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Lower growth in Nordic R&D activity

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Recent figures[1] from the Nordic producers of R&D statistics show that approximately NOK 475 billion was spent on research and experimental development (R&D) in the Nordic region in 2020. Adjusted for inflation, this equals an overall increase from 2019 of just over 3 per cent. Sweden had the strongest real growth in 2020, followed by Finland and Denmark. Norway and Iceland had almost zero growth in R&D expenditure. Sweden also had the highest R&D share of GDP at 3.53 per cent.

Stable distribution of R&D expenditure between the Nordic countries

Adjusted for inflation, the Nordic region had a total real growth in R&D expenditure of 3.2 per cent from 2019 to 2020. The corresponding growth in 2019 was close to 5 per cent. In 2020, Sweden had the strongest real growth (5.6 per cent) in R&D expenditure, followed by Finland (2.3 per cent) and Denmark (1.7 per cent), while there was almost zero growth in Norwegian and Icelandic R&D activity.

The development in R&D expenditure from 2010 to 2020 in the Nordic countries is shown in Figure 1. During this period, Norway had the strongest percentage growth, followed by Iceland (2011–2020), Sweden, Denmark and Finland. Finland's R&D expenditure decreased in real terms from 2010 to 2016, followed by a slow growth towards 2020.

The total R&D expenditure in the Nordic countries is distributed approximately as before between the five countries. Sweden accounted for just over 42 per cent of R&D expenditure in the Nordic region, while

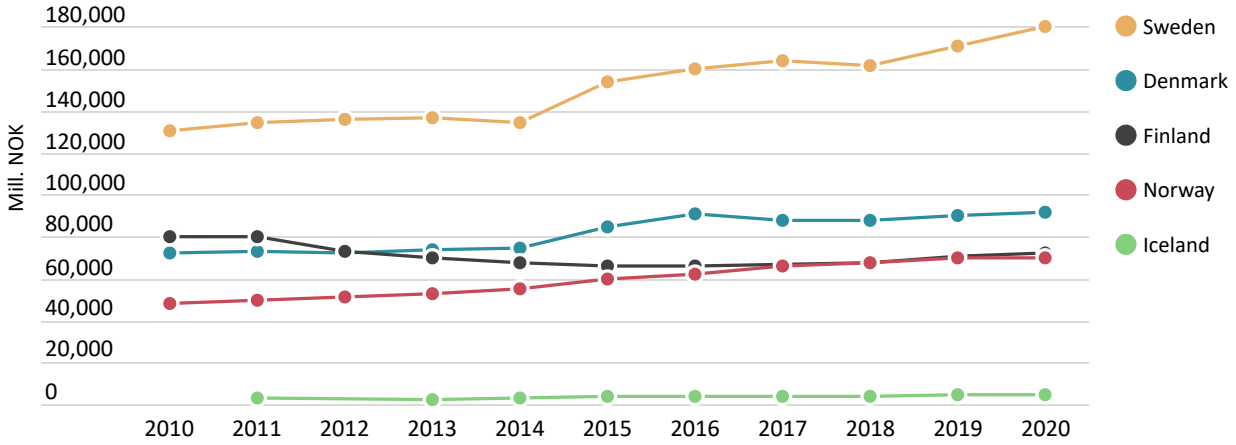

Figure 1 R&D expenditure in the Nordic countries. Fixed 2015 prices. 2010–2020*. Mill. NOK.
Source: OECD – MSTI and R&D statistics from the Nordic countries

Denmark accounted for almost 23 per cent. Norway's share decreased somewhat from 2019 to 2020 and amounted to just under 17 per cent. Finland's share increased to just over 17 per cent, while Iceland accounted for approximately 1 per cent of Nordic R&D expenditure. In Sweden, Finland and Norway, the business enterprise sector accounts for the strongest growth in 2020. In Denmark and Iceland, the business enterprise sector has had the weakest development.

Highest R&D expenditure in the business enterprise sector

The business enterprise sector[2] is by far the largest R&D performing sector in the Nordic region in terms of expenditure. In 2020, the sector accounted for 66 per cent of total R&D expenditure in the Nordic region. Sweden had the highest share of R&D expenditure in the business enterprise sector this year (72 per cent), while Norway had the lowest share (54 per cent). The higher education sector also makes up a significant part of total R&D expenditure in the Nordic region, at 28 per cent. Among the Nordic countries, Norway has the highest share of R&D expenditure in the higher education sector (34 per cent). The public sector accounts for a smaller share of total R&D expenditure in all the Nordic countries, especially in Denmark, Iceland and Sweden. The sector accounted for a slightly higher share in Finland (8 per cent) and Norway (12 per cent) in 2020. The PNP sector[3] is small in the Nordic countries.

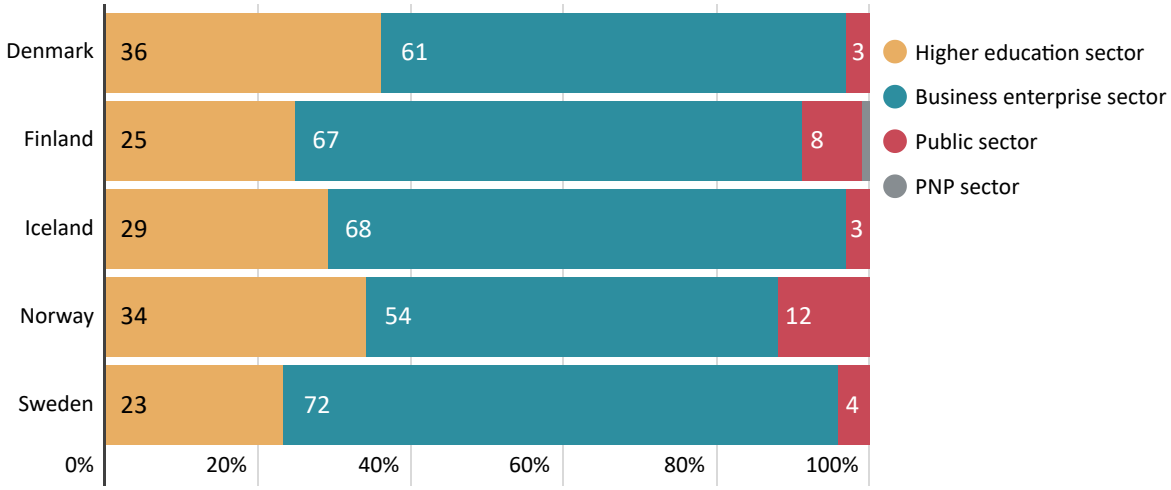

Figure 2 R&D expenditure by country and sector of performance. 2020*. Per cent.
Source: OECD – MSTI and R&D statistics from the Nordic countries

Sweden and Denmark spend the most on R&D per capita

The map below illustrates R&D expenditure per capita in the Nordic countries. Sweden was at the top among the Nordic countries in 2020, followed by Denmark. Then come Finland and Norway, which both spent about the same amount on R&D per capita in 2020. Iceland scored the lowest on this indicator. See values for each country in Figure 3.

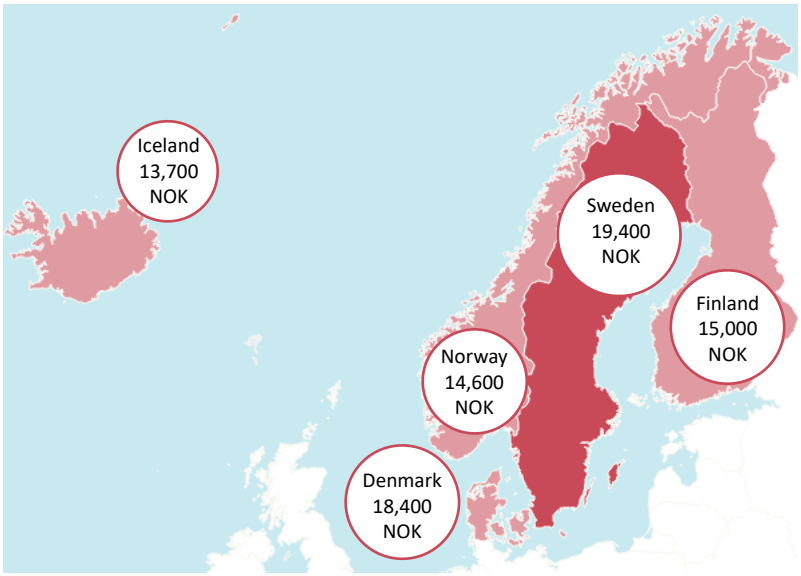

Figure 3 R&D expenditures per capita in the Nordic countries. 2020*. NOK.
Source: OECD – MSTI and R&D statistics from the Nordic countries

Growth in R&D expenditure as a share of GDP in Norway, Sweden and Finland

Sweden had the highest R&D expenditure as share of Gross domestic product (GDP) in 2020 at 3.53 per cent, followed by Finland with 2.94 per cent, Denmark with 2.91 per cent, Iceland with 2.47 per cent and Norway with 2.30 per cent. In 2020, the indicator was affected by a negative development in GDP for all the Nordic countries.

Since 2015, Sweden has had the highest R&D expenditure as share of GDP among the Nordic countries. In Finland, the R&D expenditure as share of GDP has risen slowly since 2016, when it was 2.7 per cent. In Denmark, the estimate for 2020 is over 3 per cent of GDP after being slightly below in 2019. Norway and Iceland have had the lowest score on this indicator in the Nordic region for several years, also below the average for the OECD countries (2019). Since 2016, Norway's R&D expenditure as share of GDP has been above 2 per cent, and for the second year in a row, Norwegian R&D expenditure as share of GDP increased in 2020.

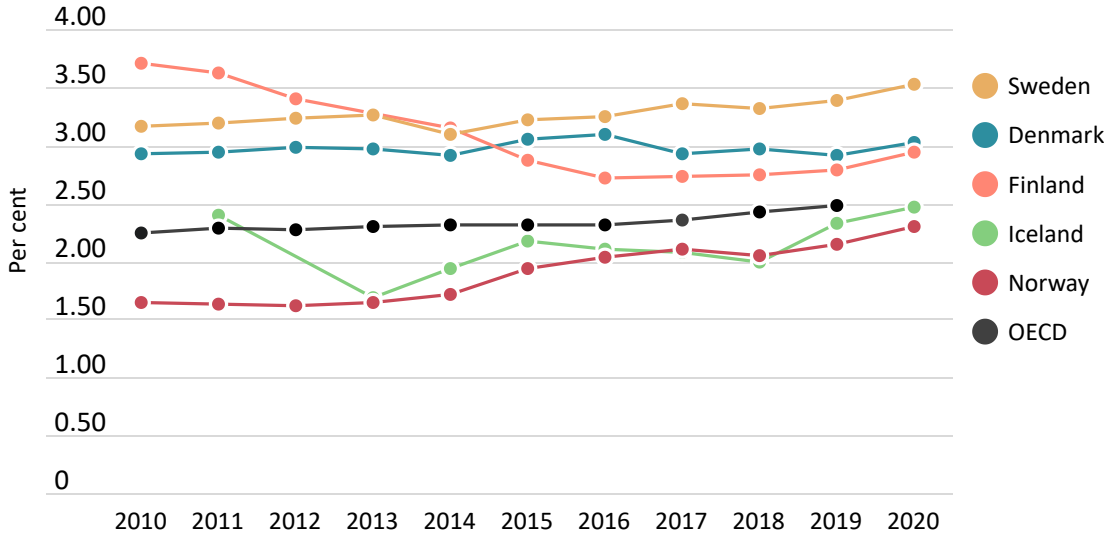

Figure 4 R&D expenditure as a share of GDP in the Nordic countries and the OECD average. 2010–2020*. Per cent.
Source: OECD – MSTI and R&D statistics from the Nordic countries

265,000 R&D personnel FTEs in the Nordic region in 2020

The number of total R&D personnel full-time-equivalents (FTEs) in the Nordic region increased by about 3 per cent from 2019 to 2020. The growth was higher than the year before and roughly on a par with the growth in 2018. Naturally, given their size and their level of R&D expenditure, Sweden had the highest number of R&D personnel FTEs among the Nordic countries (95,000 in 2020). See Figure 5. The growth in R&D personnel FTEs was around 4 per cent in Norway and Finland, while Sweden had a slightly higher growth rate, close to 5 per cent.

Denmark had the second highest number of total R&D personnel FTEs in 2020, and the number has been stable at around 60,000 in recent years. Finland had just over 53,500 R&D FTEs in 2020, while Norway had 50,500. Both countries have had a relatively steady increase over the past five years. In recent years, Iceland has had about 3,000 R&D FTEs on average.[4]

R&D activity can also be measured in FTEs performed by researchers. In total, about 206,000 FTE researchers were performed in the Nordic countries in 2020. Sweden, with its 80,000 FTE researchers, had a higher proportion of these than of total R&D FTEs in the Nordic region. Denmark and Norway had a slightly lower share of FTE researchers than of total R&D FTEs. This means that they have a higher proportion of technical/administrative staff than the other Nordic countries. For Finland and Iceland, their proportion of FTE researchers and total R&D FTEs in the Nordic countries was the same.

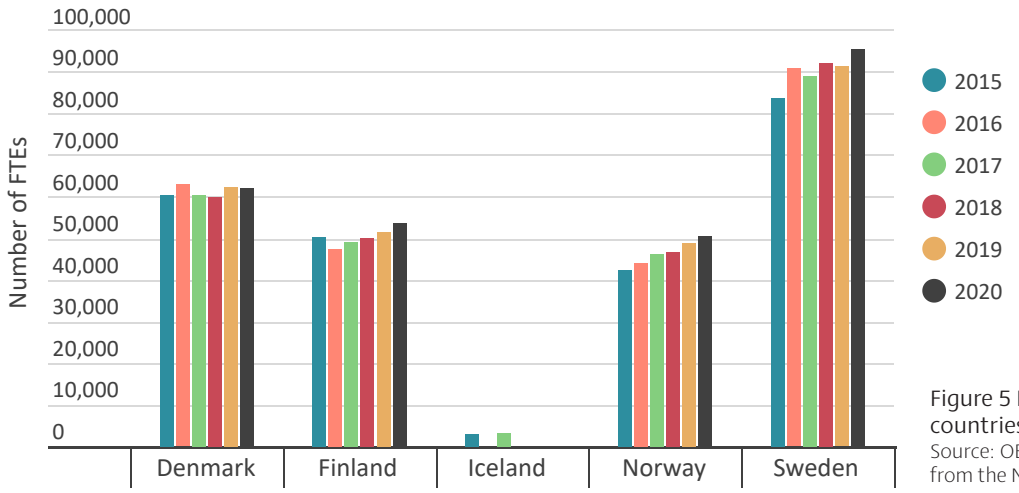

Figure 5 R&D FTEs in the Nordic countries. 2015–2020*. Number.
Source: OECD – MSTI and R&D statistics from the Nordic countries

Notes

1. The overview is based on recently published 2020 figures (preliminary figures for Norway). For Denmark, the 2020 figures are based on projections of R&D statistics from 2019, with regard to changes in GDP, government R&D budgets and the number of employees.
2. In international comparisons, the business-oriented part of the institute sector in Norway is included in the business enterprise sector.
3. The PNP sector (private-non-profit) is covered by the R&D surveys for the public sector in Denmark, Finland and Norway and the R&D survey for the business enterprise sector in Iceland. Sweden conducts a separate survey for the PNP sector.
4. Iceland does not measure R&D FTE's every year. The latest available figures for this variable are the 2017 figures.

*Preliminary 2020 figures for Norway. 2020 figures for Denmark based on predictions from 2019 to 2020.

In this newsletter, NIFU has compiled the most recent figures from the Nordic producers of R&D statistics, as well as the OECD's Main Science and Technology Indicators, September 2021. The Nordic statistics producers complete national R&D statistics at slightly different times. Here we present final figures for Sweden, Finland and Iceland, preliminary figures for Norway and figures based on predictions from 2019 to 2020 for Denmark.

All the Nordic countries prepare R&D statistics based on the OECD's guidelines for R&D statistics (the Frascati manual), but with national adaptations. The Nordic producers of R&D statistics work together on methodological issues to make the statistics as comparable as possible. Links to the different countries' presentation of R&D statistics can be found here:

- Statistics Denmark
- Statistics Sweden
- Statistics Finland
- Statistics Iceland
- Statistics Norway and NIFU

From 2022, the production of all Norwegian R&D statistics will be complied by Statistics Norway. NIFU's employees who have produced the statistics move to Statistics Norway.

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