

Chapter 7

EDUCATION: Strong performance but alarming regional fluctuation

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Education and skills levels clearly play an important role in social and labour market policy and this is also true for regional development. Positive economic development within a region depends on its access to a population pool with right types of education and skills.

In general, the Nordic countries are doing well when it comes to education-related indicators, but regional variations remain. This chapter presents the current situation in the Nordic countries from the Nordic Regions level while, in addition, also providing an international comparison, including a reference to the EU's Europe 2020 education targets. In order to provide a snapshot of the most important issues related to education at different levels, the chapter presents a suite of statistics ranging from compulsory education to doctoral education and life-long learning in the form of distance learning.

Nordics remain top of PISA table but are losing their lead

The Programme for International Student Assessment (PISA) is an international survey that is made by the OECD every three years. The aim of the assessment is to evaluate education systems by testing the skills and knowledge of 15-year-old students. Around 510 000 students from 65 countries took part in the PISA 2012 assessment and they represented, in total, 28 million 15-year olds. The goal of the PISA survey is to enable countries to compare their students' performance over time and assess the impact of education policy decisions. Although the PISA assessment approach has been criticised, it remains a widely used tool to assess education systems around the world.

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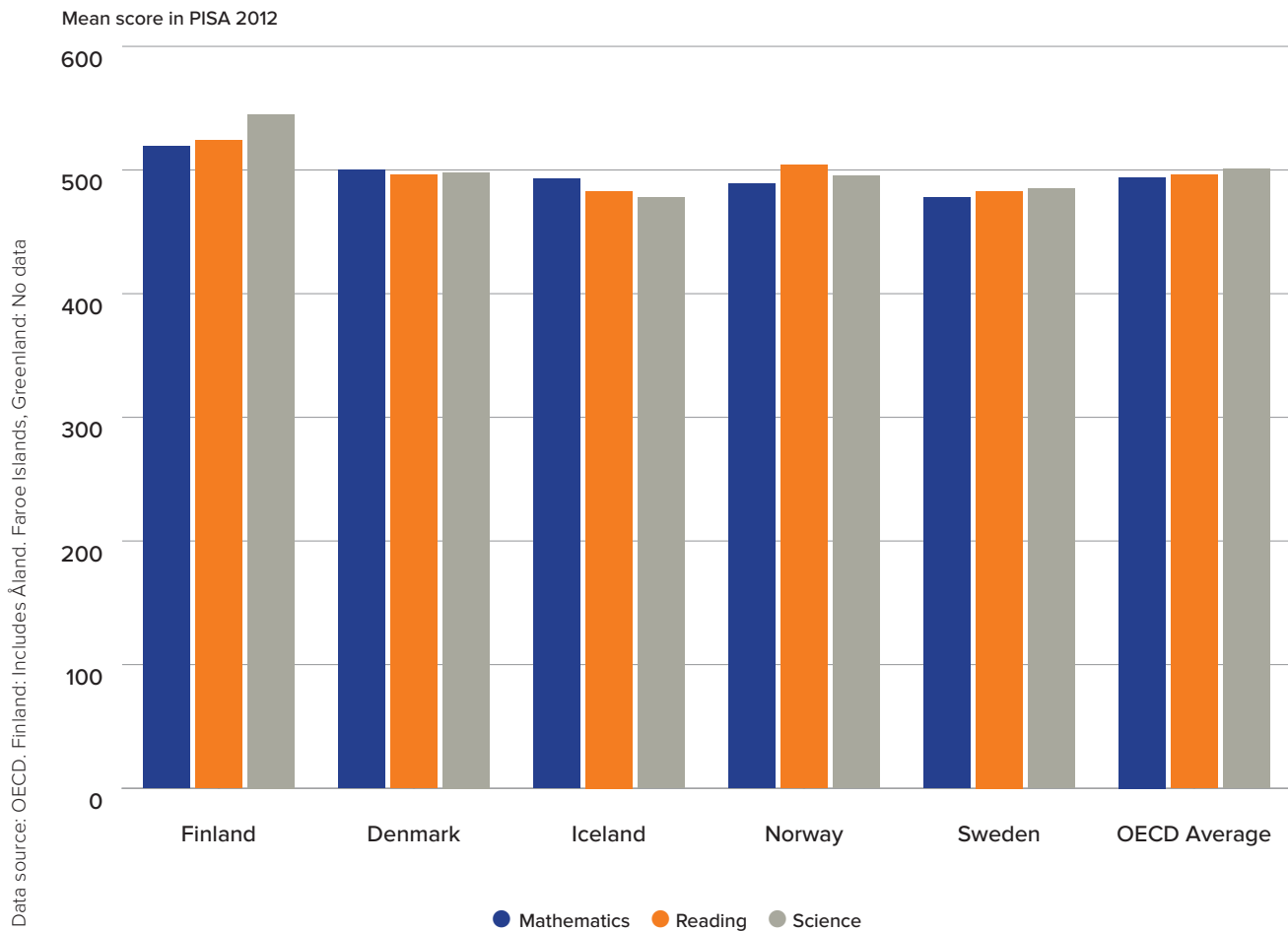
figures 7.1 and 7.2. Finland in particular stands out as a higher performer than the rest of the Nordic Region.

Since the first PISA report in 2000 Finland has been a top achiever. Its results have however declined in the last two reports (2009 and 2012), but they still remain top in a Nordic context (figure 7.2). All of the Nordic countries have seen a decline in their scores since 2003, although for Norway this decline has been small and not statistically significant. Sweden however is the OECD country that has seen the biggest negative change since 2003 and is now scoring below the OECD average; this is especially true when it comes to mathematics (OECD 2015).

Regional variation apparent in rates of early school leaving

Analysing the share of early school leavers can provide an indication of the challenges to be met in the Nordic Regions. A high share of early school leavers may, among other things, point to the likely future challenges in skills-provision for regions where the young population lack upper-secondary school level skills and thus the possibility to attend universities and colleges. The share of early school leavers is also a central indicator

Figure 7.1: PISA results in 2012

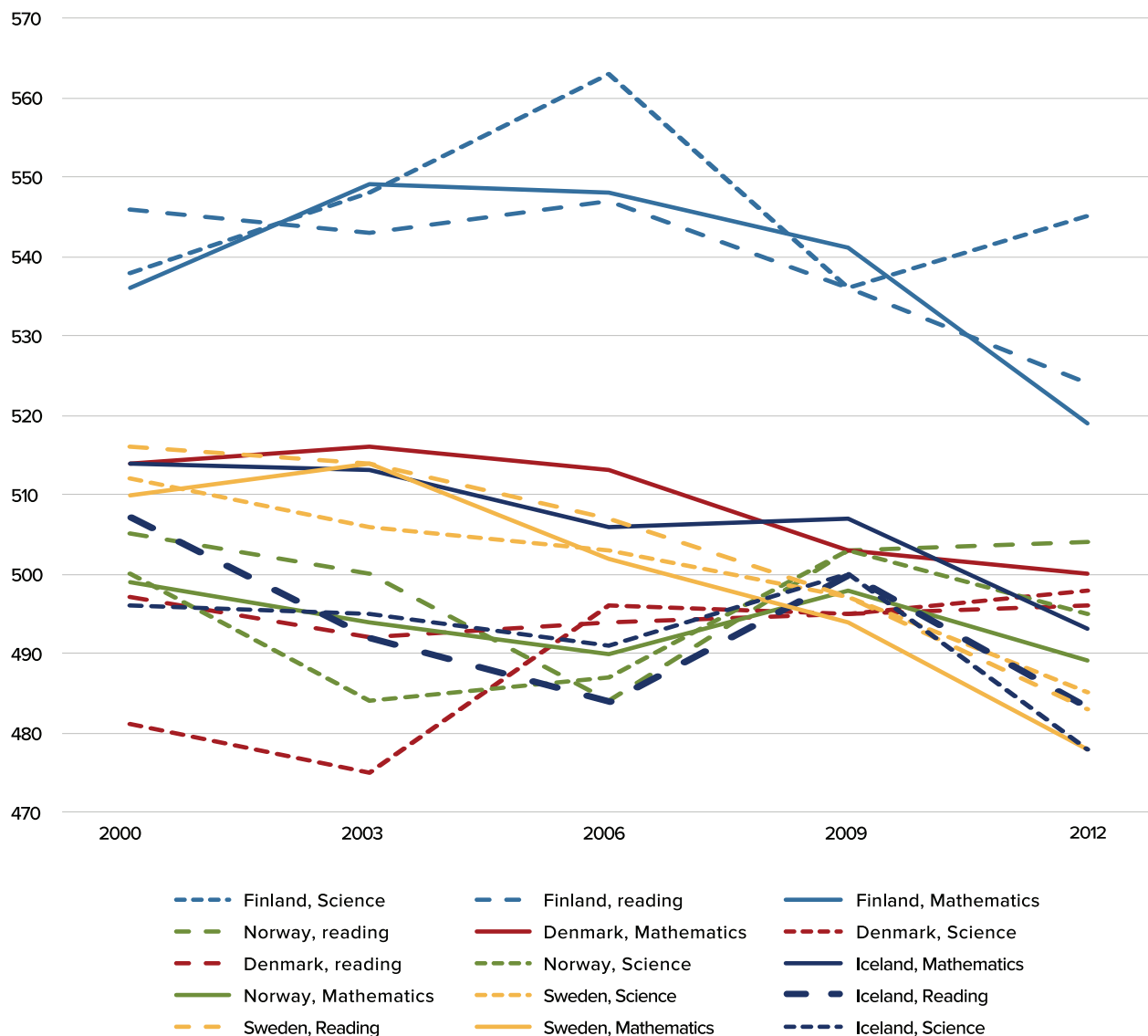


in the EU 2020 strategy as a high level of early school leavers may influence societal development in a variety of ways. The map in figure 7.3 shows the share of early school leavers in Nordic Regions among persons in their early twenties, i.e. the share of persons aged 18-24 years who, at best, have only attained a lower secondary education, and are not involved in further education or training. Early school leavers are defined as those who have not moved on from the compulsory lower secondary school to upper secondary school, i.e. what in Danish and Swedish is called *gymnasium*, in Finnish *lukio* (complemented by vocational education, *ammattillinen oppilaitos*), in Norwegian *videregående skole*, and in Icelandic *framhaldsskóli*. With a narrow age selection of 18-24 years, the indicator captures people who, by this age, would recently have finalised their lower secondary education, and should also have started or finalised the upper-secondary level – had they attended upper-secondary school.

The European Commission has included early school leavers as one of the Europe 2020 headline indicators, as numerous linkages exist between giving up school

The Europe 2020 target is early school leaving rates of below 10%

and a range of factors important for the development of the society, such as unemployment, social exclusion and poverty. The Europe 2020 target for this indicator is that rates of early school leaving should be below 10% (EU Commission 2015a). As displayed in figure 7.3, in several parts of the Nordic Region this 10% target has already been reached. The light-yellow hues in the map indicate values on the positive side of the threshold, i.e. below 10%, and these can be found in all Danish and Swedish regions, and in some Finnish and Norwegian regions. At

Figure 7.2: PISA results 2000-2012

Data source: OECD. Finland: Includes Åland. Faroe Islands, Greenland: No data

the national level, Norway, Iceland, and the non-EU Faroe Islands and Greenland have not, as of 2014, fallen below the Europe 2020 target of 10%, which is the case with Sweden (6.7%), Denmark (7.7%) and Finland (9.5%). In the EU as a whole, 19 of the 28 member states had already, as of 2012, scored below the 10% target (Eurostat 2015a).

Figure 7.3 shows the share of early school leavers on the NUTS 2 (definition in the Introduction chapter) level. This includes areas that are larger than the regional standard divisions in Finland, Norway and Sweden. It indicates some interesting variations within the Nordic Regions. In Danish regions, the share of early school leavers varies between 7% and 9%, i.e. below the Europe 2020 threshold. In Norway, Oslo og Akershus and Vest-

landet are the only two NUTS 2 regions (landsdel) below the 10% threshold, with rates around 9%. Also, despite the public debate in Sweden on pupils not finalising the lower secondary school, the Swedish regions have among the lowest shares of early school leavers in the Nordic countries. Six out of eight Swedish NUTS 2 regions (riksområden) have a share of early school leavers below 7%, while Hovedstaden in Denmark is the only other Nordic Region with a similar rate. In Finland, variations between the NUTS 2 regions (suuralue/storområde) are bigger than in Sweden and Denmark and more similar to the regional variation within Norway. In Åland, the share of early school leavers is estimated to be 11%, but Åland students enrolled in studies in neighbouring

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Sweden are not included in this figure and therefore the true figure is probably smaller.

Perhaps the most striking feature in respect of early school leaver rates is the high rate of early school leavers in the Faroe Islands, Greenland, Iceland and northern Norway, all of which are above 15%. With the exception of northern Norway, these regions have a gender distribution among early school leavers which is unfavourable for men; as indicated in the pie charts, males generally predominate among early school leavers in these regions. This can probably be explained with reference to the regional economic structure as these areas have largely resource-based economies with little incentive, particularly for men, to delay earning in order to continue education.

Looking at the broader picture, the fact that males in many Nordic Regions predominate among early school leavers follows the trend and average of the 28 EU countries (figure 7.3). Generally, the higher the early school

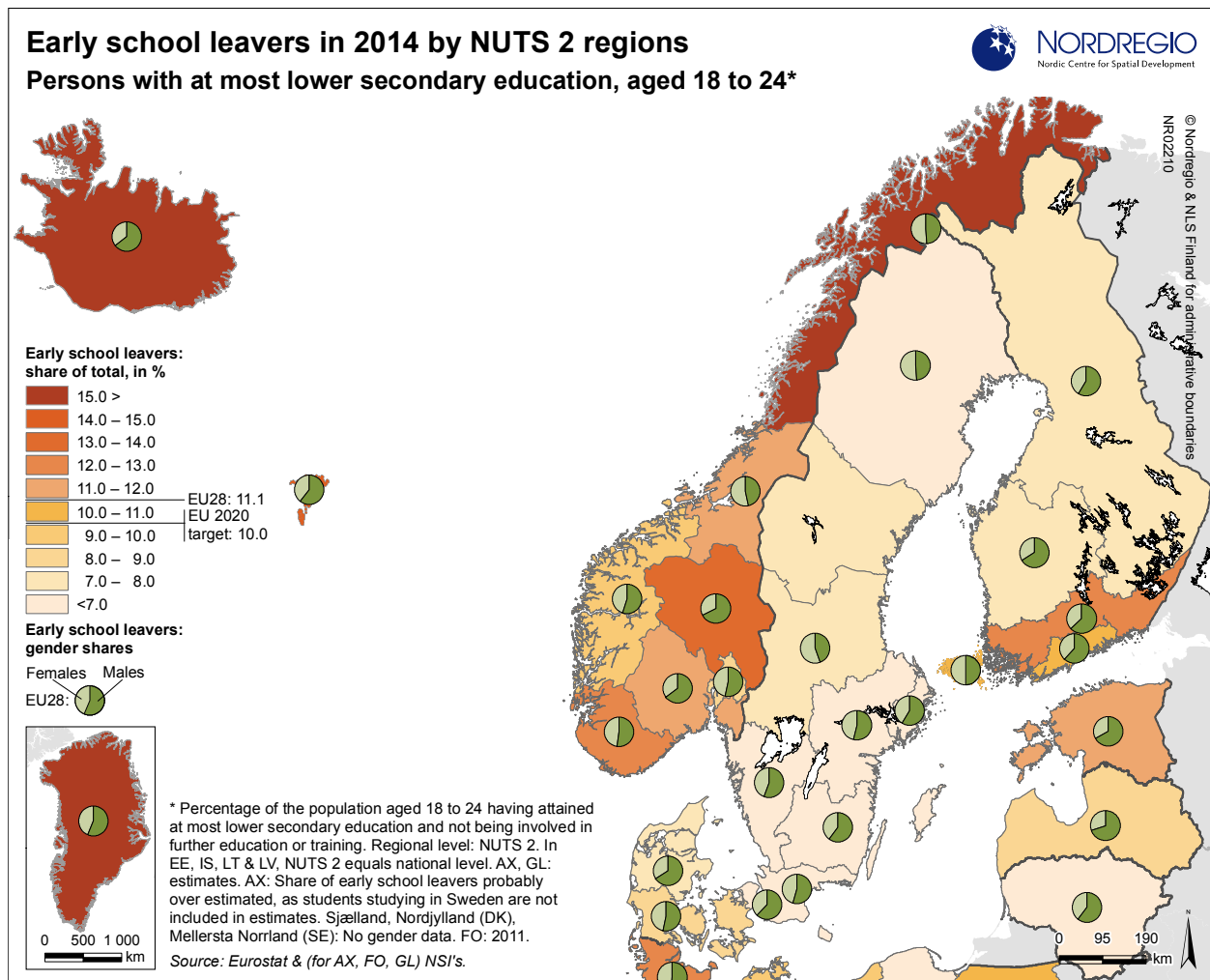


Figure 7.3: Early school leavers in 2014 by NUTS 2 regions

leaving rate, the bigger is the share of males among the early school leavers. Indeed, apart from the already mentioned exception of northern Norway, all Nordic NUTS 2 regions with early school leaver rates above 12% also had a predominance of males among the early school leavers group.

Nordic countries well placed to meet higher education targets for 30-34-year-olds

In addition to early school leaving, the other main Europe 2020 target within the education field is “at least 40% of 30-34-year-olds completing third level education”. This means that the EU promotes the view that at least two fifths of people aged 30-34 years should complete courses at the higher or tertiary education level. This target can be compared to the fact that European labour market projections have indicated that by 2020, in order for the EU to compete internationally, 35% of all jobs in the EU will require skills comparable to a completed tertiary level education (EU Commission 2015b).

This indicator, as distributed to the municipalities and regions within the Nordic Region, is visualised in figure 7.4. Blue hues display municipalities and regions which in 2014 were above the Europe 2020 threshold of 40% having completed tertiary level education. In the other direction, red hues mark administrative units where the 40% target had not been accomplished by 2014.

Perhaps not surprisingly, the highest education levels, above 40% (indicated by the three darkest blue hues), among 30-34-year-olds can, to a large extent, be found in either university cities, or in socio-economically strong municipalities in the main metropolitan areas. At the regional level in some cases the existence of an important university within a rather sparsely populated region positively contributes to a high tertiary education average in those regions. This is the case in Västerbottens län (Umeå) in Sweden and Troms (Tromsø) and

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Sør-Trøndelag (Trondheim) in Norway. Thus, in relation to the Europe 2020 target of 40% of 30-34 years-olds having completed tertiary level education, the existence of a university within the same or nearby municipality, or within the region, to a large degree seems to influence whether a municipality or a region achieves this Europe 2020 target. In addition, it should also be noted that while 30-34 years is an age group where many people have finalised their studies, it is still, in geographical terms, a relatively mobile group. As such, the individuals who constitute it may still choose to move from the city in which their studies were undertaken.

At the national level, in the Nordic Region, this Europe 2020 headline target of 40% had, by 2014, been met in all five Nordic countries though challenges nevertheless remain. In Denmark, many students have lengthy study periods before education is completed. For Sweden there are indices of high drop-out rates. Finland, unlike most other EU countries, has not seen a steadily increasing rate of 30-34-years-old finalising their higher education (EU Commission 2015b). Instead, Finland has stayed around 45-46% over the period 2010-2014. The Faroe Islands (37%), and especially Åland (26%) and Greenland (18%), have significantly lower rates than the five Nordic countries.

In the EU as a whole, more women than men in the age range 30-34 have attained a tertiary level education with this trend increasing. The same situation exists in the Nordic Region. The Nordic average is a striking 15.1% unit difference between men and women in favour of women. In fact, no region within the Nordic countries has a higher share of highly educated males than females in the age range 30-34 (figure 7.5, bottom right corner map). This is now also the case in the Faroe Islands. In the broader age group of 25-64 years however,

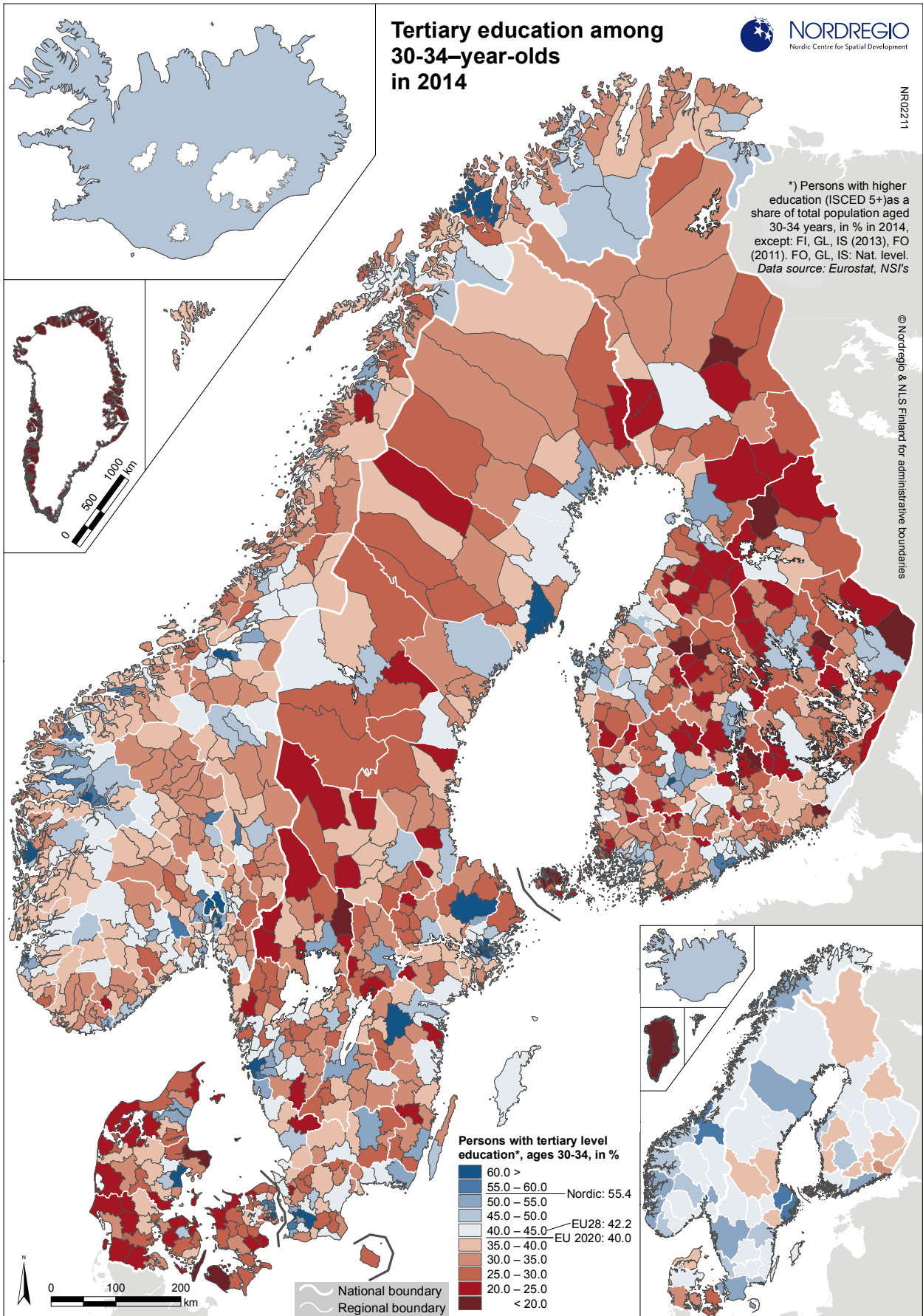


Figure 7.4: Tertiary education among 30-34-year-olds in 2014

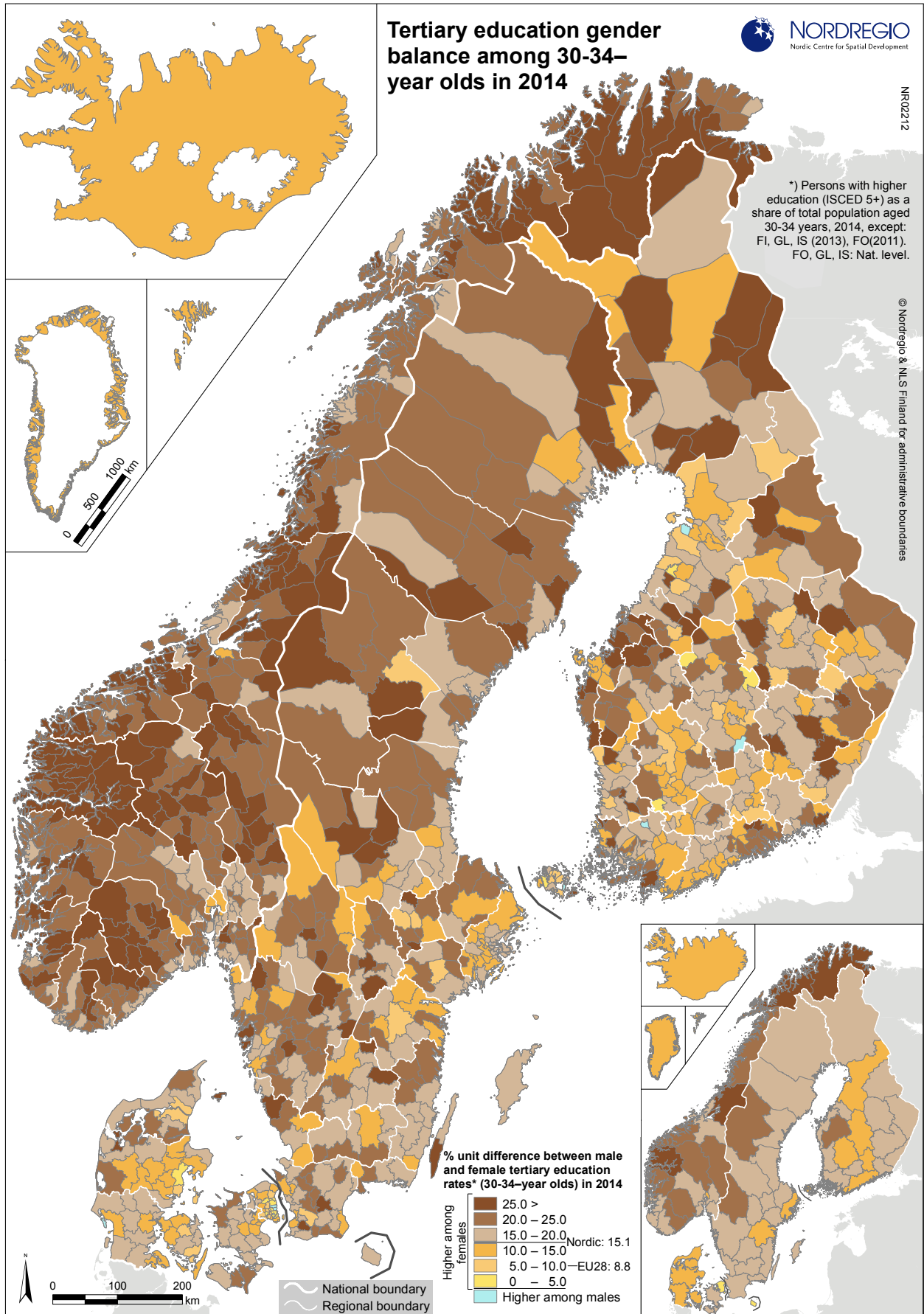


Figure 7.5: Tertiary education gender balance among 30-34-year olds in 2014

the Faroe Islands is the single remaining region within the Nordic countries that has a higher share of highly educated men than women. For the Faroe Islands, this situation can be explained primarily by the fact that women to a much greater degree than men leave home to study abroad, especially in Denmark. Taking advantage of their acquired skills, they then tend to remain abroad, perusing their career (Rasmussen, 2011, Hirshberg & Petrov, 2014). By comparison, in Greenland, the traditional pattern which saw men dominating the educational system has shifted in recent times (during the 1990s and 2000s) to reflect that in the rest of the Nordic countries (Hirshberg & Petrov, 2014).

At the municipal level, in the Nordic Region, a handful of municipalities still have a higher share of men than women with tertiary level education in age range 30-34 (figure 7.5, municipalities coloured blue), i.e. Gentofte, Lyngby-Taarbæk, Frederiksberg, and Fanø in Denmark, Luhanka, Oripää, and Lumijoki in Finland, and Åland's Lumparland. The Nordic municipalities which have the largest differences between highly educated females

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and males (dark brown hues in the map) are generally found in rural areas. In many metropolitan areas, although the share of highly educated women is still higher than men, the differences between men and women's education levels are less pronounced, suggesting that it is the men in rural areas who generally do not proceed to higher education, while men in urban areas, as well as females in both rural and urban areas, tend to opt for higher education.

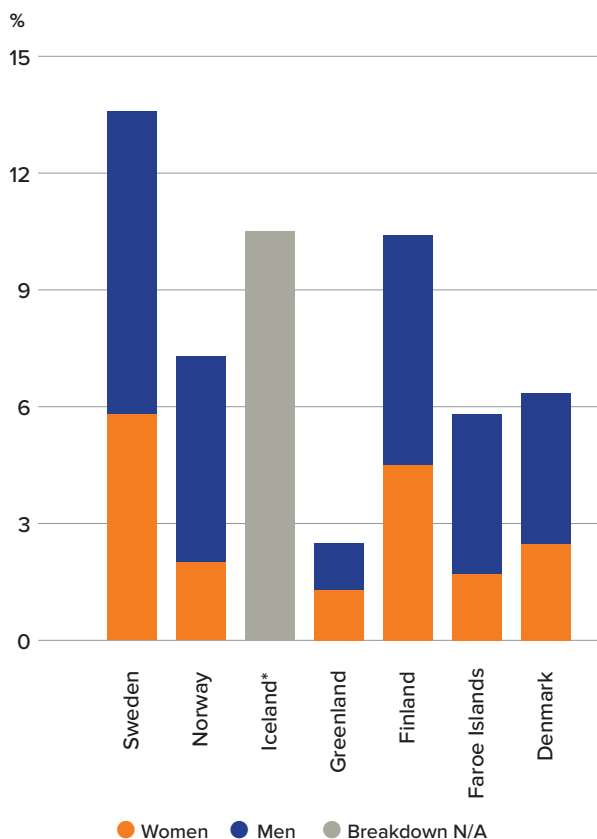
Another part of the gender dimension is that in Nordic municipalities with a higher education institution within their borders and a very high share of male students, the higher education institution is either a technical university, or a (university) college with a focus on maritime or forestry studies (Hedin, 2009).

Nordics trail on Doctorate degrees

As we can see in figure 7.6, the Nordic countries lead the way in Europe when it comes to general higher education rates, including all kinds of tertiary education, i.e. short-cycle tertiary education (typically shorter, practical and occupationally-specific programmes), bachelor, master and doctoral, or equivalent, education. As chapter 9 will however show, in comparison to other European countries, the share of doctorate holders is not particularly high in the Nordic Region. Furthermore, compared to the rest of European OECD countries, the gender gap in attaining a doctoral degree is quite apparent (although less pronounced than in e.g. Switzerland, where there are 9.5 females and 18 males with a doctoral degree per 1000 working age persons).

As shown in figure 7.6, the gender gap is relatively small in Sweden, where 5.8% of the working age female population have doctorate degree and 7.8% of the male working age population. In Finland, the gender gap is similar, but the total share of doctorate degree holders

Figure 7.6: Doctorate holders as a share of the working age population (25-64 years) in 2012



Data source: OECD Science, Technology and Industry Scoreboard 2015, NSI's. Note: Iceland: No distinction between women and men. Faroe Islands: 2011. Finland includes Åland

in Finland, around 10% of the working age population, is smaller than that of Sweden (approximately 14%). Iceland has a similar total share to that of Finland, but no gender data is available. Norway has a substantial gender gap (2.0% females against 5.3% males), and together with Denmark has a distinctly lower total share of doctorate holders than Sweden, Iceland or Finland. The Faroe Islands are not far behind Denmark's total share of doctoral degree holders, but the gender difference is pronounced with 1.7% females against 4.1% males with a doctoral degree, while Greenland has a rather equal gender share but a very small proportion of doctorate holders among the working age population, less than 3%.

Education levels of working age population above EU average

The map Persons with tertiary level education in 2014 (figure 7.7) reflects the fact that a considerable share of the municipalities in the Nordic Region – close to half of them – are above the EU average in terms of persons in working age who are also generally past their student years (i.e. aged 25-64 years) and carry higher education degrees. The map also highlights the influence that higher education provision in a municipality has on the share of that population with a higher education degree.

Municipalities in green hues in the map have levels of tertiary education above the EU average, which was 29.3% in 2014. The darker the green hue, the higher the level of tertiary education among the working age population. The ten municipalities with the highest levels of higher education, above 60%, are all to be found in the largest city regions. The highest rate, and in fact the only Nordic municipality to break the 70% barrier, is found in Kauniainen in the Helsinki area. The other top-ten municipalities are Bærum and Oslo in the Oslo region (Norway), Danderyd in the Stockholm region (Sweden), and, in the greater Copenhagen-Malmö region, Lomma, Lund (Sweden) and Frederiksberg, Gentofte, Lyngby-Taarbæk and Rudersdal (Denmark). Municipalities that are coloured yellow in the map have a tertiary education level around the EU average, 20-30%. The two brown hues reflect municipalities below the EU average, i.e. tertiary education levels among 25-64 year-olds below 20% and below 10%, respectively. Such low shares apply only to a handful of municipalities in Denmark, Finland, Norway and Sweden, respectively, but to all municipalities in Greenland while data for Iceland was only available at the municipal level.

In the Nordic Region today, more than 160 out of some 1200 municipalities have at least one higher education establishment within their borders. This reflects the policy of establishing higher education institutions in new regions, including those far from the most populous urban centres or traditional university towns,

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a process which has been ongoing in the Nordic countries since the 1960s (Hedin, 2009). Higher education establishments in this context (figure 7.7) are any kind of campuses or side-branches of a university, a university college, a technical training institute, a nursing school, or other establishments of higher education, both theoretical and more practically-oriented. These municipalities are represented by a red circle in the map, centred on the municipality in question. The size of the circles corresponds to the number of campuses or branches within a municipality. Despite the fact that higher education establishments in the Nordic Region have been established fairly evenly – in a geographical sense - across the Nordic Regions, and have now existed for several decades in less populous regions, it should be noted that the number of students is still far greater in institutions in the Nordic metropolitan areas (Hedin, 2009). Moreover, in the sparsely populated North, the largest urban settlements are also the prime centres for educational resources, e.g. Tromsø in northern Norway, and Rovaniemi in Finland (Hirshberg & Petrov, 2014).

As shown in figure 7.7, there is a strong correlation between a high tertiary education level within a municipality and the existence of at least one university or college campus, or branch, within that same municipality. In fact, while slightly more than half of the Nordic municipalities have a tertiary education level below 30% (i.e. below the EU average – yellow and brown hues in the map); only 30 of these municipalities host any kind of higher education establishment. The remainder, more than 130 municipalities which contain at least one higher education establishment, all have tertiary education levels above 30%.

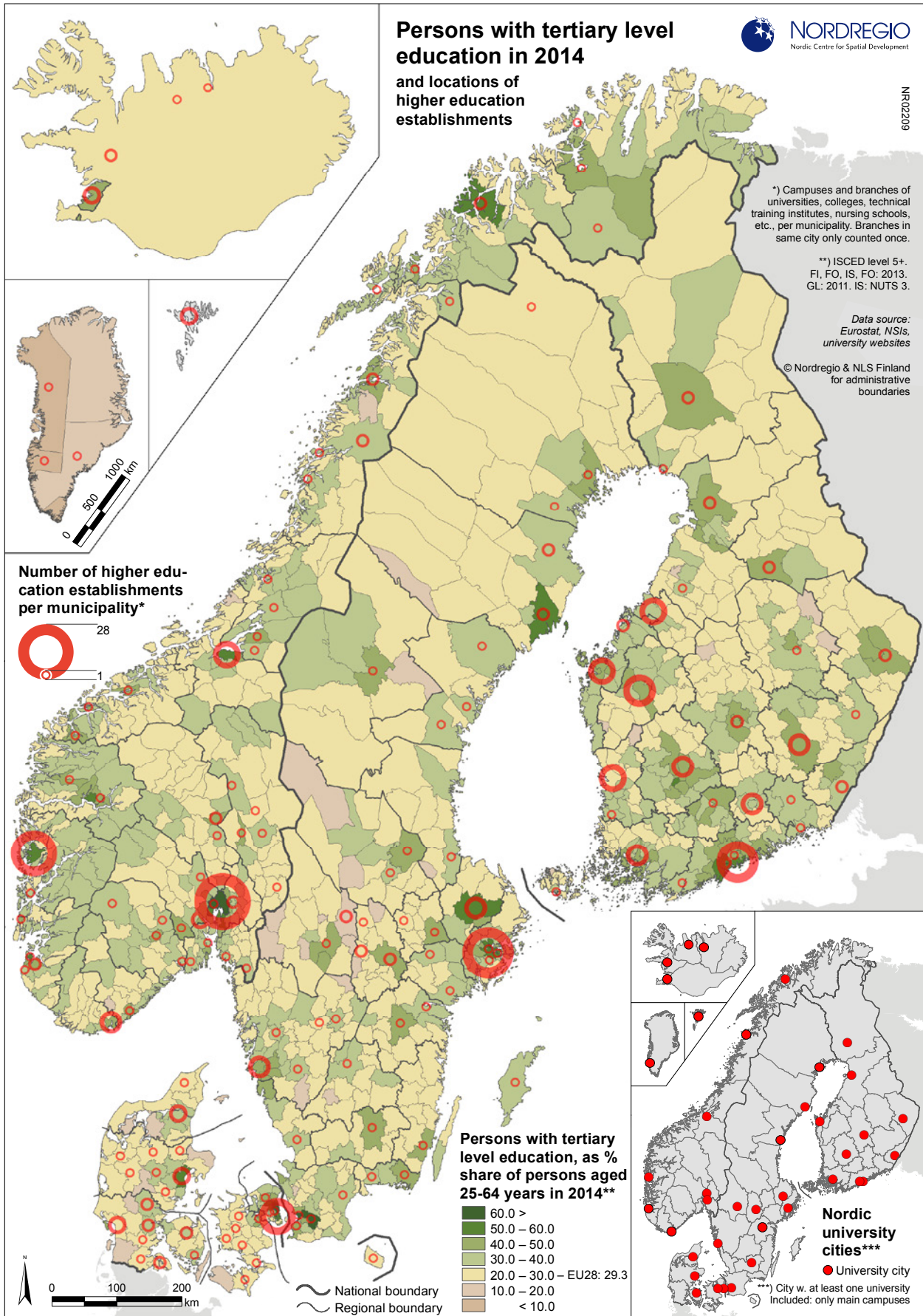


Figure 7.7: Persons with tertiary level education in 2014 and locations of higher education establishments

Broadband access enables lifelong learning through distance education

As we have seen, the location of higher educational institutions plays a role in the creation and maintenance of a local or regional resource base of highly skilled individuals. New technologies however can also now provide tools for groups living far from a college or university campus enabling them to enrol in higher education. Although so-called distance education, or distance learning, is not a new phenomenon it has grown in importance because of the new possibilities that the internet provides, while interest in distance education as a way of promoting regional development, particularly in rural and sparsely populated regions, is also becoming more prominent in the policy discourse.

Unlike campus-based education, within distance learning younger students are in a clear minority. The vast majority of distance education students are those who already have had a period of work or leave before their studies, often paired with family duties. Retirees are also a significant group here, while distance education also provides educational opportunities for students who are disabled or have health issues. Furthermore, distance education offers educational opportunities for students living in areas located far from any higher educational institutions, something which compared to many other parts of Europe, in particular suits the relatively sparsely populated Nordic Region (ICDE 2014b). Generally, the Nordic countries have opted for distance education as a method of reaching out to non-traditional learners across almost all universities, unlike some other countries in Europe, which concentrates distance learning to one or very few higher education establishments only (ICDE 2014a). National policies do however vary across the Nordic Region in respect of fees for distance learning, e.g. there is a fee for higher education distance courses in Finland, while such courses are generally freely available in Sweden.

Generally, statistics on distance education are rather scarce. For the parts of the Nordic Region where data is available, attendance rates have increased over the last decade. For example in Sweden, the number of students enrolling in distance learning higher education, or combined courses mixing distance learning with campus based courses, increased from 80 000 to 138 000 between 2004/2005 and 2010/2011 (although over the following three years, the number decreased again to 110 000 students in 2013/2014). In 2013/2014, 73 500 students in Sweden studied exclusively via distance learning. In 2013/2014 that meant that 27% of students studied at least partly via distance learning and 18% studied exclusively

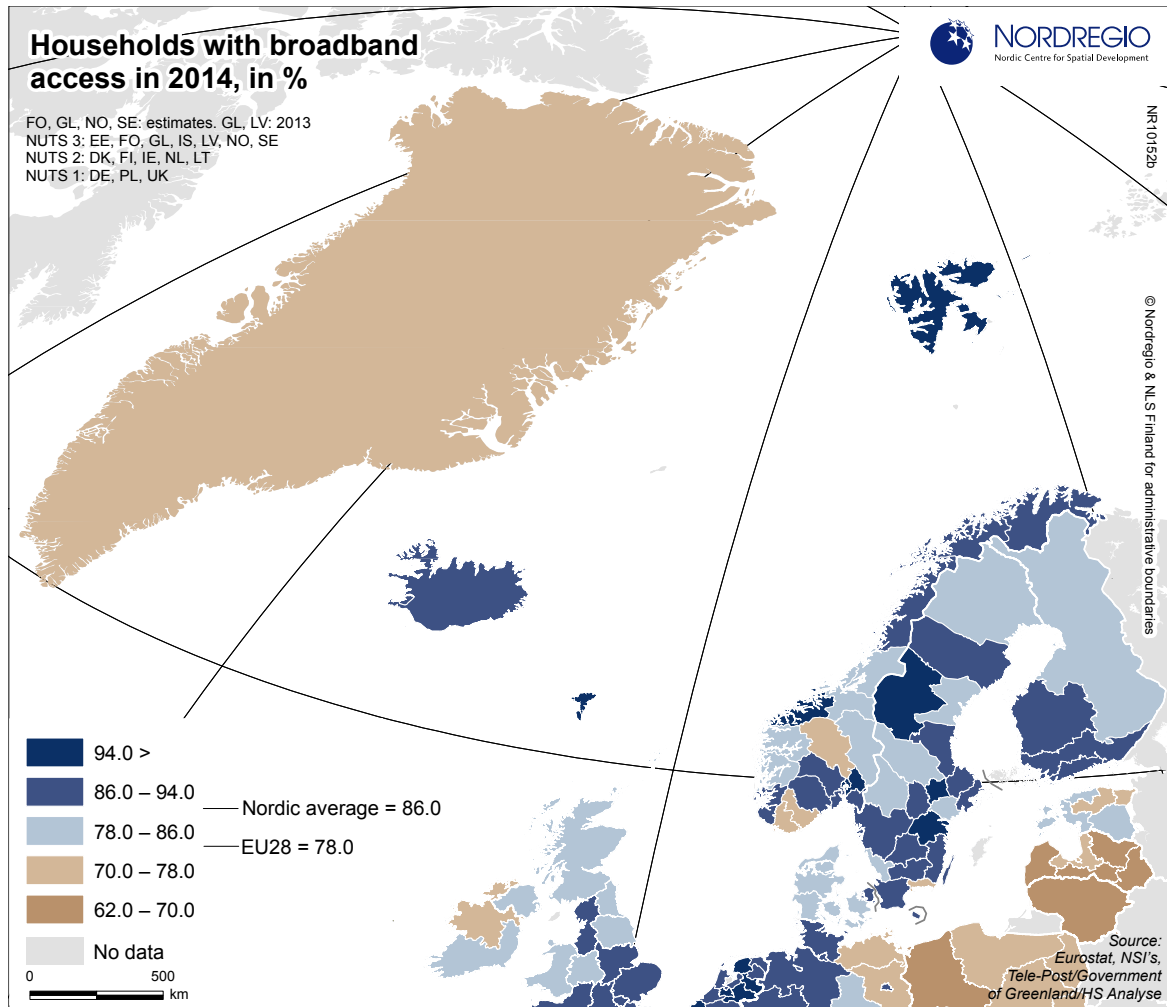
so (UKÄ 2015). Looking at data for accredited web-based schools in Norway, which include education equal both to upper secondary school and higher education levels, 16 400 people took part in web-based education in 2014, with a majority, some 62%, being women (SSB 2016a). Approximately 20% of students participating in such web-based education were enrolled in tertiary education (SSB 2016b). The majority of the students, almost 5000, were found in the age range 30-39 years. As a share of working age population (15 years or older), the highest shares of students enrolling in web-based education were found in the Finnmark, Buskerud, Hedmark, and Sogn og Fjordane fylken, regions with relatively few higher educational institutions and which also have tertiary education levels around the Nordic average, or lower (SSB 2016c).

A fundamentally important prerequisite for distance studies is the possibility to access the internet through fast and reliable connections. Figure 7.8 shows the distribution of broadband access across northern Europe at the most detailed regional level. It displays the share of households with at least one household member being aged 16–74 which has any type of broadband connection, be it fixed or mobile.

Information and communication technologies (ICT) have become increasingly important not only in people's daily lives, but also from a regional development perspective because of their ability to overcome geographical distances, particularly for sparsely populated regions. Broadband is one part of the suite of information technologies which are now of great importance for those peripheral regions where long distances impair access to services. Good broadband access can also ease the delivery of important public services such as health – and education (OECD 2011).

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Figure 7.8: Households with broadband access in 2014, in %. Note: Norway and Sweden: Limited sample sizes



The indicator presented in this map, “Households with broadband access”, stems from Eurostat’s annual regional survey on ICT use in households. It should however be noted that this indicator is defined in relation to the actual take-up of broadband connections by households, as opposed to the technological possibility of accessing broadband (Eurostat 2015b). Thus, with this indicator, the de facto usage of broadband is measured in terms of access, not to be confused with the calculated potential access to broadband (the latter method is often the way in which broadband access for national telecom agencies is measured).

It should however be noted here that Eurostat only supplies data for middle sized regions, i.e. at the NUTS 2 level, and thus that additional data was

collected from National Statistical Institutes (NSI’s) whenever possible.

In a European perspective, the broadband access rate within the Nordic Region is very high, although with some variations. A large majority of the Nordic Regions have broadband access rates above the EU28 average. While high rates are found in the capital regions, it is interesting to note that several often rather disparate regions, located outside the capital regions, actually have the highest broadband access rates. Among them are Svalbard (thanks to it being a test-bed for IT infrastructure and, since 2003, connected to the Norwegian mainland by optical fibre cables), the Faroe Islands, Jämtland, Västmanland and Östergötland in Sweden, and More og Romsdal in Norway.