

STATE OF THE NORDIC REGION

2020

**Wellbeing,
health and
digitalisation
edition**



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Anna Lundgren, Linda Randall and Gustaf Norlén (eds.)

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Preface

This Special Edition aims to complement State of the Nordic Region 2020¹ by taking an in-depth look at some of the factors that contribute to wellbeing and health in the Nordic Region, and exploring how digitalisation in health care and social care can contribute to wellbeing. The theme of the report connects to the Nordic vision to become the most sustainable and integrated region in the world. This will be achieved by, among other things, promoting a socially sustainable Nordic Region which is inclusive, equal and interconnected with shared values and strengthened cultural exchange and welfare.

National statistics and international comparisons provide an overview of how the countries are performing on different indicators relating to health and wellbeing. In order to learn more about wellbeing in different parts of the Nordic Region, we have also zoomed in on the regional and local levels.

The report illustrates the central role of demography, whereby the composition and the spatial patterns of the population together with socio-economic factors contribute to shaping the living conditions and wellbeing in different parts of the Nordic Region. Although life expectancy is increasing, the loss of healthy years due to non-communicable diseases and poor health-related behaviours remain obstacles to further improvement of health and wellbeing. Socio-economic factors

such as education, employment and income have important roles to play as regards health and wellbeing. Despite a general pattern of urban regions being richer, more well educated and living longer, we also find many thriving rural areas attracting new young residents.

Digital infrastructure plays a crucial role for the development of those rural areas, and digitalisation in health care and social care also holds a promise of increasing equal accessibility to welfare services in rural and remote areas. A prerequisite for this is however to secure internet accessibility to all parts of the Nordic Region and to address those issues of digital divides shown in the report, so that all people in the Nordic Region gain equal opportunities.

We hope that the report can contribute to increased knowledge about wellbeing, health and digitalisation in the Nordic Region, and support policy making in further developing wellbeing, health and digitalisation in the Nordic welfare state.

The report is produced by Nordregio on behalf of the Nordic Committee of Senior Officials for Social and Health. We would like to thank all contributing authors and the steering group for the project Health Care and Care with Distance-spanning Solutions (Vård och omsorg på distans) for valuable comments and advice.

Kjell Nilsson Director, Nordregio

¹ The report is a follow up to State of the Nordic Region 2020, which is a unique compilation of statistics and maps, giving a detailed view of the Nordic countries at both national and regional level. For more information, please refer to: <https://nordregio.org/publications/state-of-the-nordic-region-2020/>

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Summary

This report examines the health and wellbeing of people living in the Nordic Region. It also explores the potential for digitalisation to contribute to positive health and wellbeing outcomes, particularly through its role in increasing access to services. The report starts off from the notion that social progress may be better understood by going "beyond GDP" and other more traditional economic indicators of prosperity (Grunfelder, Norlén, Randall & Sánchez Gassen, 2020; Lundgren & Cuadrado, 2020). It delves into a broad range of quantitative indicators which together shed light on the status of wellbeing across the Nordic countries, and it contextualises these findings based on up-to-date Nordic and international research. Overall, the findings here are consistent with those of international research on the topic (e.g. Helliwell *et al.*, 2020; WHO, 2020; OECD, 2020). In short, people in the Nordic countries generally perform very well on indicators linked to wellbeing.

At the same time, more detailed regional and socioeconomic analysis reveals inequalities which are out of step with some of the core values of the Nordic welfare model, such as universality, equality and inclusion. The effects of uneven demographic development present challenges for many rural areas, with the trend towards an ageing population and the outmigration of young people contributing to economic decline and making it difficult to maintain high quality public services. There are also socioeconomic factors at play, such

as education, employment and income. These contribute in complex ways to the production of unequal health and wellbeing outcomes – both within and between countries, regions and municipalities. Digitalisation has the potential to address some of these challenges by increasing the accessibility of services and other activities. It is important to recognise, however, that the inequalities these technologies seek to address are also likely to play a role in determining their use. Recognising and addressing potential and actual digital divides is therefore an important step in ensuring an inclusive approach to digitalisation; one that supports increased wellbeing across the region.

Overall, wellbeing and the potential for a long and healthy life are framed by varied living conditions in different parts of the Nordic Region. Though clear differences emerge along spatial and socioeconomic lines, it is important to acknowledge that these factors interact in complex ways. For that reason, their implications for wellbeing cannot be understood by making simple distinctions between groups or categories (e.g. urban/rural; younger/older; more/less educated). At the same time, finding effective ways to understand and address such differences is important in maintaining the core Nordic values of universality, inclusion and equality, and also in supporting positive health and wellbeing outcomes for all people across the Nordic Region.

Sammanfattning

I denna rapport sätter vi fokus på hälsan och välbefinnandet hos invånarna i Norden. Vidare undersöker vi vilken potential digitaliseringen har för att bidra till hälsa och välbefinnande genom att öka tillgången till olika välfärdstjänster. Rapporten utgår från uppfattningen att samhällsutvecklingen bättre kan förstås först då man går bortom BNP och andra mer traditionella ekonomiska indikatorer för välstånd (Grunfelder, Norlén, Randall och Sánchez Gassen, 2020; Lundgren och Cuadrado, 2020). Rapporten fördjupar sig i ett brett spektrum av kvantitativa indikatorer som tillsammans ger en nulägesbild av hälsan och välbefinnandet i de nordiska länderna och relaterar dessa resultat till aktuell nordisk och internationell forskning. I allt väsentligt överensstämmer resultaten med internationell forskning om välbefinnande (t.ex. Helliwell *et al.*; 2020 WHO, 2020; OECD, 2020). Invånarna i Norden placerar sig generellt högt när det gäller indikatorer kopplade till välbefinnande.

Samtidigt visar en mer detaljerad regional och socio-ekonomisk analys ojämlikheter som står i konflikt med flera av den nordiska välfärdsmodellens kärnvärden, såsom att vara universell, jämlik och inkluderande. Effekterna av en ojämn demografisk utveckling medför utmaningar för många landsbygdsområden eftersom den åldrande befolkningen och utflyttningen av ungdomar bidrar till ekonomisk nedgång och gör det svårt att upprätthålla offentliga tjänster av hög kvalitet. Komplexa samband mellan socio-ekonomiska fak-

torer som utbildning, sysselsättning och inkomst medverkar också till skillnader i hälsa och välbefinnande både inom och mellan länder, regioner och kommuner. Med digitalisering finns en potential att överbrygga några av dessa utmaningar genom att öka tillgängligheten till tjänster och andra aktiviteter. Det är dock viktigt att beakta att de ojämlikheter som den digitala tekniken söker motverka, också sannolikt kommer att ha inflytande på i vilken utsträckning tekniken används. Att ta hänsyn till och hantera de digitala klyftorna är ett viktigt steg för att säkerställa en inkluderande strategi för digitalisering som stöder ökat välbefinnande i hela Norden.

Sammantaget kan välbefinnande och möjligheten att ha ett långt och hälsosamt liv länkas till olika levnadsförhållanden i olika delar av Norden. Även om tydliga skillnader framträder längs både geografiska och socioekonomiska skiljelinjer, är det viktigt att komma ihåg att det handlar om komplexa samband mellan olika faktorer, och att de konsekvenser dessa medför för välbefinnandet inte fullt ut kan förstås genom enkla gruppindelningar (t.ex. stad/landsbygd, yngre/äldre, högutbildade/lågutbildade). Samtidigt är det viktigt att hitta effektiva sätt att förstå och ta itu med dessa skillnader för att upprätthålla de nordiska kärnvärdena om universalitet, jämlikhet och inkludering, och för att stödja en positiv utveckling när det gäller hälsa och välmående hos alla invånare i Norden.

1. Introduction

Author: Anna Lundgren

In a global perspective, the Nordic Region is a top performer in many respects – for example on indicators reflecting economic development, innovation, gender equality and the environment (Grunfelder *et al.*, 2020). However, the Nordic Region also faces challenges, for example with regard to growing economic income inequalities, (Aaberge *et al.*, 2018; Grunfelder *et al.*, 2020) many young people suffering from mental health problems, and local authorities reporting severe difficulties in recruiting staff to provide welfare services for a growing elderly population. (Nordic Welfare Centre, 2018; Andersson *et al.*, 2020) Now, with the current Covid-19 pandemic, we can expect some of these challenges to be exacerbated.

This gives us reason to ask for a status update: How are the inhabitants in the Nordic Region doing? In recent decades there has been a growing interest in understanding and measuring human and social progress beyond GDP and the use of economic indicators (European Commission, 2009, OECD 2017, UNDP 2020; Frijters *et al.* 2020). In the 2020 edition of *State of the Nordic Region*, which is a state-of-the-art evaluation of the Nordic Region with regard to demography, economy and labour market, a special chapter entitled 'Beyond GDP' was included to cover issues relating to climate change and carbon neutrality, and also wellbeing. Although wellbeing is a particularly important dimension, substantial challenges arise when attempting to define the concept and then measuring it in a meaningful way. If we look for a lexical definition, we learn that wellbeing is "the condition of being contented, healthy, or successful; welfare" (Collins English Dictionary, 2012). Another definition that adds some more flesh to the concept suggests that wellbeing is "a good or satisfactory condition of existence; a state characterized by health, happiness and prosperity", and that it is additionally connected to "welfare: to influence the wellbeing of a nation and its people" (Dictionary, 2020).

From these definitions we may learn that the notion of wellbeing includes satisfaction in life,

as well as both health and socioeconomic dimensions. This is also in line with the idea of moving 'Beyond GDP' – a notion which emerged in criticism of the established tradition of measuring human and social progress only through economic indicators. Along the same lines, we find the World Health Organization (WHO), whose main focus is naturally on health, is now pointing to the ongoing shift "towards using new forms of evidence that go beyond numbers to capture subjective experiences and explore the social and cultural drivers of health and wellbeing" (WHO, 2018b, p.2).

In the 'Beyond GDP' chapter of *State of the Nordic Region 2020*, we focused on two indicators, life expectancy and education (a frequently used socioeconomic indicator). What we found was that although life expectancy and educational attainment are increasing in the Nordic Region, there are both regional differences and significant gender inequalities among Nordic countries and regions (Lundgren & Cuadrado, 2020).

In this Special Issue we now take a closer look at the wellbeing of the inhabitants of the Nordic Region.

Several indices have been developed for the purpose of measuring wellbeing. One example is the OECD Better Life Index, which includes more than 50 indicators (along with 11 dimensions), of

OECD Better Life Index of 11 dimensions:

- Housing
- Income
- Jobs
- Community
- Education
- Environment
- Civic Engagement
- Health
- Life Satisfaction
- Safety
- Work-Life Balance

Table 1.1. OECD Better Life Index of 11 dimensions.

which three are related to material living conditions, such as income and housing, and eight to quality of life, such as health and life satisfaction (OECD, 2017).

In order to improve the health and wellbeing of the inhabitants, policymakers at different levels of government work to set targets, adopt particular strategies, and measure overall progress. One example is the European Health 2020 initiative within the collaborative framework of the WHO (adopted in 2012) which will be succeeded by a new initiative "United Action for Better Health in Europe" covering the period 2020 to 2025. The six targets in European Health 2020 (Table 1.2) reflect not only health, but also wellbeing. This is explicitly stated in the fourth target, which is to "Enhance the wellbeing of the population in the European Region".

In order to monitor, inform policymakers, and to reach its desired goals a 'whole society perspective' is advocated – one that captures within its analysis the many factors which influence health and wellbeing, as well as employing a mixed-methods approach that assesses both quantitative and qualitative evidence (WHO, 2018a).

The six key targets set by European Health 2020:

1. Reduce premature mortality in the European Region by 2020.
2. Increase life expectancy in the European Region.
3. Reduce inequalities in health in the European Region.
4. Enhance the wellbeing of the population in the European Region.
5. Ensure universal coverage and the "right to the highest attainable level of health".
6. Set national goals and targets related to health in Member States.

Table 1.2. The six European Health 2020 targets, WHO (2020).

Within the Nordic context, a Nordic Declaration on Collaboration in Public health was adopted in 2016. Despite a high level of performance for public health indicators among Nordic countries overall, the remaining inequalities have neverthe-

less motivated a stronger focus on inequality and gender perspectives, as well as a closer cooperation among Nordic countries. As part of the follow-up, a biannual welfare arena was established, along with extended assignments to the Nordic Welfare Centre, such as the Health Equity in the Nordic Region conference in 2018 (Nordic Council of Ministers, 2016; Nordic Welfare Centre, 2018).

It almost goes without saying that in order to measure progress you need good data. However, indices and targets such as the ones previously described commonly relate to national level data only. If the aim is to understand regional differences in wellbeing at the sub-national level, it is necessary to supplement our analysis with data from the regional and local levels too. In this Special Issue we therefore examine data relating to wellbeing not only at the national level, but also at these regional and local levels.

Digitalisation and smart digital solutions in health care and social care, are expected to contribute to raising health and health care performance in the Nordic region. It also has the potential of increasing wellbeing of the Nordic residents when for example booking a doctor's appointment, getting treatment or accessing prescriptions of medicine can be done remotely (Árnason, 2018; Andersson *et al.*, 2019; Nordic Innovation, 2019; eHälsomyndigheten, 2020; Lundgren *et al.*, 2020).

However, the implementation of digital solutions in health care and social care has proven to be more difficult than in many other sectors (Deloitte Legal, 2020; Nohr *et al.*, 2020; Lundgren *et al.*, 2020).

Given the strong focus on digitalisation and eHealth in Nordic policy in recent years, this publication seeks to add further value by exploring how digital solutions can improve accessibility to health care services.

The overall aim and purpose of this Special Issue is to take a closer look at different dimensions of wellbeing across the Nordic Region, and to examine how digitalisation in health care and social care is used to improve health and wellbeing throughout the Nordic Region.

This Special Issue was initiated and funded by the Nordic Council of Ministers EK-S. The themes of the chapters included have been discussed by the Steering Committee of the Vård och Omsorg på Distans project (VOPD), which has also acted as an Advisory Board. The Special Issue has been elaborated by Nordregio, and researchers from

Norwegian Centre for e-Health Research, Nordic Council of Ministers Secretariat and Nordic Welfare Centre, have contributed to the individual chapters.

The report relates to several of the UN Sustainable Development Goals (SDG), for example Goal 3 Good health and wellbeing, Goal 10 Reduced inequalities and Goal 11 Sustainable cities and communities.

The methods involved utilise both quantitative data on health, socioeconomic factors and digitalisation in the five Nordic countries and the self-governing territories of Greenland, the Faroe Islands and Åland and also qualitative data, based on research literature and previous research. Making comparisons across countries, regions and municipalities involves a number of challenges – for example, with regard to the harmonisation of data and a lack of data reflecting cross-border patterns (for more information on methodology, see Grunfelder *et al.*, 2020).

The report begins with a chapter on the demography of the Nordic Region, where we look into the changing age structure, growing urbanisation and spatial patterns of location of the population, in order to discuss how all these trends might influence wellbeing across the region. In the second chapter we focus on health throughout the region. Good health is not only an important predictor of life expectancy, but also has strong implications for wellbeing. So, for that reason, we look into the concept of the 'healthy life' years.

In the third chapter, we take a closer look at socioeconomic trends influencing the wellbeing of the Region's inhabitants. We do this by concentrating on indicators concerning income, employment and education, in order to learn more about their particular role in bringing about wellbeing. These dimensions were selected on the basis that their relationship to wellbeing is both well established in the literature (Edgerton *et al.*, 2012; Jongbloed & Pullman, 2016), and also because they are closely related to the Nordic welfare model and to the principles guiding that model.

The fourth chapter focuses on digitalisation, and how accessibility to digital services (especially health care and social care services), can improve the wellbeing of Nordic populations.

The final chapter discusses challenges and opportunities for wellbeing across the Nordic Region, and how digitalisation can improve health and wellbeing throughout the Region as a whole.

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2. Demographic trends

Authors: Johanna Carolina Jokinen and Alex Cuadrado

Maps and data: Johanna Carolina Jokinen and Oskar Penje

The population of the Nordic Region has grown substantially since 1990, due to both natural increase and positive net migration. The exception is negative net migration affecting Greenland and the Faroe Islands (Grunfelder *et al.*, 2020). Based on the urban-rural typology provided by Eurostat (2018), 46% of the total population increase from 1990 to 2017 was concentrated in predominantly urban regions, whereas the proportion of people living in predominantly rural regions decreased (Sánchez Gassen & Heleniak, 2019). The process of urbanisation can be attributed to the prevailing flows of internal rural-to-urban migration, and immigration that is often congregated in urban areas. The trend towards increasing population concentrations in urban areas is expected to continue across the Nordic Region until 2030 (Sánchez Gassen, 2018; Sánchez Gassen & Heleniak, 2019; see also Stjernberg & Penje, 2019).

Internal mobility within Nordic countries is characterised by the redistribution of young adults from peripheral areas towards urban centres (Heleniak, 2020). This out-migration stream of young people is often motivated by the scarce education possibilities open to them, as well as correspondingly limited employment opportunities. There is also the factor of diminishing access to services in shrinking rural areas – compared to their urban counterparts – and the overall greater attractiveness of urban areas (e.g. Florida, 2010; Glaeser, 2012). Since Nordic women tend to pursue higher education more commonly than men (Karlsdóttir *et al.*, 2020; Lundgren & Cuadrado, 2020), previous studies conducted in the Nordic countries have indicated that young women tend to move from sparsely populated areas to urban areas to a greater extent than young men (e.g. Johansson, 2016; Rauhut & Littke, 2016). Other studies have highlighted discourses around mobility (Forsberg, 2019), as well as the renegotiation of prevailing gender norms in the countryside, as challenging the general view concerning a female rural exodus (e.g. Bjarnason & Edvardsson, 2017;

Forsberg & Stenbacka, 2013; Haley, 2018; Stenbacka *et al.*, 2018).

The prevailing trend towards an ageing population across the Nordic Region can be attributed to the baby boom generation reaching old age, to healthier older generations living longer, and to declining birth rates (Stjernberg, 2020). In sparsely populated areas of the Nordic countries, the out-migration of younger generations has further contributed to the phenomenon of depopulation, loss of human capital, and an increasing old-age dependency ratio – i.e. a growing proportion of people aged 65 and over, compared to the number of people aged from 15 to 64. This situation is challenging for the public sector in terms of their goal of providing equal provision of social services for all citizens, regardless of where they live (Heleniak, 2020). As Nordic countries are characterised by large, sparsely populated areas and long distances between urban centres, being able to offer a variety of services to shrinking and ageing rural populations is particularly challenging (Rehn-Mendoza & Weber, 2018).

In this chapter, we shed further light on the prevailing demographic trends towards urbanisation, internal migration by age group and gender, and population ageing, all over the last decade. To conclude, we briefly discuss how these processes are likely to impact wellbeing throughout the Nordic countries over the coming decades.

Degree of rurality

The Nordic countries are sparsely populated, with large uninhabited areas – except Denmark which has a settlement pattern similar to Western European countries. At the same time, the level of urbanisation is high, because the large majority of Nordic populations are concentrated in a limited number of growing functional urban areas, often located in coastal lands (Smas, 2018). Urban settlements in the Nordic Region are hence rather unevenly distributed. While there are relatively large uninhabited areas in the inner parts of Iceland, and

in the mountainous areas of Norway and Sweden, there is a larger proportion of very sparsely populated areas in Finland compared to other Nordic countries (Stjernberg & Penje, 2019).

A study comparing the spatial distribution of the Nordic population at the 1,000 × 1,000 metre grid level from 2008 to 2017 showed that the number of inhabited grids has declined in all Nordic countries. Along with the observation that there was a remarkably higher proportion of recently abandoned than recently inhabited grid cells across the Nordic Region, this trend indicates an ongoing process of urbanisation (Stjernberg & Penje, 2019). An urban area in the Nordic Region is defined as a settlement having at least 200 individuals living within 200 metres of each other (or within 50 metres in Norway). Such urban settlements only rarely correspond to administrative municipal boundaries (Smas, 2018). While there is no universal definition of urbanisation (Ritchie & Roser, 2018), in the Nordic context it encompasses all movements towards urban areas, including municipal centres.

To analyse urban-rural patterns and the Nordic populations' access to local services in sparsely populated areas, Figure 2.1 shows the average distance to the edge of the closest urban area for the population living outside urban areas in each municipality. While almost all Danish municipalities have an average distance of below 10 km from rural grid cells to the nearest urban area, a large share of the municipal populations of the remaining Nordic countries need to contend with longer average distances to local services. The largest distances can be found in several municipalities of Iceland and Norway (Árneshreppur 230 km, Hasvik 154 km), whereas the largest average distances for Finnish and Swedish municipalities are considerably shorter (Enontekiö 103 km, Storuman 52 km). Regarding within-country variation, shorter average distances may generally be found in southwestern Finland and southern Sweden, in comparison with the more remote parts of these countries. Both Norway and Iceland provide a rather more mixed picture, since there are municipalities with shorter average distances scattered across different parts of each country.

Box 2.1. Method used to calculate the degree of rurality

In order to take into account access to services such as grocery stores, pharmacies, schools, community centres and public transport, the European definition of urban grid cells was used to create the map, i.e. a population density threshold of 300 inhabitants per km² applied to grid cells of 1 km². The closest distance was calculated from each rural grid cell centroid to the nearest urban grid cell centroid along the existing road network traversable by car, including car ferries, based on population grid data from 2017. Since the municipalities of Gladsaxe, Kauniainen and Sundbyberg are without any rural population (only having urban populations), they were not included in the analysis.

Population change and internal mobility

Despite an advanced welfare system, including the public provision of childcare and generous parental leave, the Nordic Region has experienced declining fertility rates below replacement level, other than for the Faroe Islands (Karlsdóttir *et al.*, 2020). Migration is the main factor contributing to demographic change in many European countries, due to low birth rates (Bell *et al.*, 2015). In all five Nordic countries, the main trends in migration includes an increasing in-flow of international migrants since 1990, and a high degree of internal migration from rural areas to a limited number of functional urban areas – both within and between these countries (Heleniak, 2020).

The intensity of internal migration (referring to a permanent change of usual residence within a country) has been declining in several Western countries since the 1980s (Champion *et al.*, 2019). Even so, the population of Nordic countries remains internally mobile compared to other European countries, particularly those in Eastern and Southern Europe (Bell *et al.*, 2015; Bernard, 2017). Based on data collected for a global repository within the IMAGE project, it can be determined that 12-20% of the population change their address every year across the Nordic countries, which

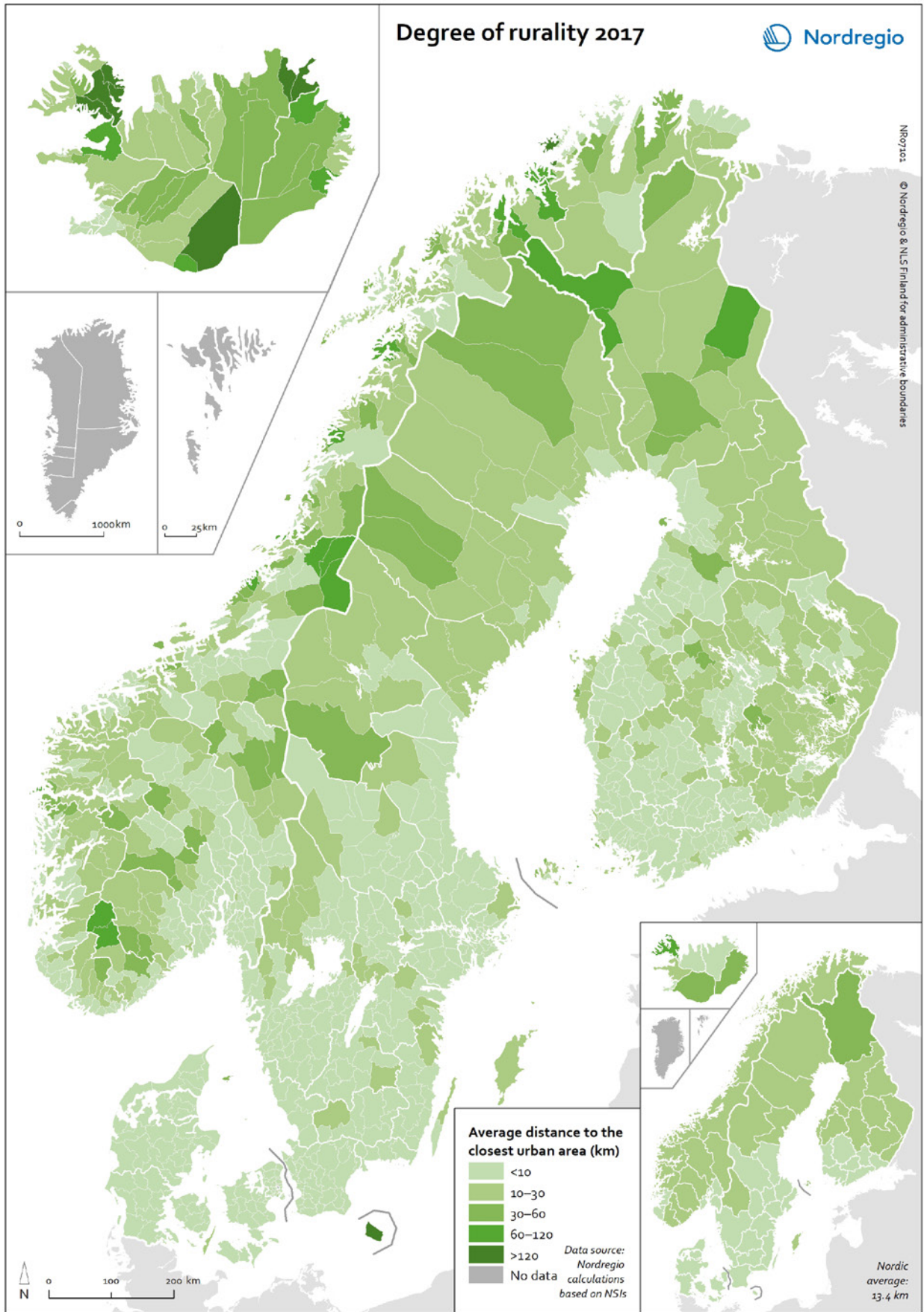


Figure 2.1. Average distance from rural grid cells to the edge of the nearest urban area at the municipal and regional level in 2017.

is comparable to those countries which have the highest level of internal mobility in the world – i.e. New Zealand, Australia, the USA and Canada (Bell *et al.*, 2015).

There is a particularly high level of internal migration among young adults across the Nordic countries compared to other EU countries, and this mobility has been increasing – at least in Sweden (Bernard & Kolk, 2019). As shown by Table 2.1, the 20 to 29 years age group evidences the highest rates of intermunicipal migration in all Nordic countries, followed by the 30 to 39 years age group. There are no clear differences between men and women in the age group of young adults (20 to 29 years-of-age) when examining national patterns, except in Iceland where young women have considerably higher rates than young men. The share of young adults aged 20 to 29 years residing in rural municipalities has been decreasing in Denmark, Finland and Norway in particular over the past two decades, while several rural municipalities in Iceland, northern Sweden and Greenland have experienced the opposite trajectory (Karlsdóttir *et al.*, 2020). Since it is often assumed that the future of rural regions is dependent upon their capability both to retain their populations and to attract newcomers, returning residents and second home owners (see, e.g. Dax & Fischer, 2018; Pitkänen *et al.*, 2017; Slätmo *et al.*, 2020), it is particularly relevant to examine the internal migration flows of young adults in the Nordic context.

Figure 2.2 shows internal net migration of young adults (20 to 29 years-of-age) in 2010-2019. The map does it by dividing municipalities into four

migration categories: positive net migration for both males and females, positive male net migration, positive female net migration, and negative net migration for both males and females. While the great majority of municipalities experience negative net migration of young adults in favour of a few functional urban areas and some larger towns (cf. Smas, 2018), it is possible to observe a number of exceptions to this general rule. The rural municipalities of Utsira, Moskenes, Valle, Smøla, Ballangen and Lierne in Norway have the highest positive net migration rates both for men and women. There are also positive net migration rates for males and females in the peripheral municipalities of Jomala, Kittilä, Lemland and Finström in Finland and Åland. There is positive male net migration but negative female net migration in Gratangen, Loppa, Gamvik, Drangedal and a few other Norwegian rural municipalities, plus Mariehamn in Åland, while several municipalities in remote areas of Finland have positive female net migration but negative male net migration. Some of these patterns may be related to specialised local labour markets, such as fisheries in Loppa (Walsh & Gerrard, 2018) or recreational tourism in Kittilä (cf. Pitkänen *et al.*, 2017). In general, the pattern of net migration among young adults is more diverse in Finland (where 72.0% of all municipalities have negative net migration), compared with 84.6% in Norway, 88.9% in Denmark and 89.0% in Sweden. However, it is important to remember that Danish, Finnish and Norwegian municipalities are smaller in size than their counterparts in the rest of the Nordic Region (Nilsson & Jokinen, 2020). These

Table 2.1. Intermunicipal migration per 1,000 population, by age group, in the Nordic countries in 2019.

Age group	Denmark		Finland		Iceland		Norway		Sweden	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0–9 years	2.6	2.4	2.3	2.2	3.7	3.5	2.3	2.2	2.9	2.8
10–19 years	2.7	3.2	2.5	3.8	2.5	2.6	1.9	2.3	2.6	2.6
20–29 years	12.6	12.5	10.3	10.7	8.5	9.4	9.1	9.6	9.7	10.0
30–39 years	5.1	3.9	4.8	3.9	6.6	4.8	4.7	3.7	5.5	4.4
40–49 years	2.6	2.0	2.3	1.9	3.4	2.6	2.3	1.7	2.6	2.0
50–59 years	2.1	2.0	1.6	1.8	2.4	2.3	1.6	1.5	1.7	1.6
60–69 years	1.1	1.1	1.1	1.3	1.7	1.6	1.0	0.9	1.1	1.0
70+ years	0.7	0.8	0.6	0.8	1.0	1.0	0.5	0.5	0.7	0.8

Source: NSIs, Nordic Countries.

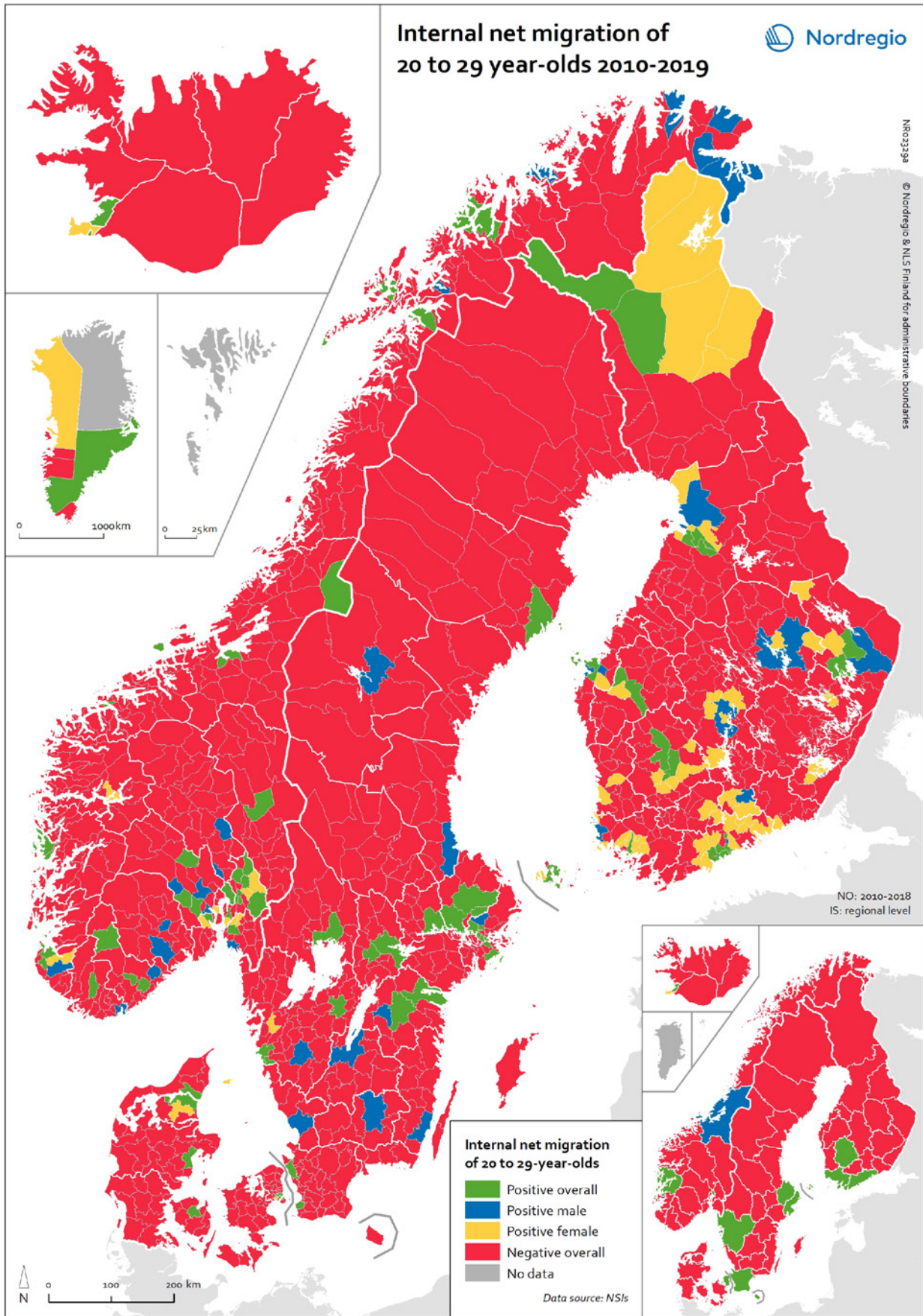


Figure 2.2. Internal net migration of young adults (20 to 29 years-of-age), by gender.

distinctions may impact the results in our analysis. The regional map shows that, with the exception of Suðurnes (Iceland), only regions including major cities experienced positive net migration of young people aged 20-29 years. In Trøndelag (Norway) this trend was only evident for males.

Interregional mobility for young adults is strongly correlated with educational background. In other words, obtaining a higher level of education increases the likelihood of settling in major towns more central to the labour market (Machin *et al.*, 2012; see also Florida, 2010; Glaeser, 2012). While individuals with a tertiary education are generally more mobile, and tend to move around to a greater degree at the end of their 20s, groups with only a primary and secondary educational background often move earlier in their lifetime, but less overall – because they tend to work in local labour markets (Machin *et al.*, 2012,). These findings point to the role of cities as 'pull factors', since they provide better employment opportunities for individuals who have gone through tertiary education.

Research carried out in Denmark indicates that larger cities – being more industrially diversified, and with a stronger presence of knowledge-intensive activities – enhance knowledge creation and innovation. These features in turn drive economic and employment growth, and hence result in more varied labour markets. They offer high income opportunities for individuals with a tertiary education (Hansen & Winther, 2015). However, factors other than economic and labour market features are also having an impact on mobility patterns. For instance, a Norwegian study indicates that satisfaction with Norwegian cities seems to be highest among young and single people who have gone through tertiary education. This is due to them offering amenities such as good public transport, leisure opportunities, and cultural and shopping activities, which are all highly valued among this socio-demographic group (Carlsen & Leknes, 2019). The Danish and Norwegian cases are not exceptional in the Nordic context. So in Finland and Sweden, interregional migration flows are also dominated by young adults with a tertiary educational background moving from smaller labour markets towards larger urban labour markets in both countries. These individuals may be attracted towards densely populated labour markets based on the expectation of a higher wage premium in urban areas, too (Eliasson *et al.*, 2019).

On the other hand, academically-oriented young adults can be stigmatised as unambitious if they decide to stay in rural areas (Pedersen & Gram, 2018; see also Stenbacka *et al.*, 2018).

Depopulation of young adults from rural regions often leads to increasing old-age dependency ratios, decreasing fertility rates, and unbalanced sex ratios due to high levels of out-migration among women. These factors in turn result in a more homogenous population structure in these peripheral regions. Out-migration of individuals with key competences, and a decreasing proportion of working age people in the overall population, may cause economic stagnation. It may also be difficult to provide welfare services in sparsely populated regions, and as a consequence the wellbeing of rural inhabitants can be put at risk, with the existing inequalities between peripheral and urban regions being increased (Hedlund *et al.*, 2017; Rauhut & Littke, 2016; Weck & Beißwenger, 2014).

Nonetheless, several studies show that there are substantial return migration flows of women in the age group of 25 to 34 years (Johansson, 2016), as well as individuals with children and families moving from urban areas to rural regions in Sweden (Bjerke & Mellander, 2017; Haley, 2018; Sandow & Lundholm, 2020). This pattern is also reflected in Figure 2.3, which shows internal net migration of 30 to 39-year-olds between 2010 and 2019. The map does it by dividing municipalities into four categories: positive net migration for both males and females, positive male net migration, positive female net migration, and negative net migration for both males and females. When compared to internal net migration among young adults, this map offers a more positive picture, because a considerable proportion of rural municipalities have experienced positive net migration among females, males, or both sexes across all the Nordic countries. Even so, there is negative net migration among both females and males in many municipalities in northern Sweden, north-eastern Norway and eastern Finland, in addition to several inland municipalities within these countries. Interestingly, there is negative net migration among both sexes across all the capital city municipalities of the Nordic Region.

According to the regional map, the capital city regions of Denmark, Iceland and Norway all experienced negative net migration of young people aged 30-39 years between 2010 and 2019. The

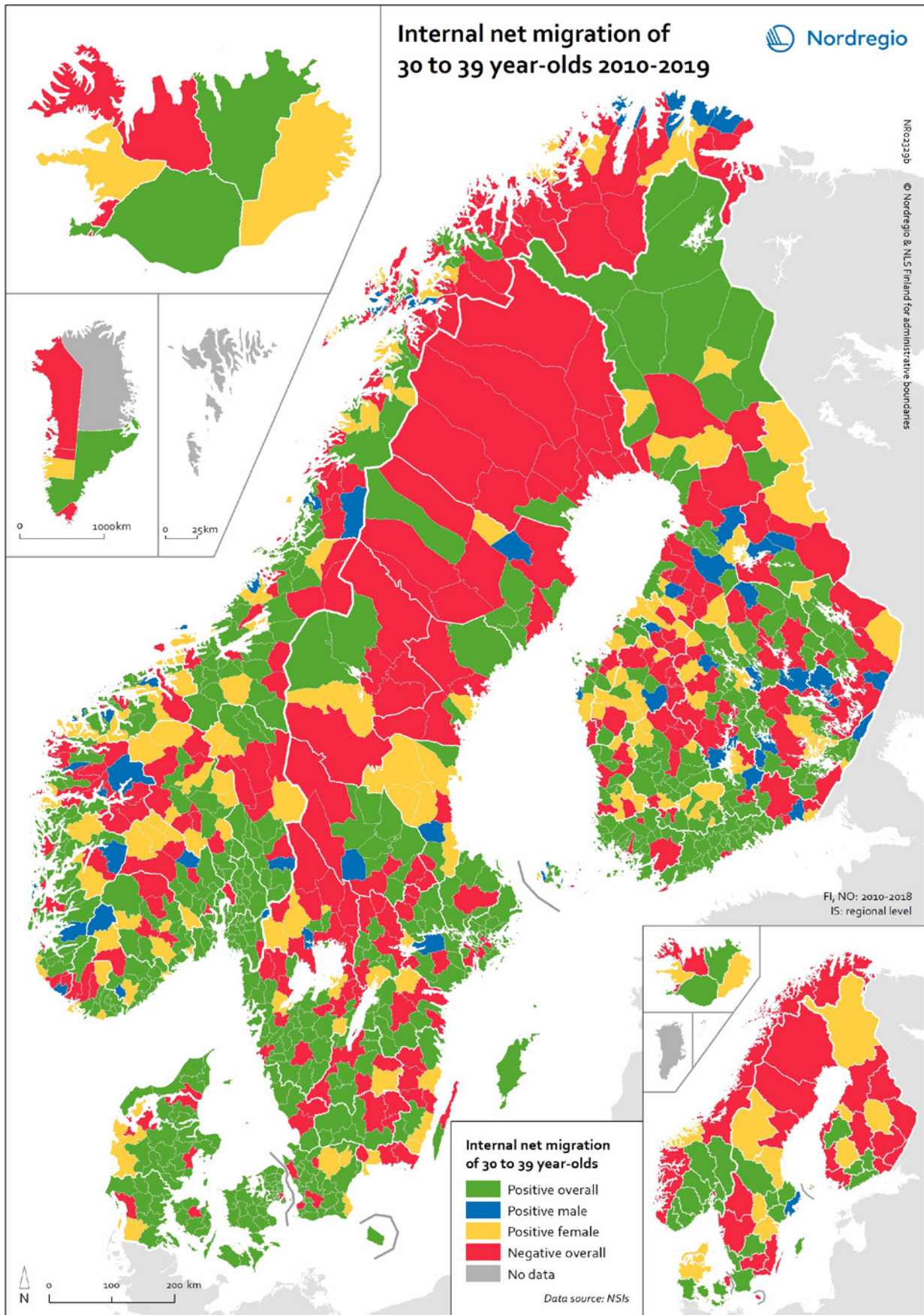


Figure 2.3. Internal net migration of 30 to 39-year-olds, by gender.

capital city region of Sweden experienced positive net migration of males and negative net migration of females while the capital city region of Finland experienced positive net migration overall. Despite the majority of peripheral regions experiencing negative net migration of 30 to 39-year-olds during the time period studied, there are also several interesting examples of rural regions which experienced positive female net migration, for example Nordjylland (Denmark), Pohjois-Savo (Finland), Austurland (Iceland), Møre og Romsdal (Norway), and Jämtland (Sweden).

Certain higher education trajectories, such as becoming a teacher or other public sector professional, may increase the probability of people returning to sparsely populated areas (Forsberg, 2018; Haley, 2018; Sandow & Lundholm, 2020). Those who move back after pursuing educational opportunities may compensate for the out-migration of younger age groups to a certain extent, in fact (Borges, 2020; Sandow & Lundholm, 2020). In some cases, for instance in Loppa in Norway, rural restructuring linked to the automation of work due to technological innovation and the relocation of manufacturing to the Global South, has changed the gender composition of local labour markets. This process has involved a transformation in the labour market from male dominated natural resource industries, such as the fishing industry, towards larger public sector labour markets which open up increased employment opportunities for women, especially among those with a tertiary educational background (Walsh & Gerrard, 2018; see also Lundgren and Cuadrado, 2020). For instance, in Iceland, existing regional higher education institutions, as well as improved distance learning opportunities, have contributed to a reduction in the 'brain drain' from rural areas (Bjarnason & Edvardsson, 2017).

Share of the population aged 80 years and over

Population ageing is a major demographic trend across Europe, and improved health in older age groups includes benefits such as increased wellbeing and longer participation in an active working life. However, the over-representation of elderly people is also challenging in terms of an increasing demand for health care services, particularly in sparsely populated areas (Stjernberg, 2020). It also has consequences in relation to the shortage of labour in the welfare sector, and a lack of public

Box 2.2. Post Covid-19 revitalisation of counter-urbanisation?

Contrary to general assumptions, some recent studies have shown that knowledge sector professionals with flexible working hours and less restricted location requirements are less likely to move to rural areas, compared to individuals working as teachers, nurses, physicians and in other public sector professional roles (e.g. Bjerke & Melander, 2017; Sandow & Lundholm, 2020). During the Covid-19 crisis, a large proportion of employees and employers have adjusted their routines to enable distance working from the employees' homes. These changes within the labour market may be long-term, allowing remote working to happen to a greater extent even after the Covid-19 pandemic. As a result, restructuring and the more efficient use of distance-spanning technologies could also contribute to a change of employees' preferences regarding residence, which would in turn revitalise the processes of counter-urbanisation and counteract the brain drain from peripheral areas to urban centres.

transport. These factors may combine to hamper the wellbeing of elderly people in rural areas, as well as their access to local services and social activities (Verma & Taegen, 2019).

At a national level, the share of the population aged 80 years and over across the Nordic Region was below the EU28 average of 5.7% in 2019 (Finland 5.5%, Sweden 5.1%, Denmark 4.5%, Faroe Islands 4.4%, Norway 4.2%, Iceland 3.5%, and Greenland 1.0%). Since 2006, the largest increase in the elderly as a proportion of overall population has been in Finland. Iceland and Denmark have only experienced a slight increase, and the proportion has been decreasing in Norway and Sweden. Across the Nordic countries, as well as in all EU countries, women are over-represented among people aged 80 years and over.

The old-age dependency ratio (65 years and over, as a share of those aged 20 to 64 years), which highlights the working age population in relation to those in retirement age, was higher and increased faster in predominantly rural regions

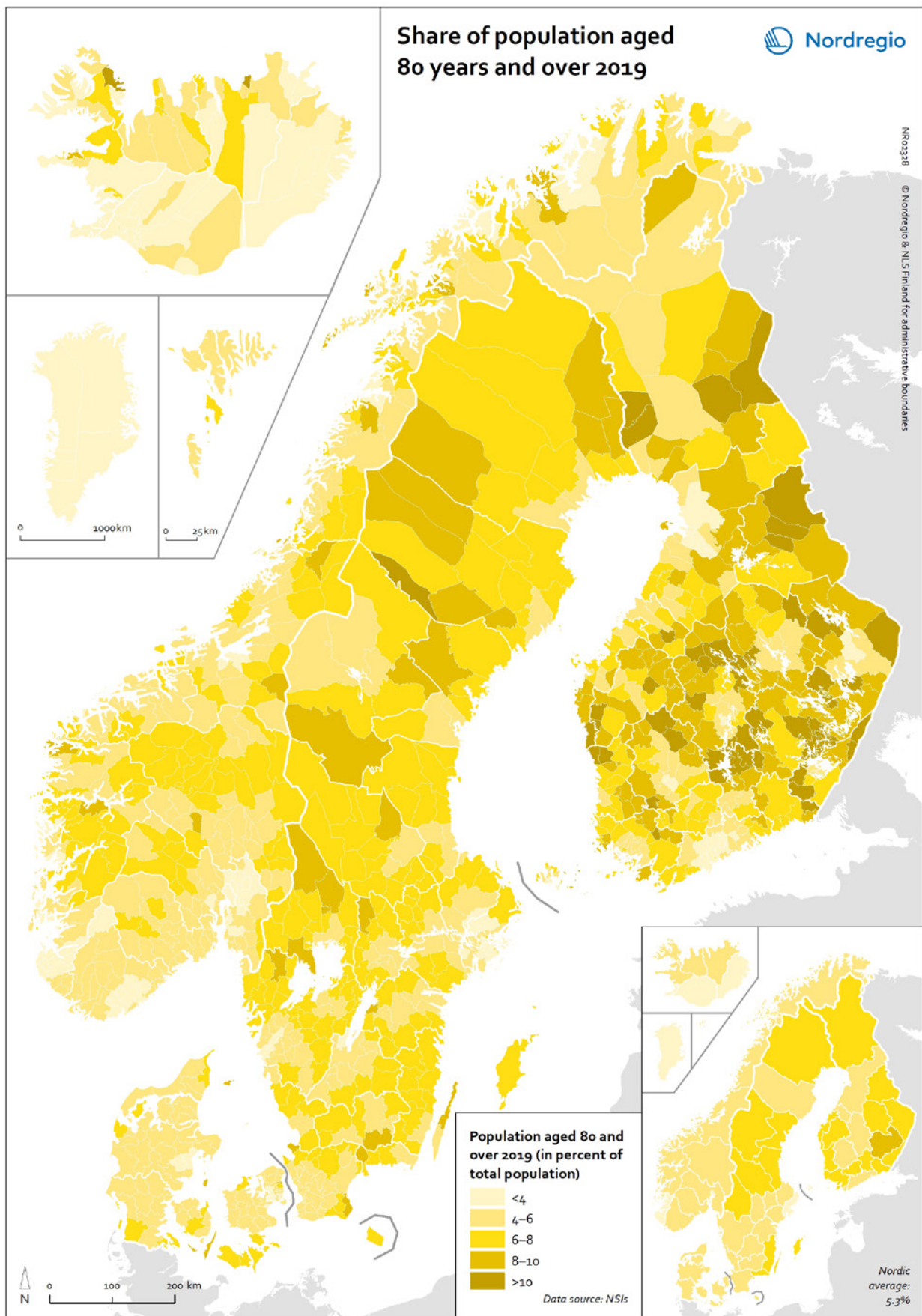


Figure 2.4. Population aged 80 years and over (as a share of total population).

across the Nordic countries (from 27% to 35%), compared to predominantly urban regions (from 20% to 24%) during the period 2007 to 2017. Even so, there is a large variation in the old-age dependency pattern between and within the Nordic countries (Sánchez Gassen & Heleniak, 2019). According to projections, both the old-age dependency ratio and 'oldest elderly' dependency ratio (80 years and over, as a share of those aged 20 to 64 years) will increase sharply in the Nordic Region over the course of the 21st century, particularly in Finland (Calmfors, 2020).

To provide an overview of those municipalities with an unbalanced age distribution in terms of the over-representation of elderly people, which may hamper their ability to provide welfare services, Figure 2.4 shows the proportion of the population aged 80 years or over at municipal and regional levels in 2019. There is a large within-country variation between regions in Iceland (from 0.8% to 14.0%) and Finland (from 2.4% to 14.0%), while the share of those aged 80 years and over varies from around 2.0% to 10.0% in the municipalities of Denmark, Norway, and Sweden. Greenlandic municipalities have a low proportion (between 0.6% and 1.5%), and there is also a low level of variation between the municipalities of the Faroe Islands (varying from 4.0% to 6.8%). When looking at the regional picture, within-country differences are evened out, particularly in Denmark, Norway, and Iceland. Across the Nordic Region as a whole, those municipalities having the highest proportions of elderly people within their populations follow the pattern of municipalities experiencing a decrease in population to a significant extent, except in Greenland (cf. Figure 2.0 in Grunfelder *et al.*, 2020).

Concluding remarks

In this chapter, the main demographic trends of the Nordic countries have been analysed in order to assess their connection to issues of wellbeing across the Nordic Region in the coming decades. While the concentration of a large proportion of the Nordic population into a few functional urban regions is liable to contribute to an efficient provision of welfare services in these core regions, Nordic residents in sparsely populated areas tend to experience large average distances in reaching the services closest to them. Long distances in rural areas also entail higher costs for public transporta-

tion. Regarding patterns of population redistribution, it is possible to identify negative internal net migration among young adults, and a concentration of those aged 80 years and over in many rural municipalities across the Nordic countries. These trends put pressure on the public service budgets of remote regions, as well as posing difficulties in attracting labour to the welfare sector. They are also contributing to declining tax revenues, despite existing redistribution schemes. Stagnating public economies tend to hamper the accessibility of local services for rural residents, and to decrease further the attractiveness of these regions in the eye of potential returnees and newcomers, particularly ones who have gone through tertiary education.

Yet there is also evidence concerning counter-currents of migration from urban areas towards rural regions across all the Nordic countries, particularly when it comes to the 30 to 39 years age group. Many of these internal migrants are returnees who initially left their rural place-of-birth to access higher education in the urban regions. The restructuring of local labour markets away from male-dominated industries towards a larger public administration sector, and the increasing use of digital spanning technologies to enable distance education and remote working, are factors which may eventually lead to a more age- and gender-balanced population distribution in rural municipalities (Bjarnason & Edvardsson, 2017; Walsh & Gerrard, 2018). While this chapter has focused on internal migration, it is worth noting that international migration is contributing substantially to population growth in some rural Nordic municipalities (Heleniak, 2018). Several recent studies have shown that the rural periphery is also being revitalised by the presence of second home owners, seasonal workers and tourists, even if those groups are not usually included in residential statistics (e.g. Slätmo *et al.*, 2020).

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3. Health in the Nordics – how are the Nordic inhabitants doing?

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The European Health 2020 initiative, elaborated within the collaborative framework of the WHO, and adopted in 2012, has two strategic objectives – 1) “to improve health for all and reduce health inequalities”, and 2) “to improve leadership and participatory governance for health” (World Health Organization, 2020a). The six Health 2020 targets² include not only health but also wellbeing, and the targets are also related to meeting relevant goals among the Sustainable Development Goals (SDG) in the 2030 Agenda for Sustainable Development. The European Health 2020 initiative will be replaced by a new strategy for the years 2020 to 2025.

Although premature deaths caused by four major noncommunicable diseases (NCDs, i.e. non-transmissible or non-infectious health conditions), including cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, have been declining in the EU, there are considerable inequalities and inequities in morbidity and mortality rates³ between the sexes and between countries. Lifestyle-related factors and socioeconomic factors affecting morbidity, such as overweight and obesity, tobacco smoking and alcohol consump-

tion, also need further attention, because they now risk outweighing the positive results achieved in relation to premature deaths (World Health Organization, 2018a).

Across the Nordic Region, life expectancy is above the EU average and the various national health systems perform well in providing high-quality care which is easily accessible to citizens (European Commission, 2019). Apart from well-constructed systems for health care across the Nordic Region, the Nordic countries also have well-established national public health programmes which aim to improve the health of the population and decrease existing health inequalities. These achievements are monitored by a public health institute in each country (Christiansen *et al.*, 2018). Yet it is also possible to observe some differences between the Nordic countries. Both Sweden and Norway have a high level of per capita health spending and low rates of mortality from preventable and treatable causes, and the prevalence of risk factors for health remain below or at the EU average (OECD, 2019e, 2019f). Iceland, Finland, and Denmark have lower levels of per capita health spending, but are nevertheless above the EU average. Particularly in Denmark and Finland, preventable mortality at or above the EU average and a relatively high prevalence of alcohol consumption and obesity rates suggest that more effective public health policies could prevent more premature deaths (OECD, 2019a, 2019b, 2019d).

It has been argued that the prevailing epidemiological situation within the Nordic Region is a complex equation: one that is continuously influenced by changing environmental and behavioural factors, and high levels of migration compared to other EU countries (Schærström, 2014).

2 The Health 2020 targets include: 1) to reduce premature mortality in the European Region by 2020; 2) to increase life expectancy in the European Region; 3) to reduce inequalities in health in the European Region; 4) to enhance the wellbeing of the population in the European Region; 5) to ensure universal coverage and the “right to the highest attainable level of health”, and 6) to set national goals and targets related to health in Member States (World Health Organization, 2018a).

3 While indicators of morbidity and mortality are often related to one another, there is a difference between them. Morbidity describes the proportion of a certain population being in an unhealthy state as a result of particular disease or condition. Mortality means the specific number of deaths caused by an identified health event (Hernandez & Kim, 2020).

While immigrants born outside Europe often have healthier lifestyles that are linked to lower levels of morbidity, compared to native Nordic inhabitants, they are also more likely to have been exposed to post-traumatic stress, infectious diseases and socioeconomic living conditions which may cause ill-health (Greve, 2016; Rehn-Mendoza, 2018). International migration also maintains the genetic diversity of the various Nordic populations (Schærström, 2014). It is important to note, however, that international migrant workers without permanent residency have limited access to health care systems within the Nordic countries, and hence may not be included in health statistics (OECD, 2019a, 2019b, 2019d, 2019e, 2019f).

According to the conceptual framework adopted by the OECD publication *Health at a Glance 2019*, citizens' health status is highly related both to the quality and the accessibility of the national health care system, and to the quantity of expenditure on preventing and treating illness (OECD, 2019c). In *State of Health in the EU: Companion Report 2019*, the health systems of the European countries are analysed according to their effectiveness, accessibility and resilience (European Commission, 2019). Individuals' health is also influenced by factors such as income, education, physical living environment and lifestyle choices (OECD, 2019c). To illustrate how Nordic inhabitants are doing with regard to their health, in this chapter we analyse several health indicators which can be divided into the dimensions of *health status* on the one hand, and *risk factors for health* on the other. While chosen health status indicators measure both length and quality of life, risk factors for health show data on the main risk behaviours contributing to a relatively large occurrence of NCDs. In addition, we provide a short overview of selected indicators regarding access to care, quality of care and available health care resources – i.e. the overall *health system performance* – across the Nordic Region. To conclude the chapter, we briefly discuss how the current health status of Nordic inhabitants is impacting their wellbeing, and we link the results of this to a more general discussion about the difference between urban areas and sparsely populated areas, as well as further differences in gender, income and education.

Life expectancy and mortality as key indicators of health status

Life expectancy at birth refers to the average number of years that a person is expected to live, from birth, based on the prevailing age-specific mortality conditions. In all OECD countries, life expectancy has been increasing over the past few decades, but this development has been slowing down recently. That slow-down is explained by a number of factors. Whereas several OECD countries have experienced difficulties in maintaining the previous pace of progress in the prevention and treatment of circulatory diseases, other countries have experienced an increasing number of deaths due to outbreaks of respiratory diseases and the preponderance of drug overdoses. While Nordic countries have been less affected by influenza and pneumonia, opioid-related deaths have been rising in both Sweden and Iceland. In addition, mental health problems and suicides have increased in relation to economic downturns, such as the 2008 recession, in several OECD countries (OECD, 2019c; Parmar *et al.*, 2016; Raleigh, 2019). Compared to other OECD countries, the Nordic countries have experienced rather restrained gains in life expectancy between 1970 and 2017 (OECD, 2019c). Life expectancy at birth for the EU27 was 81.0 years in 2018, and all Nordic countries except Greenland (70.4) were at or above the average (Denmark 81.0, Finland 81.8, Iceland 82.9, Norway 82.8, Sweden 82.6, and Faroe Islands 82.3) – but exceeded by Italy (83.4), Spain (83.5), and Switzerland (83.8), for example (see also Rehn-Mendoza & Weber, 2018). While life expectancy at birth is higher among women than men in all EU27 countries, the differences between men and women are smaller in Nordic countries compared to the EU27 average of 5.5 years. A notable general trend is that the increase in life expectancy has been larger for males than for females, and consequently the gender gap has been reduced over the last decades in almost all EU countries, including the Nordic countries (Lundgren & Cuadrado, 2020).

Besides life expectancy, the mortality rate – i.e. the number of deaths in a year expressed as a proportion of the population – is a key indicator reflecting a population's overall health (OECD, 2019c). While populations with a higher life expectancy tend to present low mortality rates, the life expectancy indicator may be less sensitive than the indicator of mortality to variations in a population's age structure, birth rate and other demo-

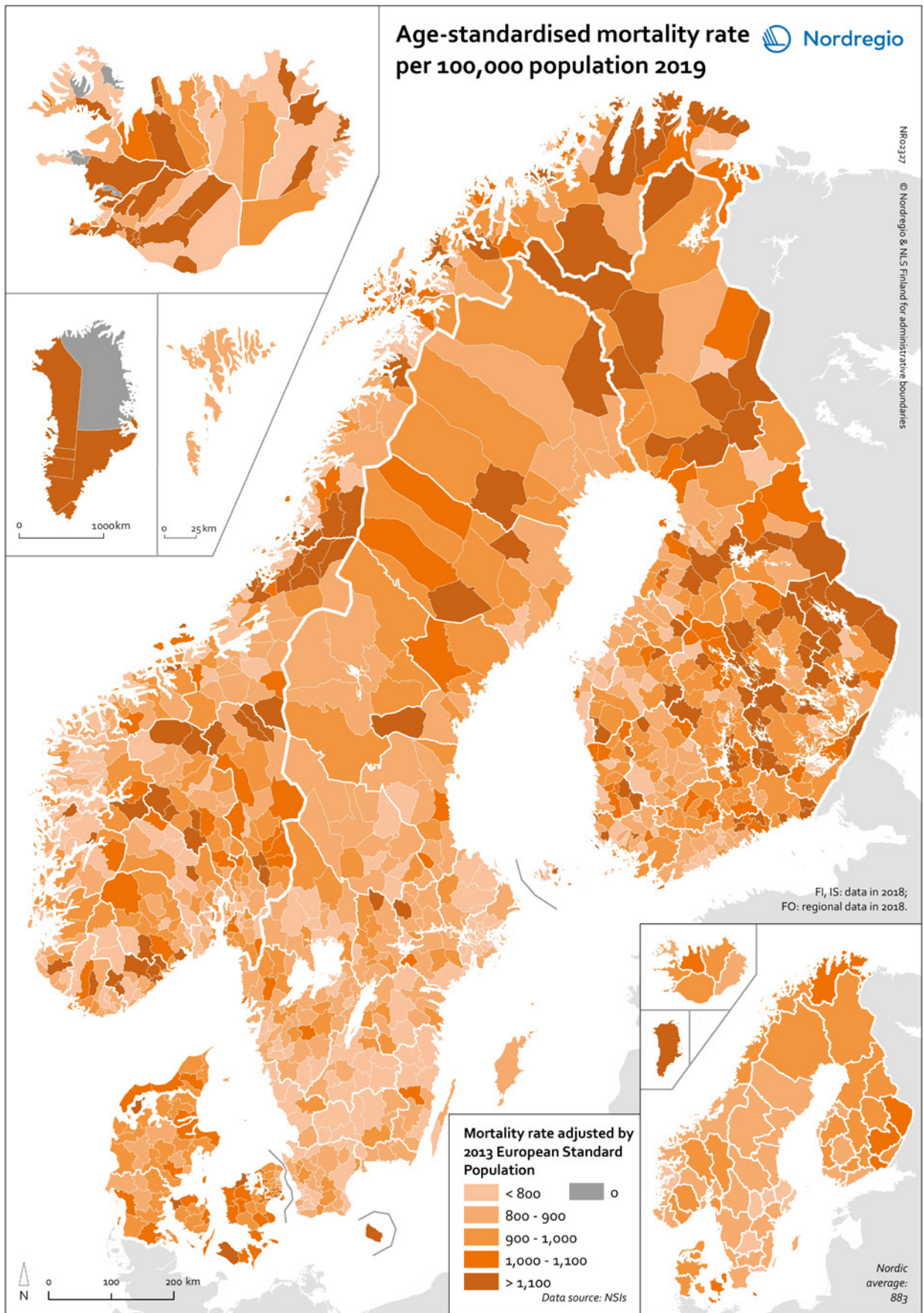


Figure 3.1. Age-standardised mortality rate 2019.

graphic characteristics (Milanović *et al.*, 2006; Silcocks *et al.*, 2001). To compare the relative health status of different population groups, the population's age distribution needs to be taken into account, because death rates for most diseases generally increase with age (Curtin & Klein, 1995). "Age-standardized mortality rates adjust for differences in the age distribution of the population by applying the observed age-specific mortality rates for each population to a standard population" (World Health Organization, 2020b). In other words, this technique allows comparison between populations with differing age profiles. The populations are thus given the same age distribution structure, so that those differences in mortality which are not due to the ageing of the population can be highlighted.

Across OECD countries, in 2017, the main causes of mortality included diseases of the circulatory system (31%), cancer (25%), diseases of the respiratory system (10%), and Alzheimer's and other forms of dementia (9%). In general, age-standardised mortality rates were 50% higher for men than for women, which can be explained by the greater exposure of men to health risk factors (OECD, 2019c). In the Nordic countries, ischaemic heart disease and strokes are still the leading causes of death, while mortality rates from Alzheimer's disease have been increasing as a result of improvements in diagnostics across the region between 2006 and 2016. They counted as the main cause of death after ischaemic heart disease in Finland and Iceland in 2016. Lung cancer and chronic obstructive pulmonary disease (COPD) are among the main causes of death in Denmark, with mortality from these diseases also growing in Norway, Iceland and Sweden. In addition, deaths caused by pneumonia have increased in Denmark (OECD, 2019a, 2019b, 2019d, 2019e, 2019f). During the period from 2011 to 2015, both Finland and Sweden had higher mortality rates as a result of NCDs than any other Nordic countries. However, clear sub-national differences could be observed throughout the Nordic Region (Rehn-Mendoza & Weber, 2018).

Research on mortality in Nordic countries points to a steady decrease in mortality rates since the 1990s (Jensen *et al.*, 2017). At a national level, there are age-standardised mortality rates higher than the Nordic average (883.0) in Greenland (2,449.2), Denmark (988.6), and Finland (921.7). These statistics show the number of

deaths per 100,000 of population in each country, after removing variations brought about by differing age structures between the three countries. Figure 3.1 shows the age-standardised mortality rate in 2019 at the municipal and regional levels across the Nordic countries. In the calculation of age-standardised mortality rates, we used the European Standard Population in 2013. Since the map was created using death data for only one year, it is important to recognise that the number of deaths may vary a good deal from year-to-year in municipalities with a small population. It is observable that age-standardised mortality rates are lower in capital regions and large cities in all Nordic countries, suggesting a lower level of ill-health in these regions. There is a high variation of mortality rates between municipalities in Finland, Iceland, Norway, and Sweden. The municipalities having the highest mortality rates tend to be economically disadvantaged, with lower levels of disposable household income and a smaller proportion of people having attained tertiary education.

Health status indicators measuring quality of life

Despite increasing life expectancy, and specifically higher life expectancy for women at birth, the additional years of life gained are not necessarily healthy ones (World Health Organization, 2019). The EU27 average for 'healthy life years at birth' – also called disability-free life expectancy – amounted to 64.0 years in 2018. This health expectancy indicator combines information on morbidity and mortality, measuring the number of years a person is expected to live, from birth, without encountering either severe or moderate health problems. While both Sweden (72.8) and Norway (70.4) are top performers in this regard, citizens of Denmark (60.9), Finland (57.4), and Iceland (66.7 in 2016) had a considerably lower expectancy for healthy years. For the three latter, the number of healthy years of life has been decreasing between 2010 and 2018. In all Nordic countries, men had a higher number of healthy years of life from birth compared to women in 2018 – the difference between the sexes being 3.4 years in Denmark, 3.1 years in Finland, 2.6 years in Norway, 1.7 years in Sweden, and 5.9 years in Iceland (IS: 2016). In other words, even if life expectancy is higher for women, men tend to live a larger proportion of their lives without health-related activity limitations.

Disability-Adjusted Life Years (DALYs) per 1,000 inhabitants

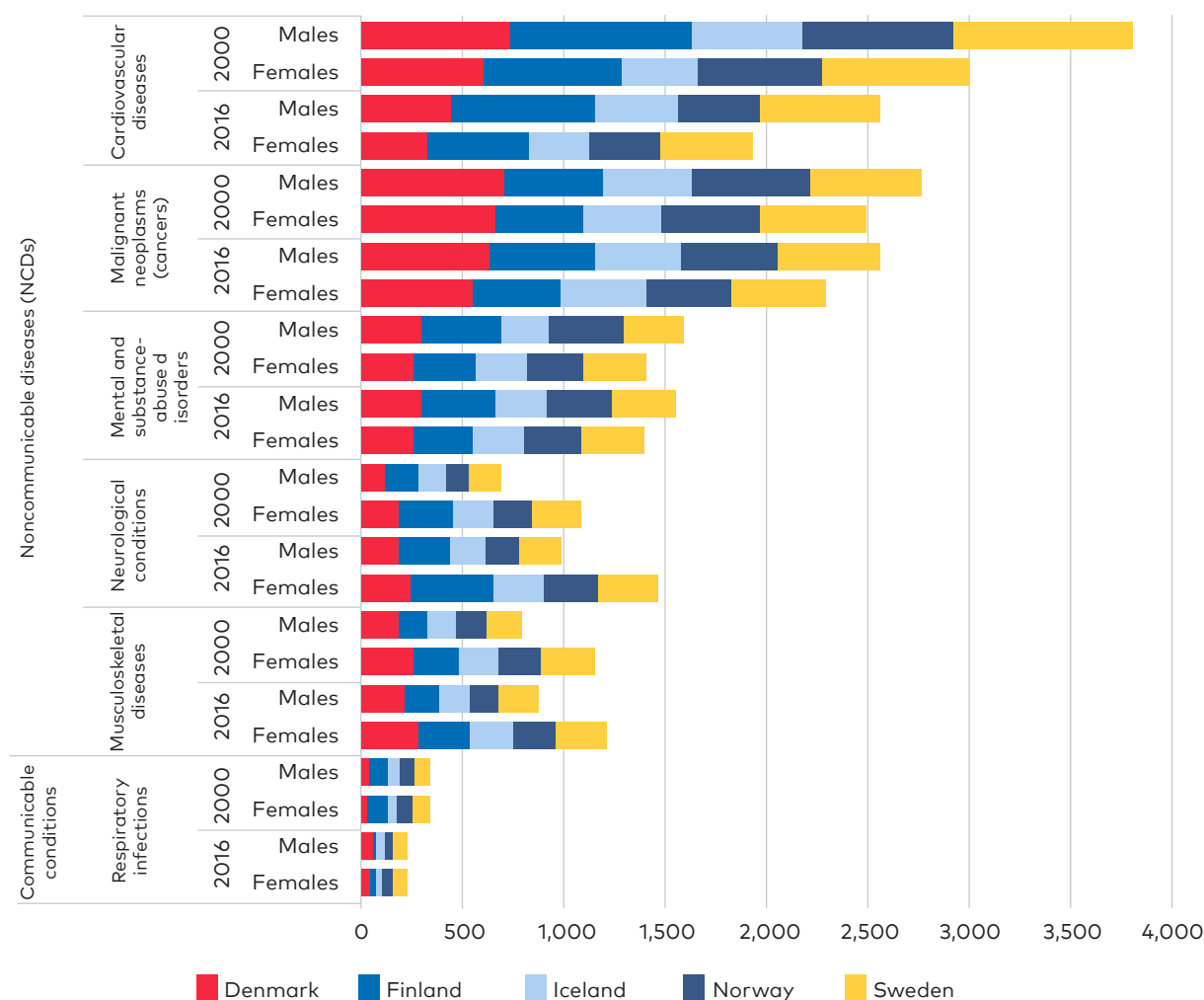


Figure 3.2. DALYs in 2000 and 2016 for males and females across the Nordic countries. Source: WHO.

The *Disability-Adjusted Life Year* (DALY) is a measure of the overall disease burden, indicating the cumulative number of years lost due to ill-health, disability or early death. DALYs are calculated as the sum of *years of life lost* (YLL) due to premature mortality and *years lived with disability* (YLD), i.e. lost healthy years of life caused by any non-fatal condition affecting mental or physical health, or a combination of the two. Compared to the general mortality rate, the use of DALYs makes it possible to compare the burden of diseases mainly causing premature death with the burden of diseases which more regularly cause disability rather than premature death (World Health Organization, 2020c). In 2016, 87.1% of DALYs across

the Nordic countries were due to NCDs⁴, in comparison with 8.8% caused by injuries⁵ (including suicides) and 4.1% by communicable, maternal, neonatal and nutritional deficiency causes (including infectious diseases such as Covid-19)⁶.

4 NCDs include 1) malignant neoplasms (i.e. cancers), 2) other neoplasms, 3) diabetes mellitus, 4) endocrine, blood, and immune disorders, 5) mental and substance use disorders, 6) neurological conditions, 7) sense organ diseases, 8) cardiovascular diseases, 9) respiratory diseases, 10) digestive diseases, 11) genitourinary diseases, 12) skin diseases, 13) musculoskeletal diseases, 14) congenital anomalies, 15) oral conditions, and 16) sudden infant death syndrome.

5 *Injuries* cover both 1) unintentional injuries – such as road injuries and poisonings – and 2) intentional injuries, including self-harm and violence.

6 *Communicable, maternal, neonatal, and nutritional conditions* include 1) infectious and parasitic diseases, 2) respiratory infections, 3) maternal conditions, 4) neonatal conditions, and 5) nutritional deficiencies.

Figure 3.2 shows DALYs per 1,000 population resulting from the five groups of NCDs causing the highest number of DALYs at a national level across Nordic countries in 2000 and 2016, and the communicable condition of respiratory infections for both males and females. Cardiovascular diseases are still the main cause of lost years of healthy life in Finland and Sweden, while in Denmark, Finland, and Iceland, cancers (malignant neoplasms) were the leading contributors to the disease burden in 2016. Some of the presented trends have been increasing, e.g. neurological conditions in all Nordic countries, and musculoskeletal diseases in Denmark, Iceland, and Norway, which are more common for women than for men throughout all Nordic countries.

For mental disorders and substance-abuse disorders, DALYs have been rather stable between 2000 and 2016, being higher for men in Denmark, Finland, and Norway. The graph shows the highest number of healthy years lost as a result of mental disorders and substance-abuse disorders being in Finland, and the lowest number in Iceland. However, according to several recent studies, the level of mental health problems is increasing throughout the Nordic countries, especially among the young and women (Andreasson, 2018; Eriksson *et al.*, 2019; Gustafsson & Lohmann, 2018). In 2018, the level of mental ill-health was higher than the EU28 average (17.3%) in Finland (18.8%), Norway (18.5%) and Sweden (18.3%). Both Denmark (16.9%) and Iceland (16.7%) were below the EU28 average. While mental health is generally defined as “a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community” (World Health Organization, 2018b), mental illness can be understood as “the loss of mental health due to a mental disorder” (OECD/EU, 2018, p. 21). Mental disorders and work absenteeism are two related circumstances which have attracted attention from both researchers and policymakers of late (Johnston *et al.*, 2019), because it is common for poor mental health to impact individuals’ daily activities, resulting in lower educational attainment, unemployment, low levels of income, and poor physical health. It is estimated that every second person experiences a mental health problem during their lifetime. In general, the direct and indirect costs to society resulting from mental ill-

health are notably high (Hewlett & Moran, 2014; OECD, 2019c).

Self-perceived health is the measure by which individuals assess their own health, including both mental and physical health. Across the OECD, on average nearly 9% of the adult population report themselves as enduring bad health (OECD, 2019c). According to data from Eurostat, the general level of self-perceived health in Nordic countries during 2010-2019 has remained stable in almost all countries, with a slight decrease being evident in the past five years. In all Nordic countries, in 2018, a lower proportion of the population aged 16 years or over said that they had bad or very bad health, compared with the EU27 average of 8.5% (Norway 7.7%, Denmark 7.5%, Iceland 6.6%, Sweden 5.8% and Finland 5.7%). In a comparable way, a higher proportion of the population aged 16 years or over said that they had very good or good health in the Nordic Region, compared to the EU27 average of 68.6% in 2018 (Norway 76.6%, Sweden 76.1%, Iceland 76.1%, Denmark 71.2% and Finland 69.0%). For Iceland, data was only available up to 2016.

Risk factors for health

Living habits are an essential contributor to any individual’s health status. In this section we will take a closer look at smoking, alcohol consumption, and obesity, which are all common risk factors for health. Figure 3.3 presents data on being a daily smoker and alcohol consumption across the Nordic countries from 2000 to 2016. While the proportion of daily smokers has been decreasing across all Nordic countries (with Denmark still having the highest level per capita), the consumption of alcoholic drinks only decreased in Denmark and Greenland (between 2000 and 2016). The use of snus (a smokeless tobacco product consisting of moist powder) in Sweden could explain the slightly lower number of daily smokers of cigarettes compared to Denmark, Greenland, Finland and Iceland (Norberg *et al.*, 2011).

Figure 3.4 looks at obesity rates by gender and educational attainment, at a national level, in 2014. According to the graph, the highest obesity rates for all groups can be found in Finland and Iceland. The relationship between socioeconomic factors and obesity is illustrated by a lower proportion of males and females with tertiary education having a BMI of over 30, compared to men and women with just a primary and secondary ed-

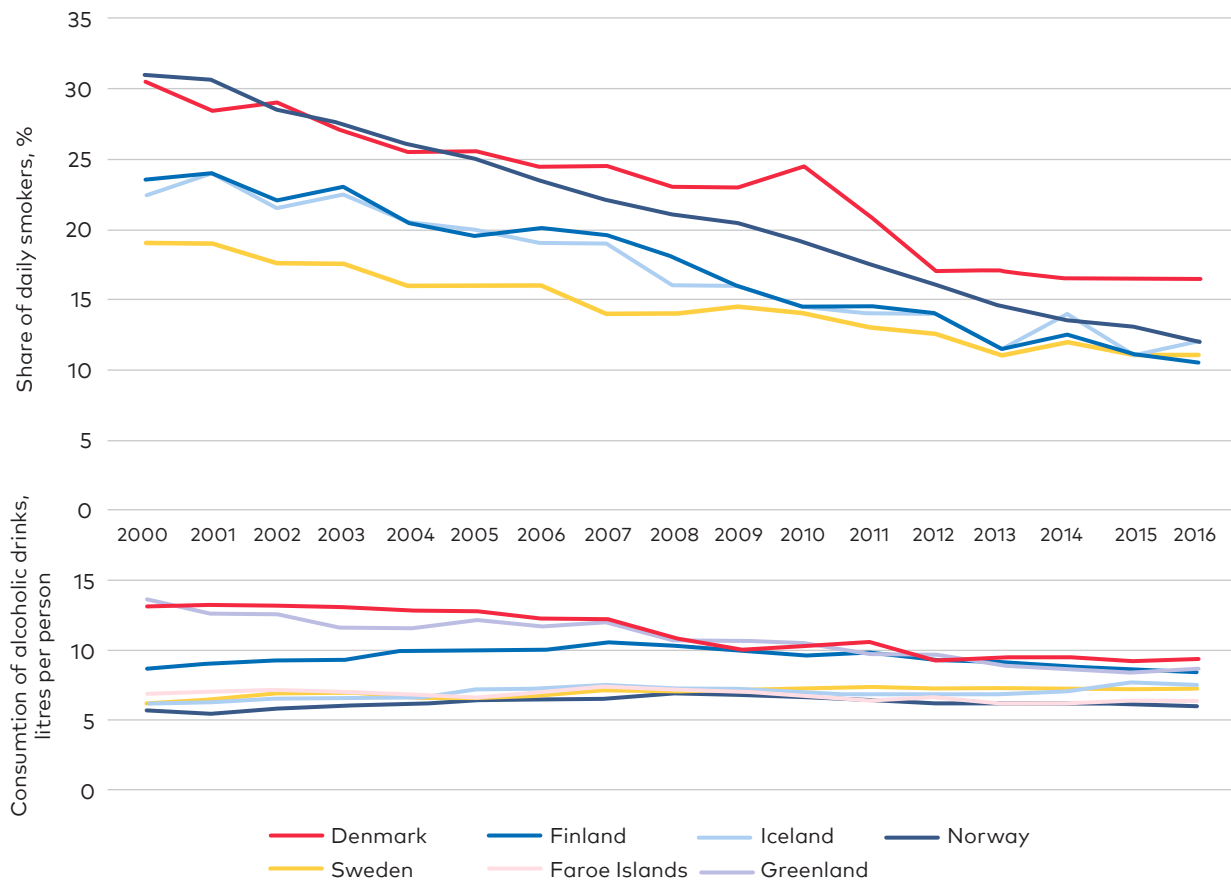


Figure 3.3. The number of daily smokers (not including snus) and consumption of alcoholic drinks between 2000 and 2016. Data source: NOMESCO.

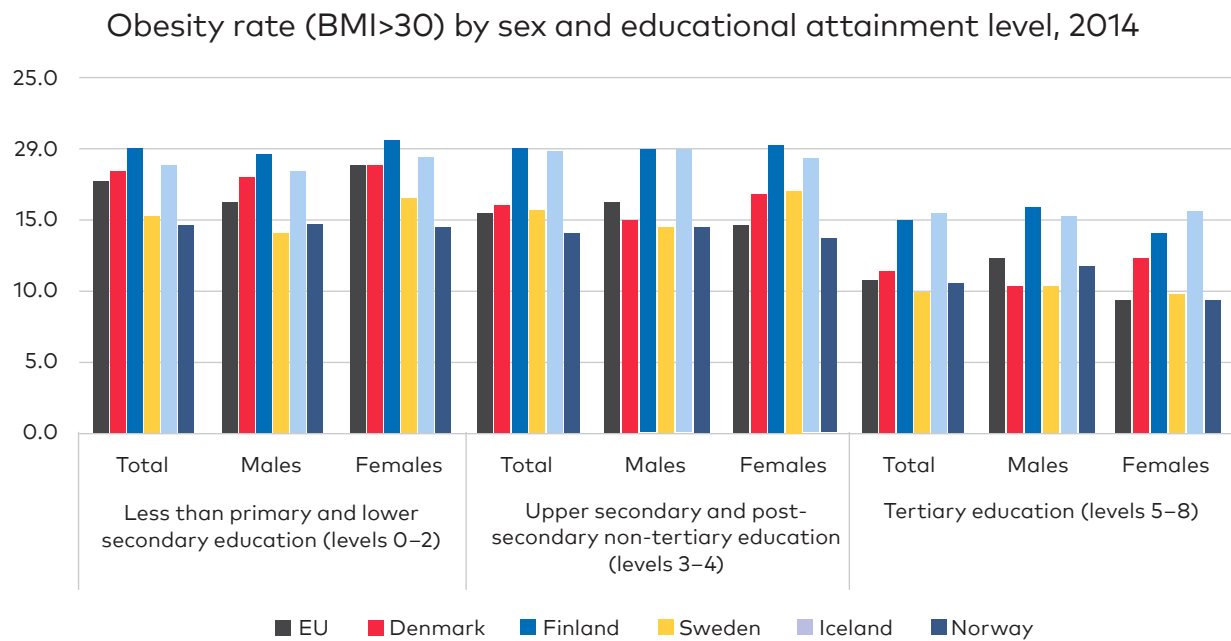


Figure 3.4. Self-reported obesity rates in 2014. Data source: Eurostat.

educational background. Excess weight and obesity among five to nine-year-olds has increased across all Nordic countries between 1990 and 2016, and is more common for boys than for girls (OECD, 2019c). The dietary habits of Nordic residents – such as relatively low consumption of wholegrain products, nuts and seeds, vegetables, fruits et cetera, and a high intake of sodium and processed meat products – contributes to this risk factor (Wood *et al.*, 2019). At the same time, over 70% of the Nordic population aged 15 years and over achieved the recommended amount of moderate weekly physical activity in 2014 (Sweden 79.5%, Iceland 79.4%, Norway 78.3%, Denmark 77.6%, and Finland 70.7%) (OECD, 2019c).

The existence of a social gradient of obesity is well known globally, and Nordic countries are no exception in this regard (Magnusson *et al.*, 2014; Molarius *et al.*, 2016). There are two reasons which could explain why obesity is more common among the portion of the population limited to a primary educational background. First, education raises critical consciousness, and it may therefore help to mitigate patterns of consumption of unhealthy food and drinks (Magnusson *et al.*, 2014). Second, some studies have shown that healthy food is not accessible to low-income earners, and this limitation could contribute to raising the prevalence of obesity among those (e.g. Rao *et al.*, 2013; Rydén & Hagfors, 2011). In a similar vein, the literature indicates a close relationship between levels of education and smoking habits. For example, a survey carried out in Norway in 2016 showed that the prevalence of smoking was 26% among people with a basic education, but only 7% for people with a tertiary education (Graff-Iversen *et al.*, 2019).

Health system performance

Whereas health systems providing efficient and equal health care services are of vital importance to guaranteeing a population's positive health status, assessing health system performance is a complex process (Asandului *et al.*, 2014). All Nordic countries have universal health care coverage, including access to consultations, examinations and hospital care which are to a large extent financed by public taxes and delivered by public service providers. Even so, particularly in Denmark and Finland, the proportion of the population possessing voluntary private health insurance has been increasing since 2007. In 2017, complementary and/or supplementary private health insurance cover-

age was 29% in Denmark, 22% in Finland and 6% in Sweden (OECD, 2019c). In Finland, the section of the population covered by occupational health services also has better access to health care compared with unemployed and retired people (OECD, 2019b).

In 2017, the proportion of health expenditure financed by out-of-pocket payments was relatively high, and above the EU average of 15.8% in Finland (20.2%), whereas other Nordic countries had lower shares (Iceland 16.5%, Sweden 15.0%, Norway 14.2%, and Denmark 14.0%). The proportion of people reporting unmet needs for medical care as a result of financial reasons, geographical barriers or long waiting times was higher in Finland (almost 4%) and Iceland (about 3%) compared with both the EU average (nearly 2%) and that of other Nordic countries (Sweden 1.4%, Norway slightly over 1%, and Denmark 1%). In Iceland, Finland and Norway, unmet needs for medical care were substantially higher among people in the lowest income quintile compared to people in the highest income quintile. The proportion of people reporting unmet needs for dental care – which is only partly covered by national health insurance schemes in Nordic countries – was above the EU average in all Nordic countries, except Sweden. Norway and Iceland have the highest ratio of nurses per capita, followed by Finland, which has the highest ratio in the EU. The ratio is also above the EU average (8.5 per 1,000 inhabitants) in Denmark and Sweden.

The number of practicing doctors per 1,000 inhabitants is more than the EU average of 3.6 in all the Nordic countries, except Finland – where the responsibility of nurses for primary care has been gradually expanding. Overall, despite universal health care access across the Nordic Region, there are concerns about long waiting times, disparities between income groups, and regional within-country differences (OECD, 2019a, 2019b, 2019d, 2019e, 2019f).

Regarding the quality of health care throughout the Nordic Region, hospitals tend to provide high-quality treatment at the same time as there is an ongoing shift from inpatient to outpatient care. When it comes to NCDs, it is crucial to have accessible and effective primary care services in order to detect diseases at an early stage and to maintain low admission rates to inpatient hospital care (which is also more costly). While age-standardised rates of avoidable hospital admission for asthma and COPD, diabetes, and congestive heart

failure per 100,000 population 15 years and older were below the EU average in Iceland and Sweden, there is some room for improvement – particularly with regard to asthma and COPD in Denmark and Norway, and congestive heart failure in Finland. Age-standardised 30-day mortality rates per 100 hospitalisations following acute myocardial infarction (AMI) and stroke were below the EU average across the Nordic Region in 2017 – Norway being one of the top performers among European countries. Owing to screening programmes, early diagnosis and effective treatments, cancer survival rates were generally above the EU average across Nordic countries, based on data for people diagnosed between 2010 and 2014. However, survival rates for lung cancer were below the EU average in Finland. In general, there is high vaccination coverage among Nordic children. However, it could be improved among people aged 65 and over, particularly in Norway (OECD, 2019a, 2019b, 2019d, 2019e, 2019f).

Current health care expenditure quantifies those economic resources dedicated specifically to

health functions. It measures the final consumption of health care resources and services, excluding spending on capital investment (OECD, 2019c). According to statistics from Eurostat, the highest level of health care expenditure as a share of GDP was found in France (11.31%), Germany (11.25%), and Sweden (11.02%) in 2017. Whereas both Norway and Denmark had a higher share than the EU average, Finland and Iceland were below that average. Table 3.1 highlights the extent of total expenditure on health care as a proportion of GDP in the Nordic Region between 2011 and 2017 (IS, GL: 2011–2016, FO: 2012–2014). The largest increase was observed in Norway during that period. There, expenditure as a percentage of GDP increased by 1.67 percentage points and amounted to 10.45% of GDP in 2017. However, this increase could be explained by decreasing GDP growth, due to falling oil prices. Greenland, Sweden and Finland witnessed an increase of 0.5, 0.35 and 0.25 percentage points respectively. By contrast, health care expenditure as a percentage of GDP decreased by 0.2 percentage points in Iceland and 0.04 in Den-

Table 3.1. Health care expenditure as a percentage of GDP.

GEO/TIME	2011	2012	2013	2014	2015	2016	2017
Denmark	10.15	10.24	10.17	10.17	10.23	10.18	10.11
Finland	8.96	9.30	9.51	9.49	9.70	9.43	9.21
Sweden	10.67	10.93	11.09	11.13	11.00	10.98	11.02
Norway	8.78	8.77	8.92	9.33	10.11	10.52	10.45
Iceland	8.49	8.44	8.48	8.50	8.35	8.29	
Faroe Islands		7.7	7.4	7.4			
Greenland	8.2	8.0	8.3	8.1	7.7	8.7	

Box 3.1. Covid-19 and the supply of hospital beds

The supply of hospital beds comprises all regularly maintained beds for curative, long-term and rehabilitative care, and it is well known that this indicator is generally equivalent to health care admission rates (OECD, 2019). Most of the EU27 countries have witnessed a significant decline in the number of hospital beds since 2010, and Sweden had the lowest number of hospital beds per 100,000 inhabitants in 2017 (222.5). The other Nordic countries were all well below the EU27 average of 541.1 (Denmark

260.8, Iceland 306.4, Finland 328.1 and Norway 360.0). This dramatic decrease primarily reflects organisational changes in the health care system, but also lack of personnel and an increased use of satellite beds. The lack of hospital beds, however, became very apparent in Sweden and several other European countries during the Covid-19 crisis, when a high proportion of the at-risk population became infected and patients with severe illness were hospitalised.

mark. Health care expenditure and GDP are both influenced by price fluctuations, and the ratio over time can also be impacted by demographic changes. There is evidence that an ageing population with significant levels of disability will put pressure on the long-term care sector, and that effective health interventions enabling the elderly population to stay healthy into old age could definitely contribute to containing costs within the health care sector (Lopreite & Mauro, 2017).

Concluding remarks

This chapter has analysed a set of health indicators throughout the Nordic Region. We have noted that there is a rather high level of life expectancy across the region, apart from in Greenland, and the gender gap has been decreasing owing to a larger increase in life expectancy for men than for women. Although females still have a higher life expectancy at birth compared to males, men in general live a higher proportion of their lives without suffering from ill-health. The higher age-standardised mortality rates found in remote areas of the Nordic Region, in comparison to its capital regions and bigger cities, highlights existing health inequalities within and between the Nordic countries. Previous studies also confirm that there are higher inequality gaps in relation to mortality in the Nordic countries as compared to many South and Western European countries (Dahl & van der Wel, 2016; Heller-Sahlgren, 2019; Mackenbach, 2017; Mackenbach *et al.*, 2019). Even if there has been a clear reduction in disability-adjusted life years (DALYs) caused by cardiovascular diseases and cancers (the main causes of morbidity and mortality in the Nordic countries), the persistent and relatively high levels of alcohol consumption, smoking and obesity rates, which also relate to socioeconomic disparities, may hamper further improvement. In general, the universal health systems of Nordic countries offer efficient provision and high-quality treatment. Yet there are concerns arising from the increasing proportion of private health insurance policies taken out in Denmark and Finland, the long waiting times in Finland and Sweden, and the rather high age-standardised rates of avoidable hospital admission in Denmark, Finland, and Norway.

According to a recent study by the Nordic Council of Ministers, inequality of wellbeing across the Nordic Region is more closely associated with levels of physical and mental ill-health than with

socioeconomic factors such as income level or educational background. Hence, health problems clearly divide the Nordic population when it comes to the level of wellbeing and life satisfaction experienced. It has been hypothesised that in high-income countries, such as the Nordics, health concerns generally impact wellbeing in a more negative way, due to a comparative lack of those concerns brought about by poverty and crime (Andreasson, 2018). However, due to existing social inequalities in health, less advantaged groups are often more exposed to environmental risk factors which in turn create a higher risk of ill-health (Jensen *et al.*, 2017), and there is evidence of increasing social health inequity throughout the Nordic countries (Gustafsson & Lohmann, 2018). In fact, these widening socioeconomic inequalities in health are considered as "one of the great disappointments of public health" (Mackenbach, 2012, p. 761, 2017, p. 15), and it is recognised that public health policies targeting factors such as smoking, low income and high bodyweight could reduce socioeconomic inequalities in health and longevity (Mackenbach *et al.*, 2019).

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Appendix – Methodology

Age-standardised mortality rate

A crude death rate, or mortality rate, is widely used as an indicator of public health. However, a comparison between the mortality rates of different populations will be significantly impacted by differences in the age-distribution of those populations. Consequently, two populations with the same mortality rates will have different overall

health status if the age distribution of their populations is different. An age-standardised mortality rate adjusts for differences in the age distribution of different populations according to a standard population ((World Health Organization, 2020b). Without this standardisation, it would be difficult to tell if differing mortality rates were due to age, or were the result of other factors. For the purpose of producing age-standardised mortality rates solely for Nordic countries, we used the second version of the European Standard Population (ESP) introduced in 2013 (see Table 3.2).

For each region and municipality, ASDR is calculated applying a four-step methodology.

Step 1. Determine the all-cause number of deaths and population for the age groups listed in Table 3.2.

Step 2. Calculate the age-specific rate for each age group as follows:

$$\text{Age-specific rate (per age group)} = \frac{(\text{Number of all-cause deaths})}{\text{Population}} \times 100.000$$

Step 3. Calculate the age-standardised rate for each age group by multiplying each age-specific rate by the weight defined in the standard population listed in Table 3.2. as follows:

$$\text{Age-standardised rate (per age group)} = \text{Age-specific rate} \times \text{Weight in standard population}$$

Step 4. Summarise the age-standardised rates across all age groups to obtain the overall age-standardised mortality rate.

Table 3.2. The 2013 European Standard Population: distribution by age.

Age group	The 2013 European Standard Population
0–4	5.0%
5–9	5.5%
10–14	5.5%
15–19	5.5%
20–24	6.0%
25–29	6.0%
30–34	6.5%
35–39	7.0%
40–44	7.0%
45–49	7.0%
50–54	7.0%
55–59	6.5%
60–64	6.0%
65–69	5.5%
70–74	5.0%
75–79	4.0%
80–84	2.5%
85 and over	1.5%

4. Socioeconomic factors

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Socioeconomic factors are widely acknowledged as playing an important role in predicting health and wellbeing outcomes. For example, the United Nations Human Development Index, which focuses on measuring human progress at a national level, is based on the following three dimensions: a long and healthy life, knowledge, and a decent standard of living (United Nations Development Programme, 2019). Similarly, of the 11 dimensions of the OECD Better Life Index, four describe socioeconomic conditions (housing, income, jobs and education) and a further three (community, civic engagement and work-life balance) are closely related (OECD, 2020). In line with this, the following chapter explores the relationship between socioeconomic factors and wellbeing across the Nordic countries. It presents data on three socioeconomic dimensions (education, employment and income), discussing their interrelationship and how they relate to wellbeing in the Nordic Region.

Wellbeing as a foundation for and an outcome of education

The relationship between education and wellbeing begins early in life. When young people feel secure at school, and in other aspects of their life, they are more likely to thrive academically. In contrast, young people who experience poor health and wellbeing are less likely to do well at school and, in the most extreme cases, may struggle to remain committed to education at all (Brännlund *et al.*, 2017; Karlsdóttir *et al.*, 2019; Mikkonen *et al.*, 2018). Alongside the effect of wellbeing on educational engagement, research also finds a positive relationship going in the other direction. That is, people with higher levels of education tend to experience better health and wellbeing outcomes (Edgerton *et al.*, 2012; Mackenbach, 2017).

For example, Figure 4.1 shows that those with higher levels of education are more likely to report being in good or very good health across all Nordic countries. Similarly, those with lower levels of

education are more likely to report being in poor or very poor health. This disparity is most pronounced in Finland and Denmark, where individuals with primary or lower secondary school as their highest level of education are more than twice as likely to report being in poor or very poor health than those with a tertiary education. People with higher levels of education have also been found to live longer (Grytten *et al.*, 2020; Eikemo *et al.*, 2014; Lundgren & Cuadrado, 2020). As we saw in the chapter on health, one explanation for this may be the fact that those with lower levels of education tend to be more likely to engage in behaviours such as alcohol consumption and nicotine use, as well as a higher likelihood of being overweight (Mackenbach *et al.*, 2019).

Though part of the relationship between education and wellbeing can likely be attributed to the higher incomes of those who are more educated, research also provides other explanations. A longitudinal study carried out in Sweden found that a university education increased young peoples' capabilities for agency and voice (Brännlund *et al.*, 2012). This effect was most pronounced for those who studied social science and business, and least pronounced in the natural sciences and among those who studied health (Brännlund *et al.*, 2012).

So how are Nordic populations doing when it comes to educational attainment? Figure 4.2 shows educational attainment by sex in 2019, assessed at two different levels for two different age groups across all Nordic countries. The graph on the left shows the proportion of 20 to 24-year-olds who have completed upper secondary education, and the graph on the right shows the proportion of 30 to 34-year-olds who have completed some form of tertiary education. Overall, it is clear that, across the Nordic countries, young women are more likely to have formal education than young men. This gender gap is wider at the tertiary level.

From a Nordic comparative perspective, Iceland has the widest gender gap. This gap is quite

Self-perceived health by educational attainment level in 2018

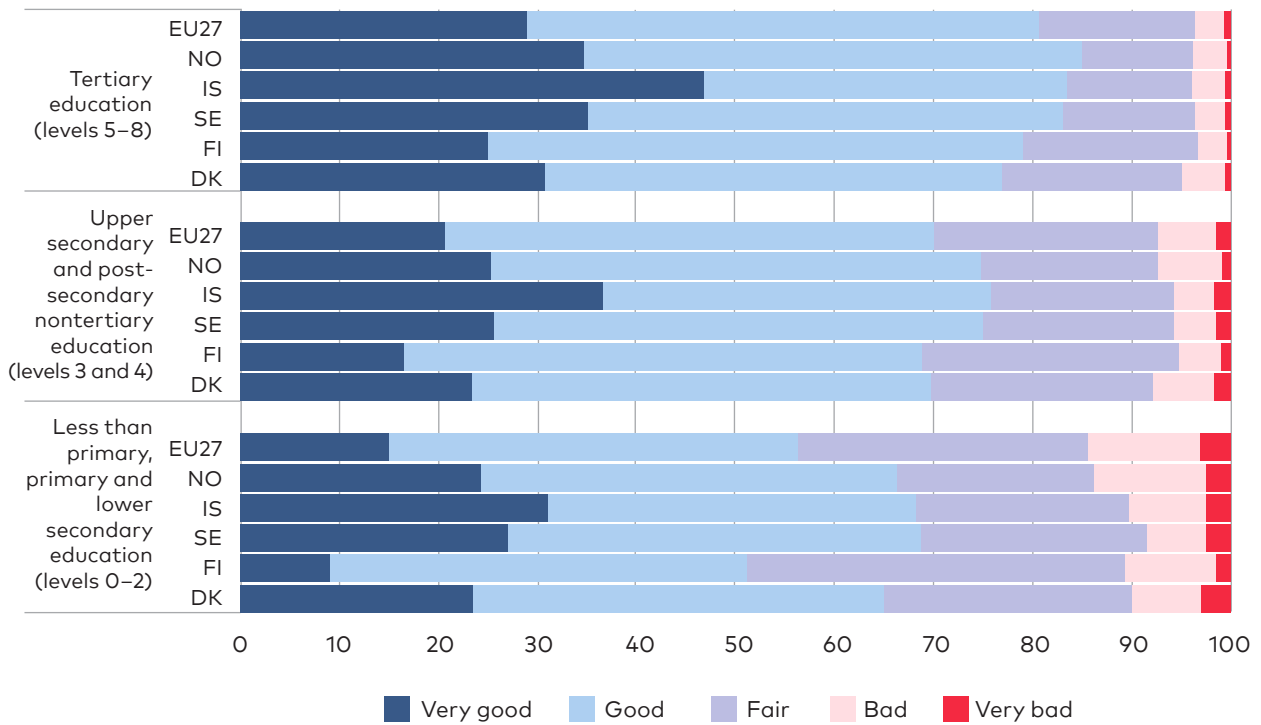


Figure 4.1. Self-perceived health by educational attainment level, 2018 (2016 for Iceland). Source: Eurostat.

Educational attainment by sex, 2019

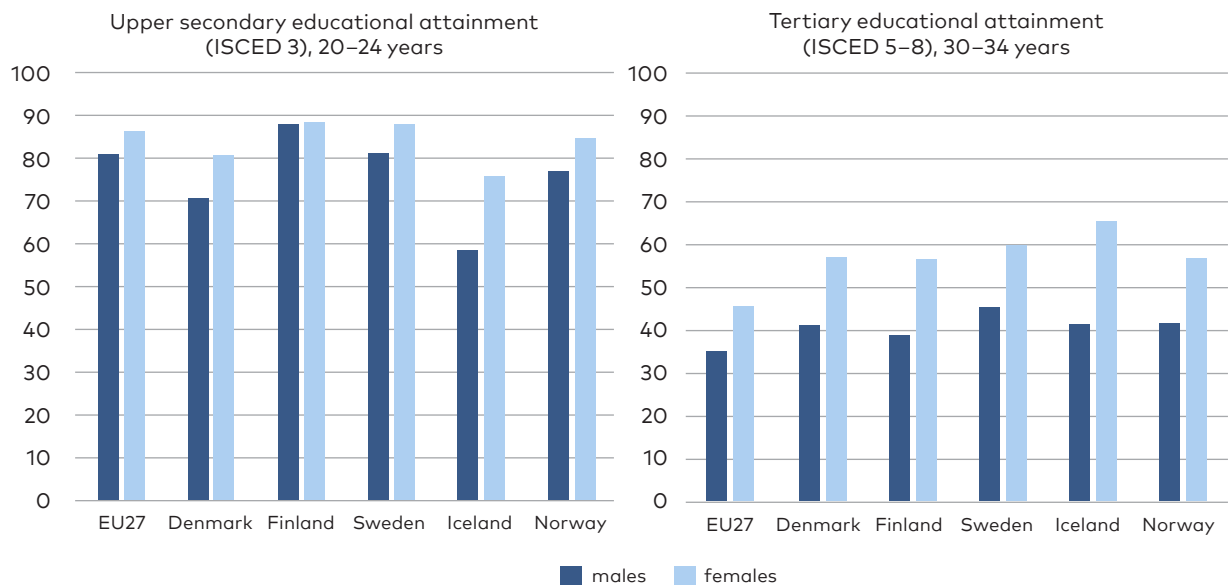


Figure 4.2. Educational attainment by sex, 2019. Data source: Eurostat.

pronounced at both the secondary and tertiary levels, resulting in a situation where young men in Iceland are the least likely of all groups to have completed upper secondary school, while young women in Iceland are the most likely of all groups to have completed tertiary education. Also noteworthy is the absence of a gender gap impacting secondary educational attainment in Finland. The other Nordic countries perform similarly, with young women generally being more educated than young men, and wider gaps in the tertiary education category.

Educational attainment levels also vary between regions. Figure 4.3 shows the proportion of the population aged 30-34 years old, who had a tertiary education at the European level in 2019. Purple shades indicate higher proportions, and pinkish shades reflect lower proportions. Overall, over 40% of Europeans aged 30-34 years old had a tertiary education in 2019. Young people in the Nordic countries are among the most educated, with approximately half of 30 to 34-year-olds achieving a tertiary education across all Nordic countries. The highest proportions can be found in the capital regions. Stockholm is particularly noteworthy, with over 60% of 30 to 34-year-olds having had a tertiary education. Regions with prominent universities also stand out – for example, Skåne, Uppsala, Västerbotten and Västra Götaland (Sweden), Trøndelag (Norway) and Østjylland (Denmark).

Employment and wellbeing

The relationship of an individual to the labour market plays an important part in shaping that person's wellbeing overall. Most attention has so far been directed towards differential effects between those who have a job and the involuntarily unemployed. Concern about the impact of unemployment on wellbeing dates to the economic recession of the inter-war period (Bakke, 1933; Jahoda *et al.*, 1933). During this period, it was established that, as well as being a societal phenomenon, unemployment had a deep personal impact with both financial and psychological consequences, and that the latter was in many ways connected to the loss of a sense of social identity. Interestingly, these psychological effects were often found to hit people harder than the material losses. (Bakke, 1933; Jahoda *et al.*, 1933). Current research reaches strikingly similar conclusions. An individual's health and wellbeing varies substantially, depending upon whether they have a job

or not (Andreasson & Birkjær, 2018; Herbig *et al.*, 2013; Wadell & Burton, 2006).

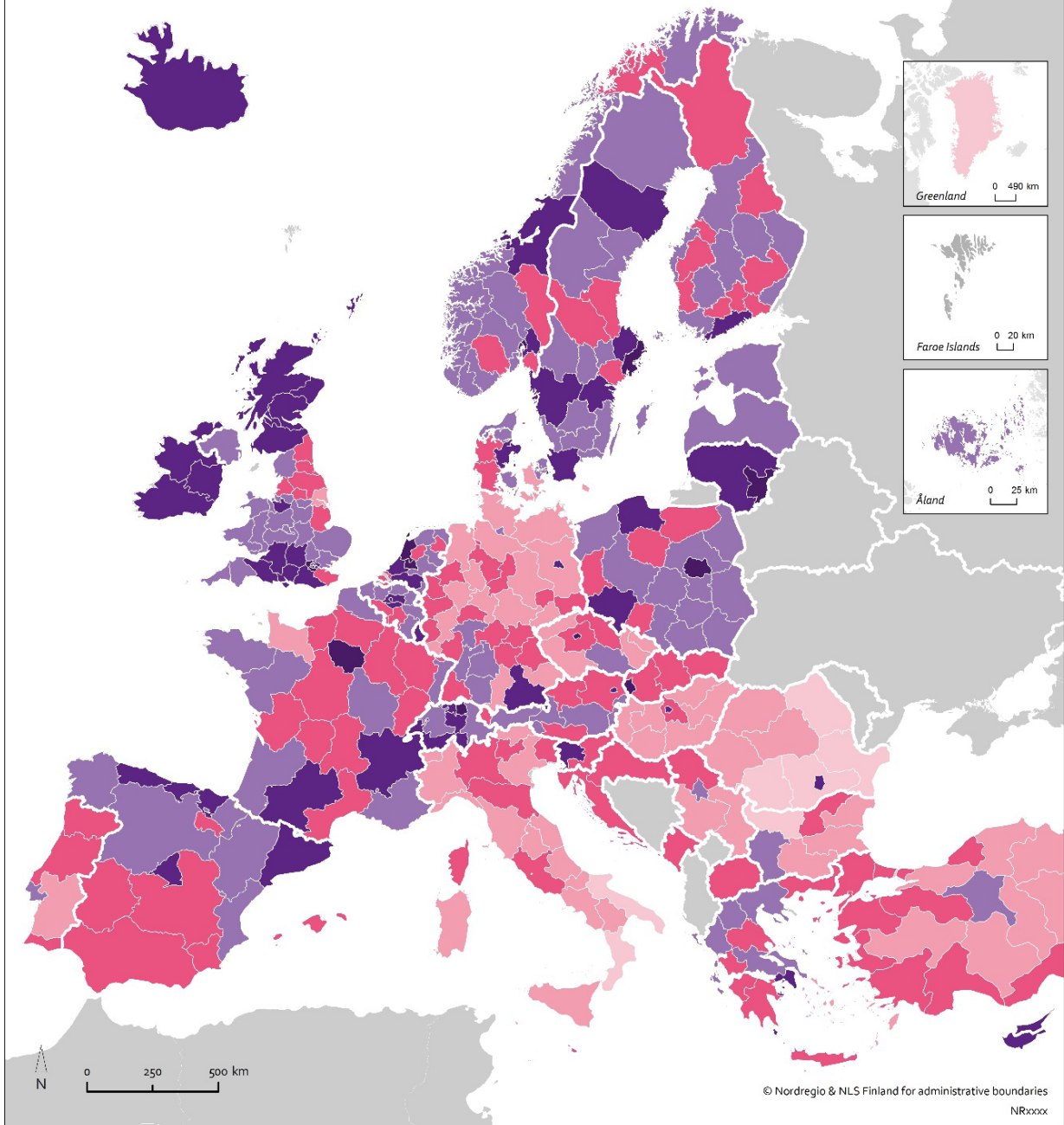
For example, a recent study by Andreasson & Birkjær (2018), which sought to challenge the norm of the "happy Nordic citizen", found that job seekers were around three times more likely than those who were employed to be described as "struggling" or "suffering". Other research has discovered that these negative effects on wellbeing remain as pronounced after a substantial period of time as they were directly after the person became unemployed (Clark, 2003; Mousteri *et al.*, 2018). Unemployment also seems to leave a "scar". When a previously unemployed person gets a new job, wellbeing often fails to reach the same levels as it did prior to them becoming unemployed (Clark *et al.*, 2001). Men's wellbeing has generally been found to be more negatively affected by unemployment than women's (Cottle, 2000; Meer 2014).

Figure 4.4 shows the unemployment rate in the Nordic counties at the municipal level in 2018. The lighter shades represent lower levels of unemployment, and the darker shades represent higher levels. The Nordic Region has a low average unemployment rate (5.7%) compared with the EU average (7.0%). There is, however, substantial regional variation, both within and between countries. The lowest unemployment rates are found in Iceland, Norway and the Faroe Islands. The highest rates can be found in Finland (particularly in the eastern municipalities), parts of southern Sweden, and Kujalleq (Greenland). Unemployment rates in Denmark are higher than those found in Iceland and Norway, but lower than those found in Sweden and Finland – with the highest rates found in Nordjylland.

The unemployment rate also varies between population groups. In all Nordic countries, for example, the foreign-born population are more likely to be unemployed than their native-born counterparts, particularly if they were born outside the EU (see Figure 4.5). This trend is most pronounced in Sweden and Finland. It can also be observed throughout the EU, where unemployment for foreign-born persons is more than twice that of the native-born population.

Of course, it is important to acknowledge that simply having a job does not automatically guarantee a person's wellbeing. Factors such as the degree of meaning people attribute to their work, leadership styles, the overall working environment

Tertiary education 30-34 years 2019



Percentage of people aged 30-34 years with a tertiary education



NUTS₂, except FI; SE & NO: NUTS₃
LFS adjusted series

Data source: Eurostat, NSIs

Figure 4.3. Tertiary education 30 to 34-year-olds, 2019. Sources: Eurostat, NSIs.

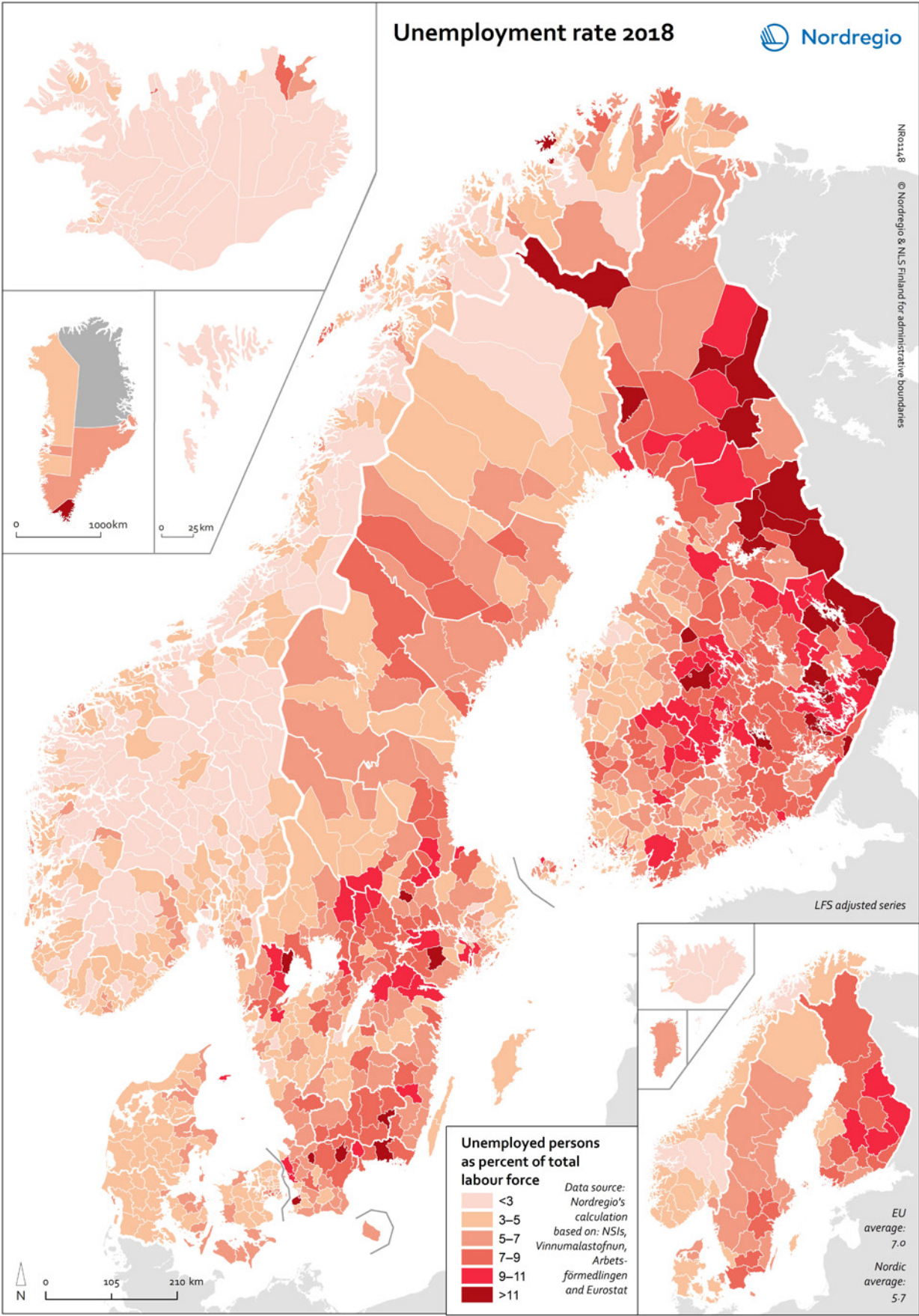


Figure 4.4 Unemployment rate, 2018.

Unemployment rate (15-64 years) by country of birth, 2019

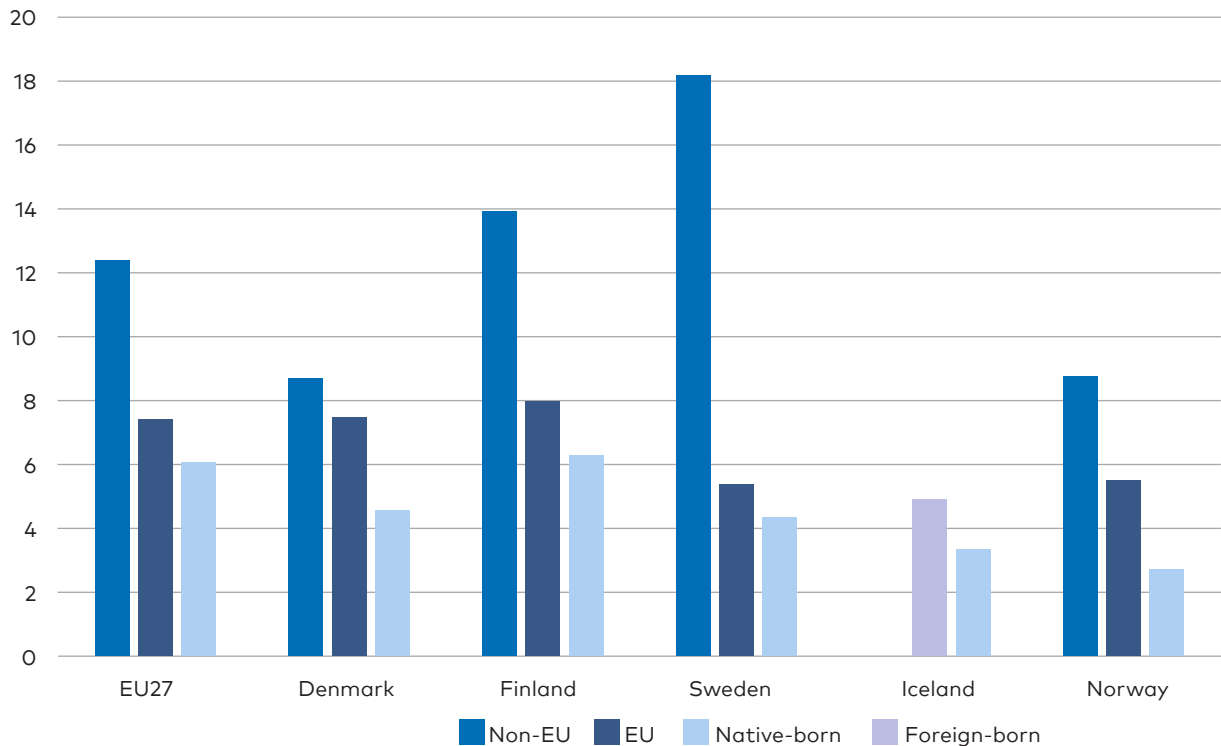


Figure 4.5. Unemployment rate (15-64 years-of-age) by country of birth, 2019. Data source: Eurostat.

and workplace culture can also be important. The type of employment contract can also be a factor, with contingent work arrangements being associated with lower levels of job satisfaction (D'Addio *et al.*, 2007; Karabchuk *et al.*, 2014). The European Working Conditions Survey identifies five distinct profiles of job quality: high-flying, smooth-running, active manual, under-pressure, and poor quality (Eurofound, 2017). "High-flying" jobs were the most common in the Nordic countries surveyed,⁷ accounting for over one-third of workers. These jobs score higher on skills and discretion, earnings and prospects than the other categories, as well as being high work-intense and more demanding (Eurofound, 2017).

While the positive aspects of these "high-flying" jobs may hold true for the Nordics, the high work-intensity and high-demand elements may be tempered somewhat by the Nordic working culture. For example, the OECD's Better Life Index finds that the percentage of the population working very long hours (more than 50 hours per week) is low in most Nordic countries, when compared

to the OECD average (OECD, 2020). Along similar lines, the European Social Survey found that Nordic respondents were significantly more likely to report satisfaction with work-life balance than those in other parts of Europe (European Social Survey, 2015). The most important variable in predicting this gap was working conditions, suggesting that workplace culture may be an important factor in determining the relationship between employment and wellbeing.

It is also important to acknowledge that being unemployed need not necessarily translate into poor wellbeing. Social policy responses have the power to reduce the detrimental effects of unemployment. For example, the recent Basic Income experiment in Finland found that participants who received a Basic Income reported higher levels of subjective wellbeing at the end of the study than the control group (Kangas *et al.*, 2019).

Income inequality

The third area of focus in this socioeconomic chapter is income, and in particular, income inequalities. An ever-growing body of research has shown that income inequalities have risen across the globe (ILO 2014; ILO & OECD 2015). Alongside this, a

⁷ Denmark, Finland & Sweden.

substantial body of research also points toward negative health and wellbeing outcomes in areas with high levels of inequality, compared to areas with less inequality (Pascual & Sarabia, 2005; Bor *et al.*, 2017). According to studies of economic inequality and wellbeing, these effects follow two main routes (see: Cooper *et al.*, 2013). One route might be described as the “pure-income” effect, by which the existence of inequality impacts all individuals irrespective of their own income level. This may be due to income inequalities undermining social cohesion or hindering the formation of social capital. It can also occur through residential segregation, which negatively effects the happiness of all individuals. Another route might be described as “relative deprivation”, which results from feelings of inadequacy as well as a lack of power, control and self-determination on the part of individuals at the bottom-end of the income distribution. In short, under “relative deprivation” conditions, individual happiness is impacted by the distribution of income, and hence by aggregate income inequality. Consequently, in societies with high income inequality, there might be a greater feeling of poverty relative to other societies. This can produce a psychological stress in relation to health, for example. Here, we focus primarily on “relative deprivation”.

Grunfelder (2020) has mapped changes in income inequality at municipal, regional and national levels across the Nordic Region for the period 2011 to 2017. Even though Nordic countries remain among the most equal in the OECD region, inequalities are increasing. According to Grunfelder’s study, the Gini coefficient, measured for the period 2011 to 2017, is increasing at a different pace around the various Nordic countries – other than for many municipalities in Finland and Åland, due to the prolonged recession in the early 2010s (*ibid.*).

Here, we attempt to extend the work of Grunfelder by combining measurements of household disposable income (HDI) and the Gini Index to create four “types” of income distribution (see Figure 4.6). Household disposable income is a common measure of income inequality. It measures the capacity of households (or individuals) to provide themselves with consumable goods or services (OECD, 2016). Comparing average HDIs is a convenient way of understanding inequality between municipalities. The Gini Index measures the extent to which the distribution of household income deviates from an equal distribution level.

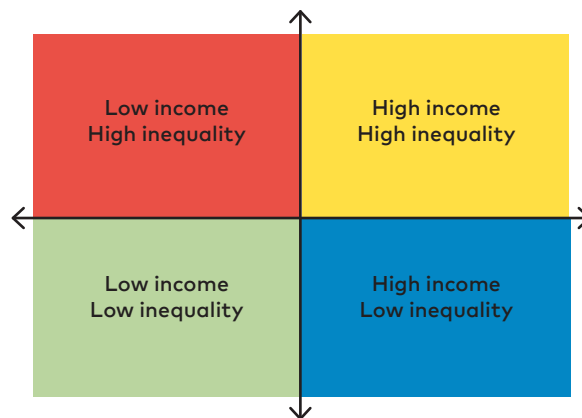


Figure 4.6. Typology of income distribution

The Gini Index is therefore useful in understanding the inequality that exists within municipalities. Combining these measurements provides a comprehensive geographic overview of income inequality across the Nordic Region, both within and between municipalities (see Figure 4.7).⁸⁹

The municipalities shaded in yellow on the map have an average HDI above the Nordic average, as well as a Gini coefficient above the Nordic average (i.e. high income, but unevenly distributed). This category includes most of the wealthiest municipalities, including municipalities in the capital regions – e.g. most municipalities in the Stockholm Region (Lidingö, Danderyd, Ekerö, Täby, Solentuna), Copenhagen (Gentofte, Hørsholm, etc.), and Helsinki (Kauniainen). Several municipalities in southern Sweden and Denmark also fall into this category. Most of these have average HDIs just above the Nordic average.

The second category (blue on the map) consists of municipalities with HDI above the Nordic average and a Gini coefficient below the Nordic average (i.e. high income and even distribution). Most municipalities in this category are in Norway. Norway has a higher HDI and more even distribution than the other Nordic countries. The third category (green on the map) consists of municipalities with both an HDI and a Gini coefficient below the Nordic average (i.e. lower income, but more evenly distributed). This category consists of many rural

8 The map is based upon Nordic means for the Gini coefficient (25) and the Nordic mean for HDI – PPP adjusted – of €32,580

9 It should be noted that border regions are statistically problematic, since individuals living on one side of the border and working on the other might be registered as having no income. This can cloud the regional pattern for municipalities with a high level of cross-border commuting.

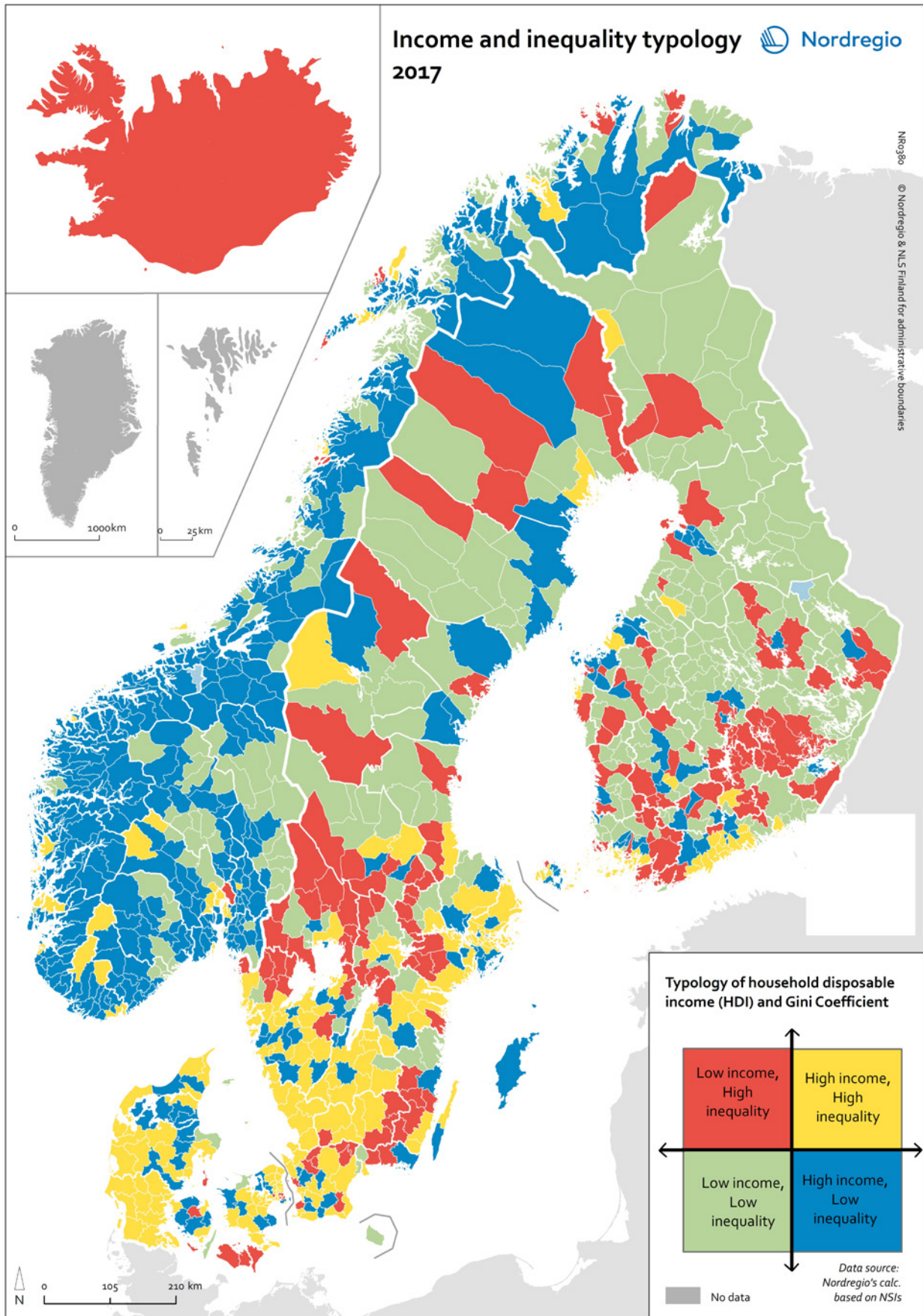


Figure 4.7. Typology of Household Disposable Income (HDI) and the Gini coefficient.

municipalities in Finland, northern Sweden and eastern Norway. The final category (red on the map) consists of municipalities with an average HDI below the Nordic average and a higher Gini coefficient (i.e. lower income, and more unevenly distributed). This category consists mainly of a number of rural municipalities in Sweden and Finland, plus Lolland in Denmark. Based on national-level statistics, Iceland also falls into this category. (Some of the results found in the border regions can be explained by the fact that incomes from other countries are not included.)

Another method of exploring the effects of income on wellbeing is to examine the risk of becoming poor across the Nordic Region, referred to in the statistics as the "at-risk-of-poverty" (AROP) rate (see Box 4.1).

For the period from 2004 to 2018, the AROP rate increased in all Nordic countries except Iceland (see Figure 4.8). This trend was strongest in Sweden. In Finland the AROP rate has been decreasing during the past few years, in line with what has previously been indicated – namely, on account of economic turmoil. This points to one of the weaknesses of using the AROP rate alongside several other measures of inequality. That is, while people have become poorer due to the economic crisis, the at-risk-of poverty rate has paradoxically gone down. In addition, the AROP rate for Finland is higher in 2018 than it was in 2004.

Looking at these trends on a regional level over a period of time (between 2011 and 2018), we can see that the AROP rate has decreased in almost all areas of Finland, whereas the pattern is rather more varied in the other Nordic countries (see Figure 4.9).¹⁰ (We can also see a cohesive area in the south of Denmark where the AROP rate has decreased.) Again, Sweden has the most regions displaying increases in the AROP rate.

Finland and Sweden contain the largest differences between the regions with the highest and lowest AROP rate, as can be seen in Figure 4.10. Hence the greatest regional differences are to be found in Sweden and Finland. Sweden also has the highest average AROP rate.

10 When looking at trends, the starting and ending year is of course important, since either of these could be anomalies. In 2018, the at-risk-of-poverty rate was highest in Greenland (17.7%), followed by Sweden (16.4%), Norway (12.9%), Denmark (12.7%), Finland (12%), Faroe Islands (10.5%) and Iceland (9%). Hence, only Greenland was above the EU average (16.9%).

Box 4.1. Calculating the at-risk-of-poverty rate

The at-risk-of-poverty rate is a common measure of relative poverty and social inclusion. Most notably, it has been used for monitoring the EU2020 goal of inclusive growth. The at-risk-of-poverty rate is normally defined as *"the share of people with an equivalised disposable income (after social transfer) below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income after social transfer."* (Eurostat). The indicator is based on household income. That it is "equivalised" means that it has been adjusted according to household size. The at-risk-of-poverty rate measures disposable income, i.e. income after taxes and social transfers. To obtain the at-risk-of-poverty-rate, the number of households below 60% of the median income is divided by the total number of households. With the exception of Iceland, all national statistical institutes (NSIs) in the Nordic Region have data on at-risk-of-poverty at a municipal level. These statistics are intended to be similar to the indicator from Eurostat. However, while national indicators also track the proportion of people with incomes below 60%, there are some differences regarding how income and households have been defined. We have therefore harmonised data from the NSIs with the EU Statistics on Income and Living Conditions (SILC) to make the data more comparable.

Since it is based on a survey, there are a number of uncertainties regarding the data. Another weakness is that the data does not include incomes of cross-border commuters. Municipalities with a high proportion of cross-border commuters might therefore have a higher proportion of people at risk of poverty than would otherwise be the case. This is mainly the case for some Swedish municipalities bordering Norway and Denmark, as well as for the Swedish-Finnish border around Haparanda-Tornio.

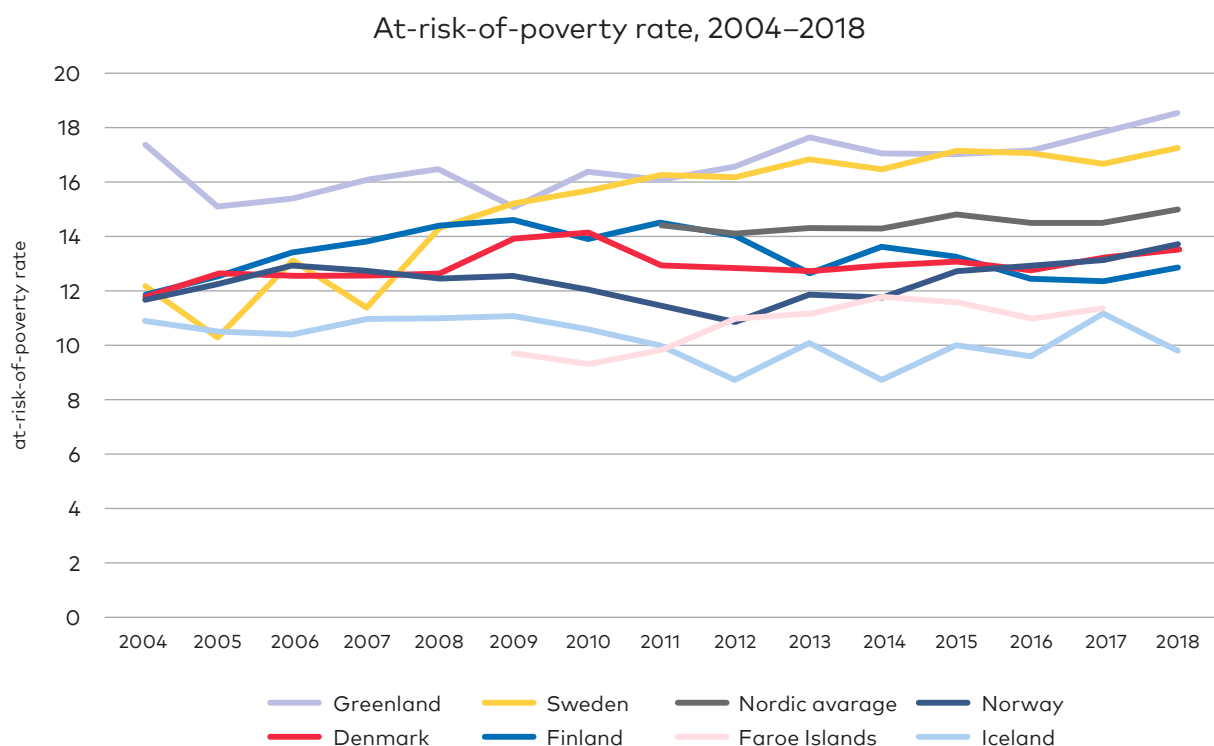


Figure 4.8. At-risk-of-poverty rate 2004–2018.

There are three main drivers which can alter income distribution. The first one is structural change, which refers to drivers such as demographic trends, immigration, educational attainment and household structure. Secondly, markets can also drive a shift in income distribution. Technological development and globalisation are forms of market change with a potential impact on income distribution, too. Thirdly, policy can influence the distribution of income directly, primarily through taxes and transfers.

Pareliussen *et al.* (2018), from the OECD Economics Department, point towards market-related drivers (such as technological change and globalisation) having undoubtedly had some impact in increasing inequality throughout Nordic countries in the period from the early 1990s – though this is not a large increase in comparison to the USA and other Anglo-Saxon countries, for example. Struc-

tural changes have played a more important role in the Nordic context, especially changes in household structure (more individual households) and ageing. According to Pareliussen *et al.*, the Nordic countries have also “received a large proportion of refugees and immigrants, which poses challenges, especially in the context of compressed wage distribution and a scarcity of low-skilled jobs.” Even though they are not able to quantify the impact, the refugee immigration wave in 2014 and 2015 should, according to Pareliussen *et al.*, be expected to amplify income inequality. However, Pareliussen *et al.* mainly point to weakening redistribution (reflecting a series of reforms aimed at spurring work incentives) as a principle driver for increases in inequality among Nordic countries.¹¹

An amplified divergence in overall financial standards can also be attributed to capital gains, i.e. the value increase that occurs in real or finan-

¹¹ The effect is not necessarily one-sided: while potentially increasing employment, and therefore reducing inequality, it may also be suspected of increasing income dispersion at the bottom end of the distribution.

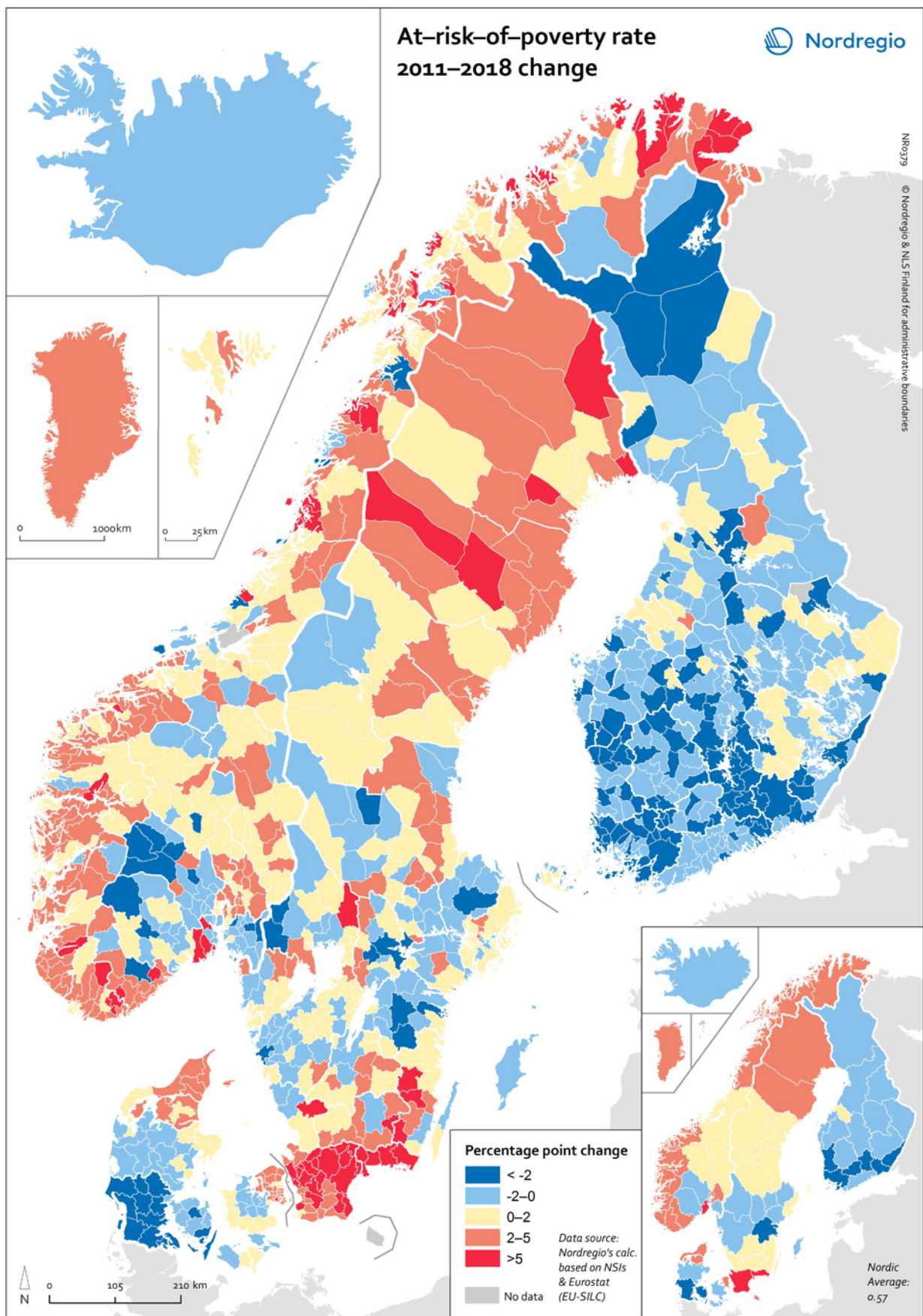


Figure 4.9. Changes in the at-risk-of-poverty rate, 2011–18.

At-risk-of-poverty rate – Regional differences, 2018

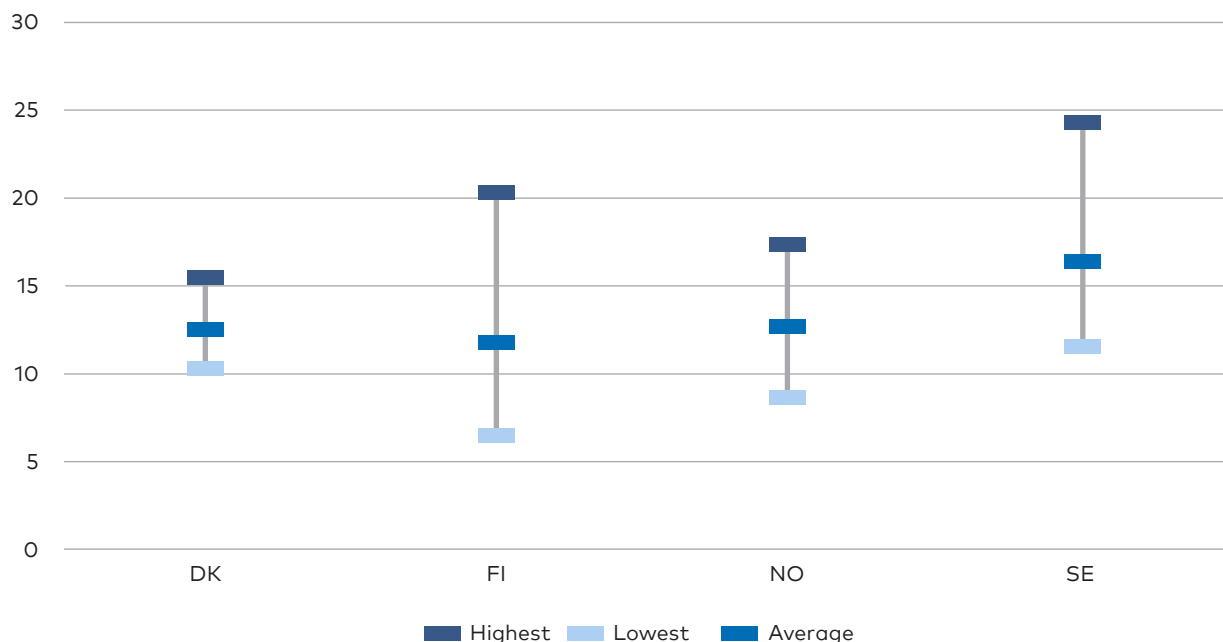


Figure 4.10. At-risk-of-poverty rate – regional differences, 2018.

cial capital from the time it is acquired to the time of sale.¹² For many, these have become an increasingly important source of income, and usually benefit those who are already in a favourable position.

It is important to recognise the cumulative impact of persistent income inequalities, which lead to wealth being more concentrated around the top of the distribution chain. In other words, capital gains re-enforce the observable differences regarding increases in income inequality derived from other factors.

12 Capital gains have received substantial interest in recent years, especially after the publication of Thomas Piketty's *Capital in the Twenty-First Century* (2014). One challenge is that comparable data regarding capital income and wealth is scarce, making it harder to compare the distribution of wealth. Some other publications have also pointed to the role of capital income as a main source of increased inequality in the Nordic countries: Parelius et al. (2018); Egholt Søgaard J., "Top Incomes in Scandinavia – Recent Developments and the Role of Capital Income", in *Nordic Economic Policy Review: Increasing Income Inequalities in the Nordics* (2018). Research evidence suggests that labour income has experienced a downward trend in many G20 countries. For example: ILO, IMF, OECD & World Bank Group, "Income inequality and labour income share in G20 countries: Trends, Impacts and Causes", in *Prepared for the G20 Labour and Employment Ministers Meeting and Joint Meeting with the G20 Finance Ministers, Ankara, Turkey, 3-4 September 2015* (2015). A good overview from the Swedish context, located in an international perspective, is Björklund A. et al., *Kapitalinkomster och inkomstfördelning* (2019).

Concluding remarks

This chapter has presented data on three key socioeconomic aspects related to wellbeing: education, employment and income. Overall, Nordic countries report high levels of educational attainment, low unemployment rates, and high average household disposable incomes. Despite this, it is possible to observe several trends that may pose a threat to wellbeing in the long term. Educational attainment is higher among young women than among young men. This is likely to be a reflection of segregation within the labour market – something which can be detrimental to both men and women. Similar gaps can be observed based on country-of-birth, with foreign-born individuals more likely than their native-born counterparts to suffer unemployment. This poses a serious threat to integration efforts. It also has the potential to contribute to social unrest in the long term. Disparities are also seen to emerge from a regional perspective, with a clear east-west pattern evident when it comes to unemployment rates.

In relation to income, despite the Nordic countries being among the most equal in the OECD, inequalities are increasing. Alongside this, the at-risk-of-poverty rate increased in all Nordic countries (apart from Iceland) between 2004 and 2018. Taken together, these trends have the potential to

have a negative impact on wellbeing, though perhaps in different ways. An increased risk of poverty is primarily detrimental to those it directly affects, whereas increasing income inequality may pose a threat to overall social cohesion.

In summary, this chapter suggests the need for caution when considering wellbeing and socio-economic trends through a quantitative lens. While the Nordic countries perform very well on socio-economic indicators on average, these statistics often hide a more complex picture in which some members of society risk being left behind. This has implications for the wellbeing of those individuals. If left unchecked it may also prove detrimental to wellbeing in the region as a whole.

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5. Improving accessibility through digitalisation in health care and social care

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The Nordic Region is at the forefront of adopting digital solutions in health care and social care. For example, in a European context, Denmark, Finland and Sweden have among the highest levels of eHealth solutions offered in primary health care (Lupiáñez-Villanueva *et al.*, 2018). Digital solutions in health care and social care are considered central to managing the pressures associated with demographic developments involving an ageing population, a decreasing working-age population, and more people living with one or several chronic illnesses. These developments place substantial challenges on the health care and social care sectors in terms of both the economy and labour force (SOU, 2018).

To address these challenges a restructuring of the health care and social care systems is needed (SOU, 2018). The Nordic countries have similar national visions for person-centred health care and social care systems – ones which are responsive to patient needs, and where inhabitants are increasingly involved in their own treatment (Hardardóttir & Ingason, 2016; Ministry Of Health and Social Affairs, 2016; Danish Ministry of Health, 2018; Norwegian Directorate for eHealth, 2019; Ministry of Social Affairs and Health & Local and Regional Government, Finland, 2020). To realise this vision, the implementation and use of digital solutions is being emphasised in all the national strategies. The positive impacts anticipated from digital solutions are, among other things, a higher degree of patient involvement, easier and more flexible means of communication (both internally and externally), more efficient use of resources, and improved access to health care and social care. Increased accessibility to health care and social care

services is especially relevant to securing service provision in rural and sparsely populated areas of the Nordic Region.

As the different Nordic populations have become accustomed to using digital technologies in many other sectors and situations in everyday life, expectations are increasing for similar easy means of digital communication with the health care and social care systems (Hashiguchi, 2020). The prevalence of high expectations around the accessibility and availability of services is in line with the understanding of the Nordic welfare model as universalistic and promoting equality of high standards (Esping-Andersen, 1990).

To explore how digitalisation in health care affects the wellbeing of Nordic populations, access to services (which is one of OECD's 11 dimensions for measuring regional wellbeing) is used as the reference point throughout this chapter (OECD, 2016). Access to services is an important aspect of wellbeing because it effects *how people obtain what is necessary to satisfy their wants and needs* (OECD, 2016). Access to services may refer to various related factors, such as physical accessibility (the physical distance to a service), economic accessibility (its affordability) and institutional accessibility (how norms, values and laws constrain or favour access) (OECD, 2016). As the Nordic Region increasingly relies on digitalisation to secure equal access to health care and social care, digital accessibility can be added to the list as another factor of overall accessibility and access to services. Digital accessibility, in this context is the access to digital infrastructure such as broadband, as well as possessing the skills and knowledge to use the digital solutions.

Unequal access to digital infrastructure

As the Nordic countries increasingly use digital solutions in service provision, broadband access is crucial for the employment of digital solutions in practice. Digital infrastructure is the resources needed to provide access to (above all) the Internet, such as e.g. fixed broadband. Well-functioning and stable digital infrastructure is essential for ensuring equal access for all inhabitants to the opportunities digitalisation offers (Salemink *et al.*, 2017).

All Nordic countries aim to provide ultra-fast broadband (see Box 5.1 on definitions of broadband categories) to between 90% and 100% of the population between 2020 and 2025 (Randall *et al.*, 2020). Although most Nordic countries are well on their way to meeting these targets overall, a small but significant number of Nordic households still have only basic broadband access.

Figure 5.1 shows the proportion of households within each municipality which did not have access to fixed-line broadband with download speeds above 30 Mbps (i.e. fast broadband) in 2018¹³. Put another way, the map shows the proportion of households which had access to only basic broadband (as defined in Box 5.1). In Denmark, Iceland and Sweden, the proportion of households which only have basic broadband is fairly small in most municipalities. In contrast, more than half of all households rely on basic broadband in many Norwegian and Finnish municipalities. The situation in Finland is particularly striking, with several municipalities in which over 75% of households have only basic Internet access.

The average coverage by municipality type shows a clear digital divide between urban and rural municipalities (see Box 5.2 on the concept digital divide). On average, fast broadband is available to all but 4% of households in urban municipalities. In contrast, approximately one third of households in rural municipalities do not have access to fast broadband. The largest urban-rural digital divide is to be found in Norway and Finland. However, the pace of fibre development has never been higher. Particularly noteworthy is the strong growth in fibre-based broadband outside densely populated

Box 5.1. The European Commission's definitions of broadband categories:

- Basic broadband – speeds between 144 Kbit/s and 30 Mbps;
- Fast broadband – speeds between 30 Mbps and 100 Mbps;
- Ultra-fast broadband – speeds above 100 Mbps

Source: *European Court of Auditors, 2018.*

areas. As such, the urban-rural divide appears to be decreasing (Analysys Mason 2019). Figure 5.1 shows that there is still work to be done if the goal of super-fast broadband for the majority of households across the Nordic countries is to be reached within the established time frame.

Broadband coverage as an indication of digital accessibility is complex, because types of Internet access other than fixed broadband may be obtained by households, as for example 4G and the upcoming 5G mobile connection. In addition, the question of how fast broadband needs to be to access and properly use different services can also be raised. Several current e-services – such as browsing the Internet for information, booking an appointment with a practitioner online, or having a video consultation – can be carried out with only basic broadband access (Federal Communications Commission, 2020). However, the quality of communication, especially that relying on video, at this low speed level might be too poor to replace a face-to-face consultation. It is also to be expected that, with the increased pace of technological development, the more complex technologies of the future will require higher broadband capability.

13 The exception is Iceland, where data is provided at NUTS 3-level.

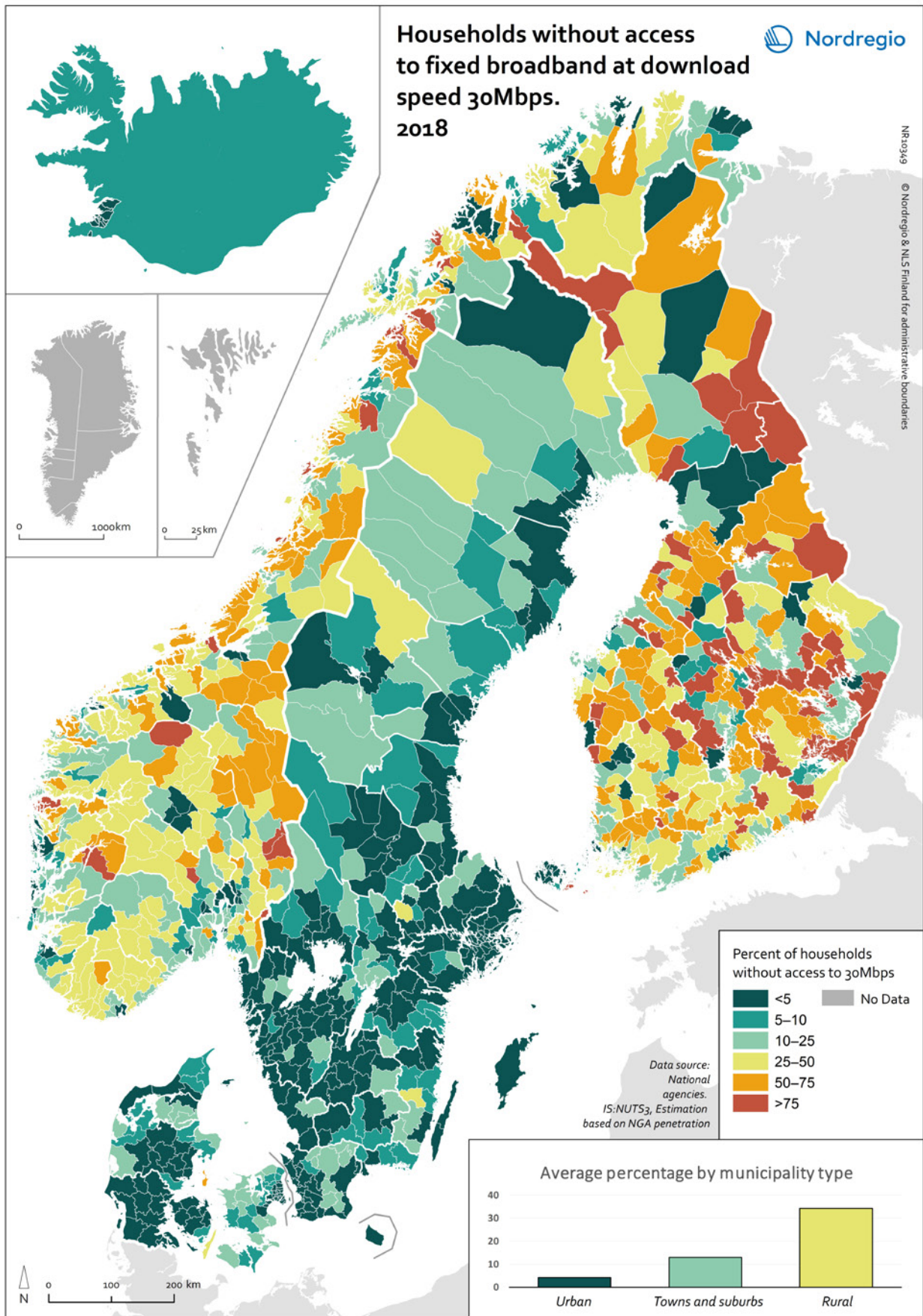


Figure 5.1. Households without access to fast broadband (download speed >30 Mbps), 2018.

Box 5.2. Norwegian Welfare Technology Programme: Supporting implementation of digital solutions in the social care sector

In Norway, municipalities can receive support for implementation of welfare technology (usually defined as digital solutions within social care) through the National Welfare Technology Programme, which was initiated in 2013. Examples of welfare technologies included in this programme are electronic medical dispensers, GPS solutions for locating people, and digital supervision in the shape of sensor technology installed at citizens' homes to register unusual activity (Melting, 2017). To explore the effects of these technologies, a model has been developed whereby the utility of the technological innovation is measured according to three parameters: better quality, time savings and the avoidance of additional expenditure. After several years working with this national programme, it is well documented that various kinds of welfare technology show a great potential for gains – both in terms of increased quality of care and the wellbeing of inhabitants, and also in the mitigation of costs and time saved for the social care service. Welfare technology can in those ways limit increases in future service needs. These technologies contribute

to an increased quality of care, and municipalities believe that this will indirectly contribute both to the saving of time and to avoiding further costs over time (Knarvik et al., 2020; Røhne et al., 2016).

In addition, a methodology for effective planning and delivery has been developed as a part of the programme, in order to establish a system and structure which will help municipalities with their implementation processes. This methodology features a number of practical tools, including a framework for identifying, planning and following-up on gains through the restructuring process.

Research literature shows that welfare technology, like home monitoring, can both improve the quality of life for the elderly and reduce the burden on the health system as well. Welfare technology interventions are successful when they are designed to address specific clinical and behavioural problems identified as priorities by patients, tailored to patient characteristics and preferences, and coupled with appropriate support and training (Strisland et al., 2017; Moser 2019).

Box 5.3. What is the digital divide?

The 'digital divide' is a concept which points to inequalities in access to, and use of, information and communication technologies (ICT). The digital divide can, as such, relate to connectivity – that is, having access to digital infrastructure – as well as to the possession of those skills and forms of knowledge which give people the prerequisites for using digital solutions (Scheerder et al., 2017).

Different types of inequality can be looked at – such as differences between urban and rural areas, or differences between age groups. Studying the digital divide reveals existing inequalities in the digital transformation and can therefore be used to identify areas in need of attention.

Increasing use of the internet for health-related services

The European Commission annually measures the digital performance of European countries using the Digital Economy and Society Index (European Commission, 2019b). Nordic countries are at the forefront here, with Finland, Sweden and Denmark in the top four, together with the Netherlands. Digital maturity in the Nordic Region is also reflected in Figure 5.2, which shows that the number of individuals in Nordic countries using the Internet to seek health information is above the EU average.

Individuals living in urban areas use the Internet to seek health information more than those living in towns and suburbs and rural areas, with Iceland being the exception. Interestingly, despite having the poorest level of broadband connectivity, the Finnish population (across all types of areas) use the Internet the most – out of all the Nordic populations – for seeking health information.

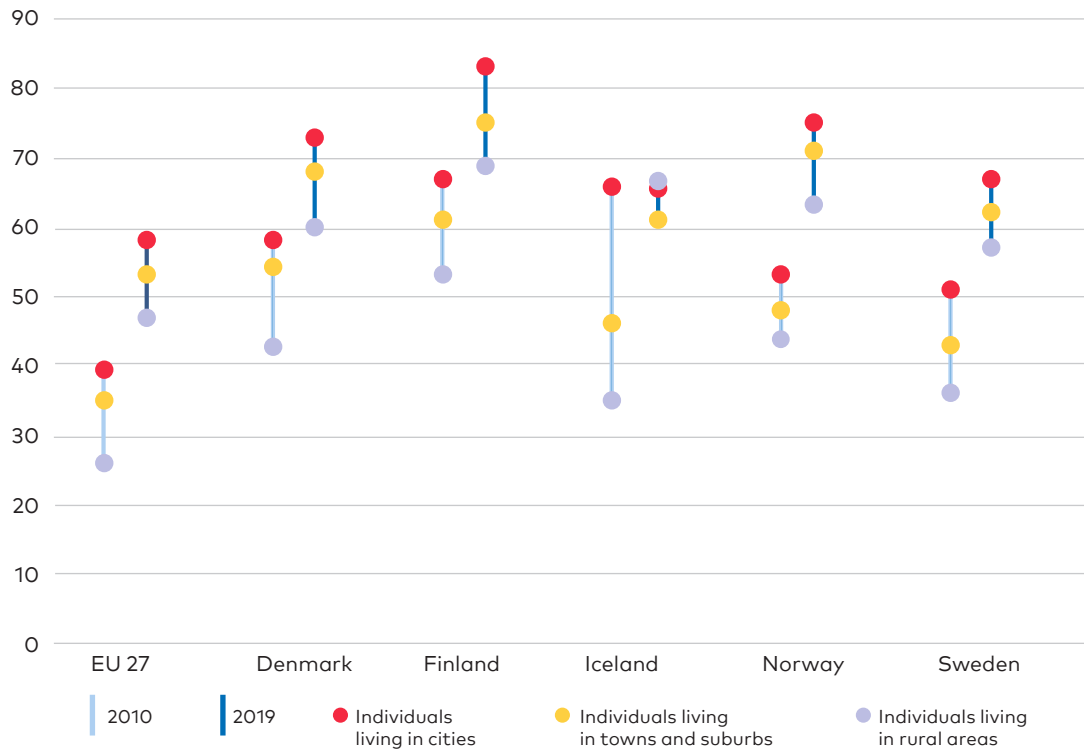


Figure 5.2. Share of individuals seeking health information via the Internet in 2010 and 2019, by degree of urbanisation (percentage). Source: Eurostat (IS: Individuals living in cities, 2011).

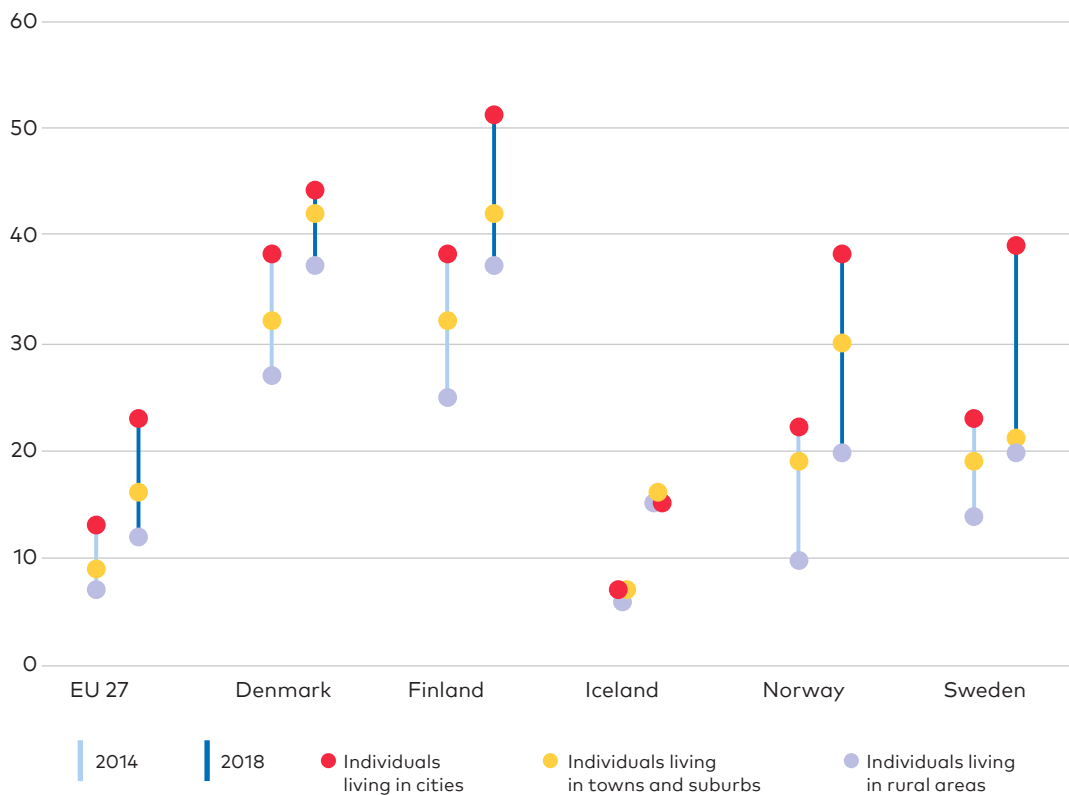


Figure 5.3. Proportion of individuals making an appointment with a practitioner via a website in 2014 and 2018, by degree of urbanisation (percentage). Source: Eurostat.

Rural areas have a tendency to lag behind in terms of infrastructure (illustrated in Figure 5.1), but also in terms of skills and knowledge (Pérez-Morote, Pontones-Rosa & Núñez-Chicharro, 2020). Looking at urban-rural differences in using the Internet for health-related services (Figure 5.2), the gap between urban and rural individuals who use the Internet to seek health information has decreased slightly in Denmark and Sweden over a nine-year period, while remaining more or less constant for Finland. It is noticeable that there has been a drastic shrinkage of the urban-rural digital divide in Iceland. Numbers indicate that individuals in Icelandic rural areas use the Internet to a slightly higher degree in seeking health information than their urban counterparts. However, in contrast, the urban-rural divide has increased slightly in Norway.

Looking at the use of the Internet for health-related services in another way, the number of individuals who have booked an appointment with a practitioner via a website has increased in all countries, and in terms of the EU average, independent of geographical area, between 2014 and 2018 (Figure 5.3). The Finnish population in urban municipalities are those who have most often made an appointment via a website. The low proportion of the Icelandic population who have booked an appointment online in 2018 is noticeable, with urban municipalities staying below the EU average. One explanation could be the lack of availability of the e-service. However, according to the Icelandic health portal, Heilsugæslan, online booking of appointments should be available to all citizens in the health region of Reykjavík¹⁴. The documented increase for all countries may be explained by an increase in the numbers of health care facilities and practitioners who offer this e-service.

Figure 5.3 suggests that there is a widening of the urban-rural digital divide in Norway and Sweden. This development is prevalent for the EU countries overall, too. In Sweden, increased use has especially occurred in the urban areas, with a rate of 16 %, while a mere 6% increase has been recorded for rural areas, and 2% for intermediate areas – thus widening the gap overall. Denmark is the only country where the digital gap between urban and rural population has decreased.

An age-related perspective can also be applied to individuals' use of the Internet in seeking

health information (Figure 5.4) and in booking an appointment with a practitioner via a website. The elderly are generally expected to use digital solutions and e-services less than the younger section of the population. This tendency can be found when assessing individuals' use of the Internet to seek health-related information. However, it is worth noting the significant increase in Internet use by people aged 65 to 74 years. The gap between different age groups in using the Internet for the purposes of seeking health information has decreased notably in Denmark, Finland and Iceland between 2010 and 2019, while the opposite trend has been taking place in Norway, and especially in Sweden – where the age gap has actually increased.

In all Nordic countries, the population in the 25 to 64 years age group is the one that most often booked an appointment with a practitioner online in 2018 (Figure 5.5). The same tendency from Figure 5.4, namely a widening age gap, has occurred in Norway and Sweden, and this age gap has also increased in Iceland. The age gap in Norway has decreased between the age groups of 25 to 64 years and 65 to 74 years, while a noticeable increase has occurred for the young, aged 16 to 24 years. The overall trend for young people not to make an appointment with a practitioner that often, may be explained by fewer doctor's visits in general. A remaining question is why individuals in Denmark and Finland are more likely to book an appointment online, compared with individuals in Sweden, Norway, and Iceland.

Increased access to digital infrastructure, and exposure to more digital solutions in both the public and private spheres of society (with a presumed increase in digital skills as a result), are central factors that can explain an overall increase in the use of Internet-based health services in terms of both age and geographical location. The potential positive impact for citizens of booking appointments online includes increased flexibility (as this can be done 24/7), while the health system may find that administrative tasks decrease correspondingly.

However, though there has been a general increase, the overall number of individuals who have booked an appointment is, to a degree, surprisingly low. Digitalisation and e-governance has been a focus area for Nordic governments and for the European Commission over the course of several years, and a higher uptake of digital solutions might therefore have been expected. In addition to the supply-side (i.e. providing more digital ser-

¹⁴ See: <https://www.heilsugaeslan.is/thjonusta-stodvanna/laeknisthjonusta/>. Visited 18 May 2020

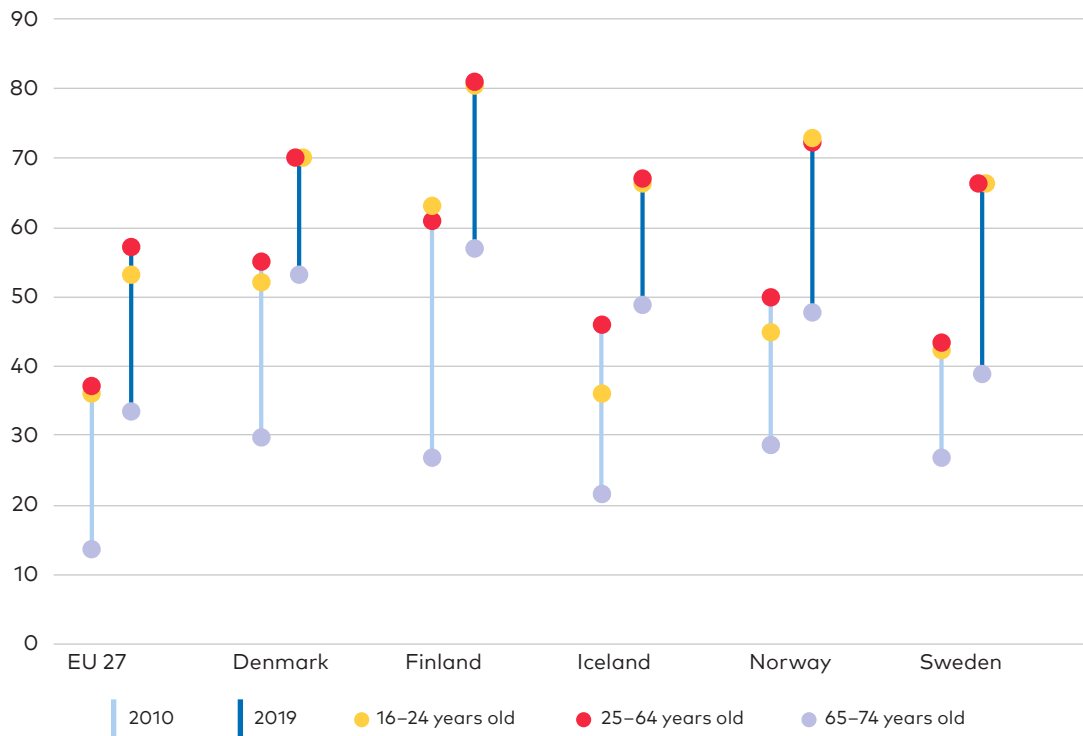


Figure 5.4. Share of individuals seeking health information via the Internet in 2010 and 2019, by age group (percent). Source: Eurostat.

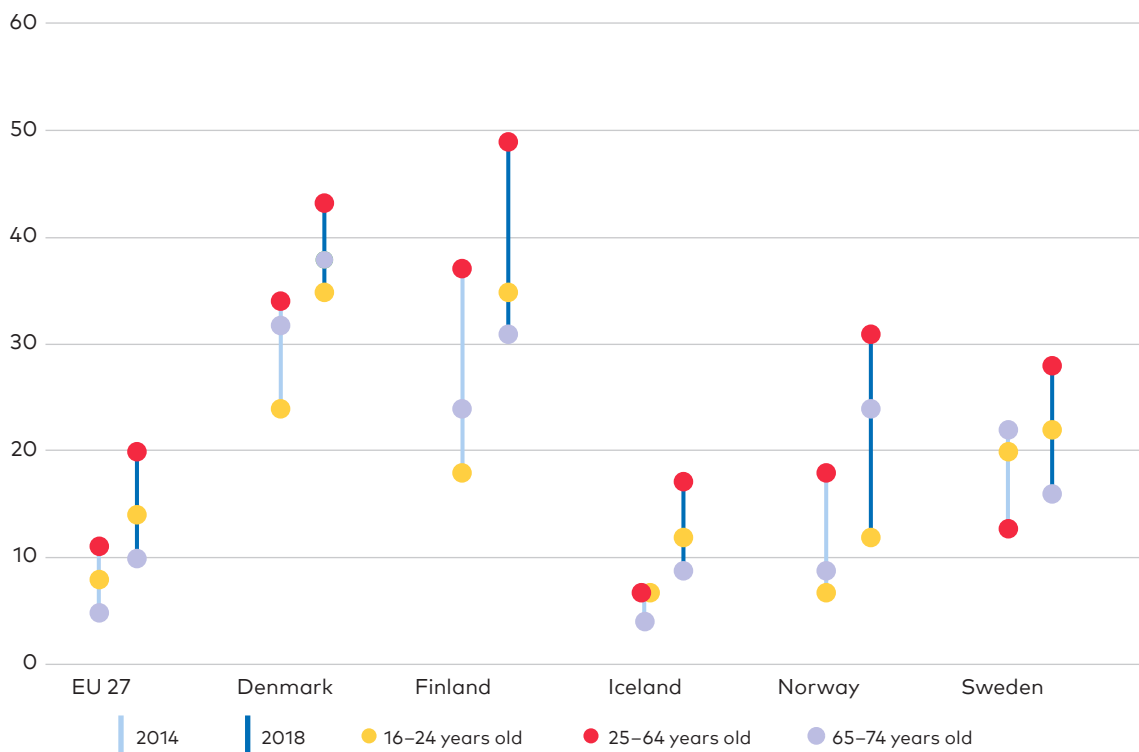


Figure 5.5. Share of individuals making an appointment with a practitioner via a website in 2014 and 2018, by age group (percentage). Source: Eurostat.

VICES), which obviously impacts the possibility of uptake, researchers point to several factors which may affect the probability of individuals making use of digital solution. These include the level of trust in governments, the perceived usability and usefulness of the service, income, education, and (as explored here) age and rurality (Pérez-Morote, Pontones-Rosa & Núñez-Chicharro, 2020).

Access to electronic health records provides transparency for inhabitants

All Nordic countries have established national e-health portals through which citizens can access evidence-based health care information, receive advice in case of illness or health worries, and carry out certain actions related to health care. The portals are 1177 Vårdguiden (Sweden), Kanta (Finland), Helsenorge (Norway), Heilsuvera (Iceland) and Sundhed.dk (Denmark). Even though the e-services available on the different platforms vary between different Nordic countries, all platforms provide access to electronic health records. However, some regions and health facilities are not connected to the service, and what data is accessible and visible in the medical records differs between countries, as well as internally between regions (Moll *et al.*, 2018; Zanaboni *et al.*, 2020).

A survey studying Norwegian citizens' use of, and experience with, access to their electronic health records showed a high level of satisfaction

with the service overall. People gained a better understanding of their health status, felt better prepared to communicate with health professionals, and gained an increased sense of responsibility for their own health. The possibility of reading health notes and further information after visits was also deemed valuable. Patients with chronic or long-term illnesses especially appreciated access to their medical records (Zanaboni *et al.*, 2020). In Sweden, a similar study showed that people have primarily used the service to gain an overview of their health status, and more than 96 % reported a positive attitude with regard to accessing electronic health records. As with the Norwegian study, patient impacts identified were improved communication with medical staff and better informed patients (Moll *et al.*, 2018). Access to electronic health records also provided positive effects for Nordic inhabitants in terms of increased engagement with their own health status, and a sense of empowerment, as well as appreciation of this higher degree of transparency in the system.

Figure 5.6 shows a significant increase in the use of national e-health portals in Norway, Sweden, Finland, and Iceland - notably when looking at the total number of logins into these portals per citizen, particularly since 2015¹⁵. When comparing developments across Nordic countries, one should remember that there are some differences regarding what kinds of e-health services are provided

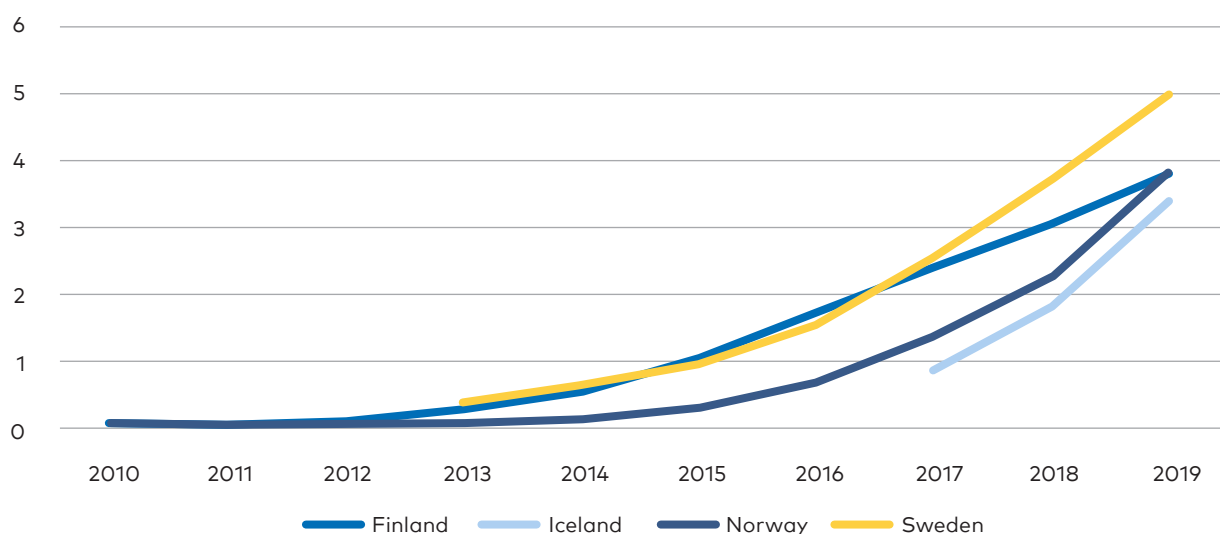


Figure 5.6. The total number of logins into the national patient portals, per citizen, since 2010.

15 Though directly comparable data has not been obtained from the Danish e-health portal, an increase in use has also been reported here.

ed through patient portals in each country. Hence, the numbers provided may not be fully comparable. However, these figures do give an overview, and prove that the increasing number of services available, and a growing focus on the branding of national portals, tends to contribute to a rise in the number of users.

Figure 5.7 shows users of medical records at municipal level in Finland. The same pattern can

be seen as in the previous figures. Namely, individuals in urban areas use digital solutions to a greater degree than individuals in rural areas. As such, this is confirmation of the existence of an urban-rural digital divide. An interesting finding here is that it seems as if the inhabitants in the mainly Swedish-speaking areas of Finland make less use of medical records overall.

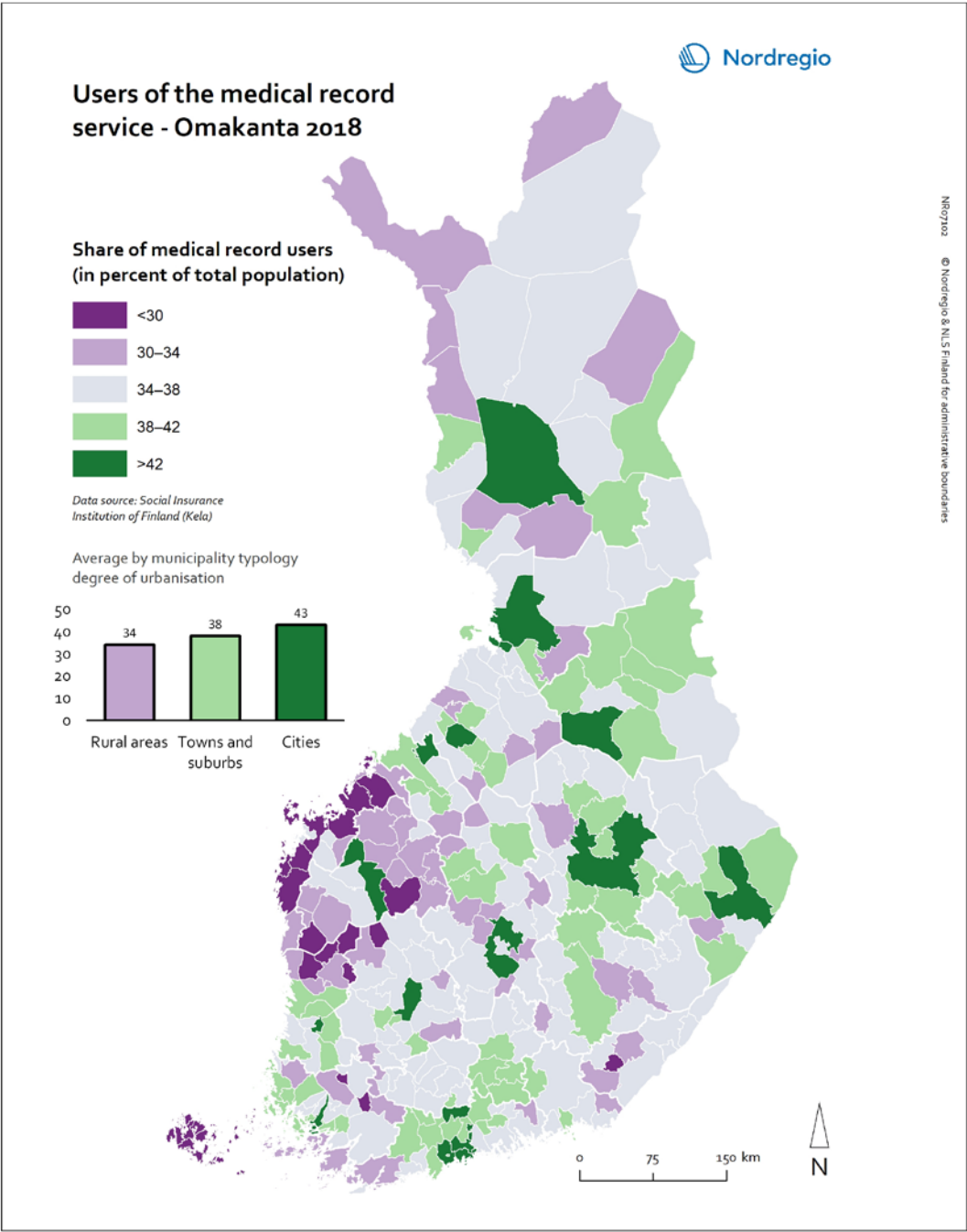


Figure 5.7. Finnish medical record service (Omakanta) users, as share of the population aged 18 years and over, in 2018.

Box 5.4. Accessibility gains from virtual health rooms in Västerbotten, Sweden

Of the total Nordic population, some 30.4 % live in regions defined as predominantly rural (Sanchez Gassen & Heleniak, 2019). To reach a health facility, most rural inhabitants must travel a long way, to access even fairly simple health services. To secure better access to general practitioners among the rural population, virtual health rooms (VHRs) have been established in the region of Västerbotten, Sweden. These VHRs are unmanned, which means that they have no regular health personnel *in situ*. However, they are equipped with distance-spanning technology, so that patients can participate in teleconsultations and conduct health checks, such as measuring their blood pressure or heart rate. After this, the relevant health data is automatically transferred to the practitioner's database. The first VHR was established in the village of Slussfors in 2014 (Näverlo et al., 2016) and the Centre for Rural Medicine in the Västerbotten County Council primary care department has implemented a VHR evaluation framework. This research focuses on evaluation of patient perceptions of the usability of the VHR and its contribution to their health care. Nineteen of the 25 unique users of the VHR during

2014/15 completed a survey asking about their attitudes to their own health (using the 13-question version of the Patient Activation Measure (PAM).

The coloured patches in Figure 5.8 show the inhabited areas (by 1000 x 1000m grid) in Västerbotten, where inhabitants can expect a reduction of the distance needed to travel to access primary health care through the implementation of VHRs. The colour indicates the total reduction in distance. Distance is measured through the road network.

The average distance to the closest primary health care facility (health centre, or virtual health room) is 6 km for the overall population in Västerbotten. The implementation of VHRs means that around 3.5% of the 270,000 inhabitants living in Västerbotten have experienced an increase in accessibility of primary health care services. The travel distance required for this segment of the population has been cut by almost 50% – from 42 km per person, to 23 km per person. Patients may also use VHRs to conduct teleconsultations with health professionals at specialised hospitals, which means even greater potential for improvement from an accessibility viewpoint.

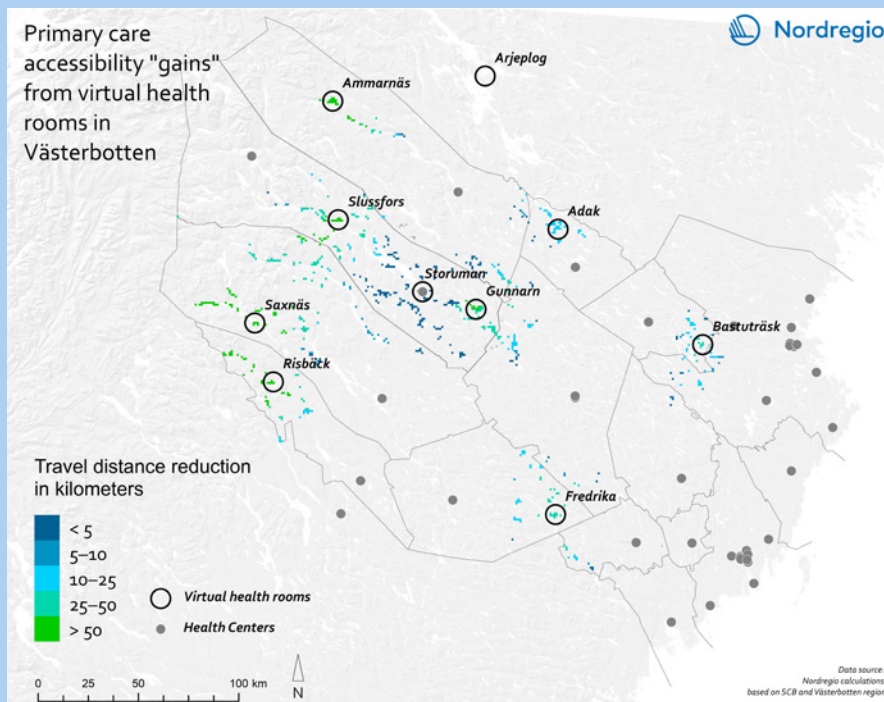


Figure 5.8. Primary care accessibility "gains" from virtual health rooms in Västerbotten.

Concluding remarks

With a growth in the elderly population, an increase in people with one or more chronic illnesses, and a shrinking working force alongside a pressured economy in the health care and social care sectors, there are now great expectations for the future development of digital solutions across all the Nordic countries. The implementation of various types of digital solutions in health care and social care is now considered a vital component of upholding the quality of service provided to Nordic populations and the universality of the Nordic welfare model, in which inhabitants are provided equal quality and access to services wherever and wherever they are.

In this chapter, accessibility has been used as an indicator for exploring digital solutions impact on the wellbeing of Nordic inhabitants. In particular physical accessibility and digital accessibility have been explored. The use of Internet-based health services is expanding further across the entire region, and across different age groups. Though this increase has been relatively consistent, an urban-rural divide and a divide between age groups remains. A prerequisite for usage is access to stable and secure digital infrastructure. However, a significant number of households (especially in Norway and Finland) still lack access to fast broadband. An urban-rural divide is prevalent as several households in rural municipalities have poorer access than those in urban municipalities. Improved accessibility to health care and social care services can be provided in a variety of ways through digital solutions. Examples are increased physical accessibility through e.g. virtual health rooms, as is the case in Västerbotten; or increased access to personal health data and information, e.g. through electronic access to medical records. Another example of increased physical accessibil-

ity to health care is through video consultations, a digital solution which importance and presence is increasing (see Box 5.5).

In this chapter, data from Eurostat, from the Nordic Council of Ministers' priority project on 'Health care and care with distance spanning technologies', plus data collected from the national e-health portals, have all been used. Despite the strong focus on distance-spanning technologies in health care and social care across the Nordic countries, there is a lack of accessible, comparable data through which an adequate comparable assessment of the developments enabled by these solutions across the Nordic Region can be conducted (Hyppönen *et al.*, 2017). This raises the question: How can we best measure development and success with respect to digital solutions in health care and social care in the Nordic Region, as well as its effects on the wellbeing of inhabitants? A shared goal between the Nordic countries is to develop a more person-centred health care and social care model. So, a central focus needs to be on inhabitants' perceptions and experiences of digital solutions. Other studies under the auspices of the Nordic Council of Ministers have concluded that there is a shared interest in Nordic countries measuring impacts from an end-user perspective, and looking at how digital solutions add to citizen empowerment (Hyppönen *et al.*, 2017). Knowledge about the citizens' wishes and experiences is central to ensuring that digital solutions add to wellbeing – including in-depth knowledge of other dimensions than just accessibility. Shared indicators across the Nordic Region can help secure a good knowledge base for sharing lessons learned throughout the region, and in that way contribute to sustainable digital development within health care and social care.

Box 5.5. Digital solutions in health care in the light of the COVID-19 outbreak

The pandemic has spurred an urgent need for digital solutions to secure health care delivery under the strains of social distancing during the COVID-19 outbreak. Implementation of digital solutions in the Nordic health care and social care sectors has been a focus area for several years. However, factors and concerns of organisational, cultural, and legislative character have hampered the pace of the development. The COVID-19 outbreak has, nonetheless, helped the implementation of digital solutions take an unprecedented leap forward.

One example is video consultations in primary care (Greenhalgh et al., 2020). Video consultations were implemented quickly in regions and municipalities across the Nordic Region, and as a result use increased immensely – as illustrated in the graph below, showing the increase in number of video consultations with general practitioners in Norway. In Denmark, 898 primary health care clinics implemented a video solution in less than two weeks (Wentzer, 2020). This is an implementation process

which has otherwise proved to be immensely complicated, despite good project results and positive effects for patients and health sector alike. Acknowledging the necessity of a swift implementation of new models of health care in the face of COVID-19, health care professionals and health researchers have also emphasised the need for evaluation of these changed practices. As set out by Greenhalgh et al., [C]hange is not merely installing or using new technology but introducing and sustaining major changes to a complex system (Greenhalgh et al., 2020). New research projects based on this objective have received funding, as in the Danish research project *ReMoTe Primary Care – Refining Remote Assessment in Primary Care during COVID-19* (Aarhus University, 2020). The need for a remote health care solution where doctors and patients can avoid physical contact has shown that accessibility is a crucial factor that drove the rapid implementation.



Figure 5.9. Number of video consultations with general practitioners in Norway. Source: Directorate for E-health, Norway.

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6. Concluding discussion

Authors: Anna Lundgren and Linda Randall

The aim of this Special Issue has been to delve into the health and wellbeing situation of people who live in the Nordic Region, and to explore how digitalisation may contribute to their overall health and wellbeing. Our departure point in addressing these issues is the 2020 edition of State of the Nordic Region, which analyses the region in terms of demography, economic development and labour market trends (Grunfelder, Norlén, Randall & Sánchez Gassen, 2020). This edition also included a section entitled "Beyond GDP" which, among other things, sought to highlight wellbeing trends throughout the Nordic countries. Regarding several key indicators, such as life expectancy and educational attainment, the report discovered both regional inequalities and gender inequalities across the region (Lundgren & Cuadrado, 2020).

This Special Issue sought to extend this work by highlighting a much broader range of indicators shedding light on the wellbeing of Nordic inhabitants. We began by exploring how the global trends of ageing populations and increasing urbanisation unfold across the Nordic countries, and we then discussed how this might influence wellbeing. Next, we moved on to health, examining regional and local variations in life expectancy, as well as trends related to disease and health-related behaviour. Following on from that, we considered the role of socio-economic factors such as education, employment and income in contributing to health and wellbeing. Finally, we explored how digitalisation can improve access to services, thereby contributing to improved health and wellbeing throughout the region. The last chapter seeks to bring together findings from each of the other chapters, considering how these factors interact to shape health and wellbeing across the Nordic Region.

Welfare model contributing to Nordic wellbeing

It goes without saying that wellbeing in the Nordic Region is also linked to the Nordic welfare model. This model is characterised by a comprehensive public sector responsible for the provision of basic welfare services, based on the principles of universality and inclusion, and is primarily financed through taxes. It contributes to wellbeing in a range of ways. For example, the parental leave system, childcare services and the dual-earner model make it possible for both parents to participate in the labour market. Health care and elderly care services are provided free of charge, or at a reduced cost. Strong involvement of labour market actors has created stable conditions for business and industry, which in turn has contributed to economic growth.

Equality is another principle of high importance among the Nordic countries. Although the Nordic model is often referred to as one model, interpretations vary between the Nordic countries and has also changed over time. The model has also been translated into legislation, policy, regulation, and the allocation of resources to different areas within the social sector – for example, families and children, the unemployed, the elderly, those facing sickness and health problems, people living in different types of housing, etc. (Anttonen *et al.*, 2012; Dahler-Larsen *et al.* 2015; Nordic Statistical Committee, 2017).

Another important common characteristic contributing to wellbeing in the Nordic Region is trust, sometimes also referred to metaphorically as 'the Nordic gold' (Andréasson, 2017), indicating how important it is. Different forms of trust have been linked to wellbeing in a range of ways (Martela *et al.*, 2020). Both interpersonal trust and trust in social institutions remain strong throughout the Nordic countries, although we also find evidence for declining levels or trust in certain socio-economic groups (Hausgeerd & Seegard, 2010).

The Nordic welfare model and the principles guiding it have made a substantial contribution

to the success of the Nordic countries in scoring highly on many frequently-used indicators for economic and human progress. These include economic growth, educational attainment, the good health and gender equality. However, despite ambitious goals, countries across the region also face important and persistent spatial, socio-economic and gender inequalities.

Uneven demographic development presents challenges

The demographic make-up of the Nordic countries is changing over time. As in most parts of Europe, the trend towards an ageing population is significant, with an increasing proportion of the overall population being over the age of 80 years in many Nordic municipalities. Municipalities with the largest number of persons within this older age group can be found in Finland, together with a small number of rural municipalities in Sweden. One reason for variation in population age structure among municipalities is due to the mobility patterns of the younger generations. As we saw in the demography chapter, many young people leave rural areas in their twenties (20–29 years) to study, or to pursue other life goals.

Interestingly, however, we can also find signs of counter-urbanisation, with many younger people in their thirties (30–39 years) returning to rural areas after a time away. According to the literature, this trend is primarily led by public sector professionals – for example teachers, nurses, and physicians (Bjerke & Mellander, 2017; Sandow & Lundholm, 2020). Developments such as improved access to broadband and a greater acceptance of working from home (as we have seen increasing during the Covid-19 pandemic) have the potential to accelerate this trend.

Importantly, the appeal of rural areas to these groups varies, with some areas appearing more attractive than others (Kull *et al.*, 2020). There are also a significant number of municipalities in all countries where younger people in their thirties continue to leave. These municipalities tend to be left with an older age structure overall, which may have negative implications for the population that remains. This is particularly problematic in municipalities characterised by a high degree of rurality, where a combination of a declining economy and shrinking tax revenues, coupled with large distances for travelling to access services and amenities, may have negative effects on wellbeing.

Health disparities extend beyond age

On the positive side, people not only live longer, but they also live in a healthier state for longer. That means they are extending their working lives and enjoying lengthier periods of healthy living beyond retirement (Sánchez Gassen & Heleniak, 2019). Life expectancy is increasing and is higher than, or equivalent to, the EU 27 average in all Nordic countries and independent territories apart from Greenland. Women still tend to live longer than men throughout the Nordic countries, though this gender gap has been decreasing in recent years. However, the extended life expectancy of women does not necessarily translate into a higher quality of life, since women spend more years in poor health than do men. Across the region, the largest losses of healthy life years resulting from ill-health, disability or early death are brought about by cardiovascular disease and cancer.

There are also interesting local and regional differences in life expectancy. Using the age-standardised mortality rate, we can see that these differences cannot simply be explained by the differing municipal age structures discussed above. Put another way, even if all municipalities across the Nordic Region had the same age structure, life expectancy would still be higher in some municipalities than in others. Interestingly, the greatest variation appears to be within countries, rather than between them. In general, people are more likely to live longer in the capital regions and in socioeconomically advantaged municipalities (e.g. municipalities with a high household disposable income, and a high proportion of people who have gone through tertiary level education).

Although cardiovascular disease and cancer are still the most common causes of death, there has been an overall decrease in premature deaths caused by noncommunicable diseases (i.e. cardiovascular disease, cancer, diabetes, and chronic respiratory disease). Mental health concerns are increasing in populations throughout the Nordic countries, particularly among young people. Finland, Norway and Sweden have statistics above the EU 28 average (OECD/EU 2018) for people facing mental health problems. Lifestyle-related factors affecting mortality, such as tobacco and alcohol use, are decreasing in all Nordic countries, though they remain more common among those in the lower socioeconomic categories. Obesity also has a notable social component throughout the region, with those who have gone through tertiary

education shown to be at a lower risk of being seriously overweight. According to the World Health Organisation (WHO), there is a risk that lifestyle factors may cancel out the positive results achieved in reducing premature deaths across the Nordic countries, if decisive action is not taken (WHO, 2018).

Health systems across the Nordic countries are performing well overall, based on indicators such as quality of care, efficiency and accessibility (OECD, 2019). As in other European countries, there has been a reduction in the number of hospital beds, which is mainly explained by a shift towards outpatient care. There is evidence of increasing social health inequalities throughout the Nordic countries (e.g. Gustafsson & Lohmann, 2018; Jensen *et al.*, 2017) and research indicates that people in the lowest income quartile are significantly more likely to have unmet medical needs than those in the highest income quartile. Alongside this, there is a growing trend towards privatisation and marketisation, such as private health insurances, particularly in Denmark and Finland and increasing numbers of private health care and social care providers, which may risk to exacerbate such differences.

A complex relationship between socioeconomic factors and wellbeing

The socioeconomic determinants of wellbeing are many and complex. For example, of the 11 dimensions set out in the OECD Better Life Index, four describe socioeconomic conditions (housing, income, jobs and education) and a further three (community, civic engagement and work-life balance) are closely related (OECD, 2020). In this Special Issue, we focused on three traditional socioeconomic factors: education, employment and income.

Overall, Nordic countries report high levels of educational attainment. An overwhelming majority of young people complete secondary school, and almost half go on to gain a higher education too. Young women have higher levels of education than young men in all countries, and this gender gap in educational attainment is most pronounced with regard to tertiary education. There are also regional differences, with tertiary education attainment levels higher in the capital city regions and in regions with higher education institutions. These disparities have implications for health and wellbeing, since those with primary or lower sec-

ondary education have been found to be up to twice as likely to report being in poor health than those who have gone on to tertiary education.

Regarding employment, we can observe both regional inequalities and inequalities between groups in terms of unemployment rates. Unemployment follows a clear east-west pattern, with the highest rates found in the eastern parts of Finland, and the lowest in Norway and Iceland. In addition, foreign-born individuals are more likely than their native-born counterparts to be unemployed, particularly if they were born outside the EU. This trend is most pronounced in Sweden.

In relation to income, income inequalities are increasing in municipalities, regions and countries across the Region, despite Nordic countries being among the most equal in the OECD (Grunfelder, 2020). Alongside this, the at-risk-of-poverty rate has increased in all Nordic countries (apart from Iceland) between 2004 and 2018. Taken together, these trends have the potential to produce negative impacts on wellbeing in the long term, if they are not addressed effectively.

Digitalisation's contribution to wellbeing

Digitalisation has substantial potential in helping to address some of the regional inequalities, by increasing the accessibility of services and amenities – regardless of where people live. Given this, access to digital infrastructure, along with the knowledge and skills required to make the most of existing and emerging technologies, are important matters to monitor. The OECD (2019b) points to the various impacts of digital transformation. These can be both positive (e.g. increased access to information, which reduces transaction costs and increases efficiency) but also negative. The latter include risks such as divides in terms of both digital skills and digital infrastructure. So although the Nordic countries are have ambitious goals and generally considered digital front-runners, there is also evidence of digital divides emerging between different groups of people.

From an infrastructure perspective, urban households are more likely to have fast internet connections than rural households. Access to fast fixed-line broadband (meaning download speeds of >30 Mbps) is available to almost all households in urban municipalities, but only to two-thirds of households in rural municipalities. This is problematic when we consider that it is in rural municipali-

ties where digitalisation and distance-spanning technologies are expected to have great impact, for example in improving health care and social care. Given the challenges associated with fixed broadband provision in rural areas, many point to the role of mobile technologies, in particular 5G, in providing high-speed coverage to rural populations. It is important to recognise, however, that the high costs which have acted as a barrier to the extension of rural fibre broadband coverage are also likely to come into play as a disincentive when the 5G rollout takes place (Hudson, 2019; Oughton & Frias, 2018).

When it comes to internet use, all Nordic countries have seen an increase in the number of people who access health information and services online. Again, however, an urban-rural digital divide is evident, with urban residents being more likely to access health information and services online in all Nordic countries apart from Iceland. Age also appears to have an effect. People aged over 65 years are less likely than those in other age groups to seek out health information online. This is true across all countries. They are also less likely to have booked an appointment online than those aged 26–65 years. It is worth noting that the number of log-ins to the national health portals and video consultations with a practitioner grew rapidly following the outbreak of the Covid-19 pandemic.

Future challenges, the Nordic take on wellbeing, and concluding remarks

This report has shed some light on wellbeing across the Nordic Region. It has revealed the struggles faced in many rural areas. These are the result of uneven demographic development, particularly with respect to ageing populations but also outmigration of young people. At the same time, we have highlighted several socioeconomic factors; education, employment and income, which contribute to health and wellbeing outcomes across the region. Finally, the report has explored the role of digitalisation in overcoming some of the problems of inequality, in particular by increasing the accessibility of services by utilising distance-spanning technologies in both health care and social care which also includes increased use of cross-border e-prescriptions (eHälsomyndigheten, 2020). Despite the potential for technology to bridge gaps in distances between particular groups of people and services, it is important to

recognise that access to, and use of, technology has both spatial and socioeconomic dimensions (e.g. urban/rural; younger/older; more/less educated). Recognising and addressing these digital divides is an important step in ensuring an inclusive approach to digitalisation across the region.

A core theme running through all the chapters in this report concerns how wellbeing and the potential for having a long and healthy life is framed by different living conditions in different parts of the Nordic Region. Though clear differences emerge between urban and rural areas, it is important to recognise that variations in living conditions cannot be understood by making a simple urban/rural distinction. Rural areas are diverse in themselves, and while many rural residents have more limited access to services and amenities, many areas retain their rural character while still maintaining relatively good access to such provision. It is also important to acknowledge that living in a rural area does not, in and of itself, result in poor wellbeing. On the contrary, there are many benefits for overall wellbeing that derive from living in a rural area, and these may also play a role in attracting younger people back. We see evidence of this in many parts of the region, with quite a number of younger people returning to rural municipalities in their '30s. Improved connectivity and broader acceptance of distance working may accelerate this trend.

Finally, it is worth reflecting on the implications of our findings for the Nordic welfare model. From one perspective, it could be suggested that the differences highlighted in this report contribute to undermining such a model. But we would argue that, on the contrary, the guiding principles of universality, inclusion and equality are more relevant than ever in facing up to these differences. They provide us with clear guidelines both for safeguarding the Nordic welfare model, and for supporting positive health and wellbeing outcomes for all people across the region – regardless of their socioeconomic circumstances, or where they live.

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