

**STATE OF
THE NORDIC REGION**

2018



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Julien Grunfelder, Linus Rispling and Gustaf Norlén (eds.)

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COUNTRY CODES FOR FIGURES

AX	Åland
DK	Denmark
FI	Finland
FO	Faroe Islands
GL	Greenland
IS	Iceland
NO	Norway
SE	Sweden

EU	The European Union
EU28	The 28 European Union member states

OTHERS

b	billion
BSR	Baltic Sea Region
EFTA	European Free Trade Agreement
EII	Eco-Innovation Index
Eco-IS	Eco-Innovation Scoreboard
ESPON	European Observation Network for Territorial Development and Cohesion
FDI	Foreign Direct Investments
FTE	Full-time equivalent
GDHI	Gross disposable household income
GDP	Gross Domestic Product
GRP	Gross Regional Product
GWh	Gigawatt hour
ICT	Information and communication technology
ISCED	International Standard Classification of Education
ISO	International Organization for Standardization
ITQ	Individual Transferable Quotas
Ktoe	Kilotonnes of oil equivalent
LAU	Local Administrative Unit
LFS	Labour Force Survey
m	million
NACE	Statistical classification of economic activities in the European Community
NCD	Non-Communicable Diseases
NGA	Next Generation Access
NSI	National Statistical Institute
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
R&D	Research & Development
RIS	Regional Innovation Scoreboard
SCB	Statistics Sweden
SDG	Sustainable Development Goals
SPI	Social Progress Index
TWh	Terawatt hour
UN	United Nations
USD	United States dollar
WWF	World Wildlife Fund

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Preface

A LOOK BEHIND THE SCENES OF THE NORDIC MODEL

The Nordic Region as such comprises the 12th largest economy in the world, with a population that is growing faster than the EU average, a labour market that receives global praise and a welfare system that has proved resilient both in times of boom and bust.

But the countries of Denmark, Finland, Iceland, Norway and Sweden along with Greenland, the Faroe Islands and Åland also make out a macro-region of very different internal regions, both geographically and administratively.

It is an area spanning from the endless acres of farmland in Denmark and the vast forests in Sweden, over the thousand lakes of Finland and the mythical fjords of Norway to the Arctic splendour of Iceland and Greenland. Indeed, even the island communities of the Faroe Islands and Åland have their own characteristics, both when it comes to nature and culture, economy and population.

The Nordics often are at the top of the list when the UN or other international bodies rank nations on various parameters. And despite some bumps on the road, we are also rated as some of the most suited to fulfill the aim of the 2030 Agenda to reach the UN Sustainable Development Goals.

In fact, a recent publication from the Nordic Council of Ministers point to the almost unlikely success of the Nordic region in a global perspective. But what is the picture behind the national figures and how do the various regions within the Nordic countries interact, both internally and across borders?

That question is addressed by this publication, the State of the Nordic Region 2018 that gives a unique look behind the scenes of the world's most integrated region.

The Nordic Council of Ministers has contributed with Nordic statistics for more than 50 years through e.g. the Nordic Statistical Yearbook, and Nordregio – our research institution for regional development and planning – has published regional statistics since its establishment in 1997.

Now we are gearing up even more with a newly established Analytical and Statistical Unit at the Nordic Council of Ministers. In the same spirit, two other Nordic actors – the Nordic Welfare Centre and Nordic Agency for Cultural Policy Analysis – have contributed along with Nordregio to the current edition of the State of the Nordic Region, which is now published as a joint venture for the entire Nordic Council of Ministers' network.

By mapping and documenting information about the state of the Nordic region(s), Nordregio provides a very important knowledge base that empowers local, regional and national authorities in the Nordic countries to make informed decisions. Solid documentation of development trends is a necessary starting point for developing good policy.

At the same time, the State of the Nordic Region 2018 is also a treasure trove of information for the Nordic population at large, as well as a must read for international actors who want to learn about the Nordics and maybe even get inspired by the Nordic model, however differently it may be played out in the various regions and areas.

I hope the many interesting facts, figures and stories embodied in this impressive work will find a large audience and reach high and wide, just as the Nordic countries themselves seem to be doing.

Dagfinn Høybråten
The Secretary General,
Nordic Council of Ministers





INTRODUCTION

Chapter 1

INTRODUCTION

Author: Kjell Nilsson

Map and data: Julien Grunfelder

Background

Since 1981, Nordregio and its predecessor organisations have produced the report *State of the Nordic Region*. The report is published every two years, describing ongoing developments over time in the Nordic Region at the municipal and regional levels. This report is the 15th volume in the series "Regional Development in the Nordic countries", which has supplied policymakers and practitioners with comprehensive data and analyses on Nordic regional development for many years.

The report is based on the latest statistics on demographic change, labour markets, education, economic development, etc. The analyses are based on a broad range of indicators covering the above-mentioned areas. Since 2016, *State of the Nordic Region* has also included a Regional Development Potential Index which highlights the strengths and weaknesses of the 74 Nordic regions in relation to one another and identifies the regions with the strongest development potentials. The maps contained within the report can also be accessed through Nordregio's online map gallery, and NordMap, an interactive map tool dealing with demographic, labour market and accessibility issues in the Nordic countries.

From 2018, publication of *State of the Nordic Region* has been directly overseen by the Nordic Council of Ministers centrally. The ambition here is to make the report a flagship project for the Nordic Council of Ministers, enhancing its analytical capacity and its ability to collaborate across sectors and institutions. *State of the Nordic Region* strengthens Nordic identity and community. It is deeply illustrative thanks to its rich map material and is therefore suitable for the international marketing of the Nordic Region. Thanks to the Nordic Region's strong performance in international comparisons it can

also contribute to the strengthening of Nordic influence and competitiveness within Europe as well as globally.

Given its focus on scale, *State of the Nordic Region* builds on the collection and use of Nordic statistics at the local and regional levels. The advantage of following an administrative division is that it coincides with political responsibilities and thus becomes more relevant to politicians and other decision-makers for whom access to comparable and reliable statistical information is vital. The report itself should not however be viewed as being politically guided or seen as containing political pointers or recommendations. Maintaining integrity and independence is important for the credibility and, ultimately, for how the *State of the Nordic Region* is received and used. When the inclusion of an international benchmarking approach makes sense, the Nordic-focused material is supplemented with statistics and maps addressing the pan-European level.

The concept of *State of the Nordic Region* can be both scaled up and down. An example of the former is the ESPON BSR-TeMo project (2014) and its follow-up TeMoRi (Rispling & Grunfelder, 2016), con-

The Nordic Region consists of Denmark, Finland, Iceland, Norway and Sweden as well as Faroe Islands and Greenland (both part of the Kingdom of Denmark) and Åland (part of the Republic of Finland)

ducted by Nordregio on behalf of the Swedish Agency for Economic and Regional Growth, with both projects focusing on the development of a territorial monitoring approach for the Baltic Sea Region (ESPON, 2014; Rispling & Grunfelder, 2016). Examples of scaling down include various assignments that Nordregio has implemented for individual regions such as Jämtland, Värmland, and Lappi. The potentials for extending the implementation of *State of the Nordic Region* are therefore immense if awareness increases due to its broader launch profile.

The regional approach

What is the Nordic Region?

The Nordic Region consists of Denmark, Finland, Iceland, Norway and Sweden as well as Faroe Islands and Greenland (both part of the Kingdom of Denmark) and Åland (part of the Republic of Finland). *State of the Nordic Region* is based on a suite of statistics covering all Nordic municipalities and administrative regions. It is however worth noting here that several Nordic territories, e.g. Svalbard (Norway), Christiansø (Denmark) and Northeast Greenland National Park (*Avannaarsuani Tunumilu Nuna Allannugutsaaliugaq*), are not part of the national administrative systems. Nevertheless, though not strictly included in the administrative systems, these territories are included in the report where data is available.

State of the Nordic Region displays data using national, regional and municipal administrative divisions (this edition according to the 2017 boundaries). Large differences exist both in terms of the size and population of the various administrative units at the regional and municipal levels across the Nordic Region. The four largest municipalities are all Greenlandic, with Qaasuitsup being the world's largest municipality with its 660,000 km² (however, split into two municipalities in 2018). Even the smallest Greenlandic municipality, Kujalleq, at 32,000 km² significantly exceeds the largest Nordic municipalities outside Greenland, i.e. Kiruna and Jokkmokk in northern Sweden with approximately 20,000 km² each. Excluding Greenland and the Faroe Islands, the average size of a Nordic municipality is 1,065 km². The smallest are less than 10 km² and are either insular municipalities (e.g. Kvitsøy in Norway or Seltjarnarnes near Reykjavík) or within the greater capital areas (e.g. Sundbyberg near Stockholm, Frederiksberg surrounded by the municipality of Copenhagen, or Kauniainen surrounded by the municipality of Espoo near Helsinki).

The average area of a Nordic region is 17,548 km². The smallest is Oslo (455 km²), followed by two Icelandic regions, Suðurnes (884 km²) and Hövuðborgarsvæði (1,106 km²). The largest region is Norrbotten in Northern Sweden (106,211 km²), followed by Lappi in Northern Finland (just under 100,000 km²). The average population density of a Nordic region is 66 inhabitants per km² with densities ranging from 1 inhab./km² (Austurland, Vestfirðir, Norðurland vestra, and Norðurland eystra – all in Iceland) to 1,469 inhab./km² (Oslo region). Other high-density regions include the Capital region of Denmark Hovedstaden (706 inhab./km²) and Stockholm (335 inhab./km²).

Among the Nordic countries Denmark, Finland (including Åland) and Sweden, are Member States of the European Union (EU), although only Finland is part of the Eurozone. Iceland and Norway are members of EFTA (European Free Trade Association) consisting of four countries, which either through EFTA, or bilaterally, have agreements with the EU to participate in its Internal Market. The Faroe Islands and Greenland are not members of any of these economic cooperation organisations. These differences in supra-national affiliation have an impact on which data that is available for this report. For example, Eurostat, the statistical office of the EU, only provides data for EU, EFTA and EU candidate states, thus excluding the Faroe Islands and Greenland. Whenever possible, data for these regions has been supplemented from other sources.

In the regular register data of Eurostat and the National Statistics Institutes (NSIs), which are the two prime data sources for this report, commuters to neighbouring countries are not included in the Nordic countries. This results in incomplete information (i.e. underestimations) regarding employment, incomes and salaries for regions and municipalities located close to national borders, where a substantial share of the population commutes for work to the neighbouring country. Estimates have been produced in some cases and included in this report. In 2016, the Finnish presidency of the Nordic Council of Ministers launched a project to develop statistics on cross-border movement in the Nordic countries. There is however still no up-to-date and no harmonised Nordic cross-border statistical data available, other than that provided by some regional authorities.

Regional and administrative reforms

Administrative reforms provide a series of seemingly never-ending stories across the Nordic politi-

cal systems. Today, the need for reforms and for the reallocation of tasks between the national, regional and municipal levels can be derived from two major challenges facing the Nordic countries (Harbo, 2015). Firstly, increased pressure on the Nordic welfare system caused by an ageing population which increases demand for public services while simultaneously shrinking the tax base. Secondly, enlargement of the regions due to widening labour markets caused by changing mobility and commuting patterns moves the functional borders of regions beyond their traditional administrative limitations. Finally, there is a common belief among professionals and decision makers that fewer and larger units are more efficient when it comes to service provision and public administration. On the other hand, concerns remain over the merging of administrative units especially at the municipal level due to the increased distance this potentially creates between citizens and the local political authority.

Thus far, the Danish experience provides the best Nordic example of a completed reform process as it is now a decade since the process took place and where the number of municipalities was reduced from 270 to 98. The reform as such was decided by the government, but the practical implementation, i.e. which municipalities should merge, was delegated to the municipalities themselves. At the same time, 1 January 2007, the 13 counties (*amt*) were abolished and replaced by five regions. The reform increased the political weight of the municipalities in society while the importance of the regions decreased. The regions are led by elected politicians, which reinforces their legitimacy, but they lack the power to tax and the freedom to undertake tasks in addition to their statutory responsibilities. In addition to healthcare, which is the region's main area of work, they are participating in regional public transport companies and in the setting up of growth forums (which decide on the allocation of EU Structural Funds). Hence, there are no official regional development plans except for the capital region, the so-called Finger Plan, which is prepared by the state.

After having failed, for the second time since the turn of the millennium, to try to implement a major reform of the Finnish municipalities, the government decided on 19 August 2015 that the municipalities would no longer be required to investigate the possibility of amalgamation (Sandberg, 2015). The government still wants to encourage municipal mergers, but they should be done on an entirely voluntary basis. Since 2000, the number of municipal-

ities has voluntarily decreased from 452 to 311, but the size of Finnish municipalities is still on average below 7,000 inhabitants. After failing with their municipal reform, the government decided instead to turn its attention to the regional level and to plan for a comprehensive expansion of the regions' responsibilities. The plan is for the 18 regions (*maakuntaliitto – landskapsförbund*) to take over the main health care system from the municipalities. They will also assume responsibility for regional development, e.g. business and transport policy. The regions will have a directly elected political leadership, but the right to tax will remain with the municipalities which will, however, lose more than half of their budget (Sandberg, 2017).

Åland is not included in the above-mentioned administrative reform of the Finnish regions. There, responsibility for health care is already centralised to the Government of Åland. Åland has 16 municipalities, some of them with less than 500 inhabitants and one, Sottunga municipality, with even less than 100. At the same time as several investigations into voluntary municipal mergers are in progress, the current government is also preparing a bill to be introduced to the Åland Parliament, the *Lagtinget*, on reducing the number of municipalities to four.

More than 50 years since the last municipal reform, on 8 June 2017, the Norwegian parliament (Stortinget) decided on an administrative reform that reduces the number of regions (*fylkeskommuner*) from 18 to 11 and the number of municipalities from 428 to 354. The basic goal of the reform, which should be fully implemented by 1 January 2020, is to transfer resources and responsibilities to local and regional authorities that are more robust than they are currently (Kaldager, 2015). In Norway, the health care system is organised by the state, while the regions are, among other things, responsi-

Concerns remain over the merging of administrative units especially at the municipal level due to the increased distance this potentially creates between citizens and the local political authority

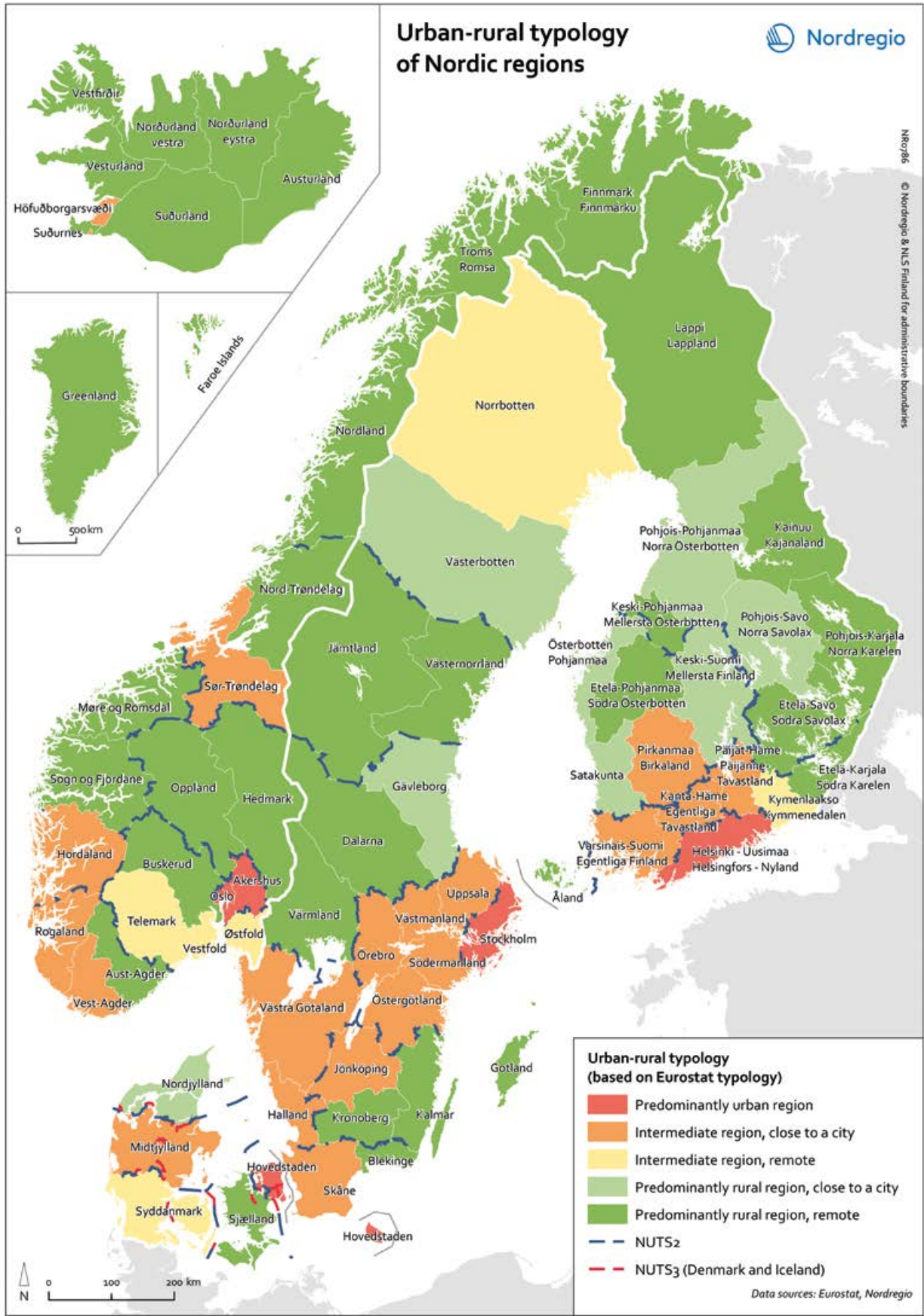


Figure 1.1 Urban rural typology of the Nordic regions.

The combined economy of the Nordic countries is the 12th largest in the world

ble for planning, transportation and regional development. The reform is based on the tasks that the regions currently have, but the government has appointed an expert group to review opportunities to strengthen the regions' role as developer and their capacity to provide better service to the citizens. The regions are led by directly elected politicians, they have a formal – but in practice no – right to tax and they are free to undertake other than statutory tasks.

In Sweden, the last municipal reform took place in 1974 when the number was reduced from slightly more than 1,000 to 278. The latest merger of Swedish municipalities took place in 1977. In the period since, the number has slightly increased to 290 due to the dissipation of existing municipalities. Instead of pushing further municipal mergers, the Swedish government has instead focused on the regions in recent years. In March 2016, a committee presented a new map dividing Sweden into six new major regions. The map raised such strong opposition however that the government chose not to proceed with the proposal. When the map turned out to be a distortion of reality, instead of adjusting the map at regional level, the government decided to change the reality at local level. Thus, a new parliamentary committee was set up to develop a strategy for strengthening the municipalities' capacity, focusing more on cooperation and the allocation and execution of tasks than on administrative boundaries.

In common with the Faroe Islands and Greenland, Iceland has only two administrative levels: national and local. In recent times, Iceland has carried through two large reform processes – in 1993 and again in 2005. On both occasions, consultative referendums were held and on both occasions, a majority voted against the suggested mergers. Despite the outcomes of the referendums the reforms resulted in a reduction in the number of municipalities from 196 in 1993 to 89 in 2006. In recent years, the number of municipalities has been further reduced to 74 on a voluntary basis though the government has, for its part, decided not to push for further aggregations. Instead, the idea of interregional municipal cooper-

ation has been put on the agenda (Traustadóttir, 2015). This idea is aimed at strengthening the local level through the decentralisation of tasks from the government, but without the merging of municipalities.

The Faroe Islands and Greenland both sought to reduce the number of municipalities through administrative reform processes. The Faroese reform process started in 2000 with a new piece of municipal legislation. The government wanted to encourage municipal mergers, but they should be done on an entirely voluntary basis. Since 2000, the number of municipalities has voluntarily decreased from 49 to 29. In a 2012 referendum on municipal mergers, the majority in almost every municipality said no to more mergers.

By far the most radical change took place in Greenland in 2009, where the administrative set up changed from 18 to four municipalities. The idea behind the change which was supported by most of the political parties, was to delegate political decisions and economic resources from the central administration to the municipalities (Hansen, 2015). In reality, only a few administrative areas have at least thus far been transferred, but major areas will be transferred to the municipalities in 2018 and 2019. Widespread dissatisfaction with the new municipal structure especially in Qaasuitsup Kommunia, the largest municipality in the world in terms of square kilometres, led to a political decision to divide Qaasuitsup Kommunia into two municipalities by 1 January 2018.

NUTS classification

Table 1.1 provides an overview of the administrative structure in each country in the Nordic Region. These administrative structures are the basis for the NUTS (Nomenclature of territorial units for statistics) classification, a hierarchical system dividing the states on the European continent into statistical units for research purposes. The NUTS and LAU (Local administrative units) classifications generally follow the existing division but this may differ from country to country. For example, municipalities are classified as LAU 1 in Denmark but as LAU 2 in the other Nordic countries, and regions of primary importance within the national context as NUTS 2 in Denmark but as NUTS 3 in Finland, Norway and Sweden (figure 1.1).

	NUTS 0	DK	FI	IS	NO	SE	SNUTS	FO	GL
Regional	NUTS 1		Manner-Suomi/ Fasta Finland; Ahvenanmaa/ Åland 2			Landsdel 3	SNUTS 1		
	NUTS 2	Region 5	Suurlue; Storområde 5		Landsdel 7	Riksområde 8	SNUTS 2		
	NUTS 3	Landsdel 11	Maakunta; Landskap 19	Hagskýrslu-svæði 2	Fylke 19 (18)	Län 21	SNUTS 3		
Local	LAU 1	Kommune 98		Landsvæði 8	Økonomisk region 89		SNUTS 4	Sýsla 6	
	LAU 2	Sogn 2165	Kunta; Kommun 311	Sveitarfélög 74	Kommune 426 (422)	Kommune 290	SNUTS 5	Kommune 30	Kommune 4 (5)

Table 1.1 Administrative structures in the Nordic Region on 1 January 2017 (diverging number on 1 January 2018 in brackets).

¹ Grey frames represent the regional levels presented in most regional maps in this report, comparable from a Nordic perspective, while dark gray frames show the local units represented in the majority of our municipal level maps.

Data sources: NSIs, Eurostat, ESPON.

The Nordics in the world

With its 3,425,804 km², the total area of the Nordic Region would form the 7th largest nation in the world. However, uninhabitable icecaps and glaciers comprise about half of this area, mostly in Greenland. In January 2017, the Region had a population of around 27 million people. More relevant is the fact that put together, the Nordic economy is the 12th largest economy in the world (Haagensen et al., 2017).

The power of the Nordic economy was acknowledged in the light of its general handling of the economic crisis of 2007–08 (Wooldridge, 2013). What particularly impressed e.g. the journalists at the magazine *The Economist*, that published a special editoin on the Nordics, was the the ability of the Nordic countries to combine a generous tax-funded welfare system with efficient public administration and a competitive business sector.

As such, the locational aspects of the Nordic Region are noted in this edition of the State of the Nordic Region, where relevant and when reliable data is available. In addition, European developments generally and specifically those pertaining to the EU level are also addressed.

EU 2020 targets

The Europe 2020 strategy was designed in 2010 with the aim of guiding the Member States through the global financial crisis towards recovery. Three drivers of economic growth were identified as crucial: (i) smart growth based on knowledge and innovation, (ii) sustainable growth for a more efficient, greener and competitive economy, and (iii) inclusive growth capable of delivering employment, social and territorial cohesion.

Targets to be achieved include increasing the employment rate of the population aged 20–64 from 69% to 75%, investing at least 3% of the EU's GDP on research and development, reducing greenhouse gas emissions by 20% compared to 1990, increasing the share of renewable energy sources in final energy consumption to 20%, reducing the proportion of early school leavers from 15% to below 10%, ensuring that at least 40% of 30–34 years old

The total area of the Nordic Region would form the 7th largest nation the world

Figure 1.2 Sustainable Development Goals.



should have completed tertiary or equivalent education and, finally, reducing poverty by lifting at least 20 million people out of the risk of poverty or social exclusion.

The European Commission expected that each Member State would translate these targets into national targets and trajectories. According to Eurostat's headline indicators scoreboard only one target, i.e. the reduction of greenhouse gas emissions, has thus far been reached. Two targets, those regarding early school leavers and tertiary educational attainment, are less than one percentage unit from fulfilment. The target on reduced poverty is also close to being attained, in 2015 18.5 million people have been lifted out of poverty since 2012. The employment rate had risen to 71% in 2016, but is still less than half way to the target while the R&D investments are even further away from their specified target.

UN Sustainable Development Goals

On 25 September 2015, the United Nations adopted Resolution A/RES/70/1 which contains 17 Sustainable Development Goals (SDGs) with 169 targets to be achieved over the next 15 years. The 17 goals (figure 1.2) are:

1. End poverty in all its forms everywhere;
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
3. Ensure healthy lives and promote well-being for all at all ages;

4. Ensure inclusive and quality education for all and promote lifelong learning;
5. Achieve gender equality and empower all women and girls;
6. Ensure access to water and sanitation for all;
7. Ensure access to affordable, reliable, sustainable and modern energy for all;
8. Promote inclusive and sustainable economic growth, employment and decent work for all;
9. Build resilient infrastructure, promote sustainable industrialization and foster innovation;
10. Reduce inequality within and among countries;
11. Make cities inclusive, safe, resilient and sustainable;
12. Ensure sustainable consumption and production patterns;
13. Take urgent action to combat climate change and its impacts;
14. Conserve and sustainably use the oceans, seas and marine resources;
15. Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss;
16. Promote just, peaceful and inclusive societies;
17. Revitalize the global partnership for a sustainable development.

The Nordic countries are performing well. In an overall assessment of OECD countries, Sweden is given the highest score followed by Denmark, Finland and Norway (Sachs et al., 2017). Nevertheless, the Nordic countries continue to face significant

challenges in terms of reaching all the identified targets by 2030. The Nordic Council of Ministers has chosen goal number 12, to "ensure sustainable consumption and production patterns", as its prioritised action field. But there are additional goals where a certain amount of effort is still required, such as the greening of the region's agricultural systems (SDG 2), reducing the high levels of CO2 emissions per capita (SDG 7 and 13, and improving ecosystem conservation (SDG 14 and 15) (Larsen & Alslund-Lanthén, 2017).

Further reading

The report consists of two parts; the first, consisting of three thematic areas which have remained constant over the years of this publication (demography, labour market and economy) and are summarised in the *Regional Development Potential Index* (chapter 15).

Demography (chapters 2–4): Describes and analyses population development in terms of natural increase or decline, migration, urbanisation and age distribution.

Labour market (chapters 5–7). Describes and analyses employment, unemployment and economically-inactive groups, especially among young people and foreign born, as well as education.

Economy (chapters 8–10): Describes and analyses GDP, income levels, innovation capacity, research and development and foreign direct investment (FDI).

The second part consists of four thematic focus areas. The chosen areas for the 2018 edition are:

Bioeconomy (chapter 11): Focuses on land use and land ownership, forestry, biogas, fisheries and aquaculture.

Digitalisation (chapter 12): Focuses on the broadband coverage and use of Internet to interact with the public sector.

Health and welfare (chapter 13): Focuses on public health issues and the territorial dimensions of life expectancy and accessibility to healthcare.

Culture and arts (chapter 14): Focuses on newly-produced data at municipal and regional levels on cinemas, libraries and museums.

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THEME 1

DEMOGRAPHY

The Nordic population: Increasingly urban, diverse and older

The current demographic situation in the Nordic Region is characterised by four main trends: The Nordic population is growing, driven to a large extent by immigration, and is increasingly concentrated in urban settlements. The average age of the population is also increasing, while a growing share of people have a foreign background. All of these trends are expected to continue in the years to come.

By 2030, the Nordic Region is expected to have almost 30 million inhabitants, an increase of more than 10% from the current 26 million. In Sweden, almost 80% of the population increase is expected to occur in the densely populated urban areas in the south of the country. In the other Nordic countries, population growth remains more decentralised and in many cases medium-sized towns may grow faster than capital areas.

Over the past ten years, the population of the Nordic Region has grown quicker but also aged faster as a whole than in many other European regions. This process does not however affect all Nordic regions and municipalities in equal measure. As the following chapters show, Nordic municipalities and regions experience very different, often contrasting, demographic trends, presenting specific opportunities and challenges to each: Population growth is largely concentrated in the urban areas while many remote

and sparsely populated areas face population decline and high rates of population ageing.

By 2030, large parts of northern and eastern Finland, for example, are expected to have populations where more than 50% of people over 15 are aged 65 or more.

Around one in five people in the Nordic Region live in the five largest urban areas. Between 2011 and 2016, growth in urban settlements has been around 9% in Norway and Sweden, while Denmark, Finland and Iceland register around half that rate. Immigration accounts for a large part of this increase. Indeed, roughly 26% of all Nordic municipalities increased their population between 2011 and 2016 only due to international migration.

As of 2017, one in eight Nordic residents were identified as having been born abroad, either in another Nordic country or outside the Nordic Region. Rural municipalities are increasingly recognising the important contribution that immigrants can make to their communities. Most migrants however still choose to live in the large urban settlements. As such, questions relating to how best the integration of refugees and other newcomers can be facilitated have gained increasing in relevance in the aftermath of the European 'refugee crisis' and will undoubtedly remain of central concern in the years to come.

Chapter 2

POPULATION GROWTH AND AGEING

Past, present and future trends

Author: Nora Sánchez Gassen

Maps and data: Julien Grunfelder and Nora Sánchez Gassen

The demographic situation in Europe is characterised by two main trends, population growth and ageing. Since 2007, the population of the European Union has increased slowly from 500 million to 512 million people (Eurostat, 2017a). The old-age dependency ratio, defined as the size of age groups 65 and older as a share of the working-age population between 15 and 64 years, increased from 25.2% to 29.3% (Eurostat, 2017b). Thus, there are now 3.4 persons of working age for every person aged 65 and older in the European Union. Both trends have been particularly pronounced in the Nordic Region. Here, the old-age dependency ratio has increased faster and population growth has been stronger than in many other European countries. Migration has been the major source of population increase. These general trends however mask considerable variation within and across the Nordic countries. Municipalities and regions face diverse demographic challenges with each, potentially, requiring tailor-made policy responses. In the following sections, the current and expected future trends in population growth or decline and population ageing will be described, from both a regional and a municipal perspective.

Diverse levels of population growth

In 2007, almost 25 million persons lived in the Nordic Region. The number of inhabitants ranged from 27,000 in Åland to 9.1 million in Sweden (table 2.1). Between 2007 and 2017, the population of the Nordic Region increased, but this growth was unevenly distributed: In Denmark, Finland, Sweden, Norway, Iceland and Åland, population increases have occurred,

mainly driven by migration. Iceland is the exception here, as natural increase – a surplus of births over the number of deaths – was the major source of population growth. Population decline occurred only in Greenland. This decline was exclusively due to outmigration. Natural population growth in Greenland remained positive during the last decade, in other words, more people were born than died. Without migration, the population of Greenland would thus have increased as well. The Faroe Islands also lost population due to net outmigration, but high natural increase more than offset this loss.

While population increases have occurred in all Nordic regions except Greenland in recent years, growth rates varied strongly across municipalities. As shown in Chapter 3, most of the population growth in the Nordic Region has occurred in and around the largest cities such as Stockholm, Gothenburg, Copenhagen, Helsinki, Reykjavík and Oslo. Many inland municipalities with smaller populations have declined in size, particularly in Finland, Sweden and Norway. While the general trend in the Nordic countries thus seems to be one of urbanisation, interesting nuances can be seen when comparing urban settlements within municipalities: For instance, even in growing municipalities, e.g. in the Stockholm area, some urban settlements have declined in size over the past five years. Conversely, in some municipalities with declining populations, urban settlements may still have been growing. Visby in Gotland, and Skellefteå in Västerbotten in Sweden are cases in point here.

	Total population size		Population change, 2007-2017 (in percentage)		
	2007	2017	Total	Natural increase	Net migration
Nordic Region	24,931,018	26,949,609	8.1	2.3	5.8
Denmark	5,447,084	5,748,769	5.5	1.3	4.2
Finland	5,250,032	5,474,083	4.3	1.4	2.9
Sweden	9,113,257	9,995,153	9.7	2.4	7.2
Iceland	307,672	338,349	10.0	8.0	2.0
Norway	4,681,134	5,258,317	12.3	4.0	8.4
Faroe Islands	48,268	49,864	3.3	5.3	-1.9
Greenland	56,648	55,860	-1.4*	6.6*	-7.5*
Åland	26,923	29,214	8.5	0.6	7.8

Table 2.1 Population change, 2007–2017.

* Natural increase and net migration values do not add up to the total population change (in %) shown here. This is due to a correction term that Statistics Greenland uses in updating its statistics (not included in the table).

Data source: Eurostat and NSIs.

Strong population growth predicted for urban centres until 2030

NSIs expect that the population of the Nordic Region will continue to grow up to 2030. Again, however, this regional trend hides interesting differences between countries and municipalities. NSIs in Denmark, Finland, Åland, Sweden, Iceland and Norway expect their populations to grow until 2030 (figure 2.1). In Iceland, the population is initially expected to increase more strongly than in any other part of the Nordic Region. In the 2020s, growth rates are expected to decline and approach those of Åland, Norway and Sweden. In the latter three, annual population growth rates are expected to range between 0.6% and 1.1% throughout the projection period. Given these growth rates, population sizes will increase from 338,300 (2017) to 400,000 (2030) in Iceland. The populations in Norway and Sweden will reach around 5.9 million persons and 11.3 million persons respectively, in 2030, while Åland will have around 32,700 inhabitants. The NSIs in Denmark and Finland also expect their populations to grow up to 2030, but annual growth rates are projected to remain between 0.2% and 0.6%. Finland will have 5.7 million inhabitants in 2030 (up from 5.5 million in 2017) while the Danish population will be 6.1 million persons.

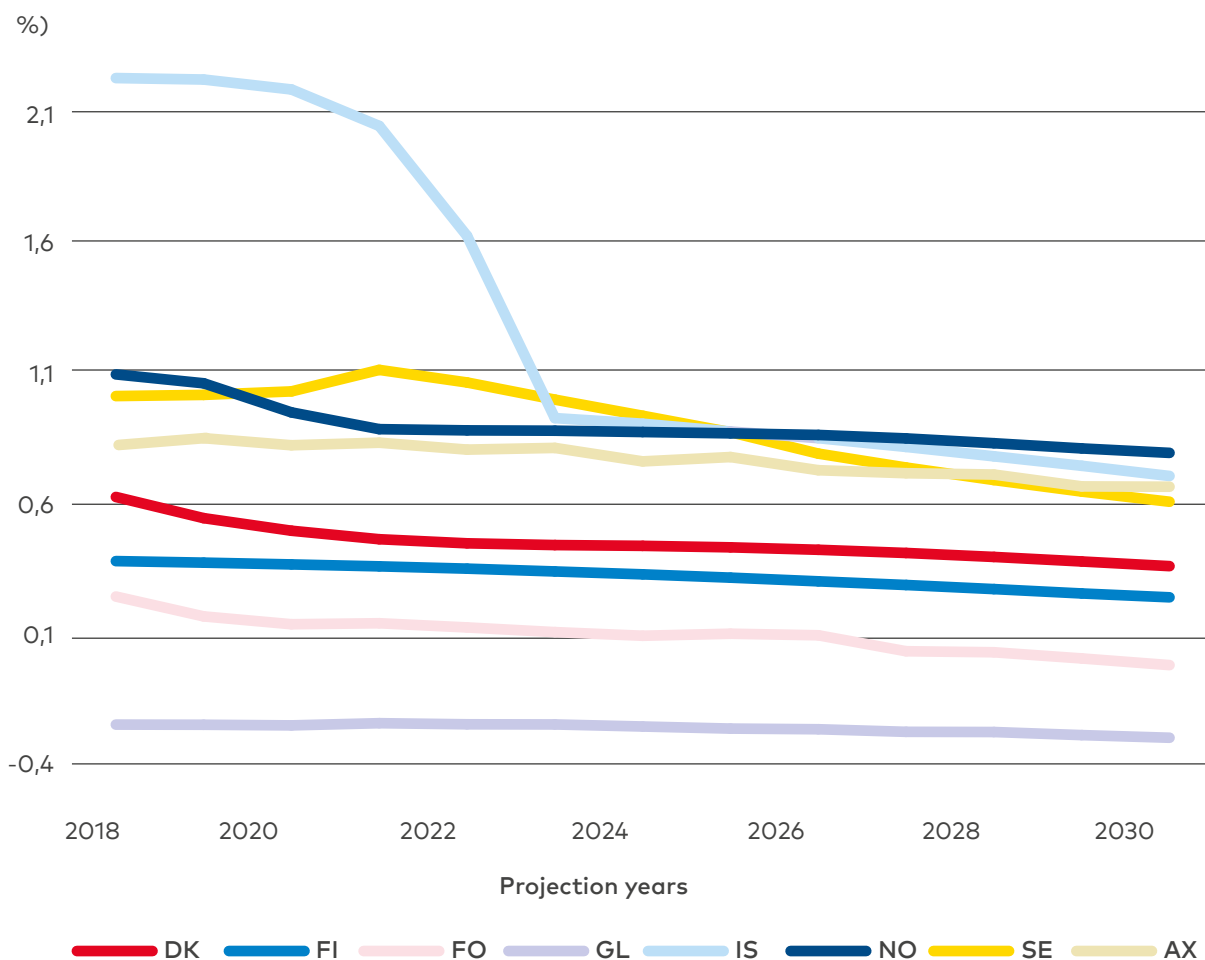
Population dynamics in Greenland and the Faroe Islands are expected to follow a different pattern.

The NSI of Greenland expects the population to shrink by 0.2% to 0.3% in each projection year. This would translate into a loss of more than 1,800 inhabitants and a decline in the total population from 55,900 (2017) to around 54,000 (2030). The Faroese population is projected to increase until 2029 when it will reach 50,900 inhabitants. By 2030, however, population decline is expected to set in.

It is important to note that the projections published by the NSIs differ in terms of the projection periods they cover and the number of scenarios they use. They also make different assumptions about how fertility rates, mortality rates and migration numbers will develop in the future. These differences must be kept in mind when comparing projection results across the Nordic Region. They influence the projection results that we present in figure 2.1 and in the other figures contained in this chapter. The online appendix for this chapter provides more detailed information on the projections for each Nordic region.

While all Nordic regions apart from Greenland are expected to have larger populations in 2030, figure 2.2 shows that this growth will continue to be skewed towards urban areas. This is particularly visible in Sweden, where population growth rates of 10% or more are expected for Stockholm and its surrounding municipalities, the area around Lund, Malmö and Helsingborg as well as Växjö and Gothenburg/Kungsbacka. 80% of the population increase

Figure 2.1 Projected annual population growth in the Nordic Region, 2017–2030.



Source: NSIs.

is expected to occur in the densely populated south of the country, with Umeå as the only exception in the North. The large majority of other municipalities in the northern part of the country will experience population decline. A similar pattern applies in Greenland, where moderate population gains are only expected in the municipality of Semersooq which hosts the city Nuuk. In Finland, Norway and Denmark, population growth is somewhat more dispersed. In Norway, for instance, high rates of growth are expected in Oslo and its surrounding municipalities, Bergen, Stavanger, Kristiansand and Trondheim, but also in some more remote municipalities such as Hammerfest and Bardu. The municipalities that together contribute 80% of Norway's total population increase are also somewhat more spread out than in Sweden. In Denmark, the strongest population growth is projected for Copenhagen, Aarhus and

This is particularly visible in Sweden, where population growth rates of 10% or more are expected for Stockholm and its surrounding municipalities

Horsens, though other areas of Sjælland, Fyn and Jylland are also expected to see growing numbers of residents. Many rural and less populated areas in Denmark, Norway and Finland are expected to lose inhabitants up to 2030. Overall, the municipal population projections for the Nordic Region suggest that the ongoing process of urbanisation will continue apace.

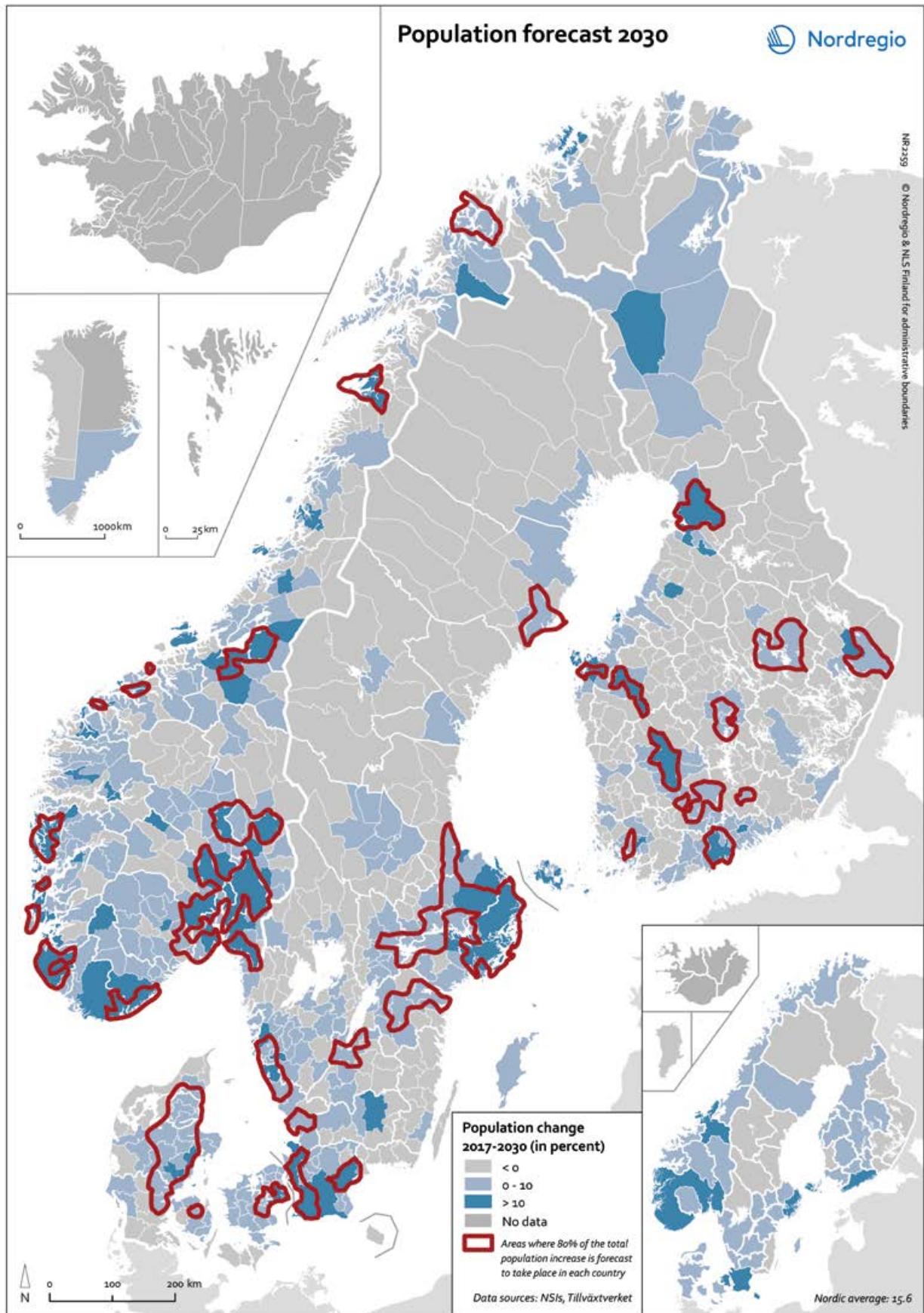
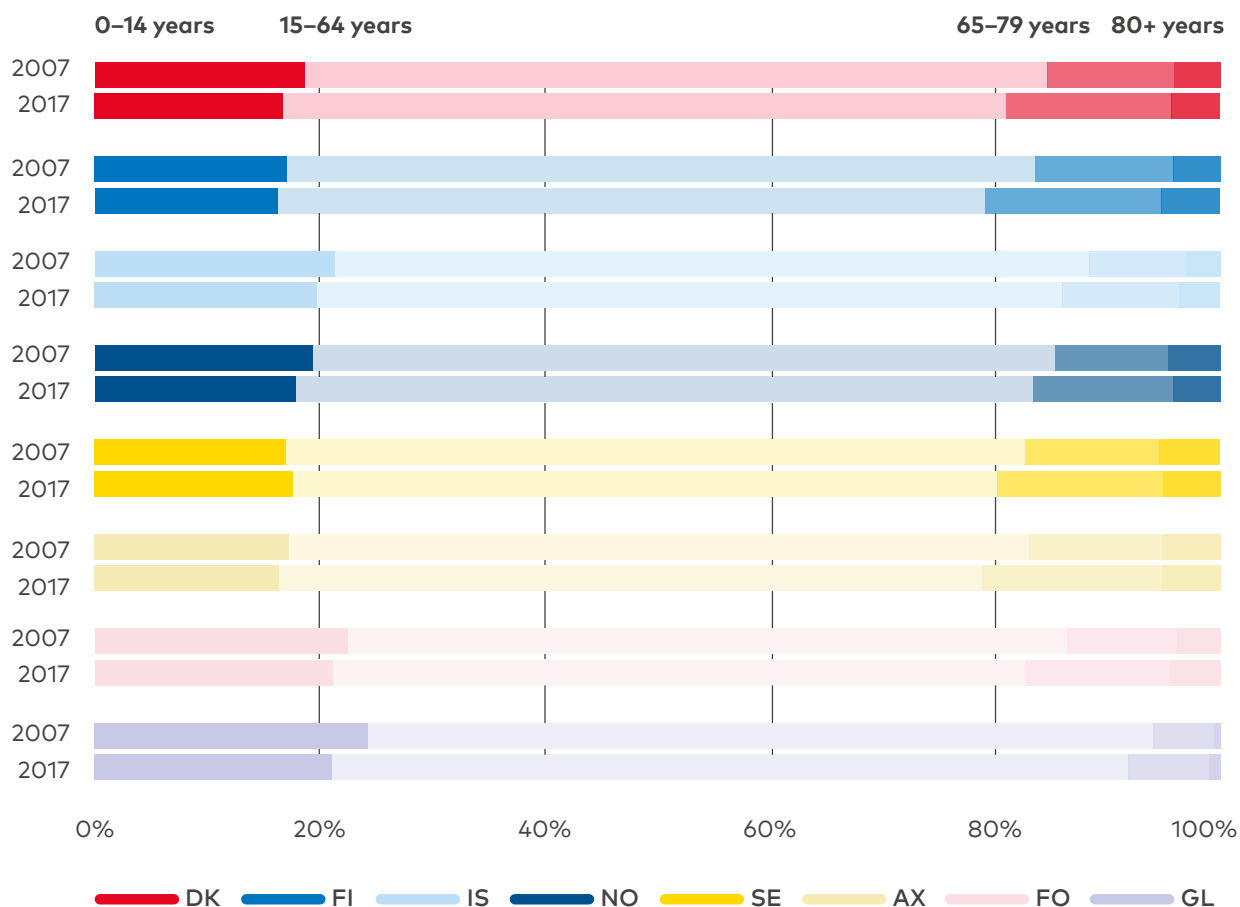


Figure 2.2 Population change 2017–2030.

Figure 2.3 Population structure by major age groups, 2007 and 2017.

Size of age groups (in %)



Source: NSIs.

Population structure shifts to higher ages in the Nordic Region

In addition to changes in their population size, populations in all Nordic regions have aged over the past decade: The proportion of elderly persons in the population has increased while the proportion of young people and those in the working-age population has either remained constant or declined.

Figure 2.3 shows the size of major age groups within each country or region, and how age distributions have changed between 2007 and 2017. The population in Åland has the oldest age structure in the Nordic Region, with persons in the two oldest age groups – 65 to 79 years and 80 years and older – together accounting for 16.9% (2007) and now 21.1% (2017) of the total population. In Greenland,

these two age groups only make up 8.1% of the population, though this share is also higher than it was in 2007. The young population structure in Greenland is not only due to comparatively high fertility rates, but also to lower levels of life expectancy than in the other Nordic regions. The other countries or regions lie in the middle of the spectrum, with proportions of older people (combined age groups 65–79 years and 80+ years) ranging from 14.0% in Iceland to 20.9% in Finland in 2017. The increase in the proportion of older people is primarily driven by the population aged 65 to 79 years. The proportion of persons aged 80 years and older – often referred to as the oldest-old – increased only slowly or even declined in most Nordic regions between 2007 and 2017. This stands in contrast to other countries in Europe, where the oldest-old population generally increased more strongly. The increase in the proportion of

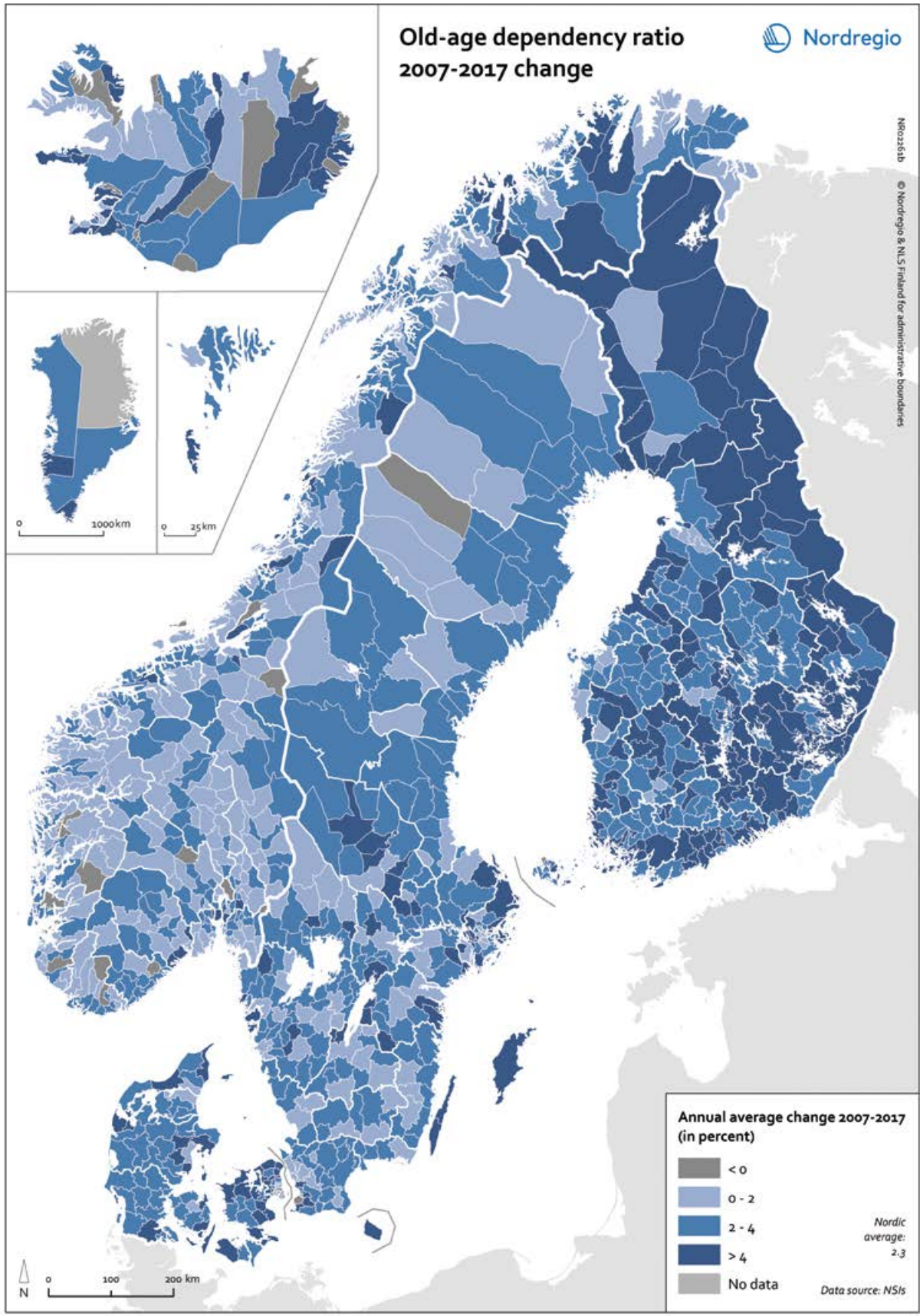
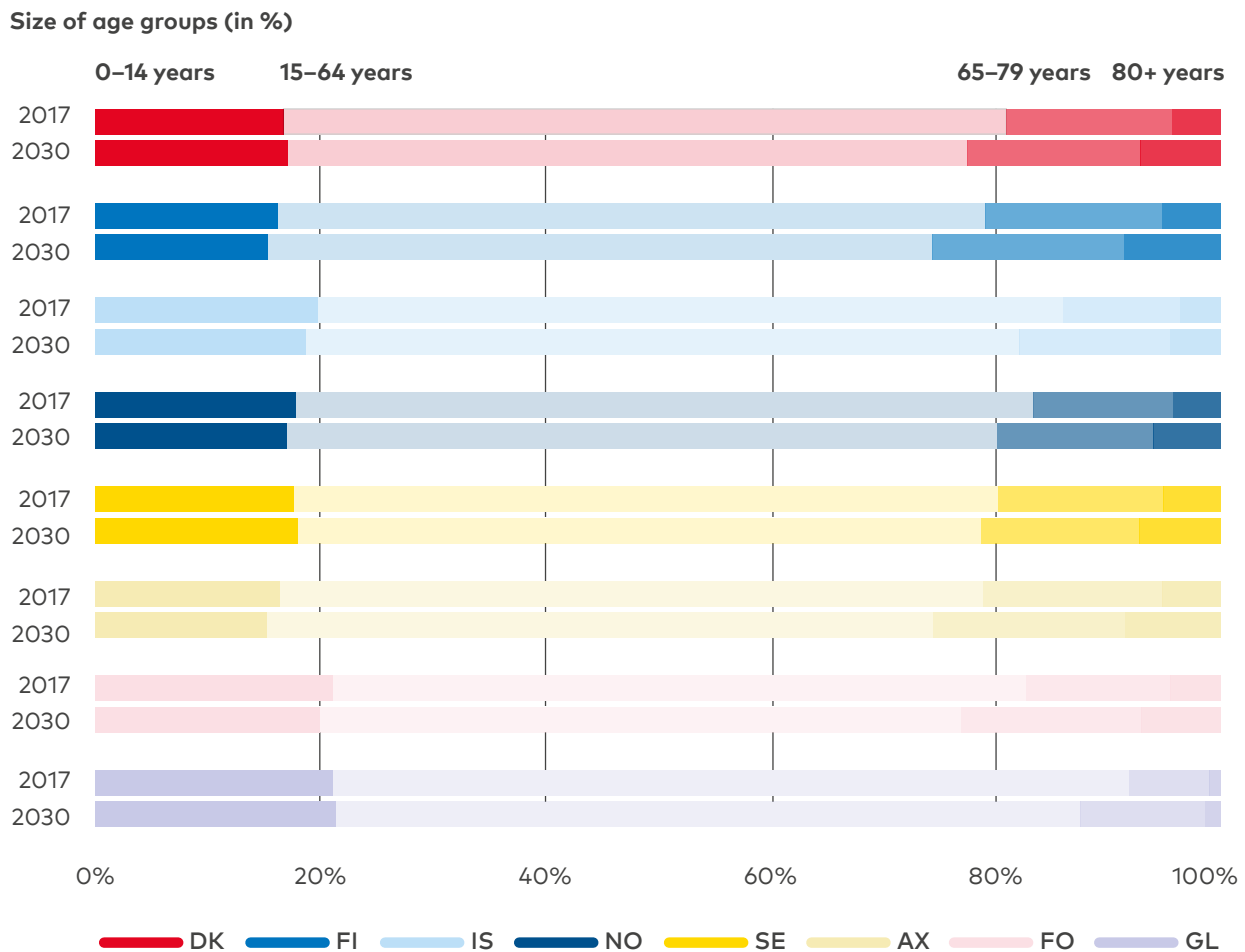


Figure 2.4 Old-age dependency ratio change 2007–2017: The number of elderly people at an age when they are generally economically inactive (i.e. aged 65 and over), compared to the number of people of working age (i.e. 15–64 years old).

Figure 2.5 Population structure by major age groups, 2017, and projection results for 2030.



Source: NSIs.

older people has come at the expense of the young (0–14 years) and working age populations (15–64 years). The proportional size of these two groups was smaller almost everywhere in the Nordic Region in 2017 than in 2007. The exceptions are Greenland, where the working-age population increased from 69.7% to 70.8% and Sweden, where the young population was almost of the same proportional size in 2017 as in 2007.

Within the Nordic Region, population ageing between 2007 and 2017 has been least pronounced in large urban areas. Cities such as Stockholm, Copenhagen, Oslo, Reykjavík and Malmö have either registered declines in their old-age dependency ratios or slower increases than elsewhere (figure 2.4). This has largely been a result of the influx of young people from rural areas and abroad who moved to

these urban centres for education and work (Hansen & al., 2011). Smaller urban and rural municipalities in the Nordic regions have almost exclusively witnessed increases in old-age dependency ratios. Strong annual average increases of more than 4% occurred in rural areas of Finland, Iceland and urban-adjacent municipalities in Denmark, for instance in the surrounding areas of Aarhus and Copenhagen. In rural and remote areas in Sweden, Norway and Denmark, the average increase in old-age dependency ratios remained below 4 percent per year in the majority of municipalities. A few municipalities in Sweden, Norway and Iceland even experienced declines in their old-age dependency ratios between 2007 and 2017. Overall, however, such declines remain the exception in an otherwise ageing population in the Nordic Region.

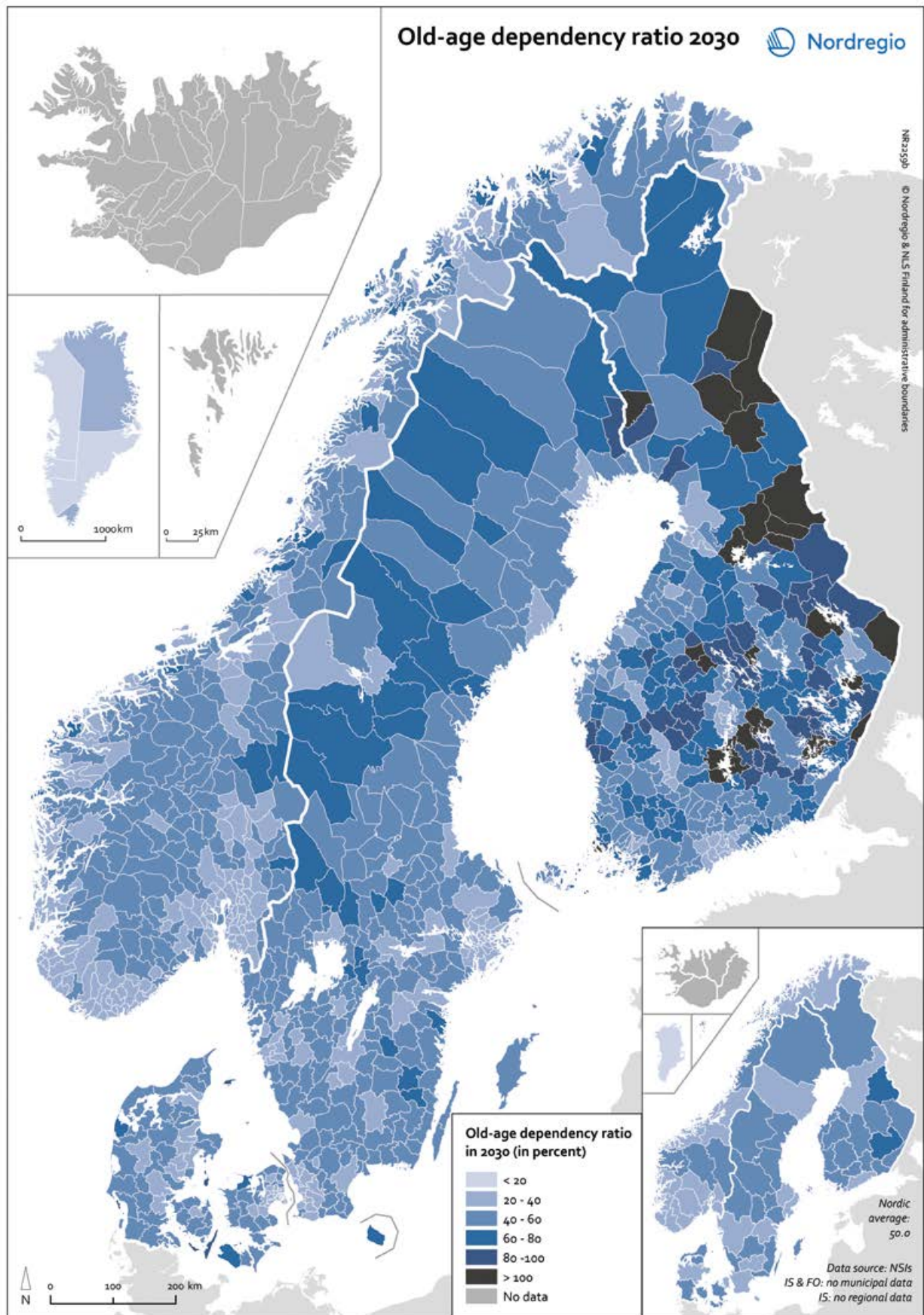


Figure 2.6 Old-age dependency ratio 2030.

Population ageing expected to continue until 2030

All NSIs expect that the population ageing trend will continue in the coming years. Projections suggest that Finland and Åland will continue to have the oldest age structures among the Nordic regions (figure 2.5). 17.0% of the population in both regions will belong to age groups 65–79 years in 2030, and around 8.5% will be aged 80 years or older. At the other end of the spectrum, Greenland's population is projected to remain comparatively young. Statistics Greenland assumes that fertility will remain at a level of 2.1 children per woman in the future, and that life expectancy will rise, but remain lower than in the other Nordic countries. Both factors contribute to the comparatively young projected age structure in 2030. Only 12.5% of the population will be of retirement ages (combined age groups 65–79 years and 80+ years) in 2030, up from 8.1% in 2017. Greenland, together with Sweden and Denmark, is also expected to see a small increase in the proportion of younger people, thanks to high fertility rates: 21.4% of the population will be aged 14 or younger in 2030, up from 21.1% in 2017. Finally, the proportional size of the working-age population (15–64 years) is expected to decrease across the Nordic Region.

Figure 2.6 highlights differences in projected age structures within each region. In 2030, the largest cities such as Stockholm, Oslo, Helsinki, Copenhagen, Stavanger and Gothenburg will have old-age dependency ratios between 16% and 30%. The working age population (15 to 64 years) will be at least 3.3 times larger than the retirement age population in these areas. Much higher old-age dependency ratios are expected in many rural and sparsely populated areas. The highest levels are projected for many municipalities in northern and eastern Finland, which will have more than one person of pension age for every person of working age. Most other rural areas in Norway, Sweden, Denmark and Finland will have lower old-age dependency ratios, but levels vary widely between 20% and 100%. Figure 2.6 also shows that large parts of Greenland will retain comparatively young age structures in their population up to 2030. Kujalleq is the only municipality in Greenland expected to reach an old-age dependency ratio above 20%. In general, almost all municipalities in the Nordic Region are expected to have higher old-age dependency ratios in 2030 than today. These increases will however begin from various levels and

progress at different speeds, reflecting differences in current age structures and expected demographic behaviour.

Concluding remarks

If the projection results described here are correct, the Nordic Region will be older and more urban in 2030 than it is today. Cities will have to provide housing and infrastructure for more inhabitants, while many rural and remote municipalities will have to develop strategies to influence or adapt to population decline. To different degrees, all municipalities will have to accommodate the needs and demands of a growing number of older persons. As recent publications show, many villages, towns and cities are already implementing innovative strategies to address population changes and these may serve as examples for other Nordic municipalities in the coming years (Hörnström & al., 2015; Johnsen & Perjo, 2014).

While the demographic outlook suggests that Nordic municipalities face a variety of challenges to their traditional welfare state arrangements and other areas of public and private life, two points must be kept in mind:

First, population projections are inherently uncertain. If fertility, mortality or migration trends develop differently than currently projected by the NSIs, the size and age structure of populations may look somewhat different in 2030 than those shown here. Migration to and from municipalities may play a particularly important role: The closure of a company that provides for a large share of jobs, the opening of a new service provider or similar local events may prompt more people to leave or move to a municipality than we can anticipate today (Foss & Juvkam, 2005). Similarly, municipal attempts to counteract the outmigration of young people or to attract new residents with the help of rural development programmes may prove fruitful and change migration patterns. Hence, while the projection results in this chapter show likely population dynamics in the Nordic Region up to 2030, somewhat different outcomes are possible.

Second, while *de facto* population trends may deviate from the trends outlined here, it is clear that the proportion of people aged 65 years and older will increase in the years to come. Nonetheless, these changes do not necessarily imply that the number of patients dependent on health care and/

or welfare state benefits will increase in parallel. People in their 60s and 70s are often now more active and in better health than those of previous generations. Increasing numbers of men and women continue to be employed past traditional retirement ages, care for family members or engage in other paid or voluntary activities; ill health and dependency on care are often concentrated in the last years of life. Changes in age structure are therefore not

the only factor to determine how productivity levels, care needs and welfare state costs will develop in the future (Sanderson & Scherbov, 2007). It is important then to bear in mind the potential for, and abilities of, older people to contribute to their neighbourhoods, villages and cities. Policy makers should encourage and tap into these potentials as one way of adapting to future population changes.

Population projections: methods and interpretation

Population projections provide estimates of the number of persons who will, at a future date, live in a particular geographic area. They are usually calculated using the so-called 'cohort-component method'. This method allows for population projections by age groups and sex, and if desired, by other demographic attributes. Usually, the population is divided into single-year or five-year male and female age groups. Each of these age-sex-specific groups is separately projected into the future.

The results of population projections depend on assumptions about how future fertility and mortality levels will develop and how many people will move in and out of each area. These assumptions are made using a variety of tools and methods, but are often based on extrapolating demographic trends observed in the past. Each age-sex-specific population group is then projected into the future, one year or five years at a time, by adjusting for mortality during the time interval, as well as by deducting or adding migrants. The youngest age group is composed of infants born alive during the projection year and immigrants. Projections thereby provide information on the size of each age- and sex-specific population group in each future year. The projected groups can be aggregated to show changes in the total size of the population, but also in dependency ratios or other population indicators.

Assumptions about future fertility, mortality and migration trends must be well-justified, since they strongly influence projection outcomes. Only if the assumptions correctly predict future demographic trends will the projection results concur with de facto population developments. Predicting future trends in demographic behaviours is however inherently challenging. Economic boom and bust-periods, policy changes and other factors may influence mortality trends as well as people's decisions to move or have children. Nonetheless, they are often difficult to anticipate and incorporate into the projection assumptions. Future levels in international migration are arguably the most challenging to estimate, since they can fluctuate strongly from one year to the next. Due to these uncertainties, NSIs often publish not one, but several sets of assumptions about future fertility, mortality and migration trends. These are then combined to create different projection scenarios. Each scenario then shows how the population would develop, if the underlying assumptions are correct. In this chapter, we show the results of the most recent national and municipal population projections published by the NSIs. If more than one projection scenario is available, the figures and maps show the results of the 'main' or 'median' scenario. The online appendix for this chapter provides more detailed information on the projections for each part of the Nordic Region.

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Chapter 3

URBANISATION

Nordic geographies of urbanisation

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Maps and data: Julien Grunfelder and Oskar Penje

From a European perspective, the Nordic Region is sparsely populated but also one where, in 2016, more than 75% of the population lived in urban settlements with more than 2,000 inhabitants. Moreover, population growth has been concentrated to the larger functional urban areas for decades, though, in 2016, around 45% of the Nordic population still lived outside these areas. In this chapter, an urban settlement population map covering the entire Nordic Region is for the first time presented which, in combination with other spatial data, provides new insights into the various ongoing urbanisation processes, urban-rural relations and small and medium-sized city developments in the Nordic Region.

Sparsely populated and highly urbanised

North-eastern Europe is sparsely populated with people concentrated to large cities such as Moscow, St Petersburg, the Baltic capitals and around the coastal areas of the Nordic Region (figure 3.1). From Denmark, Poland and the Ukraine southwards, more populated areas can be found along with a dispersed settlement pattern. There is a major concentration of population in an urban network corridor running from Northern England across the Benelux-countries through Germany towards Northern Italy – the so called 'Blue Banana' (Faludi, 2015). Central Spain and Southern Portugal display a more sparsely populated settlement structure similar to that of the Northern parts of Europe. It is interesting to note here also

The Nordic population is to a large degree concentrated towards the coastal areas

that Europe's mountainous areas are clearly visible as sparsely populated areas on a population settlement map (figure 3.1) from the Scandinavian Mountain Range and the Scottish Highlands in the north, to the Alps and Dinaric Alps in the south and the Carpathians in the East.

The Nordic population is to a large degree concentrated towards the coastal areas (ibid.). It is a historical settlement pattern closely related to the availability of cultivated agricultural areas (Sporrong, 2008). There is a major settlement corridor from the area around the fjord of Oslo which continues into Sweden along the west coast towards the greater Copenhagen area. Another settlement corridor runs from the Greater Gothenburg region to the northeast, through Stockholm, to the Finnish triangle of Helsinki, Tampere and Turku. In Iceland, the population is to a large degree concentrated in the capital region of Reykjavík. There are also relatively significant settlements along Norway's southwest coast and in urban settlements scattered around the Baltic and Bothnian Seas. Denmark is different, with a more distributed spatial settlement pattern, rather like that of Germany and other parts of continental Europe (figure 3.1). The Faroe Islands have a rather evenly distributed spatial

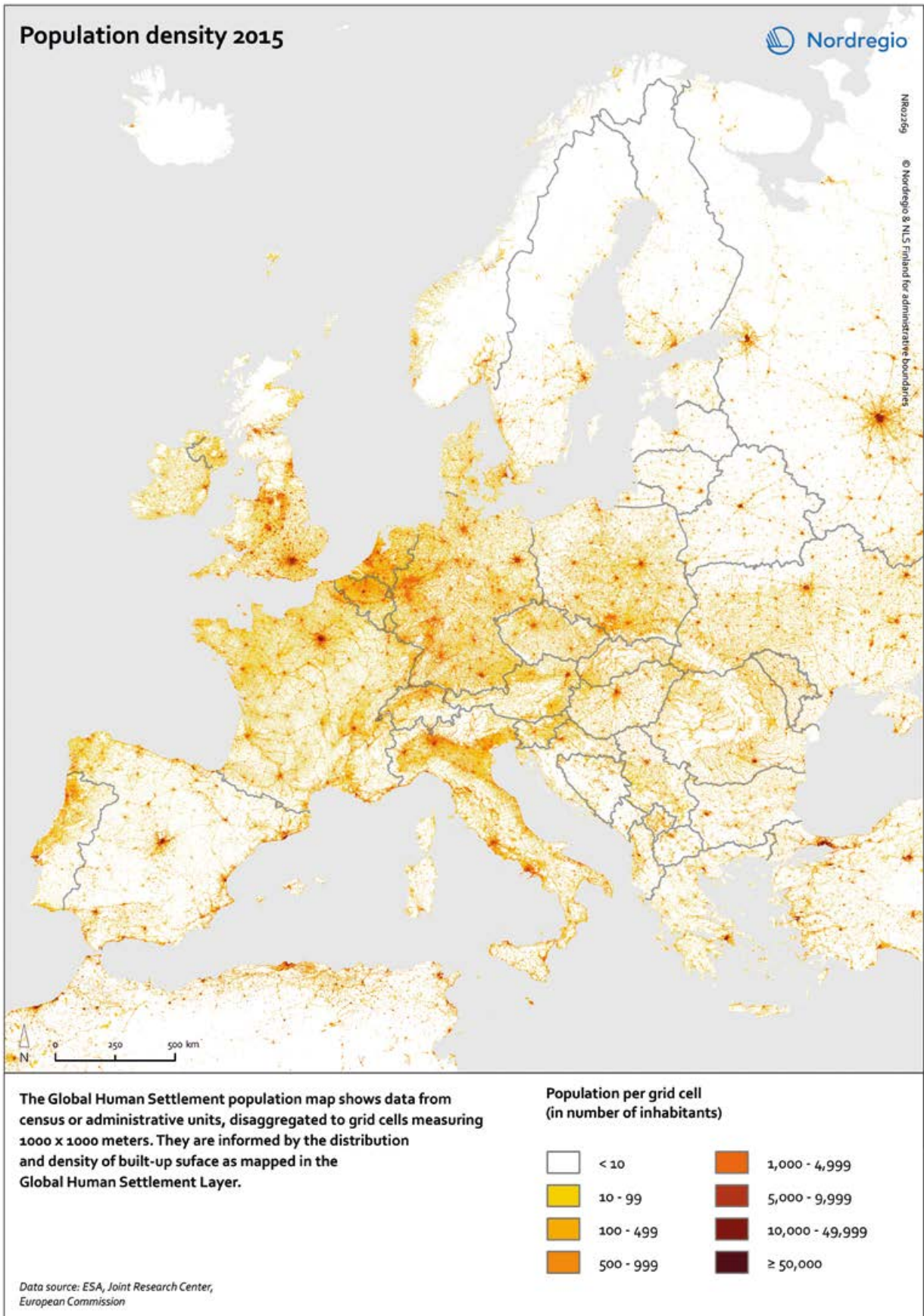


Figure 3.1 Population settlement structure in Europe.

	Total population		Change in %	Population in urban settlements > 2000		Change in %	Population in functional urban regions > 50,000		Change in %
	2011	2016		2011	2016		2011	2016	
Denmark	5,560,628	5,707,251	2.6%	3,986,777	4,160,264	4.3%	3,140,375	3,283,465	4.6%
Finland	5,375,276	5,487,308	2.1%	4,308,677	4,497,378	4.4%	2,895,081	3,048,845	5.3%
Iceland	318,452	332,529	4.4%	264,245	278,388	5.3%	202,341	213,619	5.6%
Norway	4,920,305	5,213,985	6.0%	3,436,686	3,760,710	9.4%	2,330,439	2,531,303	8.6%
Sweden	9,415,570	9,851,017	4.6%	6,876,785	7,599,236	10.5%	5,197,468	5,541,582	6.6%
Nordic Region	25,590,231	26,592,090	3.9%	18,873,170	20,295,976	7.5%	13,765,704	14,618,814	6.2%

Table 3.1 Population in the Nordic Region.

Data source: NSIs, Nordregio.

settlement pattern, while in Åland the population is more concentrated.

The population of the Nordic Region has grown by almost 4% during the period 2011–2016; more in Norway and less in Denmark and Finland. Populations in urban settlements with more than 2,000 inhabitants (see box) have however grown even more; by 7.5%, while that in the functional urban areas (see box) have grown by more than 6% (table 3.1 and figure 3.4). Population growth is unequally distributed within and between the various Nordic countries (table 3.1, figures 3.2 and 3.3). In Sweden and Norway, the population in urban settlements has grown by around 10% while the change in Denmark, Iceland and Finland has been between about 5% during the period in question. In Sweden, functional urban areas have, however, grown less in relation to the other countries and to urban settlements with 2,000 inhabitants. Norway has seen 9% population growth in both urban settlements and in the six largest functional areas.

Between 2011 and 2016, population growth at the Nordic municipal level has been most intense in and around the larger regions of Stockholm and Oslo and around the larger cities on Norway's western coastline (figure 3.2). The Greater Copenhagen, Gothenburg, Helsinki and Reykjavik areas have also grown in terms of population. There has also been significant population growth in most municipalities within the larger functional urban areas though some municipalities outside these areas have also grown significantly, including Bodø, Växjö, Jyväskylä and Horsens as well as in a few smaller municipali-

In Sweden and Norway, the population in urban settlements has grown by around 10% while the change in Denmark, Iceland and Finland has been between about 5% during the period in question

ties. The general pattern however seems to be that small inland municipalities with already small populations have declined further, particularly in Finland, but also in Sweden and Norway. In Denmark, municipalities with shrinking populations are primarily found along the west coast of Jylland but also in Sjælland.

Urbanisation also happens beyond municipal border

If, however, the population changes in urban settlements are taken into consideration, the general process of urbanisation becomes more nuanced (figure 3.3). In the capital regions, there are both urban settlements with a growing population and others with a shrinking population. Even if almost one fifth of the Nordic population is living in the five largest urban settlements, the population growth in these five built-up areas is rather low in relative terms compared to the average growth in

Approaching urban areas

Urban areas can be defined in terms of form, size and function. A common approach is to focus on the number of people living together within a defined area considered to have urban physical characteristics. This is a morphological approach which defines an **urban settlement** based on its built environment and concentration of buildings and with a population size above a minimal threshold (Servillo et al., 2017). All Nordic countries have data on urban settlement which corresponds to *tätort* (SE), *byområde* (DK) *taajama/tätort* (FI), *Þéttbýlisstaður* (IS) and *tettsted* (NO). In the Nordic Region, the population threshold is 200 individuals living within 200 metres (in Norway 50 metres) of each other. The delimitation of the urban settlement is regularly updated to account for settlements growing together and/or growing apart.

Urban settlements seldom actually correspond to the administrative and territorial boundaries of **municipalities** (i.e. there is a discrepancy between the morphological and territorial approaches to the delimitation of urban areas). Municipal boundaries often have a different historical logic with an urban centre and rural hinterland. Population growth and the expansion of the built environment have, in functional urban areas,

resulted in the core urban settlements being extended beyond the territorial boundaries of the municipalities (table 3.2). In areas with a more rural character and towns and suburbs, the urban settlement is often contained within the municipality. Municipalities can however contain multiple urban settlements in both more densely populated and in more sparsely populated regions.

Neither the morphological nor the territorial approach however effectively captures the dynamics of the current urban condition or the function of the urban settlement in a wider spatial context. **Functional urban area** is a term used to capture these dynamics which focuses on the functional relations and links between the urban centre (or centres) and the (regional or suburban) hinterland. The Organisation for Economic Cooperation and Development (OECD) and the European Commission (EC) have developed harmonised data for functional urban areas with a population size over 50,000 and at least 1,500 inhabitants/km² in the urban core based on grid data and commuting data to demarcate the hinterlands (15% commuting to the urban core; Dijkstra & Poelman, 2012; see also Grunfelder et al., 2016).

urban settlements more generally (table 3.2). On a general level, the population is growing in urban settlements across the Nordic countries although there are spatial differences as well as differences between population change in urban settlements compared with that witnessed in the municipalities. The spatial pattern is not as distinct when it comes to population change in urban settlements (compare figure 3.2 and 3.3). A more diversified pattern emerges with smaller urban settlements in Western and mid-Sweden increasing their populations. This diverse pattern continues in Denmark which sees

population growth in several urban settlements across both Jylland and Sjælland.

Cases also exist where the population in an urban settlement is growing but the population size in the municipality is shrinking. For example, the populations in the urban settlements of Visby, Örnköldsvik, and Skellefteå are growing while the municipalities themselves are shrinking. This indicates that population concentration is occurring in the urban settlements. In addition, there are also cases where the population of the municipality is growing but not in the larger urban settlement within the municipality,

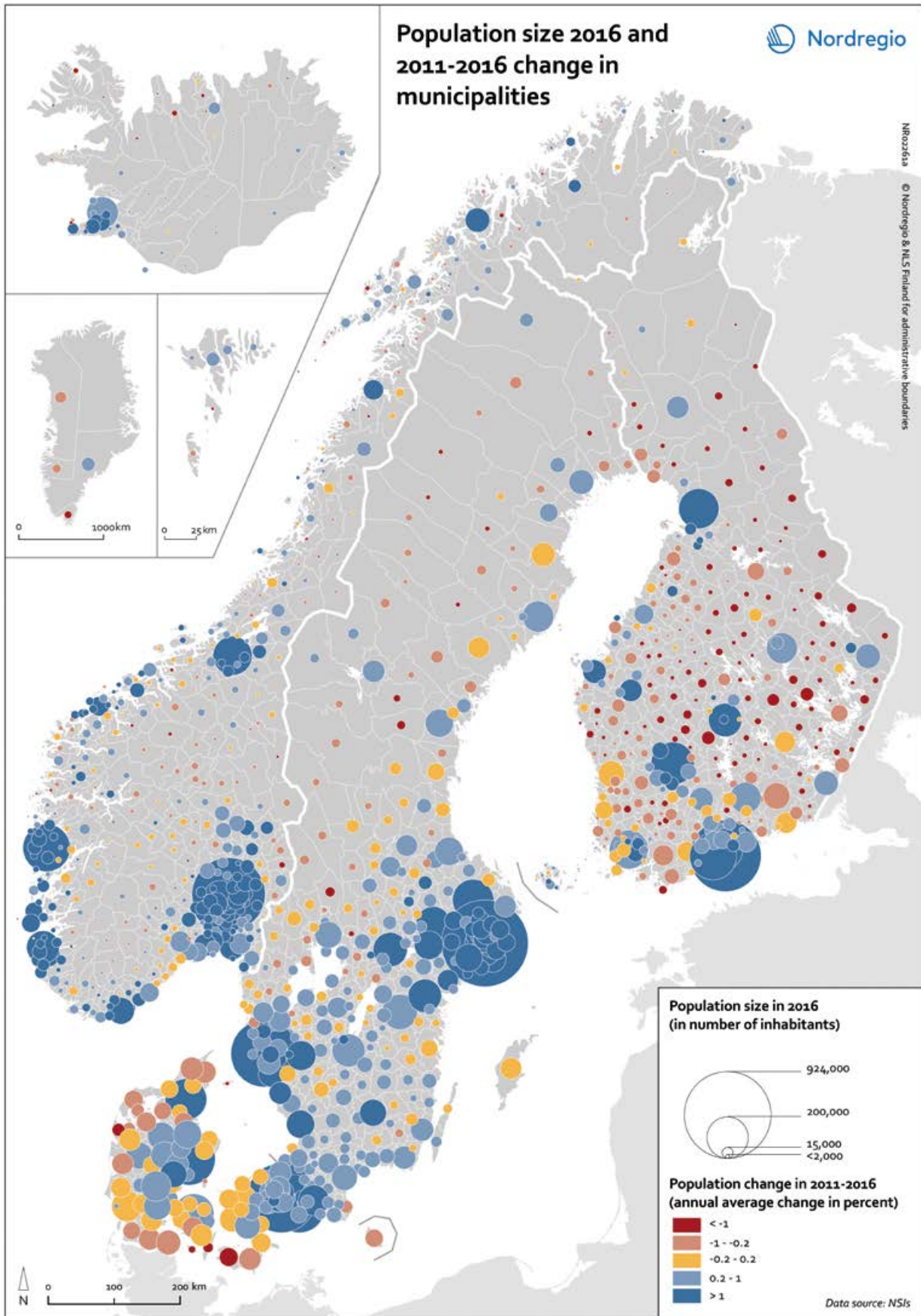


Figure 3.2 Population size in 2016 and change 2011–2016 in municipalities.

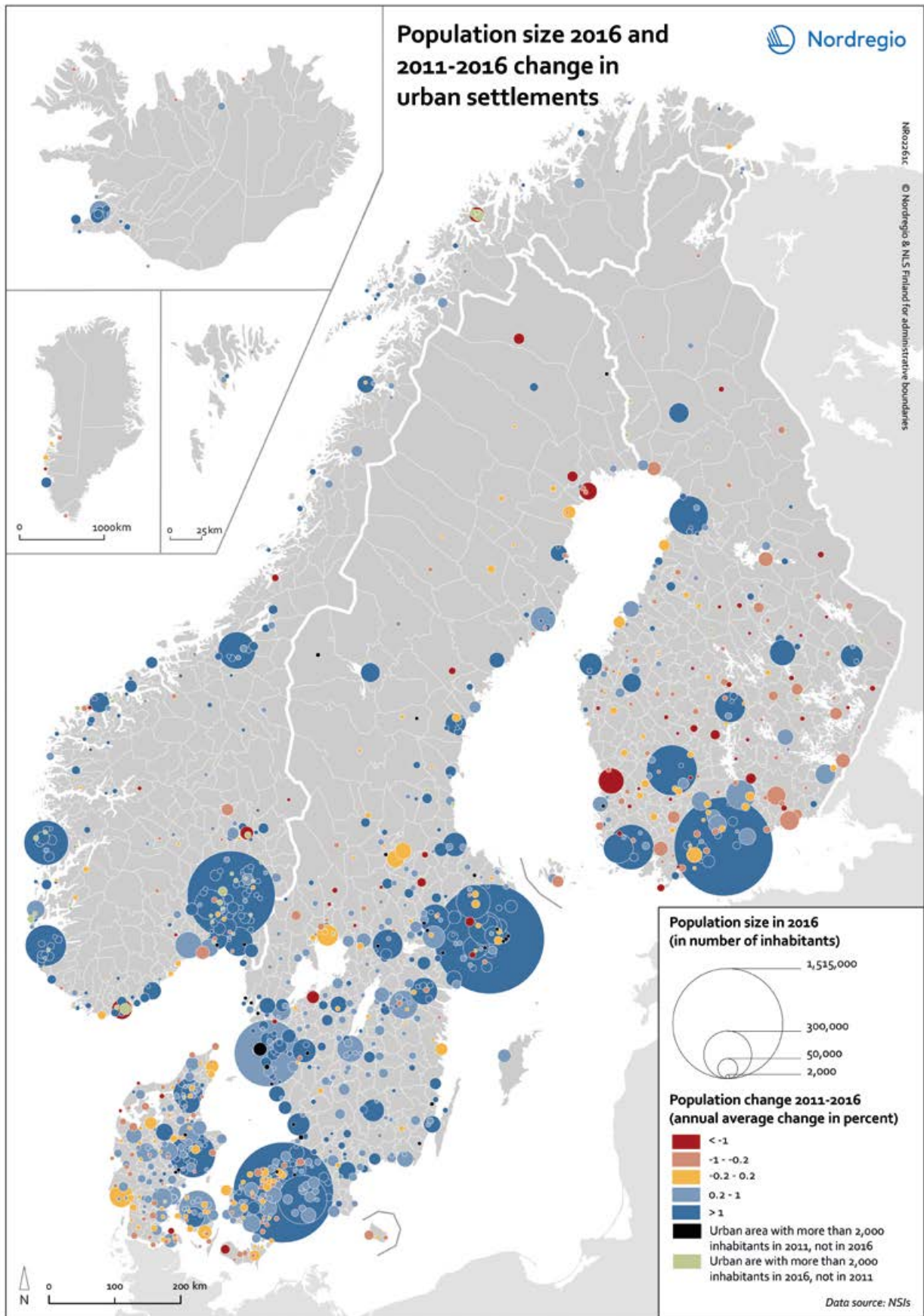


Figure 3.3 Population size in 2016 and change 2011–2016 in urban settlements of at least 2,000 inhabitants in 2016.

	Urban settlement Annual average Change		Annual average Change	Municipality		Annual average Change
	2011	2016		2011	2016	
Stockholm	1,372,565	1,515,017	+ 2.1%	847,073	923,516	+ 1.8%
Copenhagen	1,199,224	1,280,371	+ 1.3%	539,542	591,481	+ 1.9%
Helsinki	1,145,755	1,231,595	+ 1.5%	588,549	628,208	+ 1.3%
Oslo	906,681	975,744	+ 1.5%	599,230	658,390	+ 2.0%
Gothenburg	549,839	572,799	+0.8%	513,751	548,190	+ 1.3%

Table 3.2 The most populated urban settlements and municipalities in the Nordic Region.

for example Karlstad and Falun, Boden and Luleå in Sweden, Pori in Finland and Hamar in Norway.

Urban settlements, especially within the larger functional urban areas, grow together which can appear in statistical form as a significant increase in population. For example, the urban settlement of Torslanda in Gothenburg municipality has grown together with neighbouring areas which means the boundary for the area has been redrawn and the population of Torslanda has been amended upwards from around 6,000 in 2011 to more than 23,000 in 2016. In Tromsø the opposite process can be observed, i.e. the population in the main urban settlement decreased from 56,000 inhabitants in 2011 to about 34,000 in 2016, when Tromsdalen, Kvaløy-sletta and Hamna were redefined as independent urban settlements.

The Nordic functional urban areas: A mixed picture

The degree of urbanisation is the relationship between the population living in urban (and rural) areas and the total population of the municipality (i.e. between a morphological and a territorial approach). It indicates the spatial settlement patterns within a municipality and it can be used to describe the character of an area (figure 3.4). The Organisation for Economic Cooperation and Development (OECD) and the European Commission (EC) distinguish between three types of areas: cities or urban areas that are densely populated and where at least 50% of the population lives in the urban centre; intermediate density areas including suburbs and towns where less than 50% of the

population live in rural areas and less than 50% in urban areas; and rural areas which are thinly populated areas where more than 50% of the population live in rural areas. (For more detailed information on measuring the degree of urbanisation, see Dijkstra & Poelman, 2012).

The core cities of the 31 urban functional areas in the Nordic Region, correspond with the cities as defined by degree of urbanisation. In the functional urban areas of Esbjerg and Aalborg, for instance, there are however no densely populated urban centres. The hinterlands in most functional urban areas in the Nordic region do include towns and suburbs as well as rural areas (figure 3.4). The degree of urbanisation is a difficult concept to display but is useful as a way of adding nuance to the debate on urban-rural relations. Moreover, municipalities in sparsely populated areas can display a high degree of urbanisation, such as, for example, Kiruna and Gällivare in Sweden. It is also interesting that Boden and Luleå display an intermediate degree of urbanisation (figure 3.4) and growing population in the municipalities (figure 3.2) but shrinking population within the urban settlements (figure 3.3).

Small and medium-sized cities: What are they?

In the *Nordic Cooperation Programme for Regional Development and Planning 2017–2020* (Nordiska Ministerrådet, 2017) urban qualities in small and medium-sized cities and urban-rural relationships are prioritised as important areas for regional development. How can urban and regional policy help to develop attractive and sustainable small

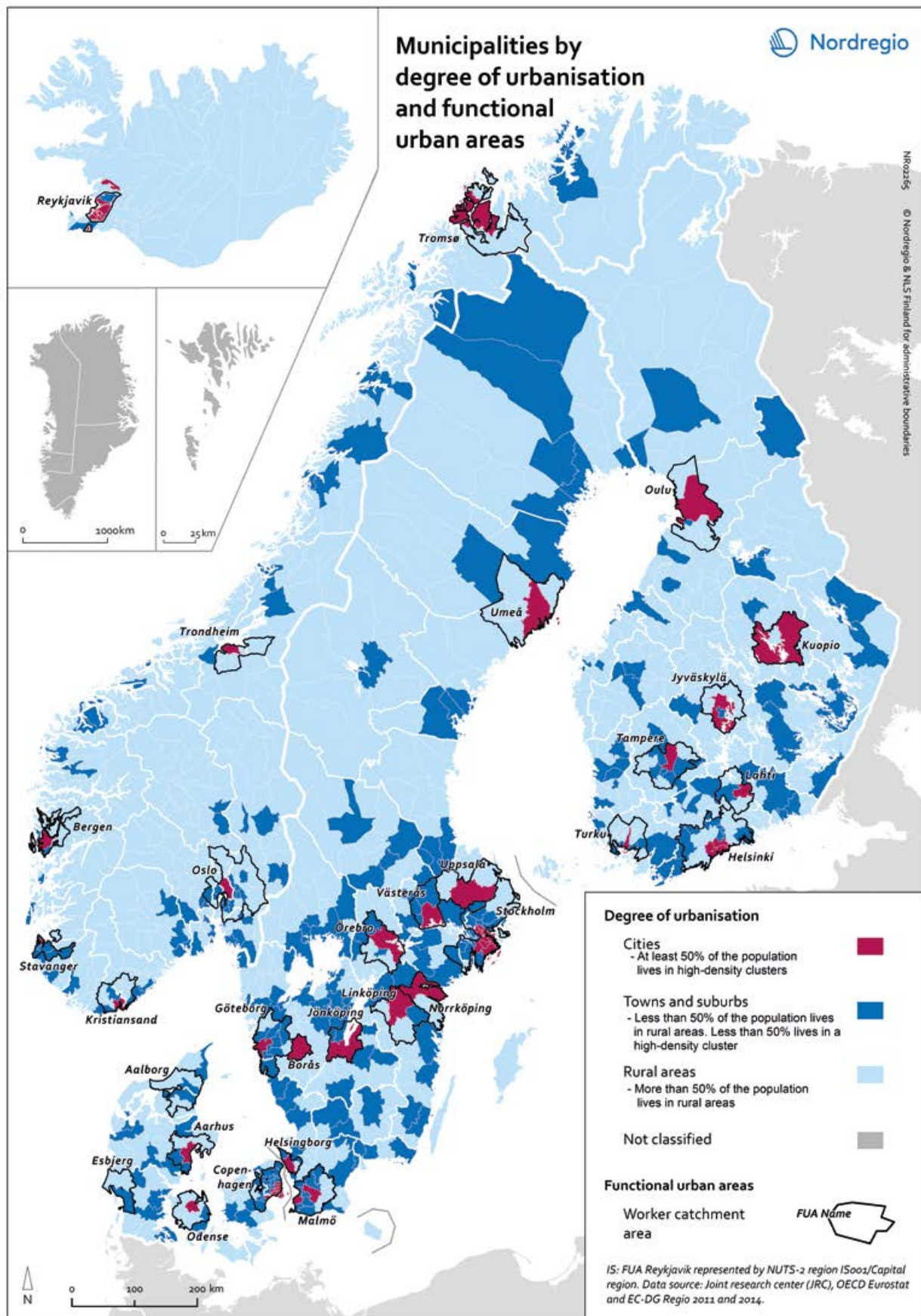


Figure 3.4 Degree of urbanisation and functional urban areas.

and medium-sized Nordic and Arctic cities? How are urban and rural environments related to each other, as discursive categories and through flows of people, goods and services in times of increased globalisation and technological change such as digitalisation? Small and medium-sized Nordic and Arctic cities face explicit and often rather different challenges in terms of social, economic and environmental sustainability compared to larger cities and central regions. But they have also been recognised as important nodes to "counteract the polarisation of urban growth and maintain the settlement pattern, especially in more sparsely populated areas. In these areas they can play a role in the attempt to diversify the economic base and ensure a minimum level of services" and at the local level they also "offer good possibilities in terms of living areas of high quality – counteracting social segregation" (Damsgaard, 2006, p. 4).

Small and medium-sized cities have often however been neglected in both research and policy terms. Even if they "*are typical in a quantitative sense, and theorists have been too dazzled by the spectacular urbanism of big cities to notice them. They are unique in that the way they 'do' 'cityness' is distinctive, while still recognizably urban*" (Bell & Jayne, 2009, p. 695). Small and medium-sized cities can be defined in many ways and there is no (and cannot be) one universal definition mainly because it is a relative concept with different meanings and implications in different contexts. There is no generally agreed upon European definition for small and medium-sized cities (or towns) and no harmonised data for smaller cities and towns across Europe, but small and medium-sized cities present "a 'real' object because of [their] specific (common-sense) shared cultural meaning that evokes certain common images and an, often implicit, understanding of what are [the] characteristic territorial features of such places" (Servillo et al., 2017, p. 2f.).

Here it is vital to recognise the importance of terminology and the confusing similarities and differences between the Scandinavian languages. In Danish and Norwegian the term "by" is used for all types of urban areas (although we may distinguish here between "*landsby* and '*storby*" etc.). In Swedish, the word "by" in contrast means village or settlement while an urban area or city is usually called "*stad*". In English, there is a third category, towns

which may be considered as something "in between" a city and a village. There are various linguistic and cultural explanations for these differences and other additional denominations related to the historical functions of cities in each country. It is however also worth noting that the relationship between cities and urban (areas) has changed in meaning over time. The Latin word *urb* referred to the physical settlements of the Romans, while the Greek word for city is connected to civilisation and *civitas*, i.e. to a wider social meaning. Today the notion of 'urban' is associated more with the social sphere while cities are physically delimited, as such the urban often extends beyond the city walls as Lefebvre (2003) argued, which is certainly correct if we consider the larger urban settlements which clearly extend beyond both municipal boundaries and historical city borders.

The EU and the OECD define a city as a densely populated area with at least 50,000 inhabitants, which means that there are only 31 cities in the Nordic Region (Dijkstra & Poelman, 2012). Of these, 18 are classified as small cities while eight are medium-sized. Only the five most populated urban areas are considered larger cities. Even if almost all population growth in the Nordic Region over the last 20 years (1995–2015) has been in the largest functional urban areas, almost half of the Nordic population continue to live outside these areas in small and medium-sized cities (Grunfelder & al., 2016). The ESPON programme has also funded several projects on small and medium-sized towns and/or cities and in the process established various criteria and definitions. For example, a large "small and medium-sized" town might have a population between 5,000 and 50,000 which would include a city such as Bodø but not Norrköping which would then be considered a large city (Servillo et al., 2017).

Multiple definitions exist of what constitutes a "small and medium-sized city" within the Nordic countries. This is perhaps more understandable than it initially seems given that it often depends on the purpose of the definition used. Different national authorities have produced different city definitions and thus also defined small and medium-sized cities based on their own needs. New urban-rural typologies are continuously being developed using new technologies and data. The Finnish Environment Institute has developed a new ur-

ban-rural classification system based on 250 x 250 metre grids thus creating a more fine-grained urban-rural continuum.¹ Urban areas are in this case defined as settlements with more than 15,000 residents including both the inner and outer urban areas surrounded by a peri-urban area which is linked to the more distant rural areas. Beyond this, on the urban-rural continuum there are local centres located outside the urban areas, areas with a rural character closely connected to urban areas, so-called "rural heartlands" and finally, sparsely populated areas.

The Norwegian Institute for Urban and Regional Research has produced a classification of Norwegian municipalities by combining the morphological, territorial and functional approaches outlined above (i.e. Gundersen & Juvkam, 2013). Residential and labour market areas were classified into five distinct categories based on the centre structure (itself based on urban settlements and municipalities). Any breaking point between large, medium and small cities are arbitrary and dependent on what rationale is used and the defined purpose of the classification. It would however be interesting to further explore the small and medium-sized cities from a functional perspective and to focus for example on the function of small and medium-sized Nordic and Arctic cities within a region in an age of planetary globalisation: what is the role of small and medium-sized cities in urban-rural relations?

Rethinking urban and rural relations

Thinking through the conceptualisation of small and medium-sized cities and using urban settlement data provides a new dimension to urban-rural relations while highlighting different urbanisation processes. The geographies of urbanisation in the Nordic Region are occurring on different scales and there are multiple dimensions to urban-rural relations at different scales from the local to the global. The larger urban functional areas are continuously and exponentially growing which is of significant concern both regionally and nationally, but there are also urban settlements within these areas that are declining. Within the larger urban regions in the Nordic countries there are also increasing tensions in terms of spatial and socio-economic segregation (Smas et al., 2016). Furthermore, the functional urban areas contain municipalities that are rural in character which means that interesting dynamics in respect of urban-rural relations emerge within these functional urban areas.

Urban-rural relations are also to a large extent intra-municipal issues, especially outside the larger functional urban areas. This becomes increasingly evident with a more detailed and nuanced analysis of the geographies of urbanisation patterns in the Nordic Region. Urban settlement and concepts such as the degree of urbanisation reveals this but it is important to investigate further the functional relations between urban and rural. Population change is also non-linear, with urban settlements potentially growing within municipalities which themselves have a shrinking population and *vice versa*.

¹ For more information visit http://www.ymparisto.fi/en-US/Living_environment_and_planning/Community_structure/Information_about_the_community_structure/Urbanrural_classification

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Chapter 4

MIGRATION

The wary welcome of newcomers to the Nordic Region

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Maps and data: Julien Grunfelder, Gustaf Norlén and Timothy Heleniak

After the exodus of large portions of their populations in the early twentieth century, in recent decades the Nordic countries have predominantly been countries of immigration. The migration policies of the Nordic countries have long been welcoming to work migrants and the region has become a prime destination for people from the new EU member states. These migrants have been important to the Nordic countries as population growth slows and the populations age. Without migration since 1970, population growth in Sweden would have ceased and the population size would be 8 million rather than the 10 million it is today (Lundkvist, 2016). Migrant workers are especially important to rural regions with declining populations as they alleviate population decreases and provide a work force.

The movement of large numbers of people seeking asylum in the Nordic countries and elsewhere in Europe since 2015 is often referred to in the media as a "refugee crisis" as it represents one of the largest influxes of displaced persons since the end of World War II. Over the course of 2015, an estimated 1.3 million people applied for asylum in the European Union. In that year, Sweden had among the largest per capita number of asylum seekers in Europe, with 16.7 asylum applications per thousand. Norway (6.0) and Finland (5.9) also received large relatively numbers of asylum applicants (Eurostat, 2017). While not all of these asylum seekers receive refugee status and permanent residence, a large and increasing share do, thus becoming potential workers.

The issue of maintaining the proper balance between controlling the inflow of humanitarian migrants while remaining open to labour migrants is

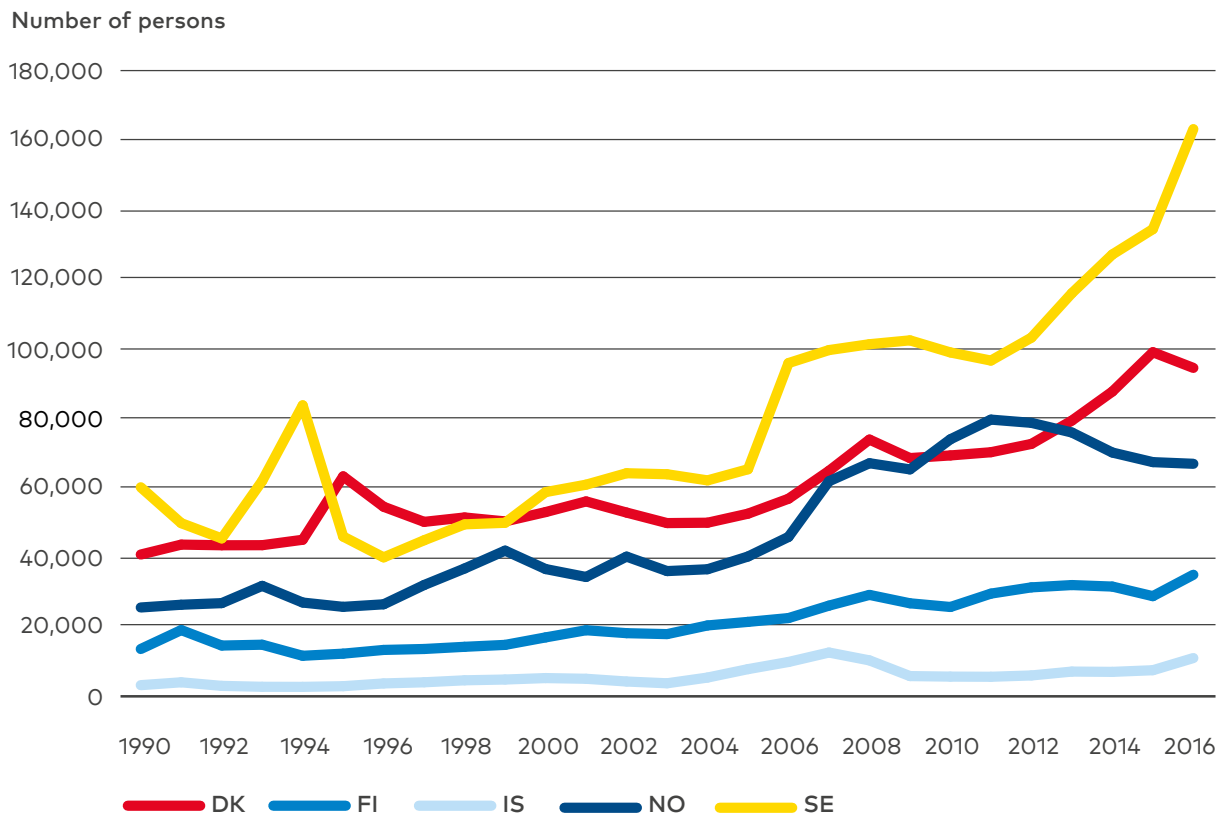
Migration has become the major source of population increase in the Nordic countries

an issue that has risen towards the top of political and public policy agendas. The recent influx of asylum seekers caused the Nordic governments to put in place several restrictive measures. The Nordic countries have, working together, devoted considerable resources towards devising more effective policies for the integration of both labour migrants and refugees into Nordic society and into the labour market. This chapter analyses long-term international migration trends at both the national and regional levels in the Nordic Region.

Historically high levels of immigration in the Nordic countries

Migration has become the major source of population increase in the Nordic countries. Since 2000, the population of the Nordic countries increased by 2.7 million. Thirty percent of this increase was from natural increase (more births than deaths) and 70 percent was from net migration (more immigrants than emigrants). This means that most of the population growth is from the immigration of people from outside the Nordic countries.

Figure 4.1 Immigration to the Nordic countries, 1990–2016.



Source: NSIs.

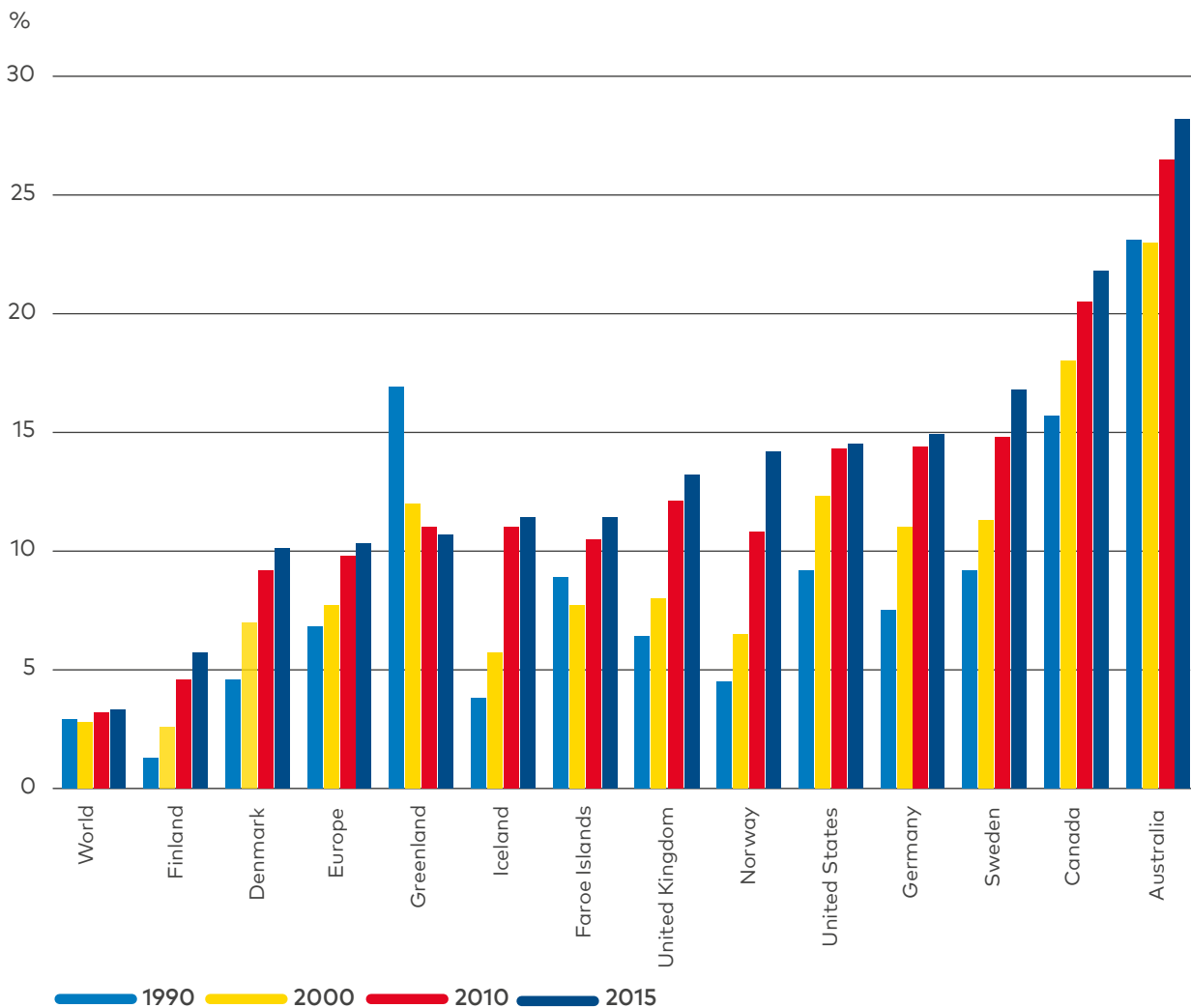
With several EU expansions plus the recent flows of refugees, immigration to the Nordic countries has steadily increased, especially since the mid-2000s (figure 4.1). Since 2000, 4.3 million people have immigrated to the Nordic Region (while 2.5 million have emigrated). Of the immigrants, 1.6 million have arrived in the past five years. Immigration to Iceland has increased again after a decline following the 2008 banking crisis. Immigration to Norway peaked in 2011 and has declined since then. In Denmark, immigration declined slightly in 2016 after peaking in 2015. Immigration to Finland and Sweden continued to increase and reached historically high levels in 2016.

The Nordic countries define the immigrant or foreign populations differently, thus data from the United Nations were used to compare the numbers of migrants (Heleniak, 2017). This data set defines a migrant as a person who is residing outside their country of birth (figure 4.2). Globally, there were 244 million migrants in 2015 which amounted to 3.3 per-

cent of the world's population. This is an increase from 1990 figures when there were 154 million migrants but only a slight increase in percentage terms as this 1990 figure represented 2.9 percent of the world's population. While the number of international migrants globally has increased by 60 percent since 1990, it has increased by 250 percent in the Nordic Region. Since 1990, the number of foreign-born persons in the Nordic Region has increased from 1.3 to 3.3 million. This number means that one-in-eight Nordic residents were born abroad (which includes those born in other Nordic countries).

Since 1990, international migrants as a share of the population increased significantly in all the Nordic countries. The percent figure for foreign-born in each exceeds the global average and in Iceland, Norway and Sweden exceeds the European average of 10.3 percent. The percent of foreign born people in Sweden now exceeds that of the United States, which has a much longer history as an immigration destination. Greenland is the only exception where

Figure 4.2 Foreign-born as percent of total population in the Nordic and selected other countries, 1990 to 2015.



Data source: United Nations Population Division, Trends in International Migrant Stock: The 2015 Revision.

the percentage of foreign born people has declined, going from 16.9 percent in 1990 to 10.7 percent in 2015. This figure was as high as 19 percent in 1975 before Greenland home rule was instituted and the flow of Danes to Greenland slowed.

The countries of origin of migrants to the Nordic countries have also become more diverse. Several decades ago, most migrants to the Nordic countries originated from other Nordic countries. With the EU enlargements in the 2000s, the new EU member states, particularly Poland, became major sending states. Given the large refugee flows in recent years, Syria, Eritrea, Iraq and Afghanistan have also now become major source countries (Heleniak, 2017).

High levels of international migration in most Nordic regions

Between 2011 and 2016, the population of the Nordic Region grew by 3.5 percent from international migration (figure 4.3). In addition to the differences by country noted above, there were also significant differences at the regional and municipal levels within the Nordic Region. At the regional level, all regions in Norway, Sweden and Denmark saw increases from international migration of more than 2.5 percent. In Finland, only the capital region had such gains from international migration while all other regions had smaller but positive increases.

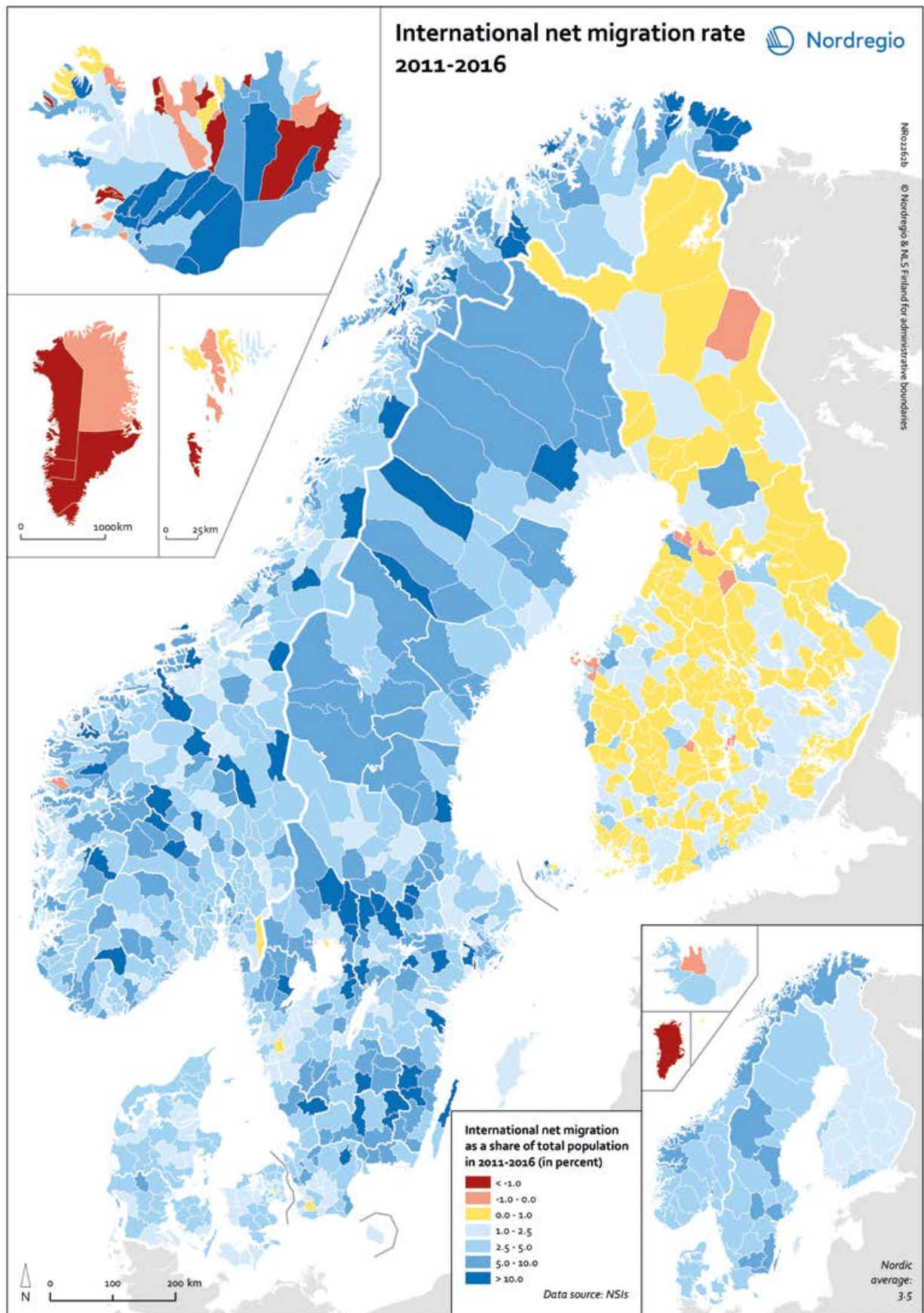


Figure 4.3 International net-migration 2011–2016.

In Iceland, there were a mix of regions seeing gains and declines from international migration. At the municipal level, in Norway and Sweden there were many regions throughout the two countries that saw gains from international migration of more than ten percent. Most of these were outside the capital regions and with smaller population bases. Overall, Finland had smaller gains from international migration and had no municipalities with gains of more than ten percent and a few with losses. Iceland sees a more varied pattern with a few municipalities with small populations having large increases from international migration and a few having net losses including some close to the capital.

Three different types of regions can be distinguished based on the impact of international migration on population change (figure 4.4). The first are those where international migration was not needed for the populations to grow (green areas on map). A second set of regions are those which only grew because of international migration (yellow areas on map). A third set of regions are those where even the impact of immigration was insufficient to counter declines from either having more deaths than birth or domestic outmigration, or both, or where net international migration was negative (red areas on map).

At the regional level (small map), many regions in southern Norway, Sweden, and Finland, the Copenhagen area, and southern Iceland would have grown even without international migration. Most of the northern two-thirds of Norway and Sweden and most areas in Denmark outside the capital region required international migration to have population growth. In Finland, there were a few regions in the southern part of the country where international migration contributed to a population increase but in many, international migration was insufficient to counter population declines from other sources.

Many regions in southern Norway, Sweden, and Finland, the Copenhagen area, and southern Iceland would have grown even without international migration

At the municipal level, the map shows that 416 municipalities would have experienced population growth even without immigration, most of these are in or near the capital regions and other large urban centres. A total of 310 municipalities experienced population growth only because of immigration and 485 municipalities experienced a population decrease during the period 2011–2016, even with international migration. The latter were in western Denmark, the more rural municipalities in northern Sweden, much of Finland, and northern Iceland.

Largest number of asylum seekers into the Nordic countries since World War II

With ongoing civil wars or instability in Africa, the Middle East and South Asia, Europe received a record number of asylum applications in 2015. While

Asylum seekers and refugees in immigration statistics

The process of applying for asylum is similar throughout the Nordic countries and the EU. A person applies for asylum with the police or office of the relevant migration agency. Their application is either accepted and refugee or subsidiary protection status is granted or they are denied asylum. If they are denied, they must either leave the country or appeal the decision. If they are granted asylum they are given a resident permit and are counted as an immigrant in the migration statistics. In addition, there are quota refugees who have been selected by the UNHCR for resettlement and who enter the country with refugee status. In recent years, far more people have been granted protection status in the Nordic countries as asylum seekers than as quota refugees.

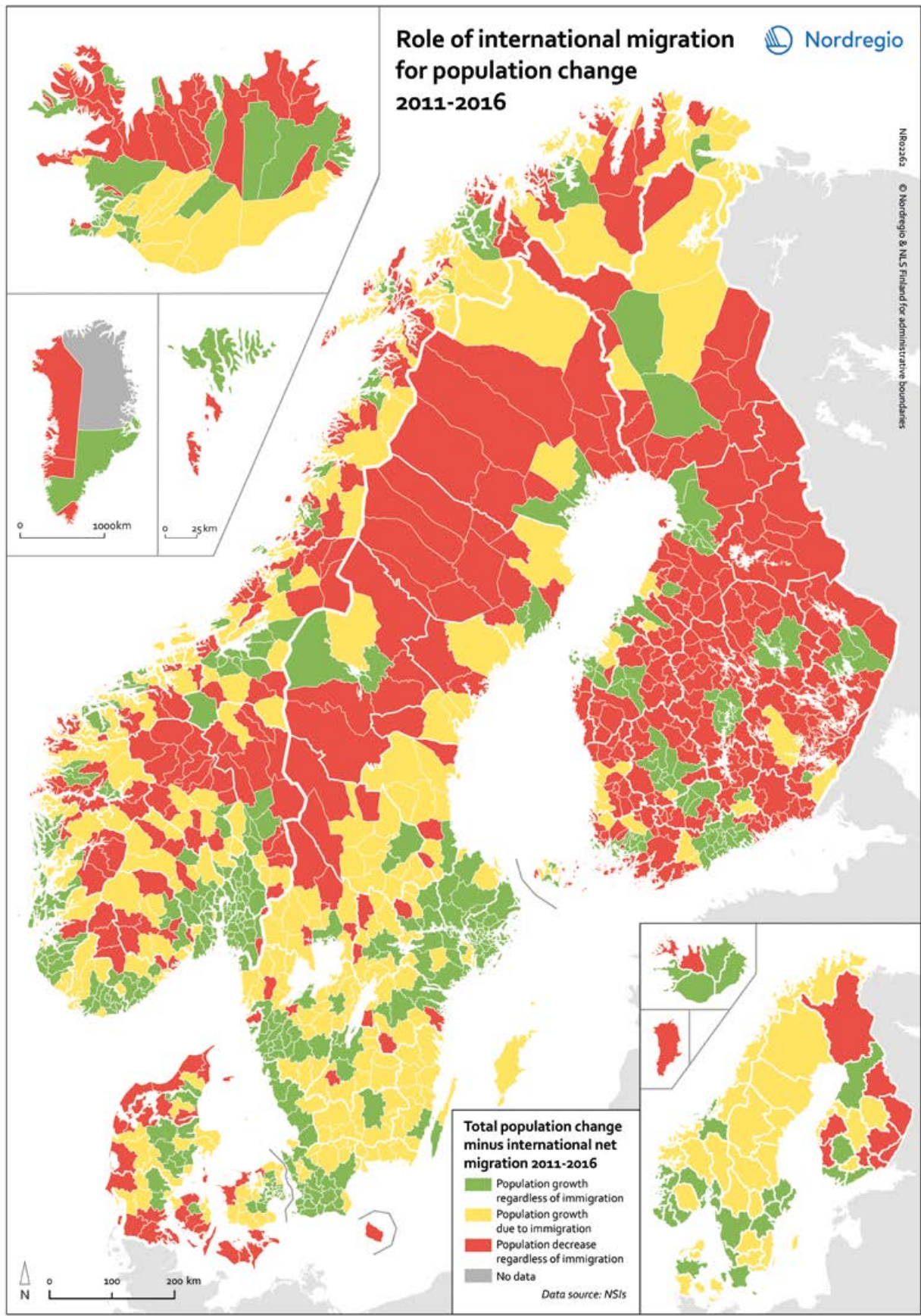
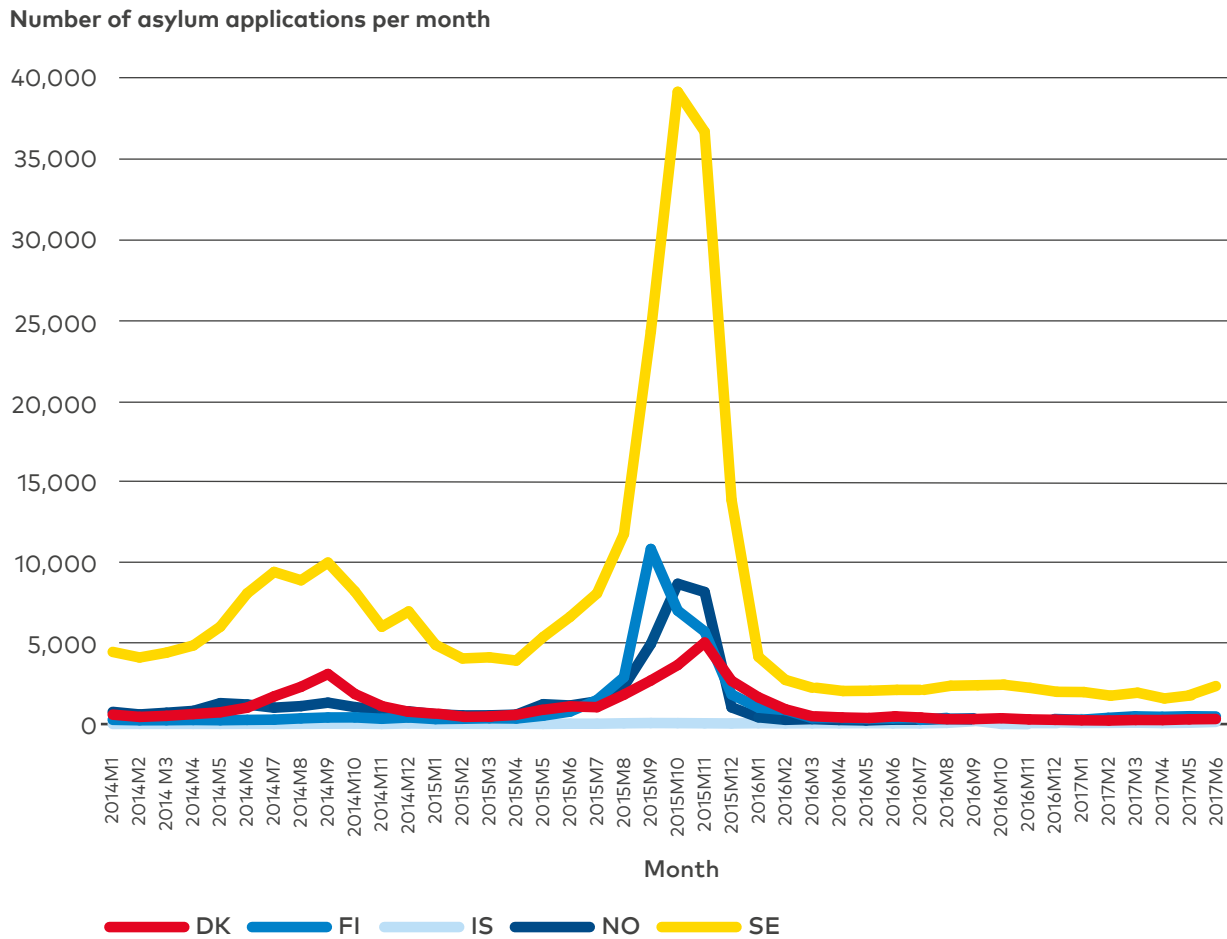


Figure 4.4 Impact of international migration on population change.

Figure 4.5 Number of asylum applications per month, January 2014 to June 2017.



Data source: Eurostat.

not all persons who apply for asylum are awarded refugee status and thus the right to permanently reside, many do and the share who receive a positive decision in the Nordic countries has increased in recent years. The share of positive decisions in Sweden increased from 33 percent in 2011 to 77 percent in 2014 before declining slightly to 70 percent in 2016. In Norway, the share of positive decisions increased from 34 percent in 2010 to 66 percent in 2016. The share of positive decisions in Denmark increased from 36 percent in 2012 to 81 percent in 2015 before declining to 68 percent in 2016. In Finland, between 2012 and 2015, more than half of first instance decisions were positive before declining to 34 percent in 2016. The increased shares of positive decisions combined with the increased numbers of asylum seekers means that there are many more

persons who have received refugee status over the past few years (see box).

Increased control efforts at the borders of the Nordic countries in the autumn of 2015 and an agreement between the EU and Turkey to not allow asylum seekers to enter Europe in June 2016 contributed to stemming the flow of asylum seekers. Norway, Sweden, Finland, and Denmark all saw record numbers of asylum seekers in 2015. Iceland saw smaller numbers and a later peak in 2016. The number of asylum seekers was especially large in the autumn of 2015 (figure 4.5).

Uneven regional distribution of asylum seekers and refugees

The distribution of refugees is of growing interest in the Nordic countries due both to the unprece-

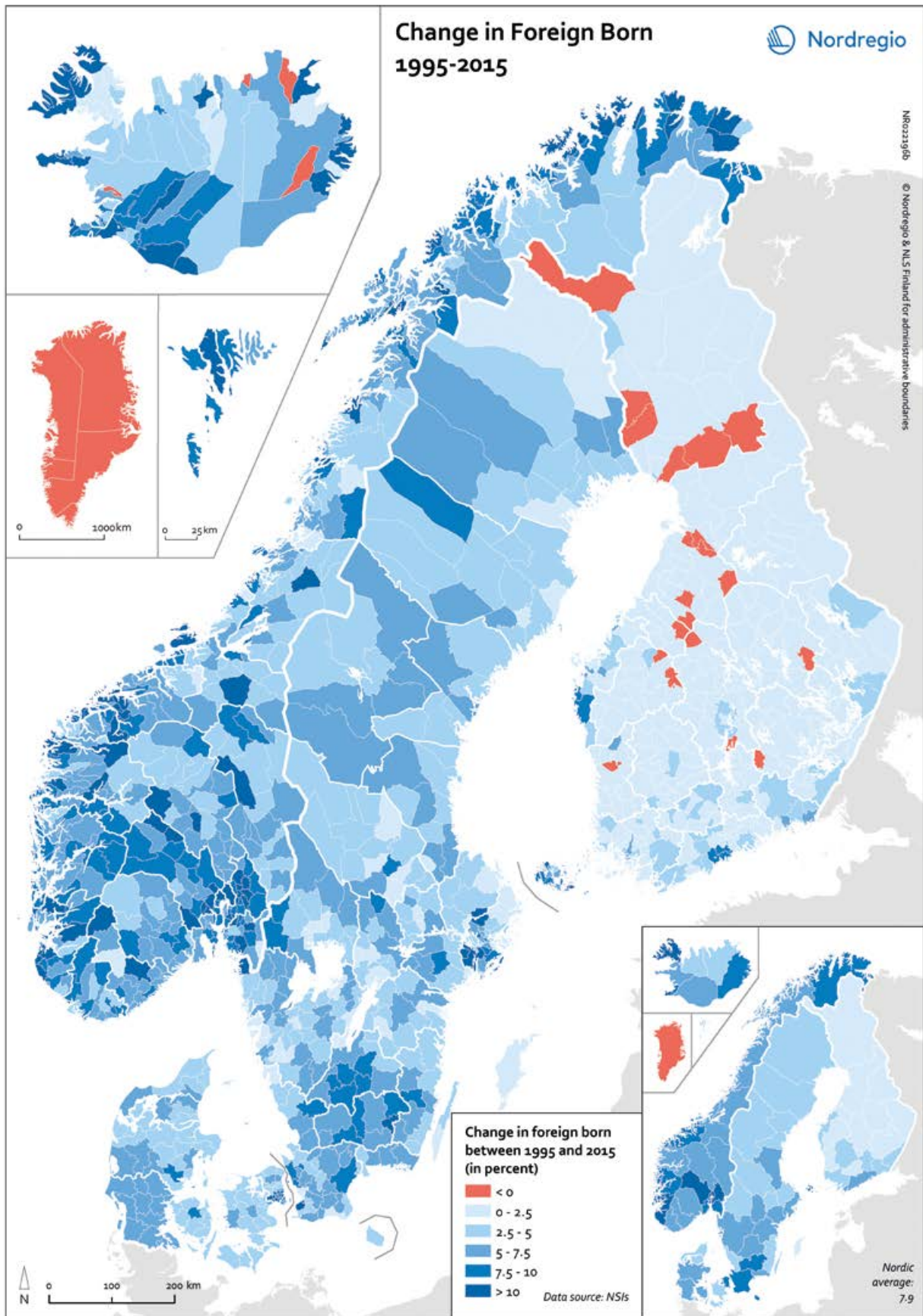


Figure 4.6 Change of foreign-born population, 1995–2015.

By 2015, almost 15 percent of the Nordic population was born outside their country of residence

dented in-flows of migrants and in respect of the longer-term demographic challenges relating to depopulation in many rural areas. Rural municipalities are increasingly recognising the important contributions these immigrants can make to local communities and are pursuing policies that will encourage them to stay.

There are clear spatial consequences attached to the different national policies regarding the housing of asylum seekers and refugees, especially as the evaluation of the professional backgrounds is being done earlier, often prior to them receiving a decision on protection. The evaluation of competencies is often tied to their placement upon receiving permanent residence but there is a trade-off here between distributing refugees across the country and the availability of jobs (Karlsdóttir et al., 2017). When refugees are placed in regions where there are few jobs or few jobs for their skills, research has shown that their entry to the labour market is delayed.

A recent study by Statistics Sweden, showed a tendency for refugees to end up in the large urban centres regardless of where they were initially placed (SCB, 2016). For refugees who immigrated during 1990–1994, eight of ten were placed in a municipality outside of Stockholm, Göteborg, or Malmö and five years later, most had migrated to one of these larger urban centres. The same was true of refugees who had immigrated during 2006–2010. This cohort had more freedom to choose their initial place of residence and about half choose one of these large urban centres, while many others ended up there a few years later.

Increased foreign-born population across almost all regions

With the increase in the total foreign-born population, there has been an increase in the percent of foreign born in almost every region of the Nordic countries as can be seen in figure 4.6 which shows the change in the percent of foreign born between

1995 and 2015. Over the last 20 years, the share of the foreign-born population in the Nordic Region has increased from 6.5 percent to 14.3 percent. On the national level, the increase has been fastest in Norway followed by Sweden. At the regional level, the increase has been fastest in Rogaland, Oslo and Akershus in Norway and in Reykjanes in Iceland. The only municipalities that have seen declines in the percent of foreign born are municipalities in Iceland and central and northern Finland outside the larger urban areas and across Greenland.

By 2015, almost 15 percent of the Nordic population was born outside their country of residence. The highest share of foreign-born population can be found in southern and mid-Sweden in larger city regions of Stockholm, Gothenburg and Malmö, and in larger city regions of Oslo and Bergen in Norway. On the national level, Sweden and Norway have a larger share of foreign-born population than the other Nordic countries. In Finland, the share of this group is very low in some regions. In the Faroe Islands and Greenland, the share is relatively high, but dominated by those born in Denmark.

Nordic countries adjust migration policies

The Nordic welfare model rests, in part, on high levels of employment for both men and women. With declining population growth and ageing populations, the immigration of newcomers plays a crucial role in sustaining the model, provided newcomers can be integrated into the labour market quickly. This is easier for labour migrants who come with a job or find one soon after arriving, than for refugees who must learn the local language, have their skills, experiences and education validated all while seeking to develop social and professional networks (Damm & Åslund, 2017). The policy responses of the Nordic countries to the refugee influx amounted to a mix of stricter controls over the flow of asylum seekers, speeding up the integration of those who

Integrating immigrants into the Nordic countries becomes a challenge given the characteristics of the composition of the flows

had been granted protection status and remaining open to labour migrants.

Integrating immigrants into the Nordic countries becomes a challenge given the characteristics of the composition of the flows noted above (OECD, 2016). With the recent large increase in immigration flows to the Nordic countries, many recent migrants have not had sufficient time to fully integrate. Unlike those of some of the other OECD countries, the Nordic languages are not widely spoken outside the region. Few newcomers arrive with proficiency in a Nordic language and thus they generally need time to learn them. Increasing shares of recent arrivals have come from outside the EU as refugees (OECD/EU, 2015). This makes the recognition of formal qualifications and the applicability of skills acquired abroad rather difficult. Efforts aimed at the early mapping of competencies, the validation of skills and qualifications, more focused language learning and the better matching of regional labour demand with the skills of new immigrants are now, however, underway.

According to population projections produced by the national statistical offices of the Nordic countries, there will be net immigration for the foreseeable future (see chapter 2). This is because the Nordic countries will likely remain highly-desired destinations for all types of migrants given their strong economies. While the chaotic refugee situation of 2015 and 2016 has subsided, some of the underlying factors which caused it have not. The "refugee crisis" caused a re-evaluation of asylum and migration policies in all the Nordic countries. While the borders remain open to both labour migrants and those seeking humanitarian protection, the focus has shifted to more orderly flows and increased efforts to successfully integrate those already resident in the Nordic countries.

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THEME 2

LABOUR FORCE

A thriving, but partly segregated labour market

The Nordic Region has recovered strongly from the financial crisis. Sweden boasts the highest employment rate in the EU while Iceland has the highest rate in Europe. High employment rates for women in particular stand out and remains a basic feature of Nordic labour markets. Finland however provides an exception here. All Nordic countries have experienced a relative decline of the labour force between 2007 and 2017, and Finland have even had a decline in absolute numbers also.

Unemployment nevertheless remains low while in certain sectors it is difficult for employers to find people with the right competences. The share of the population with a tertiary education is however increasing across, suggesting that the Nordic Region is in a strong position to meet the needs of the labour market of the future.

Unemployment rates, especially for younger people, are highest in old industrial towns and some sparsely populated areas. In general, jobs tend to move from rural to urban areas

and many municipalities are not as resilient to change as the general Nordic trend would indicate. Rural populations are also less likely to have higher education than their urban counterparts. Finland and Sweden still have a relatively high level of youth unemployment but overall, the Nordics fare better than the rest of Europe in this regard.

The Nordic model, with its high levels of unionisation, compressed wage structures and low share of unskilled jobs makes integration into the labour market challenging for newly arrived immigrants. Integration challenges are also reflected in school performance, with gaps between the scores of native-born students and those of first and second-generation students larger than the OECD average in all Nordic countries.

All in all, the labour market in the Nordic Region is doing well but in a continually changing economic landscape, significant challenges remain.

Chapter 5

EMPLOYMENT

Labour force participation and productivity of Nordic labour markets

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Maps and data: Gustaf Norlén and Julien Grunfelder

A well-functioning labour market with a high participation rate is a top priority for any country, region or municipality. To work means to be involved in the production of goods and services making the labour market a vital component of the economy. For both the state and local governments, the taxation of labour is often a major source of income. Employment is also seen as important from a social perspective since it provides individuals and families with an income while exclusion from the labour market is often associated with the risk of poverty and social exclusion. In the context of the EU2020 strategy, the employment rate is thus viewed as a primary social indicator, while in the UN2030 agenda for sustainable development one of the primary goals is to promote full and productive employment and decent work for all.

This chapter will explore the labour market in the Nordic Region, first looking at the employment rate from different perspectives – in comparison to the rest of Europe with a focus on the recovery from the financial crisis, on the Nordic municipal level and looking specifically at the employment rate by gender and country of birth. The second part of this chapter looks at employment by sector and the third at the productivity of the labour market. This is followed by a brief conclusion section and a glance towards the future.

It took until 2016 for the average European employment rate to reach and then surpass pre-crisis levels

Slow but steady recovery from financial crisis

Since the labour market is closely connected to the economy, the last ten years have been marked by the effects of the financial crisis that began in 2008 and by slow recovery thereafter. The labour market has a lagging relation to the economy meaning that both the effect of, and the recovery from, major economic crises only manifest themselves later in the economic cycle. The lagging relation can, in part, be explained by institutional arrangements such as contracts and resignation periods. Companies generally prefer to downsize through retirements and the non-renewal of temporary contracts. A financial crisis also leads to slower job growth which makes it particularly hard for new groups like young people and immigrants to enter the labour market (OECD, 2016).

Given the nature of the global economy and the fact that many countries are dependent on exports, most labour markets were affected by the financial crisis. Though some countries and regions were more affected than others. On a European scale, the effect of the financial crisis on employment be-

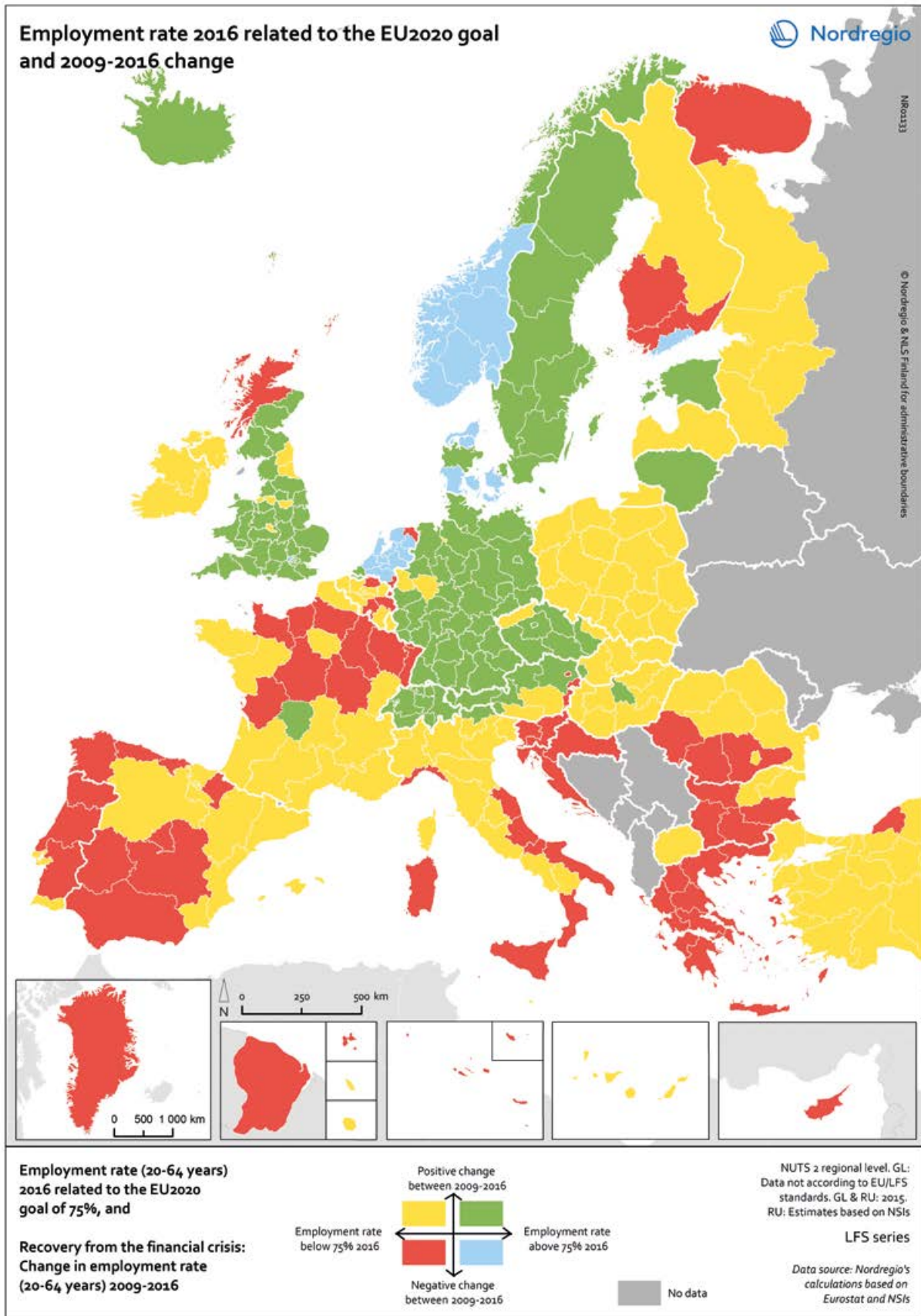


Figure 5.1 Employment recovery from the financial crisis. Employment rate (20–64 years) 2016 related to the EU2020 goal and 2009–2016 change.

34% of the total Nordic labour force work in the capital city labour markets while a further 20% work in those associated with second-tier cities

came noticeable from 2009 onwards when average employment rates started to decline. This continued until 2013 when the average European employment rate reached its lowest level of 68.3% for the age group 20–64 years. After 2013 the employment rate started to rise again but it took until 2016 for the average European employment rate to reach and then surpass pre-crisis levels. In 2016 the average employment rate in the European union was 71%, edging closer to the EU2020 goal of 75%.

Figure 5.1 shows the state of the recovery from the financial crisis as well as those regions that have already attained the EU2020 goal of a 75% employment rate. In some regions, primarily in southern Europe, employment rates have still to recover to pre-crisis levels. This is particularly so for Greece, Spain, Italy and Portugal which were particularly hard hit by the debt crisis and thus had to undertake massive cuts across the public sector. On the other hand, some countries such as Germany, Austria and Switzerland saw rising employment rates even during the financial crisis. The differential nature of outcomes in respect of the financial crisis suggest that some regions are less resilient to economic shocks than others. It is clearly easier for labour markets with a highly skilled and flexible labour force, a diversified economy and strong institutions to cope with shocks (ESPON, 2014). The regions that were hit hardest also had to endure brain drain and out-migration to areas that retained well-functioning labour markets, although labour mobility in Europe remains lower than other integrated economic areas such as the USA (Arpaia et al., 2016).

Although the Nordic Region was also affected by the financial crisis, seeing an employment decrease and an unemployment increase, the Region as a whole has recovered well. In 2016, Sweden had the highest employment rate in the European Union at 81.2%, measured for the population, 20–64 years. The highest employment rates in all of Europe (over 85%) can otherwise be found in Iceland, the Faroe

Islands and Åland. Mainland Finland has experienced weaker employment growth than the rest of the Nordic Region and the NUTS2 regions of Länsi-Suomi, Etelä-Suomi and Pohjois- ja Itä-Suomi were the only Nordic regions not to attain the 75% employment rate EU2020 goal, in 2016. As can be seen from figure 5.1, the southern part of Norway has experienced an employment rate reduction in recent years. This is mainly due to falling oil prices though, notwithstanding this, with an employment rate of 78.6% Norway remains well above the EU average.

Slower job growth in Finland

Although the Nordic Region made a strong recovery from the financial crisis and retains high employment rates seen in a European context, substantial differences remain both at the national and municipal levels. Figure 5.2 shows the employment rate for all Nordic municipalities, calculated as the total number of employed persons as a share of the working age population (15–64 years). The highest employment rates in the Nordic Region can be found in Iceland, the Faroe Islands, Åland and smaller municipalities in Norway. All municipalities in the Faroe Islands and Iceland had employment rates over 85%. Iceland has made a strong recovery from the financial crisis and currently enjoys strong economic growth such that it is hard for employers to find the right labour, especially in the construction and tourism sectors (EURES, 2017). Employment rates of over 85% can also be found in several municipalities in Sweden, including municipalities in the main labour market regions of Stockholm (Ekerö, Täby and Värmdö); Gothenburg (Kungälv, Lerum and Stenungsund) and Malmö-Lund (Lomma and Ystad). In Denmark, the highest employment rate was found in the capital region, where three municipalities (Allerød, Egedal and Dragør) all had employment rates higher than 85% in 2016.

The most striking thing about Sweden is otherwise that there are few municipalities with low employment rates. After adjusting for cross-border commuting there were only four municipalities in Sweden with employment rates under 70%. The high employment rate in Sweden can, in part, be explained by high GDP growth in recent years. Sweden has also promoted active labour market measures in the hope of getting more people into employ-

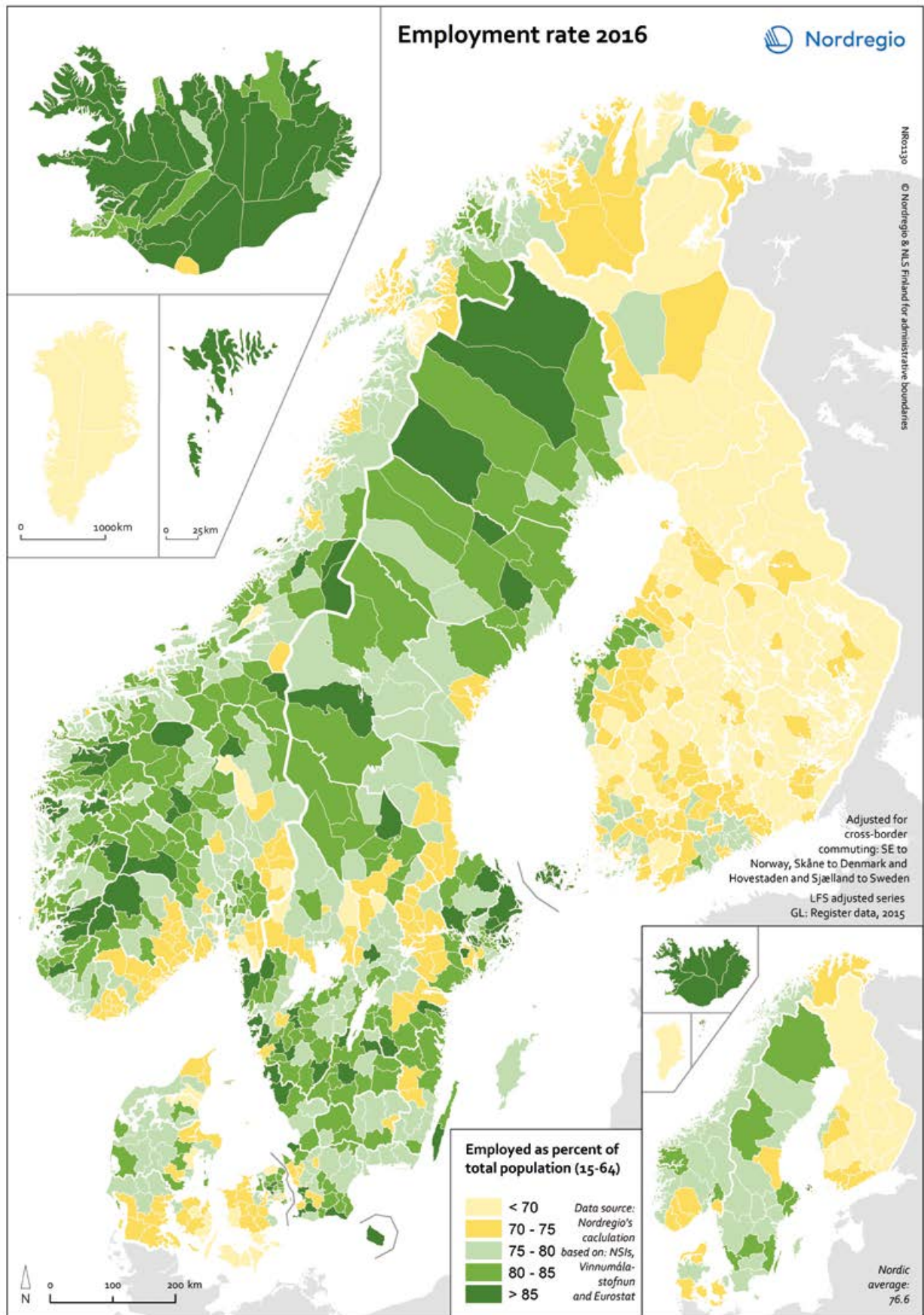


Figure 5.2 Employment rate 2016.

ment, focusing on those who were previously outside the labour force (i.e. those who were neither in employment nor looking for work). This has led both to a higher employment rate, but also to a higher unemployment rate than that in Norway and Denmark, as more people have gone from being economically inactive to being categorised as unemployed.

Mainland Finland (with the exception of Österbotten), Greenland and southern Sjælland in Denmark stand out here, displaying lower employment rates than the rest of the Nordic Region. The downturn in the Finnish employment rate occurred before the financial crisis began and can be explained by various factors such as, for example, a reduction in trade with Russia, lay-offs in major companies such as Nokia (which also affects the clusters around them) and automation in the forest industry. However, the Finnish employment rate increased in 2016 and although there are 83,000 persons less in employment in 2016 than in 2008, this trend of fewer jobs was reversed in 2016. Finland is also the Nordic country with the lowest share of part-time workers, at 15%, compared to over 20% for the other Nordic countries (Nordic Statistics, 2017a).

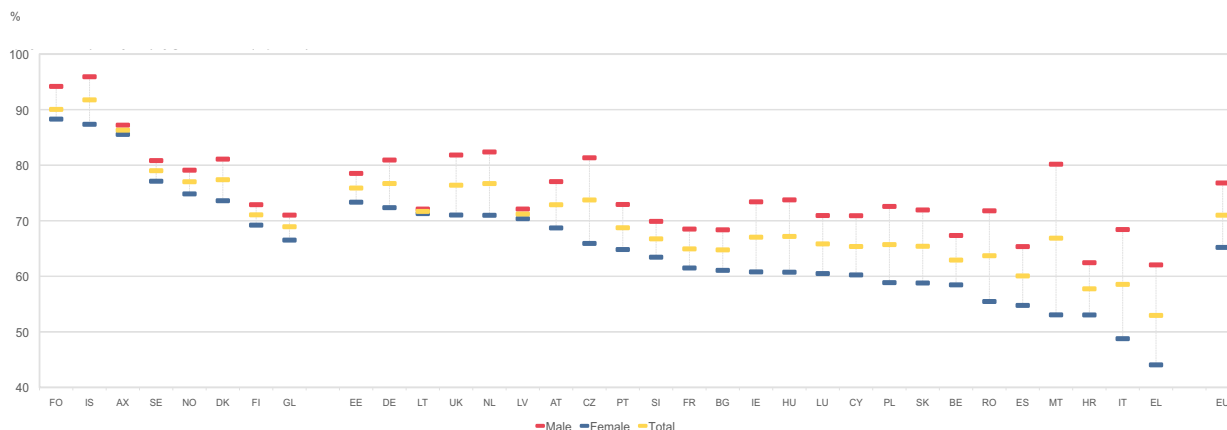
Although there are several rural municipalities with high employment rates, the majority of jobs in the Nordic Region are concentrated to the largest labour market regions. 34% of the total Nordic labour force work in the capital city labour markets while a further 20% work in those associated with second-tier cities. The trend also suggests that the bigger cities are growing at the expense of the rural

areas. Since 2008, the number of employees in the various capital region labour markets have grown by more than 265,000 jobs, with the second-tier cities seeing a growth of 85,000 while almost 67,000 jobs were lost in the small towns and rural areas. Such developments follow a long trend in relation to urbanisation and highlight the challenges associated with retaining jobs and services in ageing and depopulated rural areas. It is in the capitals and the second-tier cities that bigger companies can be located and where the demand for highly skilled labour is greatest. The major labour market regions are currently suffering from a serious undersupply of labour in some sectors and are often unable to fill all available vacancies. If these vacancies are not filled, this can lead to slower economic growth, rising wage costs and the need to compete for skilled foreign labour (Karlsson & Skånberg, 2012). The challenge is therefore to match the unemployed with the jobs that are available.

Female employment rates comparatively high in the Nordic Region

The high employment rates in the Nordic Region can, in part, be explained by the fact that the female employment rate, as well as the old-age employment rate (55–64 years), are comparatively high (Eurostat, 2017). The Nordic countries were early proponents of including women in the labour mar-

Figure 5.3 Employment rate (20–64 years) by gender in 2016.



Data source: Eurostat, except FO & GL: NSIs. GL: 2015.

ket and are characterised as having a large share of women in the labour force. This is a goal that was initially achieved through policies supporting generous maternity leave and affordable day care (Hall & Zoega, 2014).

As seen in figure 5.3, there are European countries with higher employment rates for males than the Nordic countries. The female employment rate is however highest in Iceland followed by Sweden, Norway and Denmark. Although the Nordic countries have high female employment rates the employment rate for males remains higher in all Nordic and EU countries. The smallest differences between male and female employment rates in 2016 were in the Baltic states of Lithuania and Latvia followed by the Nordic countries. That all countries have a higher share of male employment can be explained primarily by the fact that there are more men in the labour force. The unemployment rate is also higher for men in many countries.

Despite the high female employment rate in the Nordic Region it is worth noting that the share of part-time employment for women (except Finland) as well as the gender pay gap are on a par with the EU average. In 2015 the gender pay gap in Sweden (14%), Norway (14.9%) and Denmark (15.1%) was slightly below the EU average (16.3%), whereas Finland (17.3%) and Iceland (17.5%) were slightly above (Nordic statistics, 2017b). The share of part-time employment for women was higher than the EU average (32%) in all Nordic countries except Finland (20%) in 2016 (Nordic statistics, 2017a). Some of this part-time employment is voluntary, mainly due to family situation, but a substantial share is also involuntary part-time employment (or underemployment) – e.g. more than 40% in Sweden in 2011 (Drange & Egeland, 2014).

Utilising the labour potential of refugees remains a challenge

After the influx of asylum seekers to the Nordic countries in 2015 labour market discussions have subsequently focused on how to get those who are granted asylum into employment. Almost 150,000 persons were granted asylum in the Nordic countries in 2015 and 2016 and although the influx has decreased substantially there are still many more awaiting decisions.

Given the long waiting times associated with being granted asylum plus the time it takes thereaf-

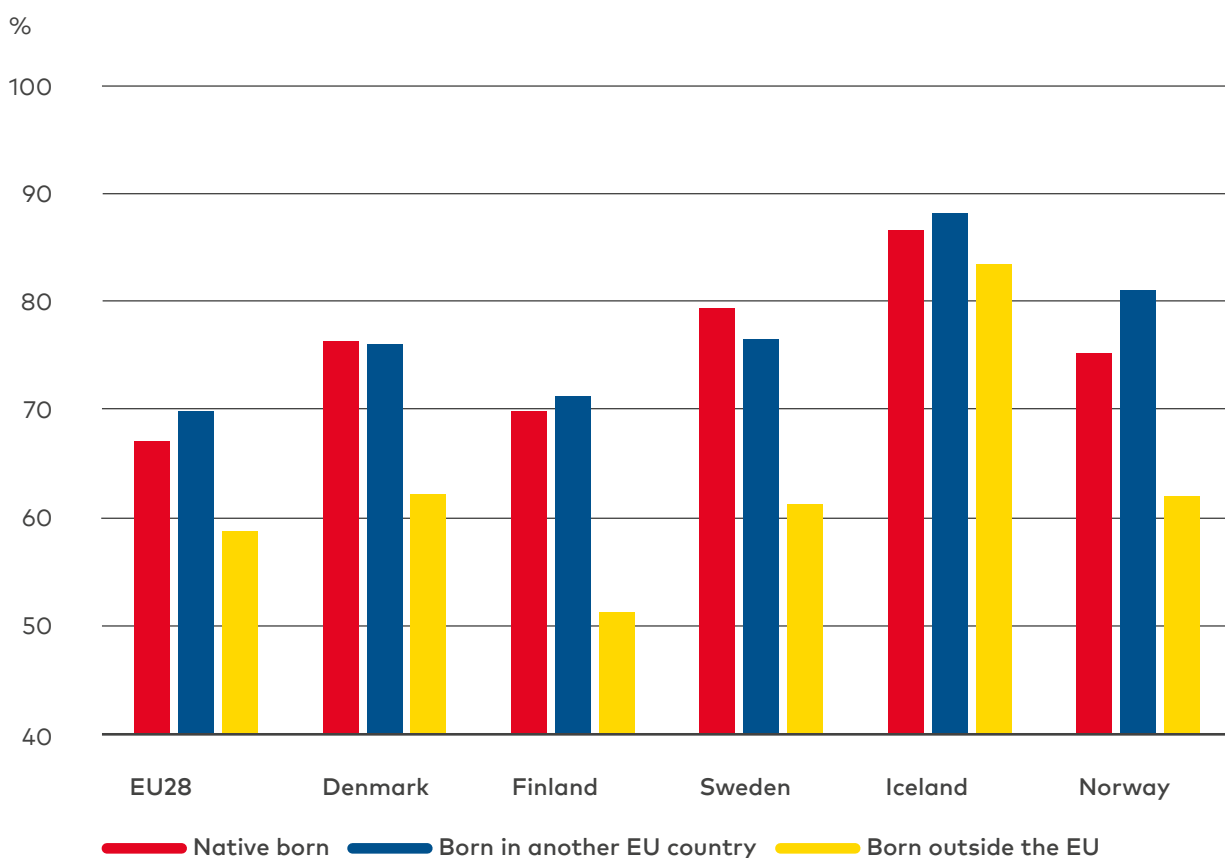
In Finland and Sweden there was a more than 20% difference in the employment rate between native born and those born outside the EU in 2016

ter to access the labour market (after language training, establishment programmes, etc.), it is still too early to evaluate how successful the policy of including those who immigrated in 2015 into the labour market has been. Looking at the employment rate by country of birth, it is clear, historically, that those who are born outside the EU have enjoyed substantially lower employment rates than native born or other EU nationals. This pattern is true for almost all the European countries and has been rather stable over the last ten years. The female employment rate is particularly low for females born outside the EU. In Finland and Sweden there was a more than 20% difference in the employment rate between native born and those born outside the EU in 2016 (figure 5.4).

As seen in figure 5.4, the employment rate for those who are born in other EU countries shows a different pattern. This group mainly consists of labour migrants which accounts for a large share of all immigrants, especially in Norway and Iceland (Damm & Åslund, 2017). In 2016 the employment rate for this group was even higher than for native born in Norway, Iceland and Finland.

Considering both the reality of labour shortages in many professions and the good demographic profile of the immigrants, the opportunity is there for the Nordic countries to help more people into employment. Refugees granted asylum are generally placed in municipalities which are widely spread across the countries and, providing that they stay, this means that services can often be retained and that rural depopulation is slowed. The factors identified as being important in the labour market integration of immigrants include: language training, quick validation of education for those with qualifications, getting the young into education or training and finding simple jobs for those who do not have any education or profession (Karlisdóttir et al., 2017). The last point can often present a significant challenge, since the Nordic countries do not have mini-

Figure 5.4 Employment rate (15–64 years) by country of birth 2016.



Data source: Eurostat.

imum wage systems as salaries are negotiated through collective bargaining processes (Eldring & Alsos, 2015).

Employment characteristics of welfare states stand out

The Nordic Region has a modern economic structure where the shift in employment from the agriculture and goods producing sectors towards the service sector is well advanced. Compared to the EU average, the Nordic Region has a low share of employment in agriculture and industry. The exceptions here are the Faroe Islands and Greenland where the fisheries sector still constitutes a significant part of each economy. The share of employment in health and social work is significantly higher in the Nordic countries as compared to the EU average while the share of employment in education is also slightly higher, reflecting their ambitions in respect of the Nordic welfare state.

Figure 5.5 is based on a cluster analysis of employment per sector in the Nordic municipalities, showing how the employment structure of the municipalities relates to the Nordic average. Generally, the sparsely populated areas are dominated more by agriculture, smaller towns by industry and larger urban areas by business services. More specifically, agriculture, forestry and fisheries are overrepresented in several rural municipalities in Finland because of the forestry industry and along the Norwegian coast mainly because of fishing. Industry is overrepresented mainly in Swedish towns with a long tradition of both big and small-scale industries. The highest share of employment in industry (56%) was in the Swedish municipality of Gnosjö in Småland, known for its entrepreneurial environment often referred to as the "Gnosjö spirit".

Employment in the electricity and water supply sector is overrepresented in municipalities with large power plants, such as Östhammar, Oskarshamn and Varberg where the Swedish nuclear plants are located as well as in municipalities with

Industry	NORDIC	SE	NO	FI	DK	IS	FO	GL	EU
Agriculture, forestry and fishery	2.5	2.1	2.3	3.3	2.6	4.2	10.3	15.9	4.5
Industry and extraction of raw materials	11.5	11.9	10.1	13.2	10.8	10.3	12.1	1.4	15.8
Electricity and water supply	1.0	1.0	1.2	1.0	0.8	1.3	0.6	1.5	1.5
Construction	6.9	7.0	8.1	6.4	5.9	6.2	7.2	7.2	6.8
Trade and repair	13.1	12.1	13.6	11.8	15.6	12.9	12.2	11.3	14.0
Transport and communication	8.8	8.5	8.8	9.7	8.5	11.2	8.3	9.5	8.2
Hotels and restaurants	3.6	3.5	3.3	3.6	3.9	6.0	2.9	3.0	4.7
Business services	14.8	15.3	12.8	15.2	15.6	13.3	7.3	5.2	13.5
Public administration	5.6	5.8	6.3	5.1	4.9	4.1	15.5	7.1	6.9
Education	9.0	10.6	8.2	7.2	8.4	12.8	6.5	11.0	7.6
Health & social work	17.9	16.6	20.7	17.0	18.4	11.4	14.1	22.1	10.8
Other services	5.4	5.6	4.7	6.5	4.7	6.3	3.0	4.7	5.8

Table 5.1 Employment by sector in the Nordic countries, Greenland and Faroe Islands 2015.

Data source: NSIs, except EU: Eurostat.

water power plants in Norway and northern Finland. The hotel, restaurant and other services sector is overrepresented in the ski resorts of Norway, Sweden and Finland as well as in other places that attracts tourists, such as major nature and hiking areas, Lappi in northern Finland and the Swedish island of Öland. Tourism in Iceland has grown significantly over the last ten years with Iceland now having the highest share of employment in the tourist sector in the Nordic countries. In Norway, many municipalities have a slight overrepresentation of employment in health and social services while in Denmark a slight overrepresentation in wholesale and trade occurs.

Nordic labour productivity is above the EU average

The employment rate is not the only interesting indicator enabling us to measure how well the labour market is functioning. A high employment rate can be obtained by keeping salaries low, using temporary employment contracts and generally enforcing poor working conditions. Globally this phenomenon is common and such people are often referred to as “the working poor” (ILO, 2017). With many working

poor a high employment rate does not imply high productivity. One target of the UN's 2030 sustainable development goals is therefore to increase economic productivity and this is monitored by looking at the annual growth rate of real GDP per person employed.

Figure 5.6 shows labour productivity as real GDP, in constant 2007 prices, per persons employed between 2007 and 2015 in the Nordic Region. Except for Greenland and Denmark all the Nordic countries saw a dip in productivity during the financial crisis. However, the most profound effect was found in Iceland which, as of 2015, had still not reached its pre-crisis productivity level. Additionally, despite its high employment rate it continues to have a lower productivity rate than the other parts of the Nordic Region. In 2015 all the Nordic countries and Greenland were above the EU average, particularly the capital cities which all have high rates of GDP per person employed.

Concluding remarks

To conclude, the Nordic Region has a reasonably well-functioning and integrated labour market which has helped to promote recovery from

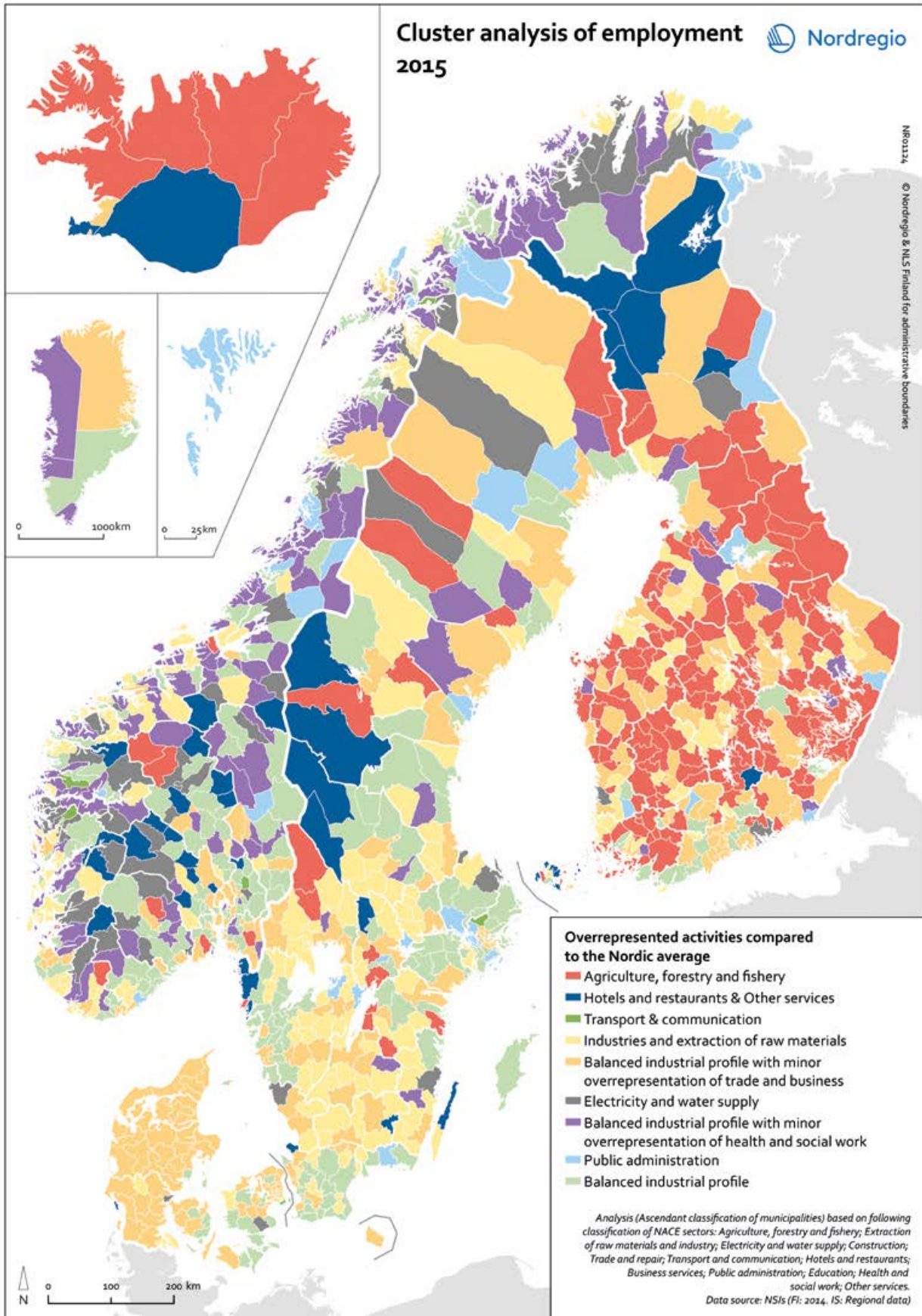
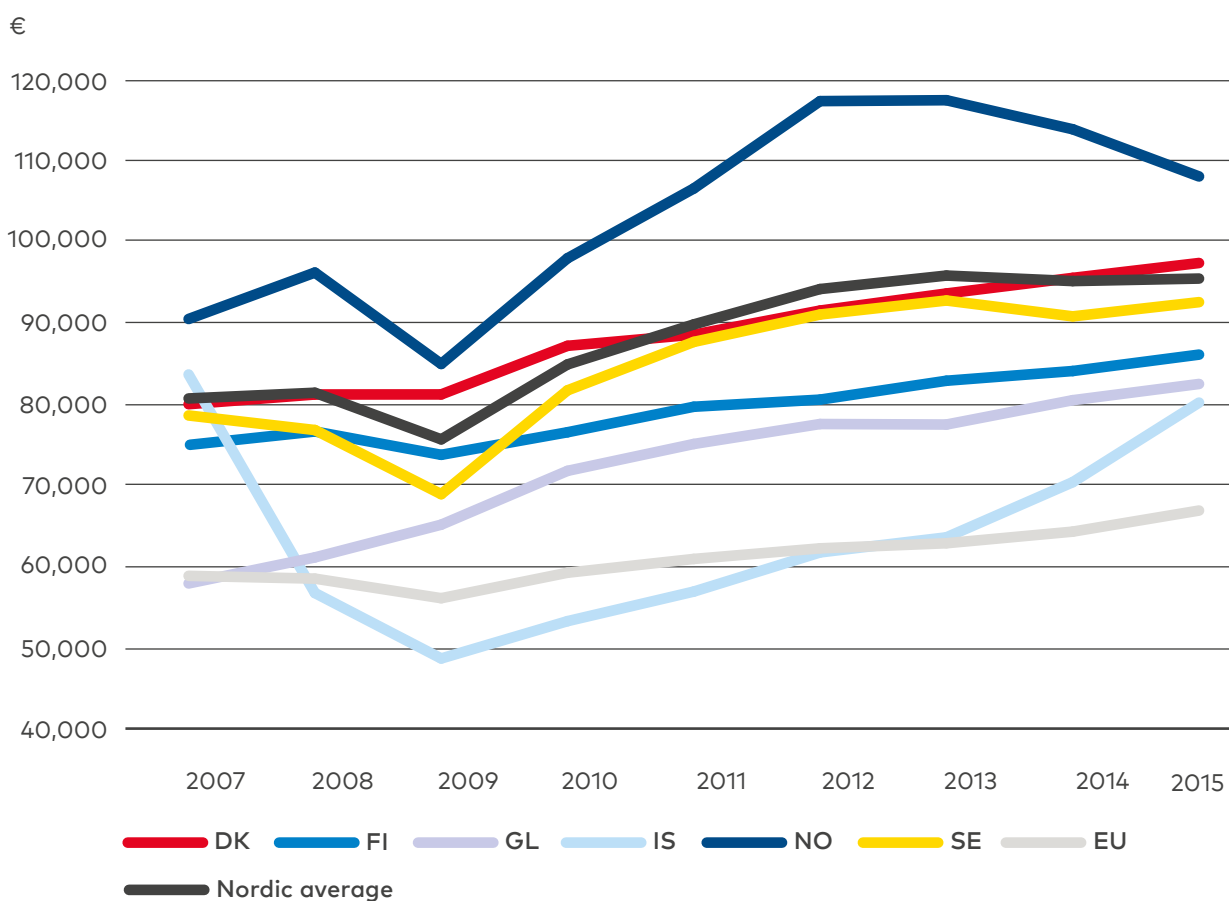


Figure 5.5 Cluster analysis of employment 2015.

Figure 5.6 GDP (in constant 2007 prices) per person employed, 2007–2015.



Data source: Nordregio's calculations based on NSIs, World Bank and Eurostat.

the financial crisis while sustaining high employment rates as compared to the European average and a productivity rate per person employed which is also above the EU average. Employment has shifted towards the service sector and more jobs are concentrated in the major cities where a more accessible supply exists of the educated people required for these high-skilled jobs. Challenges however remain. One challenge relates to the Region's ageing population and how this can be successfully managed. The number of older people is increasing and the working age population is expected to shrink, this is something that can already be seen in Finland which has a lower working age (15–64) population in 2017 than it had in 2000. Immigration is slowing this process, but the crucial issue is to find ways to integrate more quickly the newly arrived groups into the labour market and to match their competences with the labour market

demands. Another challenge is the shift towards automation and digitalisation, some estimates suggest that as much as 40% of future working hours could be taken over by automation. This is particularly pressing for current 'white-collar' jobs currently associated with middle class incomes (McKinsey & Company, 2017). In parallel with the notion of automation there is a global trend here towards a "non-employed labour force", i.e. a less regulated relation to the labour market (Sundararajan, 2017). This trend is noticeable also in the Nordic Region where the use of staffing firms providing temporary employment contracts is increasing and participation rates in trades unions is decreasing (Kvam, 2017, September). The confluence of these issues potentially pose a significant challenge to the Nordic model which is based on collective bargaining between the employers and the unions.

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Chapter 6

TOWARDS INCLUSIVE NORDIC LABOUR MARKETS

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High levels of labour market participation are the cornerstone of the Nordic Welfare State and a key component of the Region's high standard of living (Halvorsen et al., 2012). All Nordic countries share the ambition of promoting inclusive labour markets where as many people as possible can participate in employment. Work provides identity and contributes to economic independence, participation and social inclusion. It gives the individual an opportunity to develop and use their abilities which is another common goal in respect of Nordic integration and the inclusion of as many people as possible in labour market policies, mobilising people to be active citizens (Karlsdóttir et al., 2017). This chapter begins with a broad focus on unemployment and inactivity, detailing the present situation and providing some context for current statistics through an analysis of trends over time. It then goes on to address the specific situations of two groups who frequently experience marginalisation in the labour market – young people and immigrants.

Nordic economic recovery visible in falling unemployment rates

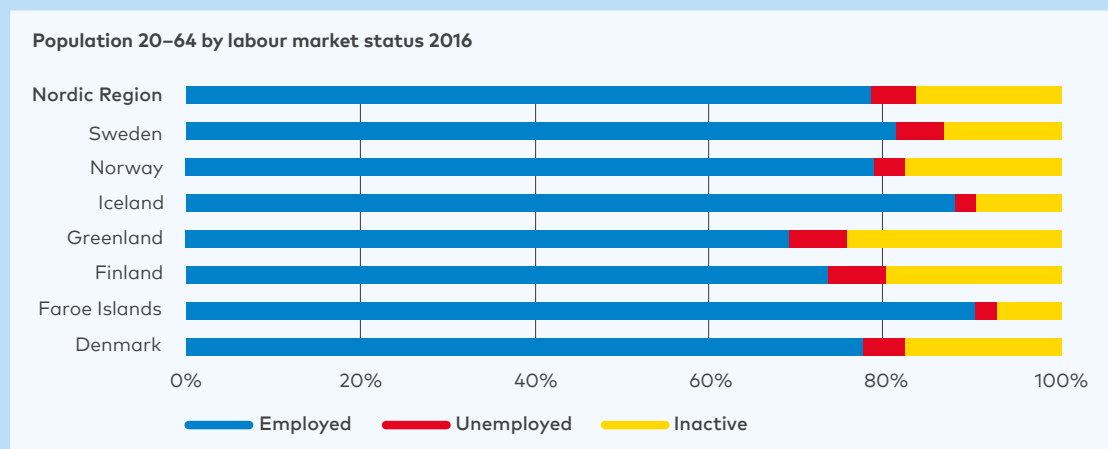
The Nordic economies have recovered from the financial crisis and this is visible in their recorded unemployment rates. The average unemployment rate in the Nordic Region (6.7%) decreased steadily between 2015 and 2016 among those aged 20–64 years. Denmark, Finland, Sweden, and Iceland have all experienced decreases at the national level, ranging from 0.2% (Denmark) to 0.7% (Iceland). In

Norway, on the other hand, the rate has increased slightly (0.3%) but remains comparatively low at 4.3%. Notably, the unemployment rate in all five Nordic countries remains below the unemployment rate for the EU28 (8.4%). Iceland has the lowest unemployment rate of all the Nordic countries, at only 2.8%, followed by Norway (4.3%), Denmark (5.7%), Sweden (6.3%), and Finland (8.2%) (Eurostat, 2017d).

As can be seen in figure 6.1, regional variation in the unemployment rate shows a striking east-west pattern, with the highest unemployment rates found in Eastern Finland and the lowest in Norway, the Faroe Islands and Iceland. Greenland is an exception to this pattern with high rates in all municipalities. The Finnish regions with the highest rates include Lappi (10.9%), Keski-Suomi (11.4%) and Kainuu (11.6%). High rates (above 13%) can also be found in some Swedish municipalities, for example, Södertälje, Fagersta, Norberg, Kungsör, Arboga, Åmål and Hällefors. The majority of these places are rust belt sites (old industrial towns which have been hurt by the loss of industry). Outside of Finland, Sweden and Greenland, Ishøj, in the Copenhagen Region, is the only municipality with an unemployment rate above 10%.

Sharp disparities can be found within countries, particularly in the capital regions. In the Stockholm Region, Södertälje and Botkyrka both have unemployment rates of over 12%, while the rates in Danderyd and Vaxholm are under 3%. Similarly, in Danish capital region, Hovedstaden rates vary from as high as 12% in Ishøj to as low as 3% in Allerød. Interestingly, despite the worse overall situation in Fin-

Understanding labour market statistics



Nordic Region	Sweden	Norway	Iceland	Greenland	Finland	Faroe Island	Denmark
12,159,900	4,615,700	2,440,400	167,200	23,900	2,313,700	24,500	2,574,500
787,000	307,700	108,400	4,700	2,300	206,700	700	156,500
2,576,800	763,300	556,400	18,600	8,500	632,800	2,000	595,200

Data source: Eurostat, except GL and FO: NSIs.

In the Labour Force Survey (LFS) the population is divided into three categories: employed, unemployed and inactive persons. You are considered employed if you work at least one hour during the reference week or if you are temporarily absent due to illness, holiday, industrial dispute or education or training, and unem-

ployed if you are not employed but actively looking for a job (Eurostat 2017a).

A person is considered economically active if they are employed or unemployed. Conversely, economic inactivity is defined as people who are neither working nor looking for work.

land, rates in the Finnish capital region, Uusimaa appear to be less polarised, varying from just over 9% in Loviisa, Hanko and Myrskylä to under 5% in Kauniainen. Variations in the unemployment rate also reflects, to some extent, the increased level of ethnic segregation in the major urban areas of the Nordic countries (Tunström et al., 2016). The overall number of municipalities with an unemployment rate over 15% has however reduced since 2015.

From a gender perspective, in all countries, except for Denmark, the unemployment rate is higher for males than it is for females among those aged 20–64 years. This gap appears to be closing, apart

from Norway where the unemployment rate for males has increased by 0.7% (decrease for females between 2015 and 2016 was 0.1%) (Eurostat, 2017d). With respect to the higher rates of unemployment for females in Denmark, recent research (World Economic Forum, 2016), has found that Denmark is the only Nordic country lagging behind on equality indexes. This is clarified further by the fact that the equality of child care in the Nordic countries is lowest in Denmark, where males on average only take out 10% of the parental leave (ibid.; Haagensen et al., 2017).

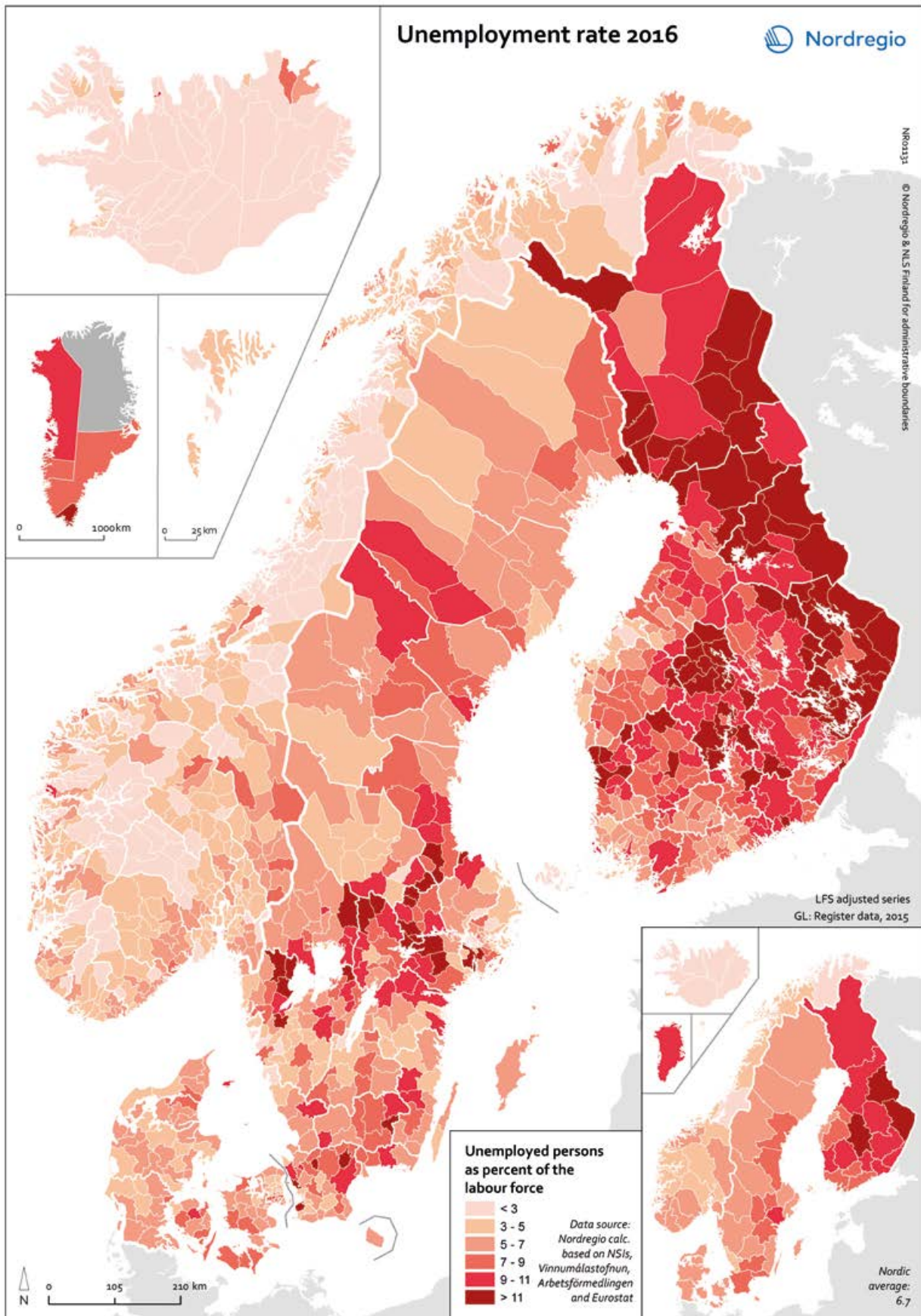


Figure 6.1 Unemployment rate 2016.

It is important to acknowledge that, for many, unemployment is a temporary state. As such, long term unemployment (>12 months) can be a useful indicator for identifying those in the population who may experience the most challenges to labour market re-entry (Væksthusets forskningscenter/Aarhus University, 2017; Duell et al., 2016). The percentage of unemployed people who are long-term unemployed is relatively low in the Nordic Region (23%) compared with the EU28 (46.6%). At a national level, Finland (25.7%) and Norway (25.7%) have the highest percentage of long-term unemployed (as a percentage of total unemployed persons), followed by Denmark (22.3%), Sweden (18.3%) and Iceland (12%) (Eurostat, 2017b).

Although these low figures are encouraging, it is important to acknowledge the rise of liberalised or deregulated fixed term contracts and temporary jobs that have emerged as a major source of employment in Europe. People in these jobs will not appear as unemployed in the statistics but are still vulnerable to experiencing periods of financial stress. This situation is particularly relevant to young people and immigrants from non-EU countries. In Sweden, temporary jobs account for some 16% of the total employment in 2016. For youth (15–24 years) this number was 54% and for immigrants from non-EU countries 27%, indicating that temporary jobs are more common for groups that are more vulnerable on the labour market (Eurostat, 2017e).

Striking differences in terms of economic inactivity

The economically inactive are commonly understood as the group furthest from the labour market in that they are neither employed, nor looking for work. As figure 6.2 illustrates, inactivity rates across the Nordic Region vary both within and between countries. The map shows the share of the population aged 25–64 years who were economically inactive in 2016. This age group 25–64 was chosen in an attempt to exclude retirees and students.

In all countries, the capital regions had the lowest share of economically inactive persons

Iceland has the lowest economic inactivity rate in Europe

Iceland had the lowest share of economically inactive persons in its population in 2016 (around 9%), followed by Åland and the Stockholm Region (less than 10%). All Swedish regions had lower shares of economically inactive persons than all the Norwegian, Danish and Finnish regions (excluding Åland) and all were below 14%. The highest share of economically inactive persons was found in Northern and Eastern Finland and in Greenland where several regions had higher economic inactivity rates than the EU average (20.8%). In all countries, the capital regions had the lowest share of economically inactive persons: 15.6% in Helsinki-Uusimaa, 14.1% in capital region of Denmark – Hovedstaden and 13.8% in Oslo.

Overall, the share of economically inactive persons is higher for females than for males. Northern and Eastern Finland and Northern Norway provide an exception here, with higher economic inactivity rates among males. The largest gender differences can be found in Telemark (9% higher for females), followed by Østfold, Vestfold, Aust-Agder and Rogaland (all around 8% higher for females).

This map is particularly interesting when considered together with the unemployment figures presented in the previous section. Finland shows relatively high rates of inactivity alongside the high unemployment rates. Norway and Denmark have comparatively low unemployment rates but higher rates of inactivity. Sweden has rather high unemployment rates, but a low share of economically inactive persons. For Sweden, this is mainly due to its active policy approach which aims to get more people into the labour market. These policies have led to both a high employment rate and a high unemployment rate (Eichhorst & Rinne, 2016). Iceland has the lowest economic inactivity rate in Europe.

When it comes to reasons for being economically inactive, this group is heterogeneous in respect of age, reasons for being inactive and attachment to the labour market (Eurostat, 2017c). This diversity is illustrated in figure 6.3, which shows the primary reason for not seeking employment for economically inactive people aged 25–64 years by gender and country.

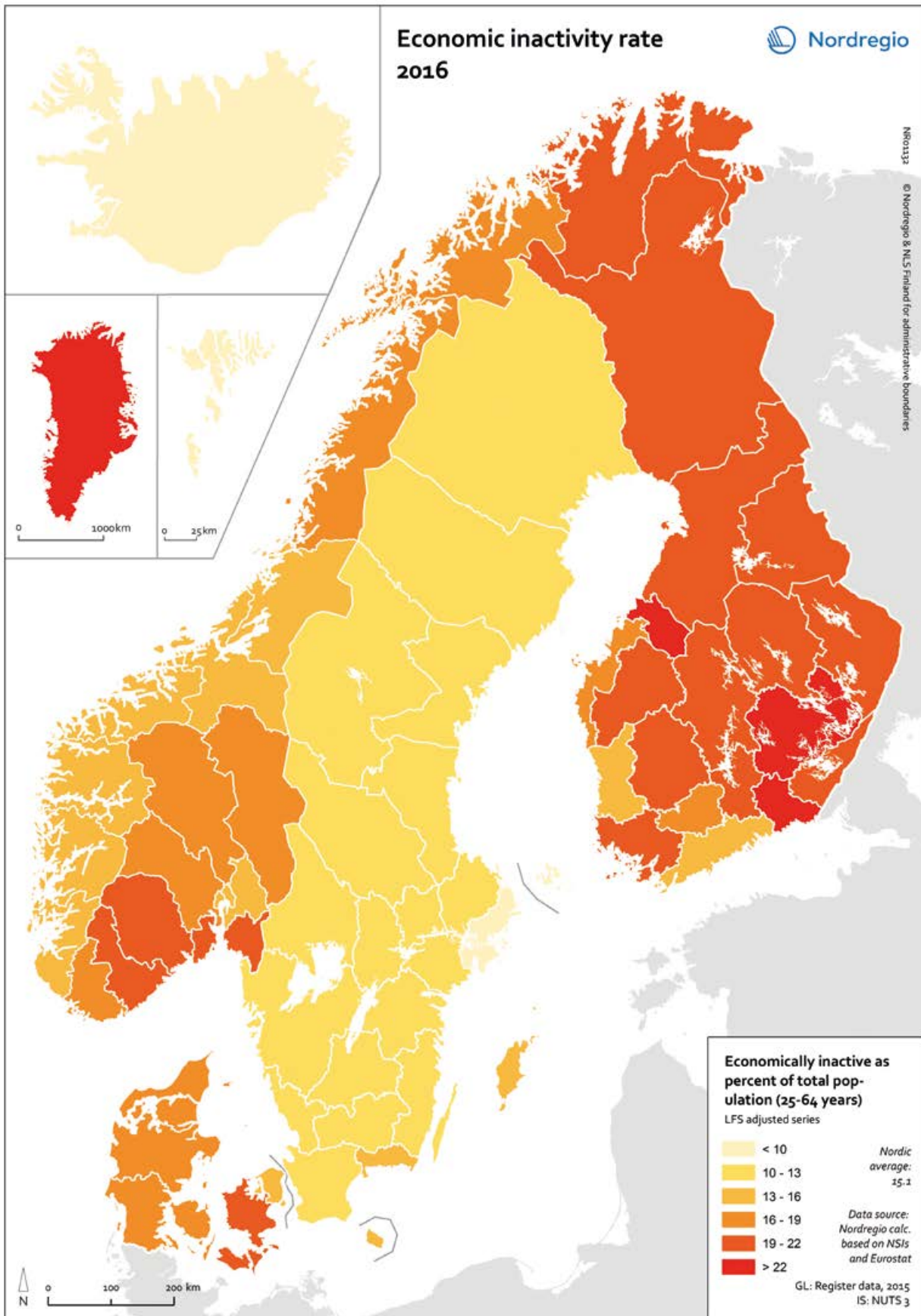
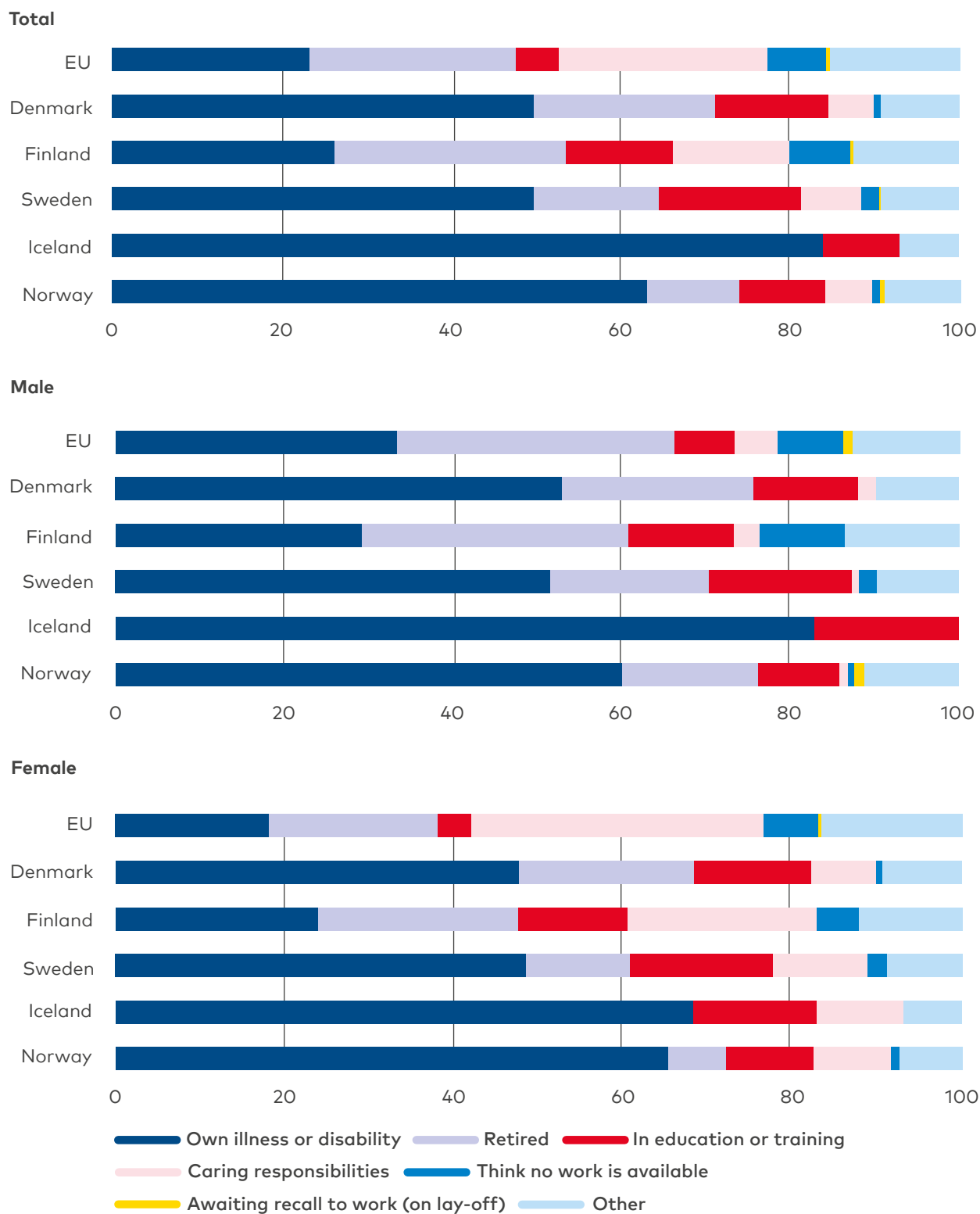


Figure 6.2 Economic inactivity rate 2016.

Figure 6.3 Inactive population (25–64 years) – main reasons for not seeking employment 2016.



Data source: Eurostat.

Perhaps the most notable conclusion to be taken away from figure 6.3 is different impact of caring responsibilities on inactivity in the Nordic countries. In the European Union, 32% of inactive females report caring responsibilities as the explanation, whereas this share is only 4.5% for males. In the Nordic countries, the percentage of females who report caring responsibilities¹ as the primary explanation for economic inactivity is substantially lower, 22% in Finland, 11% in Sweden, 8.5% in Norway and 3% in Iceland (Vinnumálastofnun, 2017). Interestingly, lower rates of caring among inactive females in the Nordic countries are not counterbalanced by higher rates of caring among inactive males. The percentage of males who report caring responsibilities as the primary explanation for inactivity is rather similar to that of the European Union (4.5%), 3% in Finland and, 1% in Sweden and Norway. As a result, caring responsibilities make up a relatively small proportion of the overall explanation for economic inactivity in the in the gender equity minded Nordic countries (Eydal & Gíslason, 2011; Karamessini & Rubery, 2014).

Youth unemployment remains a challenge

Young people are more likely to experience labour market disadvantage due to their relative lack of experience. This disadvantage is often exacerbated by economic conditions, as was the case following the financial crisis in 2008 (see Grunfelder et al., 2016). In many European countries, recovery from the crisis is an ongoing process that continues to have a serious impact on young people's participation in economic and (by association) social life. This is illustrated by the map in figure 6.4, which highlights the striking regional variation in the recovery as evidenced by the change in the youth unemployment rate between 2009 and 2016.

In a European comparative perspective, the Nordic countries have bounced back fairly well overall, though some variation between the countries is evident. In Sweden, Iceland and Finland, all regions have experienced at least some decrease in the youth unemployment rate, with the most substan-

Sweden (18.9%) and Finland (20.7%) have higher youth unemployment than the EU average (18.7%)

tial drops observed in Sweden. In some regions in Norway and Denmark however, the youth unemployment rate was higher in 2016 than in 2009. The most notable of these is Agder og Rogaland where the youth unemployment rate increased by almost eight percentage points (from 4.7% to 12.5%) over this period. This is possibly a result of international events that have created temporary cyclical unemployment patterns since 2008 (e.g. the global drop in oil prices).

It is important to consider the recovery evident in figure 6.4 in the context of the current youth unemployment rate. Figure 6.5 shows the youth unemployment rate for Nordic municipalities in 2016. As can be seen in the map, despite being two of the countries that have shown improvement since 2008, Sweden and Finland still have a large number of municipalities with high youth unemployment rates. On the national level both Sweden (18.9%) and Finland (20.7%) have higher youth unemployment than the EU average (18.7%). In contrast, municipalities in Denmark and Norway have lower rates overall. High youth unemployment (over 25%) can be found in several rural municipalities as well as in municipalities that traditionally have been dominated by industries, such as Trollhättan, Sandviken and Bengtsfors in Sweden and Kemi, Imatra and Äänekoski in Finland.

Young people's position in the labour market can also be considered with relation to the so-called "NEET" rate. The NEET rate includes young people 18–25 years who are neither in education, employment nor training. The NEET rate is considered a useful indicator as it captures those young people who are most likely to require targeted support to participate fully in the labour market in the long-term (OECD, 2016). Decreasing the proportion of

¹ "Caring responsibilities" includes childcare as well as other types of caring (e.g. elderly care). Only EU28 and Sweden provide reliable data on childcare specifically, but these figures suggest that a large proportion of "caring responsibilities" here refers to childcare – particularly in the Nordic countries. In the EU28, 21% of inactivity is explained by childcare (36.5% by caring responsibilities) and in Sweden the figure (12%) is the same for childcare and caring responsibilities.

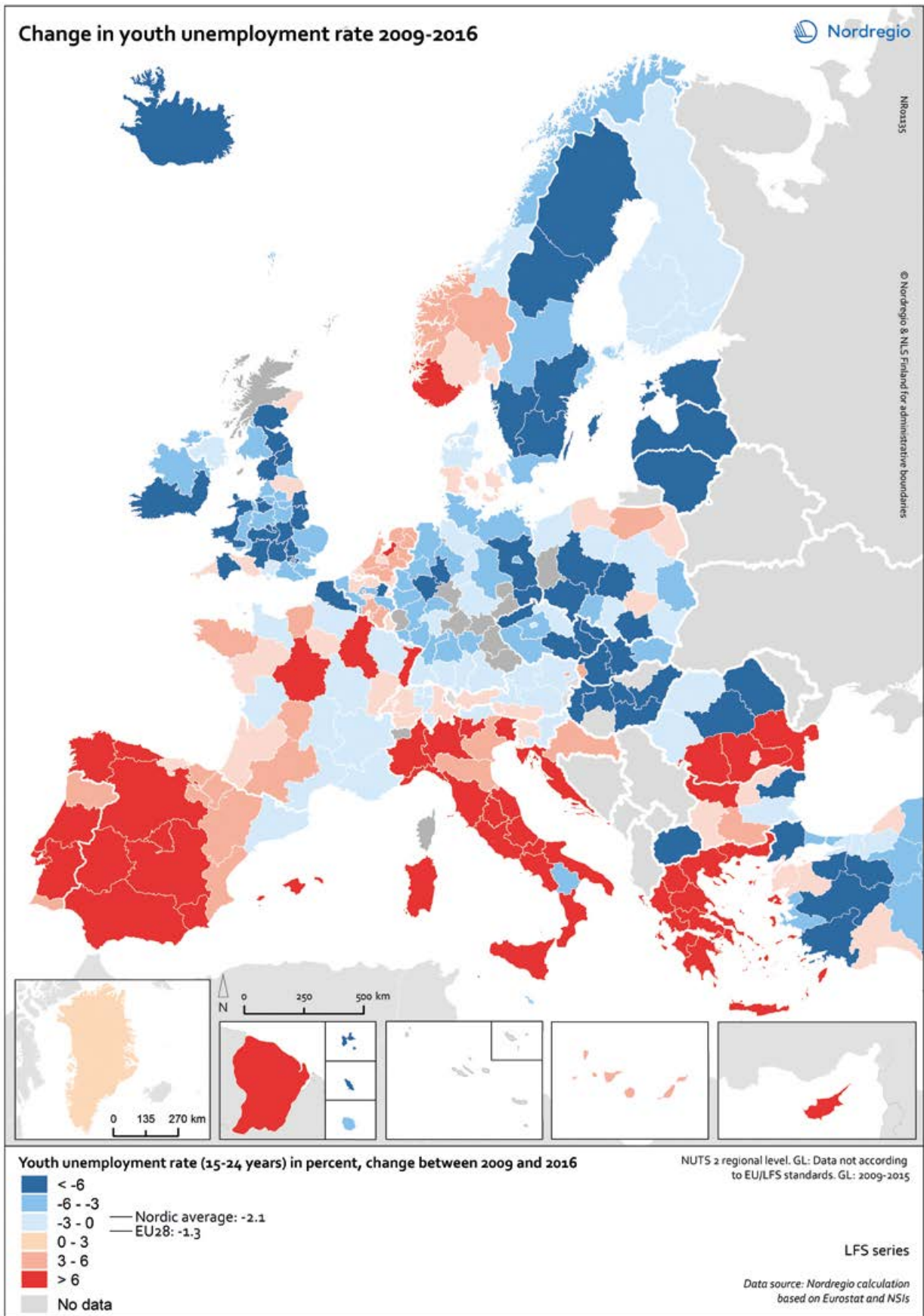


Figure 6.4 Change in youth unemployment rate 2009–2016.

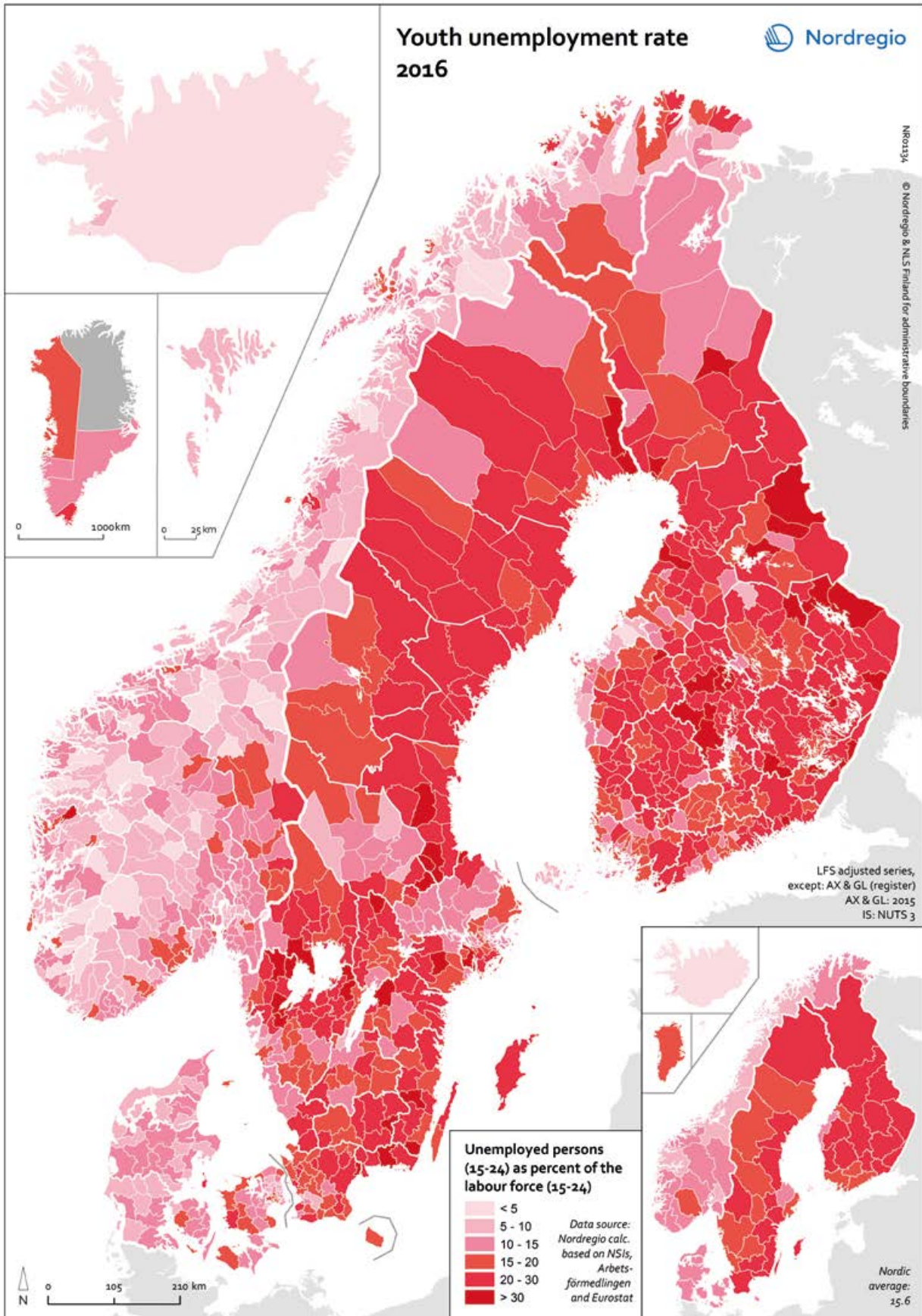
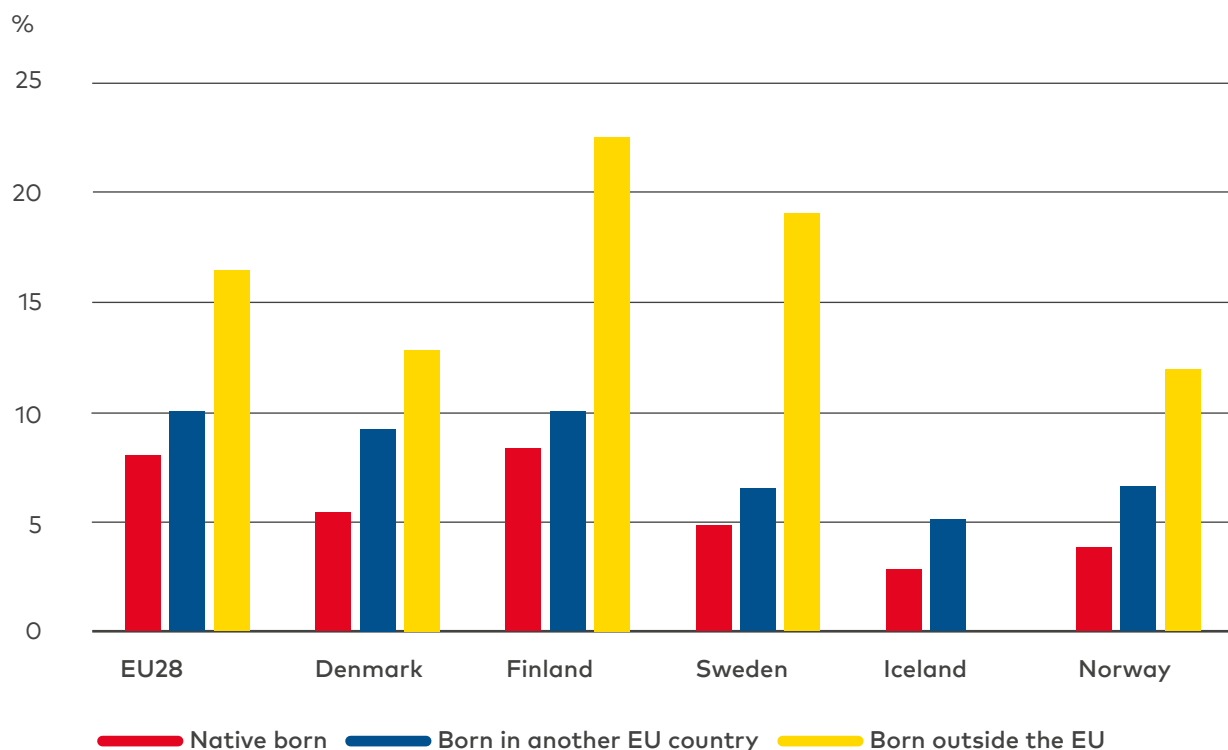


Figure 6.5 Youth unemployment rate 2016.

Figure 6.6 Unemployment rate (15–74 years) by country of birth 2016.



Data source: Eurostat. Note: IS: no data for population born outside the EU.

NEETs is also one of the targets of the UN's 2030 sustainable development goals. In 2016, the NEET rate in all Nordic countries was below the EU28 average (15.2%). Finland is the Nordic country where the rate is highest (13.7%), followed by Sweden (8.4%), Denmark (7.7%), Norway (7.4%) and Iceland (4.5%). Interestingly, while NEET rates in the Nordic countries are highest for young men, the EU28 average has remained lower for males (14.7%) than females (15.7%) since the indicator was introduced in 2002. Notably, this trend is reversed in some cases at the regional level. For example, in Helsinki-Uusimaa in Finland, Stockholm and Mellersta Norrland in Sweden, and Trøndelag in Norway (Eurostat, 2017f).

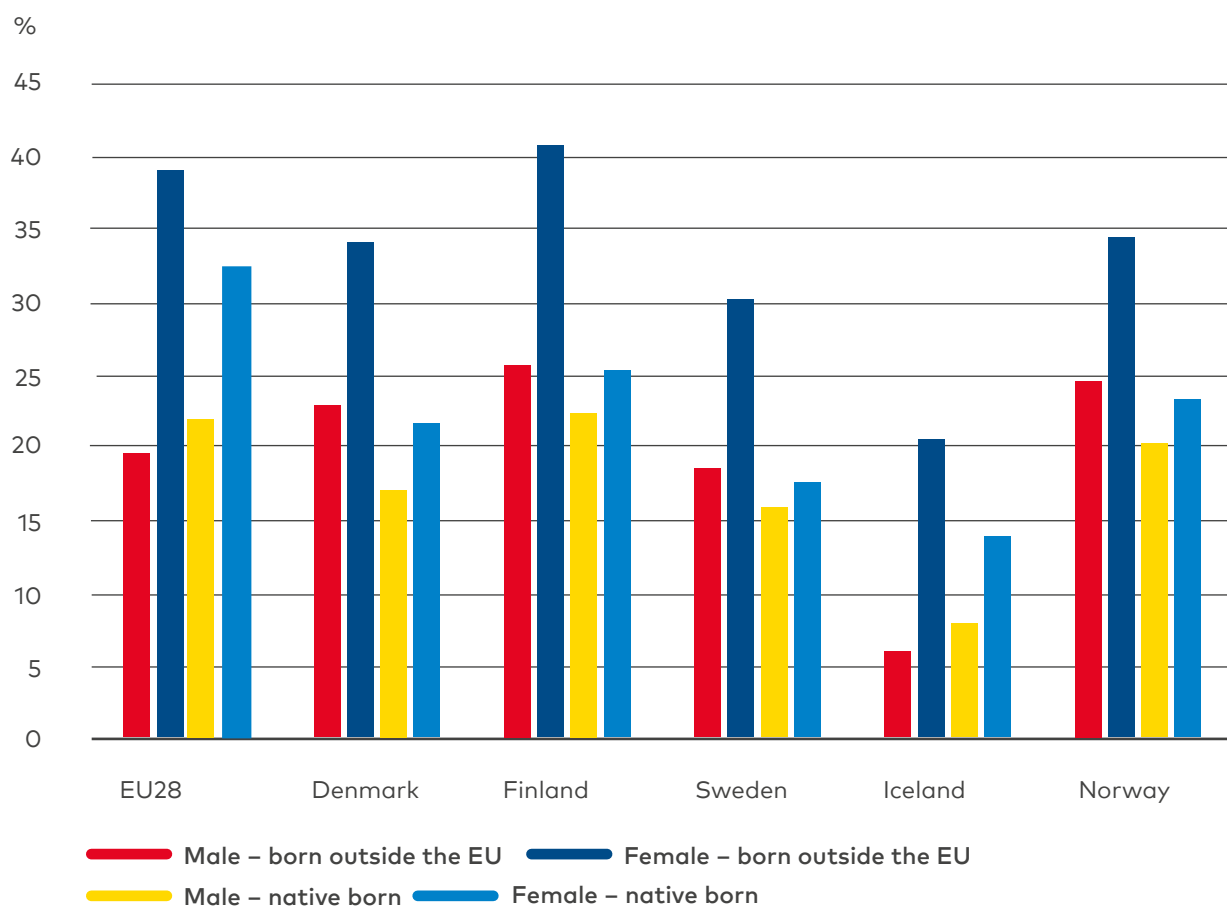
Room to improve on labour market integration

Despite the Nordic Region's strong economic position, challenges remain when it comes to ensuring equal access to the labour market across the population. Figure 6.6 shows the percentage of unem-

ployed persons aged 15–74 years for native-born persons, immigrants with an EU-background, and immigrants with a non-EU background. For immigrants with a non-EU background, the likelihood of being unemployed is in some cases three times higher than that of a native-born person. Those with an EU background fare better, but are still more likely to be unemployed than native-born persons in all Nordic countries. The gap is most pronounced in Finland and Sweden.

The labour market disadvantage experienced by immigrants to the Nordic countries also appears to have a gender dimension. Among the native-born population and immigrants from other EU countries, the unemployment rate is higher for men in all countries but Denmark. For non-EU immigrants, unemployment rates are lower for women in Sweden and Norway, and lower for men in Finland and Denmark. As figure 6.7 shows, economic inactivity rates in all Nordic countries are also higher among those who are born outside of EU. In this case the gender dimension is relatively uniform across countries, with women more likely to be inactive than men in each group.

Figure 6.7 Inactivity rate by gender and country of birth 2016.



Data source: Eurostat.

A recently published special issue of the Nordic Economic Policy Review entitled *Labour Market Integration in the Nordic Countries* (Damm and Åslund, 2017) sheds further light on the situation in the different countries. In Norway, researchers found that, although there was a strong upward trend towards labour market integration following admission, this trend levels off (women) and even reverses (men) after 5–10 years in the country (Bratsberg et al., 2017). A high level of educational attainment from the host-country, or education at any level obtained in Norway, was found to be of great value (ibid.). Danish research reported a similar pattern, as well as finding that refugees and family reunified with refugees are more vulnerable to the negative effects of business cycle fluctuations, when compared to the native-born population (Schultz-Nielsen et al., 2017).

In Finland, country of origin was found to be an important predictor of labour market integration, with the average earnings of immigrants born in Afghanistan, Iraq and Somalia ten years after arriving in Finland only 22–38% of the average native-born male of the same age (Sarvimäki, 2017). This gap was even larger for women (ibid.). Swedish research reports similar findings – a relatively slow entry process, in which contact with the first job is influenced by country of origin and business cycle conditions, and long-term outcomes below those of the average worker (Åslund et al., 2017).

Together, these studies provide some insight into potential ways forward. The large variation based on country of origin and gender suggests a need for integration programs that respond in different ways to different groups. Enduring gaps between the employment outcomes of refugees and the na-

tive-born population suggests that integration support may need to be provided over a longer period that goes beyond connection to the first (often low-skilled) job. The composition of the labour market is also an important consideration. Together with Switzerland, Norway and Sweden have the smallest share of low-skilled jobs in Europe (under 5%) (Eurostat, 2017g). This means that initial entry into the labour market may be more challenging, particularly for lower-skilled immigrants.

A higher level of education improves employment prospects everywhere, both for immigrants and non-immigrants. However, immigrants with higher education have more difficulty in finding a high-skilled job than their native peers. The main obstacles are language skills and getting their credentials recognised. In the case of immigrants with a low level of education, the picture is different and varies by region (Karlsdóttir et al., 2017).

Concluding remarks

The Nordic Region continues to experience economic growth, as evidenced by falling unemployment rates in almost all countries. These rates are

low in a European comparative perspective, as are rates of long-term unemployment and economic inactivity. Despite this positive overall picture, notable exceptions remain. Regional variation is evident, most notably in Greenland, Eastern Finland and the “rust belt” in the middle of Sweden where unemployment rates remain high and appear to reflect long-term structural problems in the local labour markets. Youth unemployment rates remain a concern, despite having declined since the financial crisis in most regions. Finland and Sweden stand out, both with national rates above the EU average. There is also considerable room for improvement on labour market integration, with immigrants, particularly those born outside of the EU, substantially more likely to be unemployed or economically inactive when compared with the native-born population. This labour market disadvantage is particularly pronounced for women and appears to persist well beyond the initial years following arrival. Addressing these inequalities and ensuring equal access to labour market participation for all is a key challenge going forward and will be vital to retaining the high quality of life and working conditions that are associated with the Nordic model.

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Chapter 7

EDUCATION IN AN EVOLVING ECONOMIC LANDSCAPE

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Maps and data: Gustaf Norlén, Oskar Penje, Linda Randall and Eeva Turunen

This chapter will explore education levels in the Nordic Region based on a range of indicators. First, it addresses education outcomes for young people (15–24 years) based on the results of the Programme for International Student Assessment (PISA) at a national level, including a European and international outlook, and statistics on early school leaving at a regional level. It goes on to explore education levels in the working age population (25–64 years), finding substantial variation in education levels between municipalities. Finally, it discusses the implications of structural changes to Nordic labour markets for education in the context of regional development.

Native-born students perform better on PISA

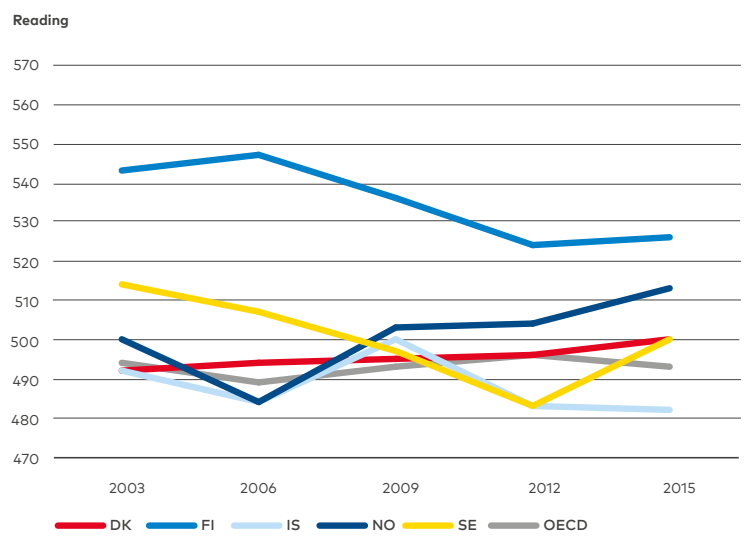
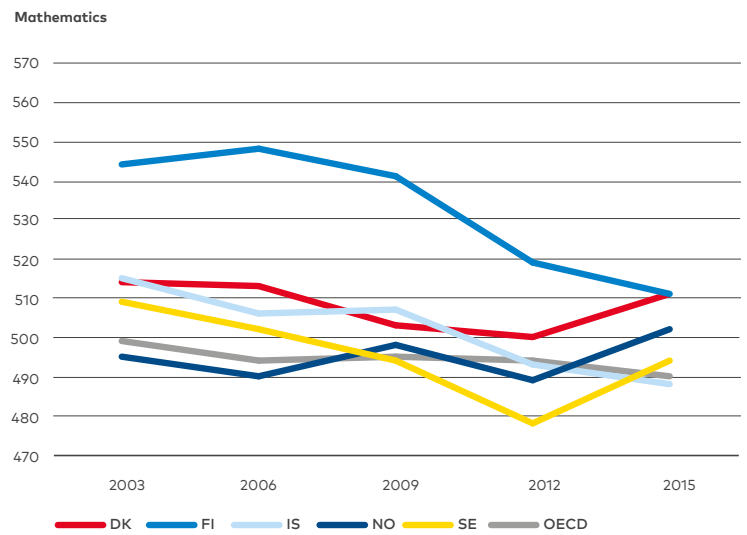
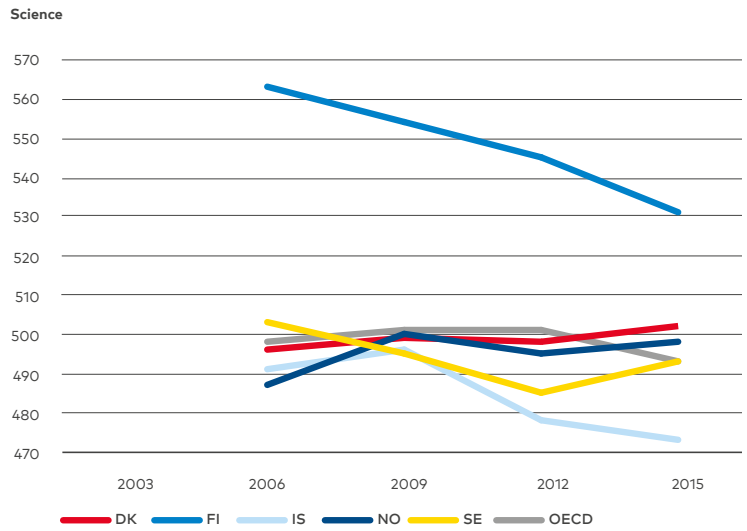
The PISA is an international survey conducted by the OECD every three years and is widely used to assess the effectiveness of education systems around the world. Around 540,000 students took part in the PISA 2015 representing 29 million 15 year olds across 72 countries (OECD, 2016). It is worth noting that both methodological and ideological concerns have been raised about the approach, the former relating mostly to sampling and the latter to concerns about an overreliance on standardised test scores in policy making (for a more detailed critique of the PISA approach see: Carnoy, 2015; Fernández-Cano, 2016; Sjøberg, 2015). Despite these concerns, the PISA remains a useful tool for comparing student performance at lower second-

Finland remains the top Nordic performer, though results continue to decline in mathematics and science

ary school level between countries over time and is used to track progress towards the millennium development goals (Sachs et al., 2016).

As can be seen in figure 7.1, Finland remains the top Nordic performer, though results continue to decline in mathematics and science. Following on from the 2012 drop in scores which attracted substantial attention, Sweden has shown the greatest gains, with significant improvements in mathematics and reading. Norway and Denmark have remained consistent in reading and science and improved in mathematics. Iceland has not shown any improvement from its 2012 performance and remains below the other Nordic countries and the OECD average on all subjects. With respect to gender, female students have significantly higher reading scores than male students in all Nordic countries (consistent with the OECD average). In Finland, female students also outperformed male students in mathematics and science (both counter to the OECD average). In Denmark, male students outperformed female students in mathematics (consistent with OECD average). There are no other significant gender differences.

Figure 7.1 PISA results over time for all Nordic countries.



Data source: PISA International Data Explorer.

Perhaps the most interesting result emerging from the 2015 PISA is the substantial gap between the scores of native-born students and those of first and second-generation students¹ in the Nordic countries. This gap, illustrated in figure 7.2, is more pronounced in all Nordic countries when compared to the OECD average. Science scores² for native born students in the Nordic countries were, on average, 1.5% higher than the OECD average for native born students. In sharp contrast, science scores for first and second-generation students in the Nordic countries were, on average, 4.6% and 4.3% lower than the OECD averages for first and second-generation students respectively.

The largest gaps between native-born students and immigrant students are found in Iceland, where native-born students scored 23% higher than first-generation students, Sweden (22% higher) and Finland (21% higher). These gaps are among the largest in the EU, with Slovenia (22%) and Germany (21%) also making the top 5 (OECD, 2016). The gap is smaller in Denmark (16% higher) and Norway (14% higher). Interestingly, Danish students with foreign-born parents performed at the same level regardless of whether they themselves were born in Denmark. In all other countries, test scores appear to improve with each generation.³

Young men in rural areas most vulnerable to early school leaving

Early school leaving⁴ is of concern in all Nordic countries to varying degrees and addressing it has been a priority under the Finnish Presidency of the Nordic Council of Ministers (Norden, 2017). The prob-

lem is both structural and self-reinforcing – young people who face challenges in other parts of their lives are more likely to leave school early which, in turn, increases the likelihood of further social exclusion (European Commission, 2013). From a regional development perspective, there are both individual and societal aspects to be considered. At an individual level, young people have the right to an education that responds to their (at times complex) needs, regardless of where they live (Sachs et al., 2016). This is becoming increasingly challenging in many rural communities, where youth populations are shrinking and resources are scarce (Copus et al., 2017). At a societal level, education may contribute to regional resilience in times of economic downturn, or in the event that a significant primary industry is lost (ESPON, 2014).

Based on the available data, it is clear that there is both a spatial and a gender dimension to this problem. The spatial dimension is highlighted in figure 7.3, which shows rates of early school leaving for each Nordic country, and the EU28, for cities, towns and suburbs, and rural areas.⁵ As can be seen in the figure, rates are highest in rural areas and lowest in cities. The gap is most pronounced in Iceland, where young people are almost twice as likely to leave school if they live in towns and suburbs or in rural areas than if they live in a city. From a pan-European perspective, the Danish (7.2%), Swedish (7.4%) and Finnish (7.9%) averages all fall below the EU average (10.7%), and are in line with the Europe 2020 target of below 10%. The Norwegian average (10.9%) remains slightly above the target but is comparable to the EU average. The average rate of early school leaving in Iceland (19.8%) is substantially higher than the other Nordic countries and the EU average. Student support structure differs be-

¹ Categories defined as: native students (born in the country of assessment and has at least one parent born in that country); second-generation (born in the country of assessment but does not have a parent born in that country); first-generation students (born outside the country of assessment and whose parents were also born outside that country) (OECD, 2016).

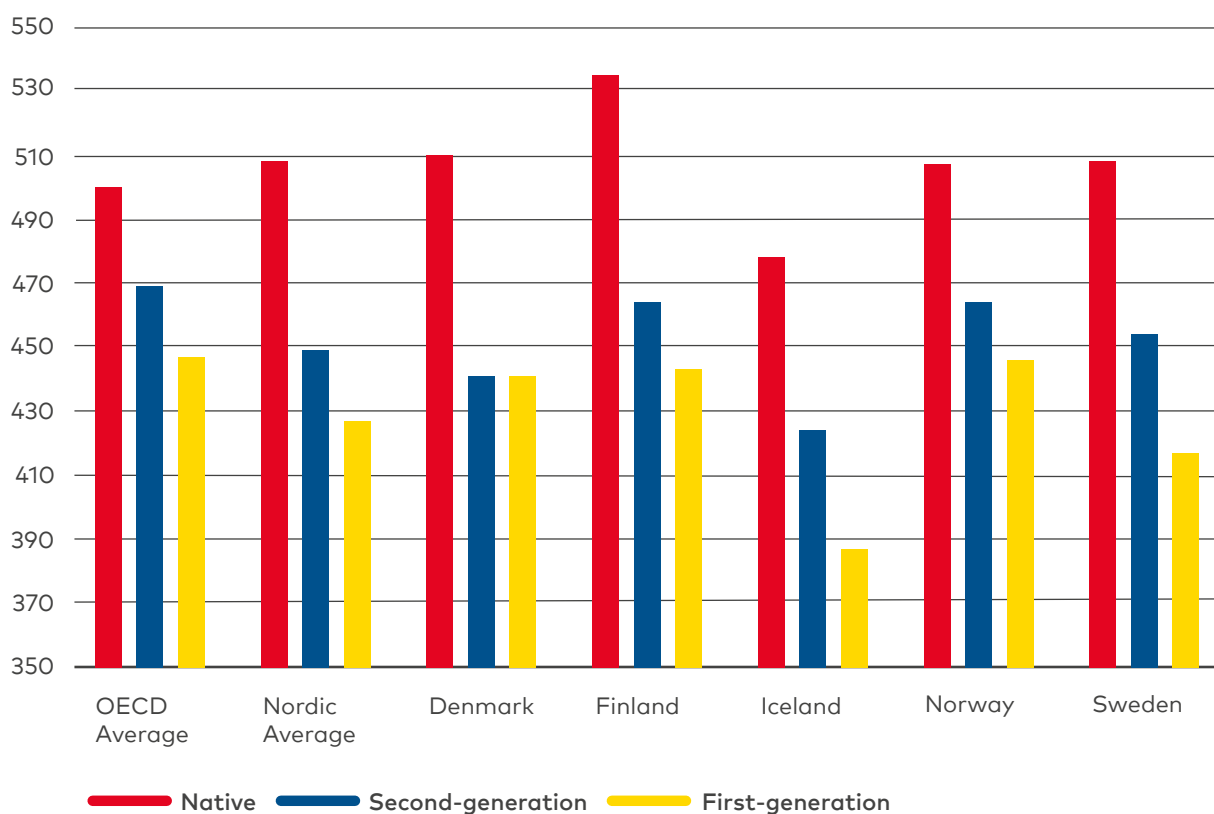
² The PISA consists of one major area of assessment and two minor areas of assessment. The major area of assessment in 2015 was science, it is therefore typical to use these test scores when considering PISA results in the context of another variable.

³ In Finland, the gap between the scores of first and second-generation students is not statistically significant.

⁴ Early school leavers are defined as those who have not completed upper secondary school: "gymnasium" in Denmark and Sweden, "lukio" and "gymnasium" or its vocational equivalent "ammattillinen oppilaitos" and "yrkesskola" in Finland, "videregående skole" in Norway, and "framhaldsskóli" in Iceland.

⁵ Cities = densely populated area (at least 50% of the population lives in urban centres). Towns and suburbs = intermediate density areas (less than 50% of the population lives in rural grid cells and less than 50% lives in urban centres). Rural areas = thinly populated areas (more than 50% of the population lives in rural grid cells).

Figure 7.2 Average science score by country and indexed immigration status 2015.



Data source: PISA International Data Explorer.

tween Iceland and the other Nordic countries, many adolescents have easy access to and must work to finance living and study, making students more vulnerable to not completing their studies.

The spatial dimension of early school leaving is further highlighted in the figure 7.4, which shows rates of early school leaving in the Nordic Region at the NUTS 2 level. Although there are some limitations to the conclusions that can be drawn from data at this level, the map does highlight the comparatively high rates in Norway, particularly in the north. It is worth noting that, although still high in a Nordic comparative perspective, early school leaving rates have decreased in all Norwegian regions since 2012. Rates are also high in Greenland, with a staggering 57.5% of young people aged 18–24 years who are not currently studying and who have lower secondary as their highest level of educational attainment.

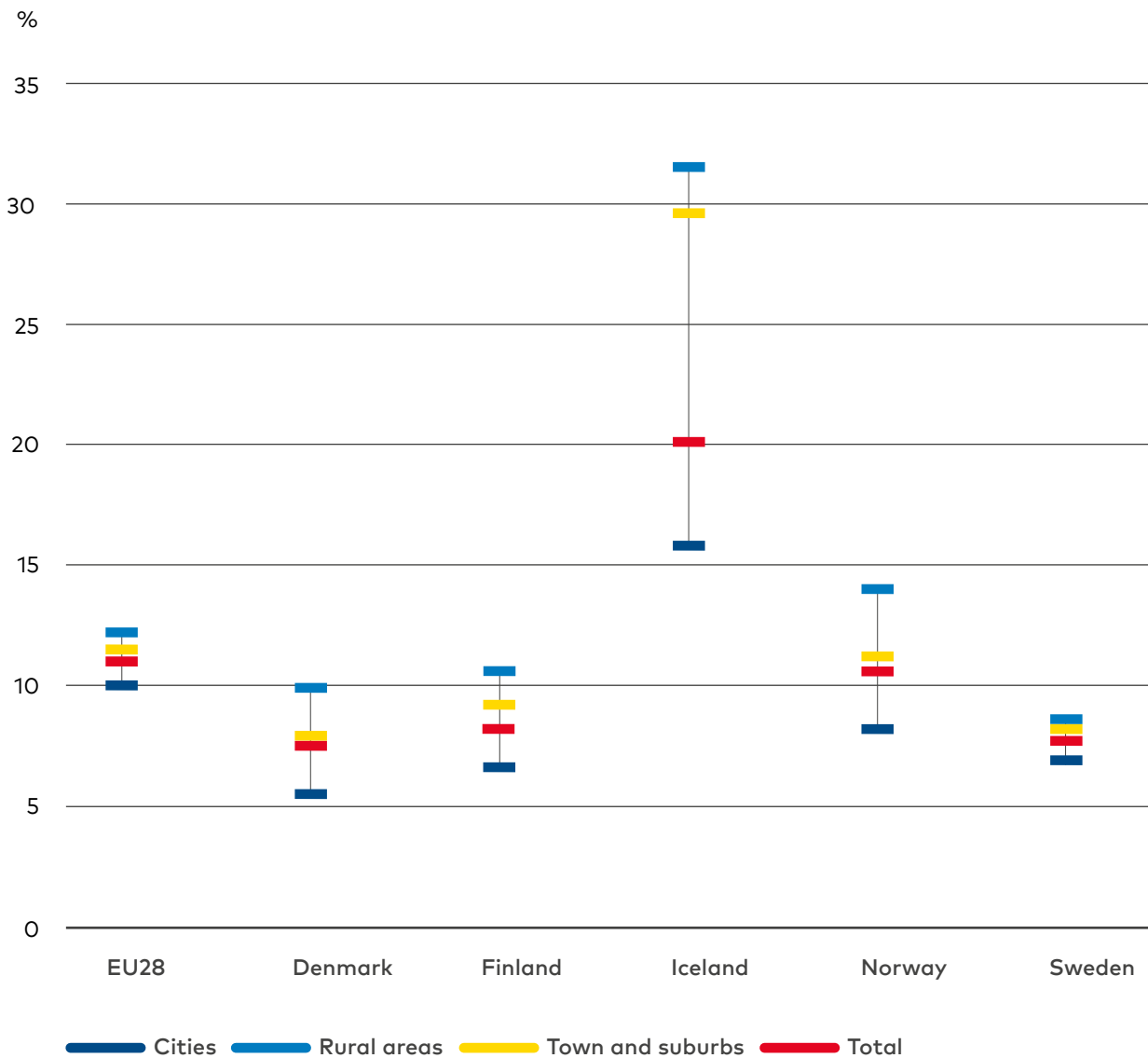
Figure 7.4 also shows the gender dimension of early school leaving, with young men more likely to

leave school early in most regions. At a national level, the gender gap is most pronounced in Iceland (51% higher rate for males), Norway (45%) and Denmark (44 %) and least in Sweden (28%) and Finland (30%). At a regional level, the largest gender gaps can be found in Etelä-Suomi (153% higher for males), Småland med öarna (113% higher), and Trøndelag (105% higher).

Great differences in education among working age population

Education levels among the working age population vary substantially between municipalities. This is illustrated in figure 7.5 which shows the share of the population with lower secondary or below (ISCED 0–2) as their highest level of educational attainment in 2016. The share ranged from as low as 3.2% in the suburban Stockholm municipality of Danderyd, to as high as 67% in Qaasuitsup, North-Western Greenland. The Nordic average

Figure 7.3 Early leavers from education and training by degree of urbanisation 2016.



Data source: Eurostat.

(16.5%) was well below the EU average (23%). Sweden had the lowest share of persons in this group (12%) and Greenland the highest (54%). Norway (21%) and Iceland (25%) were around the EU average and Denmark (19%) and Finland (17%) were closer to the Nordic average. These cross-country differences can be explained to some extent by the education systems of the respective countries. In Sweden and Finland, students are more likely to take a standard (academic) pathway through upper secondary school (Albæk et al., 2015). Alternatively, in Denmark and Norway students are more evenly split between academic and vocational pathways, with those in the vocational pathway more vulner-

able to non-completion (ibid.). This does not necessarily imply negative outcomes for these students – many leave to pursue employment opportunities (ibid.).

These figures also reflect structural economic differences at both the national and the local level. Where regional economies are rich in employment opportunities that do not require high levels of formal education, there may simply be less incentive to study. As an example, figure 7.6 shows the relationship between the share of the population with lower secondary as their highest qualification and the unemployment rate for each Nordic municipality. In Norway, where higher shares of the population have

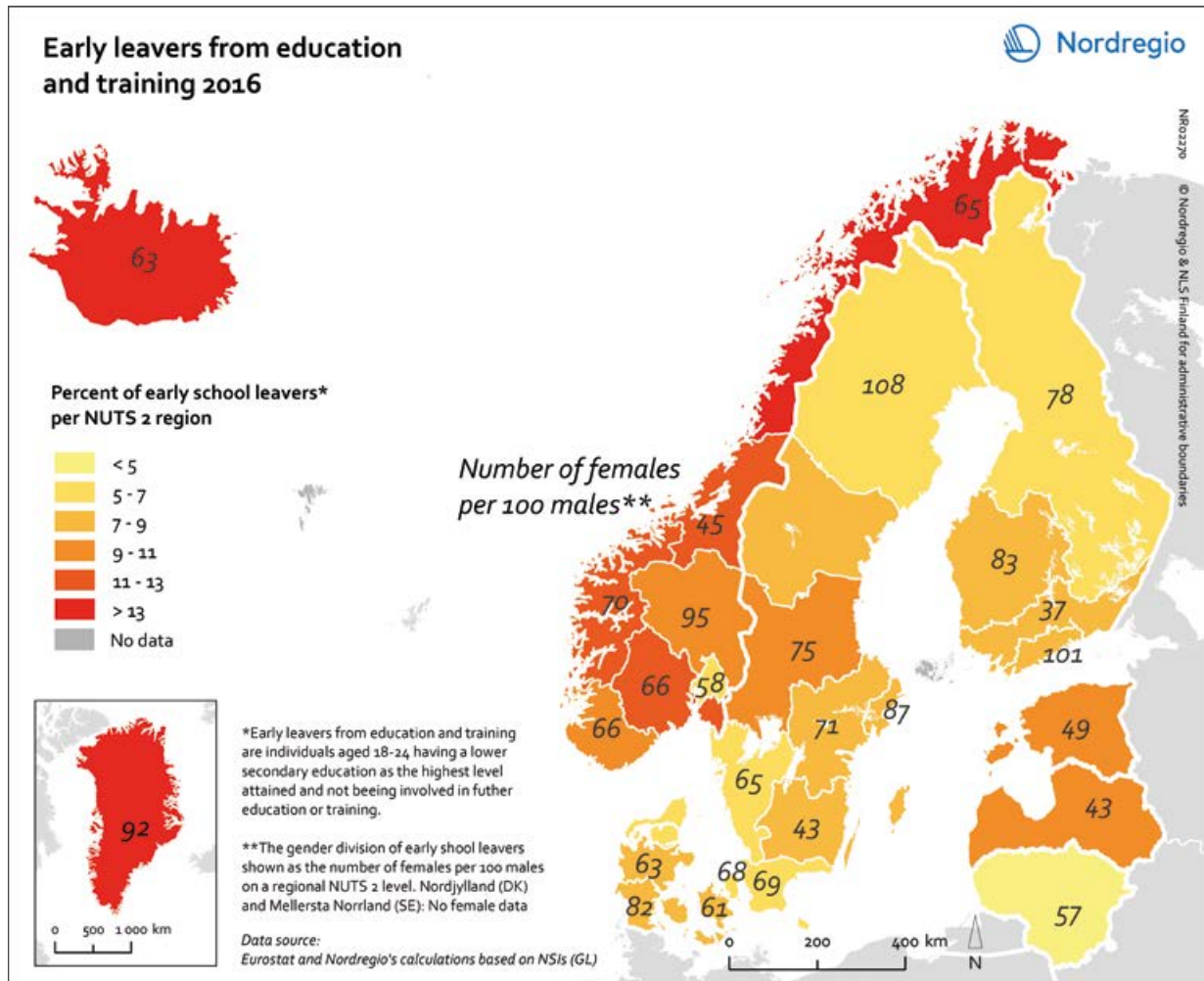


Figure 7.4 Early leavers from education and training 2016.

only a basic level of formal education, very little of the variation in unemployment rates of municipalities can be explained by the level of education among the population. In contrast, in Sweden, where relatively low shares of the population have only a basic level of formal education, the relationship between the unemployment rate and low educational attainment is comparatively strong.⁶

Cities and university towns dominate on higher education

The EU 2020 target aims at 40% of 30–34 year olds with a tertiary level qualification. The Nordic average is currently 49%, with Sweden: 51% and Norway

(50.1%) leading the way and Iceland (48.8%), Denmark (47.7%) and Finland (46.1%) not far behind (Eurostat, 2017). When it comes to the working age population as a whole, tertiary education levels are also high, with a Nordic average of 40%, compared to the EU average of 31%. At a national level, Sweden and Norway (42%) have the highest shares of their population with tertiary level education. Finland (39%), Iceland (39%) and Denmark (37%) also have relatively high shares. The share of the population with a tertiary education is lowest in Greenland (19%).

As can be seen in figure 7.7, there is considerable regional variation in tertiary education levels, with rates as low as 9% (Qaasuitsup, Greenland) and as high as 73% (Danderyd, Sweden). The highest share

⁶R² = 0.2441

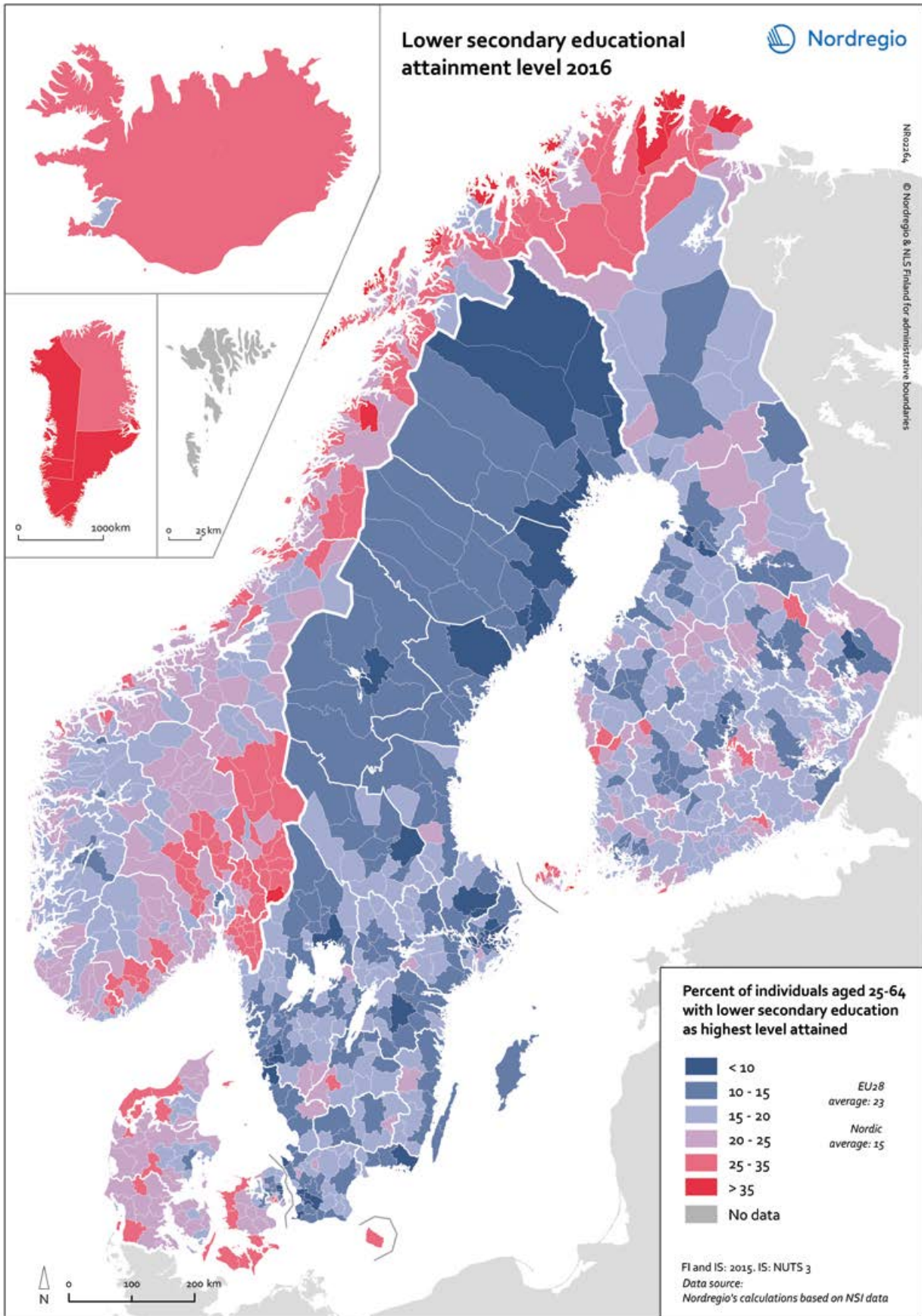
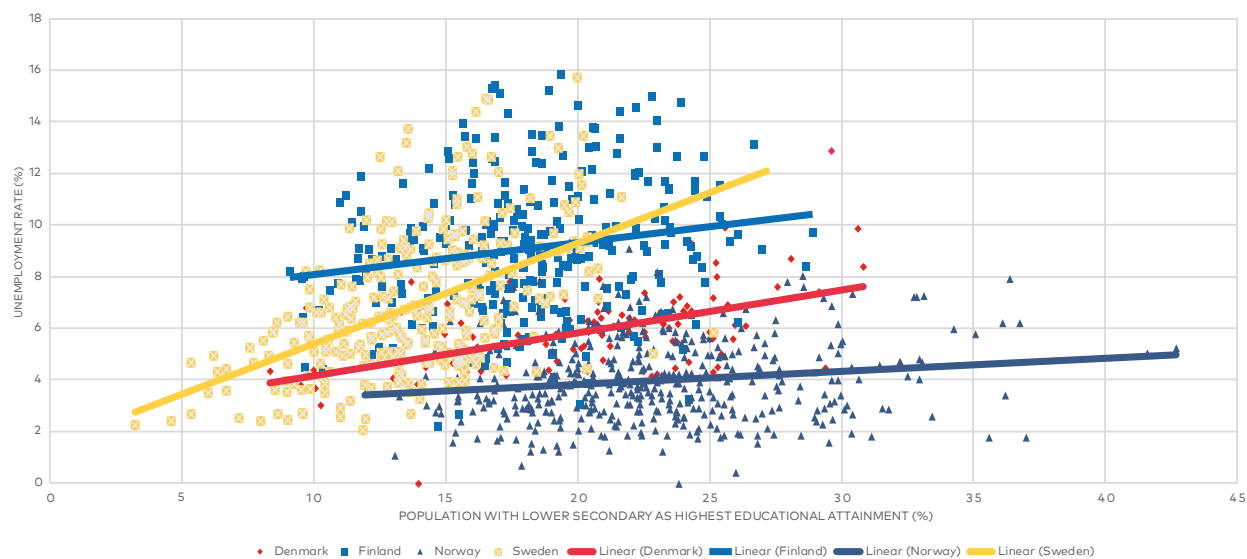


Figure 7.5 Individuals 25–64 years with lower secondary as highest educational attainment level.

Figure 7.6 Relationship between percentage of people with lower secondary as their highest level of education and unemployment rate for Nordic municipalities.



Data source: NSIs, Nordregio database.

of persons with tertiary education can be found in municipalities in the capital regions (25 out of the top 50) as well as in smaller cities with large universities. For example, Lund and its neighbouring municipality Lomma (69%; 66%), in Sweden, Trondheim (55%) and Stavanger (52%), in Norway, and Aarhus in Denmark (51%). While it is of course logical to expect high shares of educated people in university towns, it is also important to acknowledge that the geographical dispersion of these institutes is the deliberate result of a regional policy approach which has been employed in the Nordic countries since the 1960s (Hedin, 2009). Currently, approximately 160 Nordic municipalities have at least one higher education institution⁷ within their borders.

Constant with the situation in Europe as a whole (Eurostat, 2016), the municipalities with the lowest shares of tertiary education in their populations were all rural. They included Qaasuitsup (9%), Kujalleq (9.9%) and Qeqqata (12%) in Greenland, Kivijärvi (15%) in Finland, Iveland (18%) in Norway, Lolland (19%) in Denmark, and Munkfors (19%) in Sweden.

Interestingly, although the Nordic average for tertiary education among the working age population sits well above the EU average (31%), more than half (59%) of Nordic municipalities actually fall below this figure. This suggests that there may be somewhat of a gap between a smaller number of high performing municipalities and the rest. From a gender perspective, females are substantially more likely to have a tertiary education than males in the Nordic Region. In fact, there is only one municipality where the share of the population with a tertiary education is higher among males – Kumlinge in Åland (Nordregio, 2017).

Increasing education levels and the changing needs of the labour market

Nordic labour markets have undergone substantial structural change in recent years as a result of both digitalisation and globalisation. Even in sectors previously characterised by low and mid-

⁷ Higher education institutes are defined here as any kind of campuses or side-branches of a university, a university college, a technical training institute, a nursing school, or other establishments of tertiary education, both theoretical and more practically-oriented.

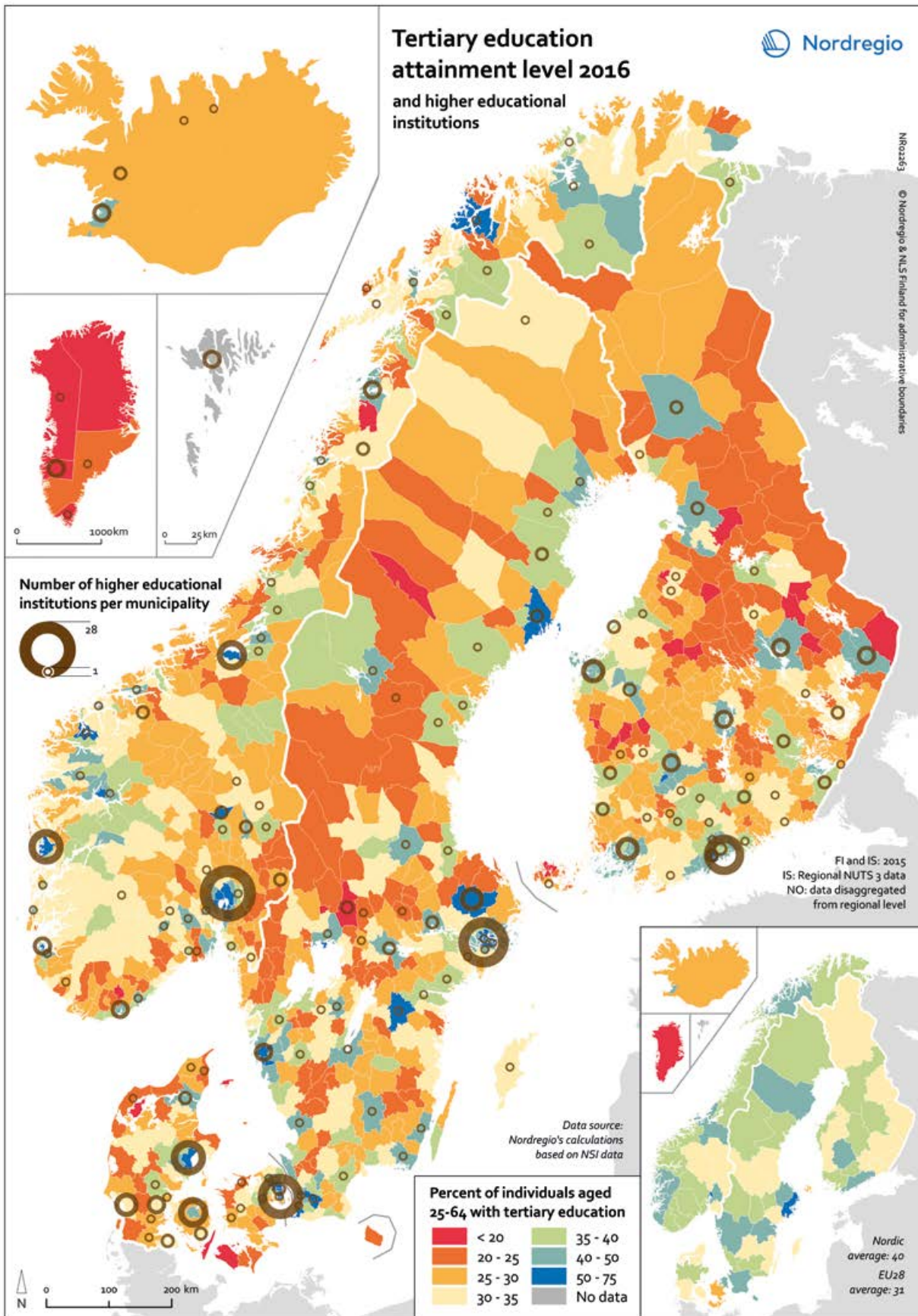
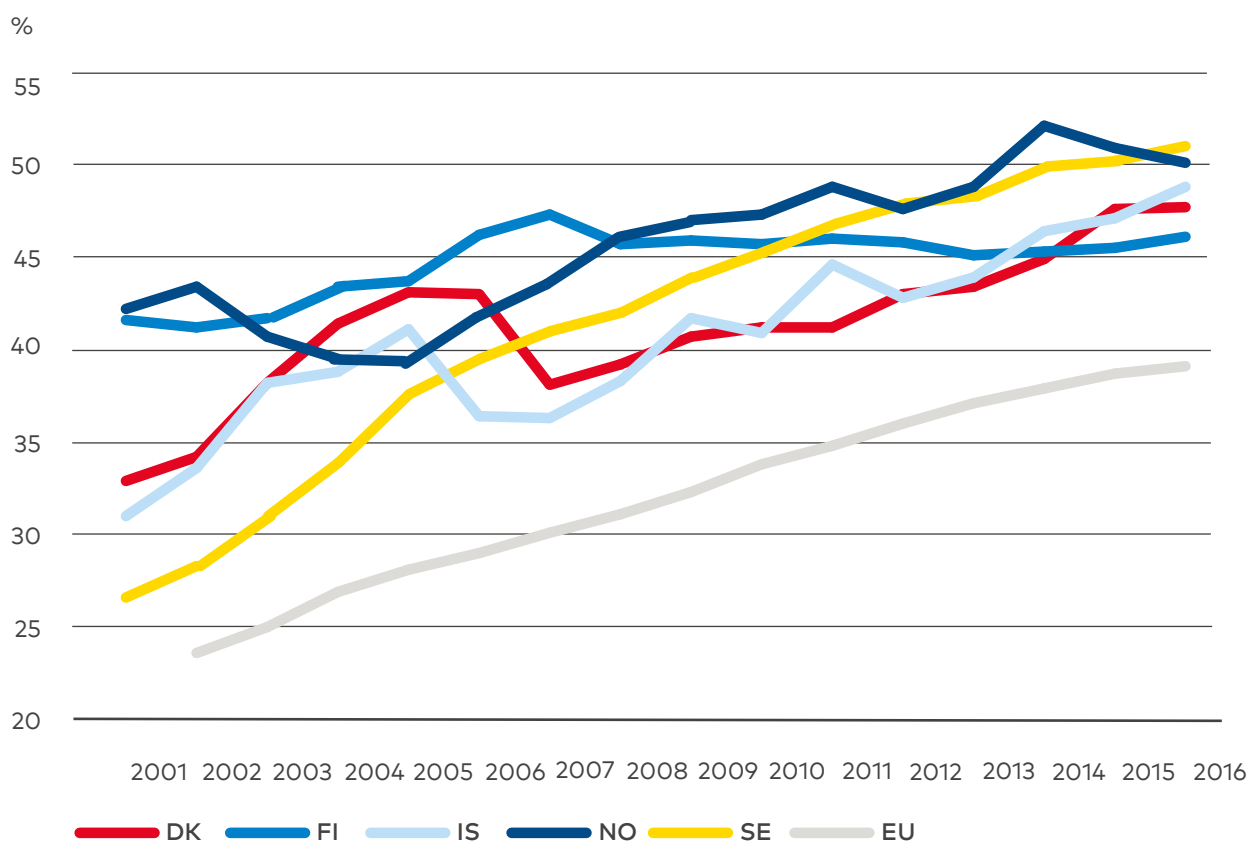


Figure 7.7 Tertiary education attainment level 2016.

Figure 7.8 Population 30–34 years with tertiary education, 2001–2016.



Data source: Eurostat.

As the demand for skilled labour increases, there is a growing need for more specialised skills – many of which require a tertiary education (Autor, 2015). In this context, it is perhaps unsurprising that educational attainment levels among the younger members of the Nordic population have increased substantially since 2001. Perhaps more interesting is the different patterns this increase has followed in the different countries. As figure 7.8 shows, the most dramatic change has occurred in Sweden. In 2001, only 27% of 30–34 year olds in Sweden had a tertiary qualification, the lowest share of all the Nordic countries. By 2016, this figure had almost doubled, making Sweden the Nordic country where those aged 30–34 years are most likely to have a tertiary education. These figures represent somewhat of a paradigm shift, brought on by the recession period of the nineties. This period saw an increased focus on innovation, science and education, facilitating the country's

There is considerable regional variation in tertiary education levels, with rates as low as 9% (Qaasuitsup, Greenland) and as high as 73% (Danderyd, Sweden)

transition from predominantly industrial, blue collar state to a frontrunner in the knowledge economy. A similar shift occurred in Iceland after the financial crash in 2008. Finland and Norway have seen the smallest increases over the period, 4% and 8% respectively, though that these were also the countries which had the highest rates to begin with.

It is important to note that these observed increases in education levels do not automatically

Currently, approximately 160 Nordic municipalities have at least one higher education institution within their borders

imply that the changing needs of the labour market are being met, nor that they will continue to be met in the future. Research into new and emerging industries consistently finds attracting skilled people to be one of the key challenges, particularly outside of major cities (Lindberg et al., 2016). Addressing this challenge is a complex process and requires more than simply an increased supply of people with higher education (RegLab, 2014). From a regional development perspective, considerable work is needed to align the available education and training with the constantly evolving needs of regional economies. We see this occurring to some degree through regionally based smart specialisation strategies that seek to align knowledge dynamics and the specific socio-economic, institutional and geographical conditions of regions (Dubois et al., 2017), industry-led initiatives (Mörner & Tripl, 2017), and targeted platforms for assessing the skills needs of regions (Reglab, 2014). Work is also underway to improve validation processes, with a view to easing

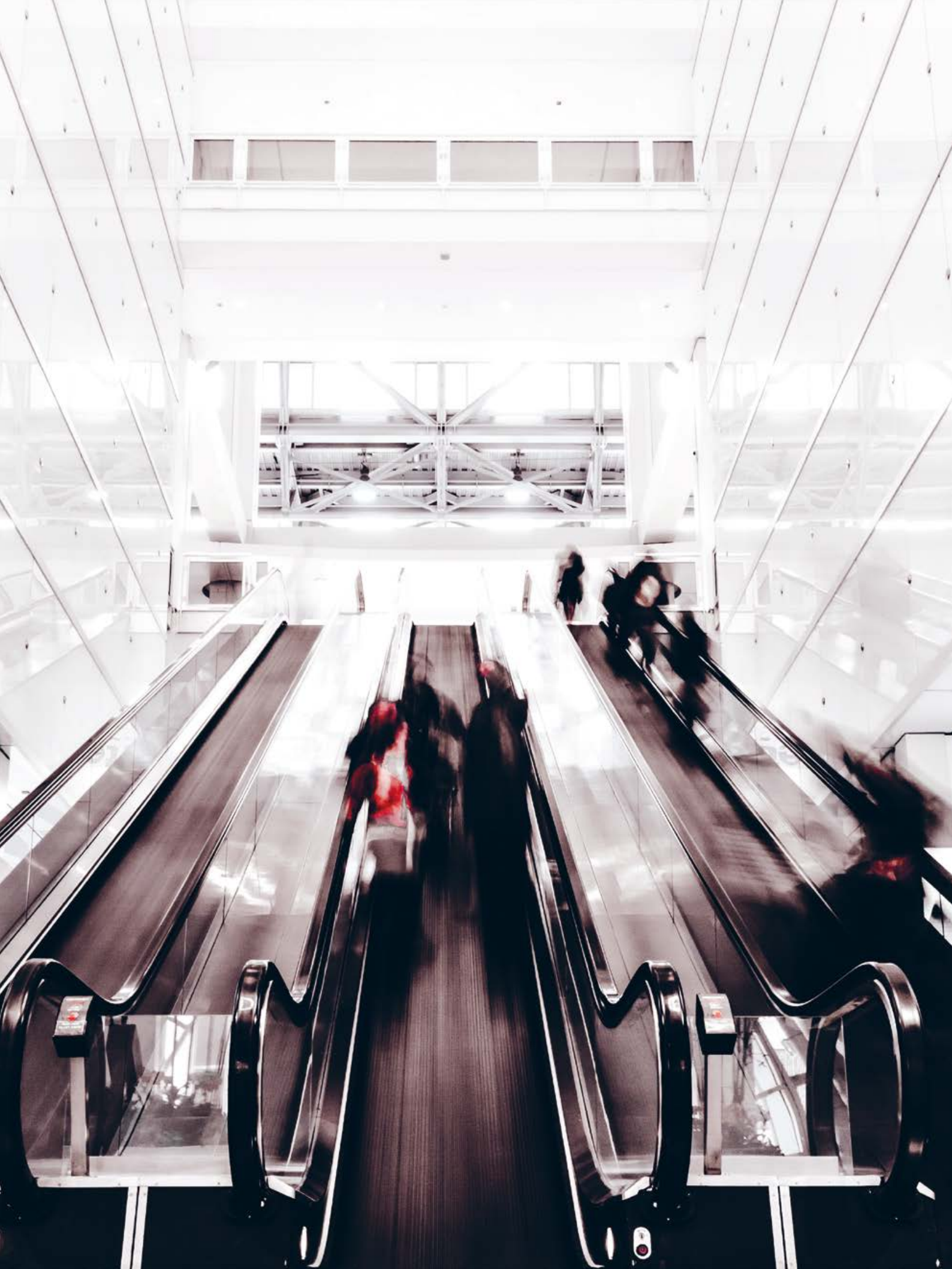
the integration of new migrants into Nordic labour markets (Karlsdóttir et al., 2017). While it is too soon to comment on the success of these programs, this is clearly an important and interesting area to watch.

Concluding remarks

Overall, the Nordic Region performs well on education indicators. There is, however, evidence to suggest that some groups are faring better than others. Greater support for young people from immigrant backgrounds will be vital in the coming years. There is also a need to better understand the drivers of early school leaving in order to formulate appropriate policy responses, particularly for young men in rural areas. With respect to the working age population, there is substantial variation in education levels between municipalities, with cities and university towns having larger shares of people with tertiary education and rural areas having higher shares of people with only a basic level of formal education. These trends appear, at least to some degree, to reflect differences in the structure of labour markets between countries and regions. From a regional development perspective, ensuring that education and skills attainment keeps pace with the rapidly evolving needs of local labour markets will be a key challenge going forward.

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THEME 3

ECONOMY

A varied, but strong economy, performing well in relation to the EU

The Nordic countries are generally performing well above the EU average when it comes to economic development, despite the significant and ongoing impact of the economic crisis. From a macro-regional perspective, the Nordics constitute a very coherent region. Nevertheless, large and economically significant variations remain, at both the regional and national levels.

Norway has seen a decline in its economic performance in recent years, whereas Iceland has enjoyed significant growth. In terms of GDP per capita, Iceland and Denmark are rapidly catching up with Norway though on disposable household income, Norway is still well ahead, despite the ongoing challenges posed by the global drop in oil prices.

Below the national level, many of the regions and sparsely populated or inland municipalities which are already suffering because of their unfavourable position in terms of physical and social "infrastructures", are falling further behind the main metropolitan areas. Despite this, and looking beyond the standard economic indicators, the northern parts of Denmark, Finland and Sweden all rank very highly on the more broadly focused European Social Progress Index.

In terms of innovation, the Nordic countries also rank highly and in all Nordic regions, the

share of employment in knowledge-intensive sectors is well above the EU28 average. A large share of high tech jobs can even be found in the more peripheral regions.

The Nordic countries have maintained a strong position in the field of green solutions, but many of their European competitors are now beginning to catch up. Even so, the Nordics still make up the most innovative region in Europe and almost all regions, with the exception of some areas of Finland, exhibit a stable pattern when it comes to R&D expenditure.

The Nordic Region also remains an attractive destination for foreign investment, accounting for 7% of Europe's total Foreign Direct Investment (FDI) inflows, in a Region having 4% of the European population. Sweden makes up almost half of this total and has by far the highest level of investment activity in the Nordic countries.

Greenfield investments have completely dominated the scene in some peripheral regions, but the regions with the highest deal values are by far the capital city regions, with Stockholm, as the clear leader.

Overall, the Nordic economy is doing well and despite the various challenges linked to ongoing global market changes, the Nordic's recovery rate after the economic crisis has been impressive.

Chapter 8

ECONOMIC DEVELOPMENT

The Nordic Region still performing well in relation to the EU

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Maps and data: Linus Rispling, Gustaf Norlén and Gunnar Lindberg

In this chapter we look at the Nordic Region and its sub-regions from an economic perspective, to investigate some “states and trends” in relation to economic development, household income levels, and social progress. The primary focus here is on identifying new economic development trends with the first sections and maps devoted to domestic and regional product and the regional distribution and trends in relation to these measures. We look at the period after the economic crisis of 2009, specifically at the trends associated with Norwegian oil markets, stagnation in Finland and the growth of Danish regional economies.

For the first time we have included a measure of municipal disposable household income, by adjusting municipal figures with a measure of purchasing standards. This new map offers an interesting and somewhat fragmented picture of household income across the regions. Finally, the European Social Progress index (only available for Sweden, Finland and Denmark) has been presented as a balance to purely economic indicators. The very top regions are found in Finland (including Åland), northern and central Sweden, and in northern Denmark.

Gross domestic product: Changes in balance between countries

In economic development terms, the Nordic Region continues to perform well in relation to the EU average. In the aftermath of the economic downturn of 2009–2010, a more heterogeneous economic pat-

The north of Finland has improved in terms of the GRP (PPP) per capita index since 2013

tern reflecting differences in economic trends has however begun to emerge. Denmark and Sweden have continued along a slow but steady growth path, which was further accentuated in Sweden during 2015 and 2016. This is now also starting to have an impact at the regional scale where Kalmar and Västra Götaland counties have improved their position in the index since 2013, as shown in the previous *State of the Nordic Region 2016* report (Grunfelder et al., 2016). Figure 8.1 displays the gross regional product (in PPP) per capita for the year 2015. In Denmark similar trends are discernible where Nordsjælland, Fyn, Sydjylland and Vestjylland have all advanced. Iceland displays a similar development, though with stronger growth in the last two years, presenting the strongest growth levels in the Nordic countries with rates for some years above 4%. These trends are evident in figure 8.2 which shows the national gross domestic product per capita during the period 2007–2016. Finland has experienced something of a roller-coaster ride in economic development terms with stagnation in 2011 (after growing for some years) followed by declines in both in 2013 and 2016. The country has not gained momentum since 2011 and although

2017 seemed to bring a 3% increase and a return to the values of 2011 – this slow development is starting to show in the figures for disposable household income, with, for instance, wage and salary earners' earnings in 2017 almost static due to cuts in benefits. The north of Finland has improved in terms of the GRP (PPP) per capita index since 2013 while the rest of the country remains in the same category, but compared to the EU average, most of the central and eastern parts of Finland remain below the EU average. Norway is still the Nordic country with the highest GDP in PPP per capita in 2016, though the country has undergone a steep decline since the 2012–2013 high, and is now approaching levels of EUR 40,000/capita. This is also starting to show at the regional level where six regions in the southern and central parts of the country have fallen back one level in the EU average. There are now five regions in the 75–100 index-category where there were none in 2013. Greenland has seen a measure of decline since 2011 with the GRP change negative up until 2015 in all regions. Nevertheless, Greenland remains in the same category above the EU average; as do the Faroe Islands (for Greenland though, Danish subsidies supply roughly 60% of government revenue and 40% of Greenland's GDP).

Regional growth with ups and downs

Urban and capital city regions still show high levels of GDP per capita reflecting the established pat-

Norway is still the Nordic country with the highest GDP in PPP per capita in 2016, though the country has undergone a steep decline since the 2012–2013 high, and is now approaching levels of EUR 40,000/capita

tern throughout Europe. Stockholm, Oslo, Helsinki, Copenhagen and the western Norwegian regions are among the wealthiest in Europe, again confirming that the capital regions and larger cities are the strongest economic centres in the Nordic Region. In addition to these urban regions, some others also display high levels of GRP per capita. What is interesting is that in the aftermath of the economic crisis some second-tier city regions, such as Västra Götaland with Gothenburg in Sweden, are now also displaying fast growth rates as indeed are some less metropolitan regions in the western part of Denmark. These regions display GRP per capita levels which correspond to, or even exceed, those of most metropolitan regions in Europe.

As is evidenced by figure 8.3, showing the development in gross regional product between 2011 and 2015, many of those Swedish and Norwegian re-

Defining Gross Domestic Product (GDP) and Gross Regional Product (GRP)

The indicator Gross Domestic Product measures the overall economic output of all economic activities in a country (measured in terms of purchasing power parity, or standards). The corresponding indicator at the regional level is the Gross Regional Product (GRP). Although these measures are somewhat blunt (for instance they do not consider sustainability) in the assessment of regional performance they are still the most stable and most commonly harmonised measure for economic comparisons. Together with labour market and business-related indicators in this report they provide an understanding of regional economic development.

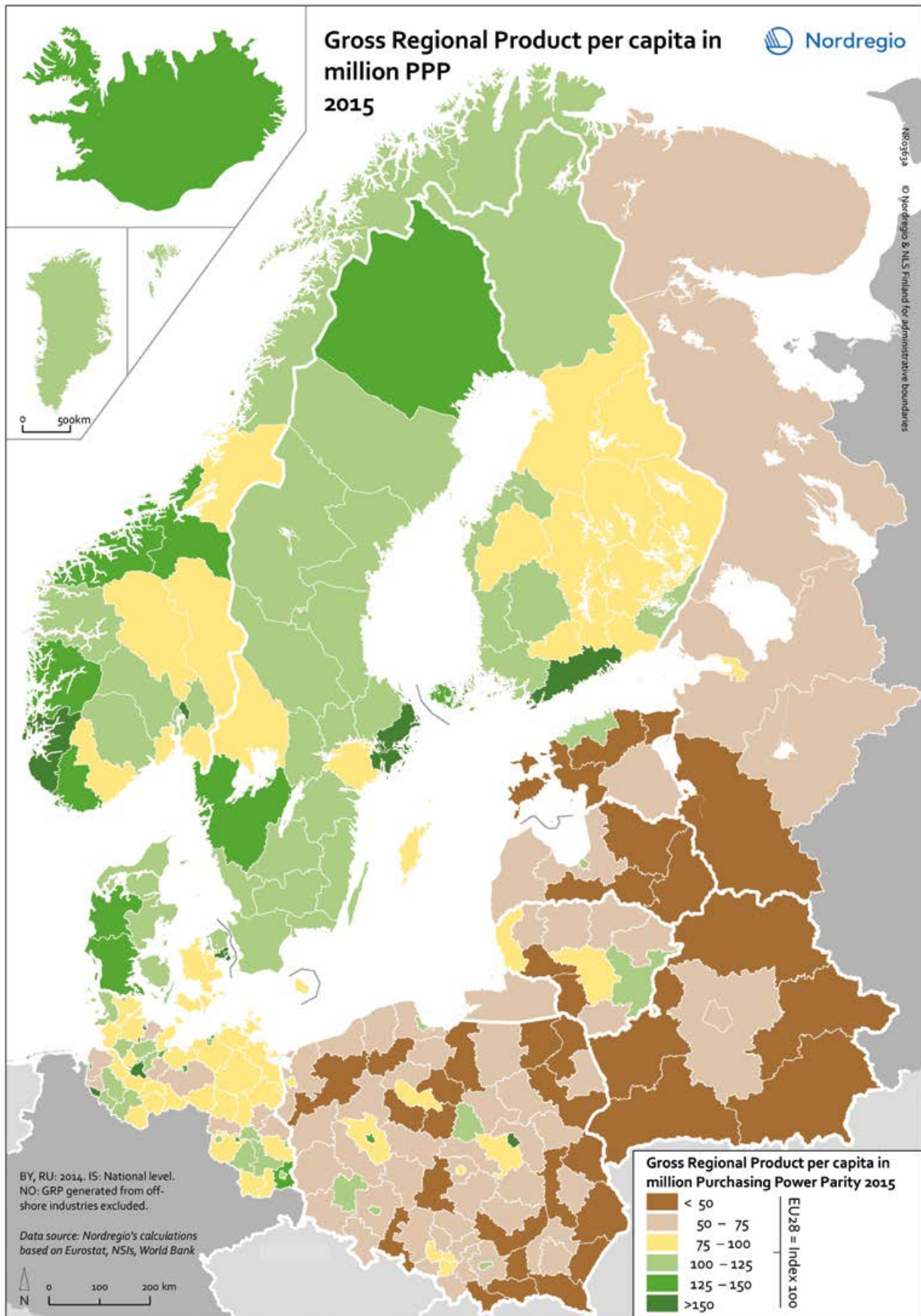
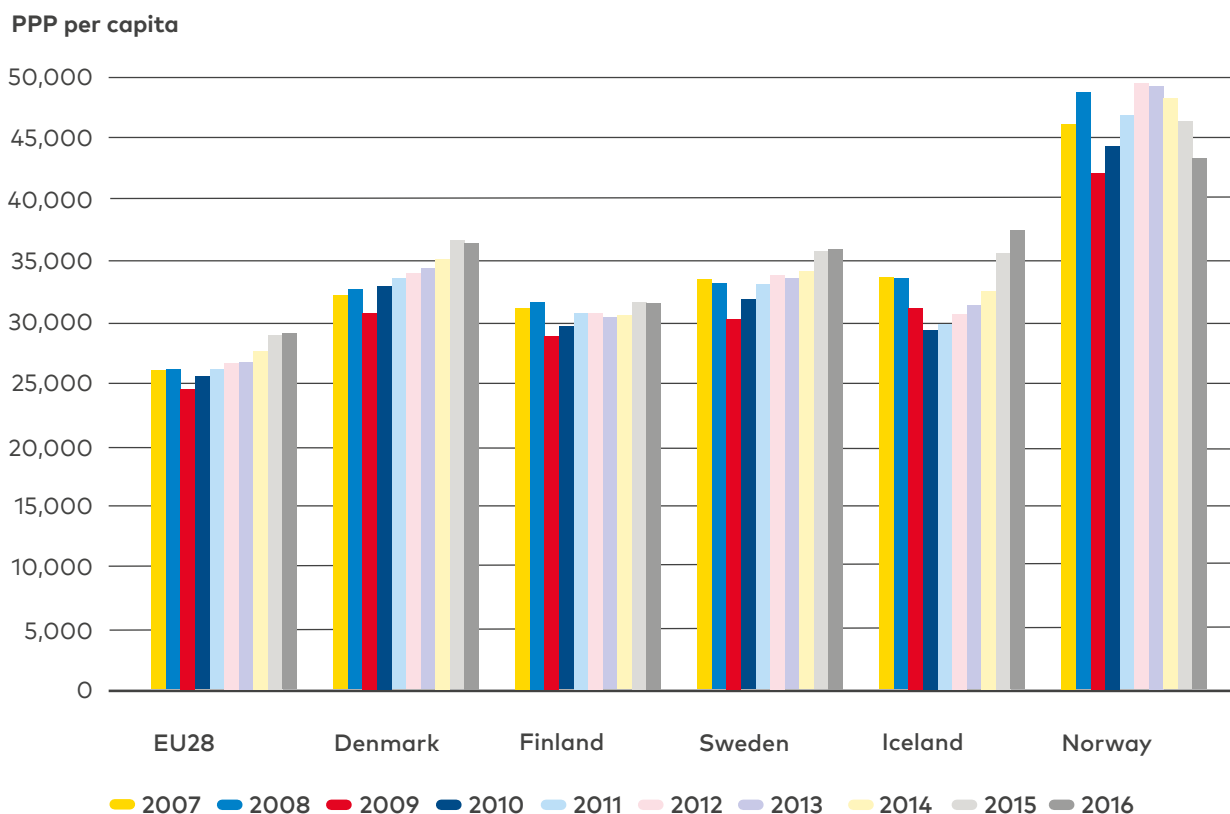


Figure 8.1 Gross regional product in PPP per capita, 2015.

Figure 8.2 National Gross domestic product in PPP per capita, 2007–2016.



Data source: Eurostat. Note: NO: GDP generated from offshore industries included.

gions, which have been so strong in the past, have recently experienced a period of economic downturn. This is due to various factors such as oil price fluctuations in Norway and the declining price for iron in Sweden – but the result is the same. In Norway many northern regions have seen a negative GRP change of around 1–1.5%, while southern and western regions have experienced a negative change of between 1 and 2%. In northern Sweden the result has been even more dramatic with a decline in GRP between 2011 and 2015 of more than 2%, and a decline of between 0 and 1% in most of the northern and western regions. Finland has undergone a similar experience, displaying a mosaic pattern of decline with only two regions showing a moderate positive trend up to 2015. Only three countries, Iceland, Sweden and Denmark, show positive aggregated levels of GDP change between 2011 and 2015, and only Denmark show growth throughout all regions (figure 8.3, country map). During this period, a corridor of positive development running from

western Denmark and greater Copenhagen, via Skåne and Västra Götaland and up to Stockholm seemed to emerge. These are the regions currently displaying the strongest growth and, together with Iceland, they are outperforming even Oslo and Helsinki.

Decline in the northernmost Norwegian and Swedish regions is partly a result of their heavy dependence on a single type of industry. Urban economies are more insulated from the risk posed by reliance on a single sector and are often based on a diverse range of economic activities enabling them to benefit from urban growth. In Norrbotten, mining is the dominant industry while in Northern Norway, oil exploitation and fisheries are the key sectors. For Norway the GRP figures from off-shore activities, including oil and gas extraction, are excluded from our maps at the regional scale. This does not change the situation in respect of supporting regional service sectors and their vulnerabilities to over-specialisation. This is the reason for

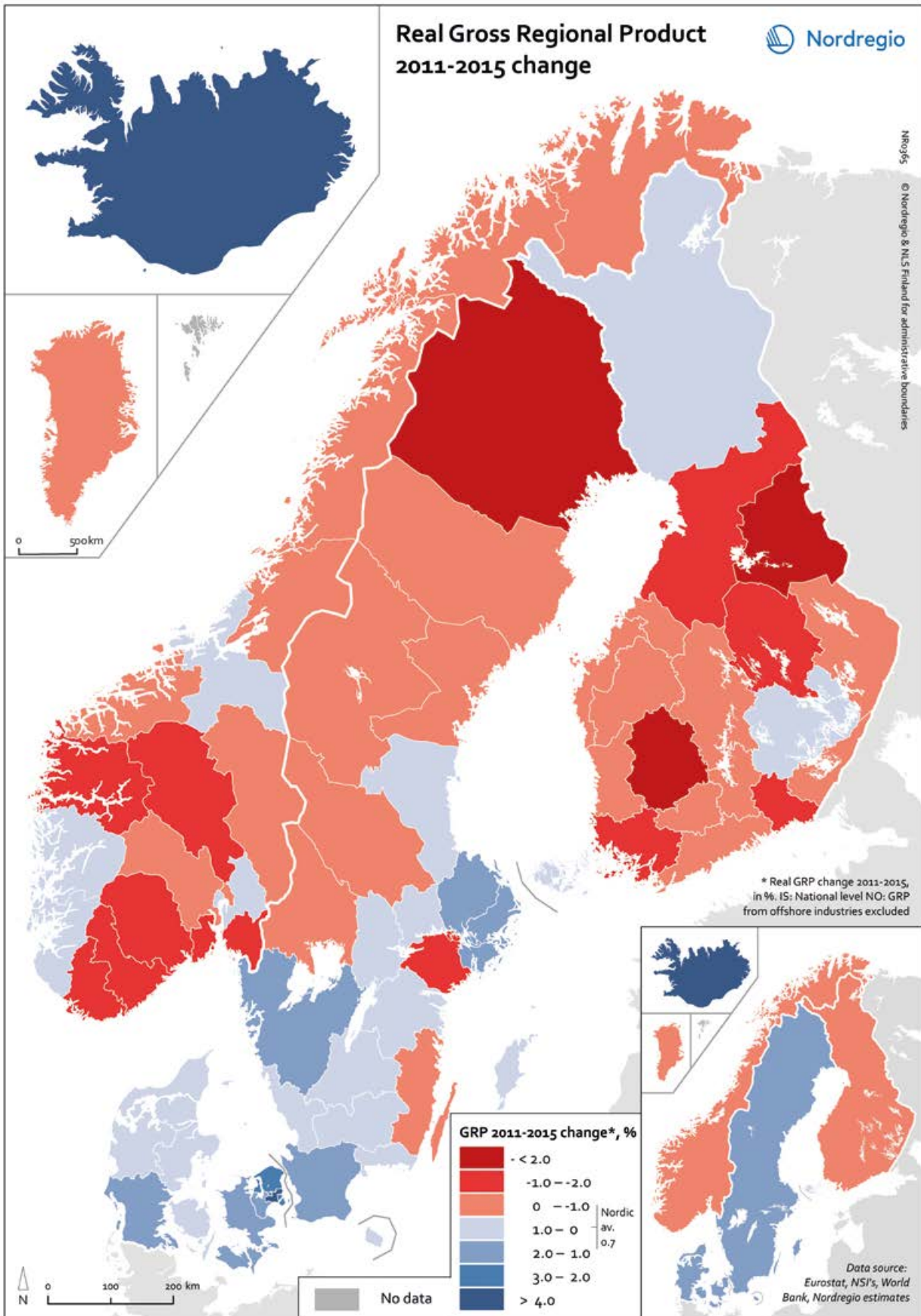


Figure 8.3 Gross regional product change, 2011–2015.

the dramatic declines in these regions evident in the map for GRP change (figure 8.3). It should be noted however, for the context of development in Norway, that the Norwegian fisheries industry has enjoyed positive growth for a long time. There was a small decline in domestic landings some years ago but the trend is once again positive, with international landings increasing as well in recent years. This helps to balance the negative impact of decline in the oil sector. Although the vitality of these sectors induces a high level of economic performance for these regions in years of high prices and strong growth, it leaves the regional economies highly vulnerable to sectoral change, something which is usually well beyond the boundaries and the control of Nordic regional actors, both economic and political. In the years after the 2008–09 economic crisis these regions were among those that grew the most. In the previous issue of this publication, *State of the Nordic Region 2016* (ibid.) these regions showed strong economic growth and were among the highest ranked in the regional potential index. In this light one of the most important aspects for regional policy as it relates to these territories is to be able to use and build on this growth potential and years of growth and wealth. Strategies thus need to be put in place to further develop current sectors, as well as to attract new businesses or sectors of activity with high added value. Some of these regions also now face serious challenges in respect of negative demographic trends and labour market developments (see chapters 2–3 and 5–6). As such, it is important that the recent period of downturn is not cemented and further aggravated by migration trends and precipitate changes in economic structures and infrastructures.

Broadening the scope and comparing the Nordic regions with the rest of the BSR (figure 8.1) it is evident that the so called "East-West divide" persists as the Nordic Region continues to enjoy much higher levels of GRP per capita than its Eastern (including Northwest Russia) counterparts. The exception to this general pattern is the capital cities which have relatively high GRP levels. The Baltic States as well as Poland also show strong, although fragmented, growth in GRP and are, together with the Nordic countries, consistently out-performing the economies of southern and south-east Europe. Poland grew less in 2016 as compared to the years immediately after the crisis, but the rate has increased again in 2017 and is close to 3%. Estonia is picking up again after 2015 and is growing at 1.5%, Latvia

The Nordic metropolitan and city-regions remain the key centres of economic production

and Lithuania are both doing a bit better than that at just above 2%. What is interesting however, not least for Eastern Finland, is that the western-Russian regions along the Finnish border have improved their purchasing power and are now one level higher in the index compared to 2013 levels displaying 2015 levels in the interval 50–75 compared to the EU 28 (100) index.

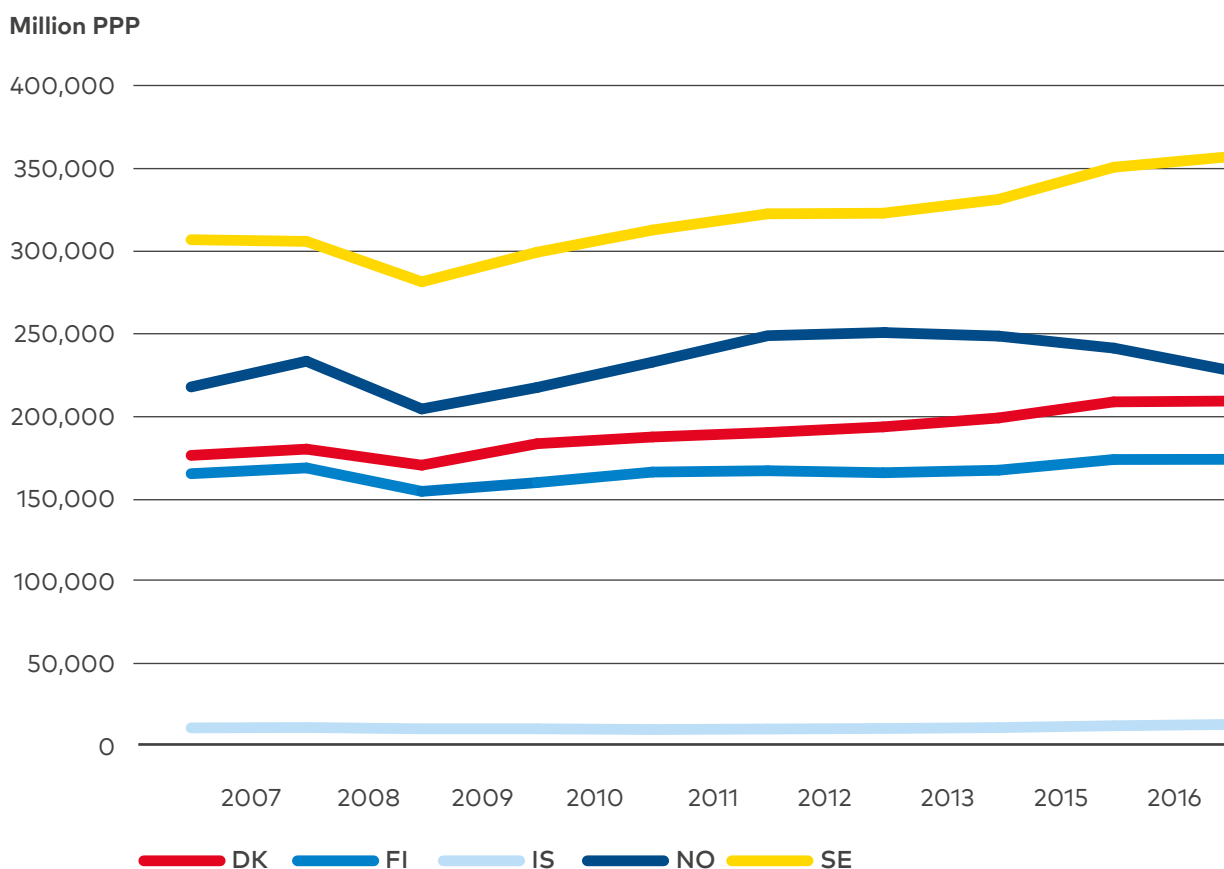
From a European and Baltic Sea perspective, regional disparities across the Nordic regions are clearly less evident compared to what may be found in many larger continental economies (such as France, Germany or Spain). As such, the Nordic Region appears to constitute a more cohesive economic area (with no regions lagging far behind) than is the case in other parts of Europe – even though this picture becomes a little more nuanced after considering recent developments in Norway and Finland.

Turning to the total levels of GDP and GRP, figure 8.4 shows that the same trends as seen in the per capita graph can be observed at the national level. For Sweden (the largest of the Nordic economies) growth has been strong since 2009 and total GDP (in PPP) is now above 350 billion (Swedish GDP has not seen a negative change since the 2nd quarter in 2013 and has grown 0.5–1.5% in general each quarter since). Denmark, Finland and Iceland have been growing since 2009, although at a moderate pace. The first two have shown some signs of slowing down in 2016, but if growth continues for Denmark the country could soon attain a total GDP level (in PPP) close to that of Norway. Norway stagnated in 2012 with per capita figures and total GDP levels declining since 2013. Norway and Sweden were mirroring each other's development up until 2012 but since then, the difference has been remarkable.

Urban regions motors for economic growth

Urban regions are often highlighted as the primary motors of economic performance, although caveats do exist here; the most important being location

Figure 8.4 Gross domestic product (GDP) in million PPP, 2007–2016.



Data source: Eurostat. Note: NO: GDP generated from offshore industries included.

of headquarters and economic reporting. Despite such caveats, figure 8.5 (Gross Regional Product, in total) clearly shows that the major contributors to national GDP are the city regions of Stockholm, Helsinki, Oslo, Gothenburg, Malmö, and Copenhagen. Compared to the economic activities generated by BSR city regions of St. Petersburg, Warsaw, Hamburg and Berlin the Nordic figures remain small, though the greater Stockholm region clearly stands out. It is however important to note that regional delimitations make a huge difference here

The Nordic Region's economic growth is increasingly taking place in the capital regions or in the largest agglomerations

in the ways in which urban regions are represented (Sweden and Finland have large NUTS 3 regions).

Other places that tend to perform well economically are those 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. In general, and similarly to the situation pertaining in many other European regions, the Nordic metropolitan and city-regions remain the key centres of economic production.

Urban areas or cities are often centres of economic growth and development. It is, however, difficult to acquire economic growth data, such as GDP, at the urban level. And although it is widely acknowledged that GDP is an unnatural growth measure at the urban scale, there is still no simple indicator of economic growth that is tailored specif-

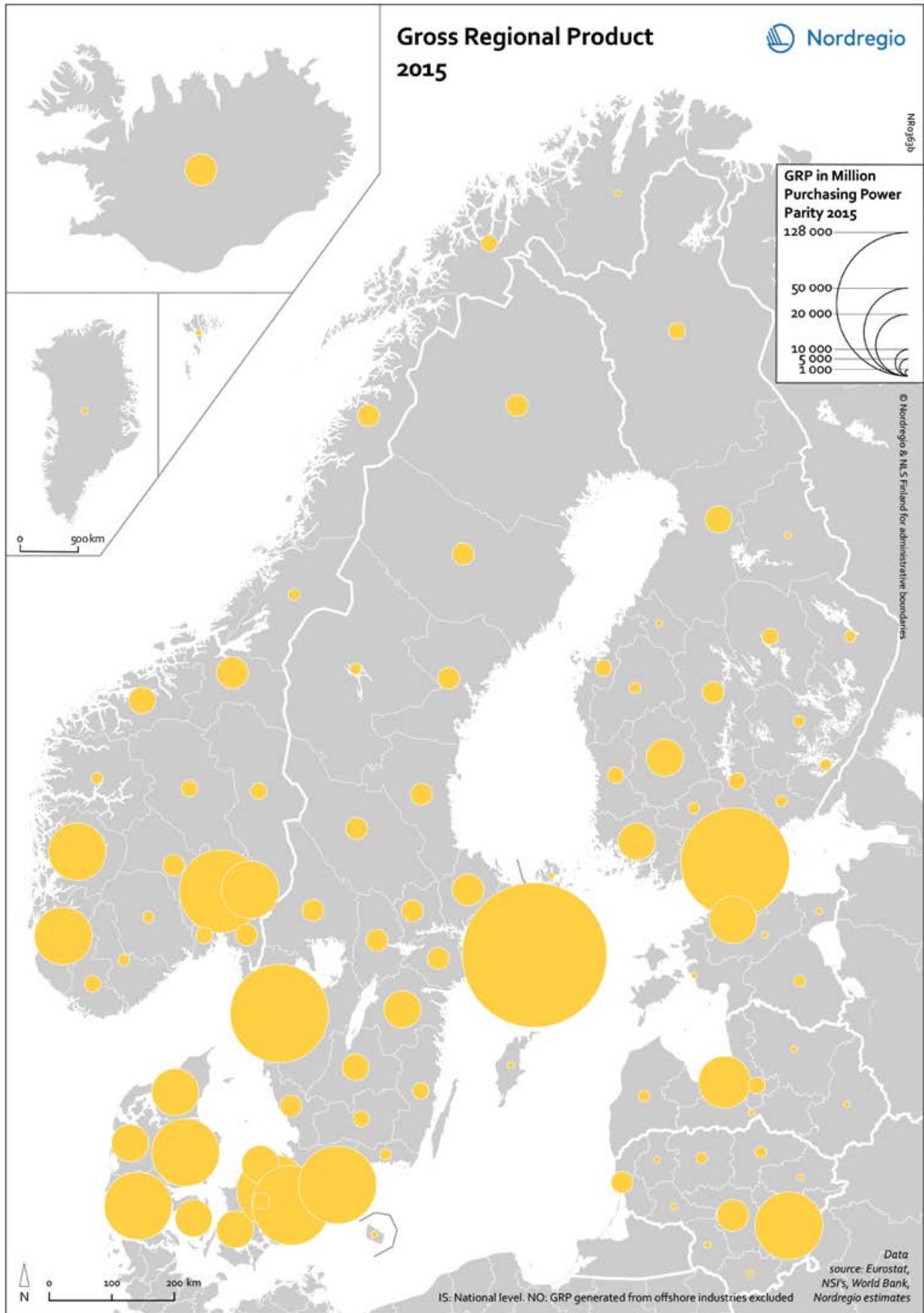


Figure 8.5 Total gross regional product (GRP) in million Purchasing Power Parity (PPP) in 2015.

ically to urban areas. As such, interpretations of GDP per capita should be used with care as they do not adequately account for the commuting flows that occur across regional, urban or suburban boundaries.

Notwithstanding these caveats, the Nordic Region's economic growth is increasingly taking place in the capital regions or in the largest agglomerations. It remains unclear how this will affect the future structure of regional development, but it may be that many Nordic regions simply cannot keep pace with the larger urban regions in economic development terms. Moreover, it is often the case that some areas close to the capital regions continue to suffer from disparities in terms of comparative GDP per capita levels. It is clear then that scope remains for developing a regional policy that ensures a more balanced approach to regional development where resources and opportunities are more evenly distributed. The Nordic countries, with their history of cohesive regional development, have coped rather better than most with the 2008–09 economic crisis, but it will be important to ensure that this development can continue in the light of the evidence which is unfolding in both Norway and Finland – and to some extent in parts of Sweden also.

Another approach on economic development: Disposable household income

Gross disposable household income (GDHI) is the amount of money that all the individuals in the

Denmark stands out as being a very homogenous country in terms of income distribution

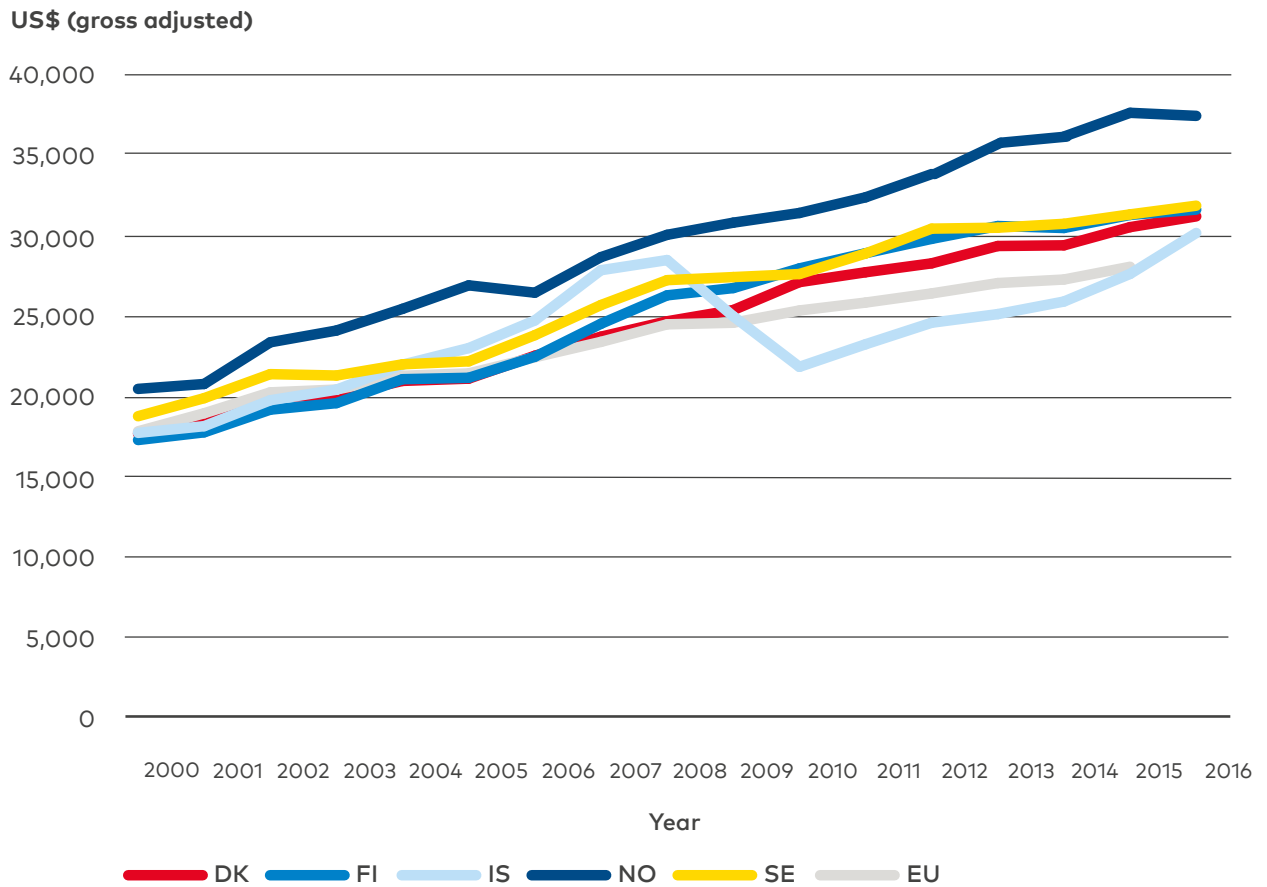
household sector have available for spending or saving after they have paid direct and indirect taxes and received any direct benefits (OECD, 2017a). GDHI is a concept that is seen to reflect the 'material welfare' of the household sector.

For the first time in this report we have used municipal data on disposable household income, together with regional and national data on PPP to create a municipal measure of PPP adjusted disposable household income. This gives us the opportunity to compare and discuss the levels of household income in a harmonised way across the Nordic municipalities. Time series for the Nordic countries at national level (like those in figure 8.6) have been available for a long time and we know that the figures for Norway have been much higher than those for Sweden, Finland, Denmark and Iceland. Iceland was on the way to catching Norway just before 2009, but has since then, following the global financial and economic crisis and its own banking crisis, dropped back far below the levels reported by Sweden, Denmark and Finland. Since 2010 Iceland has been improving in GDHI and in 2015–2016 this was further accentuated by rapid growth in the tourism sector, as well as the general recovery of the economy.

Disposable household income in PPP: the method and the data

In brief, the method adjusts national (municipal) data on disposable household income for differences in purchasing power. What we have done is to use information about how PPP is constructed to find out the appropriate weights for each country. The weight can be found by taking as a point of departure the national (or regional if available) figures for both GDP and GDP in PPP for each country. This information has then been used together with municipal data obtained from each country to provide national accounts about disposable household income.

Figure 8.6 Disposable household income in US\$ (gross adjusted), 2000–2016.



Data source: OECD data – national accounts at a glance, & (for IS) NSI. Note: IS, 2015 & 2016: estimates based on NSI data.

The map in figure 8.7 shows disposable household income in PPS in 2014 at the municipal level. The purchasing power standard or purchasing power parity, abbreviated as PPP, is an artificial currency unit. Theoretically, one PPP can buy the same amount of goods and services in each country. The result of the mapping does not correlate directly with regional product – although there are some similar patterns. For instance, some regions in central Norway display rather low levels of GRP although almost all municipalities display high values for disposable household income. Similarly, the northern regions of Finland show higher values of GRP while displaying low levels of household income for all its municipalities. This is true even though Norway has been adjusted more heavily for PPP.

It is striking how lower levels persist in the inland areas of northern and central Sweden (except

Kiruna and Gällivare), in the inner peripheries of Kalmar county and in Värmland. In Norway, municipalities in Hedmark stand out while the rest of Norway shows high values. It is also striking how many of the Norwegian municipalities are found in the highest category populated only by the larger city regions from the other Nordic countries. Denmark stands out as being a very homogenous country in terms of income distribution – with only the island of Bornholm, the area constituting the *Storebælt* and suburban municipalities having lower levels. Finland has islands of high income municipalities around the larger cities in the south, and some medium level municipalities on the west coast – but beyond that the country is in the lower intervals. Åland stands out as it has higher values and a very homogenous distribution. Finally, Iceland displays what was already known from the national data –

but it nevertheless remains striking that even the values for the urban municipalities are low compared to their Nordic counterparts.

EU regional Social Progress Index

To provide some balance to the measures presented above – focusing primarily on the economic dimension of development and growth – in this chapter we have also included a measure of social development. This is the EU Regional Social Progress Index which is developed to show the situation in countries and regions based on indicators which intentionally exclude e.g. GDP. This index is a complement to other indexes which are being developed currently to reflect similar dimensions of social situations or development, e.g. the Swedish BRP+ index of quality of life (developed by the Swedish Agency for Economic and Regional Growth) (Reglab & Tillväxtverket, 2016), or the OECD better life index (OECD, 2017b). The index builds on the global Social Progress Index developed by the Social Progress Imperative, a non-profit, non-governmental organisation based in Washington, DC (European Commission & Social Progress Imperative, 2016). The regional EU-SPI aims to provide consistent, comparable and actionable measures in relation to social and environmental issues for the regions in the 28 EU Member States.

The EU Regional Social Progress Index is an aggregate index of 50 social and environmental indicators capturing three dimensions of social progress and its underlying components. Social progress is defined in this index as the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives and create the conditions for all individuals to reach their full potential. The definition alludes to three broad elements of social progress, referred to as dimensions: Basic Human Needs, Foundations of Wellbeing, and Opportunity.

The EU Regional Social Progress Index has been designed to complement GDP in such a way that enables its use as a robust, comprehensive and practical measure of inclusive growth. This does not mean that the Index is not related to GDP. Comparing SPI to GDP per head, a measure of economic activity, shows a strong and positive link between the two, but many regions lie further from the main/

At the regional scale the Nordic regions are among the top performers and only really challenged by some Dutch, UK, Austrian and German regions

linear curve showing that at every level of economic performance there are opportunities for more social progress but also the risk of less.

Unfortunately, the index is thus far only available for the Nordic EU countries, i.e. for Denmark, Finland and Sweden. Studying the index first from a European perspective (figure 8.8) it is striking, although not surprising, that all the Nordic regions perform well. High scores are observed in all categories explained above, and for some dimensions the Nordic regions are the top regions throughout Europe.

At the regional scale the Nordic regions are among the top performers and only really challenged by some Dutch, UK, Austrian and German regions. The very top regions are found in Finland, northern and central Sweden, and in northern Denmark. Övre Norrland in Sweden is the top region in Europe, closely followed by the Danish capital region Hovedstaden, Helsinki-Uusimaa in Finland, Midtjylland in Denmark and Åland.

Concluding remarks

Although Iceland, Finland and Denmark were significantly impacted by the global financial crisis, the Nordic Region as whole have performed well in relation to the EU over the last decade. In recent years, perhaps the most striking development has taken place in Norway, which has seen an economic decline on the back of stagnation in the oil market. The only exception to this concerning Norway is disposable household income, for which Norway still outperforms the other Nordic countries. Sweden has seen continued general growth in GDP in recent years, however during the period 2009–2015 around half of the Swedish regions saw a negative GRP development, signalling an uneven spatial distribution of economic development. Finland, Sweden and Denmark have average income levels very

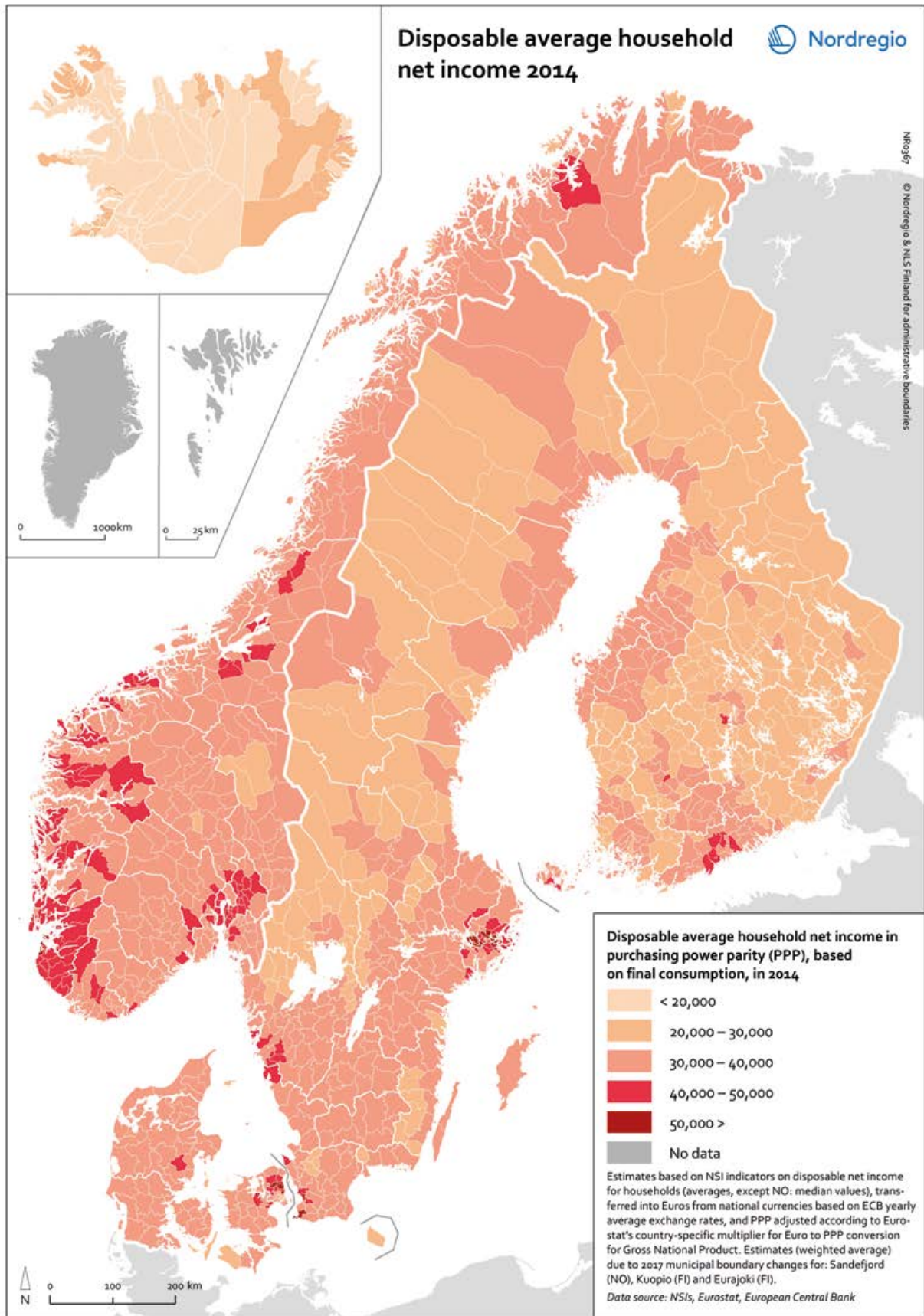


Figure 8.7 Disposable average household net income in purchasing power parity (PPP), based on final consumption, in 2014.

close to each other at the national level, however in the case of Finland and Sweden many municipalities, typically those located inland, being rather sparsely populated, or with an unfavourable location in terms of infrastructure, are clearly falling behind the metropolitan areas. Denmark's municipalities, on the other hand, enjoy a consistently high level of income distribution. Denmark has also recovered particularly strongly after the crisis, displaying a rather even income level distribution combined with a positive GRP development. As such, it

has taken a distinctly different path compared to that of Finland, where several regions are struggling with low GRP. Iceland has recently displayed very strong GDP growth, however the country is still, almost a decade after the onset of the global crisis, struggling with rather low average income levels. Looking beyond the standard economic indicators to the European Social Progress index, the northern parts of Denmark, Finland and Sweden all perform at the top-European level.

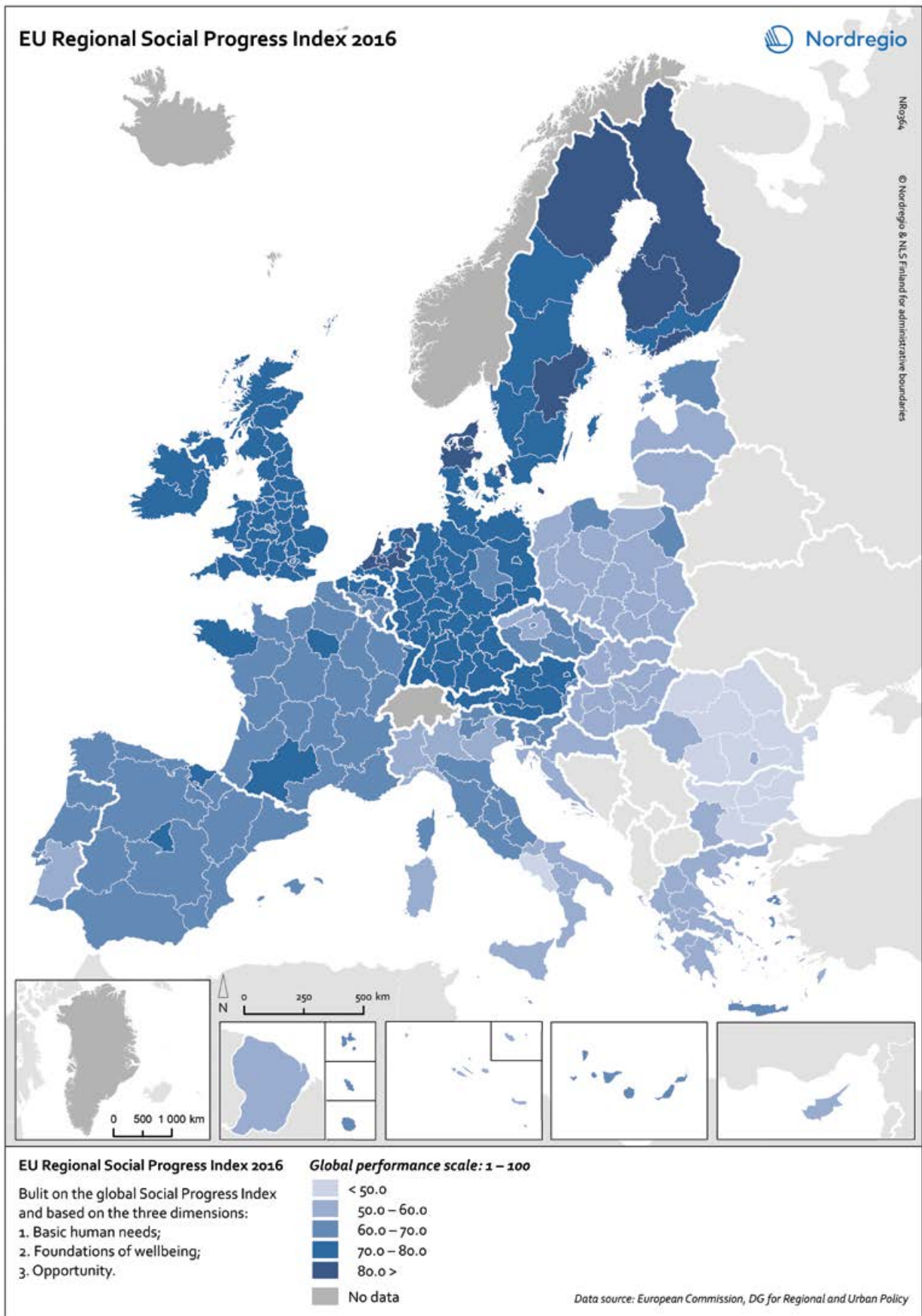


Figure 8.8 European Social Progress index, 2016.

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Chapter 9

THE NORDICS

Europe's hotbed of innovation

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Maps and data: Linus Rispling and Eeva Turunen

With a long tradition of supporting innovation *behind* them, the Nordic countries have always been pace-setters when it comes to innovation-based development, topping the rankings of the most innovative economies in the European Union (EU). According to the Regional Innovation Scoreboard (European Commission, 2017a), Stockholm is the most innovative region in the EU, followed by the capital region of Denmark – Hovedstaden. With the relatively early adoption of the green growth agenda, the Nordic countries have become frontrunners in green economy transformation, having obtained a significant competitive advantage in green solutions.

The objective of this chapter is (1) to provide an overview of the innovation performance of the Nordic countries in a European context and, (2) to review both the status and ongoing changes in Nordic performance on eco-innovation.

Nordic countries are top innovation performers

This section provides a comparative assessment of the innovation performance of the Nordic countries in a European context. Innovation performance is measured using the Regional Innovation Scoreboard (RIS), which summarises performance across 18 indicators,¹ grouped into four main types namely *framework conditions*, *investments*, *inno-*

In 2017, Stockholm was the most innovative region in the EU, followed by the capital region of Denmark – Hovedstaden

vation activities and impacts (European Commission, 2017a). Regions are classified into four main innovation performance groups (i.e. leader, strong, moderate and modest performers) with three sub-groups within each performance group (i.e. a top third (+, most innovative); a middle third, and a bottom third (-, least innovative)) to allow for more diversity at the regional level. Figure 9.1 shows the current position of the Nordic regions in relation to their relative performance on the RIS index as compared to that of other European regions.

The Nordic countries (Iceland and Norway excepted) together with Switzerland, the Netherlands, the United Kingdom and Germany top the RIS ranking, demonstrating a high level of innovation performance.

At the NUTS 2 level, all Nordic countries² are represented by regions of two types i.e. innovation leader and strong innovator. As innovation leaders, Nordic regions perform well on all indicators, dis-

¹ For more detailed information on indicators please see European Commission 2017b, p .6–12.

² Iceland is represented by one region only, as Iceland's NUTS 2 level equals national level.

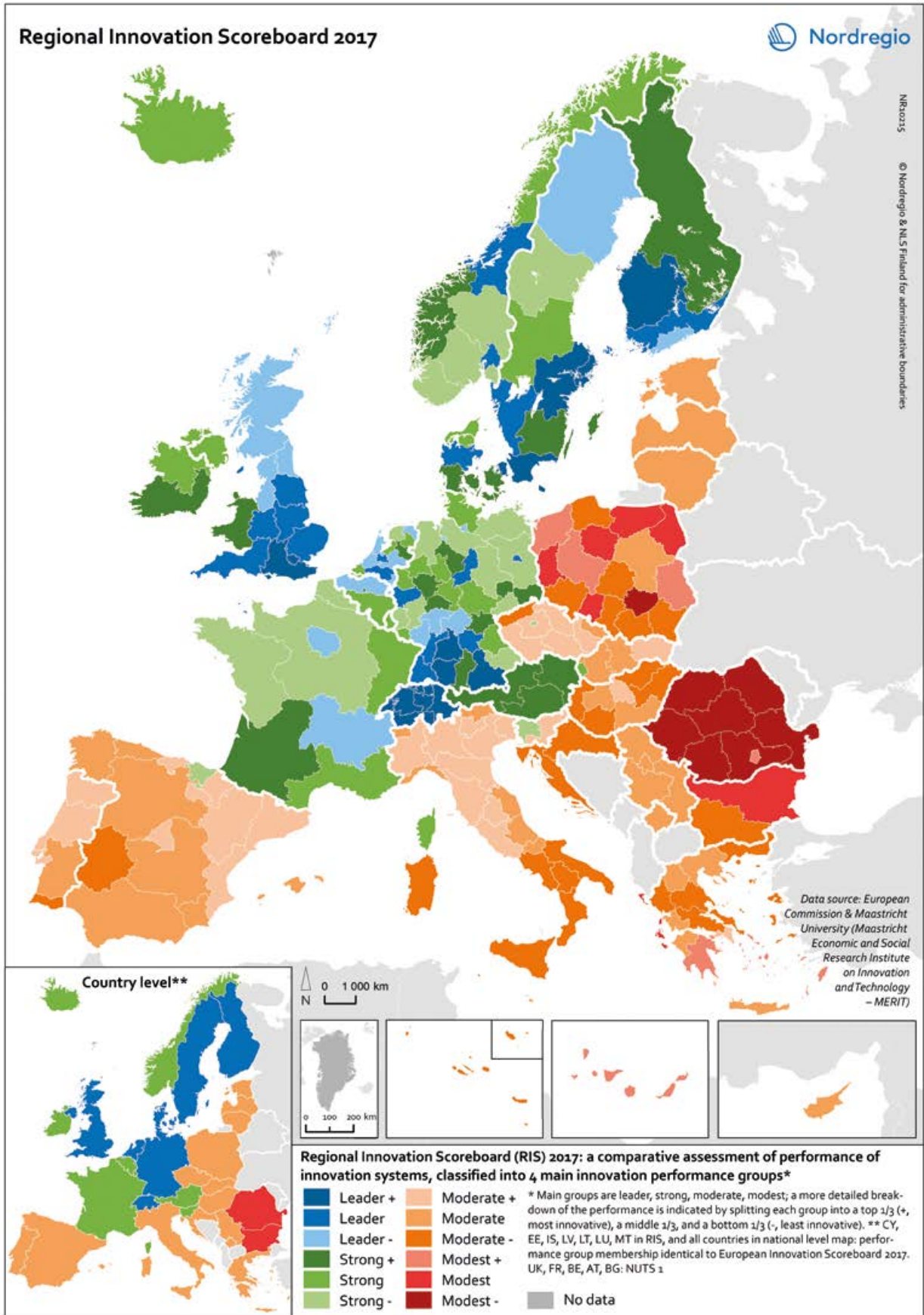
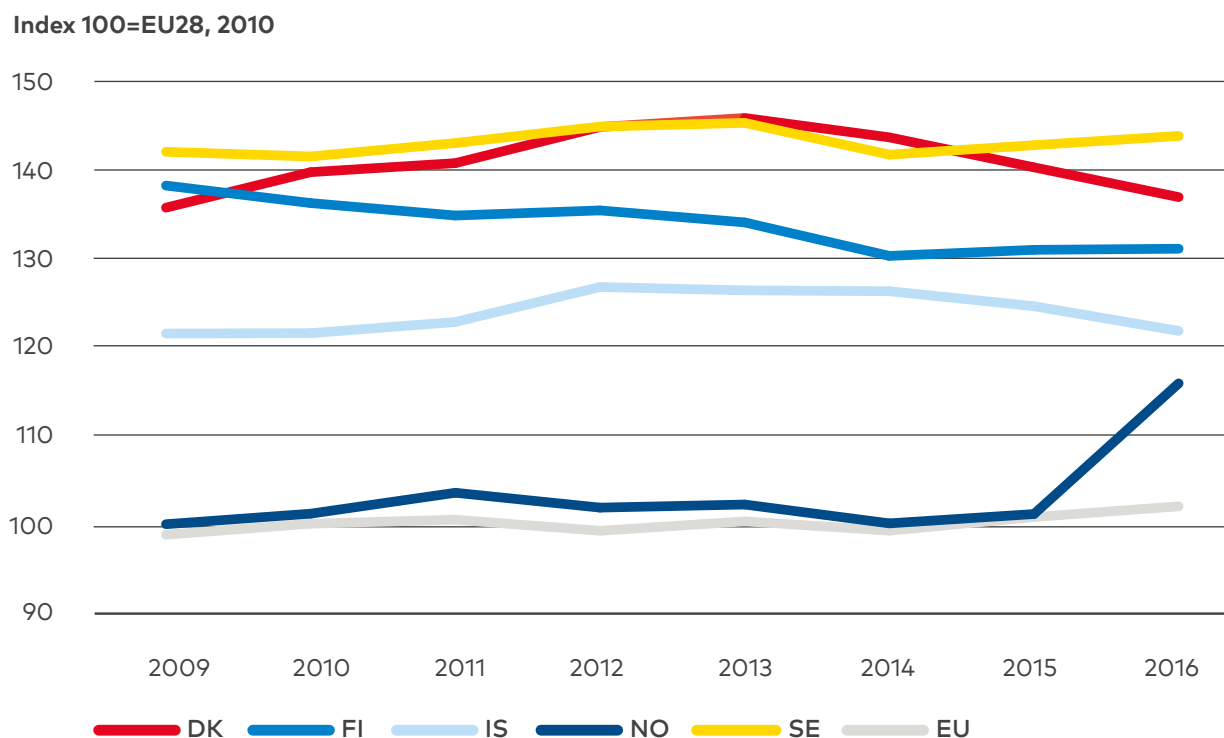


Figure 9.1 Regional Innovation Scoreboard (RIS) 2017.

Figure 9.2 Nordic relative innovation performance as compared to EU, 2010–2016. Index 100=EU28, 2010.



Data source: European Innovation Scoreboard 2017 Database.

playing a particularly high level of performance in the framework conditions group (e.g. population having completed tertiary education and lifelong learning), innovation activities (e.g. public-private co-publications) and investment (e.g. R&D expenditures in the business sector). As of 2017, Stockholm, Östra Mellansverige and Sydsverige (Sweden), Hovedstaden (Denmark) and Länsi-Suomi (Finland) are rated "innovation leader +", the most innovative regions in the Nordics. Other Nordic regions are generally strong innovators reporting an innovation performance either well above or close to that of the EU28 average. The exceptions here include some regions in Norway which currently display an innovation performance below the EU average but are nevertheless catching up rather quickly with the other Nordic regions. For instance, Sør-Østlandet and Hedmark og Oppland (figure 9.1) scored 98.0 and 93.2, respectively, in 2017, with the EU28 aver-

age being 102.6 (based on an index with the EU28 in 2010 measured as 100). This trend, particularly in respect of Norway, can clearly be seen in the chart (figure 9.2).

Varying R&D expenditure patterns across the Nordic regions

High levels of Research and Development (R&D) expenditure are viewed as a vital enabling factor for innovation which is one of the key policy components of the Europe 2020 Strategy. R&D expenditures are also a key element of the UN Sustainable Development Goals, specifically goal 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". Figure 9.3 illustrates the change in total R&D expenditure³ across the Nordic regions during the period

³Total R&D includes business (i.e. enterprise), higher education and government sectors. The private non-profit sector is excluded from calculations.

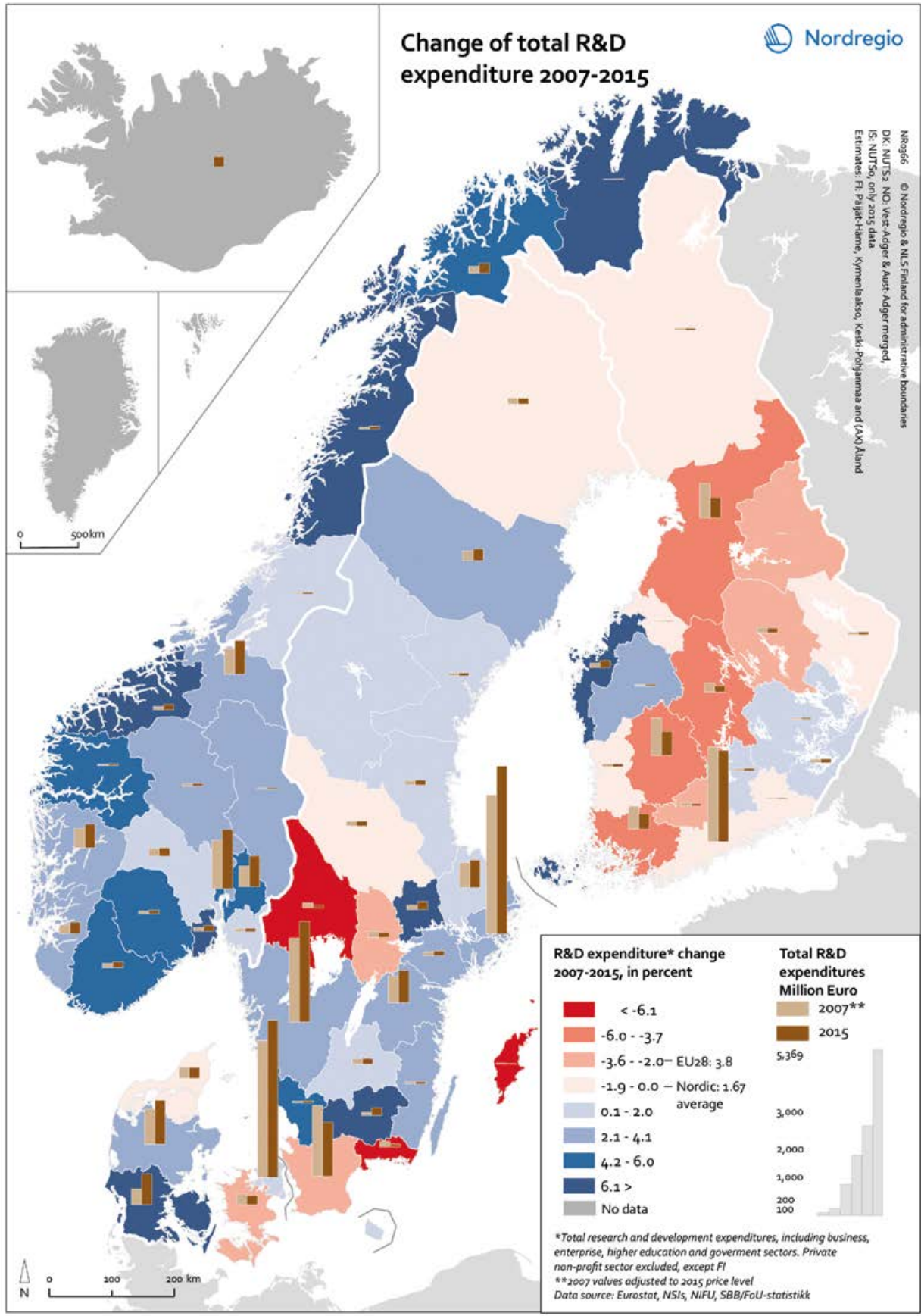


Figure 9.3 Total R&D expenditure changes 2007–2015.

Norway's total R&D expenditure, in contrast to the other Nordic countries, has also been growing during the period 2007–2015 in all regions but one (Buskerud) when measured as a percentage of GDP

2007–2015. The colour of the regions represents a percentage change in total R&D expenditures in the period 2007–2015 while an absolute change is displayed by bar charts (light brown bars for 2007, dark brown for 2015).

At the regional level in Finland, most regions – except for Österbotten, Etelä-Pohjanmaa, Etelä-Savo, Etelä-Karjala and Päijät-Häme – have shown a downward trend in R&D expenditures both in percentage and in real terms. This reflects the challenging fiscal policy and economic conditions experienced in Finland after the global financial crisis in 2008 and the difficulties faced by the ICT sector, where R&D is highly concentrated, as well as the inability of other industries to compensate for the decline of the ICT sector (OECD, 2016). Åland on the other hand has shown a positive trend in R&D expenditures, although having very low values in absolute numbers for both years. Sweden has experienced a dramatic decrease (< -6.1%) in R&D expenditures in Värmland, Blekinge and Gotland which was in large part, if not entirely, caused by the relocation of important R&D facilities/resources (e.g. *Ericsson* and *Stora Enso* in Värmland), however in all cases with negative changes from relatively low starting values in 2007. Similarly, some major closures (e.g. *AstraZeneca*) and redundancy notifications (e.g. *Ericsson* and *Sony*) led to substantial cuts in R&D spending in Skåne in 2015, despite the

increasing number of start-ups. For Iceland, available data for the 2013–2016 period indicates a steady and stable increase in R&D expenditure during these years, which for the business sector can largely be attributed to a gradual increase in the R&D activities of a few major enterprises. All Norwegian regions have seen an increase in R&D expenditures during the 2007–2015 period. Furthermore, Norway's total R&D expenditure, in contrast to the other Nordic countries, has also been growing during the period 2007–2015 in all regions but one (Buskerud) when measured as a percentage of GDP (Turunen, 2017). According to Statistics Finland (2017), R&D expenditure as a part of GDP share has decreased continuously since 2009 from 3.8% to an estimated 2.7% in 2017. Undoubtedly, significant cuts in public sector research funding led to this decline from the top rank in of international comparisons. In 2015, the Finnish share of public sector spending in respect of the GDP was 0.96% and only topped by Denmark (1.02%) and Iceland (1%). 2016 saw a drop in the R&D share to 0.87% (Statistics Finland, 2016). In the past two years, there has been a noticeable increase in the use of SkatteFUNN tax schemes⁴ as a source of R&D funding in Norway, contributing significantly to the increase there in total R&D expenditures.

Employment in knowledge-intensive sectors well above the EU28 average

Knowledge-intensive sectors play an essential role in facilitating innovation and economic growth across various sectors as they contribute to the "renewal and growth of other businesses by creating fertile ground for innovations and the diffusion of novel practices" (Kuusisto & Viljamaa, 2004). Figure 9.4 shows employment in the high-technology manufacturing and knowledge-intensive service sectors as a share of total employment in Europe in 2016.

All capital cities and other larger cities in the Nordic countries remain strong economic centres

³Total R&D includes business (i.e. enterprise), higher education and government sectors. The private non-profit sector is excluded from calculations.

⁴A government programme designed to stimulate research and development (R&D) in Norwegian trade and industry. https://www.skattefunn.no/prognett-skattefunn/About_SkatteFUNN/1247149010684?lang=en

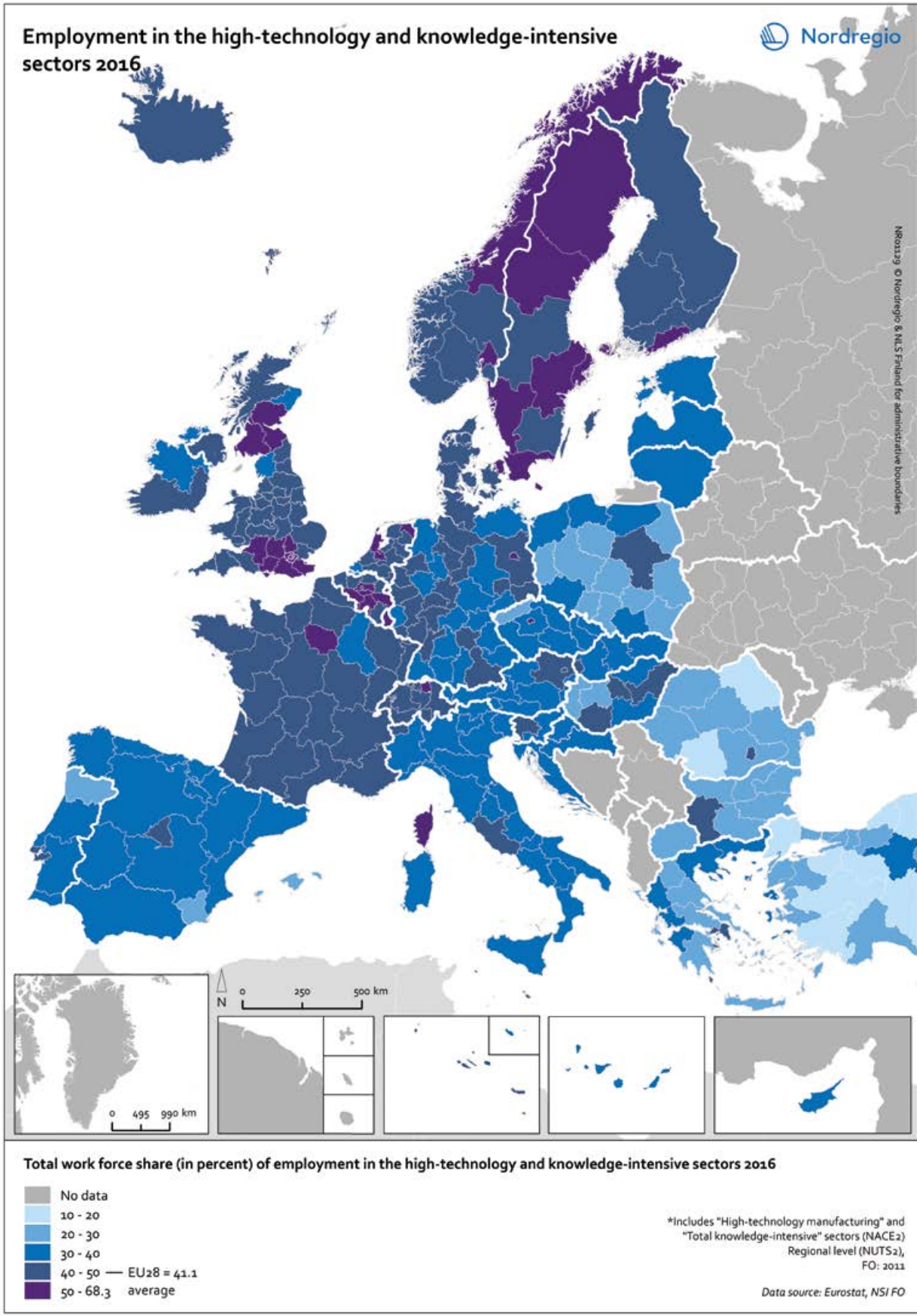


Figure 9.4 Employment in high-technology and knowledge-intensive sectors 2016.

where knowledge-intensive activities are highly concentrated. Stockholm has the highest share of employment in technology and knowledge-intensive sectors (62.1%) compared to other Nordic regions. This can, in part, be attributed to the high concentration of knowledge-intensive services particularly in finance, insurance and real estate. There are, however, some examples of more peripheral regions with high (above the EU28 average of 41.1%) concentrations of knowledge-intensive jobs such as Övre Norrland (51%) and Mellersta Norrland (52.1%) (Sweden); Nord-Norge (56.4%) and Trøndelag (52.3%) (Norway). The Regional economies of Övre Norrland and Mellersta Norrland are dominated by mining and forestry which make up an important domain of specialisation – however, significant effort has recently been placed on diversifying their economies and promoting knowledge-intensive industries as well as into expanding mining-related activities into knowledge-intensive services i.e. technical and environmental consulting activities (Moritz et al., 2017).

To put the Nordic countries in context, figure 9.4 shows Europe's regional disparities in the high-technology and knowledge-intensive sectors as a proportion of total employment. Apart from the Nordic

countries, high levels of employment in the knowledge-intensive sectors are usually observed in European capital regions or regions close to capitals or other large cities. Examples here include Zürich (Switzerland) and Berlin (Germany) where the share of employment in technology and knowledge-intensive sectors accounts for 54.6% and 54.5% respectively. Other European regions with high shares of employment in the technology and knowledge-intensive sectors include several regions in Southern England and South-Eastern Scotland (the UK); several regions around Liège (Belgium); Groningen, Noord-Holland and Utrecht (the Netherlands); Île-de-France and Corse (France); Luxembourg; Prague (Czech Republic) and Vienna (Austria).

Stable eco-innovation landscape across the Nordic countries

Eco-innovation is currently at the core of EU policies as it is believed to be a key driver in the transition to a green economy, growth generation and new job creation in the years to come (European Commission, 2011). Broadly defined, eco-innovation comprises "innovation in pollution control (new, better or cheaper abatement technology), green products, cleaner process technologies, green energy technology and transport technologies and waste-reduction and handling techniques" (Kemp & Pontoglio, 2011). In this green growth area, the Nordic countries have established themselves as global frontrunners. The global market for green solutions is however rapidly expanding due to the increasing number of European countries adopting a green growth agenda. Figure 9.5 provides a comparative overview of the (overall) eco-innovation performance of the Nordic countries on the Eco-Innovation Index in 2010 (upper map) and 2016 (bottom map). The Eco-Innovation Scoreboard (Eco-IS) and the Eco-Innovation Index (EII) promote a holistic view of economic, environmental and social performance and complement other measurement approaches in terms of assessing the innovativeness of the EU countries.⁵ They summarise performance on 16 indicators grouped into five dimensions: eco-innovation

How is eco-innovation performance measured?

A. Eco-Innovation Observatory does not provide an elaborated definition of Eco-Industries; they are broadly defined as a basket of economic activities relevant for this group of industries;

B. Eco-Industries also differ between the various indicators in the EI-Index, because the availability of data currently does not allow us to derive a fully-consistent set of indicators.

⁵The Faroe Islands, Greenland, Iceland and Norway are not included in the Eco-Innovation Scoreboard, limiting somewhat our scope of analysis

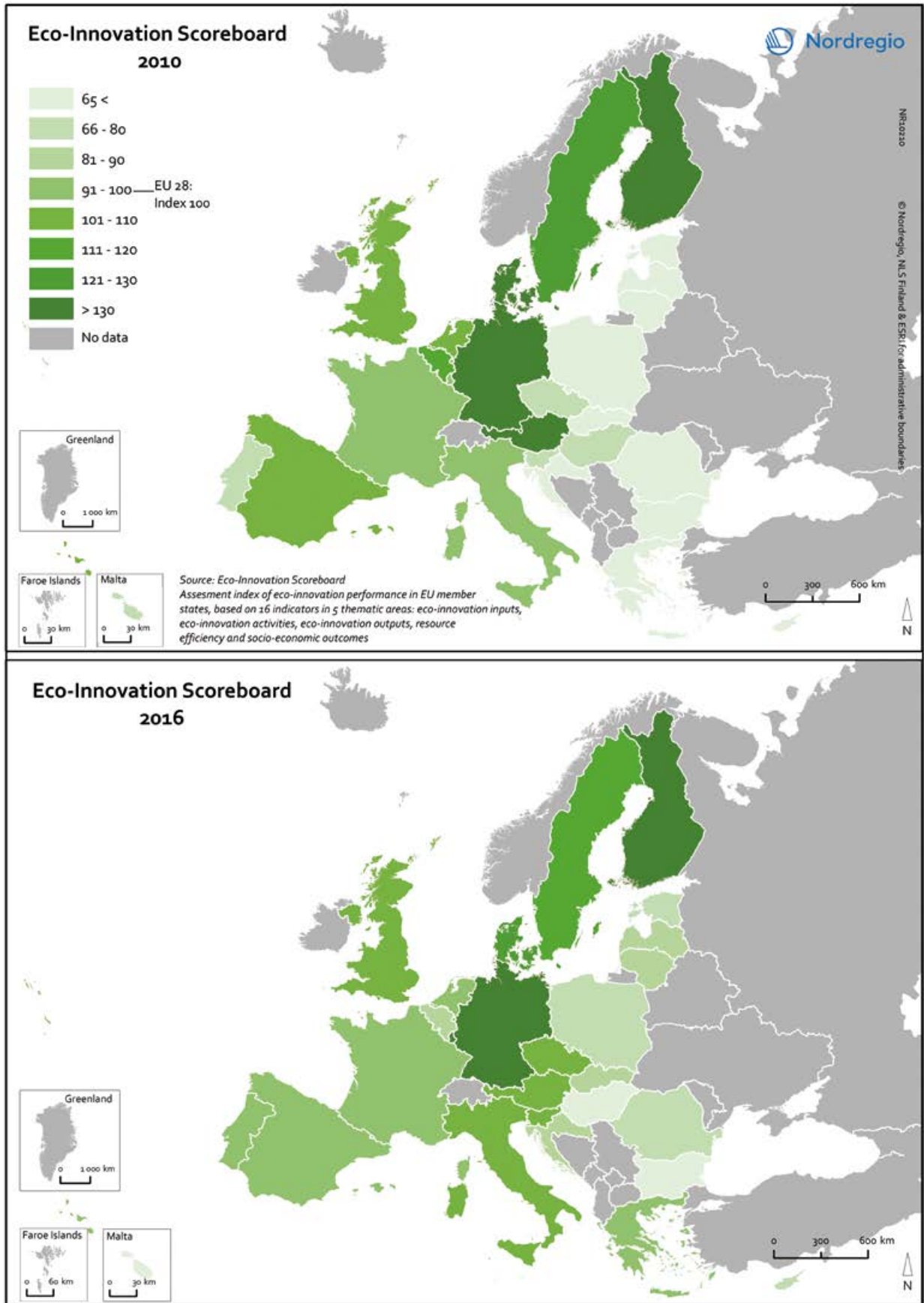


Figure 9.5 Eco-Innovation Scoreboard 2010 and 2016.

The eco-innovation landscape has remained stable across the Nordic countries during the period 2010–2016, with no significant change in performance. Finland, Denmark and Sweden remain among the top-performing countries

inputs, eco-innovation activities, eco-innovation outputs, resource efficiency and socio-economic outcomes (European Commission, 2017c).

As can be seen from the maps in figure 9.5, the eco-innovation landscape has remained stable across the Nordic countries during the period 2010–2016, with no significant change in performance. Finland, Denmark and Sweden remain among the top-performing countries. In 2016, Finland (137) scored highest in terms of the overall eco-innovation performance of all the Nordic countries, followed by Denmark (126) and Sweden (115). In 2010, Denmark (151) was the best Nordic performer on the eco-innovation index (recording a record high score), closely followed by Finland (146) and Sweden (133).

Other EU countries catching up

The high scores of the three Nordic countries, along with Germany and Austria, can partly be explained by the fact that the Eco-Innovation Scoreboard is measured in relation to EU averages. This means that the high-performance scores of these countries are owed, to some degree, to other countries' rather low performances in 2010, thus bringing down the average score. By 2016, however, other countries had caught up and increased the level of competition with Denmark, Finland, Sweden, Germany and Austria.

Placing the Nordic countries in a European context, we see that other European countries are catching up but with different intensities. Lithuania (86) and Latvia (85) have significantly improved their positioning on the eco-innovation index in 2016

(compared to 2010 with scores of (51) and (46) respectively) as have Slovakia (85), Greece (96) and Portugal (95) compared to their respective scores of 51, 47 and 68, in 2010. In contrast, Austria (104), Belgium (81) and the Netherlands (91) have seen their performance on the index decline as compared to 2010 (recorded as 124, 113 and 117 respectively).

A breakdown into its different components reveals that the highest levels of Nordic country EII performance occur in relation to eco-innovation inputs (e.g. R&D personnel and researchers, the value of green early stage investments), eco-innovation outputs (e.g. eco-innovation related patents or scientific publications) and eco-innovation activities (e.g. enterprises that introduced an innovation with environmental benefits obtained within the enterprise). The exception here is Denmark, where performance on this component was below the EU average. Both Finland and Sweden had low resource efficiency outcomes (e.g. material, water and energy productivity) in 2010 and 2016. This can be explained by the fact that both countries continue to see high levels of material and energy use, caused "by the comparatively high importance of resource-intensive industries such as wood and paper industries" (Giljum et al., 2017). Finally, all three countries score below the EU average on socio-economic outcomes (e.g. exports of products from eco-industries or employment in eco-industries and in the circular economy).

Eco-innovation parks promote green growth

The establishment of eco-industrial parks is one way to promote eco-innovation, resource efficiency and the circular economy. They create new and innovative business opportunities and improve ecosystems (UNIDO, 2016). Due to the construction of industrial clusters or networks, often composed of SMEs and with the aim of reducing pressure on the environment, there is both economic and ecological value-added for regions and the society. Broadly defined, the term eco-innovation park covers both "eco-industrial parks and eco-innovative areas combining residential and industrial activities" (Frone & Frone, 2017). Leeuwen et al. (2003) describe eco-innovation parks as a "delimited territory where, by means of cooperation, firms adjust their activities with respect to one another in order to diminish the total environmental impact without

Kalundborg Symbiosis

Cooperation began in Kalundborg in 1961 when an oil company needed water for its refinery and laid pipes to a nearby lake. A local gypsum production enterprise then connected with the refinery to gain access to its excess gas and soon a power plant and a pharmaceutical company also joined the grid. Over the years, more businesses were linked and in 1989, the term “industrial symbiosis” was first used to describe the collaboration. The main resources being exchanged are water in various forms, energy and waste or by-products. The companies feed each other’s resource needs while lowering costs and resource consumption, thereby strengthening their CSR profile, sparing nature and protecting the groundwater (Johnsen et al., 2015; Mikkola et al., 2016).

affecting the economic vitality of the individual companies”. In other words, innovation parks present an excellent cooperation platform for companies to gain competitive advantage and increase opportunities for innovation and access to new markets.

Figure 9.6 presents an overview of European eco-innovation parks, based on data derived from the large-scale international survey on eco-innova-

tion from 2014, analysing the best practices and success factors of 168 eco-innovation parks in 27 countries.⁶ Unfortunately, no data is available for Norway.

A clear spatial concentration of eco-innovation parks can be observed in the Ruhr area and around Leipzig (Germany), in southern Belgium, south-western and northern Netherlands, western Switzerland,

Eco-industrial park of Rantasalmi

Compared to Kalundborg, a park evolving and transforming over time, Rantasalmi eco-industrial park is an example of an intentionally planned park set up in a new area and around already existing operations (Saiku, 2006). Rantasalmi, the first planned eco-industrial park in Finland, is mainly formed around small mechanical wood processing companies including Rantasalmi Oy, one of the biggest log house manufacturers in Finland (ibid). The economic activities of those companies active in the park include wood processing and drying, carpentry, transport, blade maintenance, real estate and food. According to Saikku (2006) the objectives of the companies engaged in the park are to increase material and energy efficiency and to reduce the amount of waste sent to landfills and released through environmental emissions.

⁶ In addition, the *Resource Park* in Iceland has shown to comply with the criteria set out in the definition of an eco-innovation park (figure 9.6). Furthermore, also the Icelandic science park Skagafjörður and Fisk Seafood might comply with the definition of an eco-innovation park, but further investigations regarding the fulfilment of these criteria are needed (Nordic Council of Ministers, 2017; Hörður G. Kristinsson, personal communication, 28 November 2017).

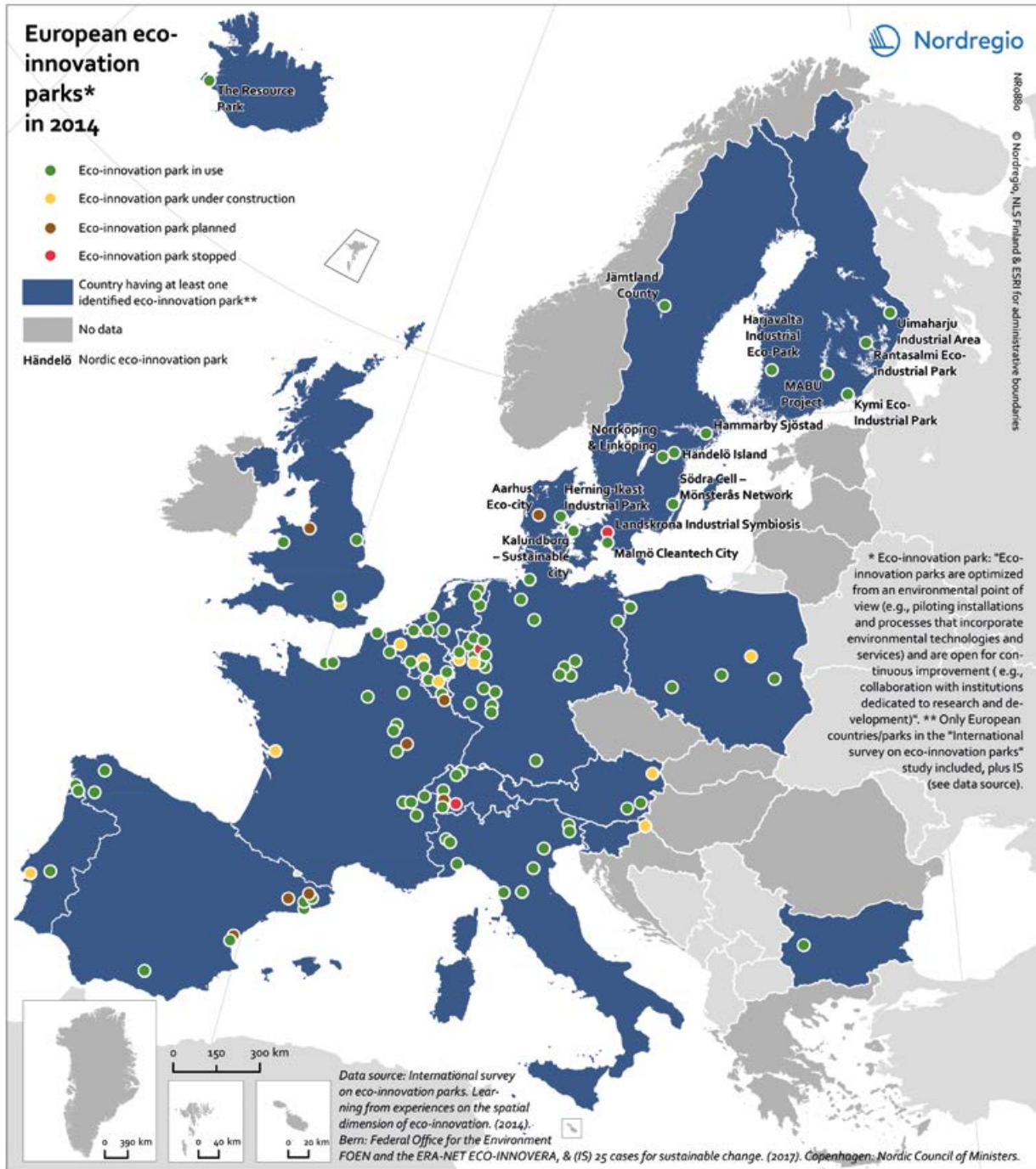


Figure 9.6 European Eco-innovation parks 2014.

along the “arch” stretching from Turin via Pisa to Udine in North-East Italy, around Barcelona as well as around some national borders in the industrialised parts of north-West Europe namely Germany-Netherlands-Belgium-France and Switzerland.

Eco-innovation parks differ in many respects, for instance regarding energy and material flows (e.g. waste heat, steam, power; wood chips, bark, ash, pulping chemicals), number and size of companies involved and jobs created, public sector involvement and finally, in terms of (the drivers behind) their evolution. The latter means that some parks evolved and expanded around a few economic activities and companies (e.g. saw mills) to include further activities (e.g. pulp mills, power plants etc.), while others were intentionally planned and put into operation. The info box included in this chapter discusses in brief the emergence and focus of two different Nordic eco-innovation parks.

Concluding remarks

The Global Innovation Index 2017 lists Sweden, Denmark and Finland in the top ten most innovative countries globally (Cornell University, INSEAD, and WIPO 2017). Indeed, on the Global Cleantech Innovation Index 2014, Finland ranks second best globally while Sweden and Denmark are fourth and fifth respectively (WWF and Global Cleantech Group 2014). Furthermore, as already noted in this chapter and confirmed by the RIS 2017, the Nordic Region has maintained its strong position in international rankings with respect to the promotion of a high level of innovation performance. The majority of Nordic regions are categorised as innovation leaders and strong innovators with Stockholm,

Östra Mellansverige and Sydsverige (Sweden), the capital region of Denmark, Hovedstaden and Länsi-Suomi (Finland) emerging as the most innovative regions in the Nordics, as for 2017.

Over the period 2009–2015, all Nordic countries exhibit a relatively stable pattern as regards R&D expenditure although there are some regional variations. Only the Finnish regions show a significant downturn in this respect, primarily as a result of the slow post-2008 recovery from the financial crisis.

In all Nordic regions, the share of employment in knowledge-intensive sectors is well above the EU28 average. Although, all capital cities (especially Stockholm) and larger cities in the Nordic countries remain strong economic centres where knowledge-intensive activities are highly concentrated, a large share of technology and knowledge-intensive jobs can also be found in more peripheral regions e.g. Norrbotten in Sweden.

Finally, the Nordic countries have maintained their strong positions in the field of green solutions though many of their European competitors are now beginning to catch up. According to the Eco-Innovation Scoreboard, the overall eco-innovation landscape has remained rather stable across the Nordic countries over the period 2010–2016; whereas the positioning of many other European countries (e.g. Lithuania, Latvia, Greece, Portugal) on the index has significantly improved in recent years. The presence of eco-innovation parks facilitates eco-innovation and industrial symbiosis as well as improving ecosystems and enabling new and innovative business opportunities. The spatial dispersion of eco-innovation parks in the Nordic countries indicates that a strong research base and a critical mass are the determining factors in locational terms.

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Chapter 10

FOREIGN DIRECT INVESTMENT

Trends and patterns of FDI inflows

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Maps and data: Julien Grunfelder

Foreign direct investment (FDI) is generally considered by the governments to be a key factor in facilitating competitiveness and economic development through knowledge and productivity spillovers (Haskel et al., 2007). According to the OECD (2008), foreign direct investment "*reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor.*" FDI can take the form of either greenfield investment i.e.

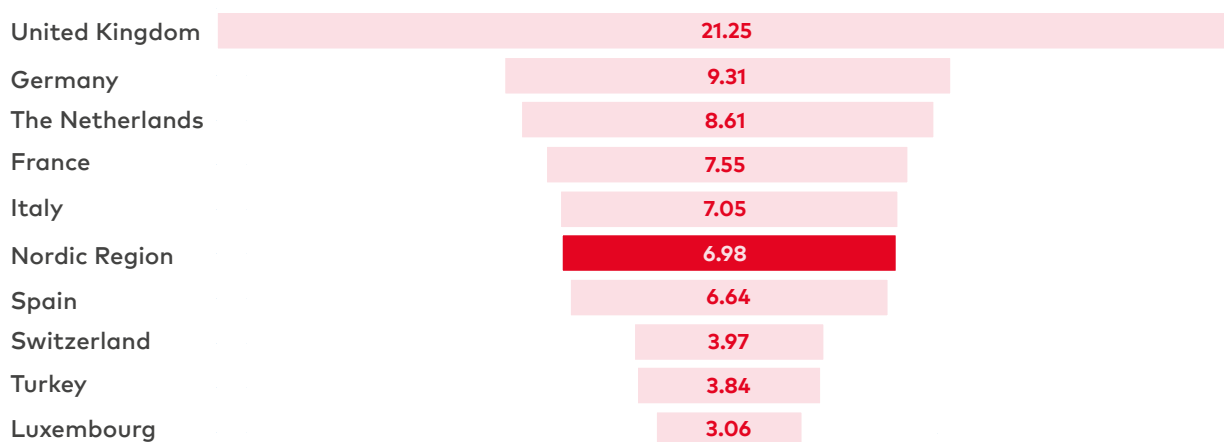
establishment of a new foreign company and new production facilities in the region or *mergers and acquisitions* (M&As) i.e. an investment that occurs when a foreign company acquires more than 10% of the voting stock in a domestic company (OECD, 2008; Calderón et al., 2004; Copenhagen Economics, 2016). The purpose of this chapter is two-fold: (1) to provide a comparative overview of the trends and patterns in respect of capital inflows to the Nordic Region; (2) to review some of the regional variations in FDI performance in the Nordic context.

Background information of FDI data

The available data on FDI includes a vast amount of information. In this chapter, the focus is on deal value of a FDI transaction (expressed in thousand euro, 2015 value) and the number of FDI transaction, i.e. FDI projects, pursued in the Nordic Region. Information on the type of FDI project (greenfield investments or mergers and acquisitions), country of origin, destination region and sectors are selected for this analysis. Note that not all FDI projects include a deal value in the selected database (BvD's Amadeus database), which include investments only. Other databases might include divestment (e.g. World Bank) showing different FDI figures. Some 5,272 of the 9,401 projects have information on value, with values range from three thousand euro to 8.2 billion euro. The value of an FDI deal is however of great relevance when studying FDI inflows. The value is therefore used in most of the data and maps in this chapter, the exception being the origin of FDI inflows to the Nordic Region 2003–2016, where the number of projects has been used to show the intensity of trade between the country of origin and the region of destination. Finally, the vast majority, but not all, FDI inflows (8,194 out of 9,380 projects) could be associated with a NUTS 3 code for their destination region. Note also that only these projects with a NUTS 3 code have been used in this analysis.

Figure 10.1 Europe's top 10 largest receivers of FDI, 2003–2016.

Share of Europe's total FDI inflows (%)



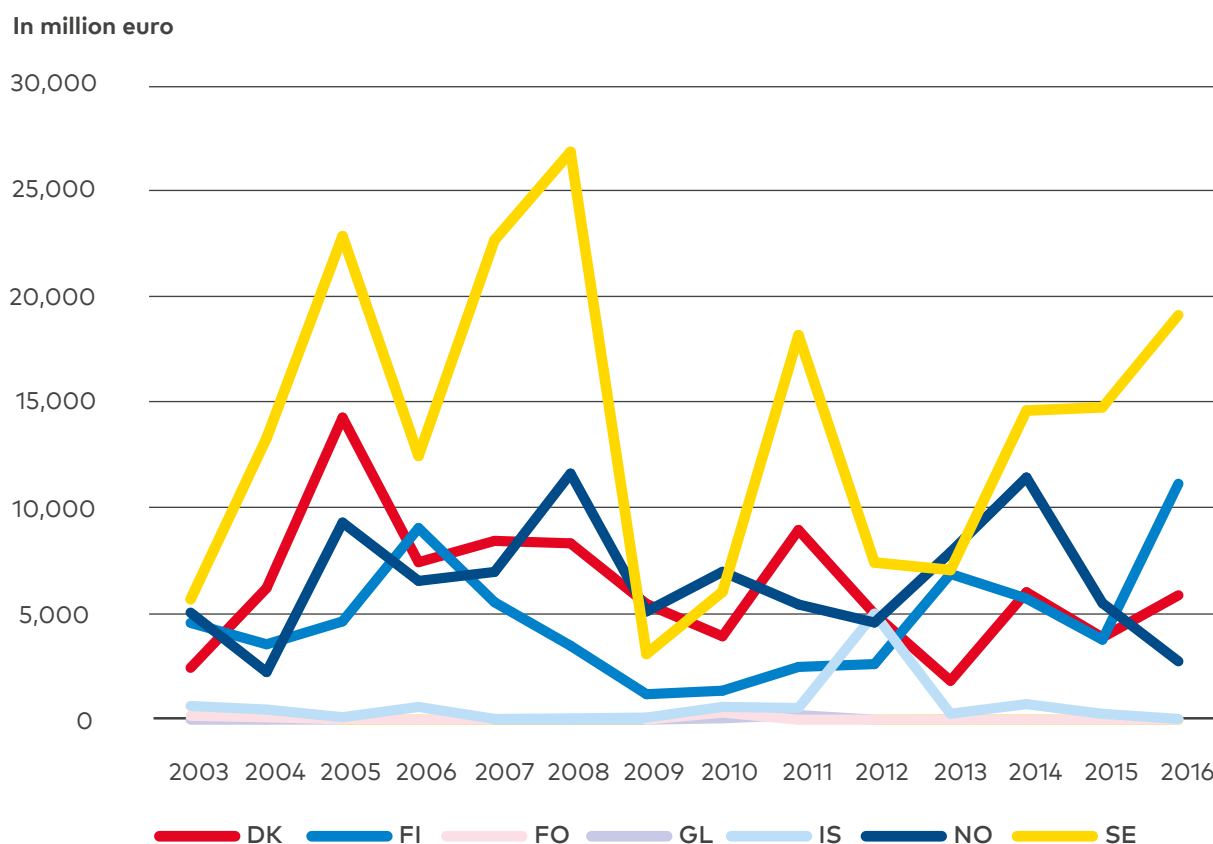
Data source: Nordregio and Copenhagen Economics based on BvD's Amadeus database.

Increasing inflow of FDI to the Nordic Region

Despite the "complexity and the uncertainties stalking [...] politics and institutions" (EY, 2017a), Europe remains an important market for multinational companies, reaching a peak of 5,845 new FDI projects in 2016 (ibid.). Due to their stable governmental structures and highly competitive economies, with Sweden ranking 6th and Finland 10th in the global competitiveness index 2016–2017 (World Economic Forum, 2017), the Nordic Region holds a particular appeal for foreign investors (EY, 2017b). Collectively, the Nordic Region accounts for 6.98% of Europe's FDI inflows (figure 10.1), making it the sixth largest FDI receiver in Europe. During the period 2003–2016, the Region received more than EUR 450 billion in FDI inflows (Grunfelder, 2017). Annual variation is a characteristic of FDI flows with the Nordic Region being no exception here: the figures range between EUR 15 billion to EUR 50 billion euro. The dominant type of FDI inflow to the Nordic Region is M&A which accounted for more than 80% of the total deal value of FDI inflows during the period 2003–2016. This distribution is similar to that of most other west European countries (ibid.).

FDI inflows are not equally spatially distributed and fluctuate significantly within the Nordic Region (figure 10.2). Overall, foreign investors display a notable preference for Sweden as an investment destination, which attracts more than 40% of the total FDI inflows to the Nordic Region. This is, in part, due to the various market-oriented economic reforms that have been put in place over the past twenty years (Fölster & Kreibergs, 2014), improving the business regulatory environment and consequently increasing foreign ownership. Sweden saw FDI peak in 2008 with 261 projects totalling EUR 26,826m in deal value, followed by a rapid decline in 2009 (185 projects totalling EUR 3,107m) as a result of the financial crisis (figure 10.2). As can be seen from the graph in figure 10.2, FDI inflows to Finland have been gradually increasing since 2015. This phenomenon can be explained by at least two factors, first, the ongoing structural change in the industry sector and second, the availability of expert ICT professionals which attracts the attention of foreign investors. As an example, *LG Electronics* (South Korea) recently opened a new product development unit in Turku, "focusing on 5G radio technology solutions and their integrated radio circuits as well as the Internet of Things and smart homes" (Invest

Figure 10.2 Annual FDI inflows to the Nordic Region during the period 2003–2016.



Data source: Nordregio and Copenhagen Economics based on BvD's Amadeus database.

As for 2016, an upward trend continues for the Nordic Region, Norway excepted

in Finland, 2015). It is however interesting to note that although Iceland does not emerge as a top choice for investors (about 2%), there was a rapid rise of FDI in 2012 (7 projects in total with a deal value as high as EUR 4,009m). The acquisition of Reykjavík's deCODE by a major US pharmaceutical giant Amgen (Hirschler, 2012, 10 December) was the most likely reason for this high figure.

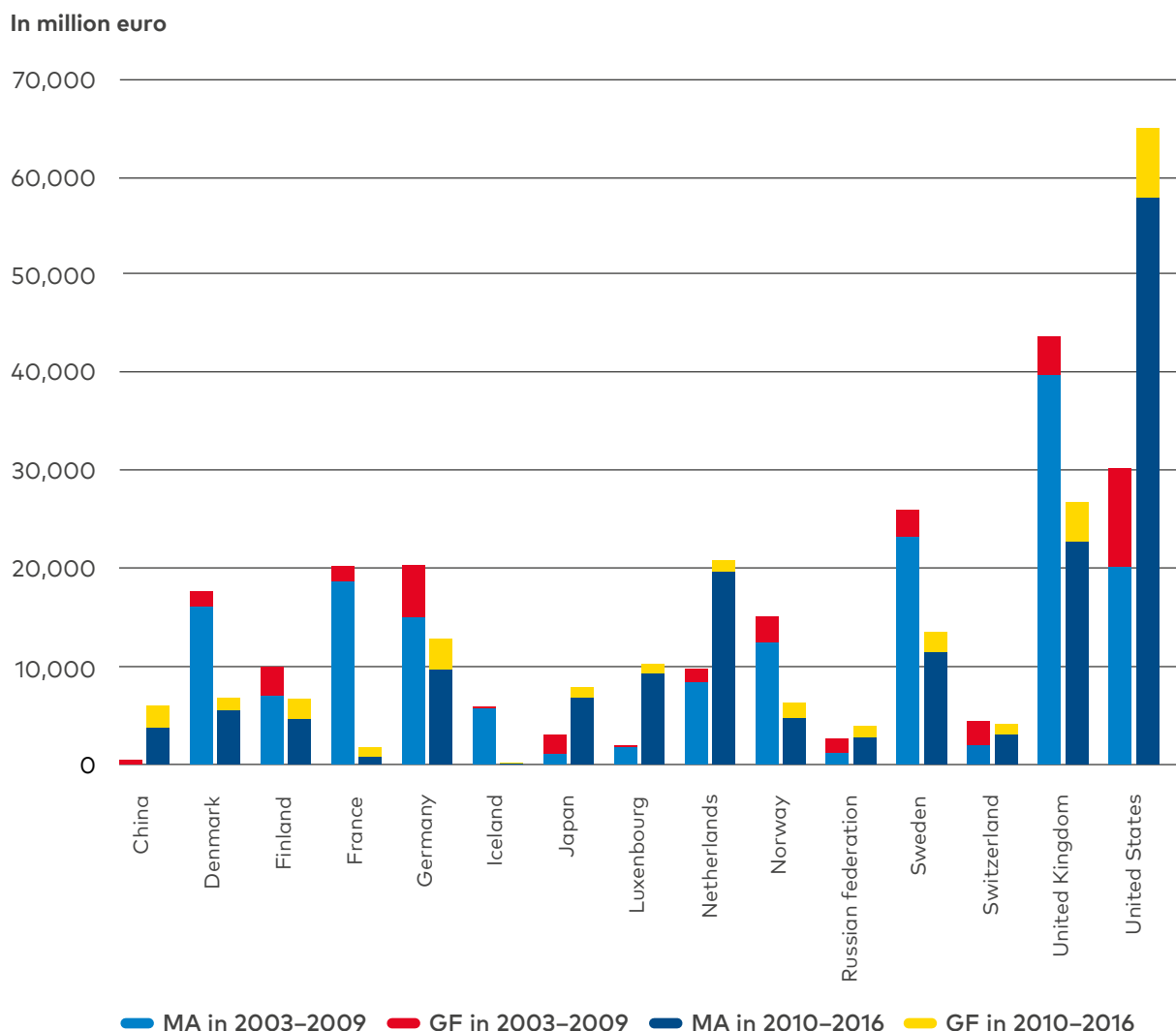
As for 2016, an upward trend continues for the Nordic Region, Norway excepted. The decline in oil prices and growing uncertainty about the industry's future, has prompted a gradual shift in investment activities with new sectors growing in importance in

Norway. In the period 2013–2016 for example, the amount of FDI inflows to transportation and storage, wholesale and retail trade, information and communication (except for 2014), ICT, professional, scientific and technical activities have noticeably increased. In contrast, manufacturing, mining and quarrying as well as finance and insurance suffered a decline in FDI inflows over this period (Grunfelder, 2017).

Gradual increase of extra-European inflows

The largest volumes of FDI inflows to the Nordic Region originate from a small number of countries (figure 10.3). This figure includes the fifteen countries with the highest deal value of FDI inflows to the Nordic Region in the period 2003 to 2016. A

Figure 10.3 FDI inflows to the Nordic Region by country of origin and entry mode (Top 15 countries).



Data source: Nordregio and Copenhagen Economics based on BvD's Amadeus database.

breakdown of the top five countries generating FDI projects in the Nordic Region in 2003–2016 reveals that the US is the largest foreign investor with more than 24% of the total value. The United States is also the largest source country in other European countries. There is however a difference between the Nordic Region and the other European countries when looking at the main trend over time. The value of FDI inflows from the United States to the Nordic Region increased between 2003–2009 and 2010–2016, while it decreased in the large majority of European countries (Grunfelder, 2017). Sweden, the United Kingdom, Norway and Germany round out the top five list of largest foreign investors in the Nordic Region. There is a clear pattern of important volumes emerging from intra-European

FDI to the Nordic Region, given that four out of five top foreign investors are European and account for about two thirds of all FDI inflows to the Nordic Region.

Apart from the United States, the presence of non-European investors is still rather modest in the Nordic Region, although inflows from Japan, China and Russia are gradually increasing. For instance, in recent years, many Chinese companies have grown their market presence in the Nordic Region through not only an increasing number of greenfield projects but also by expanding existing facilities (figure 10.3), passing by a total value of FDI inflows of EUR 480m in the period 2003–2009 to almost EUR 6 billion in the period 2010–2016. The establishment of a new Geely's Innovation Center Europe at Lind-

holmen Science Park in Gothenburg, with plans to employ approximately 200 full-time engineers from Sweden and China, is one such example of expansion (since the acquisition of Volvo Cars by Geely Automobile – the Chinese multinational automotive manufacturing company – in 2010). Similarly, Japanese investments in the Nordic Region are steadily increasing, with their FDI inflows more than doubling between 2003–2009 and 2010–2016, with the largest investments coming to the manufacturing sector in Sweden and Denmark; transportation and storage in Denmark; IT in Finland and mining and quarrying in Norway (Grunfelder, 2017).

High level of FDI activity between the Nordic countries

FDI inflows examined by country of origin (figure 10.4), reveal an interesting pattern in terms of intra-Nordic investment inflows, confirming the assumption that proximity, both in terms of geographical distance, and in terms of rules, regulation and business culture is an important driver of FDI. These elements *“reduce the risk and cost of investing in a particular country and [...] tend to make a country more attractive”* (Copenhagen Economics, 2016).

A breakdown at the regional level reveals that 55 out of the 74 Nordic regions received the largest number of FDI projects from a region located in another Nordic country. The largest share of these intra-Nordic flows originates from Sweden (35 regions in total), particularly in the manufacturing sector as well as the ICT sector in Norway. This is not surprising as Norway is one of Sweden's major trade partners, both in terms of total exports and imports (Business Sweden, 2016). The largest share of FDI projects from Finland are attracted to Sweden's highly competitive international manufacturing industry. Denmark is the main source country of FDI inflows in both Greenland (mostly in the transportation and storage and business services sectors) and the Faroe Islands (mostly manufacturing and finance and insurance activities sectors).

Eighteen Nordic regions have their largest source country in terms of project located outside the Nordic Region, i.e. other European and extra-European countries. FDI inflows from other European countries are the highest in terms of projects in six Nordic regions, most of these regions can be characterised by their relative remoteness and strong industrial

55 out of the 74 Nordic regions received the largest number of FDI projects from a region located in another Nordic country

profile. Finally, two extra-European countries, namely the United States and Canada, are the largest source country in twelve Nordic regions, that are either capital city regions with a strong and diversified service sector or peripheral industrial regions. It is worth noting here that a map highlighting FDI inflows in terms of deal value rather than number of projects would have shown a stronger position for the US in the Nordic Region, since US-based FDI flows tend to be fewer in number but higher in monetary value than Nordic-based ones (Grunfelder, 2017).

High FDI intensity in urban regions

Large capital city regions tend to be the main beneficiaries of FDI inflows and this pattern is also observed in the Nordic Region (figure 10.5). The share of FDI inflows to Nordic capital city regions corresponds to 63% of the total value of FDI inflows to the Nordic Region and 54% of all projects (Grunfelder, 2017). Stockholm region emerges as the clear leader with a total deal value of EUR 110,000m. This can be explained by its already strong competitive position in terms of ICT and the high concentration of regional headquarters within the financial services sector (Stockholm Business region and Øresundsinstittet, 2015). The Danish capital region attracted about half of Stockholm Region's deal value – EUR 53,804m followed by Helsinki (EUR 45,000m), Skåne (EUR 30,000m), and Oslo (EUR 29,100m). The total deal value for Reykjavík is rather modest – at around EUR 2,000m, and is comparable to regions such as Dalarna and Jönköping (Sweden), Sør-Trøndelag (Norway) and Lappi (Finland). All Nordic regions have witnessed an increase in FDI inflows during the period 2003–2016, except for the Suðurland and Norðurland Vestra regions in Iceland.

Large urban regions tend to attract more FDI

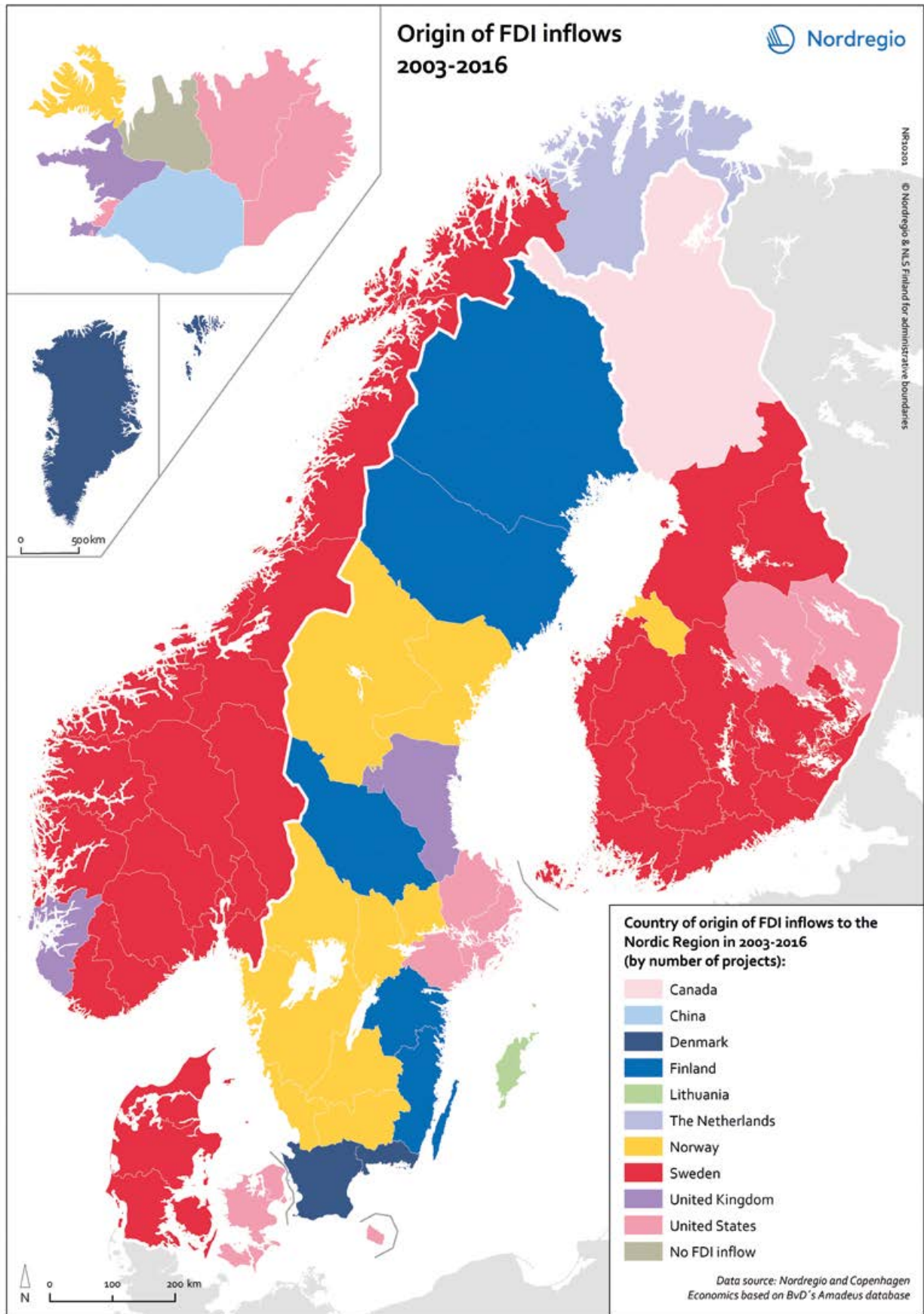


Figure 10.4 Origin of FDI inflows to the Nordic Region 2003–2016.

than peripheral rural regions. Analysis only of the number of projects and their associated deal value does not however allow us to accurately determine the importance of FDI inflows for the regional economy. FDI intensity, an index of the value of FDI inflows divided by the gross regional product, does however aid us here in respect of the importance of FDI inflows within a regional economy. The index helps us to compare the performance of the Nordic regions in attracting FDI inflows by taking the size of the regional economy into account. A high intensity result also reflects the fact that a regional economy is more resilient, thanks to the diversity of investors. Regions that have succeeded in attracting a large volume of FDI relative to their size have a high FDI intensity score. Stockholm Region again scores highest with an index value of 1269 (figure 10.5). Large Nordic urban or capital city regions such as Skåne (896), the Danish capital region Hovedstaden (841), Oslo (838), Uppsala (793) and Helsinki (777) also possess reasonably high scores on the FDI intensity index (Grunfelder, 2017). Accordingly, the lowest index value can be found in more rural and peripheral contexts such as Keski-Pohjanmaa (Finland), Finnmark and Oppland (Norway) and Greenland. Several remote and rural regions with relatively low volumes of FDI inflows do however have quite high FDI intensity index values, i.e. above 250. This is the case in Lappi in Finland, Dalarna and Blekinge in Sweden, Syddanmark and Sjælland in Denmark and Telemark and Aust-Agder in Norway, among others. These regions have in common an important share of FDI inflows in the manufacturing and/or the mining and quarrying sectors; sectors that typically attract international investors.

The importance of greenfield investments in remote regions

Greenfield investments and mergers and acquisitions are fundamentally different forms of FDI, implying that their effect on host economies differs substantially. Consensus does however exist around the notion that the short-term effect should be greater when a foreign company's penetration occurs through greenfield investment. The value of FDI inflows to the Nordic Region in the form of greenfield investment is shown in figure 10.6. The size of the circles is proportional to the value of the greenfield investment while the colour of the circle indicates the status between the peri-

The share of FDI inflows to Nordic capital city regions corresponds to 63% of the total value of FDI inflows to the Nordic Region and 54% of all projects

ods 2003–2009 and 2010–2016: blue indicates an increase in deal value in the second period (>60% of the inflows of 2003–2016 took place in 2010–2016), yellow indicates a stable value in inflows between the two periods (40–60% of the inflows of 2003–2016 took place in 2010–2016), while red indicates a decrease over time between the two periods (<40% of the inflows of 2003–2016 took place in 2010–2016). All administrative regions except for Finnmark, Sogn og Fjordane and Oppland (Norway) and Keski-Pohjanmaa (Finland) attracted FDI inflows in the form of greenfield investment during the period 2003–2016.

Examined by regions with the largest share of greenfield investment during the period 2003–2016, the administrative regions of Helsinki (EUR 9,402m), Stockholm (EUR 7,896m) and Copenhagen (EUR 6,601m) emerge as Nordic leaders in attracting this form of foreign investment. Due to their innovation-based economies and booming start-up scenes, both Västra Götaland and Skåne (Sweden) have also performed exceptionally well in attracting greenfield investment securing deal value totals of EUR 4,809m and EUR 2,175m respectively. Similarly, some peripheral and rural regions in Denmark, Finland and Sweden have also attracted a substantial amount of greenfield investment (above EUR 1,000m in deal value terms) namely Dalarna (EUR 1,815m), Lappi (EUR 1,799m), Midtjylland (EUR 1,532m), Syddanmark (EUR 1,340m), Kymenlaakso (EUR 1,102m) and Norrbotten (EUR 1,010m). The dominance of greenfield capital in these regions is partially explained by their regional industrial structures and easy access to raw materials as well as by the recent transformations in traditional, resource-based industries which has opened a world of new possibilities for foreign investors.

As shown in figure 10.6, the share of greenfield investment in total FDI inflows has varied between zero and 100% in the Nordic regions over the period

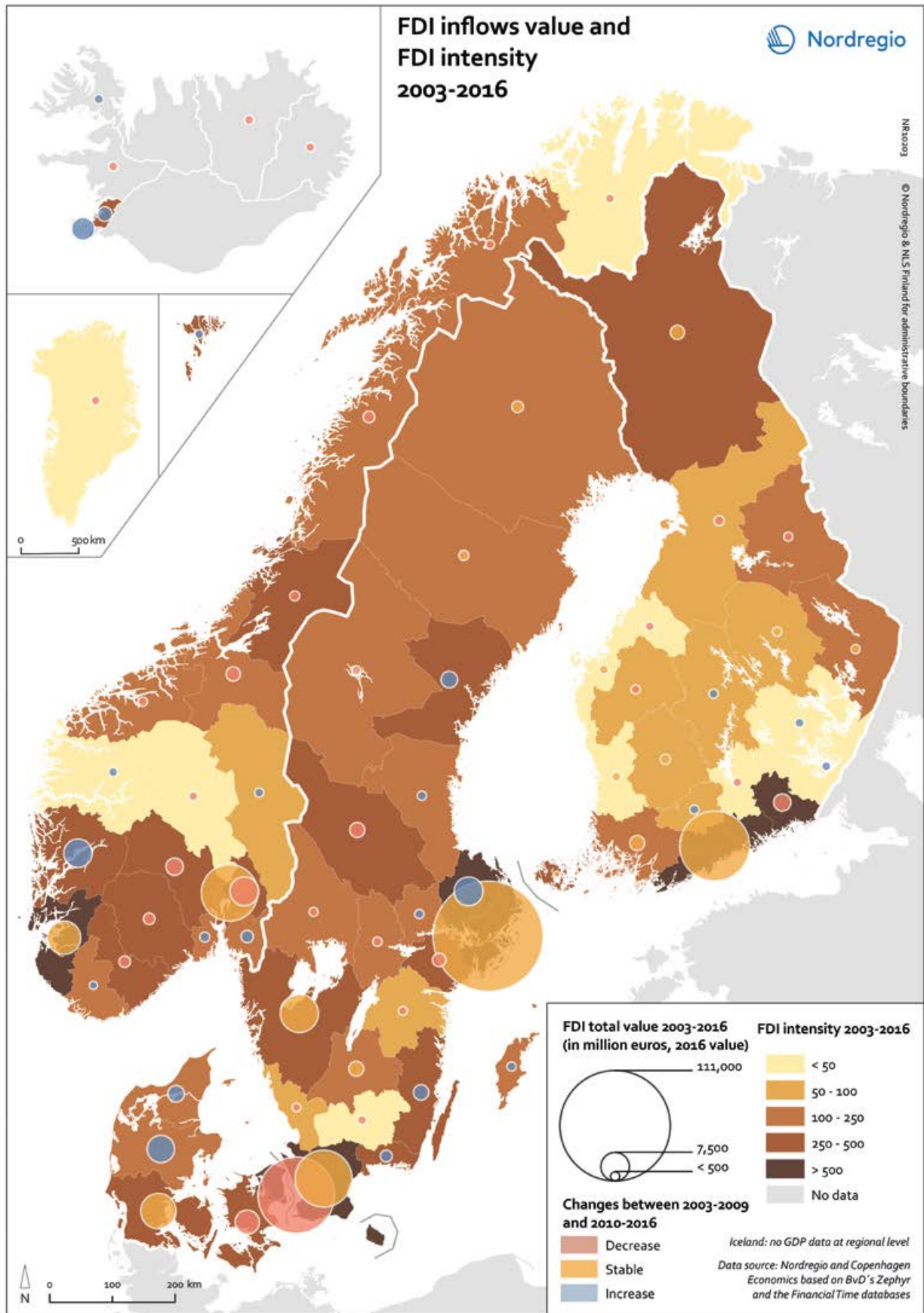


Figure 10.5 FDI inflows value and FDI intensity 2003–2016.

2003–2016 (variation is represented by brown shading). Darker colours represent regions with a high percentage of greenfield investment, whereas the brightest colours represent regions with a low percentage. Regions such as Oppland (Norway), Åland and Vestfirðir (Iceland) did not attract any greenfield investment during the period 2003–2016. In contrast, in Etelä-Karjala (100%), Satakunta (99.6%) and Österbotten (99.2%) the majority of FDI takes place through greenfield investments rather than through M&A activity. In general, the largest share of greenfield investments is concentrated in the Nordic peripheral regions (figure 10.6). In the period 2003–2009 greenfield investments completely dominated the FDI scene (100%) in some regions including Österbotten, Satakunta, Etelä-Savo (Finland), Vesturland and Austurland (Iceland) and Jämtland (Sweden). The picture changed somewhat in the period 2010–2016 (fewer regions with 100%) either due to increased M&A inflow or reduced (or even absent) FDI activity.

Concluding remarks

In the European context, the Nordic Region remains an attractive destination for foreign investment, accounting for 6.98% of Europe's total FDI inflows. A breakdown by country however reveals that only Sweden accounts for a substantial share of EU total FDI inflows (3.01%), rounding out a top ten list of Europe's largest receivers of FDI. The inflow of FDI into Sweden, Denmark and Finland rebounded strongly in 2015 and has been growing steadily since then. After peaking in 2014, FDI inflows to Norway slowed substantially in the context of the oil price downturn and as of 2016 still show a down-

In general, the largest share of greenfield investments is concentrated in the Nordic peripheral regions

ward trend.

There is substantial FDI activity between all Nordic countries with the largest number of FDI projects originating from Sweden. This is not surprising as bilateral factors such as a common language, cultural ties and short distances are important drivers of FDI. Stockholm region emerges as a top performer in terms of the relative importance of FDI within the regional economy, with an index value of 1269, followed by Skåne (896), Copenhagen (841), Oslo (838), Uppsala (793) and Helsinki (777). The presence of non-European investors is still rather modest in the Nordic Region, although inflows from Japan, China and Russia are gradually increasing.

Finally, given the expectation that when a foreign company's penetration occurs through greenfield investment this will create new jobs, increase productive capacity and facilitate technology transfer in the target region it is not surprising that this form of FDI has completely dominated the scene (100%) in many Nordic peripheral regions including Österbotten, Satakunta and Etelä-Savo (Finland), Vesturland and Austurland (Iceland) and Jämtland (Sweden). This picture was amended somewhat during the period 2010–2016 due to the increased inflow of M&A and reduced (or even absent) FDI activity.

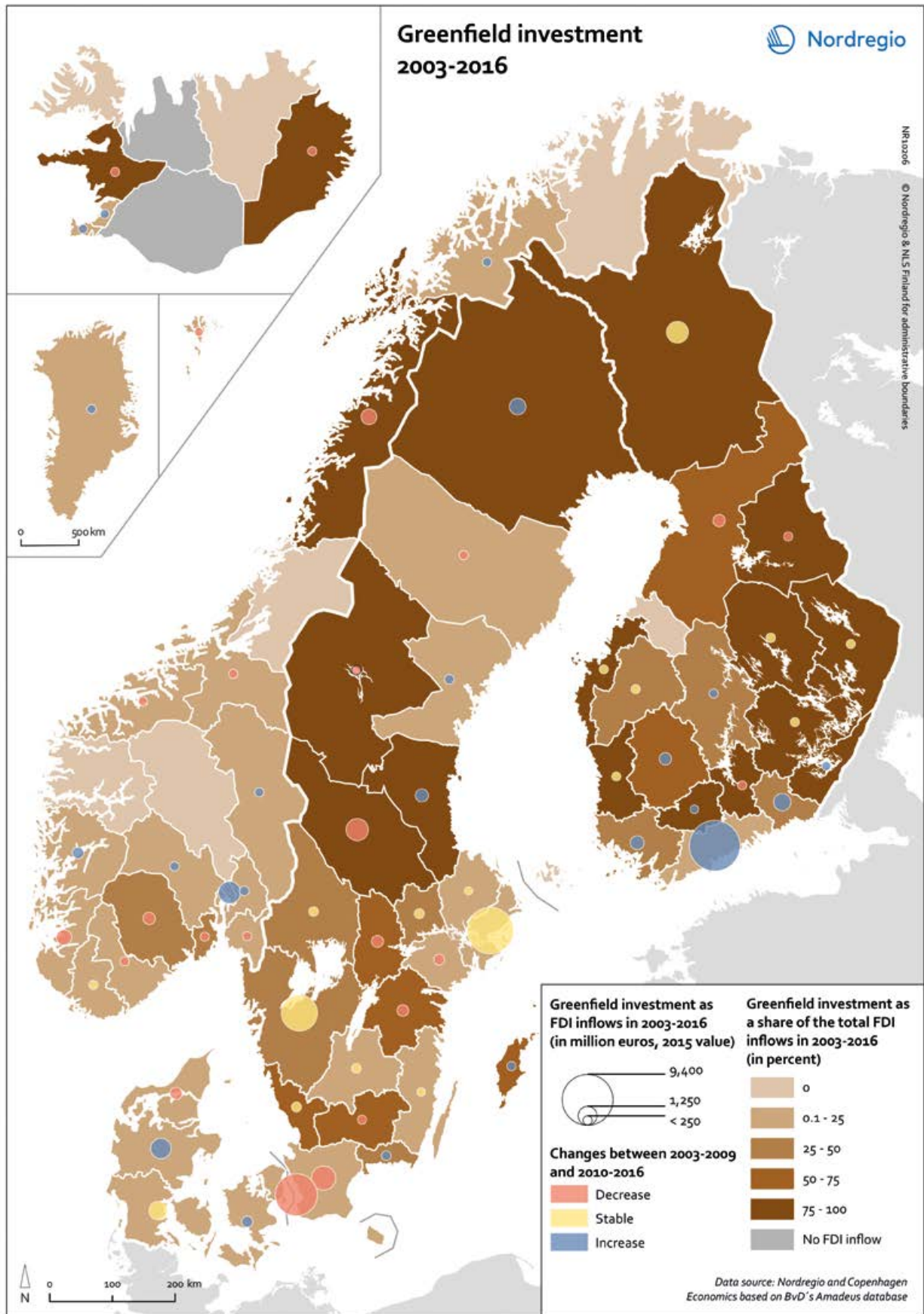
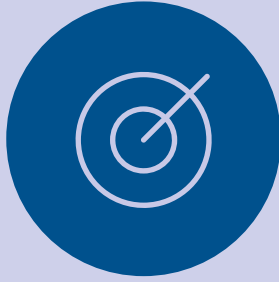


Figure 10.6 Greenfield investment as FDI inflows to the Nordic Region 2003–2016.

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THEME 4

FOCUS CHAPTERS

State of the Nordic Region is published every second year and along with the core chapters on demography, economy, the labour market and education come a series of focus chapters which vary from edition to edition. These chapters are chosen either because the topics reflect a global agenda or to throw light on a particular policy area in the Nordic Region.

In the 2018 edition of State of the Nordic Region, the areas in focus are bioeconomy, digitalisation, health and welfare along with culture and the arts, an essential area for Nordic co-operation. Finally, there is a horizontal focus on integration cutting across many of the chapters.

The new bioeconomy and the whole move from a fossil-based to a biobased economy is an area with vast potential for the entire Nordic Region, although it is more relevant to some regions than to others. Already, the bioeconomy makes up around 10% of the total Nordic economy while the potential within fields such as fisheries, aquaculture, forestry and bioenergy is, clearly, very large in the context of a Nordic geography with vast natural resources.

When it comes to digitalisation, the Nordic countries are in many ways already ahead of the game in respect of broadband coverage.

Indeed, with the industry still in its infancy in the early 1980s, Nordic co-operation helped define the global standard for mobile data transfer. Today, the Nordic Region is one of the most digitized in the world with the most advanced digital public service.

The Nordic form of the welfare state developed around a commitment to high levels of public service based on a strong tax base. Despite this commitment however remote areas experience challenges when it comes to health care and service maintenance for remote and sparsely populated areas. Digital health solutions may provide one solution to growing social inequality in the area of health, as described in the chapter of health and welfare.

Finally, Nordic co-operation is, to a very large extent, based on fact that the five countries as well as Faroe Islands, Greenland and Åland in the Nordic Region display quite similar values and norms. Nevertheless, reviewing cultural consumption and habits it is clear that variations exist between the various parts of the Nordic Region, as shown in the chapter on culture, a topic hopefully to be explored further in future State of the Nordic Region editions.

Chapter 11

THE RAPIDLY DEVELOPING NORDIC BIOECONOMY

Authors: Karen Refsgaard, Jukka Teräs, Michael Kull, Geir Oddsson, Torfi Jóhannesson and Iryna Kristensen
Maps and data: Linus Rispling and Eeva Turunen

The bioeconomy is conceived as an economy based on land and marine-based natural resources including biowaste. It produces vital goods and services: food, drinking water, fresh air and energy as well as a range of ecosystem services including climate regulation. Bioeconomy can also replace many goods and services currently produced from fossil-fuels, including a range of biofuels, bioplastics and biopharmaceuticals. The Nordic Council of Ministers expresses it in the following way: *"The bioeconomy is all-encompassing and comprises those parts of the economy that make responsible use of renewable biological resources from the land and water for the mutual benefit of business, society and nature"* (Nordic Council of Ministers, 2017). In this way, moving from a fossil fuel to a bio-based economy can contribute both to the fight against climate change, but also to new economic activity in and around rural regions.

Transition from a fossil-fuel to a bioeconomy generates significant technical and institutional innovation (Bryden et al., 2017a). Bioresources are mostly located in rural and coastal areas (forests, fish, algae, farm by-products) but appear also as e.g. organic waste. Their productivity and accessibility differ between localities, given variation in natural conditions and the management of ownership and use. However advanced are the technologies involved, the biological raw materials used stem from – and impact on – land, water and sea-based bioresources. Alternative and competing uses touch on human rights and common property. Their exploitation may therefore be subject to conflicts and

require public regulation to prioritise use in relation to human welfare and to limit or prevent use for non-essential yet potentially highly-priced products.

The potential utility of these bioresources and the products and services based on and developed from them thus depends not only on the availability of land, sea, inland waters, human and social capital but also on wise institutional arrangements and regulation, across multiple scales and levels of governance, including regional and local initiatives.

There is global interest in the Nordic approach to bioeconomy. Nordic countries have developed unique regulatory frameworks for natural resource management, including laws on land ownership; regulation of fisheries and the marine environment; forestry management and regulation; bioeconomy strategies; and participation and engagement in local natural resource management decisions. This chapter provides insight into the rapidly developing Nordic bioeconomy. We have included figures on land use as an initial basis for utilisation while preferred data on ownership and user rights are not available. Examples of both existing and new bio-products based on land and sea are also discussed. We have not however included examples of bioeconomy services. In future, we hope to be able to provide a broader and more inclusive picture with data from the wider bioeconomy.

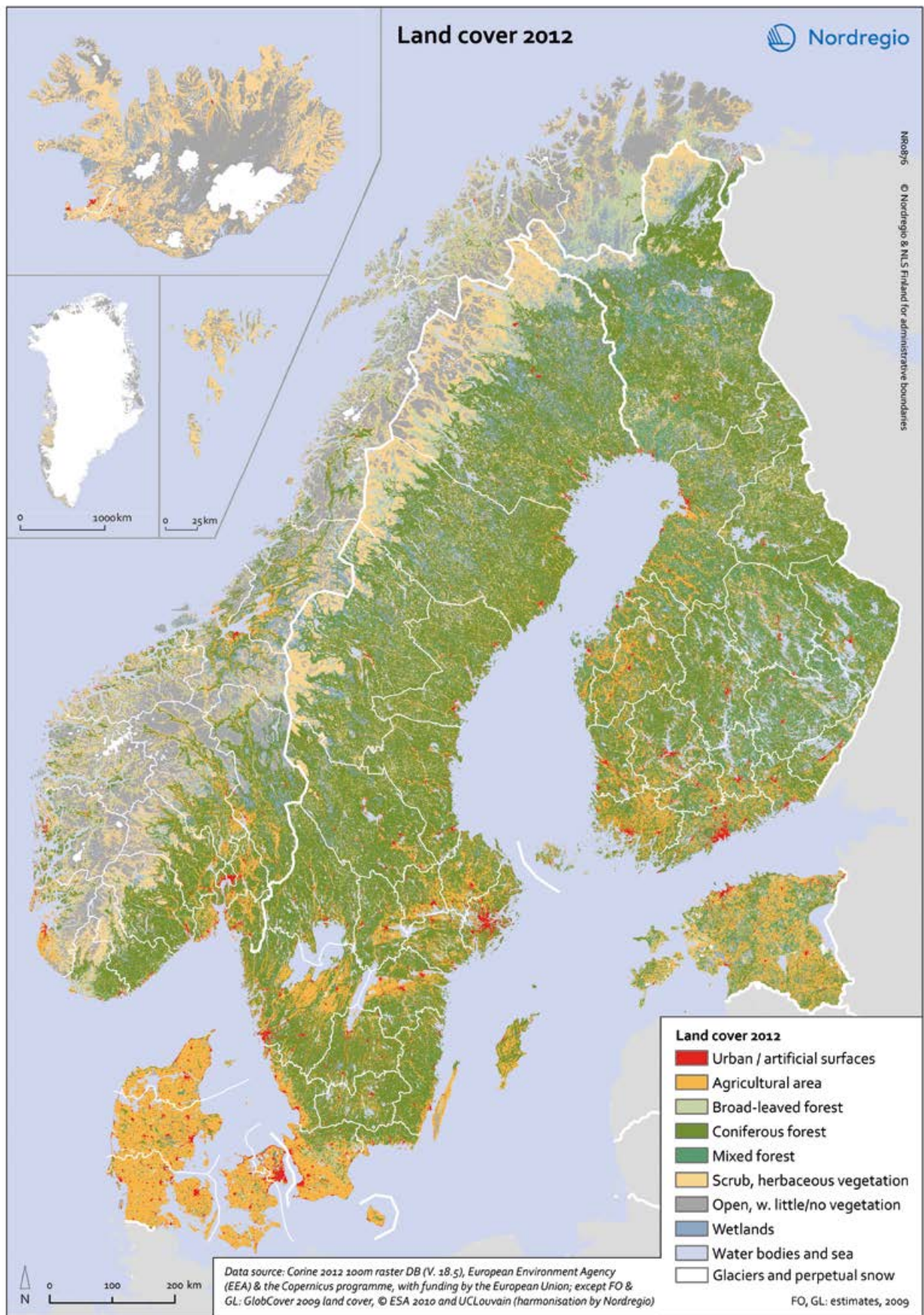
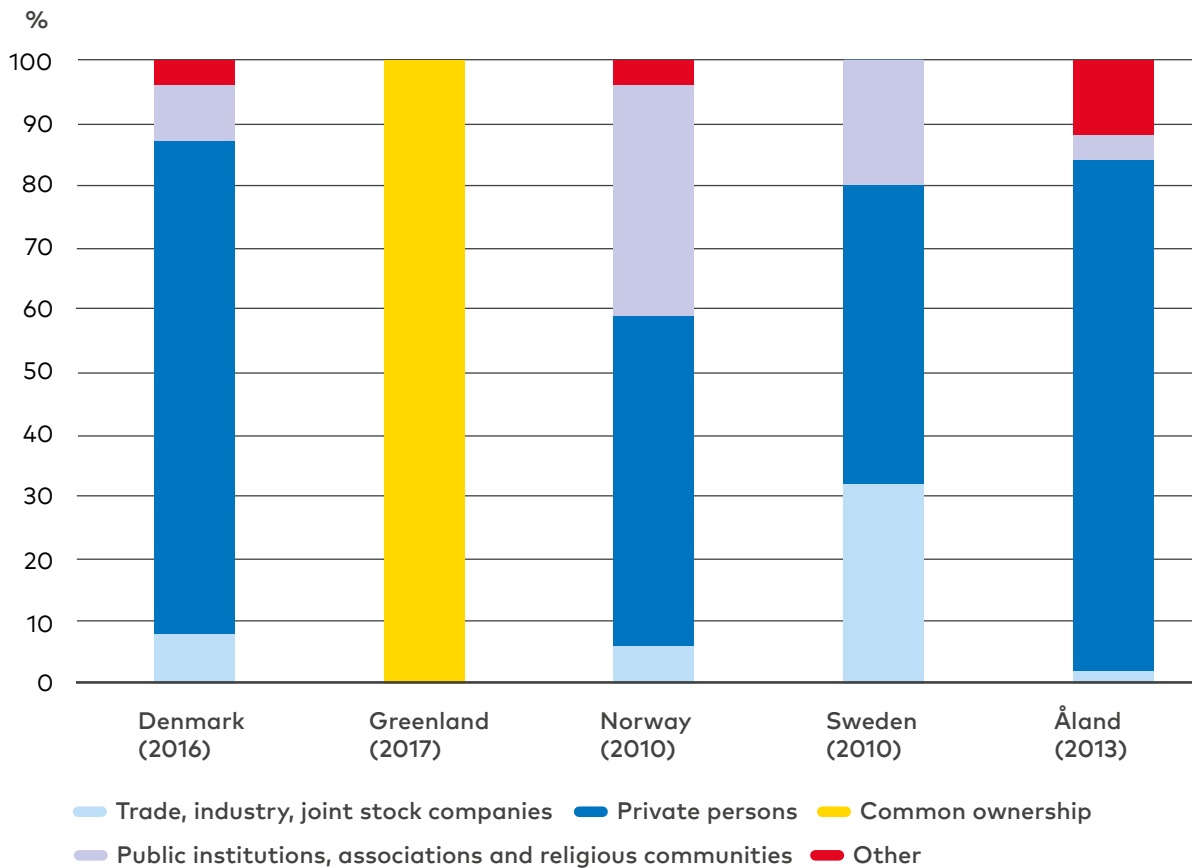


Figure 11.1 Land cover 2012.

Figure 11.2 Land ownership by category.



Data source: NSIs & Greenland Ministry of Finance. Note: FI, IS: No data. AX: Estimates. "Common ownership": GL: impossible to own, buy, and sell land. "Public institutions, associations and religious communities": DK: includes land owned by counties and municipalities; NO: includes land owned by counties and municipalities, state owned forest, organisations and companies; SE: includes public institutions, associations and communities; AX: includes Åland government and parish owned land.

Access and rights to the utilisation of products and services from land and sea is key

Land is a key resource for most biological and human activities: agriculture, forestry, industry, transport, housing and other services. Land is also an integral part of ecosystems and indispensable for biodiversity and the carbon cycle. The regulation of ownership and management of land, and user rights to the land, the sea and freshwater resources, or to the key products and services arising from them, is crucial for their sustainable development potential. Such rights, their allocation and distribution, taxation and associated rules, determine productivity and the distribution of costs and benefits, including related public goods and "bads".

Compared to the EU, the Nordic Region has vast amounts of land relative to the size of its population (Eurostat, 2016). In 2015, Denmark (132) was the

only country with a population density above the EU28 average of 117 inhabitants per square meter (Eurostat, 2017). The averages for Sweden (24), Finland including Åland (18) and Norway (17) were significantly lower. Iceland is extremely sparsely populated (3). There are also significant differences between the Nordic countries in terms of their land use. Denmark is largely agricultural (62%), while Finland (73%), a large part of Sweden (69%) and south-eastern Norway (28%) are all dominated by forest, mainly coniferous. Iceland and the Faroe Islands have large areas of scrub and herbaceous vegetation, suitable for grazing livestock. Open land with little vegetation is significant for many regions in Norway and Iceland. Vast parts of Greenland and parts of Iceland are glaciers. The Nordic countries all have long coastlines and easy access to marine resources. Figure 11.1 visualises the different types of land cover in the Nordic countries.

Rights for land owners to resources beyond the coast in Iceland

In Iceland landowners' rights to resources extends beyond the coast to 115 m from the low-water mark. This is called the net zone (netlög) and is first set in law in Jónsbók in 1281. This private property right addresses natural resource utilisation in its entirety, including fishing rights, unless otherwise limited by law. In some ways, this complicates maritime spatial planning such as regarding aquaculture development. Aquaculture utilises both land-based as well as off shore facilities, often both within and outside net law. In practice, this means that the responsibility for planning and zoning on land and within the net law is at the municipality level, but the responsibility for planning outside of net law is at the national level. Currently there are no laws governing planning of coasts and oceans outside net law. Until that changes, aquaculture development is only controlled through licensing and individual decision on where aquaculture is allowed or not. Other examples of potential complications are commercial fishing of near-shore species such as lumpfish (*Cyclopterus lumpus*), mussels (*Mytilus edulis*), and harvesting of seaweed. In all these cases it is important that national and municipal governments and landowners are all involved in planning processes and decision making (Althingi, 2010).

Figure 11.2 shows the distribution of land ownership at the national level for some Nordic countries, in harmonised format. Denmark has the highest share of privately owned land – 61% of the land is used for agriculture of which 93% is owned by private persons. In Finland, the share of productive forest area of total land is 67% of which private persons own 60%. Of the 57% productive forest in Sweden 56% is owned by individuals and other private owners, while companies own 25% and the state and state-owned companies have a share of 17% (Swedish Forest Agency, 2012). Norway, being especially mountainous and with more marginal land, has a larger share of land owned by the public or by associations. A major source of the livelihood in Greenland is hunting and fishing. Ownership to land or nature as such has little meaning here. The land in Greenland is therefore commonly owned

land. People can however get access to e.g. housing through user rights, but the land surrounding the house is common. A dominant part of Åland is privately owned land, mainly forest (around 80%) and agricultural land (around 15%).

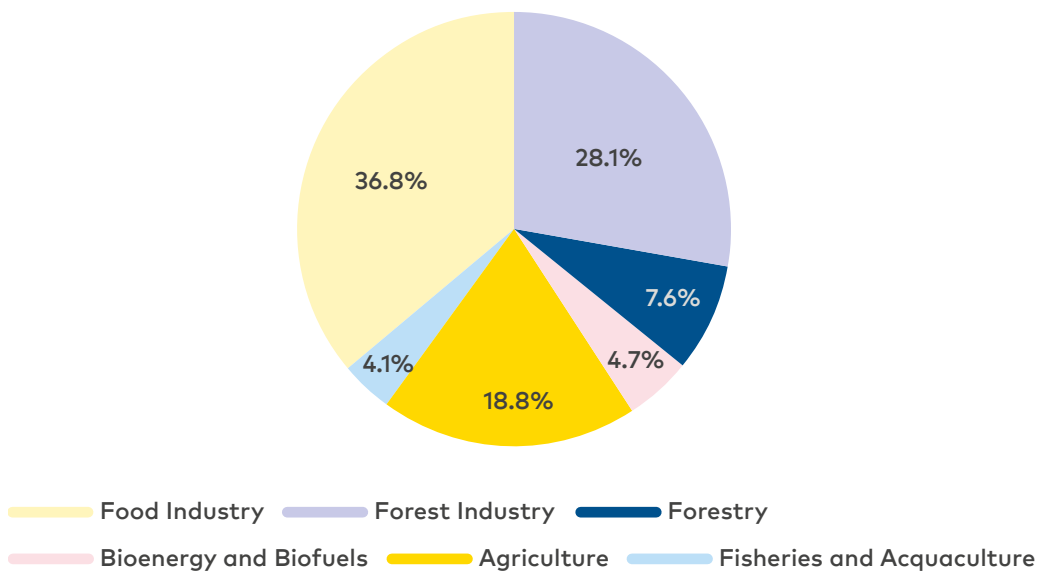
The abundant regional resources from land and sea

Sweden generates 16% of EU forestry turnover while Finland is responsible for 10.6% of EU turnover in the paper manufacture sector (Ronzon et al., 2017). Total turnover of the key bioeconomy sectors in the Nordic countries was estimated to be EUR 184 billion, equal to 10% of the total Nordic economy (Rönnlund et al., 2014). Table 11.1. gives an overview of the bioeconomy turnover in selected Nordic countries.

	Turnover	
Country	Billion Euro	1,000 Euro per capita
Denmark	49.5	8.8
Finland	48.8	9.0
Sweden	62.3	6.5

Table 11.1 Bioeconomy turnover in Denmark, Finland and Sweden. Data source: Ronzon et al., 2017.

Figure 11.3 The share of the sectors included in the bioeconomy in the Nordic countries.



Data source: Rönnlund, Pursula, Bröckl & Hakala, 2014; Lange et al., 2015.

Estimates for the different sectors are shown in figure 11.3. In Finland the estimated share of the bioeconomy is over 16% with the industry currently employing more than 300,000 people (Ministry of Employment and Economy of Finland, 2014). Despite regional variations, the bioeconomy potential is large (Lange, et al., 2015, p. 10): *"Upgrade of biomass from waste fractions from agriculture, forestry and fisheries has huge potential for improved use of the biological resources. Globally, approximately 50% of the primary production is still not utilized, but wasted. Biomass to bioenergy is already developed for up-scaling and commercialisation. However, development of biobased products into products of higher value, such as healthy food and feed ingredients, speciality chemicals and functional materials is still in its early stages."*

We have chosen examples based on abundant resources in different regions contributing to their economic growth (Gíslason & Bragadóttir, 2017).

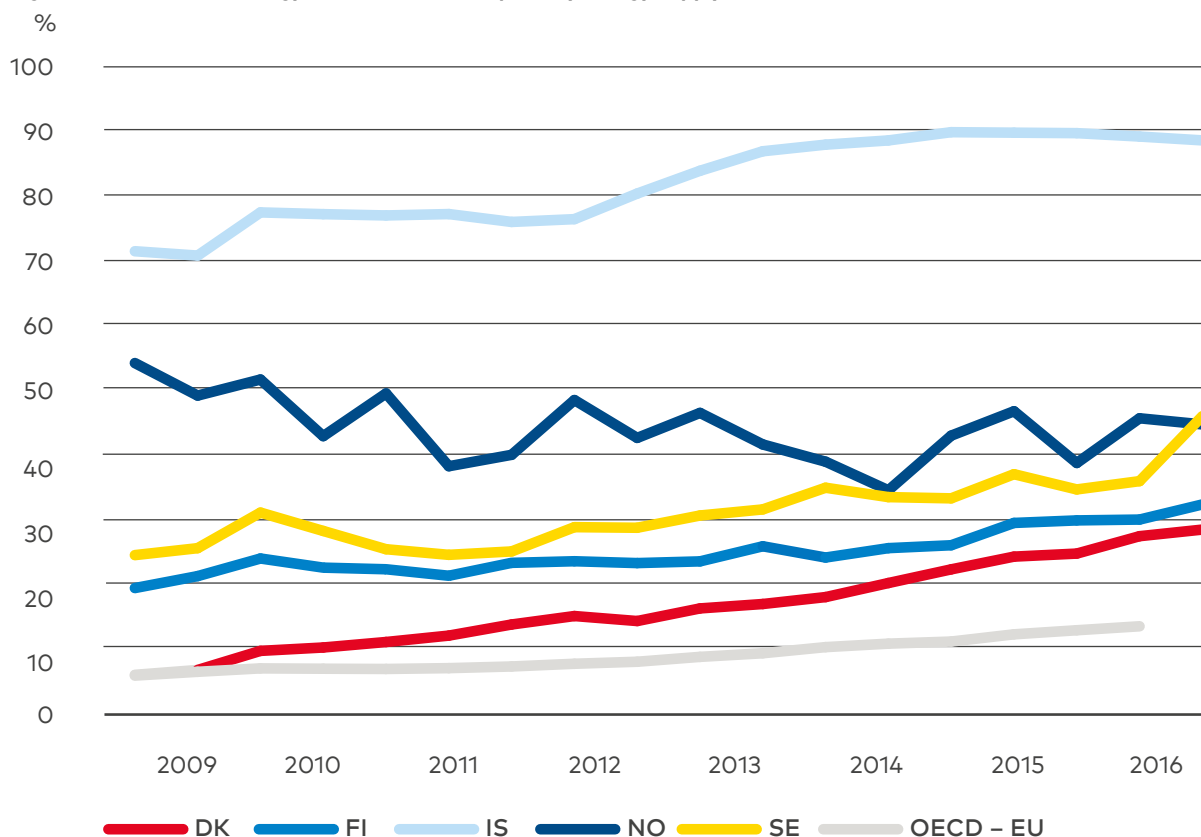
Land with forest felling and its uses: Sweden and Finland have extensive forests and we show potentials in respect of forest felling and the production of pulp and paper, construction materials and services and to "newcomers" such as heat, biofuels and bioplastics.

Agricultural land and the cities providing waste resources for bioenergy and biogas: The fertile soils of Denmark with an agriculture sector specialising in pig and dairy production provide abundant food but increasingly also energy production; based on manure and in combination with wastewater and organic waste from cities and industry. This is used in the production of biogas and refined fertiliser in Denmark and also in Sweden and Finland.

Marine areas with a focus on fish landings and aquaculture: The Faroe Islands, Greenland, Iceland and Norway have abundant marine resources. They utilise marine biomass such as fisheries and aquaculture, including related waste streams. New and previously underutilised bioresources such as algae and seaweed are now also being developed, especially in Norway, the Faroe Islands and Iceland.

Bioservices: The land and sea also offer opportunities for service creation and provision: recreation, including tourism, berry and mushroom picking and other anthropogenic uses as well as non-anthropogenic outcomes such as biodiversity and CO₂-sequestration. While bioservices indeed is an important aspect of the broad field of bioeconomy, this chapter will be limited to the other three aforementioned aspects of the bioeconomy, namely: land and forest use; agriculture and waste; and marine areas with fish landings.

Figure 11.4 Renewable energy as a share of total primary energy supply.



Data source: OECD Green Growth Indicators.

The developed biomass to bioenergy sector

Figure 11.4 shows Nordic renewable energy supply as a share of renewable sources in total primary energy supply for the period 2000–2015, based on OECD data. All Nordic countries are well above the average of European OECD countries, with Iceland emerging as a clear leader. As of 2015, Iceland met 88% of their energy needs in this way, Sweden met 46% closely followed by Norway at 45%, Finland 32% and Denmark 28%.

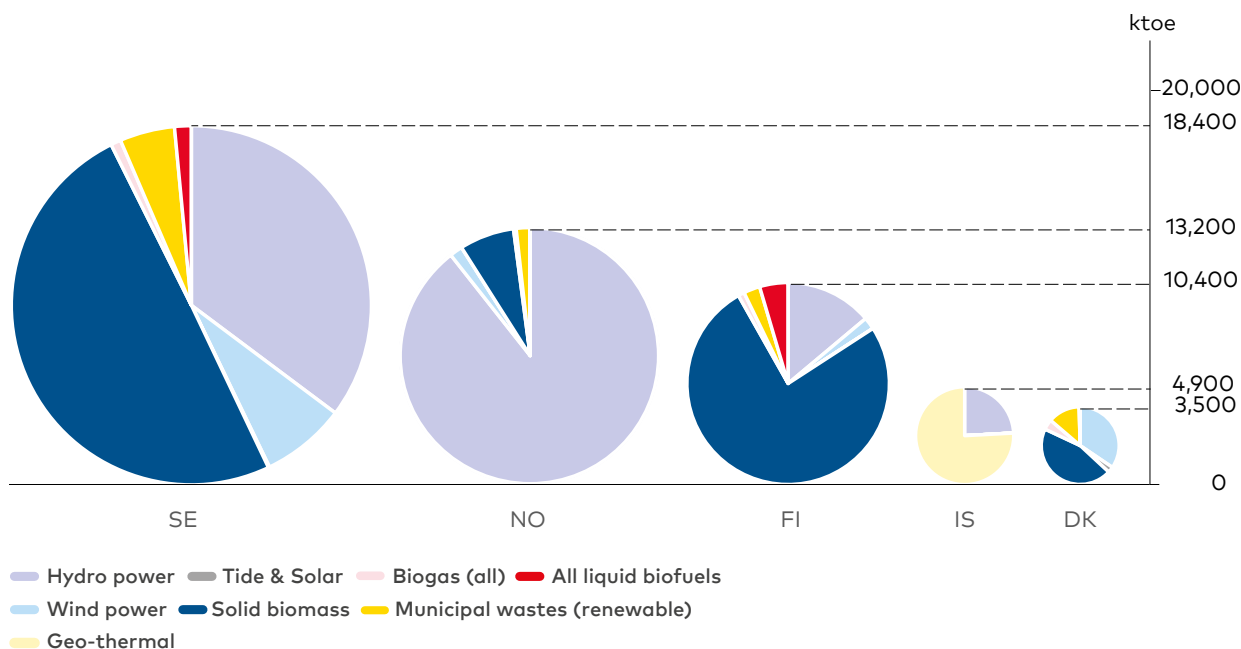
In figure 11.5 we see that biomass and waste dominate the renewables sector for generating electricity, heat and transport fuels in Sweden, Finland and Denmark. The lack of biomass utilisation in Norway is due to low electricity prices and political support (Bryden et al., 2017b). Renewable electricity is generated from hydropower in Norway and, apart from biomass, predominantly by wind power in Denmark. Geothermal heat and power production

supplemented by an abundance of rivers supplying hydropower are the most important energy sources in Iceland.

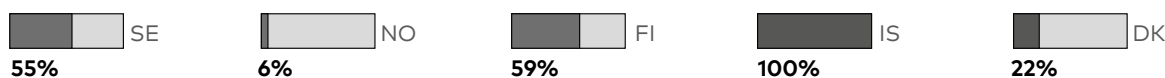
Large potential for forest multiuse

Figure 11.6 shows average forest felling and a vast regional distribution, especially in Sweden and Finland. Annual growth currently exceeds annual harvest. As a percentage of annual growth, Norway harvests 35%, Finland 56%, Sweden 77% and Denmark 51% (Rytter et al., 2015). Wood bi-products is extensively used for energy purposes and the forests display a large potential for increasing the production of renewable energy as well as other biobased products. Rytter et al. (2015) calculated the total potentially available forest fuel of the region between 195 and 368 TWh depending on the restriction level for management, although its optimal use will not always be for energy.

Figure 11.5 Renewable energy production 2015, in kilotonnes of oil equivalent (ktoe) (top) and renewable energy share in total energy production 2015 (bottom).



Renewable energy share in total energy production 2015.



Data source: Nordregio's calculations based on Eurostat.

All Nordic countries have a recognised capacity to increase harvesting while remaining environmentally sustainable in terms of ecosystems, carbon neutrality and climate impacts (ibid.). This sustainable management capacity together with the unutilised forest potential is important for the future of remote and rural regions in the Nordic countries and provide opportunities for investments in education, training, technology and plants.

Turning waste from agriculture and cities into energy

Biogas production is widely distributed across the Nordic Region and between the types of sources used (figure 11.7). In 2015, 18% of the energy use in Denmark came from biomass and waste. A large and underutilised potential for bioenergy remains (Energistyrelsen, 2014) and can be found in harvested dry matter and manure (Energistyrelsen, 2015; Gylling, Jørgensen & Bentsen, 2012). In the western part of Denmark, biogas is mainly based

on manure from farms supplemented with sludge and organic waste from wastewater plants. Biogas production has seen strong growth in Denmark with an expected trebling over the period 2012–2020 given increased support through the *Energy Agreement* (Energiaftalen in Danish) of 22 March 2012 (Energistyrelsen, 2014). Further, the vast infrastructure for gas makes it easy and accessible for farmers to link biogas to the existing energy net. The largest numbers of plants in Finland are based on farms and landfills. Norway produced 500 GWh biogas in 2016, mainly from wastewater treatment plants, but also based on organic waste, manure and fish waste. In general, significant focus is placed on the potential of utilising waste from fish and fish farms in Norway (Martin S. Kristensen, personal communication, 2017). In 2015 in Sweden, 282 facilities produced 1947 GWh biogas with the largest regional production being in Skåne (417.5 GWh), Västra Götaland (350.9), and Stockholm (255.8) (Statens energimyndighet 2016). Iceland had a biogas facility in Reykjavík at Álfsnes landfill with plans for

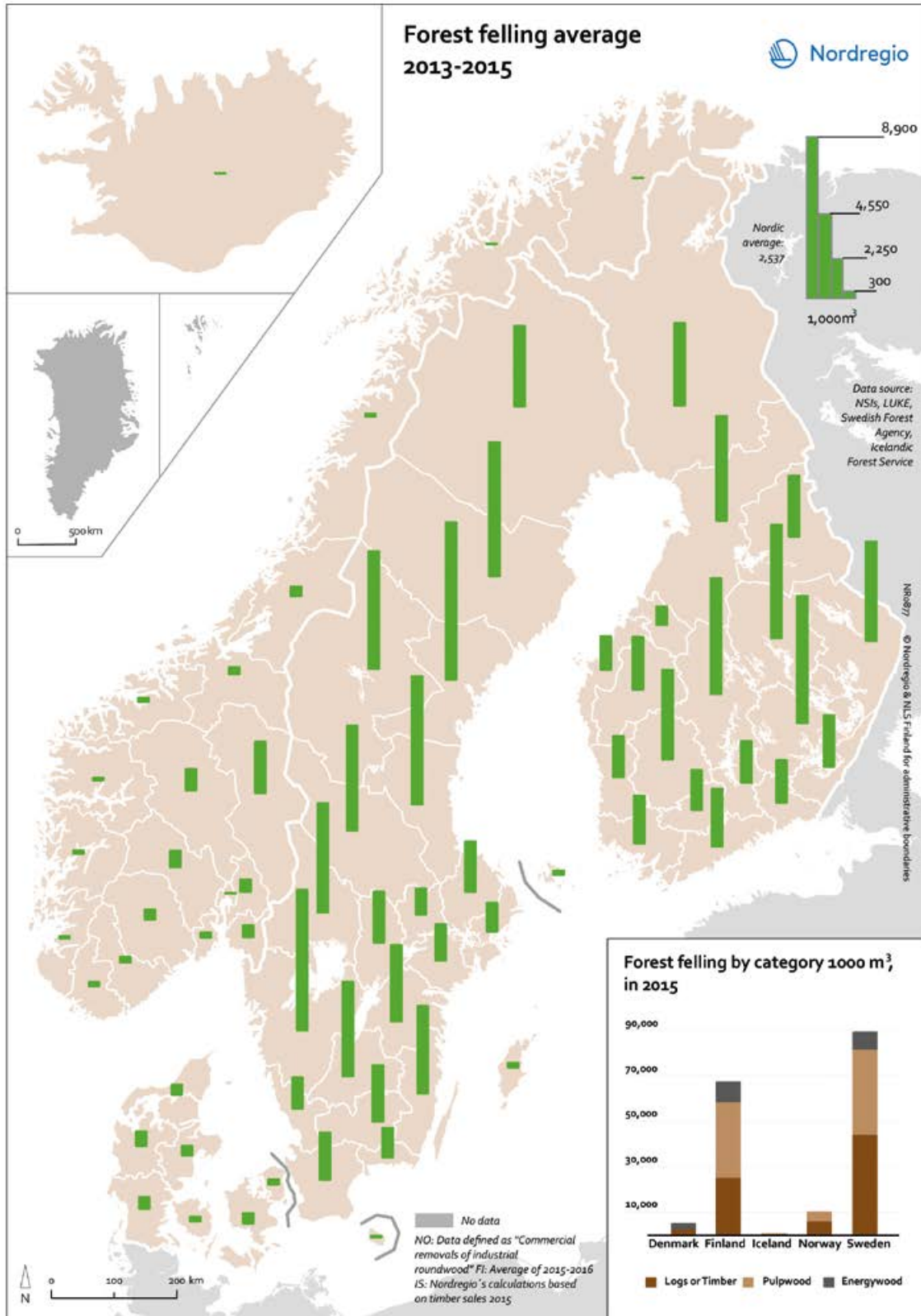


Figure 11.6 Forest felling at the regional level, average 2013–2015 (main map), and forest felling by category in 1,000m³ at the national level 2015 (chart).

Note: DK: The category of Energywood includes NSI categories "firewood" and "wood for energy chips & logs". NO: Forest felling data is defined as "Quantity removed for commercial purposes" but the figures equal the assorted wood type data at the national level. The category of pulpwood also includes small number of "unsorted saw logs" and the category of energywood in the NSIs data was defined as "fuelwood". SE: Figures are our estimates based on NSI gross felling data that is assorted by solid volume.

expansion in 2018. The production will then increase from producing methane for 1,400 cars to 8,000 methane cars.

Future food from abundant marine resources

Fisheries and aquaculture are highly important bio-economy sectors in the Nordic Region and are the most important contributors to the Faroese economy, accounting for over 91% of total exports in 2012 (Lange et al., 2015). Fishing is also the most important export sector in Greenland, amounting to 91% of merchandise exports (Lange et al., 2015; Ögmundsson, 2014). The Faroe Islands, Iceland and Greenland have huge fish landing amounts per capita. Figure 11.8 (large map) visualises fish landing in Norway, Iceland and Finland which is quite evenly distributed between communities distributed along the coastline. Since we do not have data on boat ownership we cannot however show which municipalities or regions are the primary beneficiaries of the income generated, where the fish is landed.

Finnish landing data is based on the municipality where the fisherman and the fishing vessel is registered. Foreign landings as a share of total landings, show remarkable variation across the Nordic Region, with both Denmark and Sweden having a share over 41% while Finland has only 0.8% (Norway 14.3%). It is primarily Greenlandic vessels that service fish factories in Greenland.

National objectives in respect of fisheries management in the Nordic Region vary, though each has the sustainable utilisation of marine life as a main objective. In global terms, the Nordic fisheries sector is doing well in terms of their ecological, economic and social impacts, though variation is evident. The Baltic Sea environment is, however, under huge pressure, with almost 70 species in danger of becoming extinct (Helcom, 2013; WWF, 2015) and fish stocks being 30–40% below historical levels (WWF, 2015). Nonetheless, the region is a forerunner in transboundary collaboration, inclusive of stakeholders in Marine Spatial Planning and developing best practices in ecosystem-based management (Kull et al., 2017). According to the WWF (2015) the

Pohjois-Karjala – a Finnish forerunner in renewable energy

Pohjois-Karjala (North Karelia in English) – one of mainland Finland's 18 regions – is a forerunner in renewable energy terms, thanks to innovations emerging from its robust forestry industry in cooperation with strategic work carried out at the regional level. Renewable energy accounts for 63% of total energy use in Pohjois-Karjala (28.5% in Finland), with 82% of this coming from wood-based sources. The forestry industry makes a substantial contribution to the regional economy with over 10% of workplaces, and about 25% of turnover, equalling up to EUR 1.7 billion. The region has vast experience of commercial and intellectual engagement with the forestry industry. Given the strength of the inter-sectoral linkages and local ownership of the value-chain, the regional multiplier for employment in the forest supply chain is estimated at 2.3. Forest residues are used as feedstock for district heating systems in local communities. By owning district heating plants, the forest owners and cooperatives of forest owners capture additional revenue from the forest. Although the impact on job creation is not dramatic, diversification has offered small forest owner co-operatives a new source of revenue. According to Pohjois-Karjala's Climate and Environmental Programme 2020, wood-based energy is targeted to contribute almost 50% of the share of the Region's different energy resources. (OECD, 2012; Bryden et al., 2017b; Berlina & Mikkola, 2017)

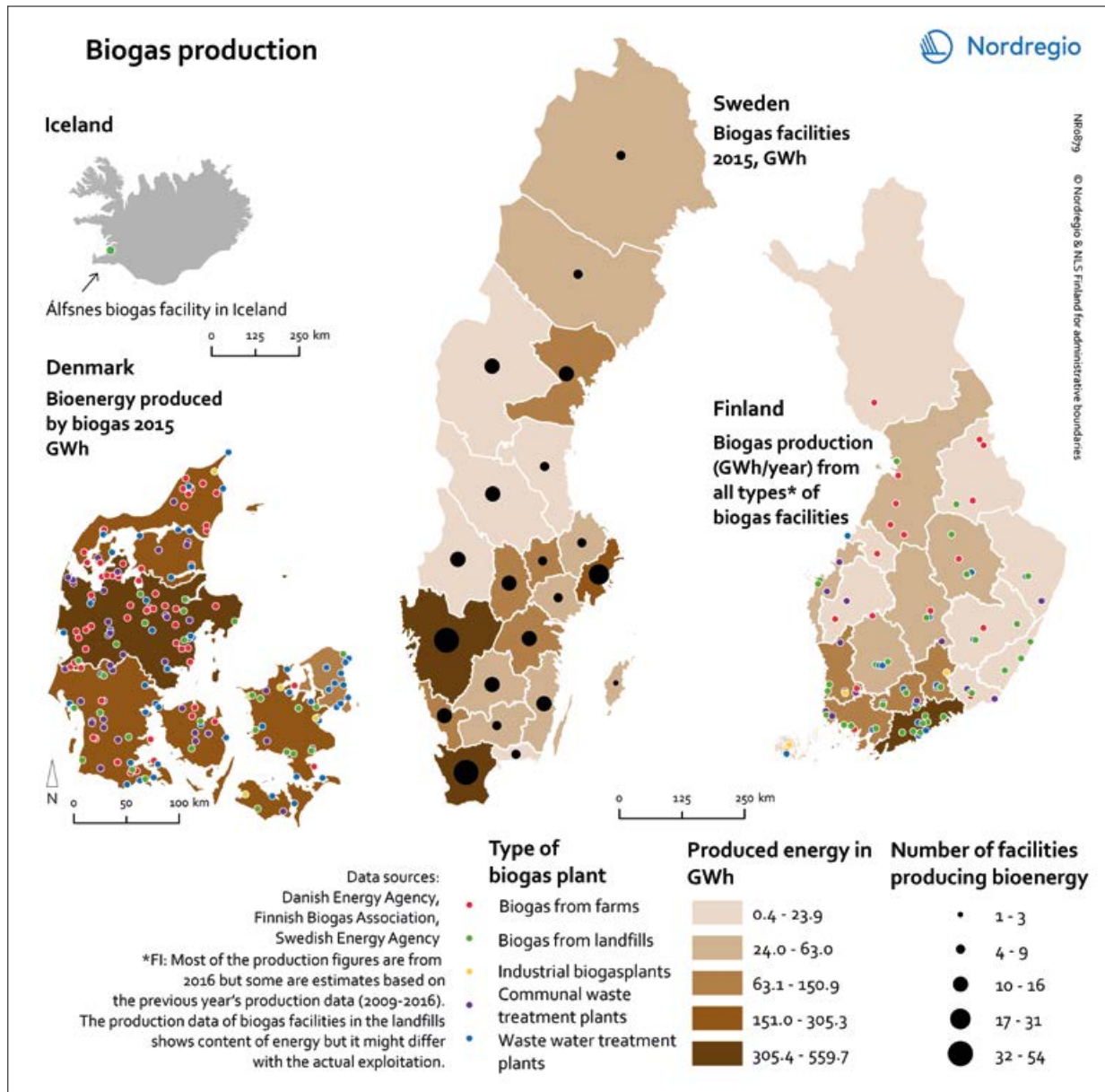


Figure 11.7 Regional biogas production in GWh.

area could become a global role model and change agent in the sustainable blue economy.

Nordic fisheries are characterised by innovation in products, services and markets. Rural and coastal development is clearly affected by fisheries policy, directing where fishing vessels can land their catch, such as in Norway, with positive economic impacts for smaller coastal communities. The Norwegian Fresh Fish Act (1938) gave the fishermen's organisation "the right to negotiate landing prices for the

whole coast, and settle them with reference to the export market opportunities. In effect, the Act implied that the resource rent went to the primary producer, rather than to the middlemen" and ensured local landings (Brox, 2006).

Large changes have however occurred in fisheries value chain management in recent years. The Nordic countries have been leaders in the development of sustainable fisheries management, with a focus on property based management and different

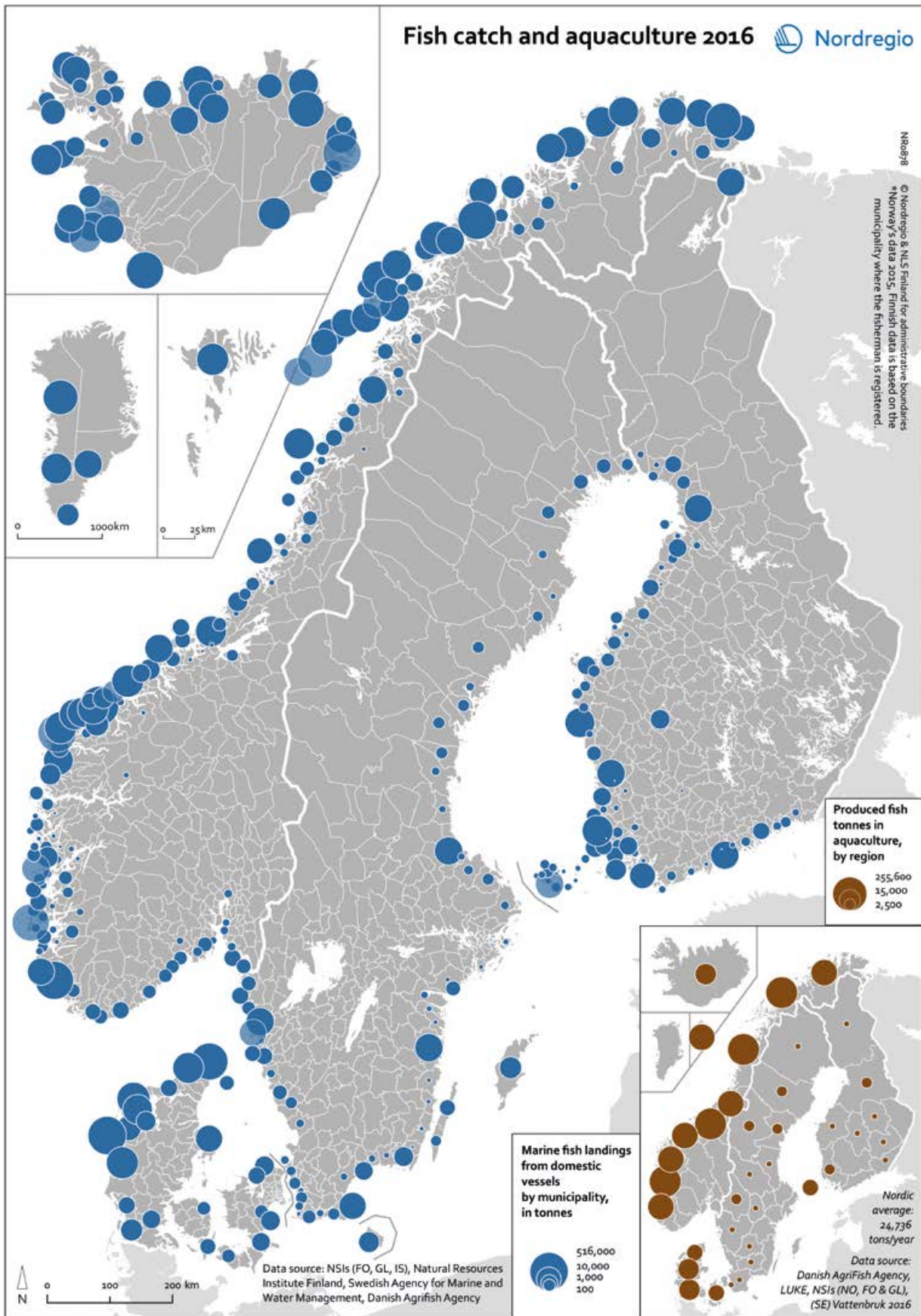
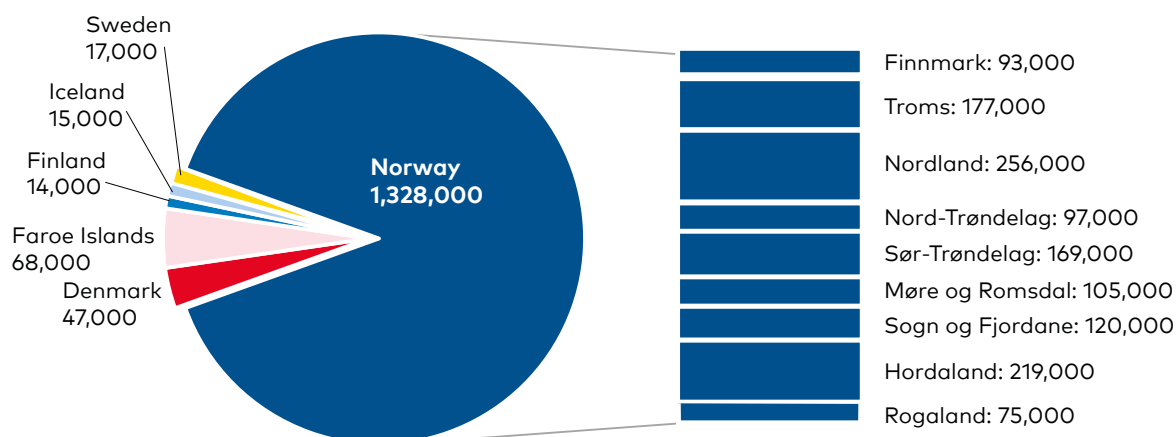


Figure 11.8 Fish catch and aquaculture 2016.

Figure 11.9 Farmed fish in tonnes in the Nordic Region in 2016.



Data source: Danish Agrifish Agency, LUKÉ, NSIs, Vattenbruk 2016.

variations of Individual Transferable Quotas (ITQs). The ITQ does not however consider either the regional or the inter-personal distributional impacts of the catch. The sea is a common resource fishing bank and property rights regimes that consider both distributional impacts as well as environmental and production outcomes are required.

Figures 11.8 (small map, bottom right corner), and 11.9, highlight aquaculture production in the Nordic Region in 2016 with the size of farmed fish production at the regional level. Norway, particularly its coastal regions in the west, clearly dominates the Nordic aquaculture sector.

Concluding remarks

This chapter provides a series of snapshots from the different parts of the bioeconomy relevant to the Nordic Region with a focus on land and sea use. The need for additional data (at regional level) however remains – including that relating to the institutional (networks, ownerships, actors etc.) and the socioeconomic (employment and income) aspects of this subject.

The vast land resources and surrounding marine areas enjoyed by the Nordic Region provide significant opportunities for economic growth and employment in its diversified rural areas and can create value added and generate highly valued R&D jobs. The bioeconomy requires technological but also,

crucially, institutional innovation. Above all, policy must respond to the diverse and dispersed bioresources in rural and coastal areas and with competing uses crossing sectors. Instruments and regulations are required to promote and defend the interests, knowledge and user rights to the resources and their utilisation and to creative incentives promoting economic, social and environmental sustainability at multiple levels. New institutions including those overseeing land use and marine ownership, management of the resources and their utilisation, the power to take decisions and governance at the local and regional levels, are needed. This is required to support the development of new processes at the local and regional levels and to promote the establishment of new businesses and clusters, while at the same time considering the impacts of this transition on, and interests of, the local communities. As expressed by Sveinn Margeirsson, director of Biotech R&D institute Matis in Iceland: “The value creation depends on people that live outside the large urban centres and are prepared to grow the land, catch the fish and process the raw materials. These people and their skills are essential in developing the bioeconomy towards its next stage” (Finnsson, 2014, April, p. 7).

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Chapter 12

DIGITALISATION FOR A MORE INCLUSIVE NORDIC REGION

Authors: Ingrid H.G. Johnsen, Julien Grunfelder, Morten Friis Møller and Tuulia Rinne
Data and maps: Julien Grunfelder and Oskar Penje

Digitalisation is a recurrent theme in today's regional development agenda with policies impinging on this field discussed at several administrative levels. It is one of the seven pillars of the European 2020 strategy (European Commission, 2017) as well as one of the main themes in the programme of the Swedish Presidency of the Nordic Council of Ministers for 2018 (Nordic Council of Ministers, 2017) and a sub-part of the UN Sustainable Goal 9. Indeed, access to an open, secure and advanced digital infrastructure has become one of the most important performance multipliers towards a more inclusive, sustainable and innovative society (ibid.).

The Nordic Region is already one of the most digitised parts of the world. High digital penetration rates in society relating to digital government initiatives (i.e. eGovernment), clearly demonstrate the region's maturity in terms of digital readiness, placing it in the top tier of adopters among its international peers (European Commission, 2017). Since the 1990s, the Nordic governments have made a considerable effort to both realise and optimise the benefits of ICT and to integrate it into public sector reforms as, for instance, with the development of ICT infrastructure and investments in digital service delivery. Public sector institutions, citizens and businesses have greatly benefitted from these investments leading to better and more efficient welfare services, improved business competitiveness, social inclusion and economic growth.

The first section below presents Next Generation Access (NGA) network coverage in Europe and the Nordic Region at several scales. The second

The European Union has set itself a 2020 target of achieving Next Generation Access (NGA) networks, offering speeds above 30Mbps, for all households in Europe

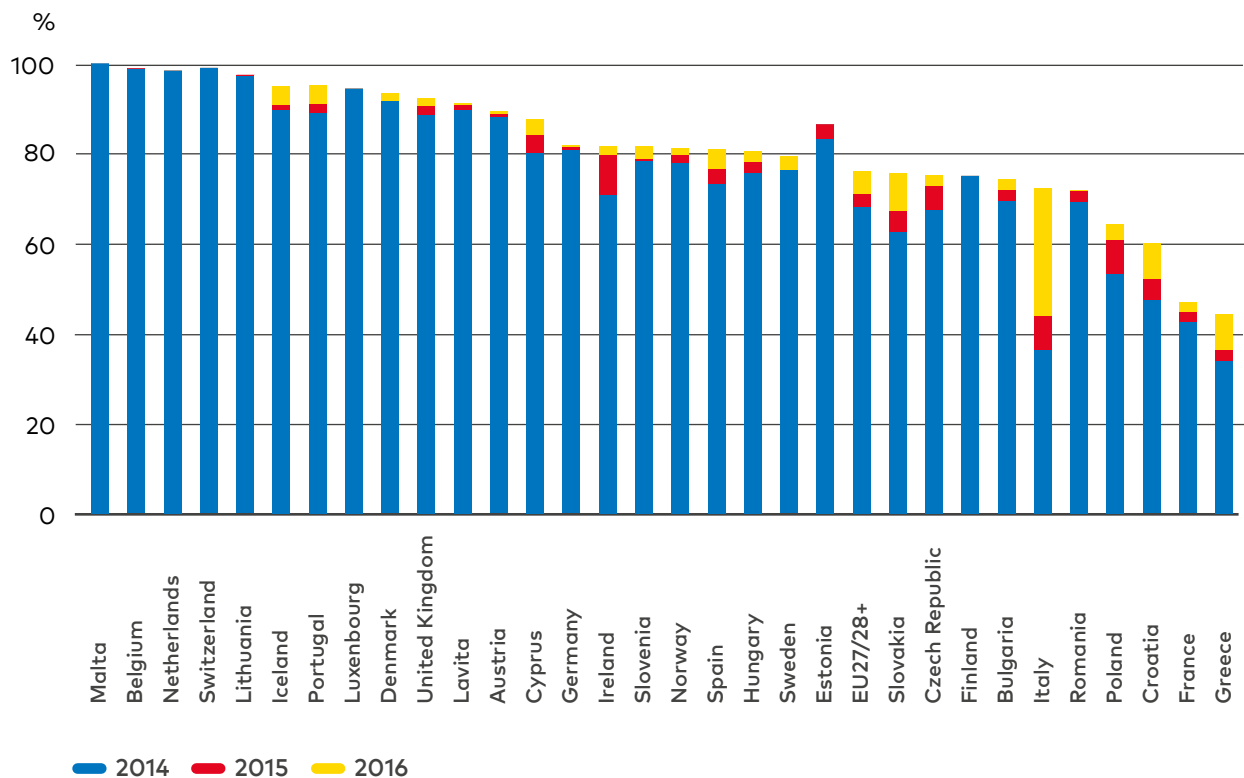
section illustrates one of the aspects of the benefit of digitalisation for regional development and citizens, namely the digitalisation of public services. The chapter concludes with a summary of the issues related to Internet non-users.

Iceland and Denmark have the highest NGA network coverage in the Nordic Region

Access to fast broadband-enabled services is a necessary condition for citizen access to digital services and businesses competitiveness. It also contributes to the promotion of more inclusive societies, enhancing a wider daily use of digital technologies (Internet of Things, smartphones, blockchain, social media) for both citizens and businesses.

Basic broadband is available to everyone in the European Union (ibid.). In the Digital Agenda for Europe, one of the seven pillars of the Europe 2020

Figure 12.1 NGA networks coverage in European countries in 2014–2016. GL & FO: No data. Åland included in Finland.



Data source: EU DESI.

strategy, the European Union has set itself a 2020 target of achieving Next Generation Access (NGA) networks, offering speeds above 30Mbps, for all households in Europe. NGA networks are viewed as a vehicle for economic growth and innovation and as having a positive effect on GDP growth (OECD, 2015). The graph (figure 12.1) on NGA networks coverage indicates the number of households that, in principle, have access to fast broadband in European countries in 2014, 2015 and 2016.

The European average increased between 2014 and 2016, from 68% to 76%. The countries with the highest figures correspond to those with relatively small territories and important population densities, standing out in terms of their high NGA network coverage, Malta and Belgium have reported values of around 99% since 2014. The graph however shows a significant difference in development terms at the national level between the Nordic countries. Iceland has the highest share with more than 95% of households having NGA network coverage in 2016, closely followed by Denmark with 93%, both are well above the European average. Norway and Sweden are also

Iceland has the highest share with more than 95% of households having NGA network coverage in 2016, closely followed by Denmark with 93%, both are well above the European average

above the European average with values around 80% while Finland, with just 75% coverage, is below the European average. These differences between the Nordic countries can best be explained by variations in geography, i.e. in the size of the country and in the concentration of the population to the largest urban areas. Coverage improvements require more resources in large countries with low population densities such as Norway, Sweden and Finland.

High NGA network coverage in the vast majority of the Nordic regions

Zooming down to the regional level, figure 12.2 shows percentage ranges in respect of NGA network coverage in the regions across Europe at the end of 2016. The variation in coverage is represented by blue shading. Darker colours represent NUTS3 regions with a high share of households with relatively good NGA network coverage, while the brightest colours represent regions with a low share. Regions with relatively small territories and important population densities stand out in terms of high NGA network coverage, e.g. urban regions in the Netherlands and Switzerland. Capital city regions also have high NGA network coverage scores, while the more rural regions continue to lag, e.g. in parts of France and Poland. The Nordic countries are characterised by having almost no differences within their territories, i.e. no large variation in terms of NGA network coverage, unlike the clear regional differences in countries such as France or Italy. All regions in the Nordic countries score in the range of 65% to 95% of households having NGA network coverage, except for Etelä-Pohjanmaa in Finland which has a coverage range of 35% to 65% and the Danish statistical region of Østjylland and the capital regions of Denmark and Iceland with scores between 95% and 100% respectively.

The relatively high figures for the Nordic Region can in part be explained by the existence of national and regional digitalisation strategies over the last decade or so. In Denmark, as well as in the other Nordic countries, digitalisation has long been on the national agenda, and the Digitisation Strategy 2016–2020 is the fifth of this kind, marking almost 15 years of common focus on digitisation in the public sector, where the state, the regions and the municipalities have been working to increase digitisation and strengthen cooperation across administrative levels (Regeringen/KL/Danske Regioner, 2016). One of the main goals of these strategies has been to increase the growth and productivity of the business community – and to make it easier and cheaper to establish digital infrastructure.

The regional level has an important role to play in the development of digital infrastructure, hence the relevance of the elaboration of the regional broadband strategy. Cooperation between local and regional authorities is also important in terms of enhancing better broadband coverage in all parts of a

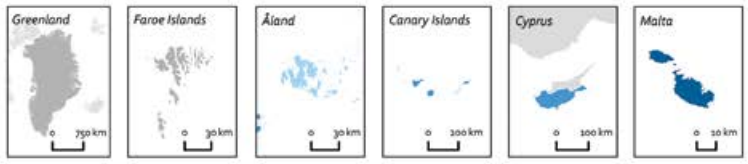
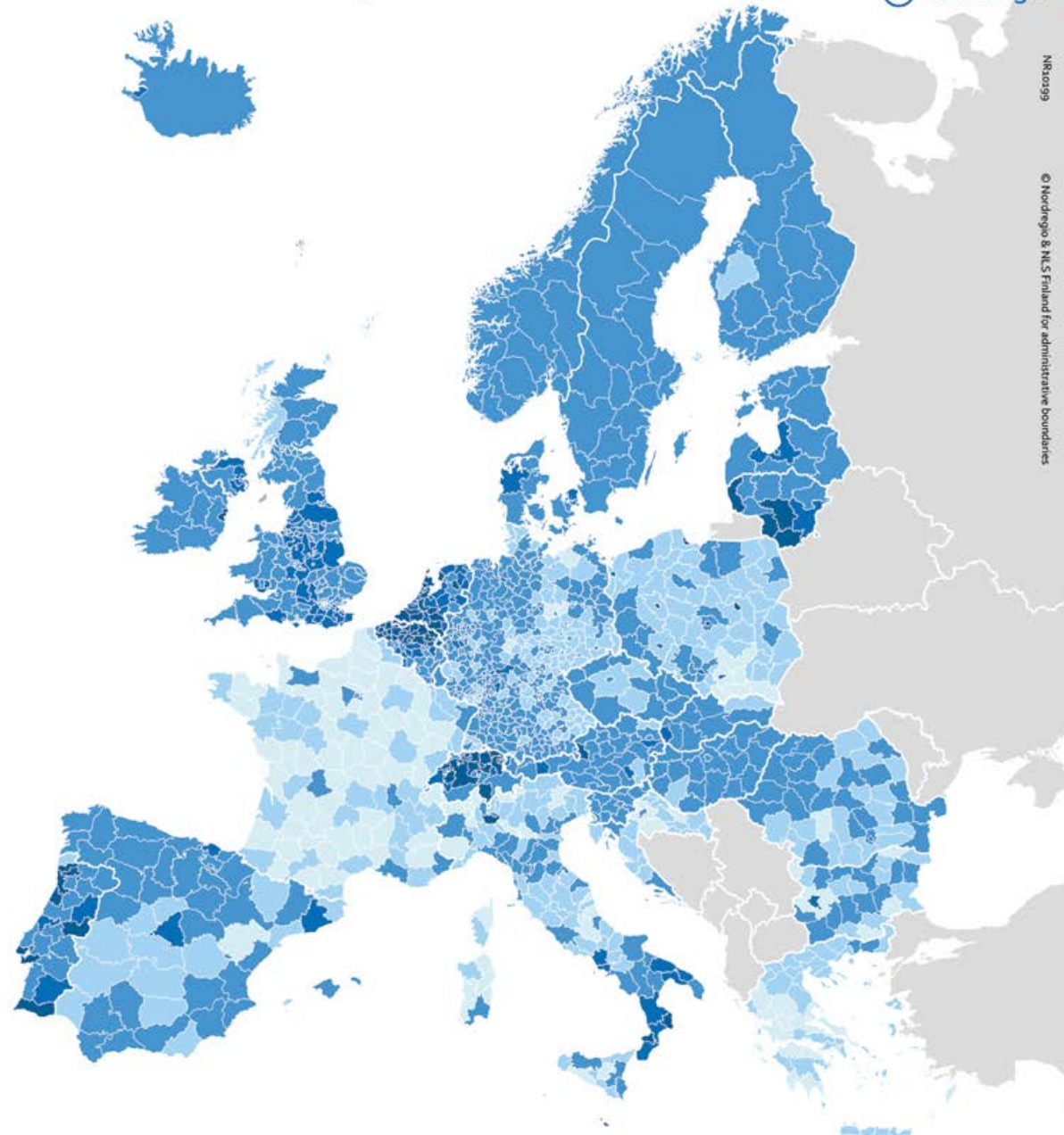
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region, i.e. both the most and the least densely populated areas. Such regional examples can be found throughout the Nordic Region. For instance, Region Norrbotten in northern Sweden initiated a project called "Platform Lumiora" in cooperation with the municipalities of Norrbotten, Norrbotten County Council and IT Norrbotten, with the aim of speeding up the expansion of high-speed Internet in the region. Also, Region Halland, located on Sweden's west coast, has developed a strategy for the cross-border expansion of high-speed broadband to ensure that 100% of households in rural areas will be offered a fibre connection. Through the broadband policy, the government would like to incentivise all operators to engage in fast broadband expansion and specifically to generate material improvements for users outside the most densely populated areas enabling Sweden to be completely connected (Government Offices of Sweden, 2016).

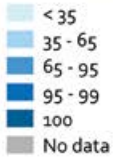
Well-developed high capacity fixed broadband across Nordic municipalities

High capacity fixed broadband coverage enhances access to digital solutions in both rural and urban contexts across the Nordic Region, thus making these areas good places to live, work and run a business domestically and across national borders

Next Generation Access coverage 2016



Households covered by Next Generation Access broadband in European NUTS 3 regions (in percent)



Data source: © IHS Markit, Point Topic Ltd and the European Commission 2017

Figure 12.2 Next Generation Access networks coverage in European regions 2016.

The variation between neighbouring municipalities reflects the decision at the municipal level to prioritise investments in broadband infrastructure development as well as the nurturing of a favourable climate for the establishment of data centres requiring fast broadband networks, among other things

(Nordic Council of Ministers, 2017). An investigation of household coverage by high capacity fixed broadband at a local level (figure 12.3), i.e. municipalities, in the Nordic Region shows a more varied picture than that at the regional level (figure 12.2). The average figure for Nordic municipalities was 63% in 2016, with more homogeneous figures in Denmark and Sweden than in Norway and Finland. The variation between neighbouring municipalities reflects the decision at the municipal level to prioritise investments in broadband infrastructure development as well as the nurturing of a favourable climate for the establishment of data centres requiring fast broadband networks, among other things.

Fifteen Nordic municipalities, located in Sweden and Norway, had already reached the 100% mark for household coverage by high capacity fixed broadband in 2016. In Sweden, these municipalities are located in both the capital city region and in Skåne. In Norway, they are found in the more remote and rural parts of Møre og Romsdal (e.g. Giske), Troms (i.e. Lavangen) and Finnmark regions (Båtsfjord). Municipalities having values above 90% are mostly located in capital city regions as well as in more rural contexts in Jylland (Denmark), southern Sweden and northern Finland and Norway. One explanation for the high coverage in some Norwegian municipalities is the presence of data centres located on the western coast (in Stavanger municipality and Vågsøy municipality) which benefit from free cooling from adjacent fjords and abundant access to low cost, renewable hydropower. Interest-

ingly, one of these data centres is in Sogn og Fjordane which is the county in Norway with the lowest share of households with access to broadband.

The largest group of municipalities has values ranging between 60% and 90%. Most are located across Sweden and in the rural parts of Denmark, Finland and Norway. The second largest group is municipalities with a value between 30% and 60% of households with high capacity fixed broadband coverage; they are mostly located in rural Norway and Finland and in northern Sweden. Only few municipalities have a range lower than 30% and these are found in both Finland and Norway: only one in Denmark (Samsø) and one in Sweden (Högsby) display this level of coverage.

The Finnish landscape displays varying states of fast broadband accessibility. Closer municipal scrutiny shows that rather significant differences can be found even between neighbouring municipalities. For instance, in Österbotten, the "broadband hotspot" municipalities of Vaasa, Evijärvi and Nykarleby are surrounded by municipalities with a rather low rate of fast broadband accessibility (varying by as much as 10%). There are several possible explanations for the diversity in fast broadband access on the municipal level. Some areas, such as Utsjoki (98% access to 30 Mbts broadband) in the north, and Valtimo and Rautavaara in the eastern part of Finland, that have deliberately championed fast broadband access, have attained their goals through participation in the national broadband strategy and the state aid that was associated with it. Moreover, given that the Finnish municipal system is constructed around strong, rather autonomous municipalities, another explanatory factor for the high percentage of fast broadband access relates specifically to individual municipal attractiveness. This is particularly so for municipalities located in rural areas, where "own activeness" plays a significant role (Viestintävirasto, 2013). Different kinds of public sector pilots, on both the regional and the municipal level have been introduced to promote the demand for broadband. Thus, active municipalities that have undertaken public services projects or broadband plans for schools have enjoyed a better chance of receiving national funds and have better addressed the demand for fast broadband. The existence of many of the high-speed rural fibre optical networks can be explained by reference to national action plans and to state aid programmes since half of the top 14 municipalities with the fastest and most inclusive broadband access are small, rural municipalities that have been

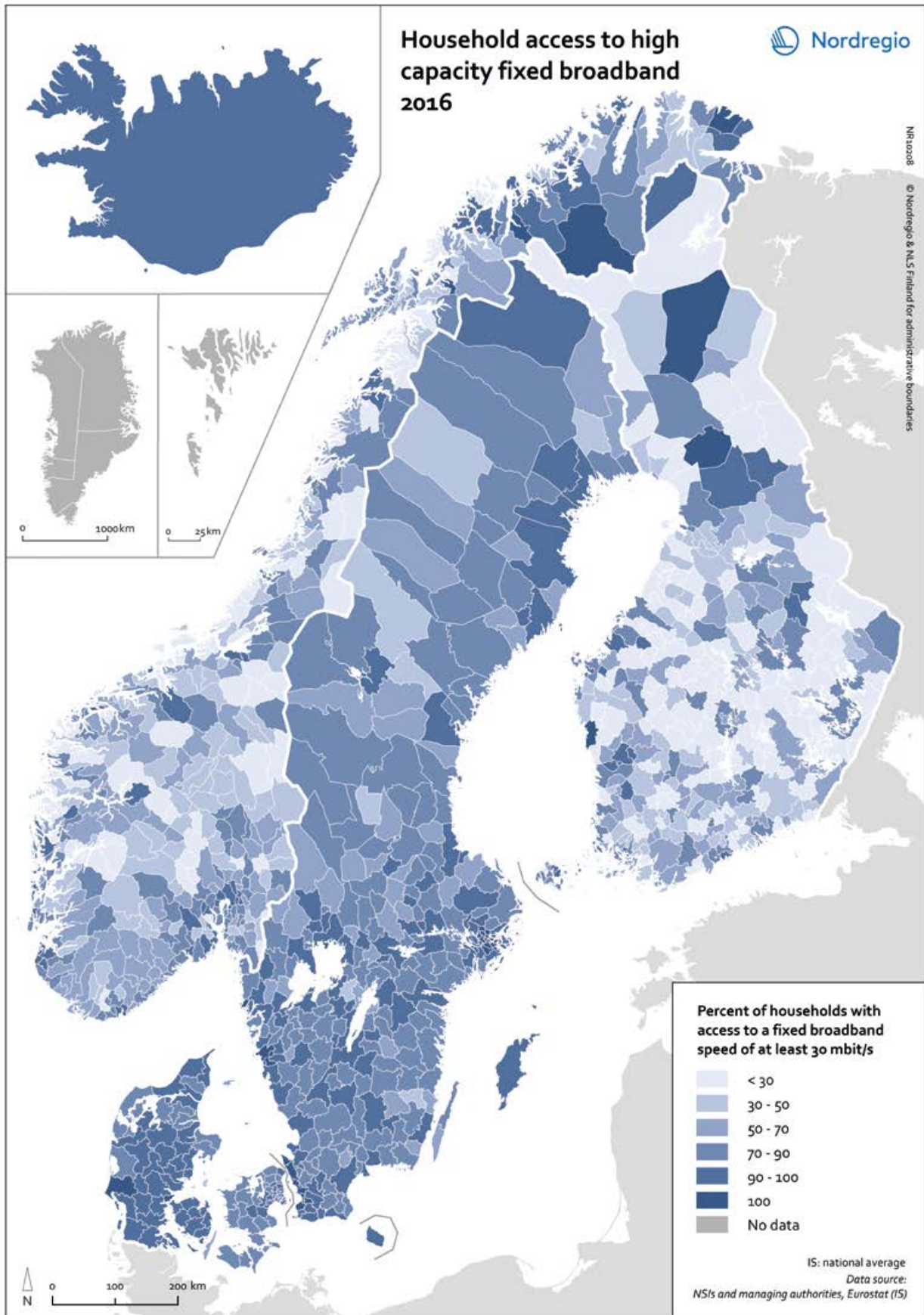
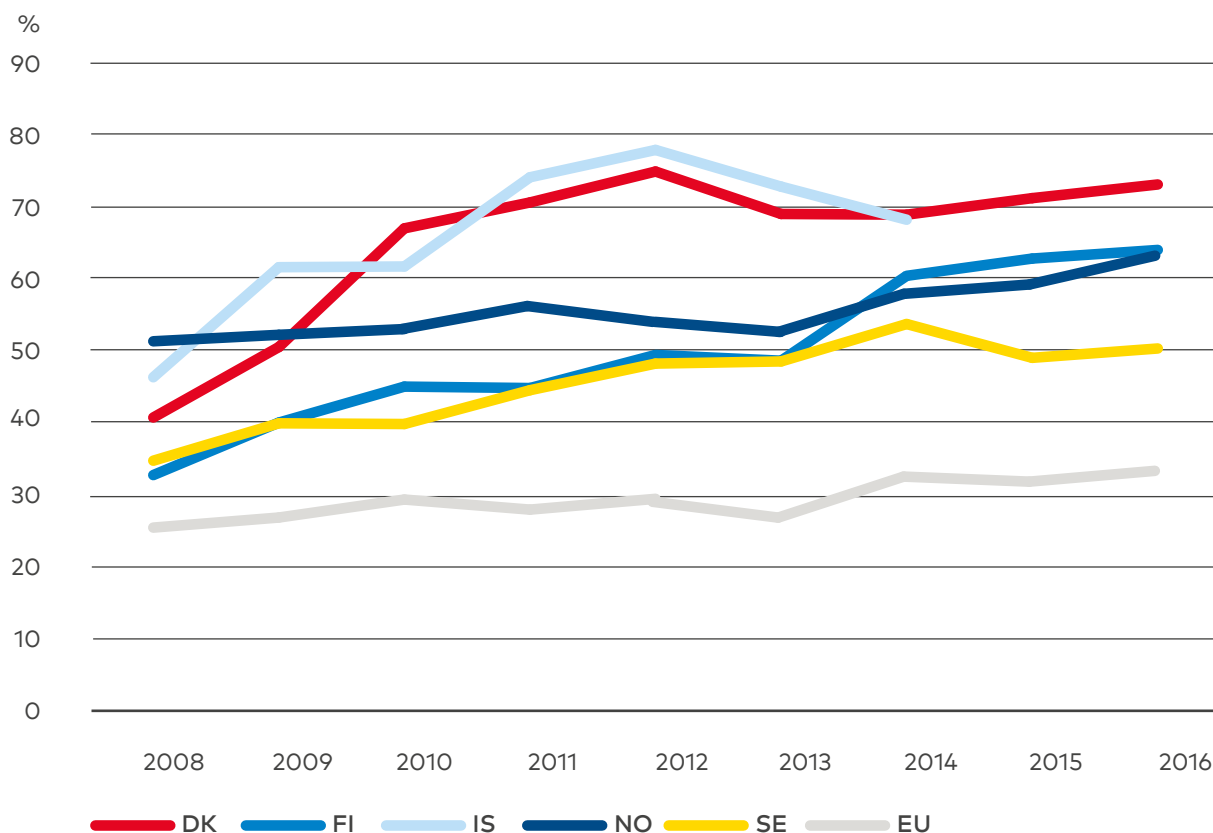


Figure 12.3 Household access to high capacity fixed broadband 2016.

Figure 12.4 Individuals submitting completed forms to public authorities over the internet in the Nordic countries between 2008 and 2016. IS: from 2008 to 2014.



Data source: Eurostat (survey).

granted "Fast Broadband" or "Broadband for all" state aid. Nonetheless, the other half of the leading group of municipalities consist of small municipalities that have not been part of the latest national project. To highlight the power of small municipalities, Helsinki ranks only 23rd when it comes to access to 30 Mbt broadband, and 93rd (5%) in terms of 100 Mbt broadband in 2016 (Viestintävirasto, 2016).

Substantial number of Nordic citizens using digital public services

The modernisation and digitisation of public services can lead to efficiency gains for the public administration, citizens and businesses, including better services through digital channels. The citizen's use of completed forms also indicates

the degree of digital skills and trust in the society (European Commission, 2017). The potential cost-savings on public service delivery going from paper-based communication to digital or web-based communication with citizens and businesses are considerable, in addition to more efficient public service delivery, positive environmental impacts and increased trust across society are also often mentioned (Norwegian Ministry of Local Government and Modernisation, 2016).

A good indication of the efficiency and inclusiveness of public service delivery can be measured by the extent to which citizens and businesses submit completed forms to public authorities over the Internet. Figure 12.4 indicates the percentage of individuals who use the Internet and who have submitted completed forms to the public authorities over the Internet in the Nordic countries and the EU28 countries

average between 2008 and 2016. The EU28 average slightly increased between 2008 and 2016, from 25% to 34%. The Nordic countries are all well above the European average while their increases over the same period are also more significant than the European average.

Denmark is the leading Nordic country and the second in Europe (after Estonia) with 73% of individuals with Internet access having submitted completed forms to the public authorities over the Internet in 2016. Denmark's latest digital strategy states that it must provide good conditions for growth and reduce administrative burdens and should contribute to sustaining an inclusive society. Iceland also provides modern digital services to its citizens, gaining in efficiency and producing a reduction in public administration expenditure levels. Consequently, 68% of those individuals with Internet access, have submitted completed forms to the public authorities over the Internet in Iceland (data for 2014), making it the third highest scoring European country after Estonia and Denmark. Finland ranks 4th with 64%, thanks to the specific focus on the investments of the Finnish government promoting the wider digitalisation of public services at all levels of government, particularly at the local level. Digital solutions will also allow the once-only principle from 2019 (European Commission, 2017), where a piece of information is only collected once and used in all relevant applications. Norway is also a frontrunner in the provision of digital public services and occupies 5th place on the list (63% in 2016), thanks to significant efforts since the 1990s with its citizen-centred approach. For instance, Norway abolished the amendment in 2014 which made it mandatory for the public sector to receive consent from recipients before online correspondence. The option to opt out of receiving individual decisions digitally and other important messages from the public sector was introduced instead positively affecting the use of public services (Norwegian Ministry of Local Government and Modernisation, 2016). The relatively low and stagnating figures for Sweden within the Nordic context reflected in its 9th rank in a European context (50% in 2016) and can be put down to two issues. On the one hand, the municipalities are facing significant challenges in respect of providing digital public services, mostly due to capability deficits in relation to their development. On the other hand, many forms no longer need to be filled in online. The latter are now being replaced by mobile applications.

The Nordic countries are all well above the European average while their increases over the same period are also more significant than the European average

Looking at the context within Denmark, Finland, Norway and Sweden (table 12.1), the highest rates of submission in respect of completed forms are found in the capital city regions, except for Sweden where the NUTS 2 region of Sydsverige is two points ahead of Stockholm. While all the regions in Denmark show high rates ranging from 69% to 73%, disparities are larger in the three other countries. The largest disparity is found in Sweden with a rate of 35% in Norra Mellansverige and a rate of 56% in Sydsverige. Disparities are also discernible in Norway. These regional differences likely stem from the regional population structure, as in Norway some 82% of the jobseeker registrations occur online whereas only 58% of the pension documents were sent in digital form. Thus, regions with a high percentage of pensioners may produce more paperwork.

Concluding remarks

The promotion of digital inclusion remains a high priority across all Nordic digital agendas, since good NGA coverage does not automatically result in Internet usage by all people. Recent surveys (table 12.1) show that there is still a part of the population that has never used the Internet. The figures indicate that there is still a need for a more accessible digital infrastructure and for the further development of digital skills, even though the results highlight a better situation in the Nordic Region than in Europe more generally. The shares in Nordic sub-regions ranges between 0% in Trøndelag and 8% in Mellersta Norrland with most regions returning values between 2% and 4%, but all with lower figures than the European average of 14% in 2016 (table 12.1). The most digitally inclusive areas in the Nordic Region can be found in Norway, Övre Norrland, Östra Mellansverige and in the Danish capital region Hovedstaden. In addition, capital areas in each country generally host less non-Inter-

Country	Region	Individuals who submitted a completed form on the Internet (%)	Individuals who never used the Internet (%)
Denmark	Hovedstaden	73	1
	Sjælland	69	3
	Syddanmark	69	4
	Midtjylland	72	2
	Nordjylland	70	3
Finland	Länsi-Suomi	57	5
	Helsinki-Uusimaa	68	2
	Etelä-Suomi	59	4
	Pohjois- ja Itä-Suomi	55	7
Norway	Oslo og Akershus	68	1
	Hedmark og Oppland	58	1
	Sør-Østlandet	62	3
	Agder og Rogaland	62	2
	Vestlandet	53	1
	Trøndelag	67	0
	Nord-Norge	59	4
Sweden	Stockholm	54	1
	Östra Mellansverige	44	1
	Småland med öarna	42	5
	Sydsverige	56	2
	Västsverige	47	3
	Norra Mellansverige	35	6
	Mellersta Norrland	47	8
	Övre Norrland	42	1
Iceland	National (2014)	67	1
EU average		31	14

Table 12.1 Nordic NUTS2 regional scoreboard for two indicators, in 2016. Survey with results in percentage of individuals 16–74.

Data source: Eurostat (survey at NUTS2 level).

net users than rural areas. Norway's ranking in the number of non-Internet users places the country ahead of other Nordic countries in digitalisation terms with the highest value found in Nord-Norge (4%). Swedish regions continue to lag in terms of

introducing the Internet to the rest of its citizens while although northern and eastern Finland have experienced a positive downwards trend in non-users, they still contain 7–8 % of inhabitants who have never used the Internet.

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Chapter 13

HEALTH AND WELFARE

We continue to live longer, but inequalities in health and wellbeing are increasing

Authors: Nina Rehn-Mendoza and Ryan Weber

Maps and data: Shinan Wang

The Nordic countries are among the highest ranked in international comparisons on health, welfare and well-being. The United Nations Sustainable Development Solutions Network publishes the World Happiness Index as a measure of wellbeing using six happiness indicators: social support, generosity, healthy life expectancy, perception of corruption, GDP per capita and freedom to make life choices. In the 2017 rankings, the Nordic countries are at the very top – Norway sits in first place, followed by Denmark (2nd) Iceland (3rd), Finland (5th) and Sweden (10th) out of 155 countries (Helliwell et al., 2017).

The Nordic Welfare Watch, a leadership programme initiated during the Icelandic Presidency of the Nordic Council of Ministers in 2014, has developed 30 national indicators to monitor welfare trends and policy making throughout the Nordic Region in a comparable manner (Friðleifsdóttir et al., 2017). This report applies a number of these indicators at the local and regional level to further understand Nordic health and welfare trends, as well as discussing the emerging issue of health care accessibility and the development of e-health innovations.

In general, the Nordic welfare model is based on high employment rates for both men and women (see chapter 5), and is therefore contingent on the

Finland has increased life expectancy by more than 12 years

existence of a healthy workforce and the contribution it can make to the labour market. In more remote regions, the importance of physical and mental wellbeing is even more pronounced and chronic diseases, also known as noncommunicable diseases (NCDs), are a burden for both local health care and the local labour force.

Longer life expectancy in the Nordic Region

As one of the UN Sustainable Development indicators for good health and well-being, life expectancy at birth measures the general health status of a population. Life expectancy at the national level is highly correlated to national income indicators such as GDP per capita. Most of Europe has however reached a level where further increases in wealth no longer increase average life expectancy.

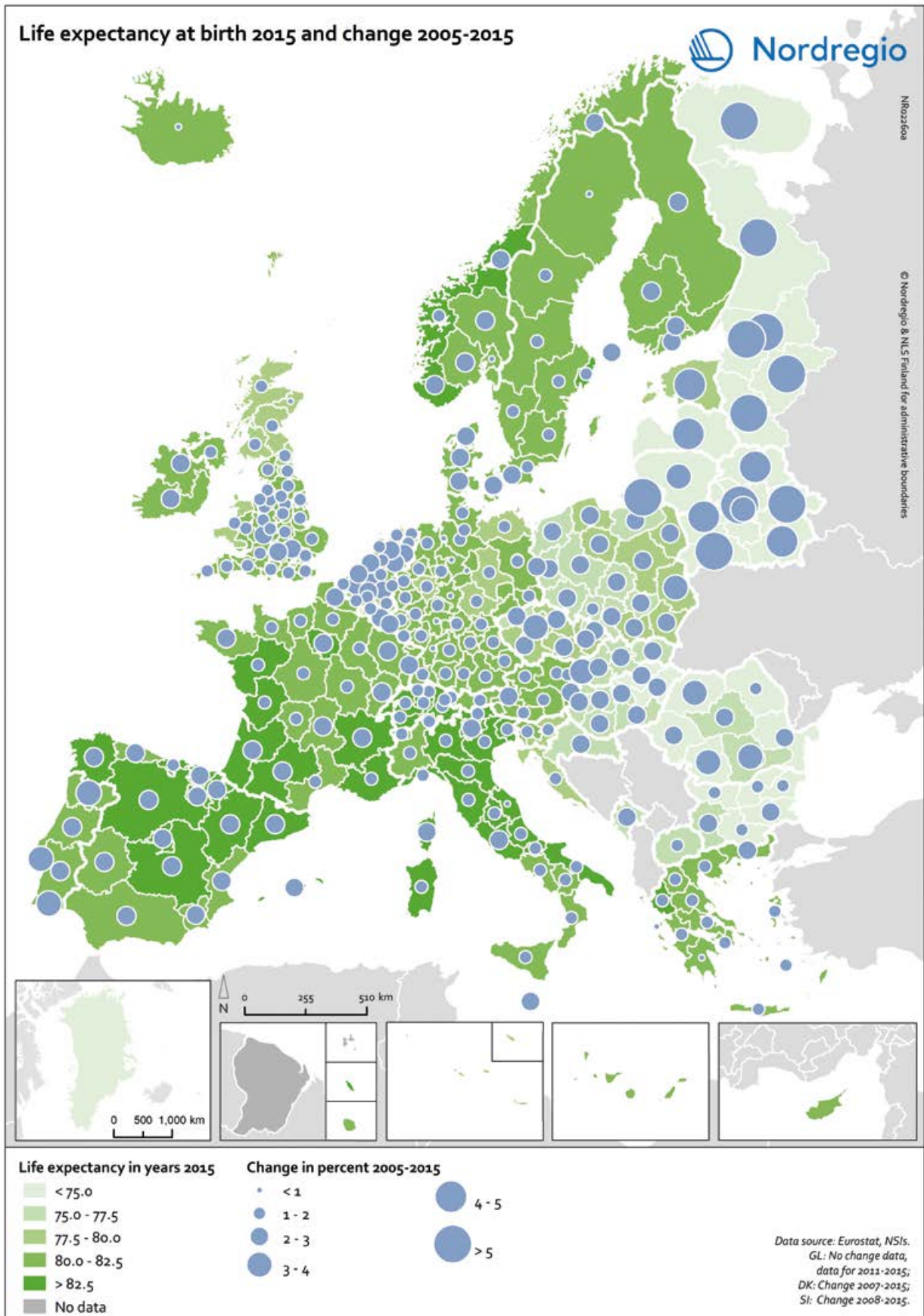


Figure 13.1 Life-expectancy at birth in Europe 2015 and change during the period 2005 to 2015.

	Male	Female	Total	Year
Denmark	78.8	82.7	80.8	2015
Finland	78.7	84.4	81.6	2015
Norway	80.5	84.2	82.4	2015
Sweden	80.4	84.1	82.2	2015
Iceland	81.2	83.8	82.5	2015
Greenland	69.7	74.1	-	2011–2015
Faroe Islands	79.9	84.7	82.1	2015/16
Åland	80.3	84.32	-	2013–2015

Table 13.1 Life-expectancy at birth in Europe 2015 and change during the period 2005 to 2015.

Data source: Eurostat and NSIs. Note: GL & AX: No data for total population.

Looking back to the 1960s, Finland has increased life expectancy by more than 12 years, while Denmark, Norway and Sweden have seen it increase by about 8–9 years. Finland's relative progress was based on its improvement from a lower life expectancy base compared to the other Nordic countries in the 1960s (WHO, 2014).

Figure 13.1 shows that the longest life expectancies are found in parts of Spain, France, Italy, Switzerland and Norway. In 2015 there is still a visible East-West divide, where countries in Eastern Europe, in the south-east of the Baltic Sea Region and Northwest Russia have a significantly lower life expectancy. The size of the blue bubbles indicate however that these regions have witnessed the largest increases over the last ten years. If their economies continue to grow it is likely that their life expectancy will continue to increase for some years to come.

Table 13.1 indicates that Iceland, Norway, Sweden, the Faroe Islands and Åland share similar life expectancies of around 82 years, followed by Finland, and Denmark. Denmark's lower performance is due to higher rates of heart disease, lung cancer and liver cirrhosis, which are mainly caused by unhealthy diets and relatively high tobacco and alcohol consumption. For Finnish men, deaths from suicides and accidents are more common than in other Nordic countries. Greenland experiences a shorter life expectancy than the rest of the Nordic region by about 10 years. This large gap is explained by high infant and child mortality, suicide, accidents and violent deaths, as well as lung and cervical cancers. Regional differences in life expectancy of several years within the Nordic Region are observed for

both men and women in each country. For men, the largest variation exists in Finland (including Åland) with a four-year difference between male life expectancy in Etelä-Savo (76.3) and Åland (80.3). In comparison, the difference is 3.4 years in Norway, 2.5 years in Sweden and only 1.2 years in Denmark. For women, the largest variation exists in Norway, with a 2.9 years difference between Østfold (82.3) and Finnmark (85.2). In comparison, the difference is 2.4 years in Finland, 2 years in Sweden and only 1.1 years in Denmark (Wang, 2017).

Regional differences are partly due to individual characteristics, but also to the local environment as well as the politics and institutions that influence the local economy, access to local services and care, general educational levels and the local norms that influence lifestyles. Regional differences are mainly manifested in the low income and least educated population group (Hartman & Sjögren, 2017).

Coronary heart disease is still the most common cause of death

One of the targets of the UN's Sustainable Development Goals is a 33% reduction, by 2030, in premature mortality from non-communicable diseases through prevention, treatment and the promotion of mental health and well-being. To measure this, two indicators are used: mortality rate from non-communicable diseases (NCDs) and suicide mortality rate.

The four main NCDs are cardiovascular diseases (heart attacks and strokes), cancers, chronic res-

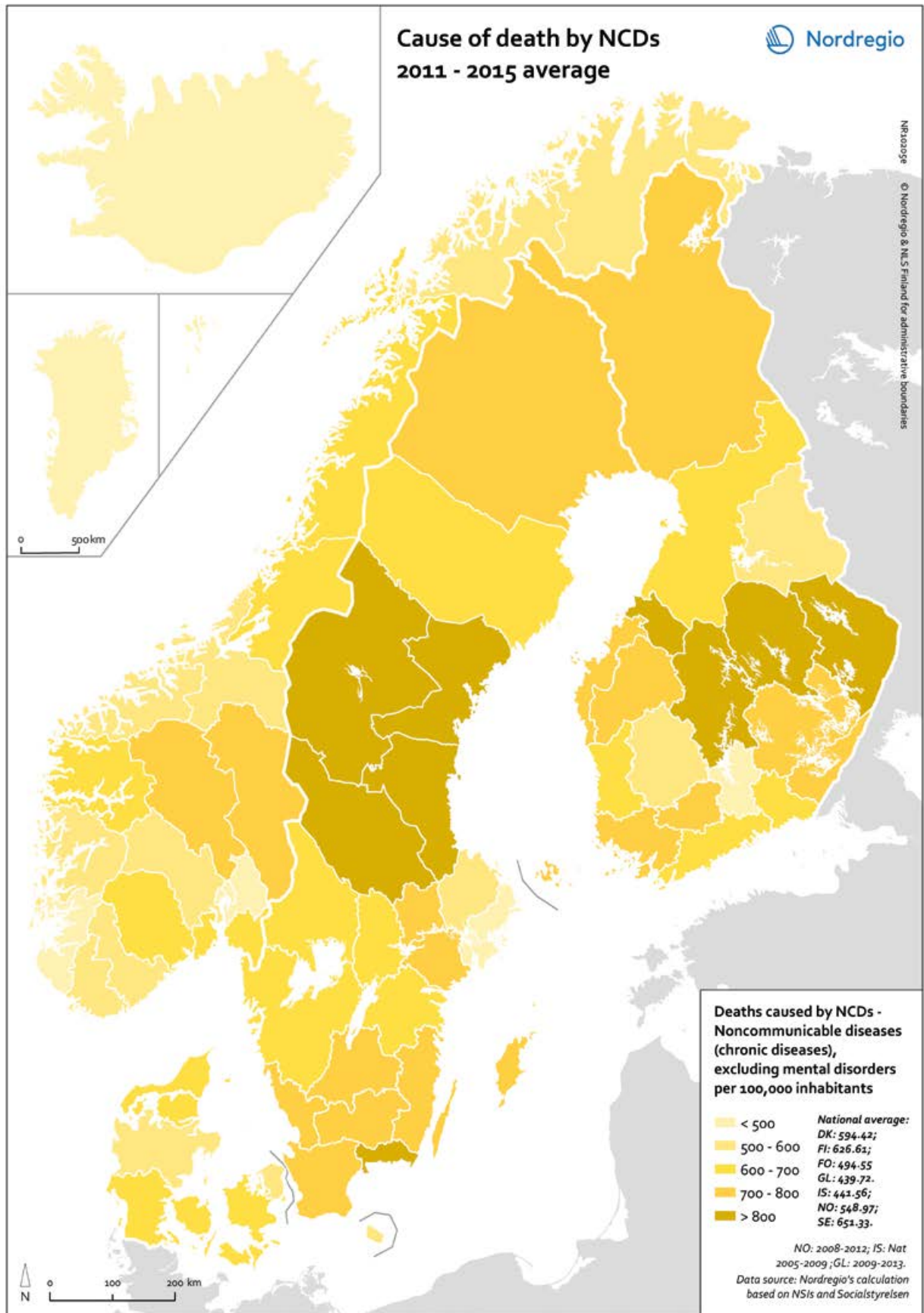


Figure 13.2 Mortality due to non-communicable diseases, 2011–2015 average.

piratory diseases (e.g. asthma) and diabetes. Globally, NCD's are responsible for 70% of worldwide deaths – a substantial proportion of which are caused by four lifestyle risk factors: alcohol, tobacco, unhealthy diet and limited physical exercise. NCDs tend to be long-term and their increasing mortality rates are the result of a combination of factors, including rapid urbanisation, globalisation of unhealthy lifestyles and population ageing.

The most common cause of death in all Nordic countries is coronary heart disease, followed by strokes in Norway and Sweden, lung cancer in Denmark and Alzheimer's/Dementia in Finland and Iceland. Coronary heart disease deaths have been greatly reduced since the 1980s, due to earlier diagnostics and better treatment options. This is the single biggest explanation for the increase in life expectancy across the Nordic Region.

Collectively, various forms of cancer are the second most common cause of Nordic mortality even though mortality rates have remained steady since the 1980s. Lung cancer and breast cancer remain the two most common cancer forms, but noteworthy changes have occurred in their predominance. In Norway for example, lung cancer has taken over from breast cancer as the deadliest form of cancer among women, due to advances in breast cancer screening and treatment (WHO, 2017).

Figure 13.2 shows clear regional differences in mortality due to NCDs. Finland and Sweden both have higher nationwide rates of NCDs than the other Nordic countries with the east and north of Finland seeing higher NCD death rates than the south and west of the country. High NCD mortality rates in Sweden are found in Blekinge, Dalarna, Jämtland and Västernorrland.

In Norway, Østfold, Hedmark, Oppland, Nordland and Finnmark have the highest share of overweight people, and people who eat the least amount of fruit and vegetables, drink lots of sugary drinks and do the least amount of exercise (Statistics Norway, 2016). Consequently, they are the regions among the highest NCD mortality rate. According to Statistics Norway, the healthiest population can be found in the capital city where only 19% of the population is overweight compared to the national average of 28% (Statistics Norway, 2016). The slightly lower NCD mortality in Greenland masks high mortality from other causes such as acute infections, accidents, violence and suicide (WHO, 2017).

About 3,500 people commit suicide every year in the Nordic Region

Large difference in suicide rates within the Region

Another important NCD disease category is that of mental health disorders which can lead to long-term disability or even death. Mental disorders are increasing globally and are now the leading cause of YLDs (years lived with disability) worldwide. Approximately 40% of the total burden is caused by depressive disorders, followed by anxiety, drug and alcohol abuse disorders and schizophrenia. If figure 13.2 included mental health disorders, some regions in Denmark (Sjælland and Nordjylland) and Norway (Telemark and Hedmark) would show noticeably higher levels of NCD burden.

The most dramatic manifestation of mental ill-health is suicide. About 3,500 people commit suicide every year in the Nordic Region, and there is a 3:1 male to female ratio. The Faroe Islands has the lowest rate of suicide by a wide margin, followed by Denmark, Norway, Åland, Sweden and Iceland, which are all at similar levels. Finland has a slightly higher than average rate of suicide, but Greenland's suicide rate, being almost five times that of Finland, is the highest in the world.

In Norway, a significant reduction has occurred in suicide among young people, while in Sweden young people is the only category that has not decreased. Mental wellbeing among young people is generally declining in all of the Nordic countries, which may lead to increased numbers of suicides and suicide attempts in the future (Nomesko, 2017).

Figure 13.3 shows that suicide rates are higher in the rural areas in Finland, Norway and Sweden and lower in the capital regions in Denmark, Norway and Sweden. Gotland and Jämtland in Sweden, Vestfold in Norway and many regions in Finland all have higher suicide rates than their respective national averages. At the same time, there are some important regional outlier observations:

- Greenland's suicide rate is the highest in the world by a wide margin. Males between the age of 15–24 have the highest suicide rate, followed by women in the same age group. Many theories are put forward offering possible explanations, in-

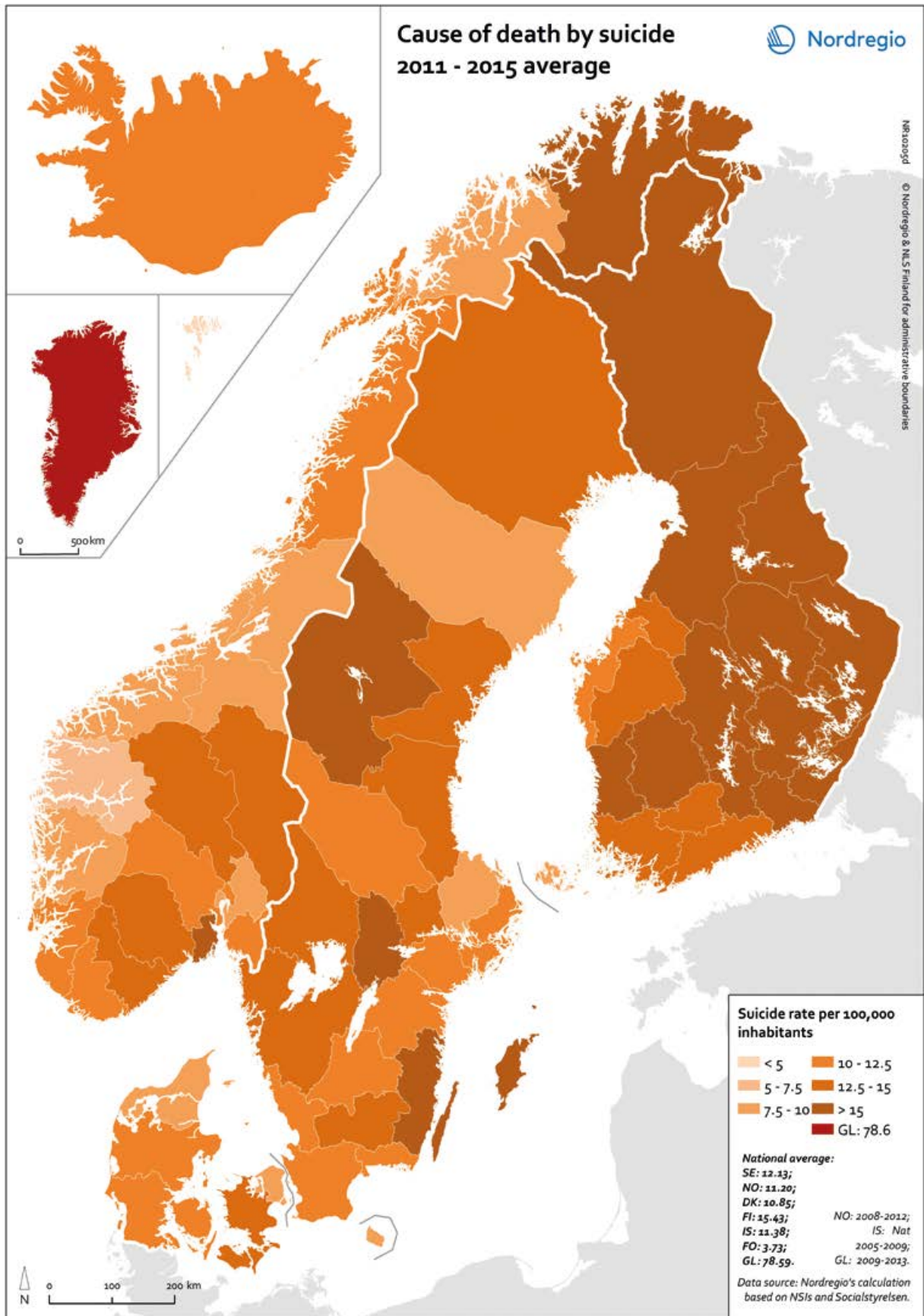


Figure 13.3 Mortality due to suicide, 2011–2015 average.

cluding poor emotional environments at home, high levels of depression, alcoholism, violence and complex effects of the modernization process (Bjerregaard & Lynge, 2006).

- Among men that hunt (and have access to guns) in eastern and northern Finland, the rate of suicide is higher than in the rest of the Nordic Region. Alcohol abuse is likely a combined factor in these suicides (Isometsä, 2017).
- Studies in Sweden show elevated rates of suicide attempts and psychosis among immigrants who may have faced traumatic experiences, and may now face chronic stress, unemployment and segregation (Socialstyrelsen, 2009).
- The Faroe Islands and Sogn og Fjordane are rural and remote areas that experience low suicide rates. Sogn og Fjordane in Norway is unofficially known as "trivselfylke", a region with satisfied, healthy and happy inhabitants. It is less urbanised and has a history of religious influence.

Social inequalities in health

Social inequality in health is defined as avoidable disparity in risk and incidence of disease and access to health care between groups of people, due to social and economic factors. Common inequality variables include demographic factors such as age, income levels, gender, education and ethnicity. While immigrant populations born outside Europe tend to have longer life expectancies than the general population, their self-perceived health status tends to be lower. This is due to challenges associated with poverty, inadequate housing, unemployment, refugee status, non-existent social networks, language barriers and illiteracy. The Ministry of Health and Care Services in Norway has developed a national strategy for immigrant health 2013–2017, which highlights some of the specific health challenges in a heterogenous immigrant population, e.g. tuberculosis, HIV, mental health, oral health, women's genital mutilation, and reproductive health (Helse- og omsorgsdepartementet, 2013).

Health differences due to social status are consistent and can be detected in both mortality, illness and experienced wellbeing. For example, the number of years lost among people aged 25–80 in Finland is three times higher in the lowest income group compared to the top 40% income group. This difference is explained by alcohol related deaths (about

Immigrant populations born outside Europe tend to have longer life expectancies than the general population

25%), heart disease (about 25%), accidental deaths and suicide (about 20%). The role of alcohol is higher in Finland than in the other Nordic countries (Karvonen et al., 2017). Social inequality is also evident given that high-income segments tend to utilise health services more than low income segments, for example in Norway and Finland. This is mainly due to the higher availability of occupational and private health services.

The distribution of social welfare

Financial social assistance is granted in all the Nordic countries when all other support options with loss of income have been exhausted. It is the last resort in the social security system and is given either as substitute for other sources of income or as a supplement to low personal income. The regulations for when, to whom and how much assistance is given vary greatly between the countries. For example, in Denmark and Iceland such assistance is subject to tax, while in Finland, Sweden and Norway it is a net benefit and tax exempt. Figure 13.4 illustrates the regional distribution of recipients of social assistance, but it also shows that national regulations for social assistance vary between the Nordic Countries. The percentage of the population receiving social assistance is highest in Finland (3.3%), followed by Denmark (2.4%), Sweden (2.0%), Norway (1.6%) and Iceland (1.4%) (Nomesco-Nososco, 2016).

The high rate in Finland is associated with 18–24-year-olds of whom 14.9% are on social assistance, compared to the next highest of 7.4% in Sweden. Sweden also has several areas where the proportion of the population on assistance is high, including Södermanland and Värmland. Norway has only a few such areas, mainly in the far north. Overall, the distribution of recipients in Denmark is evenly spread across the country, with no areas with a significantly higher proportion of recipients.

Recipients of social assistance are mostly outside the labour market due to various factors such

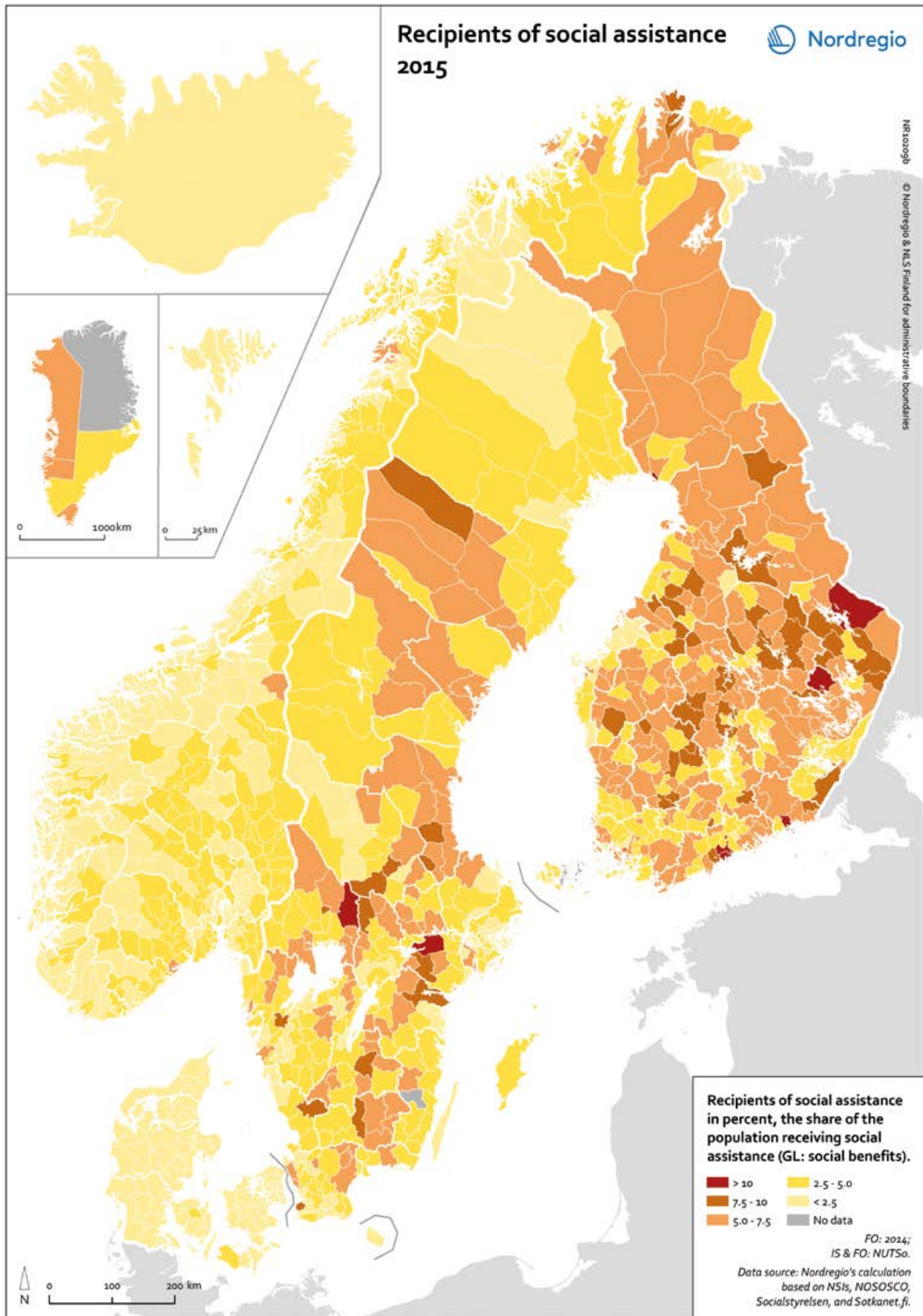


Figure 13.4 Recipients of social assistance 2015.

Health differences due to social status are consistent

as long-term illness or disability, or their pensions are too low to cover their basic needs. In a 2016 Finnish study for example, almost 30% of people aged 20–54 years and almost 20% of people aged 55–74 years reported that they had to forego medicines, doctors' visits or some food items due to lack of money (Karvonen et al., 2017). Regions may be particularly vulnerable if they have high rates of newly arrived immigrants, if they suffer from downsizing industries or if they have large numbers of less-educated workers on low salaries or engaged in predominantly part-time work.

Risk of poverty is based on a calculation of disposable household income after social transfers (60% of the national median disposable income is used as the cut-off point). The experience of a person being at risk of poverty is therefore relative to the society that directly surrounds them, as is manifest by having less monetary resources than one's peers to maintain well-being. It results in a limited ability to sustain a normal diet, lifestyle or activities given the local societal context, and leads to detrimental physical health effects as well as psychological or social challenges.

The lowest income quintile is often made up of people with low educational attainment, people outside the labour market or single-parent/single-person households. In the Nordic Region, the proportion of the type of household at highest risk varies by region; in Denmark and Norway it is working-age single person households, in Finland and Sweden it is retired single person households and Iceland it is single parent households. General trends in this area have been rather stable in the Nordic countries, except for Sweden where there has been an increase since 2010 (Nomesco-Nososco, 2016).

According to figure 13.5, Sweden has the highest share of people living in a household at-risk-of-poverty (15.1%) followed by Finland (12.8%), Denmark (12.1%), Norway (10.9%) and Iceland (7.9%). Regional variations are somewhat more difficult to discern compared to the other health and well-being indicators. This is in part caused by the higher administrative scale that is shown for Sweden compared to Denmark, Finland and Norway, as well as the lack of the cross-border dimension in this indicator.

It is notable however that municipalities within the metropolitan areas of larger centres like Oslo and Copenhagen show higher percentages of the population being at risk of poverty. This reflects the reality of higher income variance in metropolitan areas, which can be an important factor causing segregation and social exclusion, and further reinforcing negative effects on well-being. Metropolitan areas also face higher variance in housing structure, with more single person households than rural areas and small and medium sized towns. Coupled with high rents, this leads to a burdensome cost of housing and risk of poverty. The capital region of Finland shows a much different picture and is in fact an outlier with lower percentages of people at risk of poverty compared to the rest of the country.

Digital solutions can improve accessibility to health services

While social inequalities have been shown to contribute to inequitable health service accessibility, another aspect determining health care service quality is physical accessibility, which is still mainly determined by the location of doctors' offices, health clinics and hospitals. The Nordic Region is not alone in experiencing significant urbanisation combined with shrinking and ageing rural communities (see chapter 2), but it is challenged in this regard by its expansive area with large sections of sparsely populated rural areas and long distances between towns. As a result, rural health accessibility has generated significant policy debate in each of the Nordic countries – as governments try to strike a balance between ensuring health service accessibility for people living in rural areas and the need for managing health services in an economically viable way.

For example, Iceland's Regional development institute, Byggðastofnun, commissioned Nordregio to conduct a full national accessibility analysis for all health locations in the country. The results showed significant regional fluctuations in service accessibility, particularly for specialised care, including emergency and surgical services. In Finland, a major reform (SOTE) of health care and social service provision is currently being prepared with one of the key elements of the reform being the transfer of health care provision from the municipalities and joint municipal authorities to new, regional authorities, that will have a particular focus on specialised

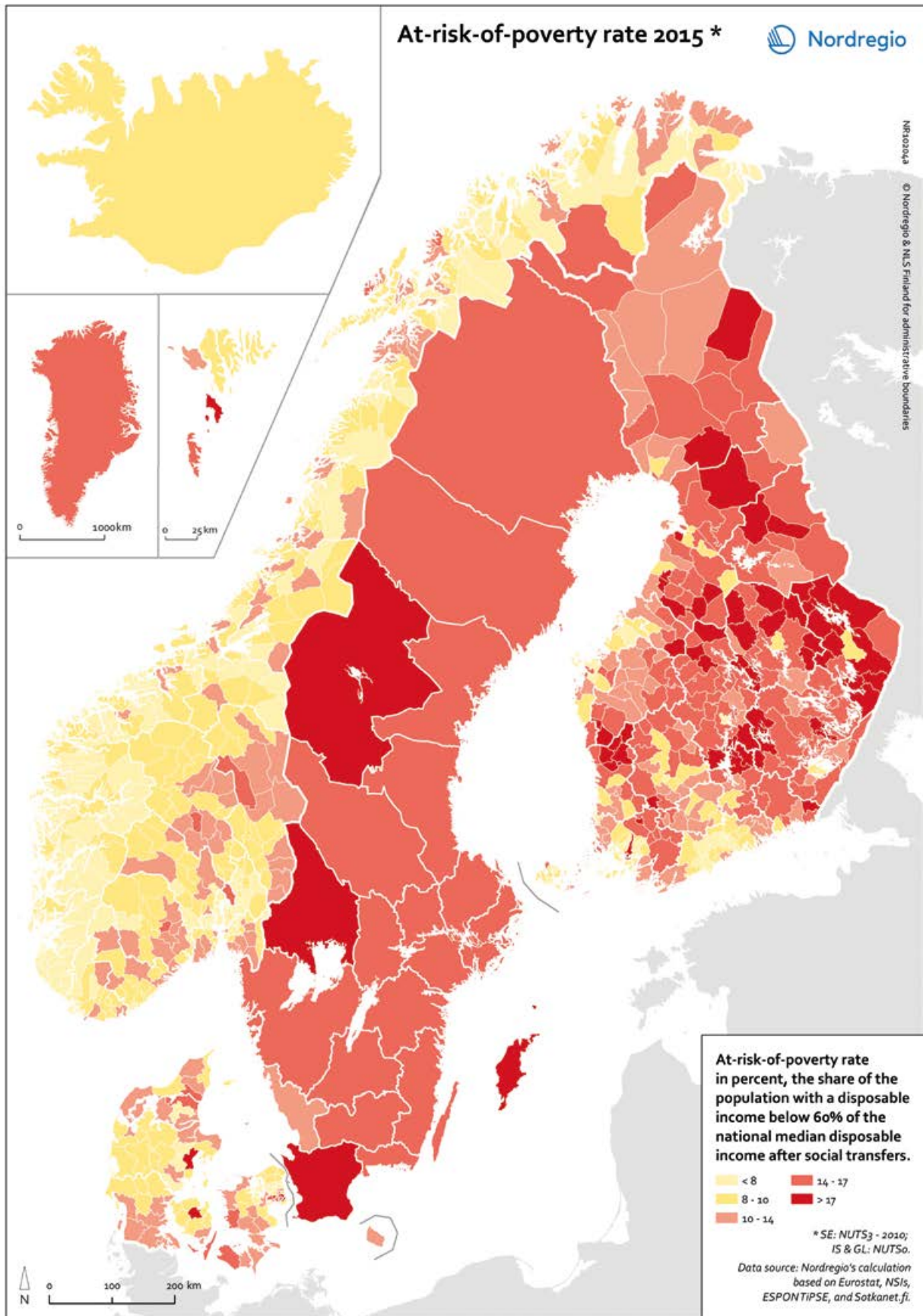
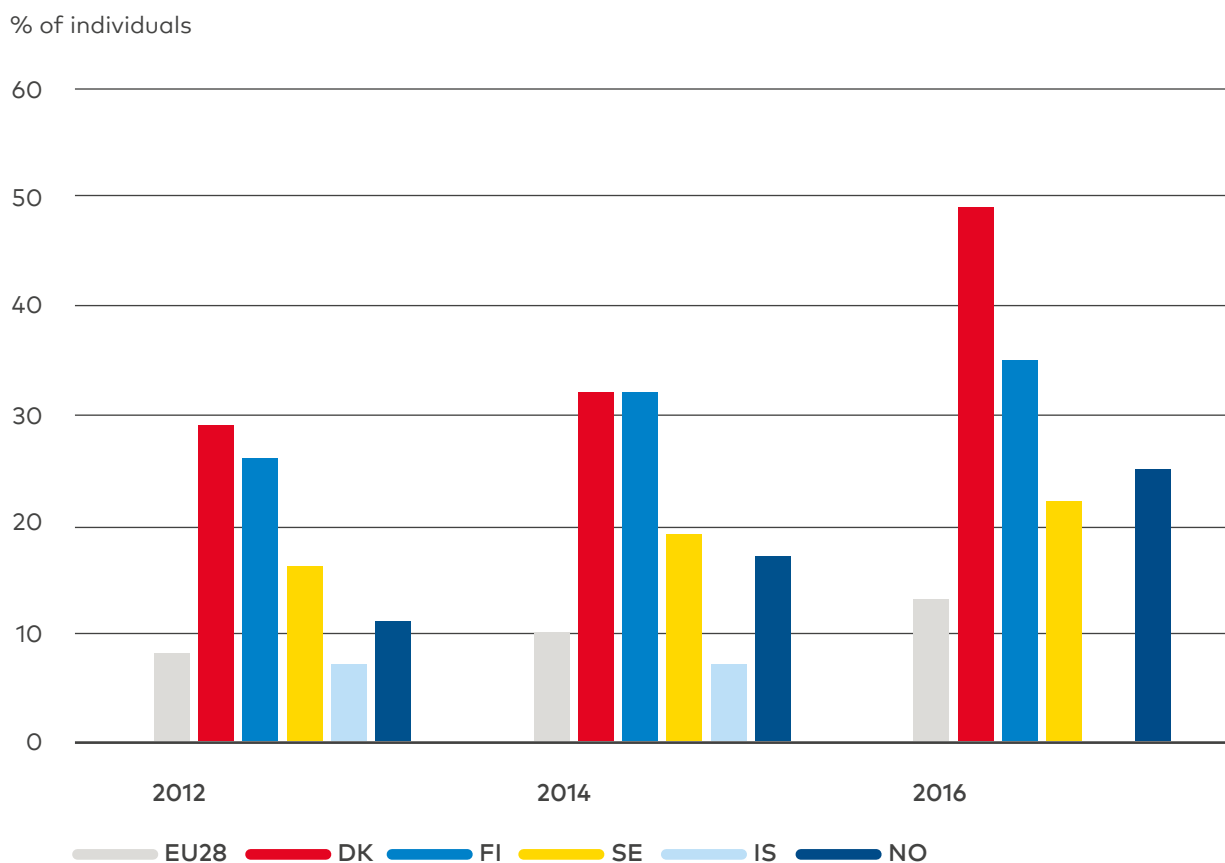


Figure 13.5 At-risk-of-poverty rate 2015.

Figure 13.6 Internet use: making an appointment with a practitioner via website.



Data source: Eurostat.

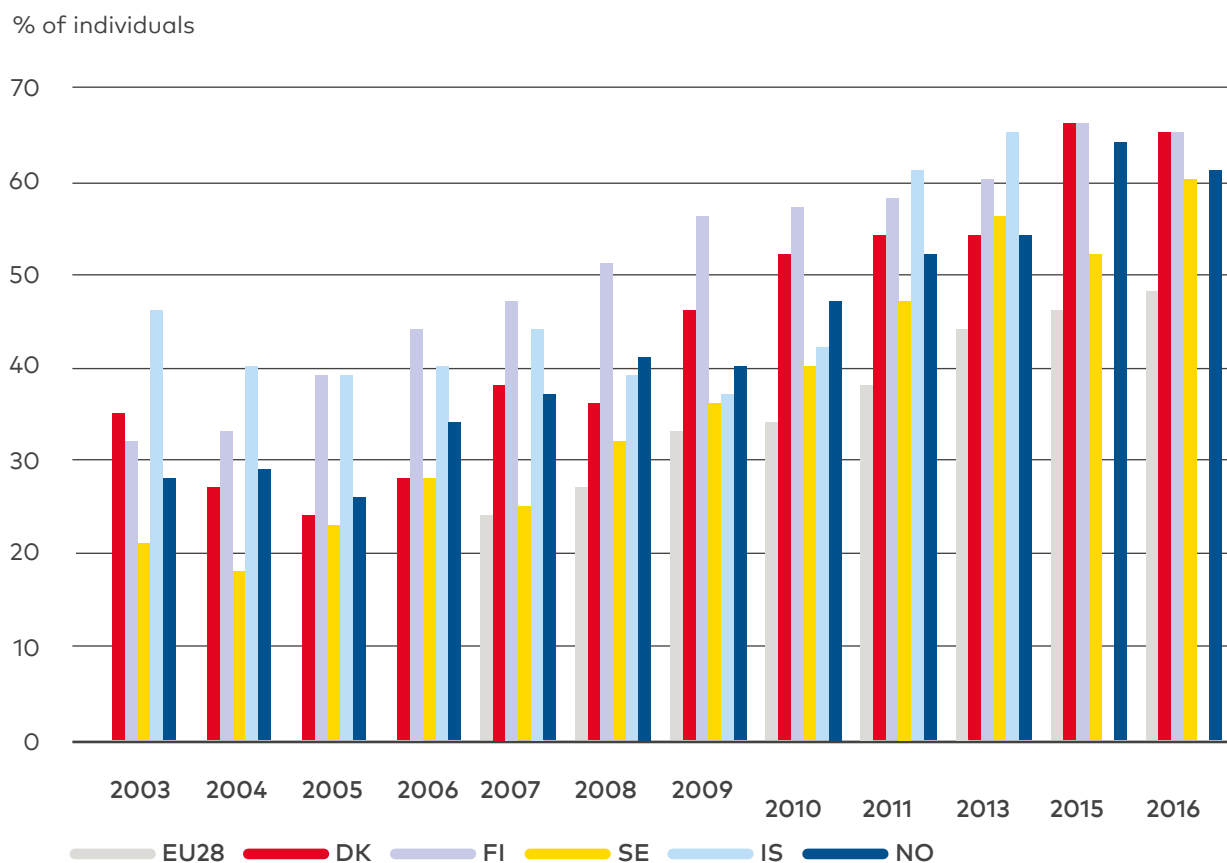
care. This would strengthen the autonomy of regional authorities and reduce the number health care authorities from 219 to 15–20 (National Institute for Health and Welfare, 2015). Since the reform is designed to produce significant savings in public health care provision, it is likely that the process will lead to increased digitalisation of certain health care services accompanied by a reduction in the number of health centres, particularly in respect of specialised care units.

Investment in digital e-health solutions is being publicly supported and viewed as providing an opportunity to reduce social and spatial inequalities in terms of accessibility to health services, at the same time as making healthcare more fiscally efficient. Figure 13.6 shows that all countries except Iceland (data missing for 2016) are above the EU average and are increasingly using the Internet to book doctor appointments, with the most significant growth

here being in Denmark and Norway. Figure 13.7 shows that the Nordic countries are all well above the EU average for using the Internet to seek general health information, in addition to simply booking appointments. Both statistics are representative of significant innovations that are emerging in health service provision in the Nordic Region.

Online doctor consultations are becoming more common in the Nordic countries, as are private sector initiatives for ordering prescription medication. But moving beyond this, multiple Nordic start-up companies are working with even more innovative solutions that will further extend the possibilities of eHealth solutions. This includes comprehensive eHealth platforms that could have the capability for remote diagnosis, treatment and aftercare of certain health conditions such as addiction and abuse disorders.

Figure 13.7 Internet use: seeking health information.



Data source: Eurostat.

Concluding remarks

The people in the Nordic countries continue to live longer and healthier due to a number of factors, including improvements in health care technologies and early detection, increases in education levels and income, and decreases in smoking. Among the challenges to future health and welfare are: ensuring that increases in health and well-being are distributed evenly in the population; addressing the growing mental health problems that all countries are facing, especially among young people; preventing chronic diseases through the more successful promotion of lifestyle choices; and how to support the welfare of economically vulnerable groups, such as immigrants, single parents and old people on low pensions.

However, one common question that needs to be solved in all countries is how to provide good health

care and social services in remote and sparsely populated regions in the future. The eHealth revolution will likely offer significant solutions, but without careful implementation it could also reinforce current challenges, including the continuing need for acute care in rural areas and the ability for elderly citizens to adapt to and interact with digital solutions. Therefore, careful consideration will have to be given to which forms of treatment can be shifted toward eHealth solutions. The vision should be to reinforce and develop health care services rather than identifying opportunities to replace physical consultation with digital options. Thus, continued technological development will offer solutions to rural health care services, but difficult decisions remain for all Nordic countries over how to balance entrenched urbanisation processes while maintaining appropriate health care service levels.

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Chapter 14

CULTURE AND ARTS

An essential area for Nordic co-operation

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Maps and data: Linus Rispling

Culture and arts is an essential area for co-operation within the Nordic Region promoted by the Nordic Council of Ministers to *"manage the historical, cultural and linguistic heritage and ensure continuity, [and...] encourage new cultural expressions and impulses"* (Nordic Council of Ministers, 2016). In the Nordic strategy for cultural co-operation it is clearly stated that the Nordic Region should be a creative and intercultural region, where the inhabitants can participate and access cultural activities. For Nordic cultural collaboration it is fundamentally with facts, research and knowledge that we can exhibit

changes in culture and arts relating for example to demographical or technological shifts. Nordic co-operation on culture does not therefore only call for the exchange of skills and experiences, but also for information about the state of the Nordic cultural sector – that can shed light on social inequalities and barriers for cultural participation.

Displaying cultural data, not only at national but also at regional level, facilitates discussion on accessibility to cultural activities in rural and urban areas in the Nordic Region. From a regional development perspective this information is crucial as it indicates

Beyond Nordic national level cultural indicators

Thus far, cultural statistics and other data has been gathered and disseminated on the national level in each Nordic country. Since the creation of the Nordic Centre for Cultural Policy Analysis in 2016 by the Nordic Council of Ministers, steps have been taken to harmonise Nordic cultural statistics and to increase our ability to develop comparable knowledge on the cultural sector in the Nordic Region. In collaboration with Nordregio, this chapter takes another step forward, namely to look at some selected cultural indicators at the Nordic regional and municipal levels. Future aspects of interest here could also include a comparison between the Nordic Region and non-Nordic countries, although such international, harmonised data is not currently generally available.

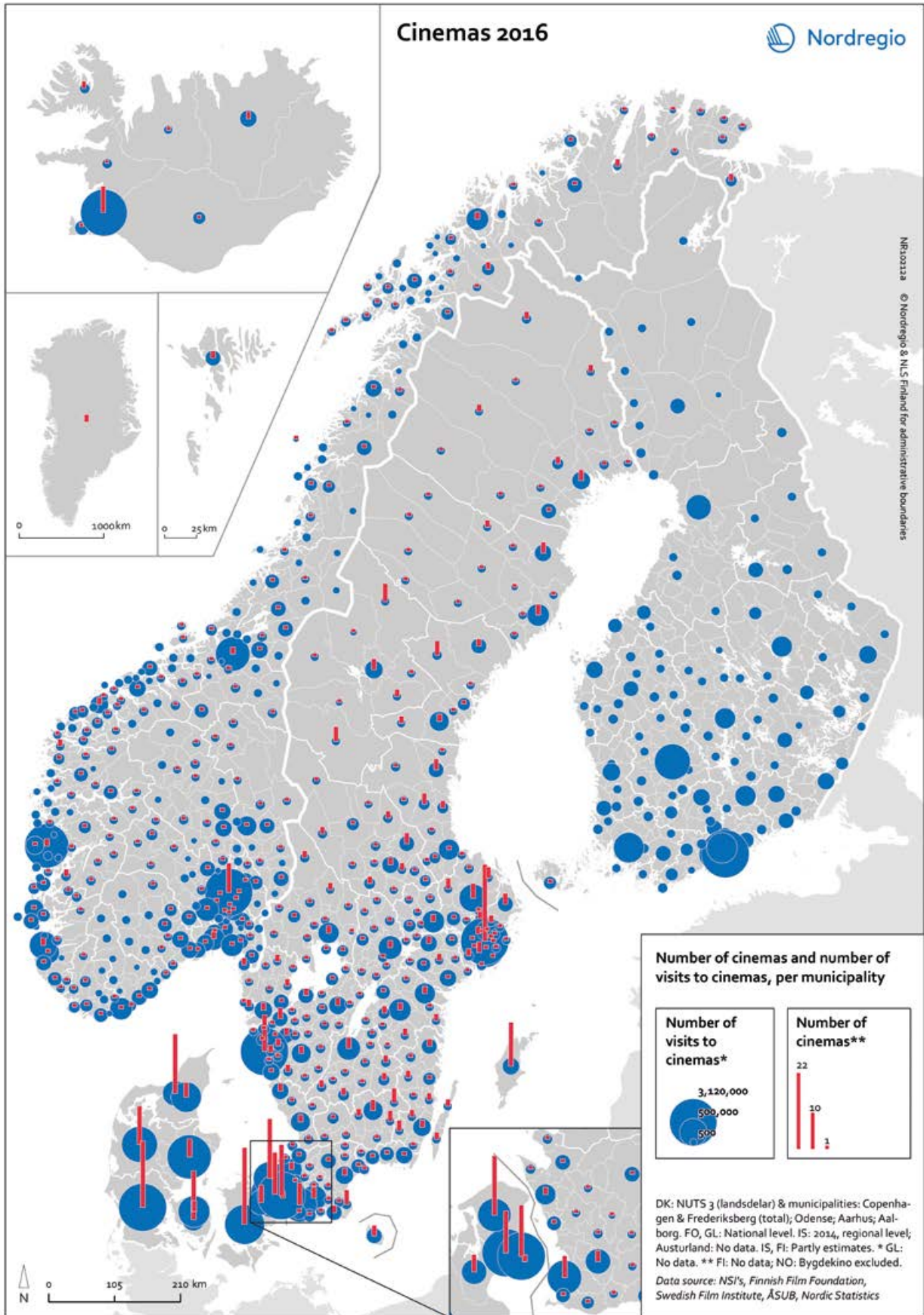


Figure 14.1 Cinemas 2016.

	Visit/inhabitant, national level	Visit/inhabitant, regional level, min-max
Iceland	4.2	0.7–5.5
Norge	2.5	1.8–3.3
Denmark	2.3	1.6–4.5
Sweden	1.8	1.2–2.5
Finland	1.6	0.8–2.1

Table 14.1 Visits to cinemas per inhabitant on the national and regional level.

Data source: Nordregio's calculations based on NSIs and the Swedish Film Institute.

whether polarisation exists in and between regions – where place of residence has consequences for cultural participation. Moreover, it makes it possible to identify similarities and differences not only within the Nordic Region, but also between administrative regions.

In this chapter, a first attempt is made to present comparable data in three cultural sectors; cinemas, libraries and museums. As the chapter demonstrates, challenges remain in terms of making the data fully comparable. In the following sections we present current data within these three areas emphasising the need for improved data harmonisation.

Cinemas are spread across the Nordic Region

The map of cinemas in the Nordic Region exhibits, where possible, the number of cinemas and visits on the municipal level for 2016 (figure 14.1). For Denmark, municipal data was only available for five metropolitan municipalities (Copenhagen and Frederiksberg, Odense, Aarhus, and Aalborg) with the rest only available on the regional level. Data on the number of cinemas for Finland was entirely missing. Sweden has most cinemas (418), compared to Norway (201), Denmark (163) and Iceland (15). However, Iceland has most cinemas per 10,000 inhabitants (0.45). Sweden has 0.42 cinemas per 10,000 inhabitants while Norway has 0.39 and Denmark 0.29.

On the municipal level, data is only available for the number of cinemas in Norway and Sweden. In Norway, 184 of 427 municipalities have one or more cinemas; the equivalent number in Sweden is 259 of 290 municipalities. Even though, several municipalities in Norway lack their own cinema, people still

Iceland has most cinemas per 10,000 inhabitants

attend cinemas in 308 of the country's 427 municipalities. This is made possible by the "bygdekino" (touring cinema) initiative in Norway, which shows cinema films in areas without a permanent cinema (Bygdekinoen, 2017). There are similar initiatives in Sweden and in Finland arranged by organisations of community centres, small cinemas and adult education projects such as National Federation of People's Parks and Community Centres (Folkets hus och Parker) in Sweden, the Film Centre of Central Finland and the Educational centre for audio-visual culture in eastern Finland (ISAK).

Icelanders are the most frequent cinema visitors

The number of cinema visits per inhabitants diverge between the Nordic countries, particularly in respect of Iceland which excels with 4.2 visits per inhabitant/year, compared to Norway (2.5), Denmark (2.3), Sweden (1.8), Finland (1.6) and the Faroe Islands (1.4) (see table 14.1). Visits per inhabitant/year are stable over time (2005–2016), except for Iceland and the Faroe Islands, where visits per inhabitant have decreased (Nordic Agency for Cultural Policy Analysis, 2017). As shown in table 14.1, the number of visits per inhabitant on the regional level is unevenly distributed across the Nordic countries, with Iceland seeing the largest differences between regions and Sweden the smallest. The large regional difference in Iceland is due to the

uneven spread of the population, a large majority of whom live in the capital region.

Data also demonstrates that some municipalities have a high number of visits per inhabitant – not only in the central city municipalities – but also in smaller municipalities. This probably relates to the fact that some municipalities host large cinema multiscreen complexes which attract visitors from other nearby municipalities.

Potential to develop Nordic cinema statistics

Nordic cinema film statistics are collected continuously, but it is important to note that each country has its own agreements with its film sector over what data are to be reported and for what purposes. Consequently, Nordic film statistics sometimes differ in terms of scope, content and availability (Nordic Agency for Cultural Policy Analysis, 2017). Available data exists on cinemas and cinema visits for all Nordic countries and territories on both the national and regional levels, except for Greenland (no data on cinema visits). Data gaps also exist in respect of some variables at the municipal level. Norway, Sweden and Åland have data at the municipal level. Denmark has accessible data on the regional NUTS 3 level, *landsdele*, and for the metropolitan core municipalities of Copenhagen–Frederiksberg, Odense, Aarhus and Aalborg. Finland has data on the number of *visits* to cinemas in each municipality. Greenland and the Faroe Islands have information on the number of cinemas only at the national level, while for Iceland, data is available only at the statistical regional level.

Several outstanding issues however need to be highlighted here in relation to the development of harmonised and relevant cinema statistics in the Nordic Region. In the new era of digitalisation, where most cinemas in the Nordic Region are digitalised, the social and cultural role of cinema theatres is changing (DGT, 2017). At present, cinema theatres are, to an extent, being used not only to show cinema films, but also for the broadcasting of concerts, theatre plays and opera performances. As such, it is therefore relevant to gather data on the display of performance genres other than cinema films. Finally, information on initiatives such as Bygdekino in Norway, but also the National Federation of People's Parks and Community Centres in Sweden and corresponding initiatives in Finland will provide us

with information about cultural participation – in this case on cinema visits in municipalities without a permanent cinema theatre.

Municipalities with several public libraries have numerous visits

The role of libraries is changing in the Nordic Region. Public libraries are increasingly turning into community centres and public spaces offering additional services other than book lending. Public libraries have of course been offering different types of media for a long time as they have to adjust both to new media developments and public demand. Recently however other types of activities have become more common. These for example include, reading and writing groups for immigrants, education in Internet and digital media use for the elderly and "makerspaces" encouraging the sharing of knowledge, tools and ideas across a wide range of activities.

Figure 14.2 shows the number of public libraries per municipality in the Nordic Region 2016, and the number of visits. The number of public libraries includes both main libraries and sub-branches. Almost all municipalities in the Nordic Region have at least one library; Iceland has the most municipalities without a library (22). The 14 municipalities in the Nordic Region with more than 1.5 million visitors each all had 10 or more public libraries. These 14 municipalities are among the largest municipalities in the Nordic Region with a population between 185,000 and 924,000 inhabitants. Three of the Nordic country capitals are also the capitals of library visiting, namely, Helsinki, Stockholm and Copenhagen. Helsinki has close to 6.3 million visitors to their 37 libraries, compared to 6.0 million in Stockholm (45 libraries) and 4.6 in Copenhagen (20 libraries). Oslo has 20 libraries and the fewest visits, 2.5 visits/inhabitant, among the Nordic capitals.

Finns are the most frequent library visitors

To understand the issue of library use we need to look at use in relation to the number of inhabitants. On a national level, significant differences exist within the Nordic Region in respect of visits per inhabitant. Table 14.2 shows the number of visits per inhabitant for Denmark, Finland, Norway, Sweden and Åland. Finns are twice as frequent library

	Visit/inhabitant, national level	Visit/inhabitant, regional level, min-max
Finland	8.9	7.0–10.1
Denmark	6.6	5.3–9.1
Sweden	6.3	5.3–9.2
Norway	4.7	3.0–8.7
Åland	9.8	-

Table 14.2 Visits to public libraries per inhabitant on the national and regional level.

Data source: Nordregio's calculations based on NSIs, Finnish library services, National Library of Norway, National Library of Sweden, ÅSUB. Note: FI: Excludes AX. IS: No data.

visitors as Norwegians. The table also exhibits the range of visits per inhabitant in the regions of each country. In Finland the differences between regions are rather smaller than those of the other parts of the Nordic Region where much greater variance exists. Norway in particular shows a significant level of differentiation with a regional level distribution of visits that is higher than elsewhere.

Small differences in Nordic library statistics

Since library services is a municipal responsibility in the Nordic countries, and there is an international ISO-standard (2789), the conditions for comparability exist on all levels. Denmark, Finland, the Faroe Islands, Greenland, Sweden and Åland all comply with this standard, and from 2016, Norway revised its statistics to comply with the ISO standard. Data on the number of library visits in Iceland, Greenland and the Faroe Islands is however still not openly available.

As noted previously, the role of libraries in society is evolving. For this reason, it is essential to consider what the relevant indicators are for measuring accessibility or the possibility of taking part in library activities. Book lending, while still probably the primary task of libraries, is however now only one of the many kinds of services provided and, as such, is no longer a general indicator for library use. In the future, it would be relevant to include statistics on other library services. Moreover, in terms of developing knowledge on accessibility to library services in the Nordic Region, it would be relevant to measure opening hours as well as access to library buses and locations where you can access library services re-

Finns are twice as frequent library visitors as Norwegians

motely or without staff. In addition, it would be both interesting and useful to measure access to library services in relation to the mean distance for municipal inhabitants to access their nearest library.

Capital city regions have most museum visits

The map of museums in the Nordic Region shows the number of professional museums and visits per municipality in 2015 (figure 14.3). A professional museum is here considered to have staff employed during the year corresponding to at least one full-time equivalent in total. Stockholm and the Greater Copenhagen area, a cross-border metropolitan region encompassing Eastern Denmark and Skåne in southern Sweden, have most museums and visits in the Nordic Region. Table 14.3 shows that five municipalities in the Greater Copenhagen region (Copenhagen, Malmö, Fredensborg, Helsingborg and Helsingør) have more than 500,000 visits each to museums. These five municipalities together experienced a total of more than 5.5 million visits and creating a region with many visits.

The capital city regions have both the highest number of museums and the most museum visits. Table 14.3 shows that the capital municipalities of Stockholm, Oslo, Copenhagen, Helsinki and Reykjavík have the largest number of professional museums and visits with Stockholm leading in terms of both the number of museums and visits. This is hardly surprising given their large populations and

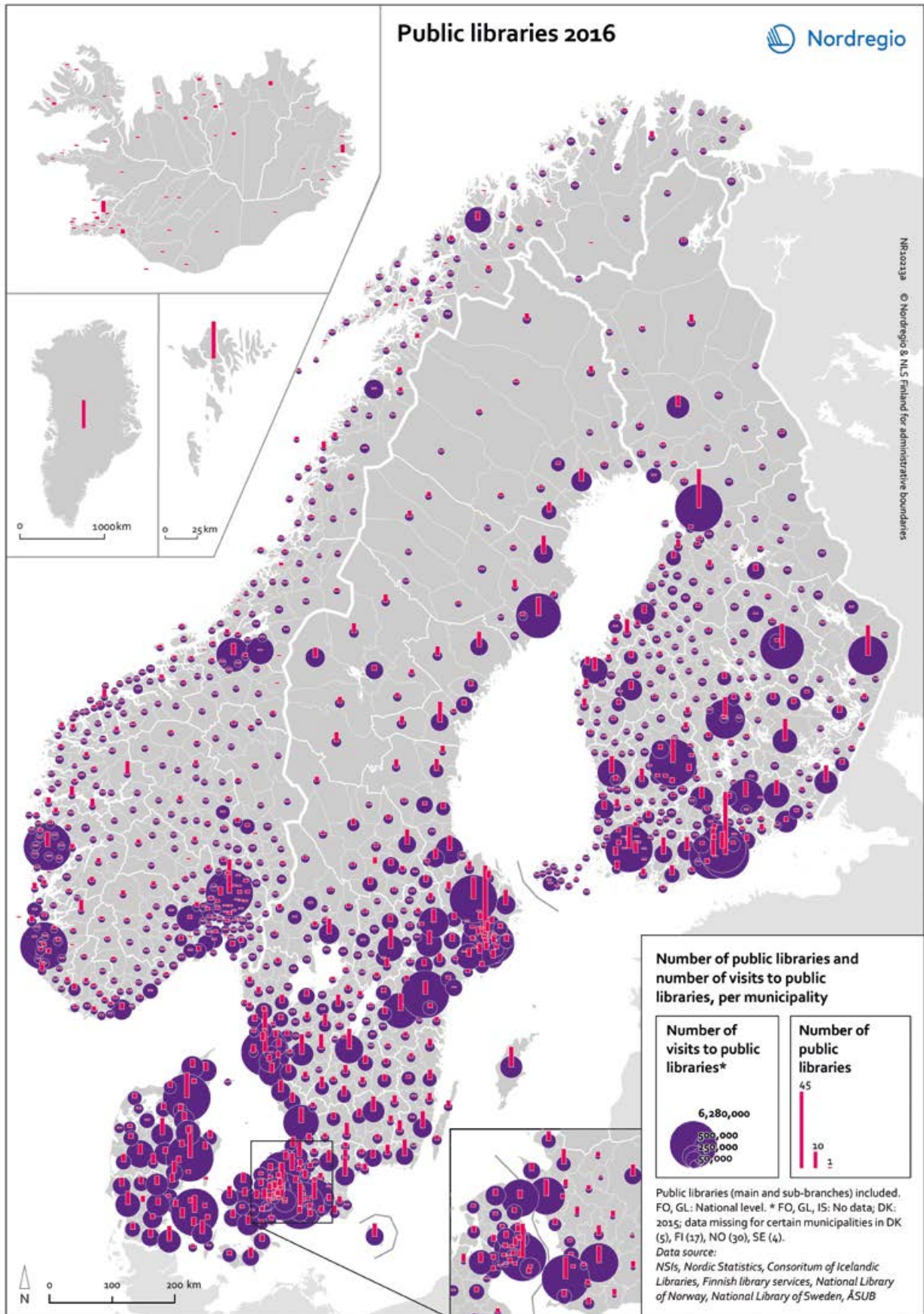


Figure 14.2 Public libraries 2016.

Municipality	Country	Number of museums	Number of visitors to museums	Visits per inhabitant
Stockholm	SE	51	10,047,612	11.02
Oslo	NO	23	4,654,512	7.19
Copenhagen	DK	24	2,912,702	5.02
Helsinki	FI	18	1,910,053	3.08
Greater Reykjavík	IS	29	1,122,055	5.38
Malmö	SE	5	780,828	2.45
Fredensborg	DK	2	764,580	19.22
Uppsala	SE	11	607,977	2.93
Helsingborg	SE	7	551,455	4.07
Västerås	SE	5	521,881	3.63
Helsingør	DK	4	500,142	8.11

Table 14.3 Municipalities¹, located in capital city regions, with more than 500,000 visitors to professional museums. By country, number of museums and visitors and visitors per inhabitant.

Data source: Nordregio's calculations based on NSIs, Museotilasto, Kulturrådet, Kulturanalys.

status as important tourist destinations, both for domestic and foreign tourism. For example, Swedish museum statistics show that more than half of all visitors to some museums are foreign tourists (Kulturanalys, 2017).

In the Nordic Region, professional museums are not located in all municipalities. In the Faroe Islands, professional museums are entirely limited to the capital region. In Sweden, Norway and Finland there are numerous municipalities without a museum. For these countries it is also clear that the second-tier cities host the highest number of professional museums outside the capitals. That said, in the parts of Denmark, Norway and Sweden where rural municipalities have museums, they do in many cases experience a substantial number of visits, often between 50,000 and 100,000 per year.

Same definition of museum, diverging definitions of visits

The International Council of Museums (ICOM) definition of a museum, used by many of the world's countries, is as follows: "A museum is a non-profit,

Greater Copenhagen region (Copenhagen, Malmö, Fredensborg, Helsingborg and Helsingør) have more than 500,000 visits each to museums

permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment" (ICOM, 2007). All Nordic countries and Faroe Islands, Greenland and Åland have national ICOM organisations which organise museums and translate definitions into the national languages. Despite this, differences remain in the museum population displayed in figure 14.3, which to some extent influences the notion of cross-national comparability.

¹ Except Höfuðborgarsvæðið, i.e. Greater Reykjavík (Iceland's Capital Region), which encompasses the entire Reykjavík region.

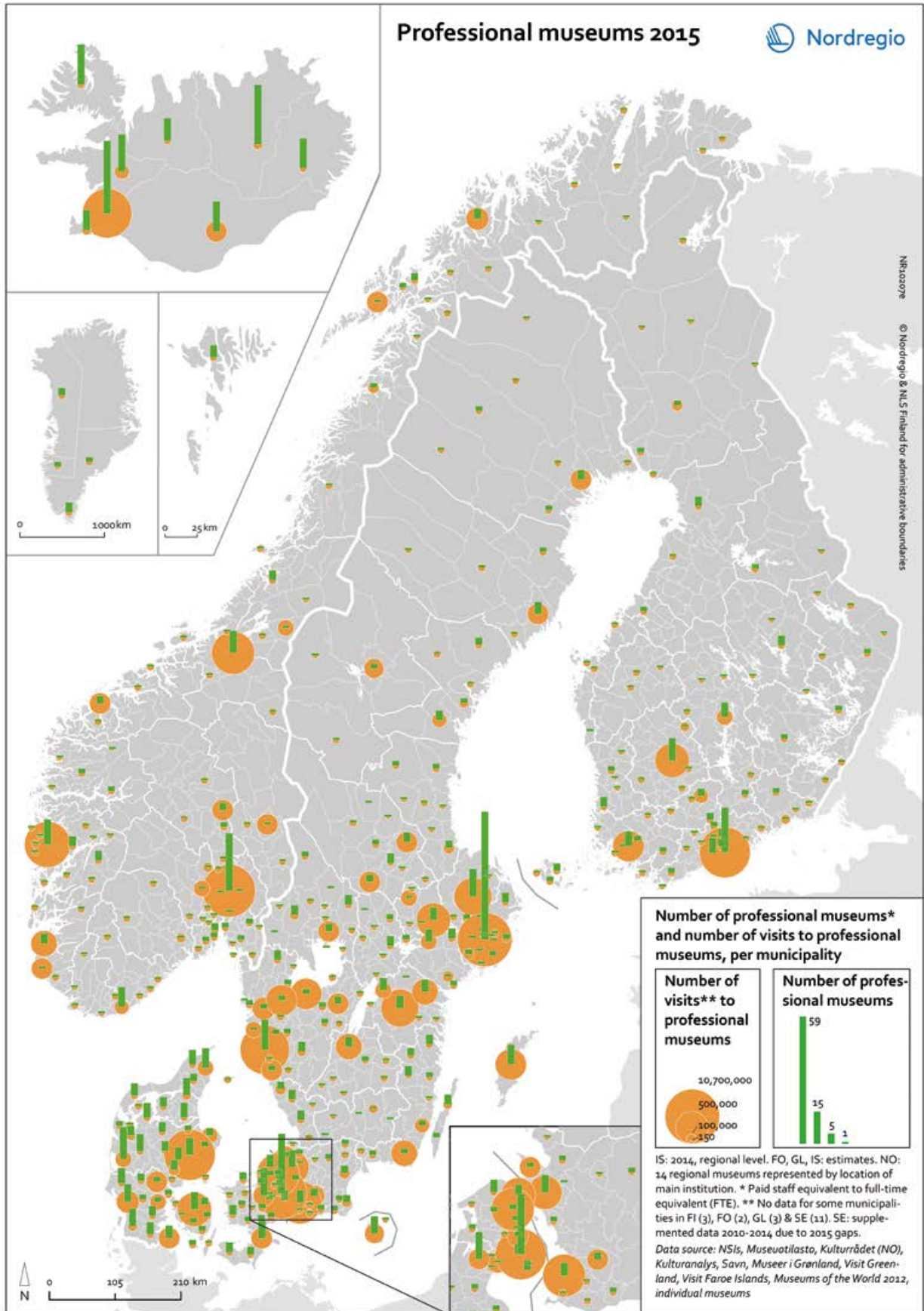


Figure 14.3 Professional museums 2015 (full-time equivalent (FTE)).

Currently, the European Group on Museum Statistics (EGMUS) are addressing museum-related statistics and possible harmonisations throughout Europe, when it comes to the definition of museums but perhaps even more importantly – the definition of visits to museums. There is an ongoing discussion on how to measure museum visits, relating to opinions about the role of museums in society. We have seen an increasing debate recently emphasising the notion that museums are public spaces that should be open and accessible, not only to visit the actual exhibitions, but also to visit the museum facilities – as cultural arenas. This echoes the discussion about the role of libraries. At the same time, the notion that museums should, first and foremost, display exhibitions and be visited for this reason was also expressed. Given this ongoing debate over the nature of museums, two different measurements in respect of counting “visits” have been advocated. Currently, visits are often measured either as facility visits – visits to the museum’s out- and indoors environments, including exhibitions, the restaurant, shop, toilet and entrance, and “exhibition visits” – visits to the actual exhibitions that cost money or would cost money if the museum had an entrance fee.

Moreover, it is vital to develop a common measurement for the digitalisation of museum collections. In recent years, museums have put considerable effort into deciding how to digitalise and exhibit their collections via digital means. Thus, there is a need to develop information about how the digitalisation of museum collections contributes to making them more accessible to visitors.

Concluding remarks: Challenges to overcome for increased comparability

As noted above, this chapter is a first attempt to display comparable data in three cultural sectors in the Nordic Region. The overview produced demonstrates the need to develop new common and relevant measurements that can contribute to our knowledge on equal opportunities in respect of cultural participation regardless of where one lives and the need to make existing data both more readily available and more comparable.

New indicators – for accessibility to cultural activities

The three cultural areas addressed in this chapter are all undergoing significant change in terms of their traditional roles in society. In other words, the role of cinemas, libraries and museums are to some extent shifting in terms of what type of services they offer. Cinema theatres are starting to show concerts, theatre plays and opera performances in addition to cinema films. Libraries are no longer “only” lending books but are important as public spaces, while museums increasingly offer new arenas, not only in terms of the actual exhibition rooms. Museum exhibitions are also, more often, being displayed in digital forums thus changing our understanding of what a ‘museum visit’ can mean. As such, this requires that new indicators which better take these shifts into account need to be developed.

Availability and comparability

As this chapter has shown, cultural statistics covering the Nordic Region are, to some extent at least, both already available and comparable. Nevertheless, gaps remain and various areas thus need to be developed further and improved. For example, the collection of cultural data is useful and relevant not only at the national level but also at the regional and municipal level, as this opens issues for discussion relating to accessibility to cultural activities in rural and urban areas in the Nordic Region. From a regional development perspective, this information is crucial as it provides us with an indication of whether significant polarisation exists in and between regions and suggesting that place of residence may have consequences for cultural participation. In other words, it is essential to contribute further to this data collection task to gather, analyse and utilise data on the regional and preferably also on the municipal level, in order to make it possible to identify similarities and differences between regions across the Nordic Region.

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THEME 5

REGIONAL POTENTIAL INDEX

Local potentials in a diverse Nordic Region

The Nordic Region is often perceived, by outside observers, as being largely undifferentiated socio-economically, with the countries of Denmark, Finland, Iceland, Norway and Sweden along with Greenland, the Faroe Islands and Åland appearing very much alike in many ways.

Contrary to this widely held view, the countries and territories involved in the Nordic Cooperation, divided into 74 administrative regions, are remarkably diverse in many respects. Though significant differences exist at both the national and the regional levels, they are still sufficiently similar for a comparison to be valid.

The Regional Potential Index (RPI) outlined in this publication compares the regions and tries to quantify this variety while also

assessing the relative potential of each region in regional development terms. The Index is based on the performance of each of these regions in terms of demography, labour force and the economy.

The results of the Regional Potential Index 2018 show that urban regions continue to occupy the top ranks. There is however a great deal of movement further down the list. Those regions that have improved in rank are primarily located in Iceland, Sweden and the Faroe Islands while those that have reduced in rank are to be found mainly in Norway and Finland, with Denmark occupying something of a status quo position.

The next Regional Potential Index will be published in the 2020 edition of State of the Nordic Region.

Chapter 15

NORDREGIO REGIONAL POTENTIAL INDEX 2017

Measuring regional potential

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Map and data: Julien Grunfelder, Gustaf Norlén and Eeva Turunen

The ranking process undertaken here aims to illuminate the socio-economic state of the Nordic regions. This ranking is constructed around several of the socio-economic indicators used in this report (themes 1, 2 and 3). A careful selection of the indicators enables us to generate a broader, more synthesised idea of the socio-economic development of all 74 administrative regions making up the Nordic Region with the resulting ranking enhancing the possibilities for comparison among these regions. This is the second time that Nordregio has produced this ranking for the Nordic Region, making it possible to see the changes that have occurred between 2015 and 2017.

The diverse geography of Nordic regions

The Nordic Region is a diverse geographical unit composed of metropolitan urban regions, intermediate regions and remote rural regions. As such, it is useful to compare the rankings of regions sharing similar geographical characteristics. To make this comparison, three existing typologies have been used spanning different types of geographies: Urban-Rural (Eurostat, 2010); Northern sparsely populated areas (Gløersen et al., 2009); and Nordic Arctic regions (Young, 2004).

Theme	Indicators	Points allocated
Demographic potential	Population density	7.5–75
	Net migration rate	7.5–75
	Demographic dependency rate	7.5–75
	Female ratio	7.5–75
Labour market potential	Employment rate	10–100
	Share of the age group 25–64 with high education degree	10–100
	Youth unemployment rate	10–100
Economic potential	GRP/capita	20–200
	Total R&D investments	10–100

Table 15.1 Indicators included in the index and their respective weights.

Methodological elements of The Regional Potential Index

Nordregio's Regional Potential Index is constructed around a series of key socio-economic indicators with relevance in an analysis of regional development. The data from the nine selected indicators is categorised into three dimensions: demographic, labour force and economic. These dimensions are included in other studies on regional development monitoring and territorial cohesion, e.g. ESPON BSR-TeMo (ESPON, 2014) and ESPON INTERCO (ESPON, 2013), among others. The data, drawn from a solid database that covers a long period of time and many geographical levels, was then harmonised and standardised. The selected indicators do not display high correlations while only a limited number of data sources had gaps. These gaps were found in Icelandic regions and replaced by estimates, e.g. GRP/capita and share of the age group 25–64 with high education degree, among others. The selected indicators also offer strong communicative value allowing the ranking to be easily understood and widely used in the regional development context. The three themes, related indicators and weighting can be seen in table 15.1.

As can be seen from table 15.1, GRP/capita is weighted more heavily than the other indica-

tors. The reason for this is that it has historically been determined as the most relevant measure of both the current performance and future development of a region. The total score for demographic potential has also been modified to reflect a total score of 300, consistent with the other two themes, by allocating between 7.5 and 75 points for each indicator.

Despite the rigorous process through which the ranking was developed, limitations remain. As such, the ranking should be understood from a rather instrumental point of view. Firstly, cross-border flows might be slightly underestimated in the ranking (e.g. survey for youth unemployment rate data). Secondly, due to a lack of good quality recent data for some regions, the ranking does not include indicators of accessibility. Also, the ranking does not account for any qualitative dimensions, such as experienced life quality, or the existence of regional development or smart specialisation strategies. Finally, indicators connected to environmental values are not included in this ranking. This is mainly due to the relatively small differences within the Nordic Region, when compared with other parts of the world (except in relation to soil sealing).

Top ranks for capital city regions

The region occupying the first rank in 2017 is the capital region of Stockholm (table 15.2). Its score increased between 2015 and 2017, rising from 753 to 758, this resulted in the region improving its position by two ranks. It retains its first rank in the economic dimension and its 4th rank in the demographic dimension. The region of Stockholm notably improved its labour force dimension, rising from the 14th to the 8th in this dimension, thanks to a higher employment rate (rising from 76% to 81%; see chapter 5), a higher share of the age-group 25–64 with a higher education degree (from 47% to 51%, see chapter 7) and a lower youth unemployment rate (falling from 20% to 19%, see chapter 6).

Four other capital city regions complete the Top 5 places. Oslo is 2nd (1st in 2015), Hovedstaden is 3rd (2nd in 2015), Höfuðborgarsvæðið, is 4th (10th in 2015), and Helsinki-Uusimaa is 5th (the same as in 2015). Both the Oslo and capital region of Denmark – Hovedstaden retain a very strong economic dimension and have also improved their labour force dimension (higher employment rate and lower youth unemployment rate; see chapters 5 and 6), but their demographic dimensions, while still very strong, have softened (due to lower net-migration over time). The capital region of Iceland, Höfuðborgarsvæðið, has however risen by six places. This is mainly the result of its improved economic dimension, rising from 130 points in 2015 to 205 points in 2017 (higher GRP/capita and higher R&D investments, see chapters 8 and 9).

2017 rank (2015 rank)	Region Name (country-type(s) of region)	RPI	Demographic dimension	Labour force dimension	Economic dimension
1 (3)	Stockholm (SE-U)	758	248	210	300
2 (1)	Oslo (NO-U)	750	240	210	300
3 (2)	Hovedstaden (DK-U)	745	255	190	300
4 (10)	Höfuðborgarsvæðið (IS-U, NA)	720	255	260	205
5 (5)	Helsinki-Uusimaa (FI-U)	715	255	160	300
6 (4)	Akershus (NO-U)	690	240	250	200
7 (13)	Västra Götaland (SE-I)	655	195	180	280
8 (7)	Sør-Trøndelag (NO-I)	648	158	220	270
9 (9)	Uppsala (SE-I)	625	225	200	200
10 (6)	Rogaland (NO-I)	623	143	210	270
11 (8)	Hordaland (NO-I)	603	143	200	260
12 (18)	Suðurnes (IS-R, NA)	590	195	190	205
13 (11)	Åland (AX-R)	575	165	220	190
14 (26)	Suðurland (IS-R, NA)	570	165	200	205
15 (29)	Norðurland eystra (IS-R, NA)	540	135	200	205
16 (19)	Skåne (SE-I)	538	218	150	170
16 (35)	Norðurland vestra (IS-R, NA)	538	143	190	205
18 (39)	Vesturland (IS-R, NA)	523	128	190	205
19 (14)	Troms (NO-R, NSPA, NA)	518	128	220	170
19 (16)	Møre og Romsdal (NO-R)	518	98	200	220
21 (11)	Vest-Agder (NO-I)	510	150	170	190
21 (46)	Faroe Islands (FO-R, NA)	510	150	230	130
23 (17)	Midtjylland (DK-I)	505	195	120	190
24 (41)	Vestfirðir (IS-R, NA)	495	90	200	205
25 (22)	Southern Denmark (DK-I)	483	173	100	210
26 (35)	Austurland (IS-R, MA)	480	75	200	205
27 (21)	Sogn og Fjordane (NO-R)	478	98	240	140
28 (15)	Buskerud (NO-R)	470	150	180	140
28 (28)	Östergötland (SE-I)	470	150	130	190
30 (24)	Halland (SE-I)	465	195	190	80
31 (19)	Vestfold (NO-I)	448	218	150	80
32 (30)	Kronoberg (SE-R)	435	135	150	150
33 (23)	Pirkanmaa	433	173	120	140
34 (26)	Varsinais-Suomi - (FI-I)	430	180	120	130
35 (30)	Jönköping (SE-I)	415	135	160	120
35 (33)	Västerbotten (SE-R, NSPA)	415	105	160	150
37 (30)	Örebro (SE-I)	405	165	120	120
37 (45)	Västmanland (SE-I)	405	165	110	130
37 (38)	Norrbotten (SE-I, NSPA, NA)	405	75	120	210
40 (33)	Nordjylland (DK-R)	400	150	100	150
41 (25)	Österbotten (SE-R)	375	75	150	150
42 (58)	Gotland (SE-R)	373	173	130	70
43 (37)	Nordland (NO-R, NSPA, NA)	368	98	140	130
44 (48)	Sjælland (DK-R)	365	195	90	80

45 (40)	Finnmark (NO-R, NSPA, NA)	355	105	140	110
45 (42)	Oppland (NO-R)	355	105	180	70
45 (44)	Aust-Agder (NO-R)	355	135	140	80
45 (55)	Jämtland (SE-R, NSPA)	355	105	160	90
45 (62)	Kalmar (SE-R)	355	135	140	80
50 (49)	Østfold (NO-I)	345	195	100	50
50 (42)	Telemark (NO-I)	345	135	120	90
50 (59)	Blekinge (SE-R)	345	135	120	90
50 (46)	Nord-Trøndelag (NO-R, NSPA)	345	105	180	60
54 (51)	Hedmark (NO-R)	343	143	140	60
54 (53)	Dalarna (SE-R)	343	113	110	120
56 (50)	Västernorrland (SE-R, NSPA)	340	90	120	130
57 (52)	Södermanland (SE-I)	323	173	70	80
58 (68)	Värmland (SE-R)	313	143	100	70
59 (55)	Pohjois-Pohjanmaa (FI-R, NSPA)	293	83	90	120
60 (57)	Gävleborg (SE-R)	280	120	60	100
61 (67)	Greenland (GL-R, NA)	268	98	60	110
62 (63)	Etelä-Karjala (FI-I)	265	75	50	140
63 (53)	Kanta-Häme (FI-I)	263	113	90	60
64 (61)	Keski-Suomi (FI-R)	260	120	70	70
64 (59)	Satakunta (FI-R)	260	90	60	110
66 (64)	Päijät-Häme (FI-I)	250	150	60	40
67 (65)	Pohjois-Savo (FI-R, NSPA)	238	98	80	60
68 (65)	Keski-Pohjanmaa (FI-R, NSPA)	225	75	80	70
69 (73)	Lappi (FI-R, NSPA, NA)	205	75	50	80
70 (69)	Pohjois-Karjala (FI-R, NSPA)	190	90	50	50
71 (72)	Kymenlaakso (FI-I)	180	90	40	50
72 (70)	Etelä-Pohjanmaa (FI-R)	170	60	70	40
73 (71)	Etelä-Savo (FI-R, NSPA)	163	83	40	40
74 (74)	Kainuu (FI-R, NSPA)	115	45	40	30

Table 15.2 Nordregio's Regional Potential Index 2017. Explanation: R: rural; I: intermediate; U: urban; NSPA: Northern Sparsely Populated Areas; NA: Nordic Arctic.

Most intermediate regions (regions including at least one bigger city but not the capital, except for Iceland) are found in the first half of the ranking. Five of them are found in the overall Top 10, e.g. Hövuðborgarsvæði ranked 4th. Some of the more remote intermediate regions are found in the second half of the ranking, e.g. Telemark in Norway which is ranked 51st and Södermanland ranked 57th.

Rural regions are predominantly found in the lower half of the ranking. This type of territory greatly varies however, ranging from the ranked 12th region of Suðurnes in Iceland to the 74th and last ranked Kainuu in Finland. Even though Kainuu saw some

positive developments between 2015 and 2017 (e.g. in relation to the employment rate, net-migration and GRP/capita), several negative trends (e.g. youth unemployment, the demographic dependency ratio and R&D investments) however limited the chance for this region to rise in rank within the Nordic Region.

Finally, regions located in the Northern Sparsely Populated Areas are clustered in the bottom half of the ranking except for the Norwegian region of Troms, ranked 19th, whereas Nordic Arctic regions greatly vary in ranking between, for instance, Hövuðborgarsvæði, ranked 4th and Lappi, ranked 69th.

Top 5 Intermediate regions (based on the ESPON CU Urban Rural typology 2011)	Top 5 Rural regions (based on the ESPON CU Urban Rural typology 2011)
4. Hövuðborgarsvæði (IS)	12. Suðurnes (IS)
7. Västra Götaland (SE)	13. Åland (AX)
8. Sør-Trøndelag (NO)	14. Suðurland (IS)
9. Uppsala (SE)	15. Norðurland eystra (IS)
10. Rogaland (NO)	16. Norðurland vestra (IS)
Top 5 Northern Sparsely Populated Areas (includes the northern regions of Finland, Norway and Sweden)	Top 5 Nordic Arctic regions (as defined in the Arctic Human Development Report)
19. Troms (NO)	4. Hövuðborgarsvæði (IS)
35. Västerbotten (SE)	12. Suðurnes (IS)
37. Norrbotten (SE)	14. Suðurland (IS)
43. Nordland (NO)	15. Norðurland eystra (IS)
45. Finnmark (NO)	16. Norðurland vestra (IS)

Table 15.3 Top 5 excerpt of some of the specific regional typologies derived from the Regional Potential Index.

Top movers 2015–2017

Those regions that have improved their ranking over the last two years are primarily to be found in the Faroe Islands, Iceland and Sweden (table 15.4). Two regions have increased by more than 20 places, namely, the Faroe Islands and Vesturland in Iceland when comparing 2015 rankings with those for 2017. The Faroe Islands improved its rank by climbing 25 places, rising from the 46th to the 21st in rank. The territory retained its good score in the labour force dimension and improved both its demographic and economic dimensions, thanks to higher net-migration rates and GRP/capita between 2015 and 2017 (see chapter 8). Vesturland in Iceland climbed 21 places, rising from the 39th to the 18th in rank. The region increased its score across all three dimensions and was particularly strong in terms of the labour force and economic dimensions, boasting both

higher employment rates (see chapter 5) and higher estimated GRP/capita value (see chapter 8).

Those regions that have seen their rankings decline over the last two years are mainly to be found in Finland and Norway (table 15.4). Three regions fell more than 10 places in the rankings, namely Österbotten in Finland and Buskerud and Vestfold, both located in Norway. Österbotten lost 16 ranking places, falling from the 25th to 41st with lower scores in the three dimensions, particularly in its economic dimension even though its GRP/capita and R&D investments slightly increased, but did not do so as fast as in other regions. Buskerud lost thirteen places in the rankings and Vestfold twelve. These two Norwegian regions experienced a similar trend: their score in the demographic dimension remained relatively stable, while their score in the labour dimensions slightly decreased and their score in the economic dimension declined. The latter is explained, primarily, by lower GRP/capita and lower R&D investments (see chapters 8 and 9).

Top 5 climbers	Top 5 drops
Faroe Islands (FO), +25	Österbotten (FI), -16
Vesturland (IS), +21	Buskerud (NO), -13
Norðurland vestra (IS), +18	Vestfold (NO), -12
Vestfirðir (IS), +17	Vest-Agder (NO), -10
Kalmar (SE), +17	Pirkanmaa (FI), -10
	Kanta-Häme (FI), -10

Table 15.4 Top movers 2015-2017.

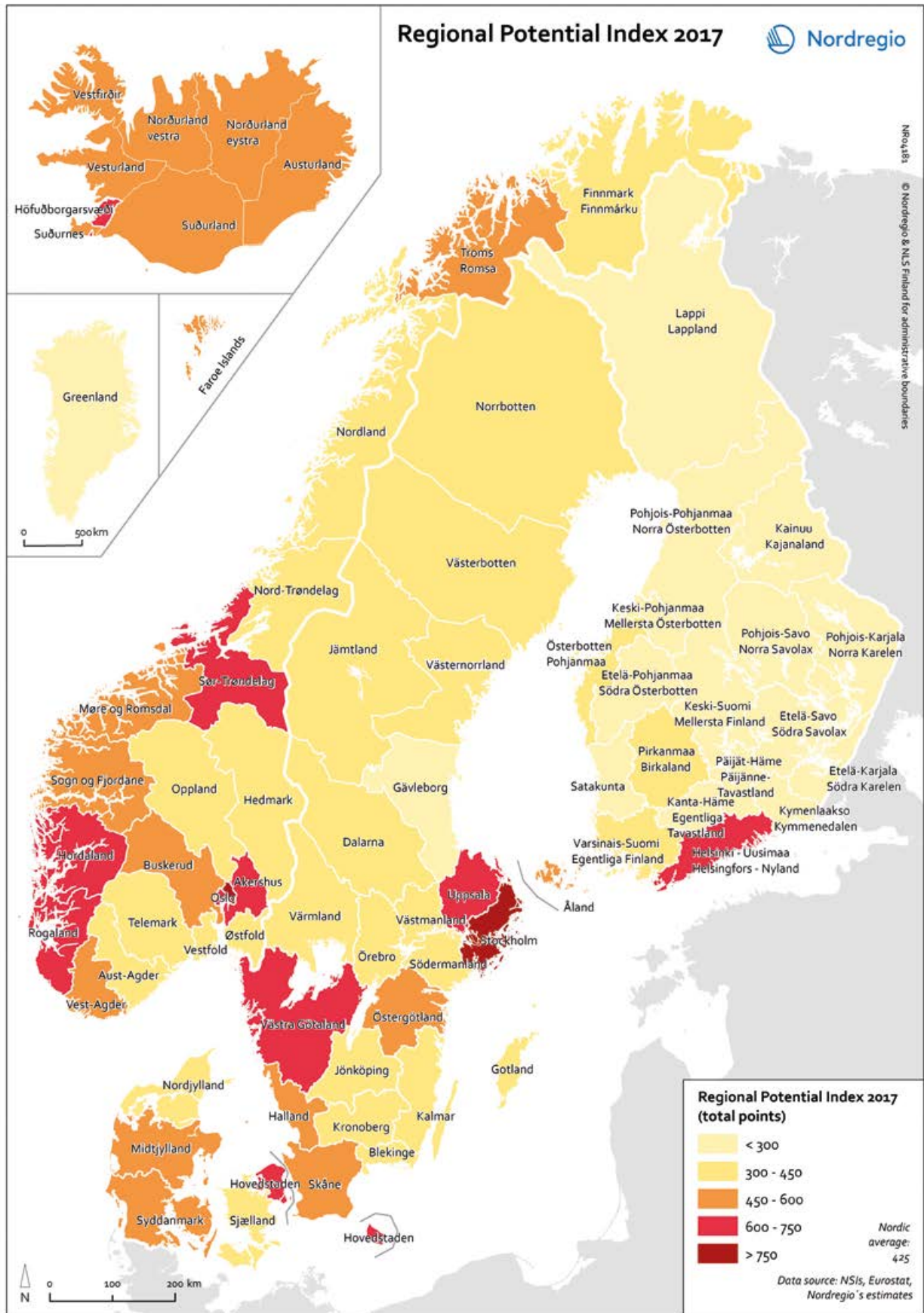


Figure 15.1 Nordregio's Regional Potential Index 2017.

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