

Measuring the impact of COVID-19 on Nordic companies' international sourcing decisions and value chains

Alina Grecu, Statistics Denmark, agc@dst.dk

Michael Elgaard Nielsen, Statistics Denmark, men@dst.dk

Merja Myllymäki, Statistics Finland, merja.myllymaki@stat.fi

Andreas Poldahl, Statistics Sweden, andreas.poldahl@scb.se

Thomas Moen, Statistics Norway, thomas.moen@ssb.no

Abstract

Evaluating the impact of COVID-19 on companies' activities is a topic of major interest to politicians, researchers and the public. However, COVID-19 has also impacted NSIs and how official statistics data is collected and presented. Using the most recent Global Value Chains and International Sourcing survey data collected in Denmark, Finland, Sweden and Norway, we investigate the impact of COVID-19 on Nordic companies' activities. The purpose of studying this topic in a Nordic collaboration is to present the data findings, but also to discuss challenges in collecting this type of data. The first part of the paper introduces the similarities and differences across the national surveys on international sourcing decisions. Next, we discuss the cross-country results of the survey by looking at whether companies report disruptions in international organization of activities. This includes challenges related to raw materials and intermediate products, logistical challenges, and order cancellations/declining sales. The paper also discusses experiences from the survey related to data collection challenges, data limitations and quality issues, as well as challenges involved in producing timely and dynamic structural business statistics. Finally, the paper will also point to opportunities for the future of the questionnaire and opportunities for future analysis (e.g., through micro-data linking).

Keywords: Cross-Nordic, COVID-19, global value chains, international sourcing, structural business statistics

1. Introduction

Decisions to relocate existing business activities from one country to another has been for many years a highly debated topic in international business research (Mudambi & Venzin, 2010). As it often involves jobs being offshored in onshore locations, the issue has attracted massive attention from politicians, policy-makers and consequently, also for National Statistical Institutes. Among others, a European initiative that supports data collection on this issue is the Eurostat International Sourcing survey¹.

The statistical institutes in the Nordic countries (Denmark, Norway, Finland and Sweden) are among the active participants in the survey on global value chains and international sourcing (hereafter, the GVC survey), which allows us to make cross-country comparisons (see section 2 for further details on the national surveys). Because the survey included also questions related to the challenges during the first year of the pandemic, the paper is a first and novel attempt to understand the impact of COVID-19 on Nordic companies' activities.

In terms of implications for research and practice, this paper has two main contributions. First, by understanding companies' reactions and challenges under turbulent times, policy-makers could make more informed decisions in the future. Second, the paper fosters a debate about the challenges and opportunities of conducting research on this topic. Apart from the fact that the Eurostat survey provides a great opportunity for cross-country comparisons, designing such a survey comes with limitations. More collaboration on this issue is the first step in improving the quality of the data being collected and designing a survey that incorporates relevant topics for businesses, researchers and policy-makers.

The rest of the paper is organized as follows. The first part of the paper provides a description of GVC survey implementation and results in Denmark, Finland, Norway, and Sweden. In the second part, we present an overall picture of the impacts of COVID-19 as well as a short overview of main restrictions and packages related the pandemic in the Nordics. This is followed by a presentation and discussion of the cross-country results of the GVC survey concerning international sourcing trends and the impacts from COVID-19. Lastly, we provide a discussion of future perspectives.

¹ For more details see [International sourcing and relocation of business functions - General overview](#)

2. About the survey

In this paper, we present data from the recent survey on global value chains and international sourcing, which was carried out in Denmark, Sweden, Finland, and Norway, as well as in a number of other EU member states. The survey covers, among other elements, questions on international sourcing in the period 2018-2020 and questions on the impacts of COVID-19 in 2020 on different parts of international business operations. The survey has been carried out with varying contents as an ad hoc survey by varying EU/EFTA countries for the periods 2001-2006, 2009-2011, 2014-2016, and 2018-2020. The Nordic countries have been quite active in the development of this statistical area over the past 15 years, and the surveys and subsequent analytical projects have produced some quite interesting results, including through cross-Nordic collaborations [(Alajääskö, 2009); (Statistics Denmark; Statistics Finland; Statistics Norway; Statistics Sweden; Statistics Netherlands, 2008); (Samuli, Nielsen, Nielsen, Alajääskö, & Roodhuijzen, 2013); (Alajääskö, Nielsen, Rikama, & Sisto, 2011)]. The most recent one is the final survey implementation on an ad hoc basis before the GVC survey becomes a regular triennial one under the EBS regulation.

The survey data used in this paper are from the recent survey, where the EU population frame was market economy enterprises with 50 or more persons employed, with a main activity in NACE Rev.2 sections B to N. In total, the surveys in Denmark, Sweden, Finland, and Norway covered 17,000 enterprises with 4.1 million persons employed.

Table 1. Survey populations

	Denmark	Finland	Norway	Sweden	Total
Number of enterprises	3,522	3,654	3,842	5,815	16,833
Number of persons employed	778,576	827,797	816,310	1,657,643	4,080,326

The survey in Denmark was carried out as a mandatory census survey and had a weighted response rate of 97.5 per cent. In Finland and Norway, the survey was carried out as mandatory and sample-based, with weighted response rates of 76.1 and 92.5 per cent, respectively. The Swedish survey was carried out as a voluntary and sample-based survey, with a weighted response rate of 17.8 per cent, implying that the general

quality assessment of the Swedish survey is not so good because the estimates are uncertain. The surveys were carried out in different ways, and this should of course be taken into account when interpreting the results in a cross-country analysis. In addition, the analysis below also reflects the type of survey data at hand: the GVC surveys are based a harmonized EU model questionnaire, where most of the questions are tick-mark type where enterprises are asked if the impact, if any, from COVID-19 on e.g. the cancellation of orders or decline in incoming orders from customers abroad was minor, moderate, or severe. Thus, the GVC survey data (and the following analysis) enables us to “measure” the impact of COVID-19 in a particular way, but it is not one that enables us to quantify the impact on total turnover or employment in a particular industry. There are plenty of potentials for future research, among others via MDL as suggested in section 4, but this is beyond the scope of this paper.

3. Results and discussion

3.1. COVID-19 in the Nordic countries

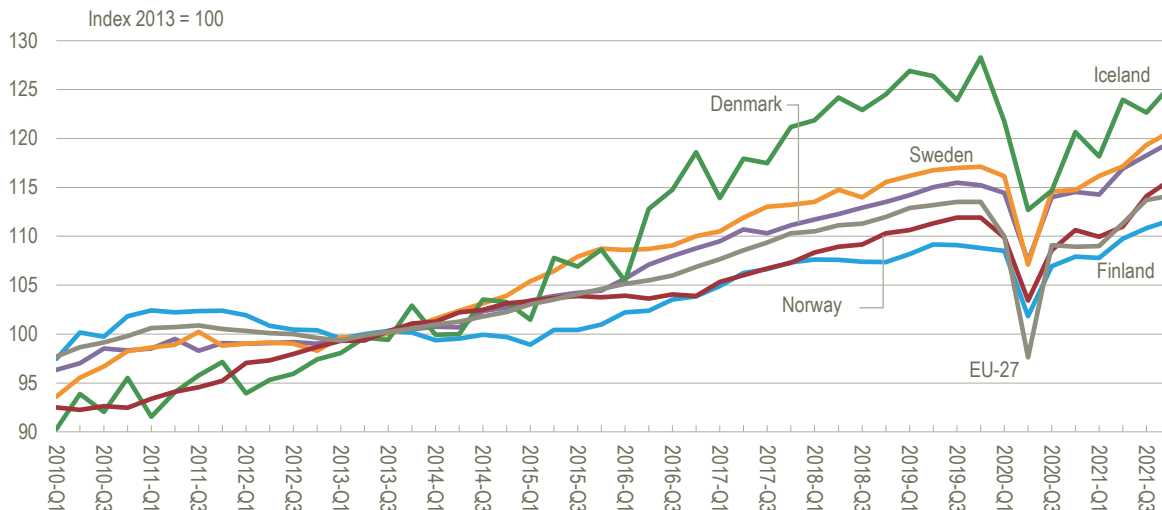
COVID-19 started as a health crisis, but forced governments around the world to react quickly with restrictions on other aspects of the society. This is also the case for the countries in the Nordic region (i.e. Denmark, Finland, Sweden, and Norway), but there are differences among these countries in terms of regulation or testing strategies. Sweden, where there were fewer restrictions than in the other Nordic countries, experienced the higher rates of mortality than the other countries in the Nordics. The Swedish response to the COVID-19 pandemic has in particular been the subject of political debates (Saunes et al., 2021). No matter the approach, all four countries faced disruptions in terms of imports-exports flows, tourism, and labor market dynamics, requiring wide-ranging compensation schemes (Statistics Denmark, Statistics Finland, Statistics Sweden, Statistics Norway, & Statistics Iceland, 2022).

In order to capture which countries are the most effective in effectively handling the pandemic, the Bloomberg’s Covid Resilience Ranking² draws on various indicators. The countries in the Nordics are in Top 20 most COVID-resilient places (Bloomberg,

² For more details on the methodology: <https://www.bloomberg.com/news/articles/2020-11-24/inside-bloomberg-s-covid-resilience-ranking>

2022), and their economies' have also started to recover in the third quarter of 2020 (see Figure 1 below). However, according to a recent Nordic publication there have been some similarities in terms of how much the business sector was affected (see Figure 2 below for a summary of the findings).

Figure 1. GDP development. Nordic countries and EU-27



Note: GDP for Mainland Norway. Chain linked volumes (2013=100), seasonally and calendar adjusted data.³ Source: (Statistics Denmark, Statistics Finland, Statistics Sweden, Statistics Norway, & Statistics Iceland, 2022)

Figure 2. Key findings based on a joint Nordic publication

- Big downturn of total import and export: Four of the five Nordic countries experienced a decline in total imports and exports (3-14 per cent from Q1 2018 to Q2 2020), but recovered during 2021. The decline in Iceland was more severe. Export -45 per cent and import -39 per cent.
- Tourism was the most impacted activity: In April 2020, the nights spent in tourist accommodation were 67-94 per cent lower than in April 2018. The decline was most severe in Iceland.
- A sharp decline in turnover in accommodation and food services: In the beginning of the pandemic, turnover in accommodation and food services activities fell around 50 per cent in all countries.
- Higher employment rates in Q3 2021: In all the five countries, employment rates increased in 2021, and except for Iceland, the employment rate was even higher in Q3 2021 than at the beginning of the pandemic in 2020.
- Wide-ranging compensation schemes in all five countries: Among others compensation for the self-employed, loans and compensation for fixed costs were introduced in all countries. For instance, Denmark and Sweden spent around 2.0 per cent of GDP on compensation schemes.

Source: Statistics Denmark, Statistics Finland, Statistics Sweden, Statistics Norway, & Statistics Iceland, 2022, p. 5

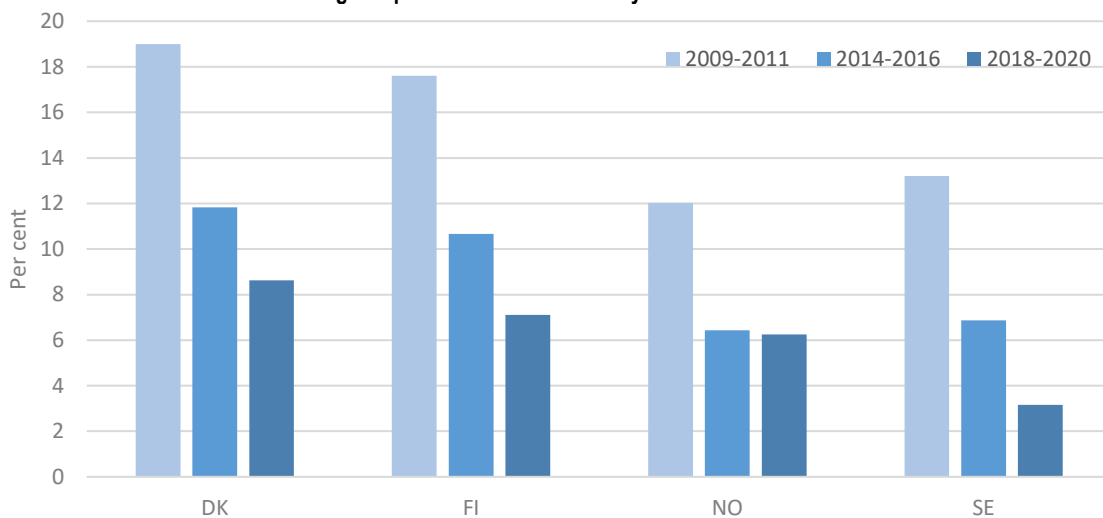
³ More information on seasonally and calendar adjusted data is available on [the Eurostat website](https://ec.europa.eu/eurostat/).

3.2. GVC survey results

International sourcing

If we look at the main findings of this survey over the years, we observe a clear decrease in the share of Nordic companies engaging in international outsourcing (Figure 3).

Figure 3. Share of international outsourcing companies across GVC surveys



Note: Results for 2009-2011 and 2014-2016 from Eurostat database on International sourcing statistics: <https://ec.europa.eu/eurostat/web/structural-business-statistics/data/database>. For Sweden and Norway, it should be noted that the population for the 2009-2011 survey was the same in terms of activity scope, but it had a cut-off for enterprises with 100+ instead of 50+ persons employed (as in the subsequent surveys).

If during the first survey period (2009-2011), one in four companies in Denmark offshored activities, the numbers are somewhat lower for the other countries in the Nordic region. Namely, in Finland around 20 per cent of the companies engaged in offshoring, and between 10-15 per cent of companies in Sweden and Norway were outsourcing internationally in that period. As mentioned, the trend is that fewer and fewer companies have been engaging in international outsourcing over time. Here we can mention that in the most recent survey period (2018-2020) the level is below 10 per cent of surveyed companies across all countries in the Nordics, with Sweden reporting the lowest share.

Due to their association with loss of jobs, companies' outsourcing decisions continue to be the topic for public debates in countries such as US (Bloomberg, 2020), but also

in the Nordic countries (Finans.dk, 2018). However, as seen in Figure 3, fewer and fewer companies engage in such decisions. Behind these figures there could be many explanations.

First, traditional outsourcing practices are increasingly counterbalanced by new technologies such as robotics and 3D printing, creating challenges but also opportunities for re-designing global value chains, and potentially making offshoring less attractive (Harvard Business Review, 2014). Second, only certain jobs are *offshorable* (Blinder, 2009), which means that each company has a limit for how much and which activities they can relocate from one country to another. Third, most of the international outsourcing decisions are made by rather big companies, having resources and already a global presence and partnerships. However, although small firms also matter in global value chains, little is known about the role of small companies on the local production networks (Canello, Buciuni, & Gereffi, 2022). Lastly, it is possible that the definition of international outsourcing (i.e., partial or total relocation of activities from home country to a foreign location) is less relevant for companies' global value chains decisions and that the research in this area needs to re-consider the used terms, concepts and definitions.

The effects of COVID-19 on international sourcing decisions

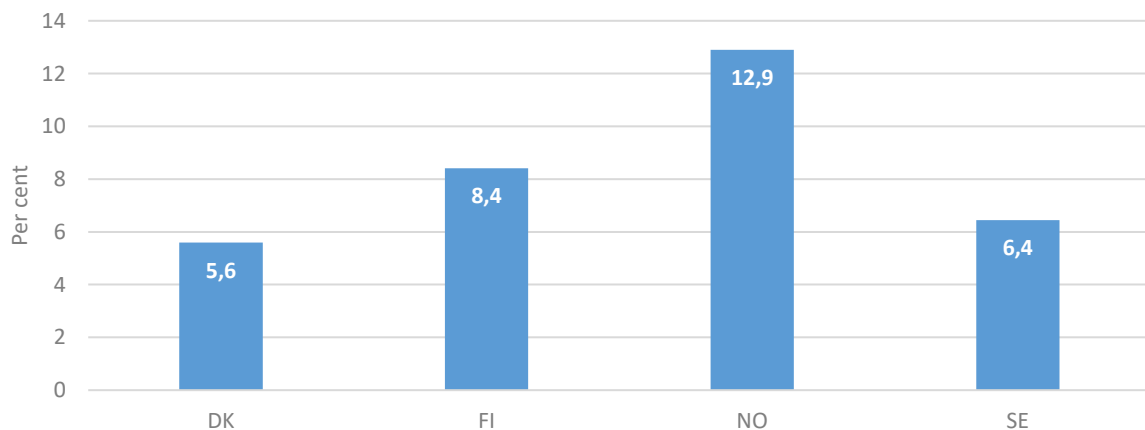
The GVC survey included also questions about the importance of COVID-19 for international sourcing decisions, i.e. if COVID-19 was a motivation factor or a barrier in relation to the company's decision process.

Across the Nordics, the share of enterprises where COVID-19 was a motivation factor for international sourcing is very low. Indeed, the numbers are so low that we have decided not to include a graph on them. One reason for this is probably that COVID-19 was present only at the end of the three-year period covered by the survey (2018-2020) – and international offshoring is something that typically requires some time for decision-making and implementation. In that sense, for some companies COVID-19 may become a reason for offshoring, only it did not take effect in the period covered by the survey. For example, what was found in Finland's results was that enterprises were better able to tell whether COVID-19 had an impact on outsourcing decisions but,

at least at the time of the study, were not able to assess whether the effects of COVID-19 on outsourcing decisions were short-term or long-term.

On the other hand, COVID-19 is perhaps also more likely to have impacted companies with increasing uncertainties and challenges when it comes to global value chains, i.e. more likely to have been an important barrier to offshoring. Indeed, COVID-19 was an important or very important barrier for international sourcing for some enterprises in the Nordic countries. The highest share (12.9 per cent) of companies that recognizes COVID-19 as being an important barrier for international outsourcing is in Norway, whereas in Finland, Sweden and Denmark the share was between 5-10 per cent. While the numbers may seem low, they must be understood within the context of the overall shares of internationally sourcing companies shown in figure 3 above: if international offshoring is not even considered by the vast majority of companies in the Nordics, the shares in figure 4 may actually suggest that the decline in shares in figure 2 may in part be due to COVID-19 barriers.

Figure 4. Importance of COVID-19 as a barrier for international sourcing



Note: Share of companies reporting COVID-19 as Moderately or Very important barrier when considering or carrying out international sourcing in the period 2018-2020.

The impact of COVID-19 on business operations aspects

During uncertain times, businesses are forced to rethink their global value chains in order to deal with challenges such as pandemics, natural disasters, financial crises, or political instability. Due to restrictions, COVID-19 had a direct effect on production and transportation capabilities, when for example, the production had to be stopped or disrupted because of presence of the virus at production sites. In addition, transportation challenges such as Suez Canal blockage or a micro-processors shortage have played a disrupting role in the past few years. However, some of the mentioned issues did not occur in 2020, and so arguably challenges with global production systems actually grew worse after the period covered by the Eurostat survey. For example, when talking to many survey respondents in Denmark, this is indeed also one of the frequent explanations from companies replying that they had not experienced difficulties in gaining access to raw materials or intermediate products from abroad or with transportation of products internationally.

„Yes, we have huge difficulties with this, but it did not start until 2021” -
Survey respondent

Figures 5 and 6 illustrate the importance of COVID-19 impacts on various aspects of business operations. Here the survey allows for comparisons⁴ across aspects such as order cancellations or sales decline abroad or domestically, difficulties in gaining access to raw materials and/or intermediate products abroad and domestically, and difficulties related to the transportation of goods from another country to the enterprise or its customers. The survey results also provide data on the impact of COVID-19 on changes in sales channels mix, e.g. in increased e-commerce or increased reliance on e-commerce.

In terms of sales, more than 25 per cent of all companies in the Nordics have experienced order cancellations and/or a decline in sales domestically, with companies in Finland having the highest share (35.9 per cent). This is not surprisingly the category, where the highest shares report a significant impact from COVID-19.

⁴ Norway did not include this question.

There is also a sizeable share of companies reporting an impact on order cancellations and/or declining sales to customers abroad. Here, nearly 18 per cent of companies in Denmark and Finland felt a significant impact in 2020, the share being slightly lower in Sweden at 14.4 per cent. Compared to domestic sales impact, of course, these are lower shares, but not all companies are exporters/having sales abroad.

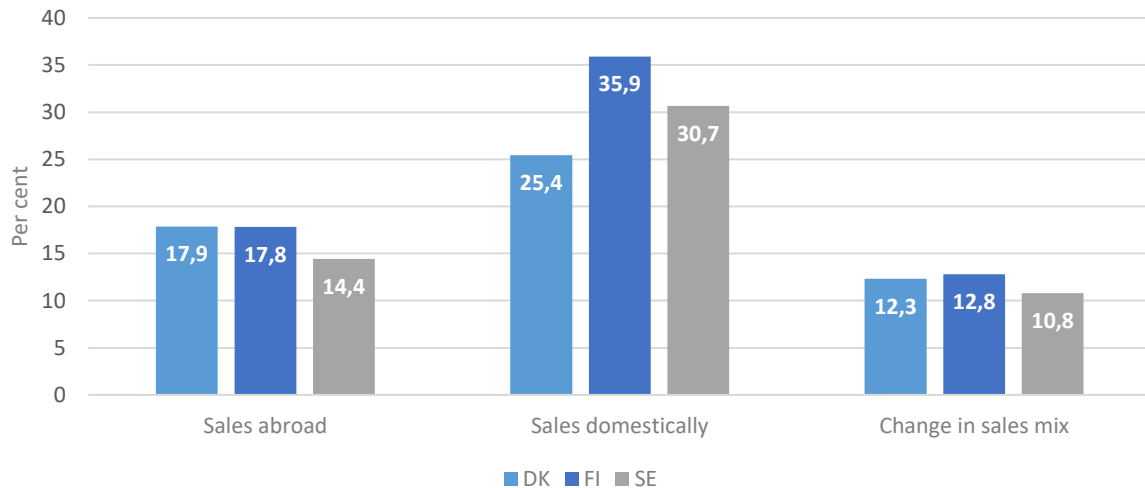
As the Nordic NSIs note in a joint publication, the tourism and accommodation and food services industries were hit hard, but there are also „[...] enterprises that have done well during the pandemic”, e.g. in information and communication services (Statistics Denmark, Statistics Finland, Statistics Sweden, Statistics Norway, & Statistics Iceland, 2022).

But even within the same industry, there could be substantial differences between enterprises, depending on a combination of enterprise strategy and the design of restrictions. In Denmark, lockdowns in retail trade among other things implied closing of malls and shopping centres, but not of smaller stores outside of such places, meaning that the localization strategy of the individual company would shape the impact from COVID-19. As one of the largest sporting goods retailers in Denmark notes in their Annual Report, “[...] the company was highly impacted by the strategy of being primarily placed in malls, which was significantly harder impacted by lock-down and restrictions, where as the street retail remained open”.

On the other hand, what was learnt in Denmark from talking to many companies (reporting to the survey) in connection to validation and re-contacting is that there have been different interpretations of the questions in the survey: while some enterprises indicated an impact from COVID-19 if they were impacted at all during 2020, others would take a net perspective of the year total – so if they were negatively impacted in the second quarter, and sales recovered in the third and fourth quarter to make up for the losses, they would respond as if there had been no impact from COVID-19.

The results furthermore show that COVID-19 significantly impacted the sales channels mix of just over 10 per cent of companies in the three Nordic countries covered here. This is especially relevant to companies in activities like retail and wholesale trade, where shutdowns via restrictions induced many companies to grow their online selling.

Figure 5. COVID-19 impact on sales and sales channels in 2020 (NACE sections B-N)



Note: Share of companies reporting Severe or Moderate impact from COVID-19 on different aspects of business in 2020. For Denmark, the reply categories are Very important and Important.

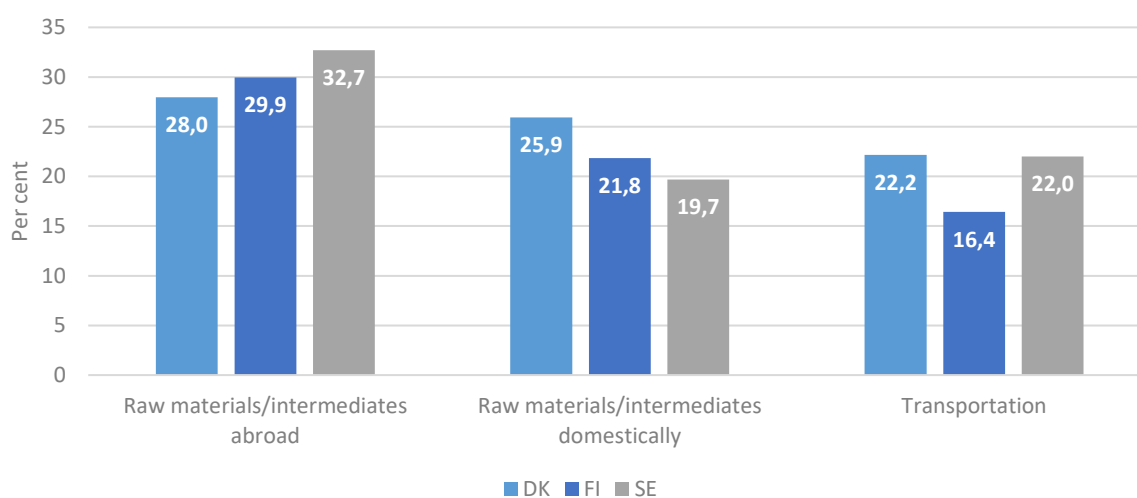
For other COVID-impacts, like difficulties related to raw materials and intermediate products, it makes more sense to look at companies within Industry and Construction. Here, we can see that there has been a huge effect on companies' ability to access raw materials and/or intermediate products abroad and domestically, but also on transportation aspects. And it is especially access to raw materials and/or intermediate products from abroad that posed difficulties to many companies. There are, however, some differences across the countries in the Nordics. Companies in Sweden seem to have been more affected by COVID-19 in terms of access to raw materials and/or intermediate products from abroad than companies in Denmark and Finland. Conversely, relatively fewer companies in Sweden had difficulties in gaining access to raw materials and/or intermediate products domestically, than was the case in Denmark and Finland. A potential explanation could be that compared to Denmark or Finland, Sweden did not have as many restrictions domestically, allowing companies and employees to continue with their daily activities and not experience the same amount of disruptions as in countries with full(er) lockdown periods.

Ali-Yrkkö et al. (2021) states in the "Corona-shock Hits the Economy – To What Extent Finland Is Dependent on Global Value Chains?" report that companies in Finland have not made any sudden changes to supply chains, but, for example, alternative suppliers are sought to make supply chains more secure in the event of disruptions. According

to the report, there were indications that the geographical location of value chains is changing to some extent.

As for difficulties related to the transportation of goods from abroad to the enterprise or its customers, nearly one in every four companies in Denmark and Sweden report an important impact from COVID-19. Interestingly, the share of companies in Finland reporting the same was much lower, at one in every six companies. Although there was a shortage of containers internationally and more than 80 per cent of the goods flows in Finnish foreign trade in tonnes are transported by sea.

Figure 6. Impact of COVID-19 on Industry and Construction (B-F)



Note: Share of companies reporting Severe or Moderate impact from COVID-19 on different aspects of business in 2020. For Denmark, the reply categories are Very important and Important.

4. Future perspectives

This paper has presented some results on international sourcing and the impacts from COVID-19 on companies in the Nordic countries. Certainly, there is plenty of potential for further analysis in the GVC survey data: international sourcing is less prevalent in the Nordic countries, but does this also mean that the job impacts from international sourcing are becoming insignificant? Are companies refraining from international sourcing due to new or growing barriers? If companies are not engaging in offshoring, what are the key globalization trends then? And, what can we learn from microdata linking the GVC survey data with other statistical registers, something which has been done in EU and Nordic collaborations following the previous surveys?

On a broader note, this paper illustrates the potential of the GVC survey as a vehicle for capturing some topical elements – such as COVID-19 impacts in this case – under the overall theme of global value chains and international sourcing. The GVC survey is set to become a regular, triennial survey under the EBS regulation, where it is defined as a dynamic statistics, meaning that the contents are to be adjusted to reflect changing globalization trends and user information needs in this respect.

This, however, will also be challenging in different respects. In the past, the GVC survey has been carried out as ad hoc projects with EU grant support, but in the future it will have to go through the EU machinery to put implementation regulation in place. This requires contents etc. to be specified a long time in advance – e.g. the 2024 survey is up for ESSC voting in May of 2022. This drastically reduces the responsiveness in terms of time, and it can be very difficult to have a meaningful dialogue with key national stakeholders about their “current” information needs, if data cannot be made available until three years after the talks.

Another challenge is perhaps that international sourcing, which has been central to the development of the GVC survey/statistics through the past fifteen years, is becoming less important to Nordic companies – but it continues to make up a substantial part of the harmonized EU questionnaire. “If companies are not offshoring, then what are they doing?” - our users will be asking us – and they will want to get statistics on that instead!

There are several ways to tackle these challenges. One avenue is to have a continuous engagement with business and academia about changing business practices and insights related to global value chains. Another is to have an open dialogue with key national users of our data on business and globalization, in order to stay tuned in on their short-term as well as strategic information needs in this area. Finally, as the GVC survey is moving from ad hoc to regular, this may be a good time to consider Nordic networking: we are likely to have similar interests in some regards when it comes to shaping the direction of developments in the EU GVC Task Force and Working Group. We might also enhance the value of our “product” if we could harmonize some national contents across the Nordics, not to mention the possibility of offering cross-Nordic analyses via MDL or similar.

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