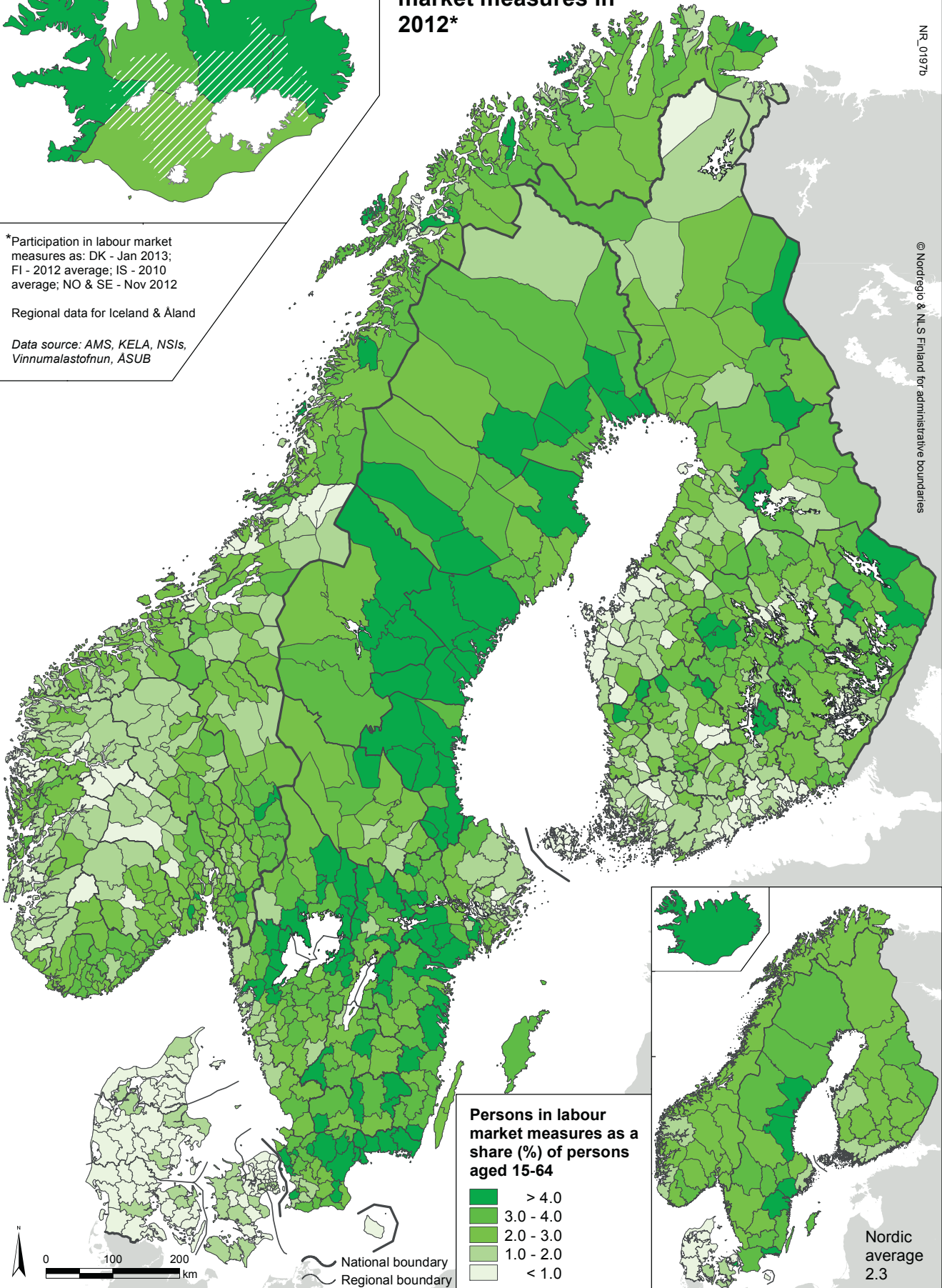
© Nordregio & NLS Finland for administrative boundaries



*Participation in labour market measures as: DK - Jan 2013; FI - 2012 average; IS - 2010 average; NO & SE - Nov 2012

Regional data for Iceland & Åland

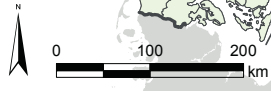
Data source: AMS, KELA, NSIs, Vinnumalastofnun, ASUB



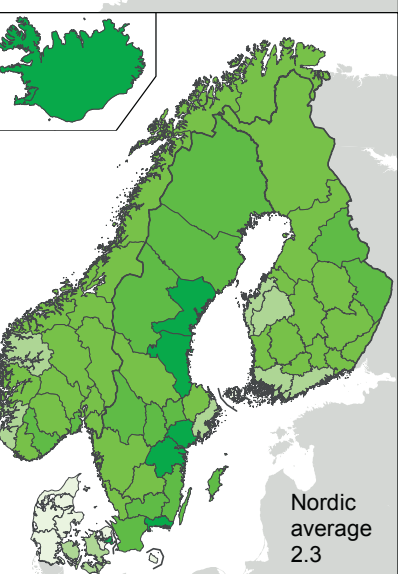
Persons in labour market measures as a share (%) of persons aged 15-64

- > 4.0
- 3.0 - 4.0
- 2.0 - 3.0
- 1.0 - 2.0
- < 1.0

Nordic average 2.3



National boundary
Regional boundary



Impacts of the different labour market policies in the Nordic region

In addition to unemployment figures and labour market measures rates, a third way to approach a better understanding of the notion of 'non-employed' in the Nordic region is to have a closer look at those receiving activity or sickness compensation (figure 6.4).⁶

While Norway has by far the lowest unemployment rate in the Nordic region, the picture is reversed when it comes to activity/sickness compensation. Norway has the highest national average in the Nordic region with 9.0% of persons aged 15-64 years receiving activity/sickness compensation (table 6.1). The lowest performing municipality is Ballangen in Nordland with a rate of 21.6%. Of the 15 worst performing municipalities in the Nordic region most are located in the two northern Norwegian regions of Nordland and Troms, but there is also one in Hedmark as well as two municipalities in the Finnish region of Pohjois-Savo. Norway's high activity/sickness compensation rates in relation to the country's low unemployment figures can be seen in the light of the ongoing Norwegian debate on the usage of social benefits.

Table 6.1: Share of persons aged 15-64 years receiving Activity / Sickness compensation in 2012, national averages.

	Share of persons (%) receiving activity/sickness compensation
Åland Islands	4.2
Sweden	6.0
Faroe Islands	6.2
Denmark	6.7
Nordic average	6.9
Finland	6.9
Greenland	7.1
Iceland	7.5
Norway	9.0

Source: NSI's, Försäkringskassan, KELA, NAV

At 6.9%, Finland's national average rate is the same as the Nordic average but a significant disparity exists between the central-eastern counties (Keski-Suomi and Pohjois-Savo, among others) with many municipalities in these areas recording particularly high rates, indeed, rates that are on a par with those found in many Norwegian municipalities while some coastal regions see much lower rates. For example, in the capital region of Uusimaa, only Hanko and Karkkila have rates above the Finland average. Very low rates are also to be found in the Åland Islands. In fact, the Åland municipality of Sottunga has the lowest activity/sickness compensation rate in the Nordic region at 0%. With the exception of some of these Åland municipalities, the top 15 performing municipalities in terms of low activity/sickness compensation rates are all found in metropolitan areas, i.e. in the wealthier suburbs of the cities of Stockholm, Copenhagen, Helsinki and Malmö. Although there are peripheral pockets in Denmark with especially high rates, the most remarkable of which being the island of Lolland (14.6%), Denmark together with Sweden and the Faroe Islands stands out with fairly low activity/sickness compensation rates.

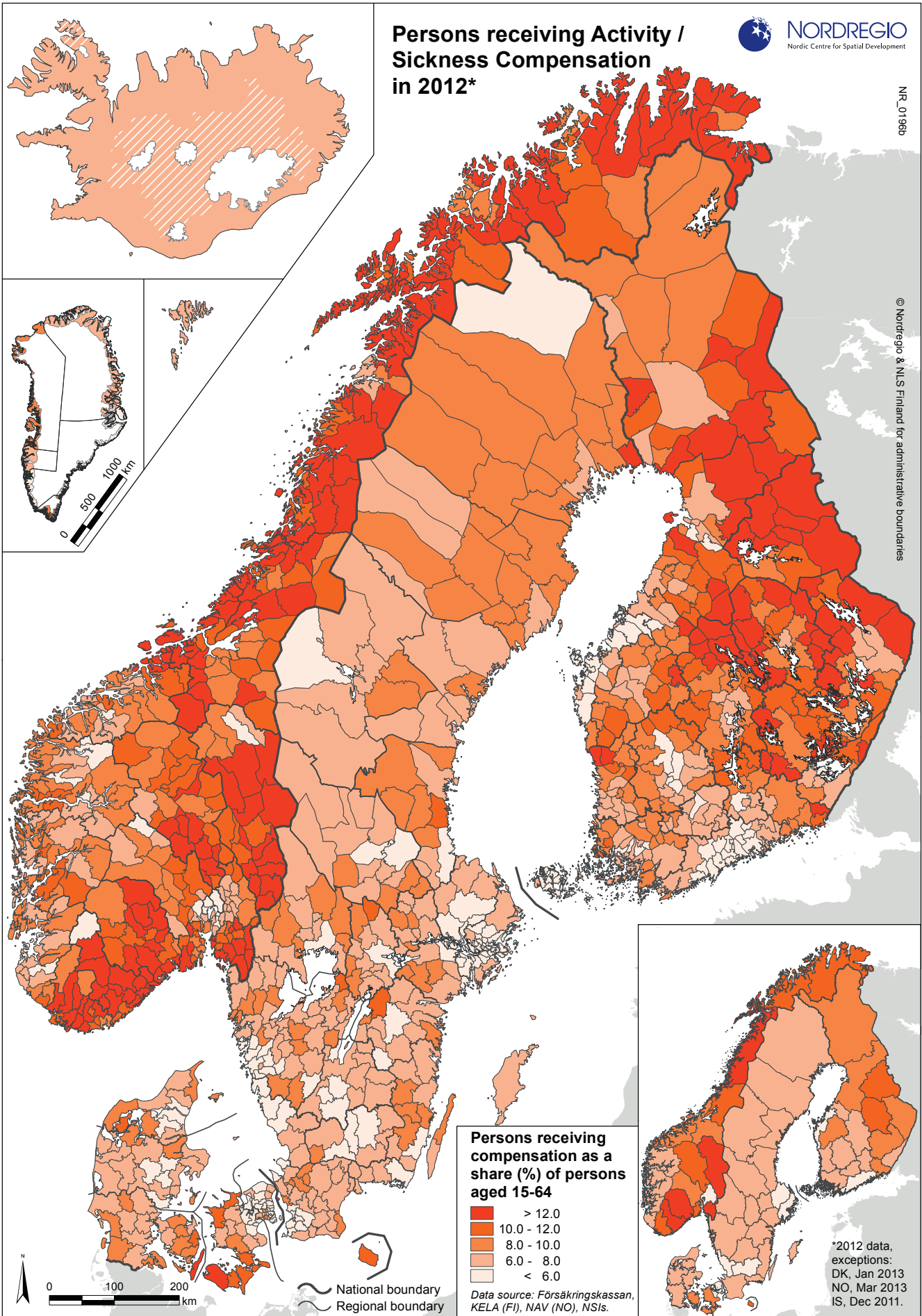
Towards a broader perspective on the 'non-employed' category in the Nordic region

None of these three maps individually covers the whole spectrum of the status of the 'non-employed' in the Nordic regions, and they cannot easily be compared on a one to one basis, due, for example, to differences in class divisions on each map or because the share of true registrations may differ between different groups. However, in general, these maps correlate to each other and indicate how vulnerable groups fare on the labour market in different parts of the Nordic region. While Norway has very low unemployment rates, the country has the highest share of persons receiving activity and sickness compensation in the Nordic region. And while Sweden has among the highest unemployment figures in the Nordic countries, Faroe Islands, Greenland and Åland Islands, the country has low rates regarding activity and sickness compensation.

⁶ In the countries covering the main Scandinavian languages, the term activity/sickness compensation is referred to as uførepensjon (Norway), sjuk- och aktivitetsersättning (Sweden) and førtidspension (Denmark).

Figure 6.4: Persons receiving activity/sickness compensation in 2012

Persons receiving Activity / Sickness Compensation in 2012*



However, the battle against unemployment is in parts highly policy driven and changes often take very different outward forms in different countries thus also influencing the maps shown in this chapter. For example, in the case of Sweden the relatively low activity and sickness compensation rates in 2012 are, to some extent, the result of the health insurance reforms of

2008-2009. Between December 2007 and December 2011, the number of recipients of activity and sickness compensation thus dropped dramatically in Sweden, from 551 426 to 399 726, though it is difficult to tell whether these persons actually started working, became unemployed or registered for labour market measures.⁷

7 Försäkringskassan. Table Sjuk- och aktivitetsersättning: Antal i beståndet efter län och åldersgrupp, 2003-2013.

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Chapter 7: Education attainment of the labour force

Author: Julien Grunfelder

Maps and data: Julien Grunfelder, Gustaf Norlén, Linus Rispling & Johanna Roto

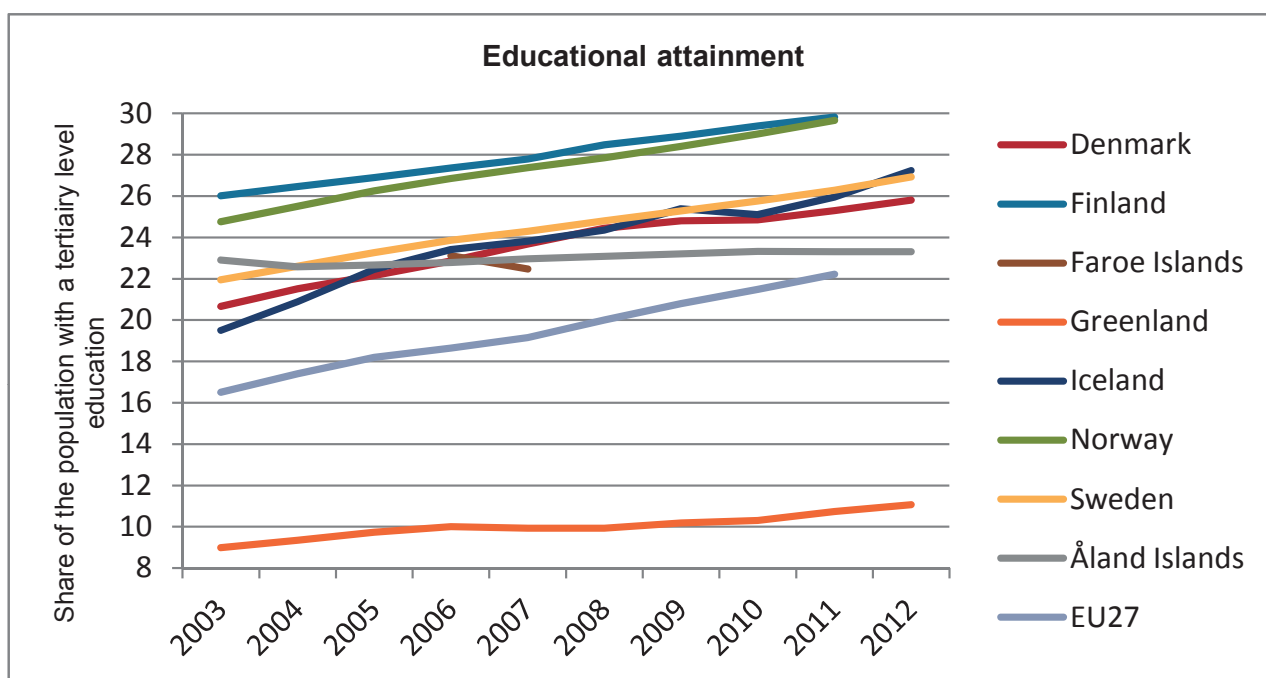
An important and increasing share of population with a tertiary level education

During the last decade, the share of the population in the Nordic region with a tertiary level education has increased. The proportion, around 20% in the 2003 (except Greenland with 9%), reached values between 25% and 30% in 2011, which saw the Nordic countries, Faroe Islands and Åland Islands record a score well above that of the EU27 average (figure 7.1). However, the EU27 countries (i.e. the average for the 27 EU countries in 2011) also recorded a significant increase during this period and thus the gap between the Nordic region and the EU as a whole, in terms of the proportion of people with a tertiary education, was actually reduced during this period.

Finland is the Nordic country with most impressive

higher education rates in 2011, closely followed by Norway with tertiary level education values close to 30%. Sweden, Iceland and Denmark saw a similar rate of increase over the period but remained behind Finland and Norway recording values around 26%. While Finland, Norway and Sweden have witnessed a moderate but steady rate of progression since 2003, Iceland has experienced a somewhat more volatile level of development initially seeing a sharp increase in terms of educational attainment between 2003 and 2006, followed by a period of rather more moderate development closer to the other Nordic countries up to 2009. Thereafter, possibly as a reaction to the economic crisis in 2008, Iceland experienced a decrease in 2010, before development again stabilised. Denmark has not experienced a decline in levels of educational attainment as that of Iceland post-financial crisis, but since 2009 higher education participation rates have increased at a lesser rate

Figure 7.1: Educational attainment 2003-2012



Source: NSI's and Eurostat.

Note: Finland, Norway and EU: data from 2003 to 2011. Faroe Islands: only data available for 2006 and 2007

than before the crisis. Data for Greenland indicates a growth in the share of the population with a tertiary level education, whilst it still remains way under both other parts of the Nordic region and the EU27. Åland Islands is the only territory where the increase has been very marginal during this period, with the share of tertiary level education remaining more or less steady at 23% between 2003 and 2011. The limited data for Faroe Islands indicates the situation might be similar to the one in Åland Islands.

Increased international competition

As noted previously, in 2011 the Nordic region remained well ahead of the EU average in relation to higher educational attainment. Several reasons can be forwarded for this favourable Nordic position related in the main to what could be termed ‘historical legacy’ issues. These include free education, the importance of the service sector and the rise of an increasingly knowledge based-economy. Economic growth and the emergence of the Nordic welfare states between the 1950s and 1970s brought the expansion of tertiary education to broader segments of the population and also resulted in the establishment of new higher education institutions in new locations (Hedin, 2009). During the following decades and into the 2000s, the higher education sector spread further, resulting again in the creation of new regional higher educational centres, decentralisation reforms and new goals for participation.

Nevertheless, looking again at developments in the EU27 as a whole (figure 7.1) between 2003 and 2011 the gap between the Nordic region and the EU average was clearly shrinking as the EU27 as a whole saw faster growth in higher education participation than any Nordic country. The region can in future then expect increased international competition in terms of higher educational attainment, an area in which they previously held a fairly unique, if not dominant, position.

Leading Nordic universities and regional universities

In the Nordic region, where innovation is a key element in regional competitiveness, holders of advanced degrees are seen as highly valuable assets to the knowledge-based economy in national labour markets

(Lindqvist & al., 2012). It is generally also the case that regions with university cities perform much better economically than those without (figure 7.2). It is within the metropolitan areas where the largest share of persons with a tertiary level education can be found. This is because students with higher or tertiary level education tend to remain in their region of education for professional or private reasons. The map highlights a strong urban-rural divide, both at the regional and municipal levels. From the map it is clear that, despite the clear ambition in recent decades to establish higher educational institutions across nearly all regions of the Nordic countries, Faroe Islands, Greenland and Åland Islands, the metropolitan areas are still predominant.

It is not only in the metropolitan areas where Nordic university institutions dominate in numerical terms, but these are also the areas where the most prestigious educational institutions can be found. Seven Nordic universities rank among the top 100 in the 2013 Academic Ranking of World Universities (table 7.1). These seven Nordic universities represent a relatively significant share of the 33 European universities ranked in the top 100, alongside the 56 from the Americas. The seven highly ranked Nordic universities are all located within metropolitan areas. The ranking highlights how well those universities are performing increasing their prestige and attractiveness even more.

Table 7.1: Nordic universities in the top 100

University	World rank
University of Copenhagen	42
Karolinska Institutet	44
University of Oslo	69
Uppsala University	73
University of Helsinki	76
Aarhus University	81
Stockholm University	82

Source: Academic Ranking of World Universities, 2013

The concentration of prestigious educational institutions in metropolitan areas does however have a number of negative consequences on the national level for each of the Nordic countries. Students graduating from those institutions who are not originally from the region where the institution is located are increasingly unlikely to return to their region of origin. A 2012

Figure 7.2: Persons with tertiary level education in 2012

Persons with Tertiary Level Education

LFS adjusted series

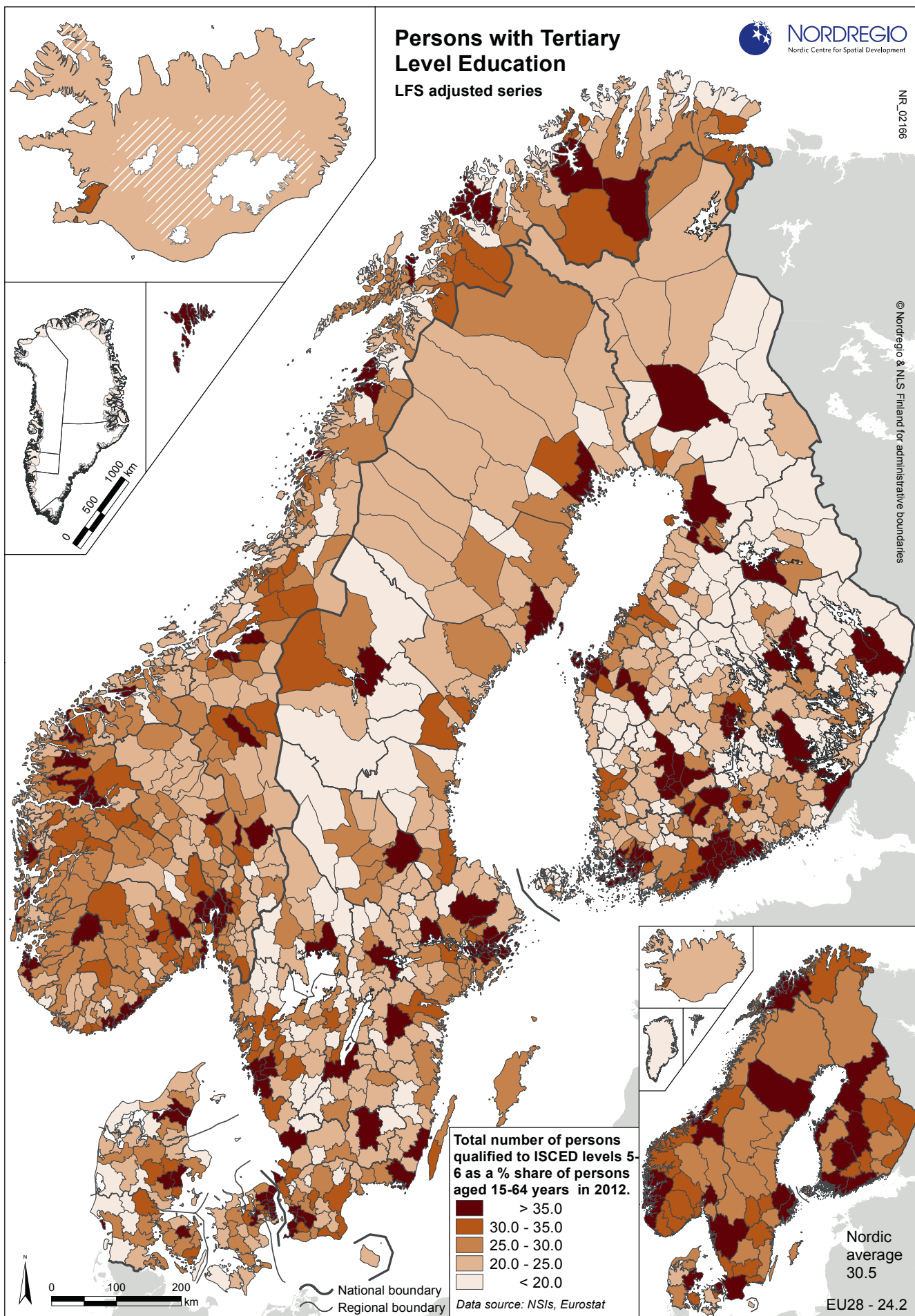
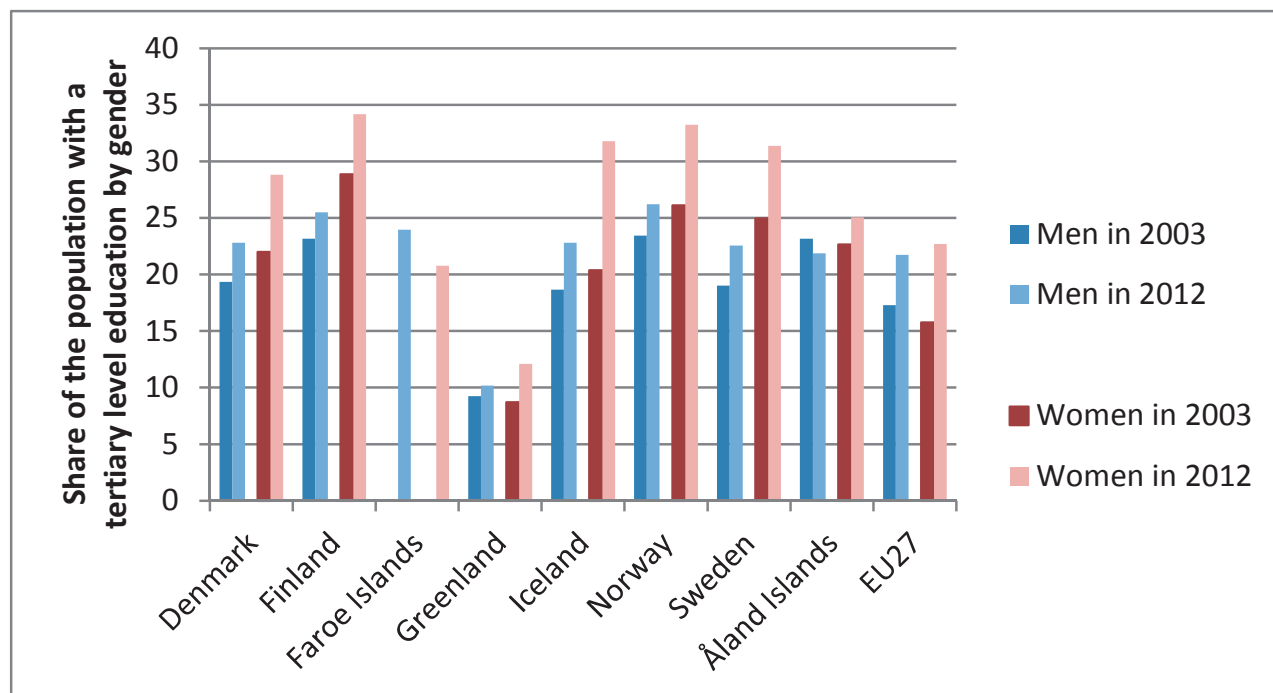


Figure 7.3: Share of the total population with a tertiary level education by gender in 2003 and 2012



Source: NSI's and Eurostat. Note: Finland, Norway and EU: data for 2003 and 2011. Faroe Islands: only data available for 2007

analysis (Lindqvist & al., 2012) studied the so-called retention rate of highly qualified students (the percentage of graduates who joined the labour market in the region in which they studied) finding that it increased between 1998 and 2008. The study also highlighted that the higher the level of education, the higher the retention rate. Ph.D. graduates do have a higher tendency to settle than master students, due to either professional (employment opportunities) or private reasons (formed a family). The retention rate also varies with the field of education, being lower in agriculture and relatively higher in health-related professions. The key to retaining university graduates in the region clearly lies in the ability of the local labour market to offer appropriate employment soon after graduation. A number of policy related decisions have already been taken in an attempt to help regions of origin retain their highly educated labour force. For instance, the Swedish government supports the growth of peripheral institutions to facilitate the decentralisation of higher education and thus allow more individuals to study closer to home. The distance between their home and their place of higher education, as well as the size of the region, also play a significant role in respect of the retention rate. "As the size of the regional unit diminishes, the likelihood of leaving the region increases, which leads to correspondingly lower retention rates" (Lindqvist & al., 2012). Some peripheral areas do how-

ever appear to be able to entice PhD holders more easily than those with bachelor's degrees. This is probably due to the fact that advanced degree holders become involved in research programmes after graduation.

A majority of women with tertiary level education

Recent decades have seen a perceptible shift from male to female predominance as regards higher education entrants. In figure 7.3 the situation in 2002 is compared to that in 2012 between the Nordic countries, Faroe Islands, Greenland, Åland Islands and the EU27 countries (average). In 2002 the proportion of women in the working age population with a tertiary level education was higher than the proportion of men in all Nordic countries, with this situation being especially pronounced in Finland and Sweden while the opposite situation prevailed in Åland Islands, Greenland and among the EU27 countries as a whole. By 2012, gender differences had increased further in the Nordic countries, with an even larger proportion of females participating in higher education. Moreover, Åland Islands and Greenland now also have a higher proportion of women than men with a tertiary level education as do the EU27 countries as a whole.

The map on gender balance (figure 7.4) shows the gender balance at the regional level. The highest female

Table 7.2: Tertiary level students by field of education and gender in 2011

Tertiary students by field of education and sex in 2011							
Males and females	Teacher training, education and science	Humanities and arts	Social sciences, business and law	Science, mathematics and computing	Engineering, manufacturing and construction	Health and Welfare	Other
European Union (27 countries)	8,3	12,0	33,2	10,3	15,0	14,0	7,2
Denmark	9,8	12,8	33,6	8,5	10,6	20,8	4,0
Finland	5,0	14,1	23,0	10,1	23,9	16,2	7,6
Sweden	12,8	13,4	27,0	9,2	16,7	17,3	3,6
Iceland	14,7	14,8	36,1	8,9	9,3	13,3	3,0
Norway	14,7	10,4	31,8	8,5	8,1	19,9	6,7
Faroe Islands	35,0	8,3	13,7	9,5	0,0	19,2	14,2
Greenland	44,9	21,5	9,7	0,0	2,5	13,2	8,2
Males							
European Union (27 countries)	4,4	9,3	31,1	14,3	24,9	8,2	7,9
Denmark	6,6	11,0	37,4	13,0	16,4	9,7	5,9
Finland	2,2	9,1	20,3	13,6	42,1	6,2	6,5
Sweden	7,1	12,8	25,5	13,1	29,1	8,9	3,5
Iceland	7,9	14,4	38,5	14,9	17,0	4,8	2,5
Norway	9,0	10,5	33,7	13,9	15,1	9,1	8,6
Faroe Islands	19,2	4,4	17,7	18,8	0,0	N/A	39,9
Greenland	32,0	29,2	16,9	0,0	6,2	3,4	12,4
Females							
European Union (27 countries)	11,4	14,2	35,0	7,0	7,0	18,8	6,6
Denmark	12,1	14,1	30,8	5,2	6,3	28,9	2,6
Finland	7,4	18,4	25,4	7,2	8,4	24,7	8,5
Sweden	16,8	13,9	28,0	6,5	8,1	23,1	3,6
Iceland	18,8	15,0	34,6	5,2	4,6	18,5	3,3
Norway	18,4	10,3	30,4	4,9	3,5	26,9	5,4
Faroe Islands	62,6	14,9	16,4	6,1	0,0	N/A	0,0
Greenland	54,9	21,0	8,0	0,0	1,3	7,3	7,6

Source: NSI's and Eurostat.

Note: Finland includes Åland Islands. Data for Faroe Islands and Greenland: harmonised by Nordregio

shares and lowest male shares are found in the northern regions of Norway, Sweden and Finland, as well as in Iceland. Metropolitan and capital areas, on the other hand, are in many cases more balanced, the most striking examples being the Copenhagen and Oslo areas, as well as those regions surrounding major cities such as Pirkanmaa (Tampere, Finland), Sør-Trøndelag (Trondheim, Norway), Fyn (Odense, Denmark) and Østjylland (Århus, Denmark). It is notable that in 2012

Greenland and the Faroe Islands (figure 7.4) are the only territories where the male share of persons with a tertiary level education among persons aged 25-64 years is higher than the female share. On the municipal level, and other than Greenland and the Faroe islands, only a very limited number of municipalities in Norway and Denmark have higher male than female shares in this respect.

Table 7.2 shows the distribution of students in higher

education according to field of education in the Nordic region in 2011. The gender (im)balance in Greenland and the Faroe Islands, where men historically predominated is now being reversed as the majority by far of today's students here are female. In the other Nordic countries too, there are now more female than male students. Indeed, even on the European level there are more female than male students though the differences are more pronounced in the Nordic region than in the EU27 states.

Taking the EU27 as a whole males, perhaps not surprisingly given the general tradition of male dominated natural science, dominate the groups "Science, mathematics and computing" and "Engineering, manufacturing and construction", while other groups, including "Health and Welfare" and "Teacher training, education and science" have much higher shares of women than men. This is, moreover, also the case in the Nordic countries, Faroe Islands, Greenland and Åland Islands.

Balancing the picture: higher education in relation to lifelong learning

Although higher education is a fundamental ingredient of any country's knowledge investment portfolio, higher education traditionally focuses on early adulthood, i.e. the years after graduation from school when students are in their twenties. Schools and universities are however no longer seen as the only ways to boost knowledge. The notion of "lifelong learning" empha-

sises the importance of learning on an ongoing, daily basis during one's whole working life, up to retirement and beyond. Lifelong learning may include formal education at schools and universities at later ages, but can also include non-formal education such as enhancing adult literacy, life-skills, work-skills and general culture. Apart from individual development, lifelong learning also boosts competitiveness and employability across society as a whole.

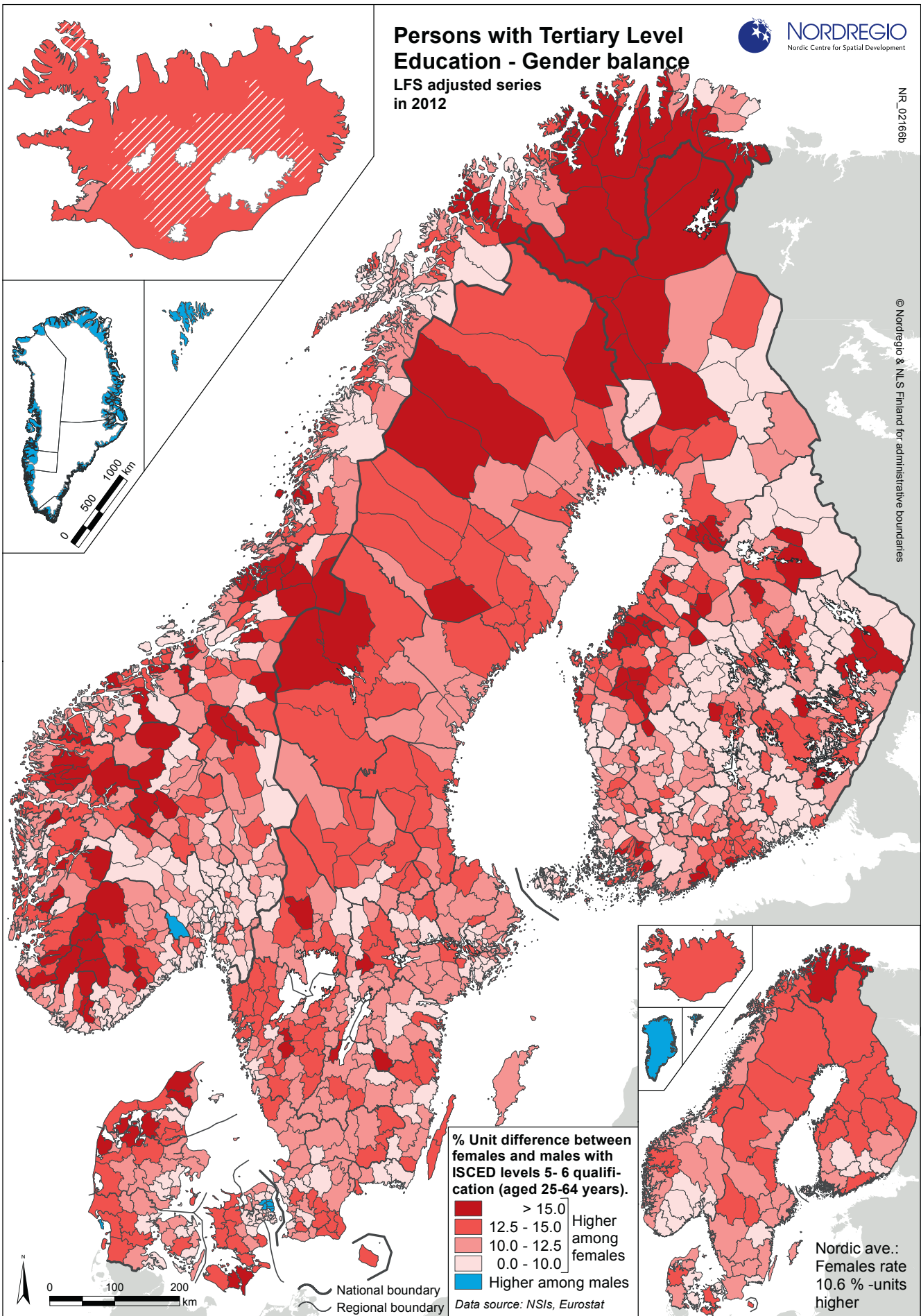
In 2009, the strategic framework for European co-operation in education and training ratified several goals for the year 2020, of which lifelong learning was one, including that an average of at least 15% of adults aged 25 to 64 years old should participate in lifelong learning by the year 2020. In 2011, the EU27 average for lifelong learning was 8.9%. The Nordic countries, however, by far exceed the 2020 goal of 15%. In fact, of the 33 European countries included in the available Eurostat and Labour Force Survey (LFS) data for 2011, non-EU member Switzerland at 29.9% is the only country that has a level higher than the lowest ranked Nordic country, which is Norway at 18.2%. Finland, Sweden and Iceland are positioned between 23.8% and 25.9%, while Denmark is in the lead at 32.3%. Together with Switzerland the Nordic countries also had the highest shares of female participation in Europe (EU27 average 9.6%).

Comparing the surveys undertaken in 2011 and 2006, Sweden (+6.6%) and Denmark (+3.1%) saw significant increases in lifelong learning participation, Finland also saw a slight increase (+0.7%) while there were decreases for Norway (-0.5%) and Iceland (-2.0%).

Figure 7.4: Persons with a tertiary level education by gender in 2012

Persons with Tertiary Level Education - Gender balance

LFS adjusted series
in 2012



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Chapter 8: Economic performance

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Maps and data: Linus Rispling & Johanna Roto

Nordic regions among the top performers in Europe

Even though Nordic regions, including even their capital regions, are small in economic terms compared to most metropolitan regions in Central and Western Europe, they nevertheless remain highly competitive in international benchmarking terms, as they are often included in the list of top-performing regions in Europe (see figure 8.1). Nordic regions indeed show levels of GDP per capita that are comparable to those of much larger metropolises, such as London, Paris, Milan, Frankfurt or Amsterdam. In the Baltic Sea Region (see figure 8.2), the East-West divide is still apparent as the Nordic countries and regions continue to enjoy much higher levels of GDP per capita than their Eastern (including North West Russia) counterparts.

The Nordic average in GDP per capita corresponds to 124% of the European average. From a European and Baltic Sea perspective, regional disparities among Nordic regions are clearly less evident compared to

what may be found in many larger continental economies (such as France, Germany or Spain). As such, the Nordic regions appear to constitute a much more cohesive economic area than is the case in other parts of Europe. Most Nordic regions have a level of GDP per capita that is above the European (EU28) average. In Norway and Iceland, no region is below the European average. In Sweden, only the counties of Södermanland and Gotland are slightly below the European average (between 90 and 100% of the EU average). A similar pattern can be found in Denmark, with only Sjælland and Bornholm scoring below the European average, though their respective levels are below the 90% threshold. This picture needs however to be more nuanced when looking at the performance of Finnish regions. All Finnish regions located in the Northern and Eastern parts of the country are below the European average. Indeed, in Finland five counties show a level of GDP per capita below the 90% threshold of the EU average for 2010.

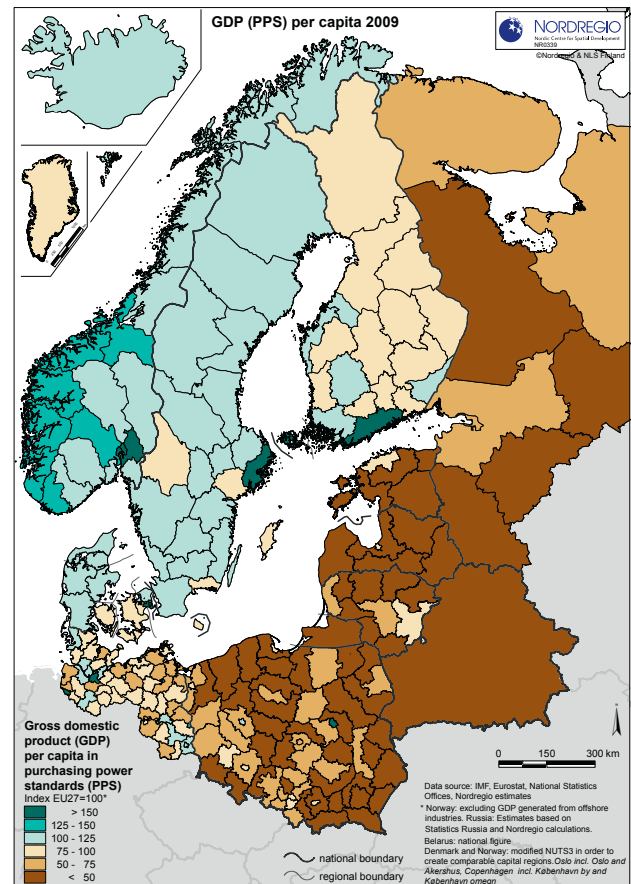
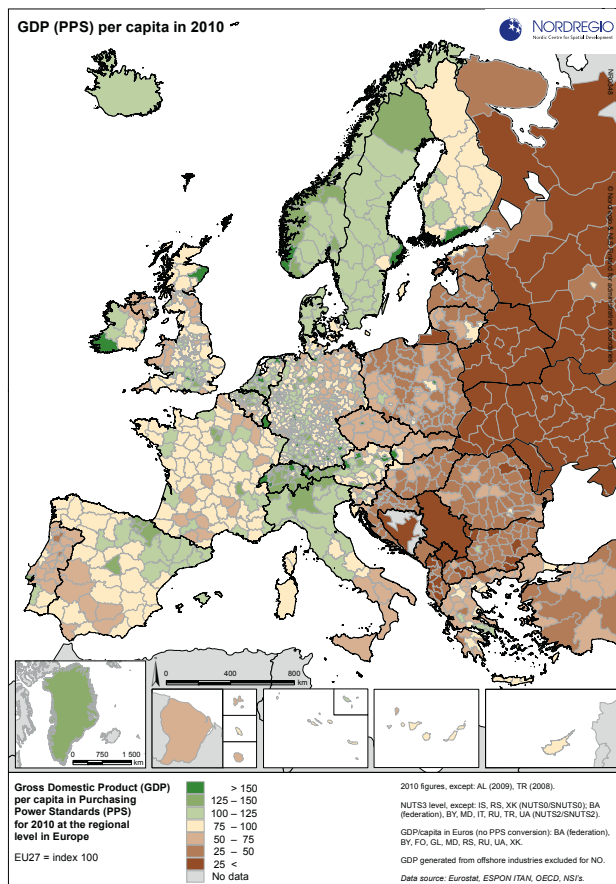


Figure 8.1 and 8.2: GDP (purchasing power standards) per capita of the Nordic regions in a broader European (2010) and BSR (2009) context

Agglomerations are the centres of Nordic growth...

Capital regions are still the main centres of growth in the Nordic region, performing well when benchmarked with other European capital cities: in terms of sheer size, they are still the largest economies of the Nordic region, which means that they usually concentrate a high proportion of their respective country's economy. Indeed, these regions are not only larger than other regions, they can also be seen as hyper-efficient production centres, i.e. with higher levels of GDP per capita, as illustrated in figure 8.3. This combination of higher economic mass and productivity tends to confirm the importance of agglomeration economies in the Nordic context: the larger the city-region, the better it performs in economic terms.

Other places that tend to perform well economically are the regions endowed with second-tier cities: Gothenburg in Sweden, Stavanger and Trondheim in Norway and Aalborg in Denmark. This pattern is much less pronounced in Finland for which the Tampere region performs somewhat averagely in both Nordic and European terms. As such, metropolitan and city-regions

can be viewed as the key centres of economic production in the Nordic Region, not unlike many other European countries.

...but large regional disparities remain...

One key economic development paradigm applicable in both Europe and the Nordic region is the belief that growth in the largest regional economies will 'pull' the other regional economies towards higher levels of performance through diffusion effects. There is however little empirical evidence to confirm that this paradigm is actually occurring, neither in the Nordic countries nor in the rest of Europe. In the Nordic region, economic growth is increasingly taking place in the capital regions or in the largest agglomerations. This means that persistent regional patterns of economic performance among Nordic regions remain as many Nordic regions simply cannot keep up with the fast pace of development set by the larger agglomerations. More importantly, the fact that the regions in close proximity to the capital region in Denmark, and to a lesser extent

also in Sweden, are performing poorly highlights the counter-tendency of Nordic agglomerations to limit the growth potential of proximate regions. It is clear then that, as is the case in many other European countries, room for manoeuvre remains in terms of implementing a regional policy that ensures a more balanced approach to regional development where resources and opportunities are more evenly distributed.

...despite a promising performance from Nordic rural and remote regions

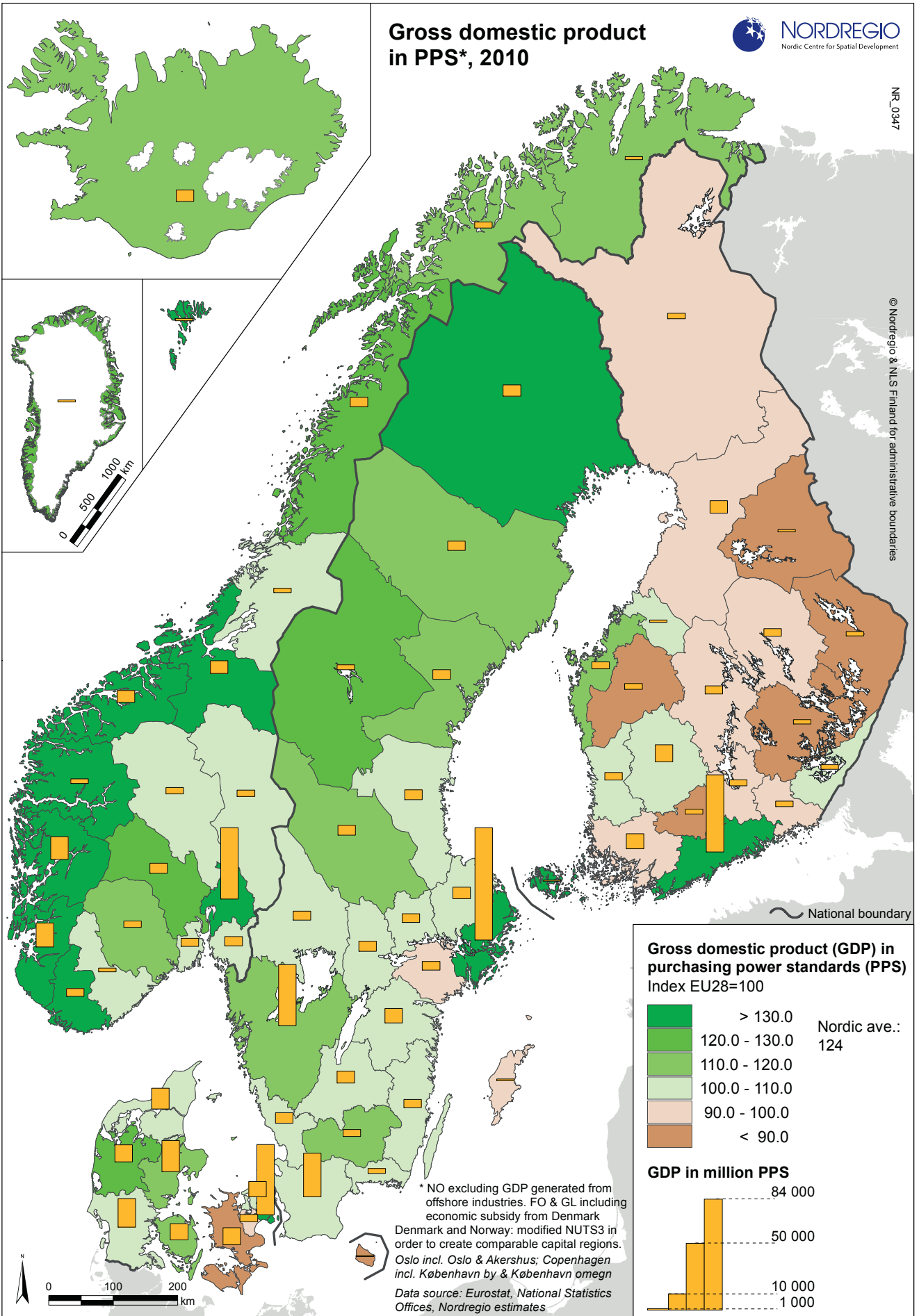
In addition to urban regions, there are also a number of smaller regions that display high levels of GDP per capita. The Swedish and Norwegian northern regions are all above the 110% threshold of the European average. Indeed, some of these regions can even be viewed as top performers: Åland, Norrbotten in Sweden, and Nordland in Norway each have GDP per capita levels higher than the 120% mark. Greenland and the Faroe Islands are also above the European average.

However promising these facts may appear, they should nevertheless be seen in the context of the existing economic structures in those territories. Indeed, whereas urban economies are often based on a diverse range of economic activities benefiting from urbanisation economies, the economies in the top-performing small regions are usually thriving thanks to a large, single industry often highly specialised internationally: in Åland, the transport sector; in Norrbotten, mining; and in Northern Norway, oil exploitation and fisheries. Although the vitality of these sectors induces a high level of economic performance for these regions, it leaves the regional economies highly vulnerable to changes occurring in these sectors which are usually well beyond the boundaries and the control of Nordic actors, both economic and political ones.

In this light one of the most important aspects for regional policy as it pertains to these territories is to be able to use this growth potential to induce new sectors of activity with higher added value to relocate to these areas, as propounded by the New Rural Economy theorists.

Figure 8.3: Distribution of GDP (in purchasing power standards) across the Nordic regions

Gross domestic product in PPS*, 2010



Chapter 9: Impact of the economic crises

Author: Ingrid H G Johnsen

Maps and data: Gustaf Norlén, Linus Rispling & Johanna Roto

The easy availability of low-interest loan capital during the 2000s which resulted in classical asset and loan bubbles in many countries, financial products that made valuations/risks difficult to determine while incentive pay-schemes awarded short term profits and fuelled risk-taking appetites, and worldwide banking operations which linked economies together making booms and depressions global instead of local. These were the main factors behind the financial crises that struck in 2008. Although the Nordic countries recovered better than the EU on average, they have nevertheless had to face a number of challenges in relation to their economies and their labour markets. The recession had a significant impact on both the private and public sectors. This is a consequence of the current economic strategy prevalent across Europe which is oriented toward exploiting globalisation as a means of raising productivity and income. This chapter discusses the impact of the crises on the Nordic countries.

GDP growth rates

The crises had a strong effect on growth rates. In the EU28 GDP decreased by 4.5% between 2008 and 2009 (figure 9.1). The Nordic countries also saw a decrease in GDP during the same period; however, the effect was less severe in some countries than in others.

Both Denmark and Iceland experienced a severe downturn in the financial services market, and Iceland's economy was hit by the collapse of its banking system. While Iceland had a positive growth rate until the crises struck, GDP decreased by 6.6% in 2009 and by 4.1% in 2010. The impact of the crises on the Icelandic economy was due, primarily, to the disproportionate size of the country's banking sector, its reliance on foreign trade, and the large amounts of foreign currency denominated debts it had incurred. Denmark saw the property bubble burst in 2008 which triggered a banking crisis. While Iceland has managed to recover in the last few years, Danish GDP, which fell by 5.7% in 2009, has picked up only slowly since then, growing by 1.6% in 2010, 1.1% in 2011 and 0.4% in 2012.

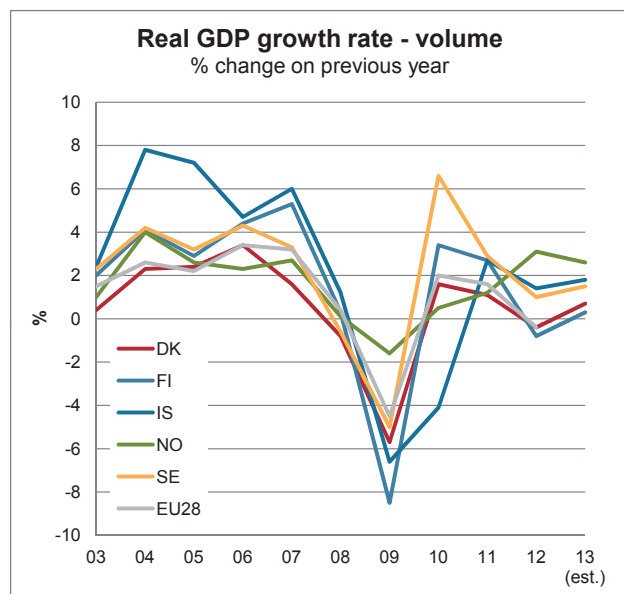
In Finland, the main downturn was in the export market, while the financial service sector managed fairly well. After a long period of robust growth, Finland saw a decrease in GDP by 8.5% in 2009. This decrease continued through 2010, but healthy economic fundamentals allowed the Finnish government to put in place broad stimulus measures that helped to dampen the effects of the crises (European Commission, 2013) and by 2011 Finland had already managed to make a recovery. Their dependency on exports, especially in capital goods, combined with the decline in global demand however ensured that Finland suffered a much sharper recession than the other Nordic countries.

Like Finland, Sweden also experienced a collapse of demand in its export markets (European Commission, 2013). The crises significantly affected the banks and the financial sectors, and in 2009 GDP fell by 5%. However, Sweden's strong public finances offered solid protection. The implementation of discretionary measures, including policies in immediate response to the crises as well as the implementation of tax cuts adopted during earlier reforms ensured that the public sector and financial services maintained a more constant level of activity, and from 2010 onwards Sweden was again experiencing GDP growth.

In Norway the GDP contraction in 2009 was only 1.6%, with growth recovery already by mid-2009. As a response to the crises, Norway used its oil funds to stimulate various sectors, including the financial services. Some of Norway's successful handling of the crises can be attributed to discretionary finance politics, facilitated by a large sovereign wealth fund, i.e. oil income savings, while some of it can be measured as the impact of its large and relatively well-functioning public sector.

Seen in relation to the EU28, Iceland saw strong GDP growth in 2012 compared with the previous year. Iceland is projected to be among the world's five fastest-growing advanced economies in 2013 (Guðmundsson, 2013) with growth estimated at 1.8% (although that is due in part to the recent slowdown in many other advanced countries). This growth is caused by increased

Figure 9.1: Real GDP growth rate – percentage change per year 2003-2013.



Source: Eurostat. **Note:** Finland: Includes Åland Islands. Faroe Islands, Greenland: No data

consumption, investment and exports, and tourism is among the most productive sectors, with travel now accounting for 5.9% of GDP (Óladóttir, 2013). Only Norway saw stronger growth than Iceland in 2013, which is mainly due to investment in the petroleum industry and housing (OECD, 2013). With regards to Denmark and Finland, future growth prospects are largely dependent on recovery in the Eurozone, due to their dependence on exports and trade.

At the sub-national level, Nordic capital regions have seen an increase in GDP levels over the period 2005-2010. In Denmark, the main areas of growth have been in Copenhagen and Århus, while the other regions continue to lag behind. In Finland, Helsinki has been less affected by the crises, while Varsinais-Suomi and Pohjois-Pohjanmaa were more severely affected because of the challenges facing the IT, high-tech, and maritime sectors. Both Finland and Sweden have seen growth in their northern rural regions such as Kainuu and Norrbotten because of the ongoing growth in the mining sector that dominates these regions.

In Norway the trend is similar to that of the other Nordic countries; while the Oslo and Akershus region experienced growth in GDP between 2005 and 2010 several surrounding regions have seen a decrease in GDP. Growth in employment has largely been within the knowledge-intensive industries, mainly in relation to the major cities, while there has been a decline in jobs for unskilled industrial workers. In recent years traditional industrial communities have experienced

closures and the relocation of dominant employers which has resulted in negative GDP growth rates.

Unemployment

Although the Nordic countries have performed relatively well during the economic crises with unemployment rates well below the EU28 average of 11% and generally strong growth, they nevertheless experienced strong negative effects on the labour market during the downturn.

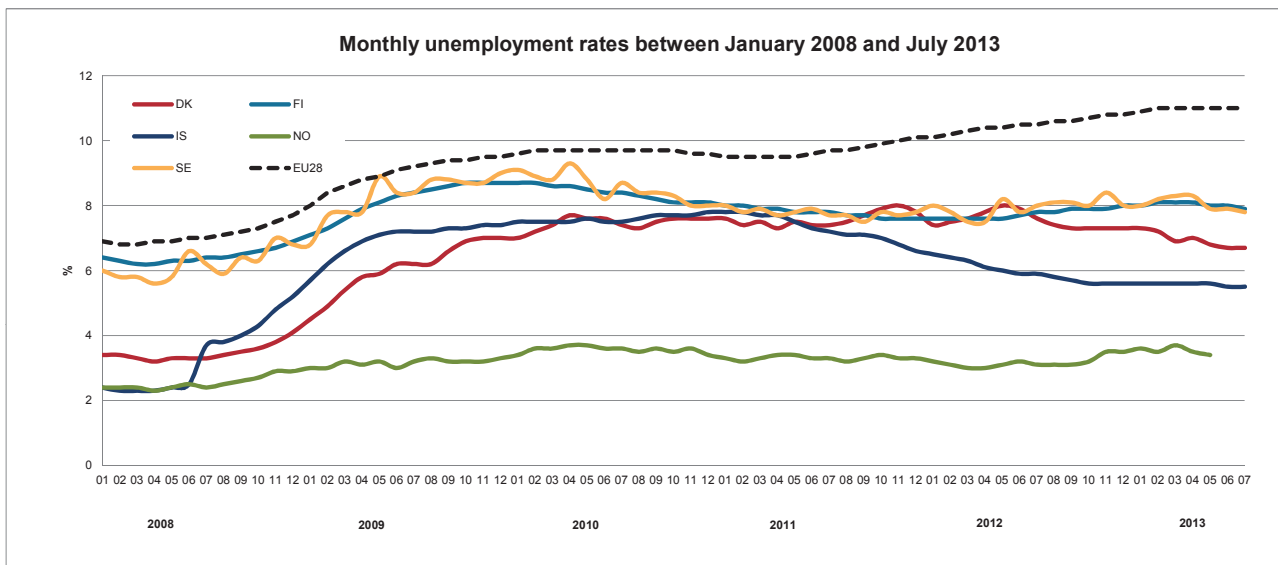
Iceland experienced the most dramatic change in unemployment between 2008 and 2012 (figure 9.2). At the beginning of 2008 the unemployment rate was among the lowest in Europe at 2.3% but by 2010 it had reached an all time high of 7.8%. However, this was still below the EU average, which can mainly be explained by out-migration; in 2009 the Icelandic population decreased by almost five thousand people (Steineke, 2010). In 2011 the economy started to recover, and since then Iceland has seen a steady decrease in unemployment rates.

Denmark's flexicurity model was also put to the test during the crises. Flexicurity is a compound of flexibility and security, with the aim being to promote employment over job security. The model has the dual advantages of ensuring employers a flexible labour force while employees enjoy the safety net of an unemployment benefit system and an active employment policy. As is common for a flexible labour market with low firing costs, the Danish immediate employment reaction was severe, and firms quickly fired workers in response to the fall in output. While the unemployment rate was only 3.2% in 2008, compared to an average of 6.9% in the EU28, unemployment rose to 7.6% in 2010, which is more than twice as high as pre-crisis levels.

Both Finland and Sweden have experienced relatively high unemployment rates between 2008 and 2013. In Sweden unemployment has been slowly falling from its peak at 9.3% in 2010, however, there was a slight increase in 2012 and 2013. Youth unemployment (for those between the ages of 15 and 24) is disproportionately high in Sweden compared to the other Nordic countries.

Although Finland had among the highest unemployment rates compared to the Nordic countries with a peak at 8.7% in 2009, the relative increase was not as high as in Denmark or Iceland. However, Finland has experienced more in terms of long term effects, with unemployment rates remaining close to 8% in 2013 (compared to 6.4% in 2008). This can be explained by Finland's extensive reliance on exports to the Eurozone countries, where austerity has weakened the demand

Figure 9.2: Monthly unemployment rates between January 2008 and July 2013.



Source: Eurostat. *Note:* Finland: Includes Åland Islands. Faroe Islands, Greenland: No data

for its exports, as well as declining domestic demand. This situation is similar to that of Denmark, which also experienced a reduction in domestic demand, resulting in declining private consumption and investment, which kept unemployment rates high.

In Norway robust economic conditions have prevailed largely because of growth in the oil and gas industry. This has helped to maintain low unemployment throughout the duration of the crises. In 2008 the unemployment rate was as low as 2.4%. It peaked in 2010 at 3.7%, but already the next year saw the start of the recovery. However, in 2012 Norway experienced an increase in unemployment, and in the third quarter of 2013 unemployment again reached 3.7%. This is due to weaker growth prospects, which is feeding through to the labour market and pushing up unemployment.

Bankruptcies

From 2008 to 2009 the Nordic countries on average experienced a large increase in the number of bankruptcies while by the year after the situation had already stabilised (figure 9.3).

On the national level, Denmark (16.8%) and Iceland (11.1%) had the highest annual average of bankruptcies between 2007 and 2012, well above the Nordic average of 7.9% (figure 9.4). Sweden, on the other hand, was well below the Nordic average at only 4.6%.

Denmark experienced the most dramatic effect, with a 50% increase in the number of bankruptcies in 2008. The numbers continued to rise between 2009 and 2010, at a time when the situation had already sta-

bilised in Sweden, Finland and Norway. The sectors in Denmark that were worst hit and experienced the highest increases in bankruptcies were agriculture, fisheries, financial institutions, production companies and the health sector.

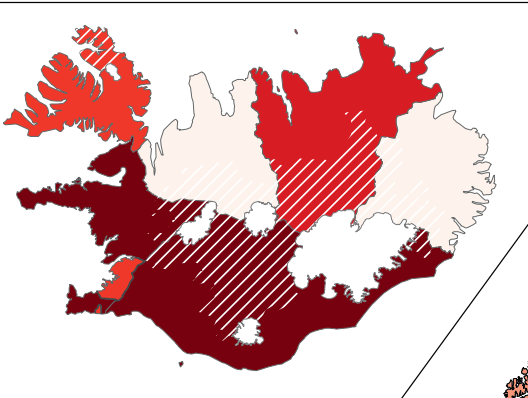
Finland had the least dramatic curve, with a relatively small increase in the period between 2007 and 2009, while both Norway and Sweden experienced a notable increase during 2009 but recovered quickly thereafter. However, in Sweden there was an increase again between 2011 and 2012.

At the sub-national level, the Nordic countries witnessed increasing disparities between 2008 and 2012. This is in line with the general trend in the EU15 where regional disparities in GDP per head and regional unemployment increased every year from 2007 until 2012. In general the capital regions were better off than rural regions, although the capital regions Copenhagen and Reykjavík stand out from a Nordic perspective, since these have high average levels for bankruptcies.

The Finnish and Swedish capital regions were more resistant to the crises than other regions. While the Helsinki region was left more or less unscathed, the industrial strongholds of Northern and Eastern were severely affected. The region Dalarna in Sweden as well as Åland and Pohjois-Karjala in Finland, were also among the 12 Nordic regions with the highest increase in bankruptcies between 2007 and 2012.

In Sweden the sectors most affected by the economic downturn were primarily businesses in the input goods industry and the capital-investment goods industry.

Increase of bankruptcies in the Nordic regions 2007-2012*



* Annual average change of bankruptcies 2007-2012, in %.

DK: Estimates 2007-2008.
NO: Akershus and Oslo merged as comparable capital region.

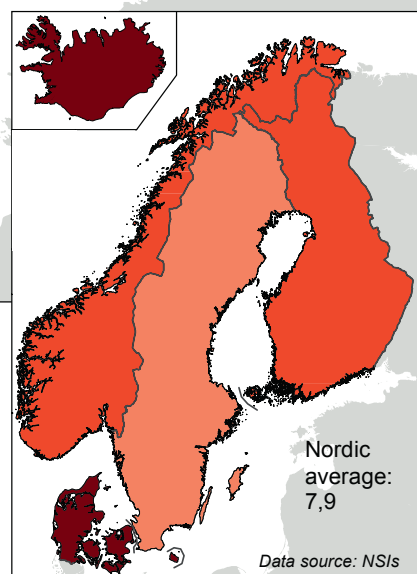
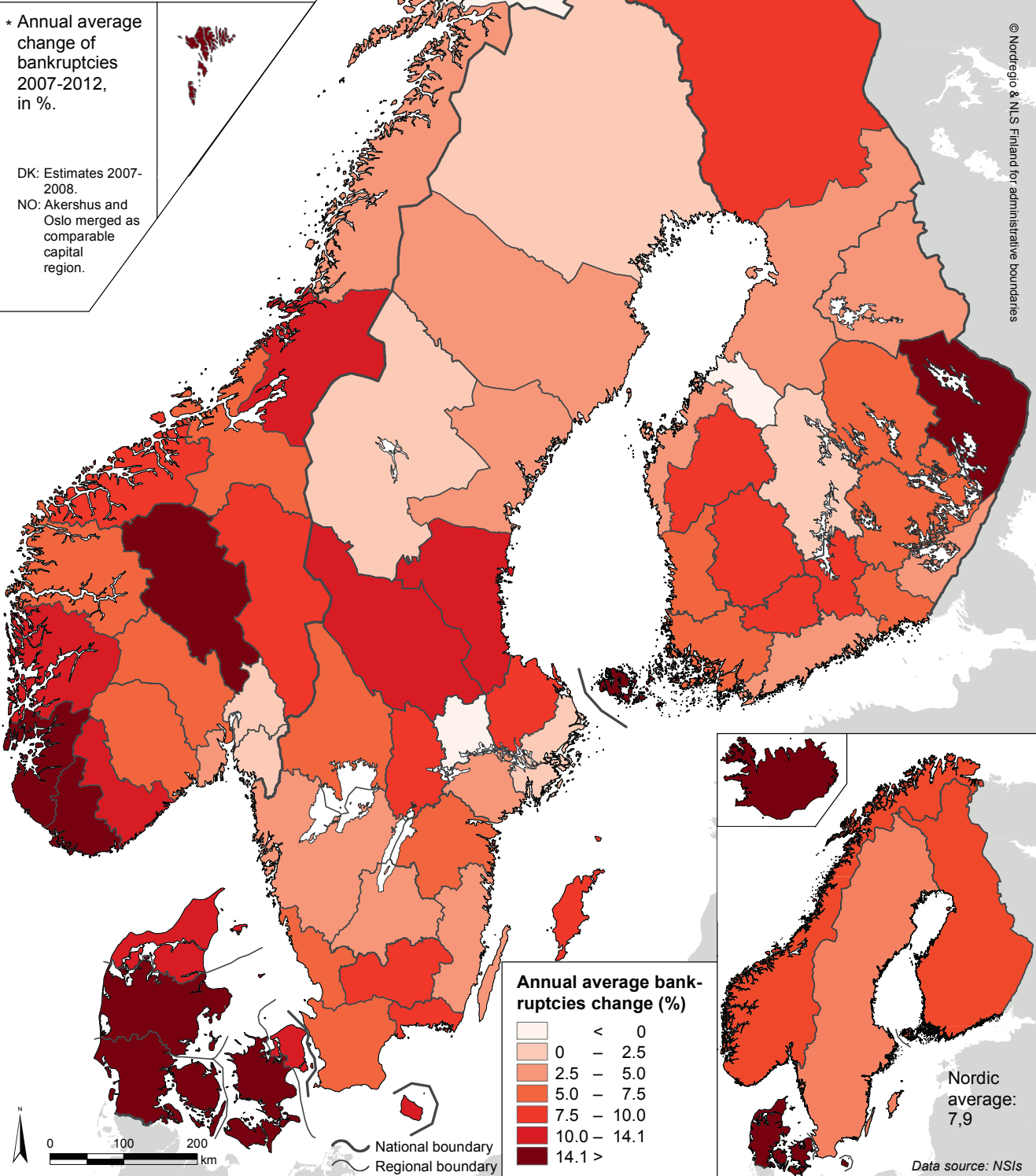
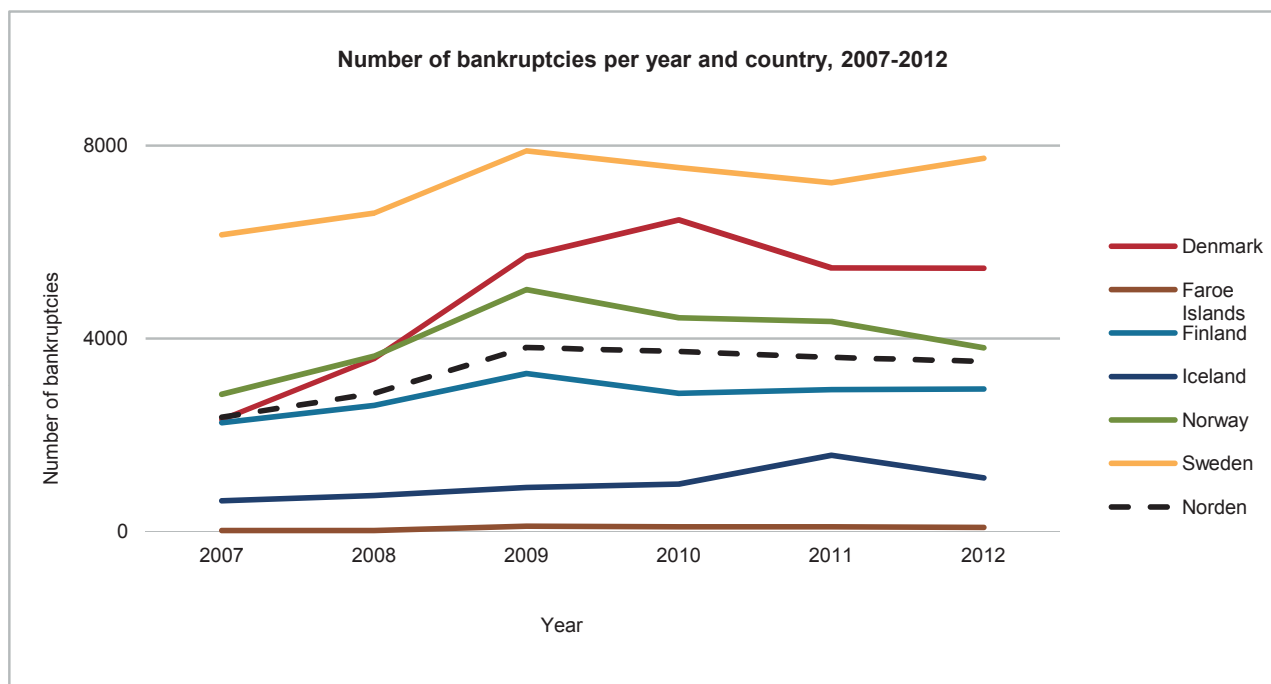


Figure 9.3: Number of bankruptcies per year and country, 2007-2012.



Note: In absolute numbers. Harmonisation by Nordregio. Finland: Includes Åland Islands. Greenland: No data

The regions in which these industries play a major role were also those where unemployment grew the most, including Värnamo in Jönköping, Eskilstuna in Södermanland and Trollhättan in Västra Götaland. This trend is in line with the general tendencies across the EU27 where employment in metro regions was more resistant to the crises than in non-metro regions between 2007 and 2010 (European Commission, 2013).

Although most of the Nordic countries have managed to reduce the disparities since 2010, a general trend is that the long-term effect of poverty or social exclusion is more evident inside the capital regions. This is in line with the development in the EU as a whole, and can be seen as one important future challenge for the development of the Nordic regions.

Figure 9.4: Annual average change in bankruptcies 2007-2012. Note: Greenland: No data

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Chapter 10: Innovation and entrepreneurship

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Maps and data: Gustaf Norlén, Linus Rispling & Johanna Roto

The importance of promoting innovation and entrepreneurship is emphasised in the EU 2020 Strategy in connection with its objective on “smart growth” which involves developing an economy based on knowledge and innovation:

“Smart growth means strengthening knowledge and innovation as drivers of our future growth. This requires improving the quality of our education, strengthening our research performance, promoting innovation and knowledge transfer throughout the Union, making full use of information and communication technologies and ensuring that innovative ideas can be turned into new products and services that create growth, quality jobs and help address European and global societal challenges. But, to succeed, this must be combined with entrepreneurship, finance, and a focus on user needs and market opportunities.” (COM, 2010, p.11-12)

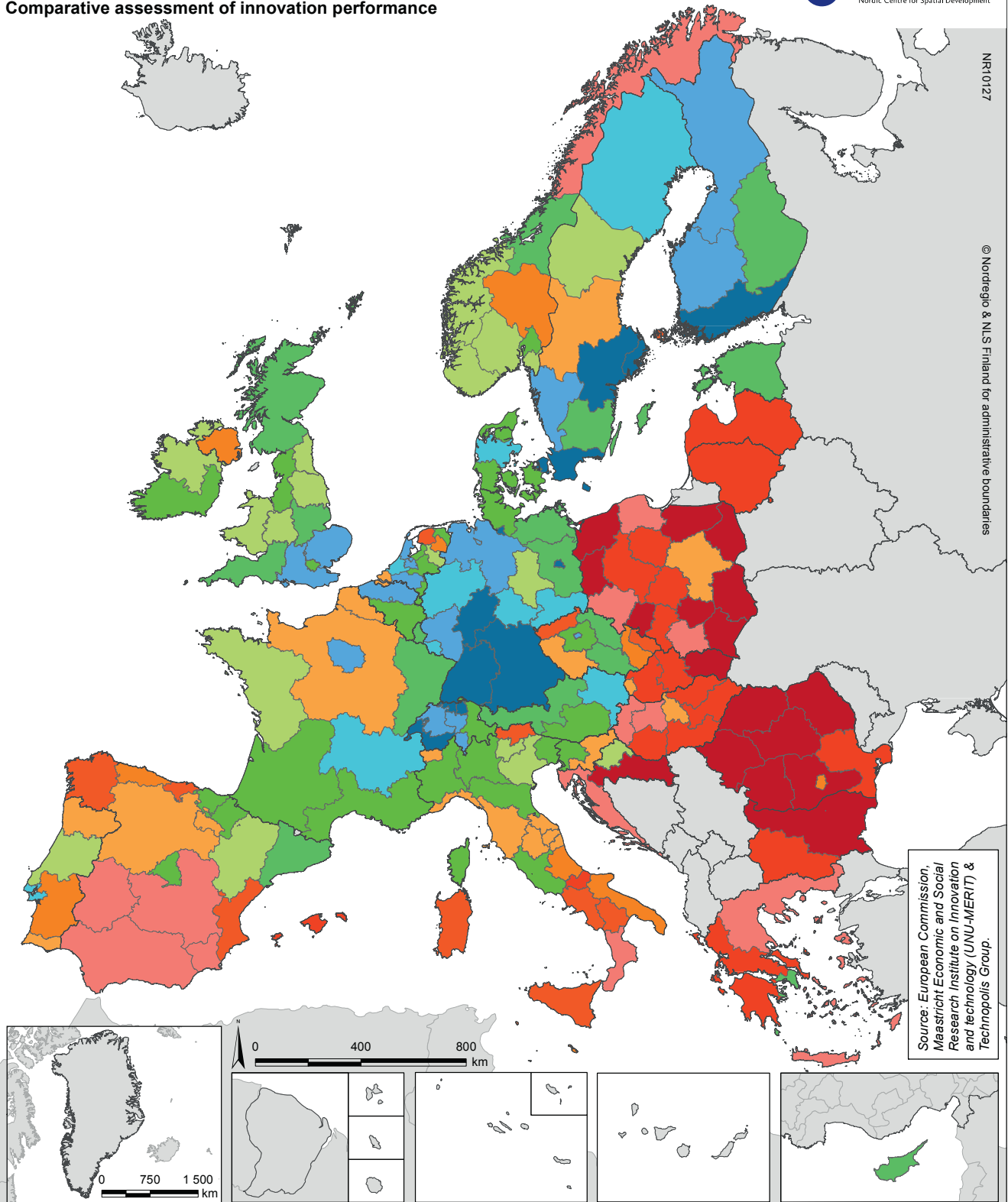
This section explores regional innovation and entrepreneurship at the regional level in the Nordic region. First, an overview of the Nordic region’s innovation performance in a European comparison is provided. Second, the chapter looks at the pre-conditions for innovation in the regions in terms of skills and human resources (higher education and lifelong learning etc.), and R&D expenditure and intensity. Finally, focus is placed on entrepreneurship in terms of the number of business start-ups in 2011 across the Nordic regions.

Innovation performance in a European context

Innovation, which is a key driver of economic growth and thus of jobs, is increasingly related to the capacity of regional economies to engage in a process of renewal. Regions and cities have become the primary spatial units where knowledge is transferred, innovation systems are built and competition to attract investment and talent takes place. This implies that regions that score highly in terms of innovation performance demonstrate good regional development potential and also that they are likely to be well equipped to deal with changes in the global marketplace. In the following, regions in the Nordic countries (with the exception of Iceland) and Åland Islands are viewed in comparison with other European regions in terms of their innovation performance, which is measured through the EU initiative, the Regional Innovation Scoreboard. This tool ranks groups of regions across Europe at broadly similar levels of performance, based on 12 indicators. The indicators are grouped into enablers, including human resources and R&D expenditure; firm activities, e.g. R&D expenditure by business sector, non-R&D innovation expenditures, and innovation cooperation between SMEs; and outputs in the introduction of new product, process, marketing or organisational innovations (Hollanders et al, 2012, p.10). The regions are clustered into four broad categories: leader, follower, moderate, and modest innovators. In figure 10.1 each of the categories have been further sub-divided into high, medium and low performers to clarify the position of each region within the category to which they belong.

Regional Innovation Scoreboard* 2012

Comparative assessment of innovation performance



Regional Innovation Scoreboard* (RIS) 2012, European Commission's index based on 12 innovation indicators

- | | |
|---|---|
| ■ Leader – High | ■ Moderate – High |
| ■ Leader – Medium | ■ Moderate – Medium |
| ■ Leader – Low | ■ Moderate – Low |
| ■ Follower – High | ■ Modest – High |
| ■ Follower – Medium | ■ Modest – Medium |
| ■ Follower – Low | ■ Modest – Low |

The RIS index is based on 12 out of 24 innovation indicators from the European national level Innovation Union Scoreboard (IUS), including data on tertiary education; R&D expenditures as % of GDP; SMEs and innovation/patents; Public-private co-publications; PCT patent applications; Employment in knowledge-intensive activities. The index includes four performances groups, ranging from Modest (low performance) to Leader (high perf.), each with subgroups (Low/Medium/High).

■ No data

* CY, EE, LV, LT, LU and MT (national level only) included from IUS according to their estimated position in RIS.

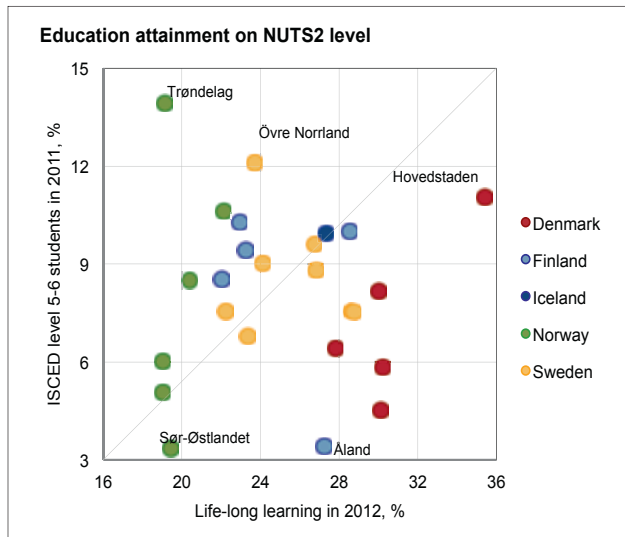
From a Europe-wide national perspective, Denmark, Finland, Sweden and Germany make up the ‘leader’ category thus reflecting the high performance levels of the Nordic countries in this area. At the regional level most of the innovation leaders and followers are found in larger city regions in Central Europe, the UK and Ireland, as well as in Denmark, Finland, and Sweden. Some follower regions are also to be found in Norway, though no leader regions have been identified. Most of the moderate and modest innovators are based in Eastern and Southern Europe. A few moderate and modest innovator regions are, however, also identified in the Nordic countries. Hedmark and Oppland in Norway and Norra Mellansverige in Sweden are moderate innovators, while Northern Norway and the Åland Islands are categorised as modest innovator regions. In general, across Europe, capital regions are found to be more innovative than non-capital regions. This is also the case in the Nordic countries, where the clear leader regions are centred on Helsinki, Stockholm, Copenhagen and Southern Sweden (the Öresund region). In addition, the Midtjylland region in Denmark, Västsverige, Norrbotten and Pohjois-Soumi and Länsi-Soumi are categorised as medium and/or low leader regions.

To conclude, in a European context the Nordic countries are highly ranked overall, with the capital regions of Denmark, Finland and Sweden viewed as strong drivers. Notwithstanding this positive picture for the capital regions however the Nordic countries do also contain some moderate and indeed even modest innovator regions.

Higher education and lifelong learning

In a knowledge-based economy higher education is a significant enabler of innovation and economic growth. Similarly, the notion of lifelong learning is an important element in the continual adaptation of knowledge and skills and human resources more broadly to changing economic and labour market conditions. Figure 10.2 shows the balance between the number of students in tertiary education (ISCED97 levels 5 and 6) as a share (%) of the population aged 20-64 years in 2011, and the participation of adults aged 25-64 in education and training in 2012 (in %).

Figure 10.2: Education attainment on NUTS2 level.



Source: Eurostat. **Note:** Faroe Islands and Greenland: No data.

On average, the share of students in tertiary education (of the population aged 20-64) is approximately 8% across the Nordic countries, which is above the EU27 average of 6.5%. There is however some variation at the regional level, where the highest numbers of students is in the urban regions. As a share of the population, the highest number of students in tertiary education is to be found in Trøndelag in Norway with 13.9%, Övre Norrland in Sweden with 12.1%, followed by the capital region of Denmark with 11.1%. The lowest number of students in tertiary education is to be found in Sør-Østlandet in Norway and Åland Islands (both 3.4%) followed by Sjælland in Denmark with 4.5%. In terms of lifelong learning, it is clear from the figure that, in general terms, there is a low share of inhabitants in Norwegian regions active in lifelong learning (19.6%), whereas there is a comparatively high share of the population undertaking lifelong learning in the Danish regions (30.7%). Between these two is Iceland with an average score, in terms of population active in lifelong learning, of 27.3%. Sweden records a score of 25.5% while Finland scores 24.7%. While there is clearly variation between the Nordic countries then, in terms of the percentage of the population in lifelong learning, they are all well above the EU27 average of 9%.

Figure 10.1: Regional innovation scoreboard 2012. Note: Faroe Islands, Greenland, Iceland: No data.

It could be argued that regions that have a high share of inhabitants undertaking higher education as well as lifelong learning have favourable preconditions for innovation. In the Nordic countries, the capital region of Denmark, followed by the capital regions of Finland, Iceland and Sweden have a high share of the population in both tertiary education and lifelong learning. It is, moreover, notable these are all, with the exception of Iceland (which was not included in survey), categorised as high leader regions in terms of the Regional Innovation Scoreboard.

R&D intensity and expenditure

High levels of private and public expenditure in research and development (R&D) are also considered important preconditions for innovation. The Nordic average expenditure in R&D is 3% of GDP, which is above the EU27 average of 2%. Combined, the Nordic countries thereby meet the objective of the EU 2020 Strategy that 3% of the EU's GDP should be invested in R&D. At the national level (2011 data) only the Nordic Countries of Finland (3.8%), Sweden, Denmark and non-EU country Iceland have attained this goal. Norway invests a lesser share of its GDP in R&D/innovation (2.1%) but if measured as R&D investments per capita instead of GDP Norway belongs to the same top European group as the other Nordic Countries.

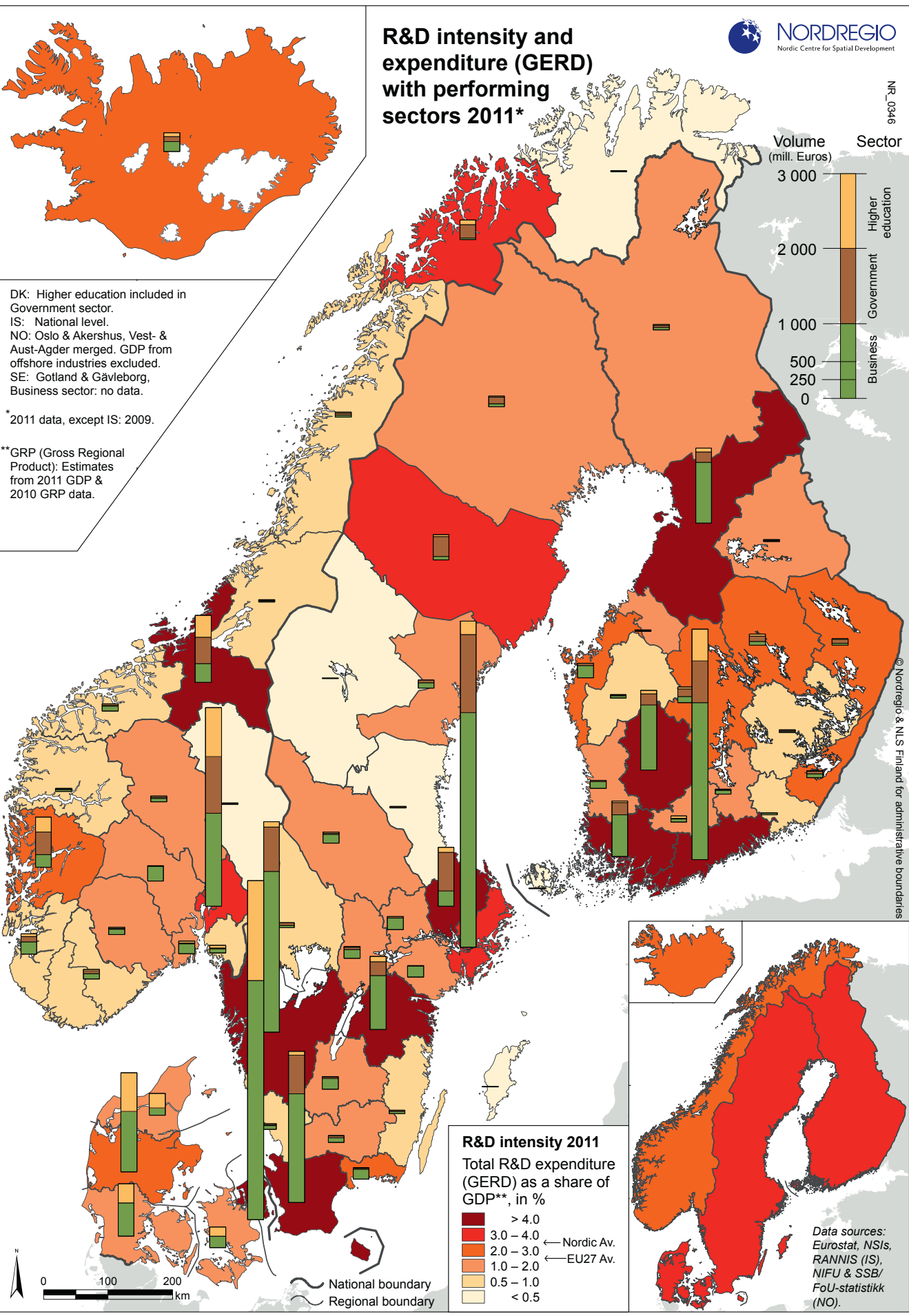
Figure 10.3 shows R&D intensity and expenditure in higher education, government and business at the regional level in the Nordic countries and Åland Islands. Some regions are well above the EU27 average with an expenditure of more than 4% of GDP, corresponding to the best performing regions in the Regional Innovation

Scoreboard, namely, the capital regions of Denmark, Finland, and Sweden with the neighbouring region Uppsala, and Skåne. Other regions with expenditure levels above 4% include Pohjamaa and Pirkanmaa in Finland, Västra Götaland and Östergötland in Sweden, and Sør Trøndelag in Norway. A number of regions in the Nordic countries have less than 2% expenditure on R&D, and five regions have less than 0.5%: Finnmark and Hedmark in Norway, Jämtland, Gävleborg and Gotland in Sweden, and Åland Islands. R&D expenditure in terms of volume (mill Euros) is highest in the capital regions of Denmark, Finland, Sweden and Norway followed by other urban regions, such as Midtjylland in Denmark, Skåne and Västra Götaland in Sweden, and Birkaland in Finland. The share of expenditure by private businesses is also highest in the capital and urban regions.

According to the EU 2020 targets, there is a clear need to improve the conditions for private R&D, and to enhance private sector investment in R&D. A list of companies with high R&D level investments (The 2012 EU Industrial R&D Investment Scoreboard with 1500 world companies) includes 71 Nordic companies with a total R&D investment of 18000 €m. 26 of these companies are based in Sweden; 21 in Denmark; 14 in Finland; 9 in Norway; and 1 in Iceland. Table 10.1 shows the top 10 Nordic private sector R&D investors which is comprised of multinational corporations in industries such as technology hardware and equipment (FI and SE), industrial engineering, and household goods and home construction (SE), pharmaceuticals and biotechnology and alternative energy (DK), and banks, and oil and gas producers (NO). All of them are based in the Nordic capitals or in other main city Nordic regions.

Figure 10.3: R&D intensity and expenditure (GERD) with performing sectors 2011. **Note:** Finland: Includes Åland Islands on small national level map (bottom right corner). Faroe Islands and Greenland: No data

R&D intensity and expenditure (GERD) with performing sectors 2011*



DK: Higher education included in Government sector.
IS: National level.
NO: Oslo & Akershus, Vest- & Aust-Agder merged. GDP from offshore industries excluded.
SE: Gotland & Gävleborg, Business sector: no data.

* 2011 data, except IS: 2009.

**GRP (Gross Regional Product): Estimates from 2011 GDP & 2010 GRP data.

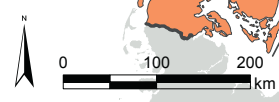


Table 10.1: Top 10 Nordic Companies included to R&D Ranking of the top World Companies.

Nordic Rank	Company	Country	World Rank	Industry
1	Nokia	Finland	15	Technology hardware & equipment
2	Ericsson	Sweden	29	Technology hardware & equipment
3	Volvo	Sweden	55	Industrial engineering
4	Novo Nordisk	Denmark	89	Pharmaceuticals & biotechnology
5	Vestas Wind Systems	Denmark	237	Alternative energy
6	Sandvik	Sweden	282	Industrial engineering
7	DNB	Norway	303	Banks
8	Statoil	Norway	311	Oil & gas producers
9	Electrolux	Sweden	362	Household goods & home construction
10	Hexagon	Sweden	368	Industrial engineering
55	Marel	Iceland	1233	Industrial engineering

Source: The 2012 EU Industrial R&D Investment Scoreboard. **Note:** Ranking based on companies' investments in R&D

While being aware that the number of patents does not give the full picture of R&D output in terms of innovation and economic returns from investments made, it does however provide a statistical indication of how successful these economies may be. Table 10.2 provides an overview of the number of patent applications per million inhabitants 2010, according to the international PCT (Patent Cooperation Treaty) standard, and is based on OECD data. The Nordic countries are placed high on this list. Sweden is the Nordic leader with a total of 295 patent applications per one million inhabitants, followed by Finland (282) and Denmark (192), Norway (137) and Iceland (75). Norway and Iceland are thus ranked further down on the list than the other three Nordic countries, but both Norway and Iceland are still well positioned by an international comparison.

Table 10.2: PCT patent applications per million inhabitants.

	PCT patent applications per million inhabitants in 2010
Denmark	191,55
Finland	282,08
Iceland	74,88
Norway	137,23
Sweden	294,72

Source: OECD iLibrary (Innovation Indicators). **Note:** Finland: Includes Åland Islands. Faroe Islands, Greenland: No data

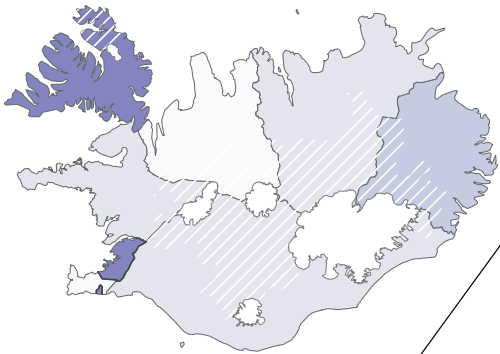
Entrepreneurship

Many policy makers agree that entrepreneurs, and the new businesses they establish, play a critical role in the development and well-being of their societies (Xavier et al, 2012). It is also stated in the EU 2020 targets that entrepreneurship is important for 'smart' growth. Figure 10.4 shows the total number of new enterprises in 2011 as a share (%) of 1000 persons aged 15-64 set up in the Nordic countries and Åland Islands in 2011. The map does not distinguish between different sectors, but it does give an illustration of the varied nature of the situation in terms of the total number of start-ups across regions in the Nordic countries in 2011.

There is a clear ranking in terms of the national average of the total number of newly registered enterprises, which is highest in Norway with over 12% per 1000 persons aged 15-64; followed by Sweden with approximately 10%; Denmark and the Åland islands with about 9%; and finally Finland and Iceland with an average of around 7%. Looking more closely at regional differences within each country reveals a picture that is quite similar to the R&D intensity map. Particularly

Figure 10.4: New enterprises 2011. **Note:** Faroe Islands, Greenland: No data

New enterprises 2011*



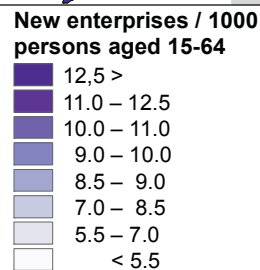
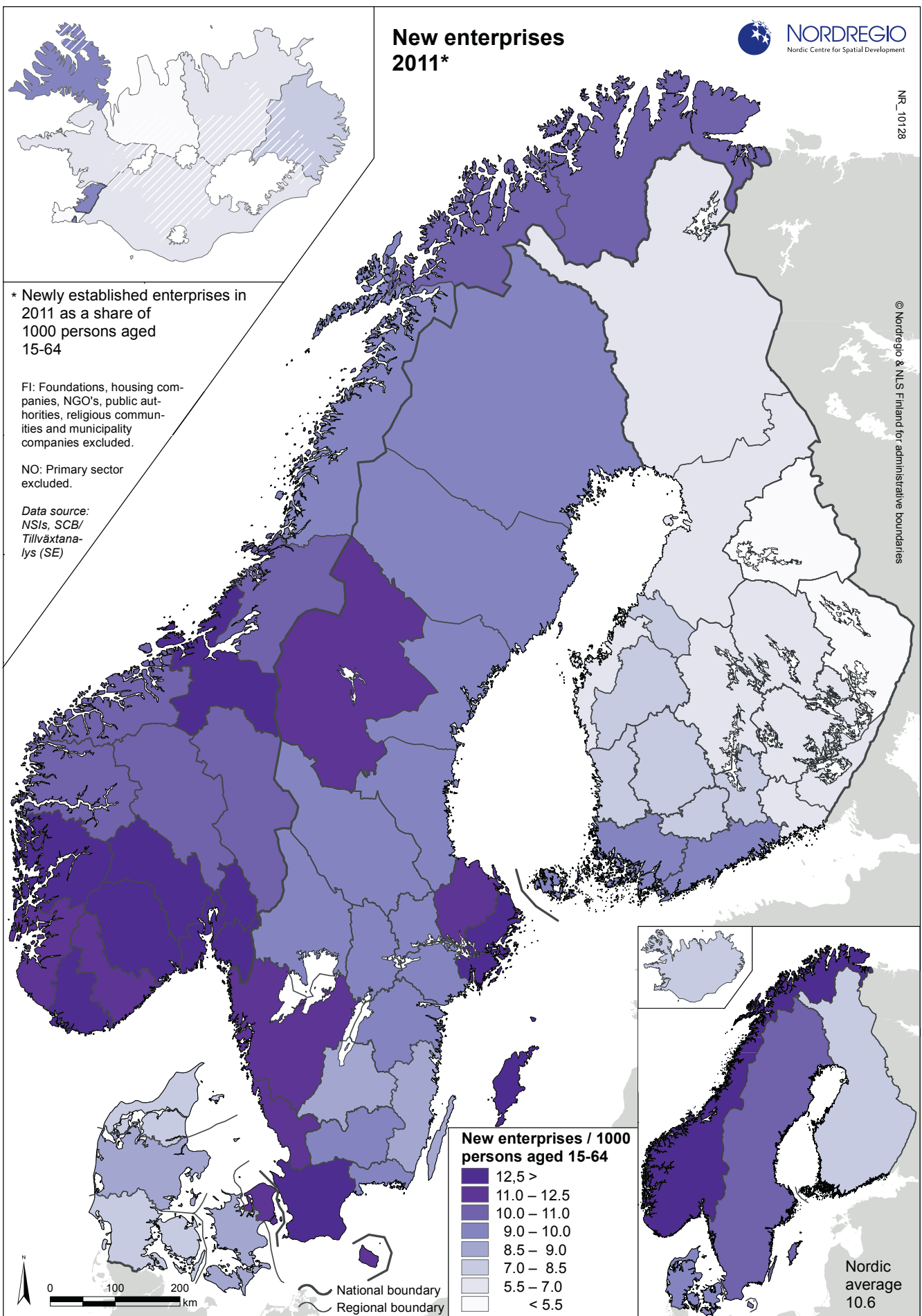
* Newly established enterprises in 2011 as a share of 1000 persons aged 15-64

FI: Foundations, housing companies, NGO's, public authorities, religious communities and municipality companies excluded.

NO: Primary sector excluded.

Data source:
NSIs, SCB/
Tillväxtanalys (SE)

© Nordregio & NLS Finland for administrative boundaries



Nordic average
10.6

low start-up rates are found in the eastern and northern parts of Finland, and Iceland (with the exception of the capital and Vestfirir). In general, high rates of newly established companies are found in regions that also have a high R&D intensity, such as the capital regions, Hordaland and Sør-Trøndelag in Norway, Västra Götaland, Uppsala and Skåne in Sweden, and Varsinais-Suomi in Finland. However, some peripheral regions in Finland, Norway and Sweden also have particular high rates

of start-up companies compared to their respective national averages, although these regions also tend to have fairly small R&D numbers. Such regions include Vest-Agder and Østfold in Norway, Jämtland and Gotland in Sweden, and Åland Islands. The relatively high start-up rates of these regions may indicate that more firms are set up mainly to ensure self-employment in peripheral regions, where employment opportunities are often limited.

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Chapter 11: Green Growth

Author: Ryan Weber

Maps and data: Ryan Weber, Gustaf Norlén and Linus Rispling

Garnering significant attention in the Nordic region, green growth is a theme where individual countries and the Nordic region as a whole have established themselves as true global leaders. Key policy frameworks have been put in place and significant investments in green technologies are being made, both in terms of influencing resource consumption domestically and with a view to targeting the international market for environmental goods and services.

The main reason for the policy focus placed on green growth across the Nordic region is the important strategic economic advantages that an international focus on this area can provide for the Nordic countries. As such, the Nordic countries are hedging their bets that the environmental sector will continue to gain in importance and that their existing strengths in this field can be translated into further growth. Collectively, the Nordic region is endowed with a supply of natural resources which is unrivalled in Europe and is impressive even at a global level. This includes bountiful supplies of renewable energy resources (Figure 11.3), which have also played an important role in establishing clean tech companies and have become highly competitive on the global scale. Coupled with the Nordic countries' history of stewardship in fields such as energy efficiency and environmental protection, an international focus on green growth plays perfectly into these Nordic strengths. To maintain this favourable position however, the Nordic region must continue with new, innovative approaches to growth. As an example of this, Nordic cooperation provides an opportunity to take advantage of synergies and economies of scale to push forward and maintain this favourable position.

This chapter will take up discussion on how Nordic green growth is applied as a policy concept and how it is being measured and assessed. Up-to-date indicators will illustrate current regional trends in the Nordic region – showing evidence of the advantageous position

in which the Nordic region has placed itself for future green growth opportunities as well as some noteworthy territorial distinctions that should be considered when shaping future policy making. Through the indicators the importance on quality and consistency in measuring the progress of the green growth agenda in the future will be emphasised.

Understanding green growth in Nordic policy

The Nordic Council of Ministers made a strategic decision to develop green growth as a headline policy theme. Since 2010, the Nordic prime ministers' Nordic Working Group on Green Growth has supported Nordic co-operation with a view to creating positive synergies, including a broader Nordic presence at the European and global level which is greater than any individual Nordic country could have on its own. The pooling of resources also creates a larger internal market with which to support research, innovation and the market penetration of exportable green products and services.

The first report emanating from this co-operation process, 'The Nordic Region – leading in green growth', identified Nordic ambitions to lead from the front in an economy based on more environmentally conscious products, services and consumption behaviours (Norden, 2010). It laid out a vision with eight tangible priorities for Nordic co-operation based on the regions' existing strengths in energy efficiency, the development of sustainable energy, environmental awareness, investment in innovation and research and ambitious international targets for the environment and climate. The Nordic Green Growth Initiative now has its own website and magazine (norden.org/greengrowth) to share track policy development and investment initiatives.

Table 11.1 Strategic Priorities of Nordic Co-operation toward Green Growth

Strategic Priorities of Nordic Co-operation toward Green Growth	
Developing Nordic test centres for green solutions	Education, training and research for green growth
Promoting flexible consumption of electricity	Green-tech norms and standards
Green public procurement in the public sector	Developing techniques and methods for waste treatment
Promoting the integration of environmental and climate considerations into development aid	Co-ordinating and improving funding for green investment and companies

Source: Norden, 2010

The Working Group proposes to apply the OECD’s definition of green growth as a basis for a Nordic approach:

“Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities” (OECD, 2011, p. 9).

This definition describes the fact that while sustainable development concepts prioritise the economic, social and environmental pillars of development equally, green growth has a tighter focus on interactions between economic growth opportunities and the reduction of human impacts on the environment. As a result, green growth does not replace sustainable development, but it recognises that achieving sustainability rests almost entirely on getting the economic conditions right (OECD, 2011; UNEP, 2011). Complimenting this, the OECD, states that green growth is narrower in scope than sustainable development and entails an “operational policy agenda to achieve concrete and measureable progress at the interface between the environment and the economy” (OECD, 2011, p. 11). The latter perspective here provides a concise and operational way to interpret the green growth concept – as the broad sets of instruments that are deployed in order to transition from our current economy towards a greener one.

Monitoring green growth progress in the Nordic region

Drawing on the OECD’s statement “concrete and measurable progress at the interface of the environment and the economy” many attempts have been made to form different types of statistical models that attempt to

measure green growth performance by going beyond GDP as a measure of development (Arrow, Dasgupta, Mumford, & Oleson, 2012; EC, 2013; GGKP, 2013; OECD, 2011a, 2011c; Smed Olsen & Weber, 2012; Stiglitz, Sen, & Fitoussi, 2009). However, (Stiglitz et al., 2009), and in a Nordic context, (Hass & Palm, 2012), note that the extreme breadth of potential green growth interventions – across an array of socio-economic sectors and policy fields – has significantly limited the success of such efforts. This is due to the fact that most efforts have attempted to compile indicators into a single composite indicator or index, which therefore becomes convoluted with respect to both the breadth of green growth and the place-based territorial specificities that become increasingly important when growth is understood vis-à-vis local social and environmental assets (Weber, Galera-Lindblom, & Rasmussen, 2012). Furthermore, while synthesis indices may be appropriate for awareness- or issue-raising, they generally become so complex that they cannot be appropriately used for monitoring policy strategies.

Three comparative Nordic indicators

This brief assessment on the state of regional strengths, weaknesses and opportunities for green growth places emphasis on presenting basic indicators at a high spatial resolution. This implies that indicators are valuable when they: combine simplicity with explanatory power, so they can be easily updated to measure progress; when they are narrower in focus, so they can be easily attached to more specific policy targets; and are available at the sub-national level, in order to identify and account for regional specificities that shape green growth opportunities. Based on these factors, coupled with the Nordic’s green growth vision based on the region’s existing strengths in energy efficiency, sustainable energy development and investment in innovation and research (Norden, 2010, p. 3), the following maps

help to illustrate the state of the Nordic region in pursuing green growth:

- Electricity consumption patterns in the Nordic region
- Electricity production patterns in the Nordic region
- Nordic eco-innovation inputs and outputs

“There is no ‘one size fits all’ prescription for implementing strategies for green growth. Greening the growth path of an economy depends on policy and institutional settings, level of development, resource endowments and particular environmental pressure points” (OECD, 2011b, p. 10).

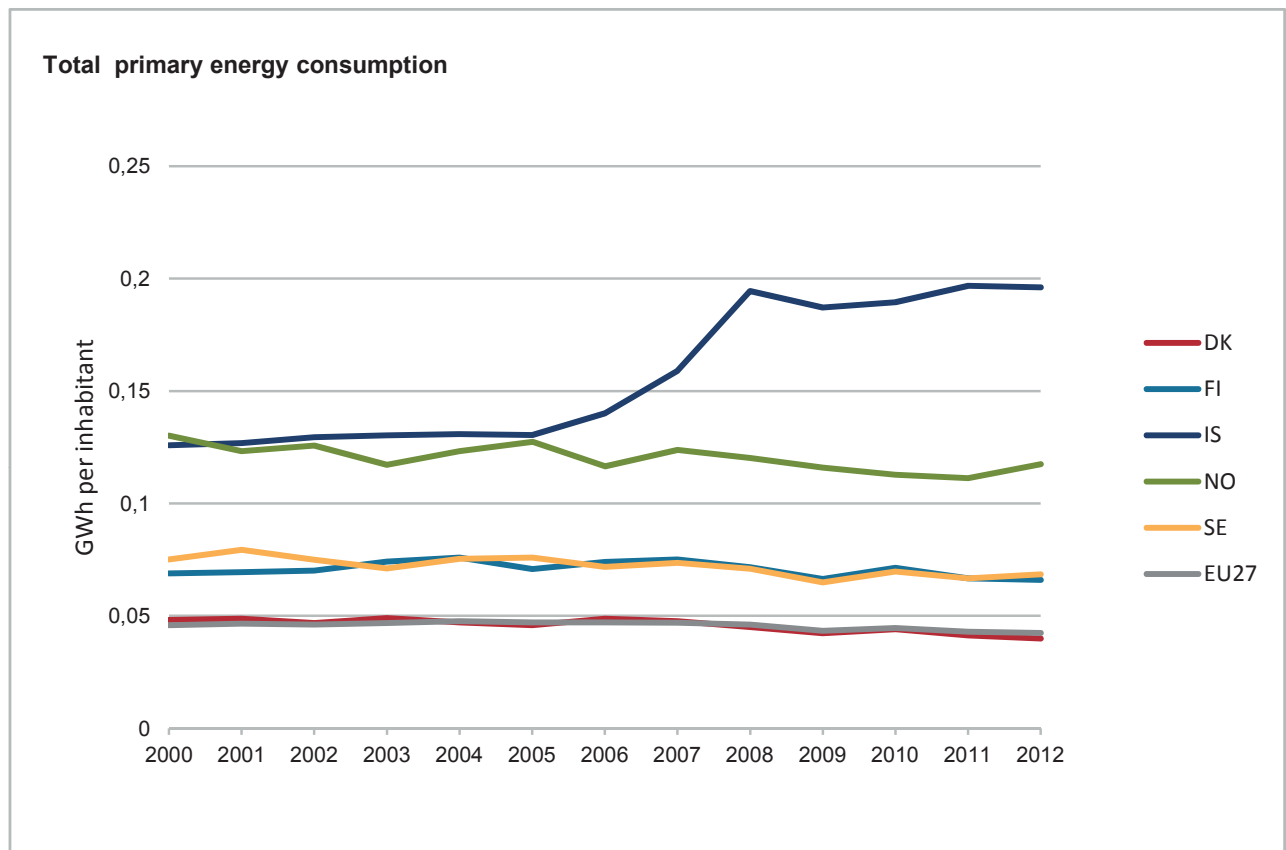
One aspect of accounting for Nordic ‘pressure points’ is shown in Figure 11.1. Despite being world leaders in policy action on climate change and having relatively low levels of GHG emissions, Nordic Countries continue to be among the largest consumers of energy (and material resources) per capita. This is due to the combined effects of: geographical location, the Nordic’s many sparsely populated regions (resulting in high transport consumption), a relatively high standard of living, and not least, the effects of “imported energy consumption” - where the availability of hydro and geothermal energy is used to refine imported natural resources. The result of these effects, coupled with the geographical context pertaining within the Nordic region, shows that only Denmark has a level of total primary energy consumption (TPEC) that is comparable with the European average. In contrast, the TPEC is approximately 55% higher in Sweden and Finland, and is 160% and 350% higher in Norway and Iceland respectively.

As part of the Europe 2020 energy policy targets, Europe is on a path towards a Europe-wide 20% improvement in energy efficiency by 2020 (compared to 2005). This is actually evident in the reductions in Europe (black line, Figure 11.1), showing a 10% reduction in TPEC between 2005 and 2012. However, it must be

pointed out that a significant share of this reduction is due to the combined effects (production- and consumption-side) of the economic crisis since 2008. Nevertheless, the EEA’s recent report on trends and projections toward the Europe 2020 targets shows that for Denmark “a well-balanced policy package exists across relevant sectors and good progress is being made in reducing energy consumption and primary energy intensity”; while for Sweden and Finland, “some progress is being made in reducing energy consumption but further improvements are necessary to further develop policies or to better implement the existing ones” (EEA, 2013, p. 12).

As shown in Figure 11.1 and 11.2, it is positive that all Nordic countries, with the exception of Iceland, have decreased per capita electricity consumption between 2007 and 2011. On a regional level, however, it seems that changes in relatively short periods of time can have significant consequences on energy dynamics within regions. For instance, Icelandic increases are likely the result of higher electricity consumption to support growth in natural resource mining and/or refining processes. However, Icelandic increases in energy consumption have had essentially no impact on how the electricity is produced (i.e., the split between hydro and geothermal, is more or less the same as that from 2007). In contrast, Figure 11.2 shows that higher total electricity consumption resulting from increased heavy industry since 2007 is also observed in Finnmark (NO) and Norrbotten (SE). In the case of the latter, increased energy dependency appears to be the reason for introducing the production of electricity from non-renewable, thermal sources between 2007 and 2011. Likewise, the regional results in Figure 11.2 quite clearly show that those regions with the highest per capita electricity consumption (dark red) are those with the high shares of industrial activities (beige segments in the circles). In contrast, urban centres appear with high total consumption (larger circles) but lower per capita consumption (lighter red).

Figure 11.1: TPEC for selected Nordic Countries and Europe. TPEC represents the total energy demand of a region, regardless of end use, including the energy used to convert energy resources into usable energy (i.e. electricity, heat and fuel).



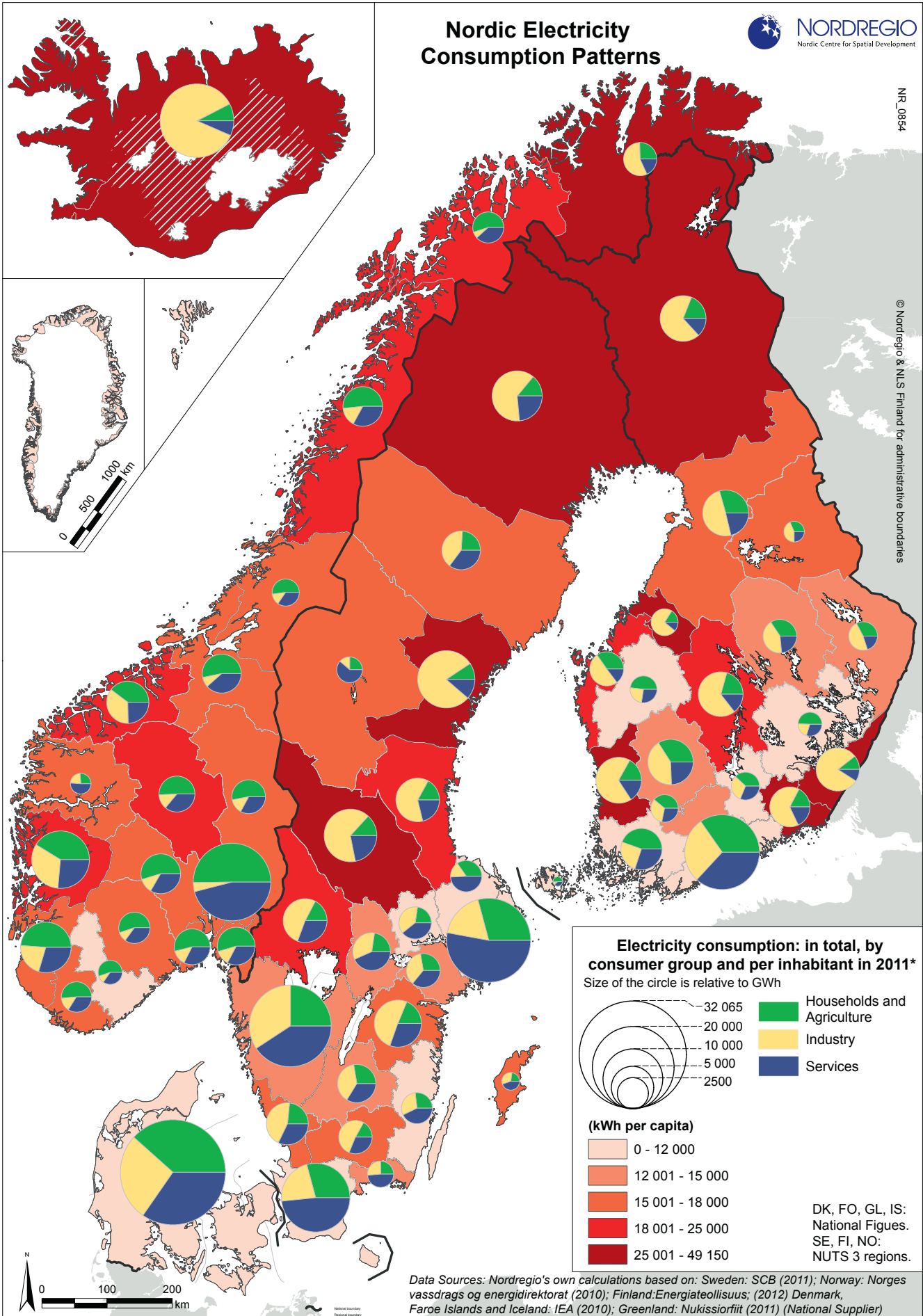
Source: U.S. Energy Information Administration and Eurostat. **Note:** Finland includes Åland Islands.

When looking at the results shown in Figure 11.2, in the context of developments over the last five years (see for instance Linqvist, 2010, p. 105), some interesting trends, coupled with deviating outliers are noticeable. In regions with large urban centres, there is clearly a tendency towards a reduction in electricity consumption from industrial activities compared to the other sectors (e.g. Stockholm, Västra Götaland, Skåne, Oslo and Akershus, etc.). However, this is not the case for

Helsinki Uusimaa, where industrial activity now accounts for a greater share of electricity consumption than in 2007. However, a sampling of the aforementioned regions shows a mixed bag in terms of industrial reductions being translated into an overall reduction in electricity demand. For instance, per capita consumption decreased in Stockholm and Västra Götaland by a combined 4.35%, but increased by a combined 4.91% in Uusimaa, Skåne and Oslo and Akershus.

Figure 11.2: Nordic electricity consumption by consumer group and per capita in NUTS 3 regions

Nordic Electricity Consumption Patterns



These results imply that overarching territorial trends (i.e., changing industrial presence in urban regions) only have a limited scope for interpreting regional patterns of electricity consumption. The lack of clear and measurable improvements in energy consumption among the “urban leaders” in the Nordic region is also troubling and it supports the importance of investing in the collection and assessment of clear and comparative statistics on energy consumption patterns at the sub-national level. These types of statistics will allow decision makers to see the year-on-year reality of how and where energy resources are consumed.

The aforementioned OECD quote also identifies resource endowments as a key part of the place-based prescription for implementing strategies for green growth. Here, the Nordic Region’s pioneering history of developing renewable energy sources (RES) is obviously inseparable from its unique geographical position in Europe, with a vast land area filled with opportunities for energy production. As shown in Figure 11.3, this first and foremost includes the substantial volumes of hydro-electricity, which are mainly produced in southern Norway, throughout Iceland, Northern Sweden and to a lesser but relevant extent in Northern Finland. As a result, over 70% of electricity produced in the Nordic region comes from domestically produced hydropower. However, even though hydro power delivers a clean supply of electricity to the region, the fact that future potential for developing hydropower is limited means that it is not an important factor in terms of contributing to green growth.

In contrast, electricity from wind represents a clear potential for the Nordic region to both strengthen its renewable energy endowment, meet its EU commitments and to maintain its position as a world leader in the development of wind energy technologies. Figure

11.3 shows some impressive results in terms of the production of wind power at the regional level, with existing regional wind power production in Denmark, Møre og Romsdal (NO), Västra Götaland (SE), Gotland (SE) and Åland being maintained or strengthened.

At the same time, significant increases in electricity production are evident in regions that were not active in this sector only five years ago. In Jönköping, wind power was not part of the energy mix in 2007, but now accounts for over 30% of electricity production. Similar patterns of exponential growth are also notable in, Skåne (1.6% in 2007 to 28.1% in 2011), Blekinge (<1.0% in 2007 to 19.6% in 2011), Östergötland (1.5% in 2007 to 13.1 in 2011) and Dalarna (0% in 2007 to 11.1% in 2011). In Västra Götaland, wind was already responsible for approximately 15% of electricity production in 2007 and this has risen to over 25% in 2011. Also included in this positive transition are regions where wind power is clearly making incremental gains compared to the previous study from 2007. This would include: Västerbotten, Jämtland and Värmland in Sweden, Sør-Trøndelag in Norway and Lappi in Finland.

Figure 11.3 also highlights the substantial increase in the shares of electricity production that are being met via production from ‘other’ types of renewables. This includes CHP from waste incineration, the harvesting of agricultural and forest waste and to a lesser extent production from solar energy. The most widespread achievements are notable in Southern Sweden (especially in the more populated regions such as Stockholm where waste is now an important energy resource) and in the Finnish regions of Kanta-Häme, Kymenlaakso, Etelä-Karjala and Keski-Suomi where bio energy production is now a contributing factor with significant shares of heat and electricity.

Figure 11.3: Nordic electricity production by volume (per capita) and by source groups

Nordic Electricity Production Patterns

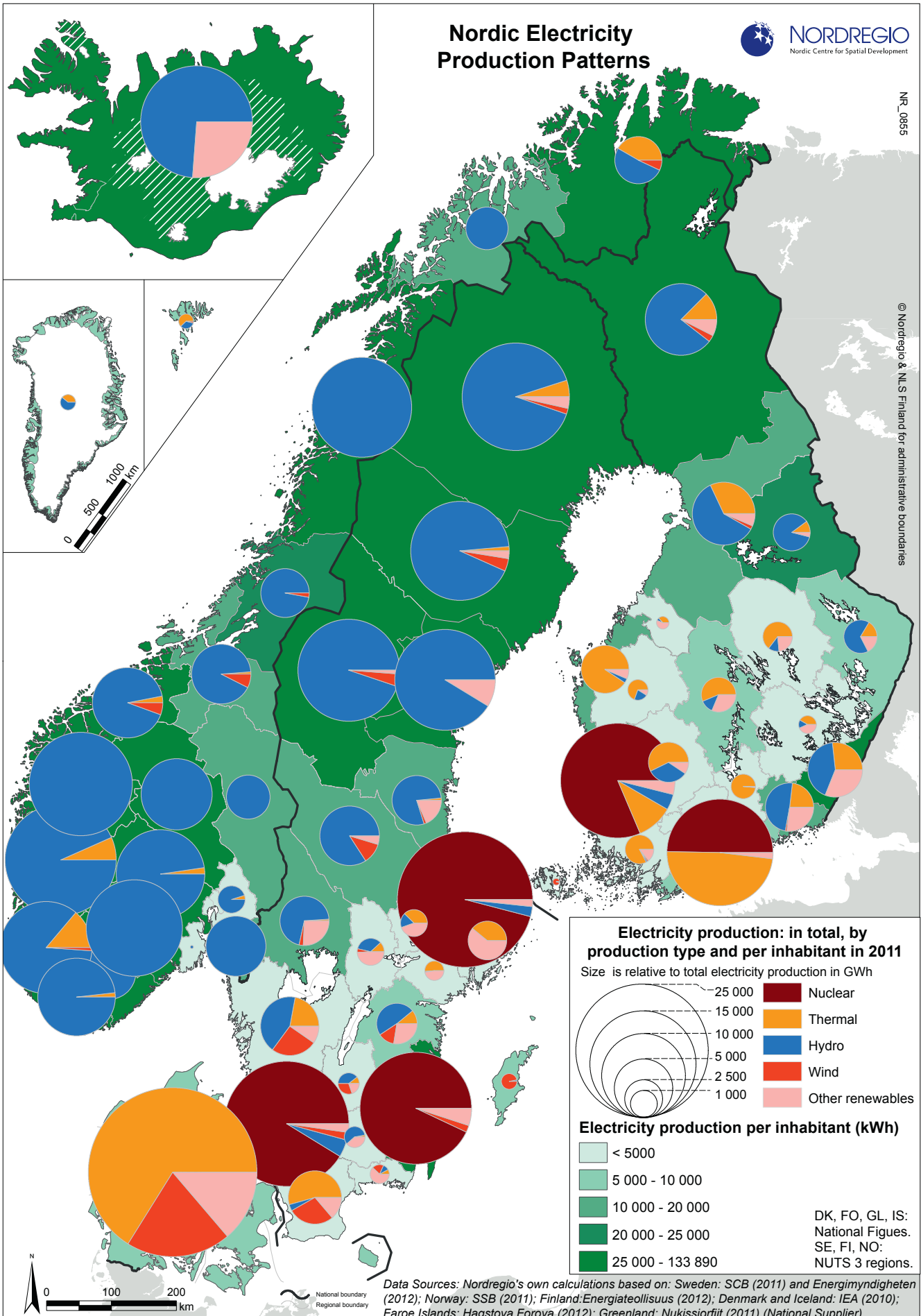
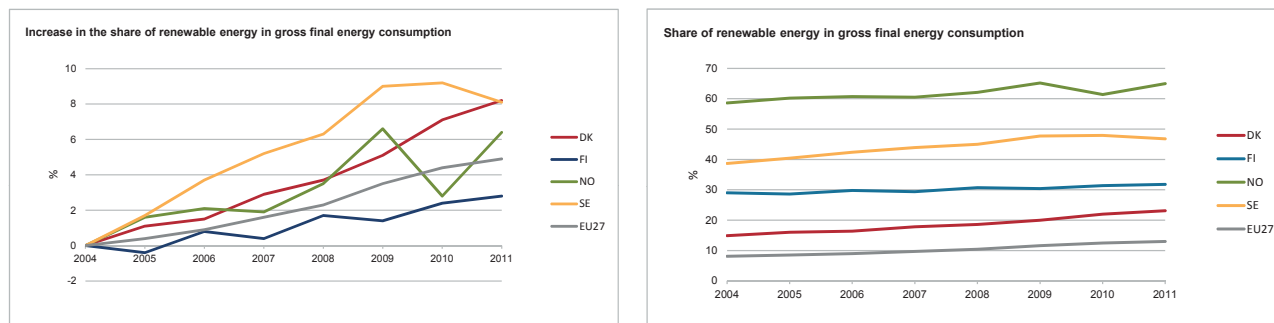


Figure 11.4 RES developments for selected Nordic countries.



Source: Eurostat

Through the Europe 2020 targets, the EU has set the objective of increasing its share of gross final energy consumption from renewables to 20%. For RES electricity generation this amounts to a 149.8% increase in production for Europe between 2005 and 2020 (Szabó et al., 2011). These increases are distributed among the EU Member States based on political decisions, which are covered by the Renewable Energy Directive (RED) and the National Renewable Energy Action Plans (NREAP) developed by each country.

Figure 11.4 therefore shows Europe’s progress towards this target, moving from 8-13% in its RES share of energy consumption between 2004 and 2011. Yet, the results also show the unique position of Norway, Sweden and Finland, which due to the large supply of hydroelectric power, is far above the European average in terms of the share of RES in gross final energy consumption. But this also means that relative increases in RES production from these countries will be relatively low in a European perspective. Compared to the 149.8% share increase across Europe the expected increase is only 19.6% and 40.9% for Sweden and Finland respectively (Szabó et al., 2011). Denmark, without the availability of hydropower, is expected to increase its share by 108.4% (Szabó et al., 2011). As a result, the impressive RES gains shown in Figure 2 especially by Sweden and Denmark, but also for Finland, are all the more impressive. It comes as no surprise that all three countries are ahead of the 2011-2012 national trajectories set out in the RED.

Concerning the Nordic plan to capitalise on existing strengths in “investment in innovation and research”, Figure 11.5 provides an indication of the eco-innovation activities taking place across the region. It shows regional variations in R&D (as an input indicator), as well as the volume of patenting and the share of patents that are likely to be associated with green innovation (as an output indicator). As a backdrop to these sta-

tistics, the Eco-Innovation Observatory’s (EIO) scoreboard results identify Finland, Denmark and Sweden, together with Germany, as the “Innovation Leaders” of Europe. On a general level, this highlights that Nordic policy targeting eco-innovation is essentially seeking to maintain and strengthen the established trend of Nordic countries being at the forefront of the sector. This in particular includes the translation of front-end investment in the development of new technologies into meaningful improvements in resource productivity.

While the R&D investment results show that Finland performs best in a national perspective, it is interesting to note how it is a northernmost region that has the highest share of investment (over 4.8% of GDP), followed by the more populated southern regions and then by the structurally weaker eastern regions (under 1.7% of GDP). This is in contrast to the results in Sweden, Norway and Denmark, where investment performance is closely connected to regions with higher populations (and where the largest higher education institutions are located).

As a measure of outputs at the intersection of green growth and innovation, total patenting and green patenting activity shows an expected concentration of patent activity in regions with similarly high shares of investment in R&D, such as Copenhagen, Malmö/Lund, Stockholm, Uppsala, and Helsinki. This reflects the impacts that ‘agglomeration effects’ where concentrations of firms and their employees, together with other formal and informal institutions, support growth through economies of scale and network effects (for instance, triple helix cluster impacts). This is particularly the case for knowledge intensive jobs, where urban areas, as centres of knowledge creation, create complementarities with even higher levels of growth becoming possible.

When comparing 2010 patent results to the data for

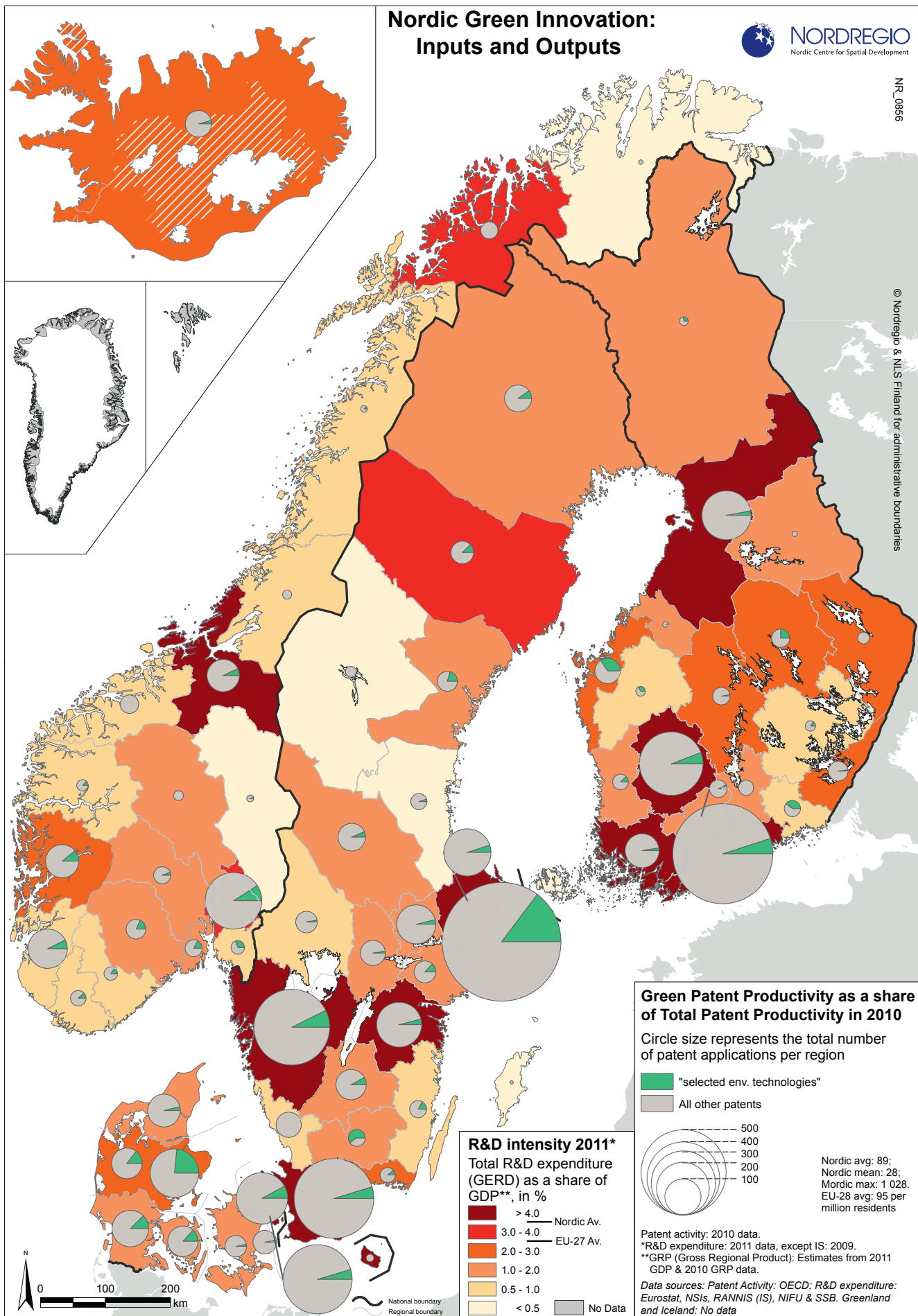
2007 (see for instance, Smed Olsen & Weber, 2012) we see an increase in the share of green patents to total patents, especially in regions such as Kronoberg and Stockholm (SE) and Pohjanmaa (FI). Furthermore, the regional green patenting performance of many regions in Denmark is quite impressive given the comparatively low levels of regional investment in R&D actually made in these regions. This suggests that eco-innovation is being driven and promoted by established firms which are seeking to combine eco-innovation with their existing economically competitive, market-based activities.

While the EIO 2012 Annual Report highlights Finland, Denmark and Sweden as European leaders in eco-innovation, they are not the best performers when it comes to environmental outcomes (EIO, 2013). As noted in relation to the discussion of Figure 11.2 above on electricity consumption patterns, the EIO's report goes on to say that there is a moderate correlation between relatively high eco-innovation performance and high levels of both per capita material consumption (including energy resources) and GHG emissions. While the report includes the time lag between innovation and impacts as a rationale for this, other factors appear to be responsible for the poor translation of inputs into positive environmental outcomes in the Nordic con-

text. This likely includes a focus on clean technologies instead of targeting actual resource productivity and reducing material consumption, together with a concentration on eco-innovation in niches instead of a widespread diffusion across society. The EIO's conclusion, that a clearer connection between Nordic eco-innovations and the underlying drivers of resource consumption (see for instance the above discussion on Nordic 'pressure points' in relation to energy consumption), therefore seems justified.

These results suggest that while innovation support and the production of outputs such as patents and new technologies remain quite high, Nordic policy ought to place more attention on investment in initiatives that will have tangible impacts on reducing the resource intensity of our regions. These may not necessarily be linked to high-tech intensive outputs that are recognised through technological or innovative milestones (i.e., new technologies) but will perhaps reflect more action in respect of policy fields on the consumption side of the equation. For instance, this would include policies and investments 'targeting lifestyle perspectives, behaviours of consumers and end users of resources, or new financial mechanisms that support private sector investments in key industries such as green building and retrofitting.

Nordic Green Innovation: Inputs and Outputs



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Figure 11.5: Nordic distribution of R&D research activities, total patenting activity per capita and the share of total patents considered as 'environmental technologies'

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