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CONSIDERATIONS ON REGIONALLY VARIED IMPACTS OF COVID-19 IN NPA REGIONS

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1. Regionally varied impacts of COVID-19 in NPA regions

The pandemic caused by COVID-19 has had a considerable impact on health and mortality in the NPA area. By November 2020, almost two and half a million people have been confirmed to suffer the disease in the NPA countries and almost 50,000 have died from it. Besides the irreparable consequences on the health conditions of the population, the pandemic has also impacted the economy of the NPA regions.

With the aim to highlight the socio-economic impacts of Covid-19 in the NPA regions, this section will summarize the evolution of gross value added (GVA) before and after the outbreak of the pandemic. We base the summary on the OECD database Quarterly National Accounts that shows the quarterly variations on sectoral growth rates in the NPA countries with quarterly frequency. Nonetheless, the lack of regionalized data with quarterly frequency prevents a direct monitoring of the shocks caused by Covid-19 on business activities and aggregated economic outputs at sub-national levels. Hence, to capture the shock produced by the pandemic on regional economies, the data need to be estimated. This has been done through a downscaling procedure on national figures. A transparent and informative approach to produce regional estimates is to simply apply sector-specific change rates available from national accounts on the last observed values at the regional level using harmonized units and comparable industrial classifications at both territorial levels. Therefore, the data will show the impacts of Covid-19 at the national level transposed at the regional level; this is to say, regions will show the same rates of growth or decline in each sector. This procedure will highlight to what extent the economic structure has made regions resistant to Covid-19. Finally, as we are using GVA at the regional level, cross-country comparisons will not be highly reliable.

In terms of GVA, most of the regions, including non-NPA regions, have seen a recovery which in some cases has reached pre-Covid-19 levels. Except for Canadian regions, for which there is not available data beyond the 2020Q2, the regions in the rest of NPA countries have, to a greater or lesser extent, seen their GVA grow again in 2020Q3.

The impact of Covid-19 in terms of GVA has had a similar yet varied pattern across the countries within the Northern Periphery and Arctic area. The services sector was the most affected in almost all countries in 2020Q2 due to heavy losses which were, in most cases, totally or partially recovered in 2020Q3. Trade & tourism and professional services were also hit hard in many countries, but these sectors' losses in the long term are yet to be seen. Further travel restrictions and in some places lockdowns due to outbreaks in the latter part of 2020 and the start of 2021 make up for a substantial part of the explanation why. In general, the national data does not provide us with the necessary variation that would be beneficial to have a statistical overview to understand variations on a less aggregated level. Spatial variations and differences in between regions make up another interesting layer of analysis of economic impacts (see Appendix I).

For example, in Canada, the sectors most affected by Covid-19 were service activities, trade & tourism, and manufacturing. These sectors in 2020Q2 lost about 38%, 21%, and 19% respectively of their GVA.

On the other side of the spectrum, the primary sector comprising agriculture, forestry and fishing grew by about 2% in 2020Q2. In Ireland, the service sector was also the most affected as

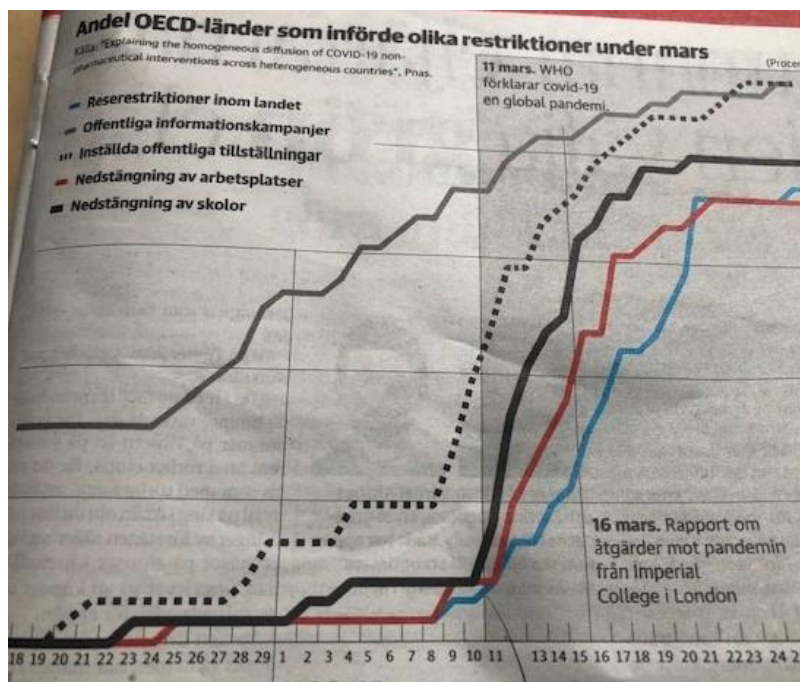
it lost a staggering 75% of its GVA in 2020Q3. Nonetheless, in 2020Q3 the service sector only lost about 1%, thus making a recovery. The construction and trade & tourism sectors were the second and third most affected as they plummeted around 40% in 2020Q2, a decline which was strongly reversed in 2020Q3 when they grew around 50%. Professional activities also lost about 25% of their GVA but their recovery was not as strong: they grew 20% in 2020Q3.

A similar pattern was found in Great Britain, where the service sectors, together with trade and tourism, and construction, were the most severely hit by the pandemic. The service sector sunk around 40% in 2020Q2 only to grow the same percentage in 2020Q3. The trade & tourism and construction sectors did not drop as heavily, around 30%, but did, however, grow at the same rate as the services sector.

In Norway also the services sector was the most badly hit losing almost 40% of its GVA in 2020Q2. It recovered fast by growing 40% in 2020Q3. In the Norwegian case, however, the second most affected sector was the professional sector with a decrease of only 10% in 2020Q2. The trade and tourism sector did not lose as much as in other countries as it only lost 10% in 2020Q2 which was recovered in 2020Q3 by growth also of 10%.

The Swedish case brings a different scenario where manufacturing, industry, and trade & tourism, were the most damaged sectors. The manufacturing sector lead the losses with 20% in 2020Q2, followed by industry with 17%, and trade & tourism with 15%. While the first two sectors regained their losses in 2020Q3 by growing at 25% and 20% respectively, the trade & tourism sector only grew at 7% in 2020Q3.

Finally, the picture in Finland was also slightly different as the services sector plummeted not only in 2020Q1 but also in 2020Q2. The decline was around 10% in 2020Q1 and 7% in 2020Q2, a loss which was partially recovered in 2020Q3 by a growth rate of about 12%. Trade & tourism fell in 2020Q2 by 11% and grew in 2020Q3 by 8%, thus making up some of the losses. Further regional statistical interpretation can be found in Appendix I.



Picture 1. Share of OECD countries' different restrictions implemented during March 2020

As March 2020 evolved more and more authorities among OECD countries were implementing measures (see photo to left from a Swedish newspaper April 2020 explaining the homogenous diffusion of Covid-19 non-pharmaceutical interventions across heterogenous OECD countries). In the beginning in most OECD countries it all started with public information awareness

campaigns. Then, as March evolved and it became more evident that this was a full blown pandemic, public events got cancelled, then schools were closed (with the exception of Iceland and Sweden and regional modifications). By late March the bulk of work-places were closed down and labour withdrew to work from home (those who could). And lastly travel restrictions were imposed, both across borders and even between municipal jurisdictions within countries, causing trouble for commuters who could not solve work tasks from home. Grossly around 40% of the working population is estimated to have work tasks that cannot be solved at a distance, with regional variations depending on sectoral composition.

During the current pandemic, the government's epidemic measures in the Northern Periphery and Arctic countries have, among other things, aimed to prevent the number of infections from increasing uncontrollably, with the result that the health care system, and to some extent other key systems in society, could collapse (see Figure 1). Epidemiological measures of this kind have a negative economic impact. Some direct short-term effects can be assessed. In the long run, the situation becomes more complicated because an unrestrained epidemic has a negative economic impact, which, on the other hand, reduces effective disease control. To assess the net economic impact of disease control over time, it is therefore necessary to assess what the progress of the epidemic would have been without them and then economic development, but neither is simple. This must be kept in mind when interpreting the results of studies on the economic impact of disease control.

FLATTENING THE EPIDEMIC AND ECONOMIC CURVE

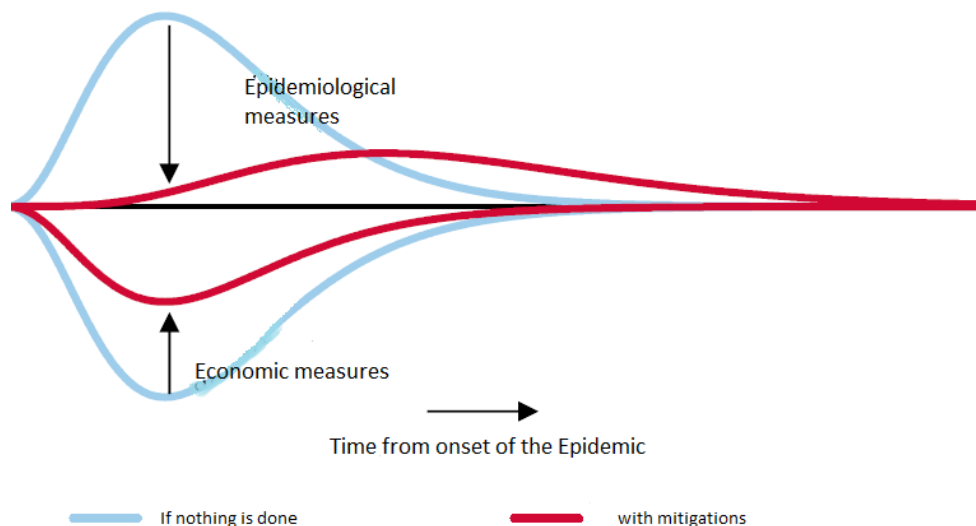


Figure 1. Governments measures aim at flattening both the epidemic and the economic impact curve
(Source: adapted from Icelandic government 2021)

Effective disease control includes short-term sacrifices for long-term benefits. For this reason, it is necessary, as far as possible, to place individual measures within analysis of whether the long-term benefits for society outweigh the short-term sacrifices. In this context, all societal benefits

and costs must also be assessed, as economic activities and the health system are part of and not the whole of society. The benefits and costs that the government faces when assessing disease control measures include sacrifices and benefits that are largely intangible and have no market value. For example, decisions can be made to sacrifice people's daily relationships for the benefit of life and health, but it is difficult to assess the value of both social connections and health (Iceland Government, 2021).

Impacts due to Covid-19 are extensive and affect all the population directly or indirectly. The short-term effects are already felt in less consumption and income shortage in the tourism industry. Fear of the virus itself and government epidemic measures have direct impacts on household consumption behaviour (ibid).

Even if the economy is already showing signs of recovery, some evidence indicates that there are signs of increased gaps between groups, a trend that has been persistent since the eighties but is accelerated when a crisis hits. See the analysis in a newly published book on the Swedish situation (Suhonen, Therborn & Weithz. 2021); this is also underpinned in the most recent STATE of the NORDIC REGION 2020 (Grunfelder et al, 2020). This is a part of a general trend in OECD countries where there has been a persistent increase in inequality in the period 2000-2019, except in Norway. So one should keep in mind with aggregated analysis of economic performance that something can be felt at the grassroots as heavy and hard to handle while it looks OK and not serious from the aggregate perspective from afar.



INKOMSTSKLYFTAN

Studie: Sverige har största inkomstklyftorna i Norden

● Mellan 2000 och 2017 gick Sverige från de näst lägsta inkomstskillnaderna i Norden till de största. Det visar Nordiska rådets rapport "State of the Nordic Region 2020" som presenteras på tisdagen, enligt DN.

– Det har varit en kraftig tillväxt och det har en tendens att öka inkomstskillnaderna, säger Kjell Nilsson, direktör för Nordiska rådets forskningscenter Nordregio, till tidningen.

Men samtidigt noterar han att Norge som också sett en kraftig tillväxt har ett betydligt mindre gap än Sverige.

Picture 2. Photo from Swedish News on increased income gaps in Sweden and the Nordic countries, 7 Feb 2020

A crisis situation tends to amplify social inequalities and the effects are felt asymmetrically across societal levels and regions, generations, societal groups and gender. In some cases, effects are examples of accumulations of dispossessions (Harvey, 2006). Implicit in this analysis is the understanding that regions are locked into systems of capitalist relations of production and through these relations uneven development results (Bond & Featherstone, 2009). While the economies in the short-term seem to be recovering impressively soon (with the exception of tourism), there are signs of increased income gaps where unemployed groups lag behind while wealth gets consolidated amongst the established affluent in society. Simply put, the bottom gets out, the middle is pressed out and shrinks, while the top gains

(Suhonen, Therborn & Weithz. 2021). This suggests social scientists analysing the effects of shocks in the economy, regardless of the type of shock, need to take into consideration socio-economic effects and welfare issues in understanding regional variations. The uneven geographical development of everyday life is the product of processes whereby society transforms and develops itself (Harvey, 2006). While we support relationality and regional equality, we do not expect the economic impacts emerging and the road ahead to recovery to be the same across the regions that are the focus of this study.

2. Economic geographic perspectives to remoteness and spatial inequalities – some considerations

Location matters. Where one is born and raised (still) determines to a considerable extent one's opportunities and constraints, and it also impacts on one's personality. After a long period of in which most of the disadvantaged regions were catching up, inequalities among regions have been on the increase (SOTNR 2020; Copus et al, 2020; Löfving, Norlén & Heleniak, 2019).

One important aspect of the ESPON ReLocal project was to discuss why there was a need to go beyond strict economic indicators to understand dynamics of spatial injustice. Among the components mentioned were:

- a) because a lot of details are overlooked
- b) if policies are based on data from national and NUTS 2 levels, then it is not sufficiently aligned with the reality of less-favoured regions
- c) the idea is to recognise “territorial diversity”, not handicaps, but potentials, and
- d) the aim is to reduce disparities and promote growth.

But how should they grow? How do you know which incentives should be used to promote growth (if you have only the label “lagging”, “underperforming”)? It is very much a policy question (Löfving, Norlén, & Heleniak, 2019).

The academic interest in regional and spatial inequalities stems from the ongoing debate on growth of an economy. The neoclassical school of thought claims that “spatial inequalities are bound to decrease” (Petrakos et al, 2016, p.700) because of catch-up growth of less advantageous economies resulting from a higher marginal rate of return on invested capital in faster-growing economies.

Other critical schools of thoughts, including endogenous growth theories, “understand growth as a cumulative process that tends to increase inequalities” (Petrakos et al 2015). In this framework, growth is perceived as a cumulative process that strongly depends on “initial conditions”, and requires a minimum scale (or quality) of resources and activities in order to take place” (ibid). They place innovation and knowledge accumulation “central to explaining economic performance and competitiveness”. This implies that inequality patterns can be explained by differences in the knowledge bases and not by differences in factor proportions (as standard neoclassical theory would assume) (Lundvall 1998).

To achieve “a complete understanding of the determinants of long-run economic success” (Romer 1990) a broader set of “economic attributes” should be considered, including institutional arrangements, levels of education, investment in research and development and the like. In his work, Lucas (1988) focuses on the role of human capital as “the engine of growth” and divergence in growth rates between leading and lagging economies. This implies that regional disparities will not be reduced by a mere equalisation of capital-output ratios, but market incentives and government policies also need to play a role in reducing disparities and bring about “discovery, diffusion, and technological advance” (Romer 1990).

How best to overcome inequalities between regions is also subject to fierce debate. The New Economic Geography school, favoured among others by the World Bank, emphasises the “superior efficiency of large metropolitan areas and the need to support them for the sake of

aggregate wellbeing ...with favour openly expressed for the efficiency goal and ‘space-blind’ policies” (Camagni and Capello, 2015, p26). The opposite strategy, place-based regional policy, supported by such organisations as OECD and the Barca Report (2009), is based on “place specificities and territorial assets, designed in a transparent and inclusive way by local actors” (Camagni and Capello, 2015, p.26-27) with the support from multi-level governance.

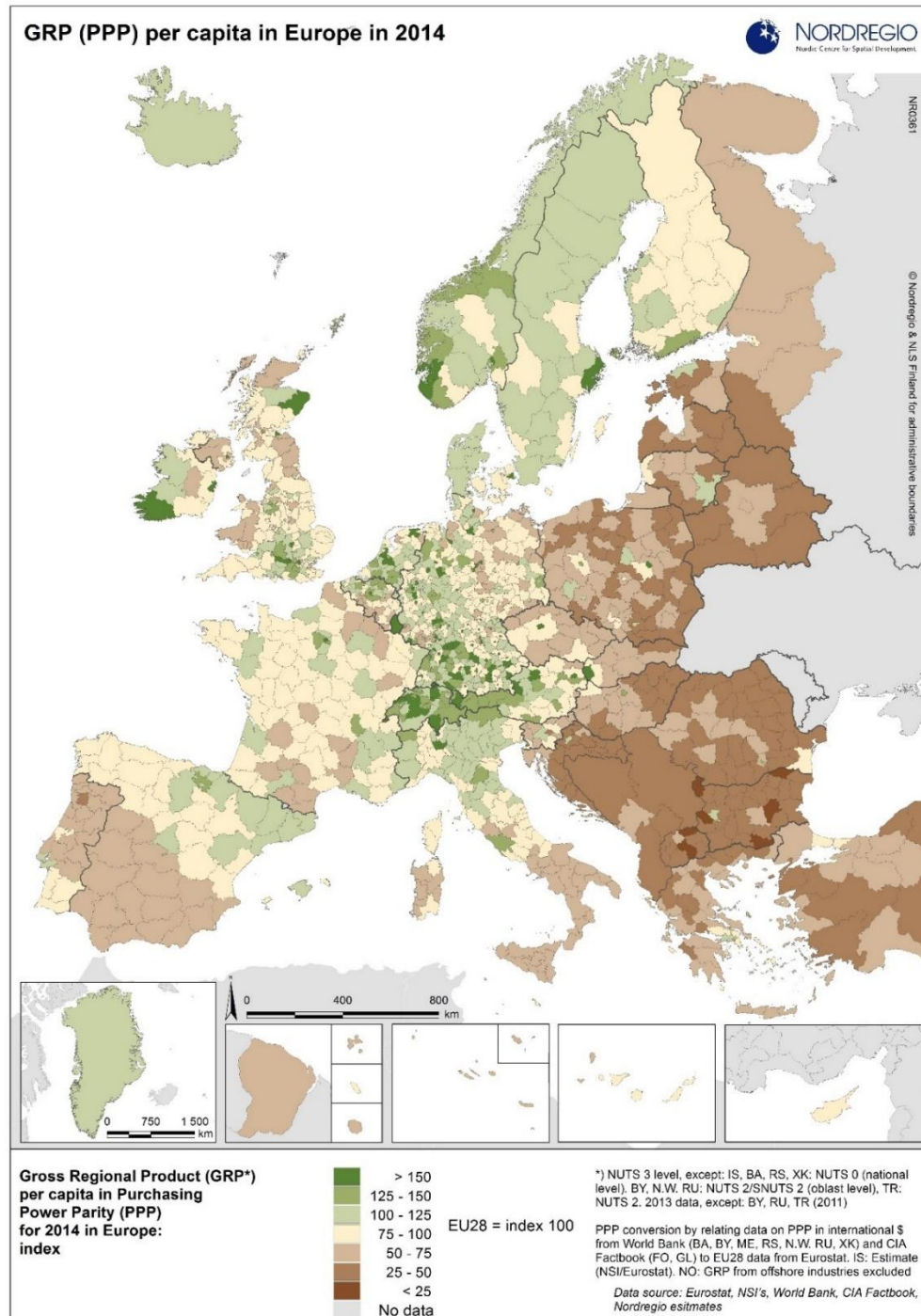


Figure 2. Gross Regional Product (using Purchasing Power Parity) per capita in Europe in 2014

While this focus rightly suggests going beyond GDP to measure regional disparities, it is also important to examine GDP per capita at the national and regional levels before delving into other disparity measures. While imperfect, GDP per capita remains a durable and strong measure which correlates with many other standards of living measures at the regional level. GDP per capita is one of the few measures collected or estimated at NUTS3 level by Eurostat.

Figure 2 shows a map of Gross Regional Product per capita at this level. While there are disparities within countries, they are greater among countries. Within countries, it seems as if the regional disparities for GRP per capita have not changed significantly since 2000. The figure shows the disparities at the NUTS2 and NUTS3 levels. It also indicates that the Northern Periphery part of Europe has relatively high GRP per capita with the exception of a few rural areas (North Finland and parts of Scotland and Ireland are some examples).

As Figure 3 suggests, even if conditions have improved during the second decade of the century, regional inequalities are still significant in Finland, with the highest at-risk-of-poverty rate observed in Pohjois-Karjala (17.8%), more than twice that of the lowest value in Åland (8.2%). The possible explanation behind the high at-risk-of-poverty rate in Pohjois-Karjala could be the aging problem, with a high old-age dependency ratio resulting in more recipients (the elderly) of social assistance. This is food for concern in the situation created by Covid-19 restrictions and border closures, preventing commuters and a mobile labour force travelling to their jobs in 2020 and 2021.

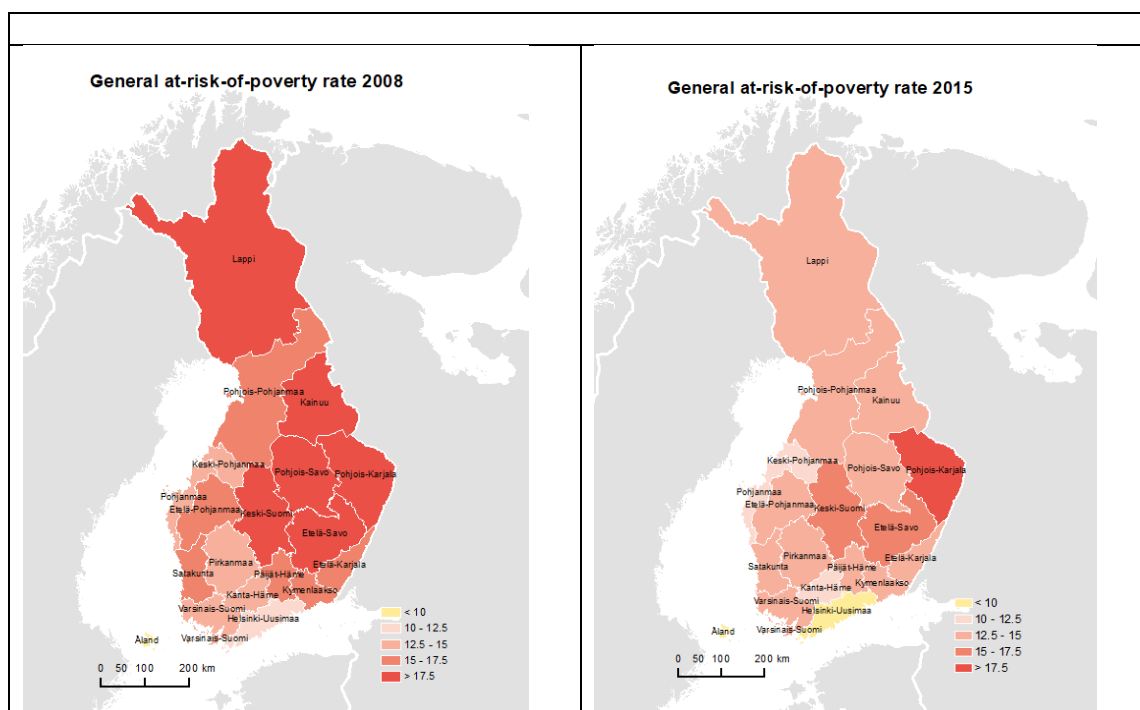


Figure 3. Finland: general at risk of poverty rate 2008 and 2015 (Source: Copus *et al*, 2020)

Depopulation is also an issue, and underlying socio-economic and spatial processes point to the need for a wider recalibration of rural development concepts, an increasing emphasis upon well-being and a shift away from purely economic indicators (OECD 2016, 2019, 2020). In the context of rural shrinking, conventional economic indicators (such as unemployment rates) fail to capture significant “equilibrium adjustments” (notably prolonged selective out-migration) which have serious implications for rural well-being.

Similar demographic outcomes may result from very different socio-economic processes. Four generic types of socio-economic processes are responsible for shrinking: economic restructuring, locational disadvantage, peripheralization, and disruptive events and political/systematic transitions. While policy objectives, and outcomes, may prioritize either mitigation or adaptation, CAP Pillar 2 has moved away from exogenous, to (neo)endogenous approaches. However, its goals relate less to demographic issues and more to economic growth. Thus, cohesion policy has focused on less developed regions where lagging economies and shrinking coexist and it favours urban-centric development models which may exacerbate rural shrinking (Copus *et al*, 2020). In an analysis based on typology of complex shrinking, some of the rural remote areas within the NPA region are, within a European perspective, characterised by industrial or servitised, mid low-income regions with moderate or legacy shrinking (Copus *et al*, 2020, p.15). For example, in Finland, the regions of Satakunta, South Ostrobothnia, South Karelia, South Savo, North Savo, North Karelia, Kainuu, and Lapland are characterised as servitised mid low-income regions with moderate or legacy shrinking. The same happens in the Swedish regions of Västernorrland, Jämtland, and Norrbotten. In Scotland, however, the North and West regions are characterised as industrial mid low-income regions with moderate or legacy shrinking.

These regions have grown in the past despite a “difficult” territory and a weak secondary sector; although their economy is healthy enough to prevent massive outmigration, their state has been worsening, and the “distorted” population structures have resulted in “legacy shrinking”. Or they are weaker-than-national-average, but still robust economies, which are shrinking due to distorted population structures and low fertility rates (Copus *et al*, 2020).

3. Urbanisation and peripherality

The Nordic countries as well as the Northern Arctic peripheries 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 Nordic populations' access to local services in sparsely populated areas, Figure 4 shows the average distance to the edge of the closest urban area for the population living outside urban areas in each municipality.

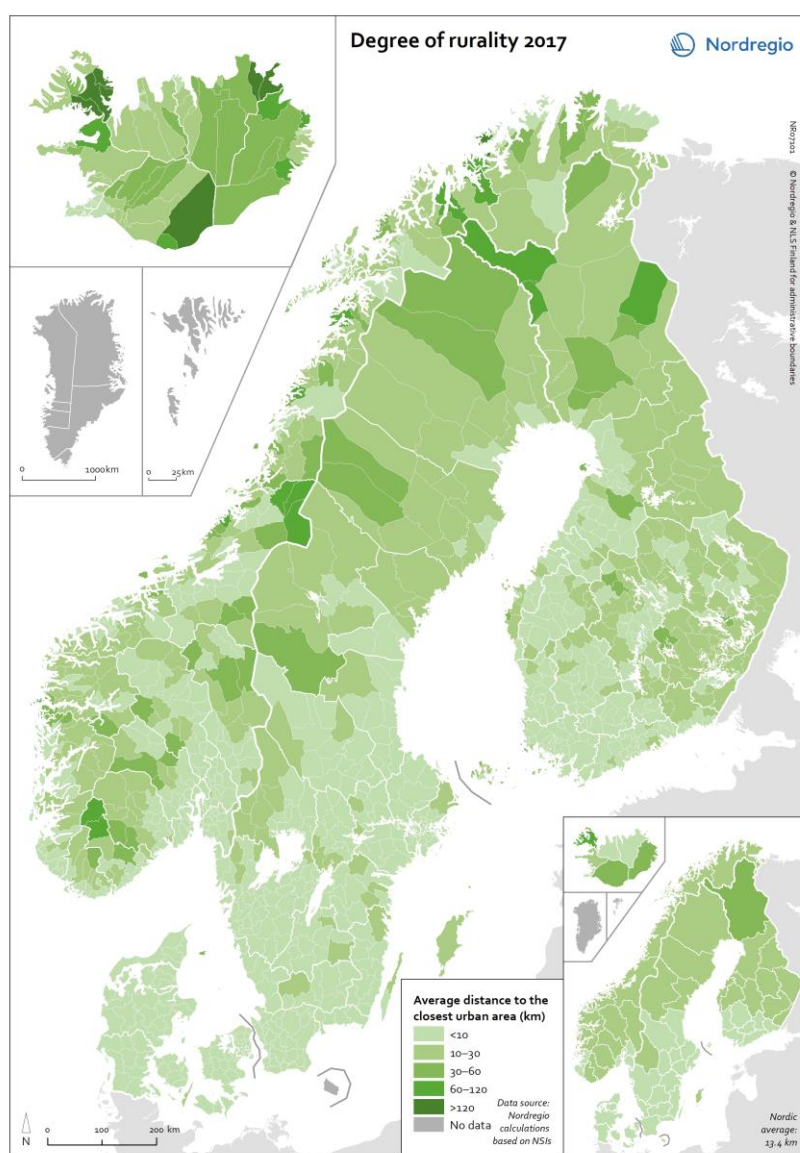


Figure 4. Degree of Rurality (Source: Jokinen & Cuadrado, 2020)

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.

The wider NPA region is also characterised by similar demographic characteristics for Maritime Canada (PEI), Scotland and Ireland.

While being a “fundamentally geographical” concept, peripherality is often used as an explanatory factor for uneven economic development at different scales, i.e., global, national and intra-regional. This understanding was already advocated by Anderson (2000) when asserting that ‘peripherality’ is “essentially a spatial theory but linking geography and economic process”. While it is often used as a generic term in academic and policy debates, there is often little understanding of what the term ‘peripheral’ actually refers to. Goodall (1987) defined peripherality as the condition experienced by individuals, firms and regions at the edge of a communication system, where they are away from the core or controlling centre of the economy. This emphasis on separation indicates that “it is social process, in particular how space is used within the social context, which demarcates periphery”. Consequently, peripherality relates to the idea of remoteness, i.e., the perception of individuals and businesses of being isolated from other communities. Thus, the peripheral position of a region or place emerges in relation to other regions or places. Peripherality should be regarded as an inherently relational concept, in that ‘the periphery’ must be defined in relation to something else (i.e. ‘the core’ or ‘centre’) and in the sense that ‘peripherality’ as a condition is characterised or constituted by relations (between the core and the periphery)” (Crone, 2012). For more extended discussion on why remoteness is a central notion for sparsely populated areas see Dubois & Roto, 2012.

4. Geography of Services

In recent years, the delivery of public services in the Nordic Region has become increasingly challenging as capacity and resources at the regional and municipal level vary greatly, often making regional and local authorities dependent on national level support (Wiberg & Limani, 2015). Resource deficiencies have been exacerbated by periods of austerity following the 2008 financial crash; furthermore, rapid demographic changes, caused by an ageing population and increasing levels of immigration, have put increasing pressure on the quality and effectiveness of public service delivery in the Nordics (Nordregio, 2015). Furthermore, rapid technological changes and obstacles that transcend territorial boundaries have opened up the possibilities and need for different types of public service delivery tools (Teles *et al* 2018, Randall *et al*, 2020, Lundgren *et al*, 2020). In response to these challenges, policy and decision-makers have

embraced the idea of inter-regional, inter-municipal and cross-border collaborations to improve the quality and effectiveness of public service delivery (OECD, 2017; ESPON, 2019; Cedergren *et al*, 2021).

Once emergency status hits in with a pandemic like Covid-19, access to health care is essential for the population, regardless of location or settlement within a country. This also relates to spatial justice in general in terms of access to basic services as a precondition for settlement.

The spatial disparities of health care services have been observed for a number of years. To better understand progress towards the goal of a more balanced regional development, the project Regional Disparities and the Geography of Service within the Nordic Countries analyses regional disparities from the perspective of accessibility to services. The point of departure in this study was to use a GIS based approach to map, analyse and visualise the degree of disparities. The GIS tool is in the final stages of development – the Nordic Service Mapper shows distances in different areas to different forms of services in 2021. This interactive mapping tool visualises street-based proximity to different services across the Nordic Region. The platform was made possible through funding from the Nordic Thematic Group on Sustainable Rural Development 2017-2020 (see <https://gos.nordregio.ubihub.io/>)

A few examples of the mapping tool can be seen below.

Groceries

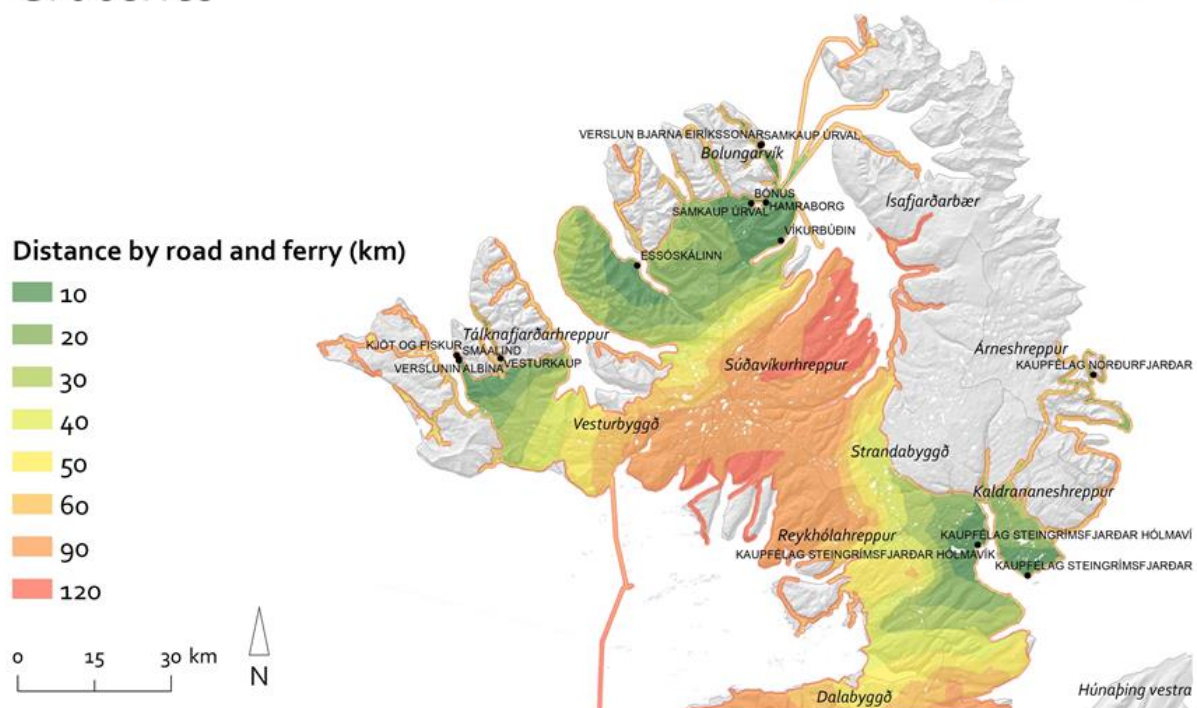


Figure 5. Distance to grocery shopping services in the Westfjords of Iceland 2018
(Source: Penje and Stjernberg, 2020)

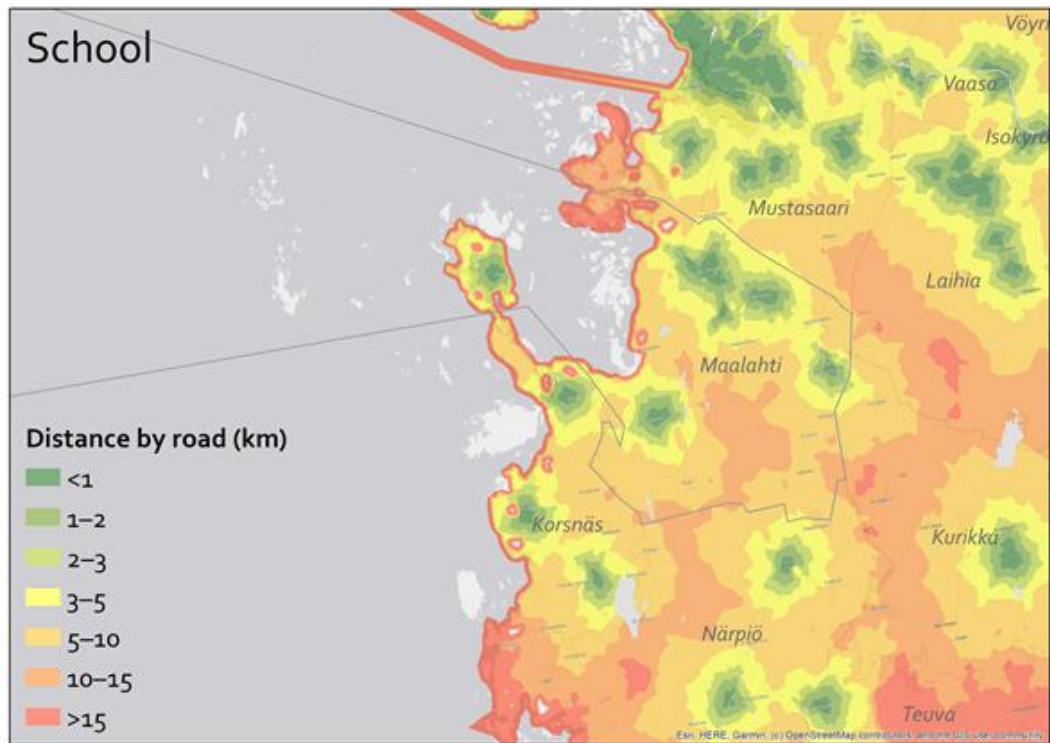


Figure 6. Access to schools in the Ostrobothnia region in Finland 2018
(Source: Penje and Stjernberg, 2020)

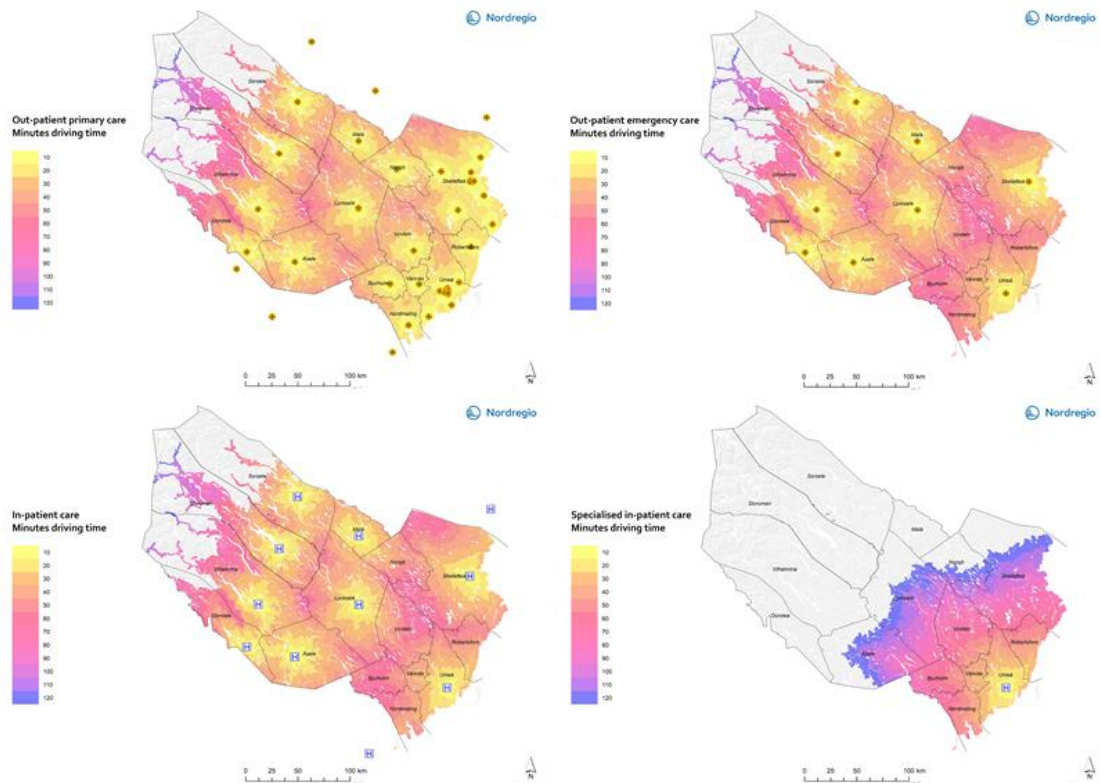


Figure 7. Access to different levels of health care services in Västerbottens County 2018
(Source: Penje, Wang & Wolk, 2020)

More detailed maps on distances to different levels of health care in other Nordic countries can be seen in the publication “In-depth Accessibility Study, Annex to Digital Health Care and Social Care Regional Development Impacts in the Nordic countries” (Penje, Wang & Wolk, 2020).

“Västerbotten is one of 14 northern counties in Norway, Sweden, and Finland, which make up the distinct Northern Sparsely Populated Areas (NSPA), which was established in 2004. The NSPA share a similar natural environment – a harsh climate, abundant natural resources, relative lack of agriculture, a strong potential for renewable energy, long distances from markets, and high cost of land transport. They are also specifically affected by globalisation, energy-supply, climate change and demographic change. Because of a high outflow of people, public authorities in the inland are struggling to provide the same services within health care, education and other areas as given in the rest of the country. The increasing digitalisation of society has opened new opportunities for many Västerbotten communities. The action Digital Västerbotten is an attempt by the regional authority, Region Västerbotten, to use existing and emerging digital technologies to provide services and equal standard of living for people in all municipalities. To solve the loss of physical service offices around the region and to overcome the long distances, digital solutions are being used in various ways. Västerbotten has a long history of advanced broad band connectivity and a focus on digitalisation, which is shown by the region’s digital agenda and the Centre for Rural Medicine (GMC).”

The project ReLocal focused on spatial injustice. Among 33 casestudy areas across Europe two were from the NPA area. It also focused on Västerbotten county in northern Sweden as an example of a rural region where the population is now largely concentrated along the coast. Inland communities are becoming depopulated and the municipalities struggle to provide basic services because of long travel distances and limited resources. There is concern that the large rural portions of Sweden are being “left behind”. This case study focused on Region Västerbotten’s work with digitalisation and in particular how and if the project “Digital Västerbotten” affected “spatial injustice” in the inland municipalities. It was a three-year project that has received funding from the European Regional Development Fund (ERDF) and aims at spreading competence about digitalisation in the region to help the municipalities provide eServices to their citizens and to give them tools to lead the digital transformation in general. The project derives from Västerbotten’s Regional Strategy and Digital Agenda that follows both national (Digital Sverige) and EU digital strategies (Digital Europa).

Collaborative public service delivery is becoming increasingly prominent in the Nordic Region due to highly decentralised systems of governance (Nordregio 2015; Eythorsson 2018). This type of cooperation is grounded in the concept of collaborative governance which emphasises the need for local and regional actors to pool resources to deliver public policies and services efficiently and effectively (Ansell & Gash 2007; Emerson *et al*, 2011). Collaborative governance is regarded as particularly beneficial for smaller Nordic regions and municipalities as they can potentially increase financial resources and administrative capacities, reduce transaction costs and establish economies of scale and critical mass (Andersen & Pierre, 2010). However, there are multiple challenges in establishing collaborative ventures across jurisdictions, including different governance and legal frameworks, competing policy priorities and delivery methods, and an unwillingness to invest in horizontal coalitions or give up autonomy (Haveri, Nyholm, Roseland & Vabo, 2009)

In Western Lapland (SE), the geographic specificity of being a sparsely populated area has long pushed actors in the health care service to innovate. The municipality of Storuman has been ahead in technical development due to initiatives from individual doctors at the Storuman hospital. In that regard, the development of the Centre of Rural Medicine (CRM) in 2010 sought to develop techniques and practices that combine high-quality health care provision and cost-efficiency with a development trajectory around technical and organisational innovations in local health care. As the process was driven by local doctors, the process relates to narratives of intrapreneurship, i.e. where organisational change is driven from inside, leading to a change in the culture of local health care services. At the beginning, county authorities, which are in charge of health care provision, did not show interest in the developments undertaken by the CRM. The fact that the CRM has developed 'at the margin' of the regional health-care system, both geographically and thematic-wise, has enabled the centre to incrementally test new ideas about how to organise health care provision in Storuman through small-scale experimentation, such as a Virtual Health Rooms initiative. Based on the success of these small-scale experimentations, the CRM has scaled-up (more personnel, larger involvement in research projects) and increasingly institutionalised these innovative practices into the organisation's routines. (ESPON, 2020)

Cedergren *et al*, (2021) highlights some best practice examples of collaborative public service delivery from across the Nordic Region. The focus is on examining the main challenges and advantages of cooperation and whether they are consistent with the key features of the collaborative governance concept. The overall objective of the report is to analyse whether collaboration enhances the quality and effectiveness of public service delivery, so that Nordic policymakers and other local stakeholders can learn from a wide variety of experiences, and gain inspiration for their own collaborative governance projects. This will remain relevant also after Covid-19 is on the decline.

The availability of professional opportunities is the fundamental basis of decisions to stay in, return to, or leave the region in the ESPON study BRIDGES (ESPON, 2020). For non-returning graduates, 74% stated that the region does not offer adequate professional opportunities corresponding to their levels of education. The results also show that the availability of jobs in surrounding regions is fundamental to stay in the region as long as commuting possibilities exist. Surprisingly, a "demotivating environment" and "uninformed pessimism" are also factors that push young graduates to leave the region. This leads young entrepreneurs to not even look for a job in mountainous regions, for example.

Quality of life is the second important influence on life choices. Key factors include: the marginality of the region; geographical and ICT access; the natural environment; the quality of schools; availability of public transport; cultural activities, and health and social services.

The results of ESPON BRIDGES showed that there is a high diversity in innovation-related issues from one TGS (Territorial Governance System) to another. This suggests there is no one-size-fits-all and that particular issues are basically unique, and governance solutions cannot in many cases be standardised. Whether it is more of a top-down approach addressed by governmental bodies, or a bottom-up approach driven by non-governmental stakeholders, the case studies have shown distinct particularities and mechanisms that seek to trigger the necessary collective efforts to support innovation. The results also showed that local knowledge of the TGS context is essential in order to address the innovation related systemic issues. This implies that governance must be exercised in proximity to the local context, by involving "the local actors". Hence, a

devolvment of governing functions and systems would be more suitable to respond to local demands than centralised initiatives from far away (ESPON, 2020).

5. The importance of access to schools as a precondition for families with children to consider it attractive to move to rural areas

The number of schools in Nordic rural areas has been decreasing in the past twenty years (Karlsdóttir, Cuadrado, Gaini, Jungsberg, & Ormstrup 2019). In a Nordic comparison including Iceland, Norway, Denmark, Sweden, and Finland, Karlsdóttir *et al* (2019) found that, on average, 30% of schools in rural areas in these countries have been closed for 13 to 17 year olds in the last 20 years. Figure 8 shows school closures at both municipal and regional level.

What are the reasons behind this? They are several. The exogenous focus in regional policies in the 80s where population centers were considered dynamos for other areas, and the rationale behind regional reforms contributed to these disparities. Also, later the neo-endogenous focus in regional development where competition was at the core of policy amplified closures of schools in more sparsely populated areas. From another but related perspective Imsen, Blossing and Moos (2016) suggest that the neoliberal turn in Nordic education policy, that started in the 1980s, was the origin of the problem. This policy change brought privatisation, deregulation and marketisation measures by which schools were supposed to act as private enterprises. This meant that the role of the state in education was diminished and the education market was opened to private actors able to market themselves and to compete among them for students. As private actors, schools themselves adopted measures to become profitable. This is usually achieved by lowering the costs of education, especially by deteriorating teachers' working conditions. The consequences of this in Nordic rural areas were the school closures due to the lack of students and the lack of state funding to keep them running. In the Swedish case, for instance, the deregulation of the education market translated into higher commuting distances, fewer study opportunities and lower graduation rates in small municipalities (Lind, 2017). Therefore, not only the quantity of schools was reduced, but also the quality of the education offered in them.

Schools are a crucial element of rural areas: they are community-building institutions. Their massive closure and downgrading their quality can become a decisive factor in the development of rural areas.

Figure 9 shows internal net migration of young adults (20-29 years old) in 2010 to 2019 by dividing municipalities into four categories: positive net migration of both males and females, positive male net migration, positive female net migration, and negative net migration of both males and females.

Interregional mobility of young adults is strongly correlated with an individual's educational background. For instance, a study conducted in Norway shows that "one year of education increases the annual mobility rates by 15%". While individuals with tertiary education background are in general more mobile and tend to move to a higher degree at the end of their 20s, groups with primary and secondary educational background often move earlier in their lifetime, but less in general terms as they tend to operate in local labour markets. Although the

authors do not address the direction of mobility, i.e. where people move to, they suggest that education increases the likelihood to settle in more central labour markets in major towns (Machin et al., 2012, p. 444). This finding could, thus, point to the role of cities as pulling factors, since they provide higher employment opportunities for individuals with tertiary educational background.

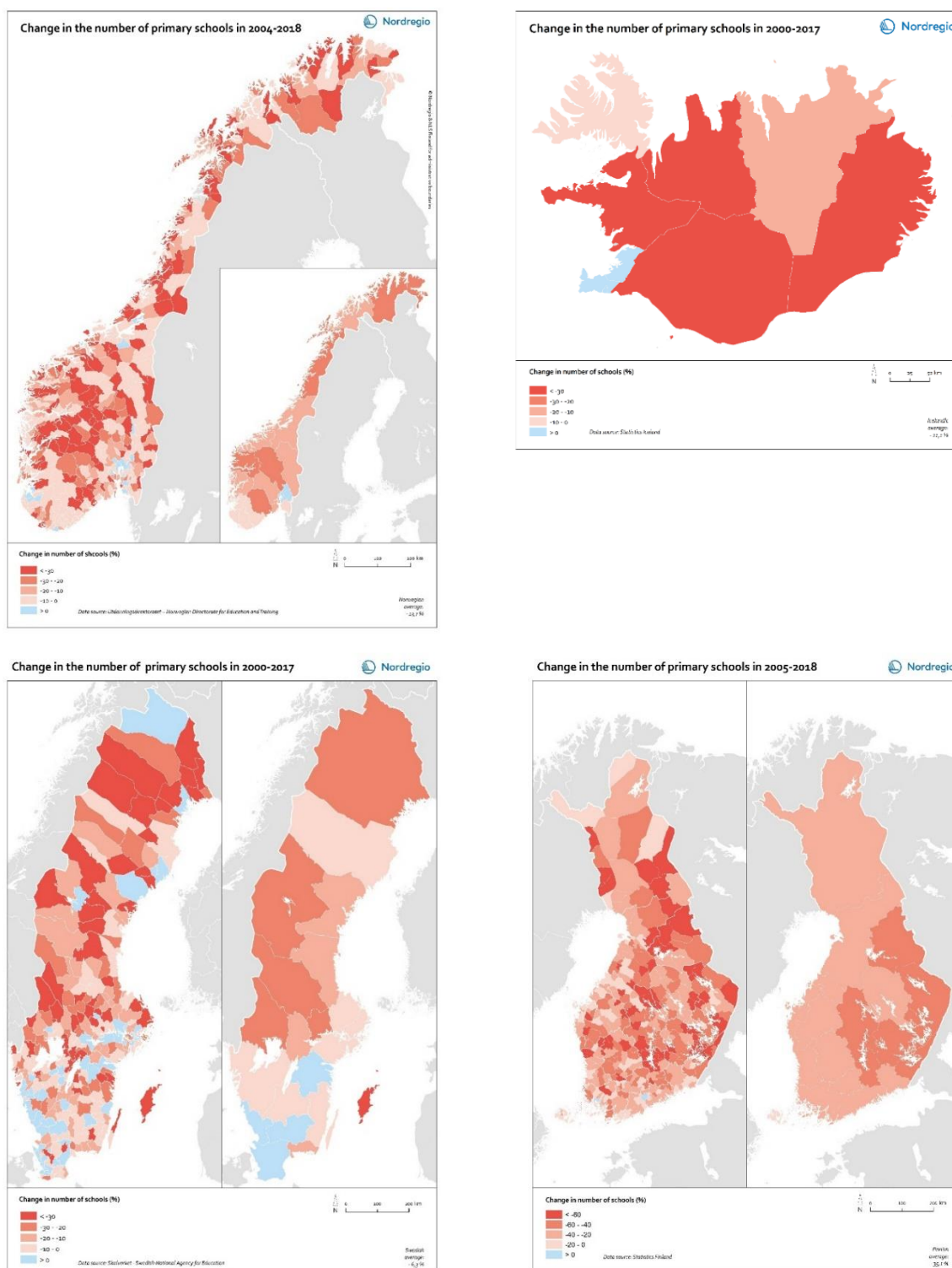


Figure 8. Maps showing school closures at both municipal and regional level

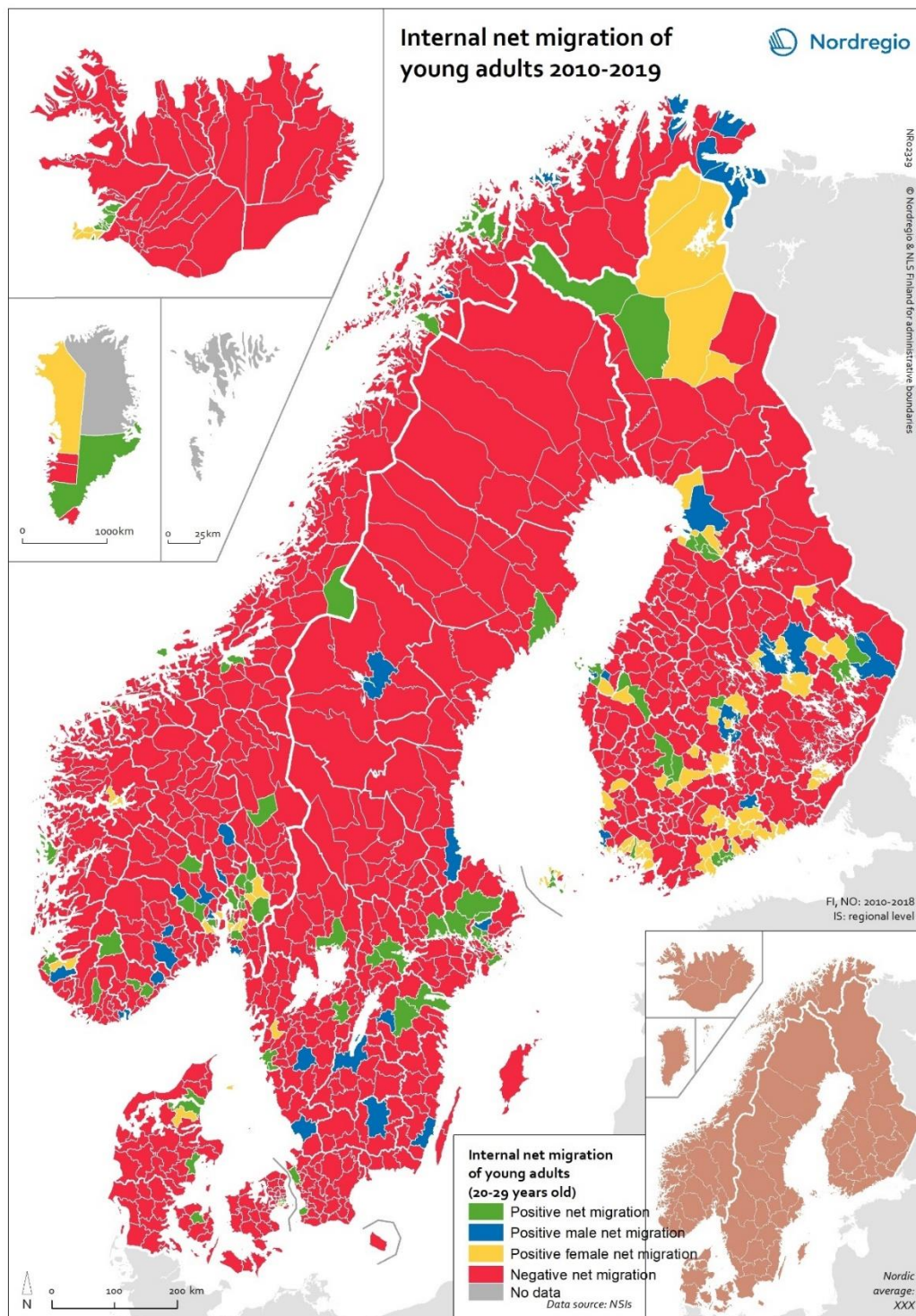


Figure 9. Internal net migration of 20-29 year olds 2019 (Source: Lundgren et.al, 2020)

For example, as larger cities are more industrially diversified, with a stronger presence of knowledge-intensive activities, they enhance the possibilities for knowledge creation and innovation which drive employment growth and, thus, provide a more varied labour market and higher income opportunities for individuals with tertiary education background (Hansen & Winther, 2015).

Nonetheless, other factors are of relevance in mobility patterns as well. For instance, satisfaction with Norwegian cities seems to be highest for young and single individuals with tertiary educational background because this sociodemographic group strongly values amenities such as public transportation, leisure, and cultural and shopping activities that can be found more often in cities than in towns or villages (Carlsen & Leknes, 2019). In Finland and Sweden, interregional migration flows are dominated by young people with tertiary educational background as university graduates move from smaller labour markets towards larger urban labour markets in both countries. The authors hypothesise that highly educated individuals are attracted towards densely populated labour markets due to the gain they can expect from the wage premium they can find in urban areas (Eliasson et al., 2019). On the other hand, academically-oriented young adults may also be stigmatised as unambitious if they decide to stay in rural areas (Pedersen & Gram, 2018; Stenbacka et al., 2018).

Extracting from the Nordic service mapper (2021) showing distances to schools (across educational levels) reveals that many of the northern parts in Sweden and regions close to the border to Norway have the largest distances in general to schools, as well as northern parts of Norway and Finland and the Finnish regions towards the border to Russia. Also, along the coast of Norway on small islands where logistics and ferry connections limit mobility internally within the region are among those with the longest distances to school. This picture of distances to schools for rural populations gives some aggregate account of the situation, but because the data only allowed for calculating this on a regional basis across educational levels, we cannot specifically see how this applies only for primary and secondary school education.

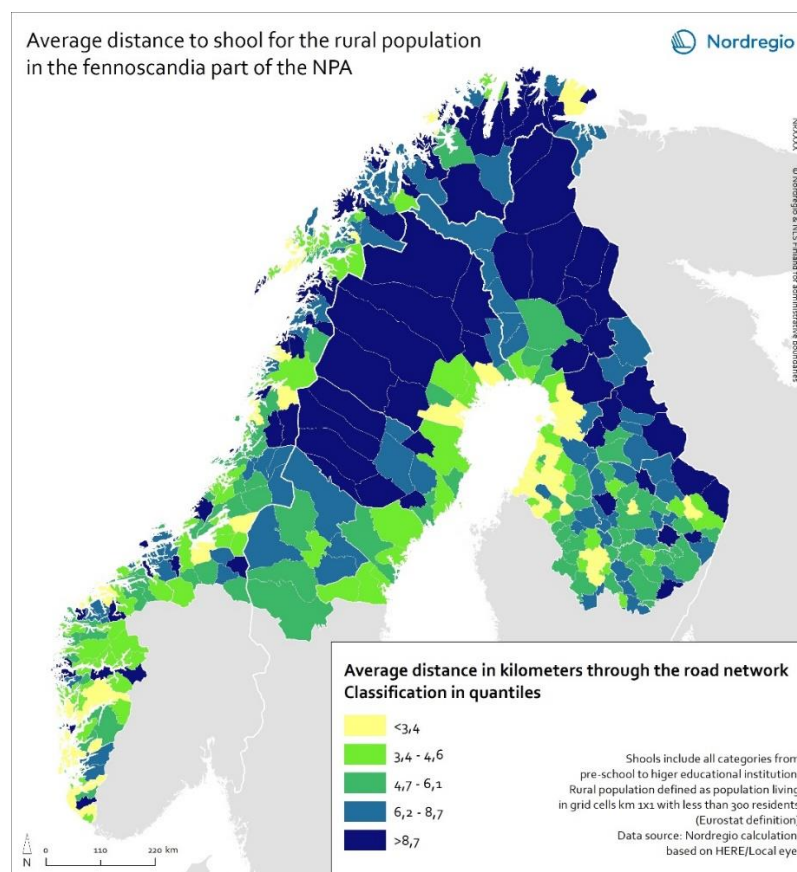


Figure 10. Average distances to schools for rural populations

The northbound areas are nevertheless clearly disadvantaged in terms of proximity to schools – even if this is an average distance overview. In the case of Iceland, the distances are even longer for some areas. For farming areas in South East Iceland, in the North West and far East, the average distance is over 14.4 km. In some cases, for kids growing up in these regions with harsh winters and closed roads, this can mean serious disruption to their education. They are also more prone to shy away from school even at mandatory stages (early school leavers). Some of the kids in Húnaþing Vestra (NW Iceland) who have farthest to go daily to school have to commute over 80 kms daily and in this region the roads are in such bad condition that the children are afraid for their security (Gunnarsdóttir, 2018).

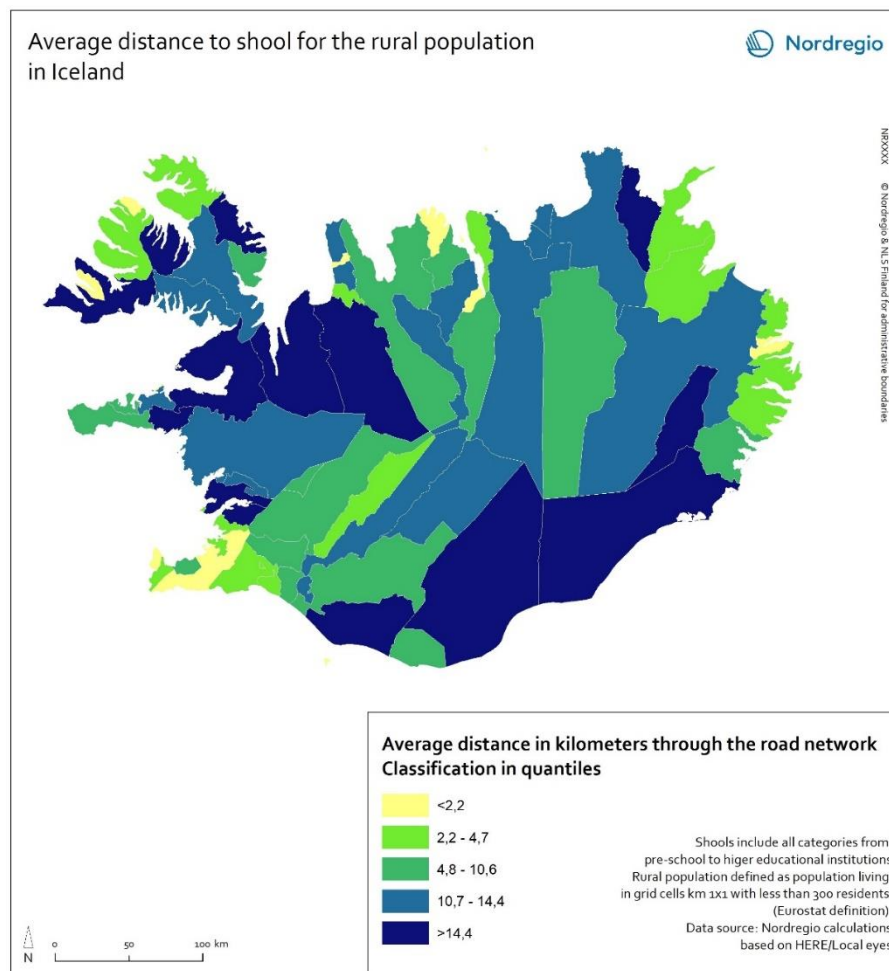


Figure 11. Average distances to schools for rural populations in Iceland

If remote and peripheral regions are to have the chance to offer conditions for good living for families with young children in the age of mandatory schooling, distance schooling (even if this become more common under Covid-19) will not completely replace the need and benefits of going to school. Therefore, conditions to receive new population that give life to rural communities are better in those peripheral regions and communities that have schools to offer.

6. The positive effects of rural remote regions in the Arctic during crises

Even if Covid-19 has affected society as a whole by stopping its normal functioning with imposed restrictions, even lockdowns with widespread social and economic impacts vary spatially.

Several stories from the past reveal how the benefits of remote sparsely populated areas become obvious during crisis times, whether at war or during a pandemic. The spread of a pandemic like the Spanish flu in the beginning of the 20th century is an example of this and puts our current times and strengths of rural regions into perspective.

“Mr. Nageak remembered a story his mother would tell, about one winter a century ago, in 1918. She was a small child, maybe 3 or 5, living to the east in what is now the Arctic National Wildlife Refuge, when word came that people were dying of a strange flu.

So, the families moved inland, up into the mountains. His uncle told of a large lake they found, where they could get any fish they wanted. There they stayed, through the winter, until they heard that people were not dying anymore.

“People say it is a cold snowy wasteland,” he said. “But for us it is a good place to live.” (NY Times, 2020)

While conditions between the start of the 20th century and current times are barely comparable. What is comparable is the surplus death rate caused by the pandemic. As an example, the levels have not been as high in Sweden since 1918 and the Spanish flu (SCB, 2020).

Also, maybe, is the incentive of where to live. Swedish media has now recently documented an emerging trend that Corona has affected directly. Young families are looking for more spacious facilities where they can combine work and family life after over 40% of the working age professionals have been sent home to work. Numerous examples can be found in the media where young parents are seeking outside of the large cities for houses or townhouses that they could not afford within cities or have enough credibility with mortgage credit institutions. In East Iceland no house or apartment is available for sale and if any is put on sale in the area of Egilstaðir, Fellabær or Fljótsdalur it is sold within the hour (Indriðason, 2021). Also some very remote rural areas that have shown persistent declines in fertility rates for decades are now revitalising, i.e. Barðaströnd (NW Iceland). One of the largest newspapers in Sweden DN reports young families moving from Stockholm to smaller more peripheral places (i.e. Ternby & Åberg, 2020 etc.). Persistently booming house prices in urban areas, expensive prices per m² with smaller living areas in dense urban settings, and the move to home working due to pandemic restrictions may have created a shift in the pull to rural areas, even if for now it is premature to see emerging trends of counterurbanisation.

A side effect of negative demographic development in remote and peripheral areas has created unfavorable house market conditions in the last 3 to 4 decades. Housing is generally seen as a human right, a consumable that serves as the framework for our lives. However, at the same time, real estate is a financial commodity on the market. In many rural areas, the market value of houses is low – often considerably below the cost of construction. In consequence, it is very difficult to obtain loans to build or buy. This ‘freezes’ the market and has a strong impact on rural development overall, in effect acting as a boost to the trend towards urbanisation and the depopulation of rural areas (Eliassen *et al*, 2020).

One can go back to the 1970s where a wave of migration back to the country side emerged that started with second home owners. The 1970s to early 1980s was an era when affluent summer guests drawn by pictures of desirable locations began buying houses in rural areas. These were often affiliated with nature-based amenities in the vicinity (such as the sea, forests or mountains). When this development caused housing prices to rise, debate arose over rural–urban mobility, tourism patterns and their economic impacts (Kolbe & Gustavsson, 2018). For example, in Sweden, the rural population sensed a shift in values related to residential areas, but were critical of what these changes in values would entail (ibid, p.41). From the perspective of the summer guests, they believed that they contributed to the economy by providing a customer base for services provided by coastal communities. The translocal agency of the second home owners should not be underestimated in creating value for the communities they partly settle in. However, what remains most lucrative for rural remote communities in turning the downward demography spiral is to attract young people and families of working age with children and with innovative capabilities to settle more permanently.

Covid-19 is also likely to have this effect. People look for connectedness in isolation, for example where natural amenities are part of daily life, including easy access to forests, mountains or other physical attributes that rural settings are characterised by.

This aspect of good living is evident in various case studies conducted by Nordregio. One of the more recent ones was the regional attractiveness project (Kull *et al* 2020).

Inari was one of the case studies and it is a good example. Many of the interviewees that participated in the research stressed the high quality of life and nature in Inari. In fact, and as a hint to outsiders, the municipality's slogan is 'voimakas luonnostaan' which translates into 'mighty by nature'. Many of those moving to Inari are outdoor enthusiasts who can enjoy nature and related activities such as hunting or fishing. But not only does nature make Inari a good place to live. The people and the relationships they establish are another valuable element because "people know and trust each other, these are honest and hard-working people up here, down to Earth, who can also enjoy life". A similar picture can be seen in the case of Lebesby, in Norway, where the respondents stated that the freedom to roam, high levels of trust and the connection to nature were some of the attractive elements to live in a place with precarious weather conditions and unreliable infrastructure (Kull *et.al*, 2020).

Another is sporadic anecdotes on young talented entrepreneurial people seeking to accommodate better lifestyles by moving to more rural areas, and this is now more visible in the mobility trends among 30-39-year Scandinavians (Lundgren *et al* 2020a). See Figure 12 for a map of net migration among 30-39 year olds, and notice the differences with Figure 9 showing net migration of the younger cohort of 20 to 29 year olds.

As in Figure 9, Figure 12 shows internal net migration by dividing municipalities into four categories: positive net migration of both males and females, positive male net migration, positive female net migration, and negative net migration of both males and females.

One expression from one of the informants from the regional attractiveness project reflects the values that draw people to less densely populated areas: "people are tired of commuting; life is much easier up here. It is the quality of life, which is high here. And you get quite fast to a city, Helsinki, which is really close by plane". Among those people who have chosen Inari are wealthy migrants from Helsinki and other larger cities building second homes in Inari, people who need

silence for work and who are able to do remote work. Many people who move to the municipality are outdoor enthusiasts, who can access special fishing and hunting rights. This also includes foreigners who come from other EU member states (Kull *et al*, 2020. p. 88).

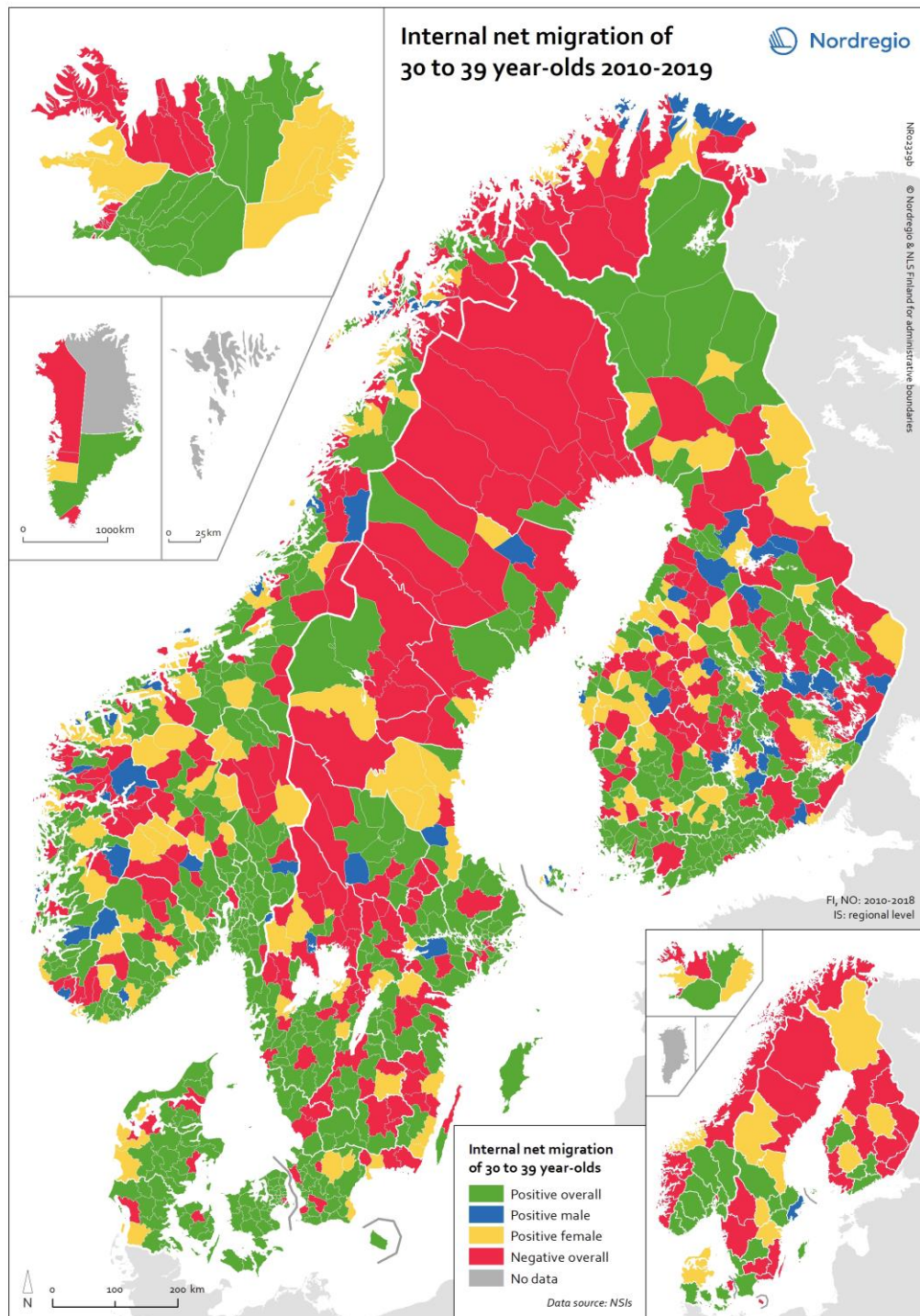


Figure 12. Internal net migration of 30-39 year olds 2019. (Source: Lundgren et.al, 2020)

7. Covid-19 and tourism

Covid-19 has seriously impacted tourism and economic returns generated by tourism that in many cases has, in the last decade, become an increasingly important source of income for remote and rural regions within the NPA area. The Faroe Islands, Iceland and Greenland are significant examples of fishing-based economies shifting towards the tourism sector. That is, until the Covid-19 pandemic hit and the tourism sector suffered from the effects of reduced desire to travel and restrictions on movement.

Prior to Covid-19, tourism had been one of the fastest growing economic sectors in the world over the past two decades (UNWTO, 2020). The Nordic countries were part of this trend, and tourist numbers increased enormously in some locations. The boom has offered both challenges and opportunities for the Nordic region. The challenges include the risk of environmental damage, deteriorating infrastructure, pollution, overcrowding and increased rents and property prices in popular areas (see Bogason, Karlsdóttir & Broegaard, 2020), whereas the benefits include job creation and income for the local economy in tourist areas (Jones & Munday, 2004). The question of how to manage tourism to benefit from its opportunities while limiting the negative consequences will be high on the agenda as the pandemic prompts a re-examination of the feasibility of tourism development (Ionnaides & Gyimóthy, 2020).

Tourism offers opportunities for rural areas in the Nordic Region facing population decline and job losses. In some of these regions, increased tourism may create valuable jobs, provide resident populations with new economic perspectives and prevent negative development spirals with a declining and ageing population (Almstedt, Lundmark & Petterson, 2016). At the same time, the strong seasonality of tourism flows, the prevalence of low-paid service jobs in the tourism sector, and capacity constraints on capital and labour constitute particular challenges in these areas (see discussions by e.g. Kauppila *et al*, 2009; Saarinen, 2003; Muller, 2013).

While tourism is an increasingly important topic in regional development strategies, there is not always sufficient data and other quantitative evidence to estimate the economic costs and benefits comprehensively. Before the Covid-19 pandemic this was the situation in the Nordic countries and the autonomous regions. As an example, in Norway tourists spent 186 billion NOK in 2018 and tourism created 7.1% of total employment (SSB, 2020). In Sweden, foreign visitors' spending generated 306 billion SEK, or 33% of the total consumption in the country in 2019 (for an explanation of the consumption calculations, see Cañada 2013, p.42-43). The export value of tourism was 100 billion SEK and tourism provided employment for 126,000 people in the tourism sector (Tillväxtverket/Swedish Agency for Economic and Regional Growth and SCB, 2020).

In 2018, tourism employed 142,000 people in Finland, with regional variations. Areas outside of the most populous urban areas accounted for over 57,000 jobs (VisitFinland, 2020a; Statistics Finland, 2020). North Ostrobothnia and Lapland had the most people employed in tourism industries relative to the regions' working-age populations. The numbers of passengers at Finnish airports decreased by 91% in late 2020, while domestic tourism (measured by accommodation nights by country residents) only decreased by 15% (Statistics Finland, 2020). This meant that for entrepreneurs creative thinking became key to survival as incentive strategies introduced in the Faroe Islands show. Also, small tourism companies had to seek new approaches and re-orient their activities to local nature and outdoor lovers (Finnson, 2021), because, while tourism rose in terms of numbers of foreign arrivals before 2020, travel in 2020

was characterised by residents holidaying at home in the summer (Karlsdóttir & Sanchez Gassen, 2021).

Tourism in Iceland has increased enormously during the past decade. Between 2010 and 2016, the number of tourist arrivals more than tripled (Mandle 2018), peaking in 2018 at over 2 million visitors. By the end of 2019, 852 companies in rural Iceland (Landsbyggð) had built their economy on tourism and 9707 people were in full-time tourism work (of a total of 26,000 – aviation not included). However, debt was on the rise and the prospects of economic returns from tourism were declining, although tourism generated at least one third of the income of the national economy. By late 2020, over 12% of the working-age population was unemployed, the highest number since the establishment of the republic.

The Covid-19 pandemic has hit the tourism sector across co-operating Nordic regions and countries hard, and in some cases as seen above, the economy has plummeted, with rising unemployment. Owing to the sudden shift in tourism because of Covid-19 impacts, travel restrictions and other hindrances to country-level development of tourism have been in flux (UNWTO, 2020; OECD, 2020) requiring new knowledge. Given this situation, analyses of the economic effects of tourism are as relevant as ever in the Nordic context (Karlsdóttir & Sanchez Gassen, 2021).

After Covid-19 restrictions diminish, tourist flows will rise again and affect local economies around the Nordic region. But questions remain about how, and on what conditions, and how lessons can be learnt in order to safeguard locally embedded and sustainable tourism without harming the environment or causing decline, or balancing the economic leakages often associated with global tourism business.

8. Increasing and/or supporting resilience in times of crisis, taking young population into account

Semper Arctic stands for Sense Making, Place attachment and Extended networks as sources of Resilience in the Arctic (Nordregio, 2020). The point of departure is that local stories of changes, shocks, upheavals and aftermaths (which is easy to relate to pandemic shocks even if, in this context, it is primarily climate change; slow burns rather than sudden shocks (Giacometti & Teräs, 2019)) interact with narratives of environmental science and public policy and regional development, but it is the local and localised narratives that anchor devices for resilience analysis. This understanding is key for developing tools and strategies to increasing community resilience in other communities.

It contributes to the ongoing debate on the missing connections between community worldviews, cultural values, livelihood needs, interests and environmental science. Related research has shown that more scientific research efforts should consider local-level needs in order to produce local-scale knowledge that is more salient, credible and legitimate for communities experiencing effects of exogenous shocks (whether climate change related or pandemic). It also supports the growing evidence that whenever possible, climate change research should focus on environmental features that matter to communities, at temporal and spatial scales relevant to them, in order to foster community adaptation to change (Baztan et.al,

2017). This relates to current discussion within economic geography that argues for more careful and reflective theorising and re-theorising, paying more attention to context. Economic geography is essentially about describing, analysing and explaining economic activities in real places. Context therefore matters, but in order to analyse and explain we need to abstract from contingent conditions, so that causal powers and mechanisms become clearer (Gong & Hassink, 2020).

Retaining local benefits from large-scale resource-based industries is a key question for many municipalities in remote and sparsely populated areas of the Northern Periphery and Arctic. Often, however, these small communities, with equally small planning and policy capacities, find themselves facing complex decisions and negotiating with international corporations wanting to develop large-scale industrial projects.

The REGINA project (Regional Innovation in the Nordic Arctic and Scotland, with a special focus on regions with large-scale industries, 2015-2018) focused on reducing vulnerability and increasing the preparedness of small communities in remote and sparsely populated areas of the Nordic Arctic and Scotland for the development – or closing-down – of large-scale, resource-based industries (Weber, Eilertsen & Suopajärvi, 2017).

REGINA's output, the local benefit analysis toolbox (LBAT), and the focus on developing web-based GIS platforms used to gauge future plans as a form of foresight, are valuable findings for this project also. The LBAT supports the retention of local economic benefits through development of local supply chains and the growth of or spill over opportunities presented by new industrial activities (Weber, Eilertsen & Suopajärvi, 2017, Suopajärvi, Kantola & Weber, 2017). For example, the tool can guide the development of strategies for adapting the labour force to new challenges and supporting new business development and local entrepreneurship in the industrial supply chain and complementary sectors.

The LBAT proposes a four-step approach to developing a local benefit enhancement strategy:

1. Establishing base knowledge about the labour force, industry and local businesses
2. Qualitative analysis of current labour market challenges and opportunities
3. SWOT analysis: analysing the community's strengths, weaknesses, opportunities, threats
4. Developing policy outputs for business and entrepreneurial development in the community

This tool will most likely still be relevant once the effects of Covid-19 end. Developing feasible business development strategies lies ahead for many of the communities in the NPA region.

The web-based GIS platforms can both engage with local stakeholders and provide foresight on the potential social and economic impacts of development plans. One of the best examples of this is the tool developed by Norwegians called Barnetråkk (Kids Tracks). This project was motivated because it seems that the majority of municipalities in Norway have a greater knowledge on the movements of elks rather than that of children and adolescents. Although children and adolescents have a legal right to participate in society, most Norwegian municipalities seem to lack a firm understanding of their exact wants and needs. This is where Kids' Tracks can really make a difference (Barnetråkk, 2020).

Kids' Tracks is a digital registration tool that gives a clearer indication of children's movements in and around their surrounding area, which places they like and don't like. The tool was developed

to let children tell planners, the municipality and local politicians how they live in their place and what they want to change. 217 municipalities have implemented the tool – many of them rural. The results can be applied by authorities, and increase awareness of how simple it can be to influence through democratic processes (Barntråkk, 2020).

9. The bioeconomy, jobs and young people in rural areas

Young people are an important source of renewal in any remote and rural community where demographic trends have resulted in a skewed gender and youth ratio in recent decades. The meta narrative of ageing rural northern communities has its counter narrative in young people's innovative efforts within the bioeconomy. The bioeconomy is generally conceived as an economy based on land- and marine-based natural resources including eco-system services and biowaste. The dominant research has focused on the resource approach, i.e. the supply of different biomass products and services. Less emphasis has been put on the products and services stemming from the bioresources and the value differences these may have for individual entrepreneurs, for circular economy clusters or for municipalities and regions.

Recent research shows that the bioeconomy in Nordic countries provides many jobs especially in rural regions - from below 15% to above 22% of all jobs. Circularity and collaborative approaches can contribute to socially, environmentally and economically sustainable transformation. Bio-based and circular economies demand significant institutional innovation, including within the public sector, businesses, NGOs, education, research and bioresource-suppliers (Refsgaard et.al, 2020). Bioeconomy can thus be viewed as a transformatory super force in rural regions.

In Figure 13 the number of jobs in the traditional bioeconomy (agriculture, forestry and fishery) at regional level is shown for 2017 and for the development from 2009 to 2017. For all the Nordic countries, on average 2.4% of the working population was employed in agriculture, forestry and fisheries. However, in Figure 14 the number of jobs in the new bioeconomy is shown for the same periods and regions. On average for all Nordic countries, 14.7% were employed in other bio-based jobs. Thus, 17.1% of the working population in Nordic countries was employed in the bioeconomy. The spatial and statistical analysis clearly shows that across the Nordic region the majority of bio-based jobs were in sectors other than agriculture, forestry and fisheries (Refsgaard *et al*, 2020).

In Denmark, there were 578,694 jobs in the bioeconomy in 2017, which is 20% of the total number of jobs in the country. 70,738 jobs were in traditional bioeconomy sectors (NACE-A), and 507,956 jobs in other bioeconomy sectors. Nordjylland is the region with the highest share of bio-based jobs in Denmark (24%): in 2017, there were 66,997 jobs in bio-based sectors of which 13,020 jobs were in NACE-A sectors, and 53,977 jobs in other bioeconomy sectors as follows. 4,878 worked in restaurants and other places serving food, 2976 people were employed in slaughtering, processing, drying, salting and smoking pork meat, 2507 in wood manufacturing, and 1852 in developing, operating and repairing windmills.

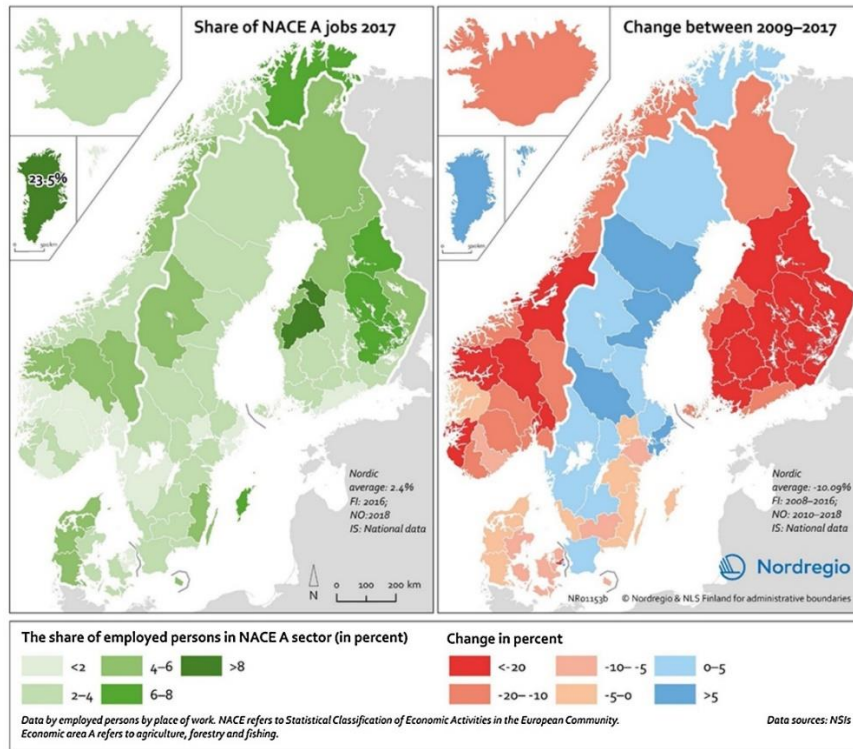


Figure 13. Jobs in the traditional bioeconomy in the NACE A sectors (agriculture, forestry and fishery) for 2017, and the development from 2009 to 2017.

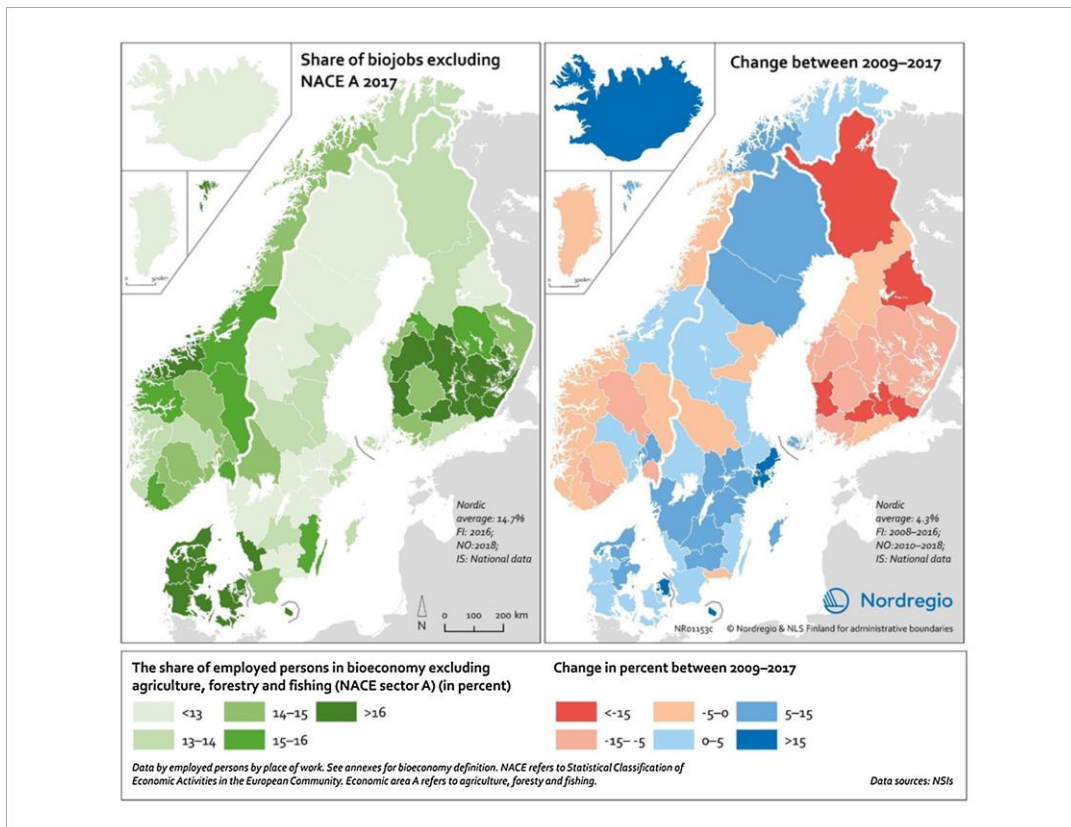


Figure 14. Jobs in the new bioeconomy outside the NACE-A sectors for 2017 and the development from 2009 to 2017. (Source: Refsgaard et al, 2020)

In Finland, there were 408,397 jobs in the bioeconomy in 2016, which is almost 18 % of the total number of jobs in the country. There were 68,601 jobs in traditional bioeconomy sectors (NACE-A), and 339,796 people in other bioeconomy sectors. The region Keski-Pohjanmaa had the highest share of bioeconomy jobs in Finland (24 %; 6538 jobs): there were 2227 jobs in the traditional bioeconomy sectors (NACE-A), and almost twice as many, 4311, in other bioeconomy sectors. The latter consisted of 717 in retail sales in supermarkets and self-service stores, 206 in production of meat and poultry meat products, 202 in manufacturing of organic basic chemicals, and 168 in construction of residential and non-residential buildings.

In Norway in 2018, there were 442,903 jobs in the bioeconomy, which is 17% of the total number employed. Of these 59,682 jobs were in the traditional bioeconomy sectors (NACE-A), and 383,221 in other bioeconomy sectors. In Troms, one of the most northerly of the 18 Norwegian regions, 15,167 people were employed in bio-based sectors in 2018. This was 86,443 jobs, or 18 % of the total number of jobs in the region. There were 2833 jobs in the NACE-A sectors, and 12,333 in non-traditional bio-based sectors. In Troms, the latter consist of a range of different types of bio-based jobs. 1232 were employed in processing, freezing, drying, salting and wholesale of fish and fish products; 2203 people worked in restaurants, cafés, catering and pubs, and 242 worked collecting non-hazardous waste. The bioeconomy sector in Troms also consisted of several indirect bio-based jobs. There were 258 in and relating to ship building, 599 in construction and 1726 in retail stores selling food, beverages or tobacco.

In Sweden, there were 739,452 jobs in the bioeconomy in 2017, which is 15% of the total number of jobs in the country. There were 96,226 jobs in traditional bioeconomy sectors (NACE-A), and more than six times as many, 643,226, in other bioeconomy sectors. In Norrbotten, the northernmost region of the 21 Swedish regions, there were 18,663 jobs in the bioeconomy in 2017, which is 15 % of the total number in the region. There were 4253 in Norrbotten in agriculture, forestry and fisheries, and 14,410 in other bio-based sectors. The majority of other bio-based jobs were in restaurants (2147), while 1325 people worked in industries producing power, paper and paperboard, 698 in prefabrication of wooden buildings, and 638 in sawing and mills.

Comparing regional-level data across the Nordic Region, the share of jobs in the bioeconomy ranges from below 15% to above 22.5% (Refsgaard *et al*, 2020).

With the increasing attraction of the countryside due to embedded amenities and space for families, this emerging development is likely to increase after the Covid-19 emergency passes. Thus, the likelihood of more numerous jobs emerging from innovations within bioeconomy is big, as is the attraction of lifestyles associated with these.

BeUBIO, a project that highlights examples of young entrepreneurs in the Nordic and Baltic region who are engaged in bioeconomic related innovations, created maps telling their story (Giacometti, 2020). The stories are both various and inspiring. One example of the stories is from Trondelag in Norway and highlights young people who established a company called Greenstock that is championing the circular economy by offering construction companies and organisations a simpler way to track and reuse their materials. More related stories are needed from around the Northern Periphery and Arctic region, but they are surely there and will probably increase in numbers in the years ahead.

In Klakksvík in the Faroe Islands, one of the key areas in their municipal growth plan is young people and strategies to motivate people to move to the municipality and also move back after having studied abroad. Not only were students listened to in the development process of the plan, the municipality also went to Denmark to inform students about opportunities to attract them to return to Klaksvík.

T. Leivsson (CEO at Búnaðarstovan Agricultural Agency) stresses the cooperation between different levels of governance and institutions involved. As a reaction to the decline in population and to motivate students to return, the House of Industries together with municipal representatives from different Faroese municipalities went to Faroese students studying abroad to try to convince them to return after studying. The focus was both on Danish towns and beyond. “During Christmas holidays”, he adds, “when students were back, they arranged different events for students here as well.” Information was provided on working opportunities, child care, health, building and buying houses and offering trainee opportunities with local companies (Kull *et al*, 2019).

According to Marita Rasmussen from the House of Industries, about 50% of young Faroese are currently abroad for education and roughly half of them do not return. Leivsson adds that keeping people two to three years after graduation from school increases the probability that they return home again, compared to leaving right after High School, for example. Compared to the past, more students are tending to return these years. Among the reasons is higher unemployment in Denmark and good job opportunities on the Faroe Islands. One important reason was also an improved marketing for job and life opportunities on the Faroe Islands.

“There are plans to build more in order to tackle the housing problem – above all to make affordable living space available for young families. Skorheim describes in this connection an interesting change in cultural trends related to housing and life planning. Traditionally, young Faroese were motivated to buy and own houses. This has changed – housing is expensive and there is a higher demand for apartments and row houses. According to Skorheim, culture and tradition up to the 1980s was that, after marriage, young couples built their own house. After an increasing number of students received university education in Denmark, this goal also started to change. Young people became interested in apartments and a house was not the key objective anymore. A new demand for diversified housing (owning / renting, houses, row-houses and apartments) started to emerge. In order to be able to react to this demand, Skorheim suggests and works for changing legislation giving the right to city councils to build apartments not only to sell land.” (Kull *et al*, 2019, p. 46)

Young East Iceland (Ungt Austurland) has also sought to attract people to the region. The non-governmental organisation was established in 2016 and is meant for young people from 18 to 40 years old who are concerned about the region’s future and development. The aim is to strengthen young people’s network in the region and to raise awareness among those who have emigrated about opportunities in East Iceland. In 2017 the organisation hosted a forum “Að heiman og heim” (Home and Back) to increase the visibility of companies and businesses in the area for those thinking about turning back to the region. The responses were good and around 50 companies, schools and entrepreneurs presented their activities, operations and opportunities. Ungt Austurland has also taken on a role as advocate for young people in the area and getting them involved in development, whether it concerns local politics, elections or transportation. In 2018 they offered a course on politics to encourage young people to actively

take part in local politics and take a seat on some of the party lists. The chair of the organisation, Margrét Árnadóttir, says that the voice of young people is both necessary for future development and appreciated among many in controlling positions in the municipality.

A large problem in Ilulissat in Greenland is the lack of youth education as all youth aged 15 to 18 have to move to other places to attend upper secondary education, meaning there is no teenage culture in town. Traditionally many of the children from the villages move from 9th grade to town schools with full board and a lot are going to boarding schools in Denmark. As Mayor Jeremiassen says: “The active and clever leave while the residual group are having social problems – this is a large problem. The plans are to get a gymnasium next year and some tourism education. We would like to have some craftsmanship education as well and are working towards this now. Within sports there are some Northern Greenlanders who are very good.”. “We try to keep the linkages to the students in Denmark at educational fairs in Denmark. The problem is that the more education you get the less keen you are on returning as you will only have a few colleagues, whether being lawyers, teachers or medics. These professional networks are important.”

In Lebesby in northern Norway, at the centre of the municipality’s work on creating an attractive and viable place to live is the conundrum of how to ensure that young people return to Lebesby after their studies. This is one of the most important concerns of the municipality’s attractiveness plans. Ensuring enjoyable living conditions for the young people is part of the strategy to retain or incentivise young people to return to Lebesby, “It is the most important measure we have”. According to the interviewees, this is exemplified by the municipality’s focus on creating a good and varied list of courses in the local School of Arts, as well as youth activities, sports and other activities. For example, the school of arts is working in an interdisciplinary approach to create a positive environment where children are allowed to develop their cultural interests. Some of the shows have even been held for the passengers on Hurtigruten (the Norwegian public coastal transport organisation); one interviewee said: ‘the children were very proud’. Creating an environment to thrive and be creative in is important, both for stimulating intellectual curiosity and arguably also for encouraging job creation at a later stage. Due to the difficulty of attracting applicants to jobs in the public sector, the ability to create something new is always on the horizon. According to one of the interviewees “you need to be a bit of an entrepreneur to live here”, and both of the families interviewed were actively engaged in either informal or formal volunteering, creating their own businesses or cultural initiatives.

10. What is needed to secure a roadmap for economic recovery for peripheral Arctic regions post Covid?

Should societies across the Northern Periphery and Arctic just revert to normal and get back to business as usual once the Covid-19 pandemic is controlled by virtue of vaccines? Every crisis creates a momentum, a possibility to rethink some of the premises underpinning what used to be before the crisis hit. The following points may serve as recommendations for pathways to economic recovery for Northern Periphery and Arctic regions.

- Securing continued access to schools and health care to support resilience and be attractive for families to settle.

- Tourism renaissance – supporting local businesses and enabling local stakeholders to think more than one year ahead.
- Nurturing innovation and diversification of local economies through young people's agency and capacity building, i.e. in the bioeconomy.
- Transformation of work to impact living preferences (requires digital infrastructure and equal and fair access to public services)
- Sustainable community building – slow regions as moments of attraction as the immediate impacts of Covid-19 ebb and long-term impacts and zeitgeist shifts emerge.
- Cooperation between municipalities is a way to share resources and knowledge and can therefore be considered a driver for spatial justice. People in the region are in general positive towards digitalisation but civil organisations and public authorities working with digital education and training are worried that the implementation of digital services without sufficient training will create a digital divide between generations, and also possibly expand the difference between urban and rural areas.
- In the wake of Covid-19, this development has even increased in importance to safeguard the population and support economic and social resilience during time of crises.
- Also, during the pandemic there was a strong institutional machinery of expertise for data production and dissemination. Despite rather different national ambitions in detection strategies (both concerning infections and mortalities), this machinery produced facts and figures as though they were measured uniformly (Lidskog & Standring, 2020).
- Local knowledge of regional and municipal governance contexts has been essential to address innovation relating to systemic issues, but it surely also relates to the revival after a pandemic to generate local economic recovery. It means that governance must be exercised in proximity to the local context, by involving 'the local actors'. Hence, the devolvement of local governing functions and systems would be more suitable to respond to local demands than centralised initiatives from far away. That is a take-away for local and regional actors on the pathway to economic recovery post Covid-19 in the NPA area.

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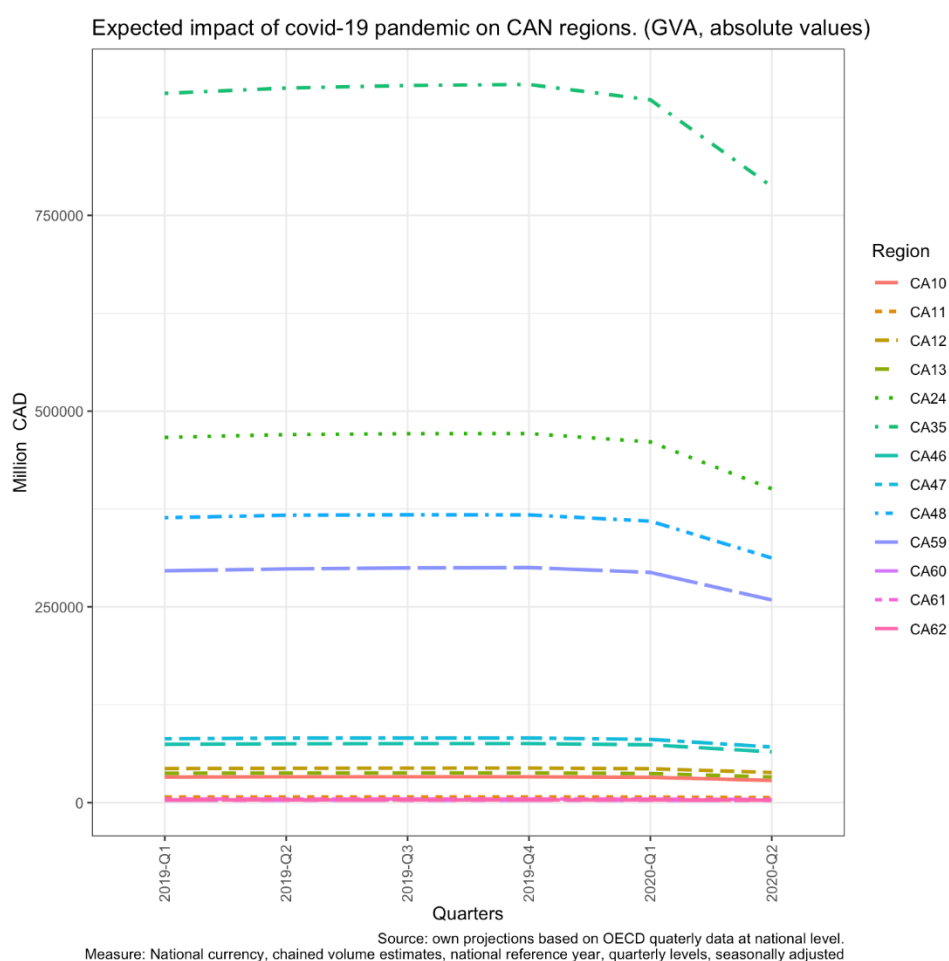
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Weber, R., Eilertsen, S.M., & Suopajarvi, L. (2017). Local land use planning: Guidance on spatial data, geographic information systems and foresight in the Arctic. REGINA Report 2017:1 Stockholm:Nordregio https://nordregio.org/wp-content/uploads/2018/03/REGINA-Local-land-use-report-2017_1.pdf

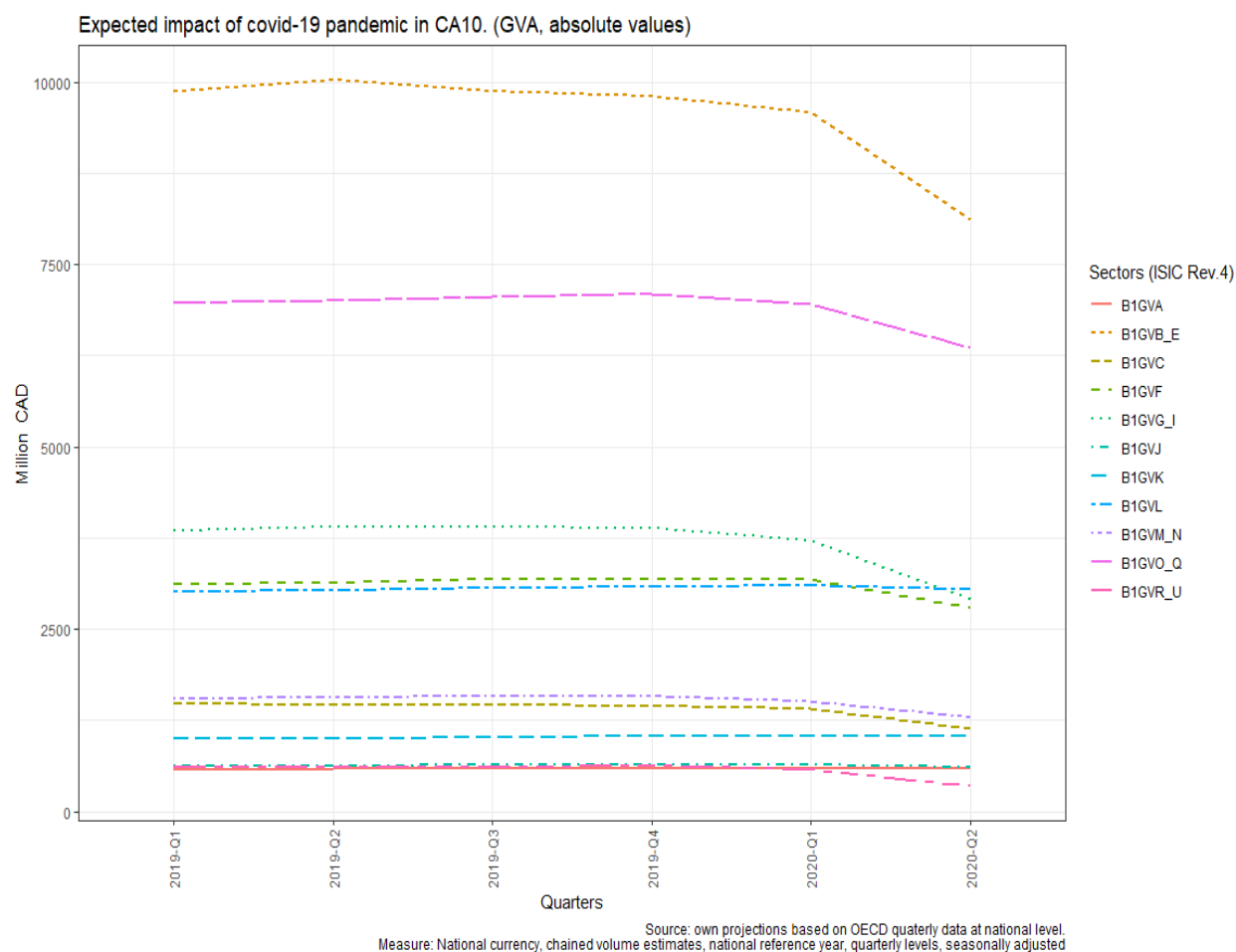
APPENDIX: The economic impacts of COVID-19 in NPA regions through the lens of cross sectoral Gross Value Added (GVA)

The pandemic caused by Covid-19 has had a considerable impact on health and mortality in the NPA area. By November 2020, almost two and half a million people had been confirmed to suffer the disease in the NPA countries and almost 50,000 had died from it. Besides the irreparable consequences on the health conditions of the population, the pandemic has also impacted the economy of the NPA regions. With the aim of highlighting the socio-economic impacts of Covid-19 in the NPA regions, this section will summarise the evolution of two relevant indicators, gross value added (GVA) and employment, before and after the outbreak of the pandemic.

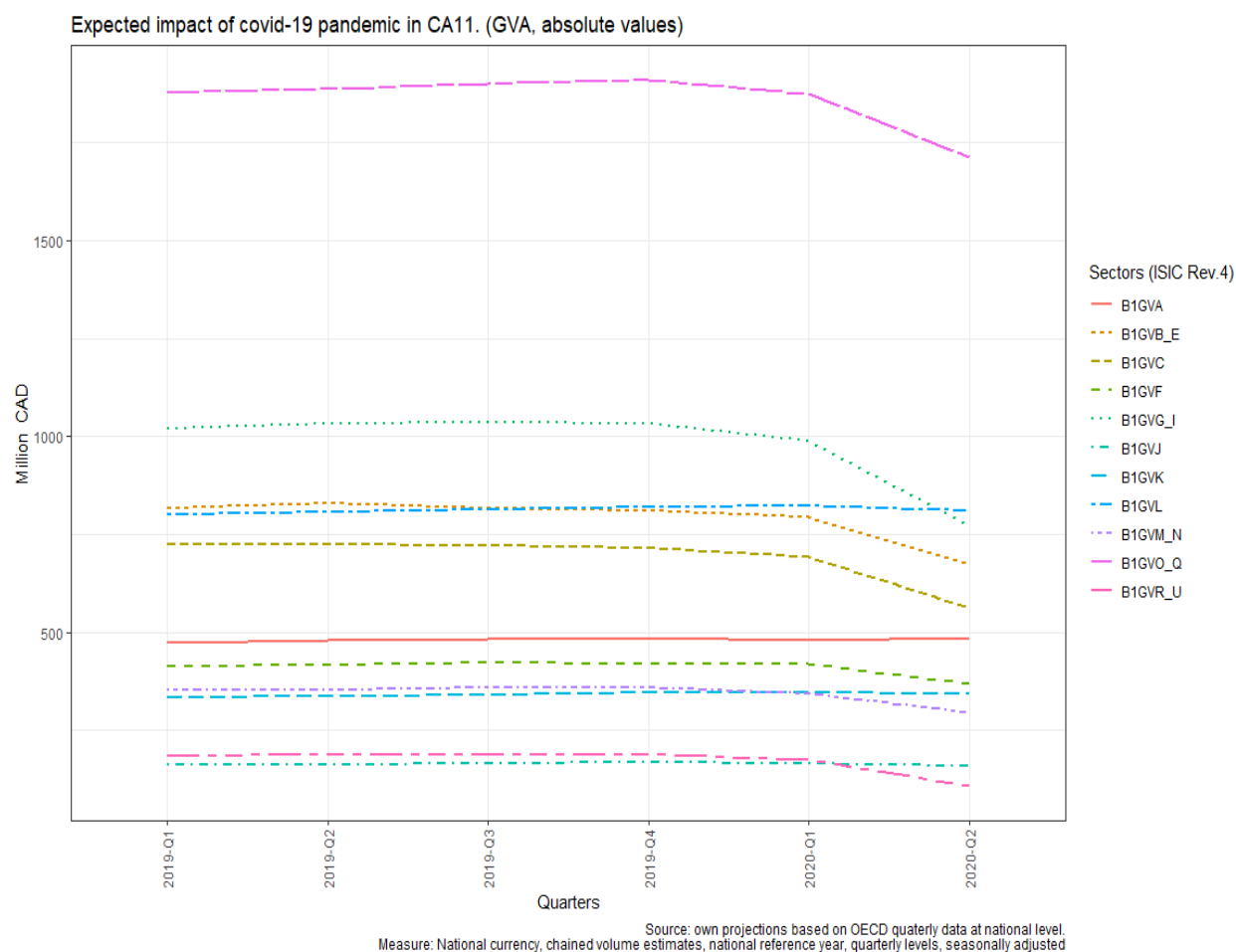
In terms of GVA, most of the regions, including non-NPA regions, have seen a recovery which in some cases reaches pre-Covid-19 levels. Except for Canadian regions, for which there is not available data beyond 2020Q2, the regions in the rest of NPA countries have, to a greater or lesser extent, seen their GVA grow again in 2020Q3. The following graph shows the impact of Covid-19 in Canadian regions.



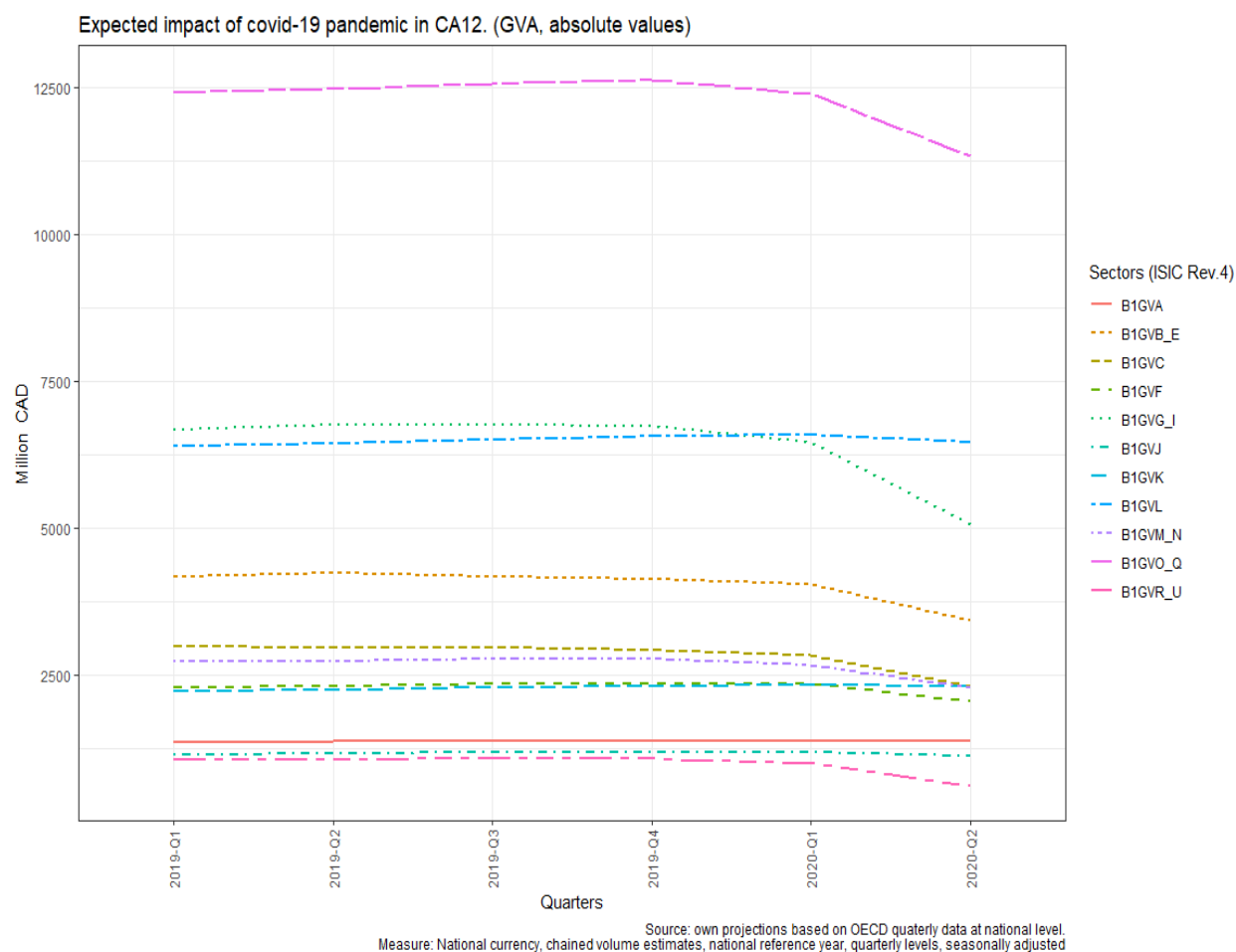
Although not perceptible in the graph, due to the small share they represent in the gross national economy, the NPA regions in Canada (Newfoundland and Labrador, Prince Edward Islands, Nova Scotia, and New Brunswick) have been significantly affected by Covid-19. For example, the largest sectors in Newfoundland and Labrador (CA10), which are the energy and the public administration sectors, have been severely hit by the outbreak of the pandemic. The energy sector's GVA declined from almost C\$ 10,000 million in 2020Q1 to around C\$ 8,125 million in 2020Q2. The GVA of the public administration sector decreased from C\$ 6,875 to 6,250 million in the same period.



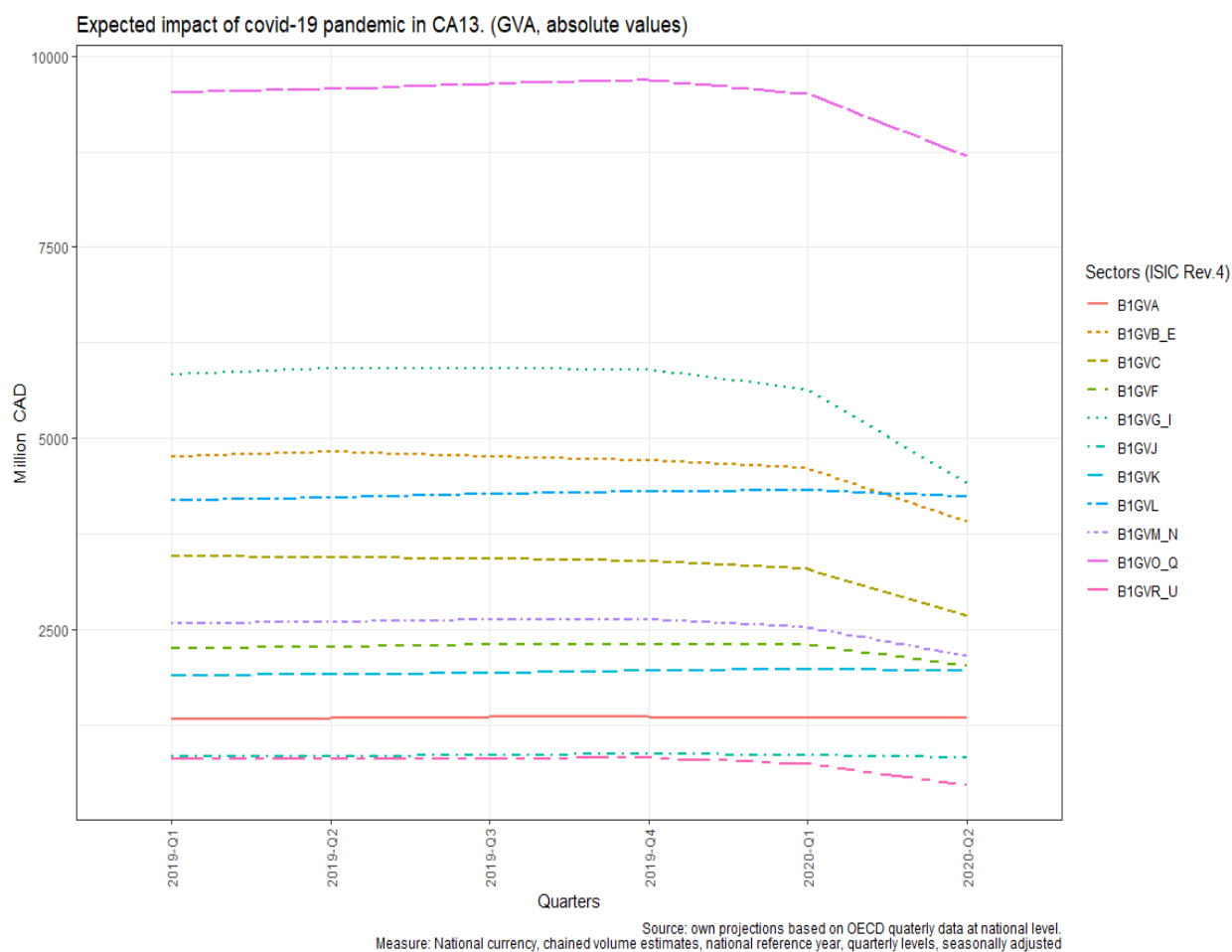
In Prince Edward Island (CA11), public administration is by far the largest sector, almost double the size of the second largest sector, which is tourism. In 2019Q4, the GVA of the public administration sector accounted for around C\$ 1,900 million which remained stable through 2020Q1 but then dropped to C\$ 1,700 million. A heavier drop took place in the tourism sector which declined from C\$ 1,000 to 750 million in the same period.



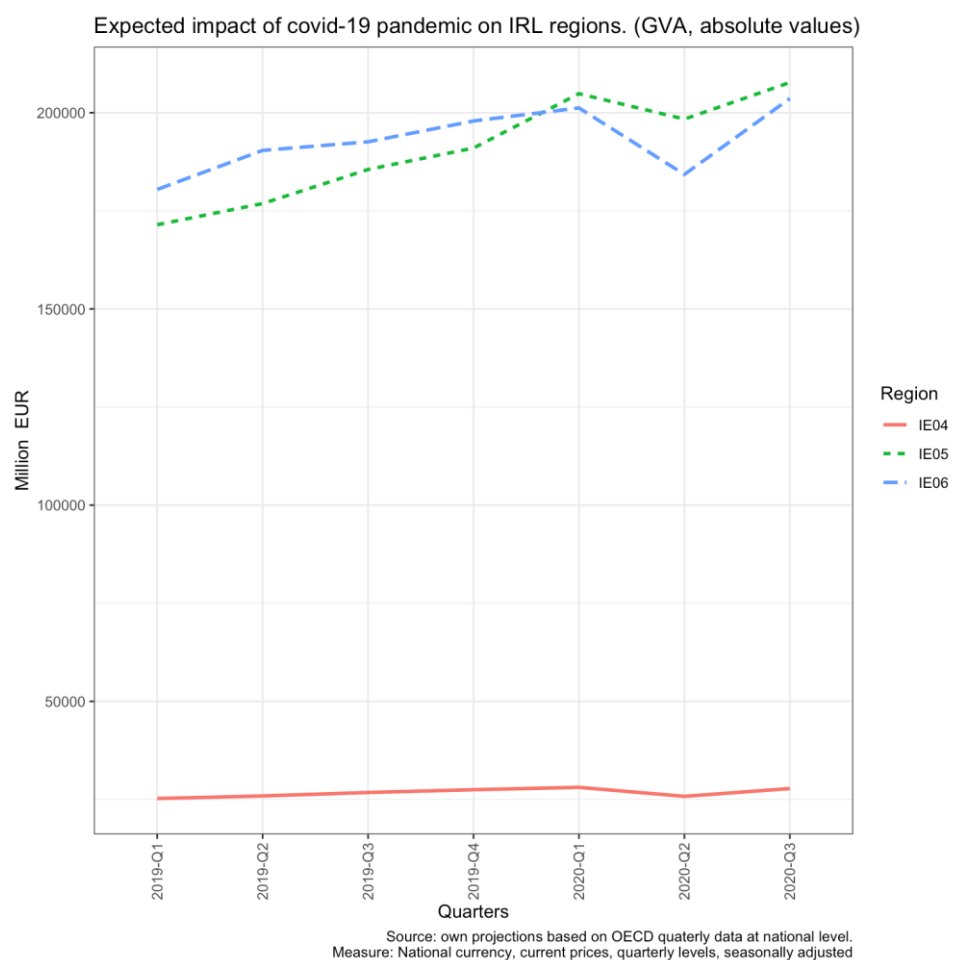
Nova Scotia's (CA12) GVA shows the same distribution across sectors with public administration the largest, followed by tourism and real estate. While the first two sectors experienced the same declines as in Prince Edward Island (a drop from C\$ 12,500 to 11,250 million in public administration, and C\$ 6,250 to 5,000 million in tourism), the real estate sector remained stable and became the second largest in the region at C\$ 6,250 million.



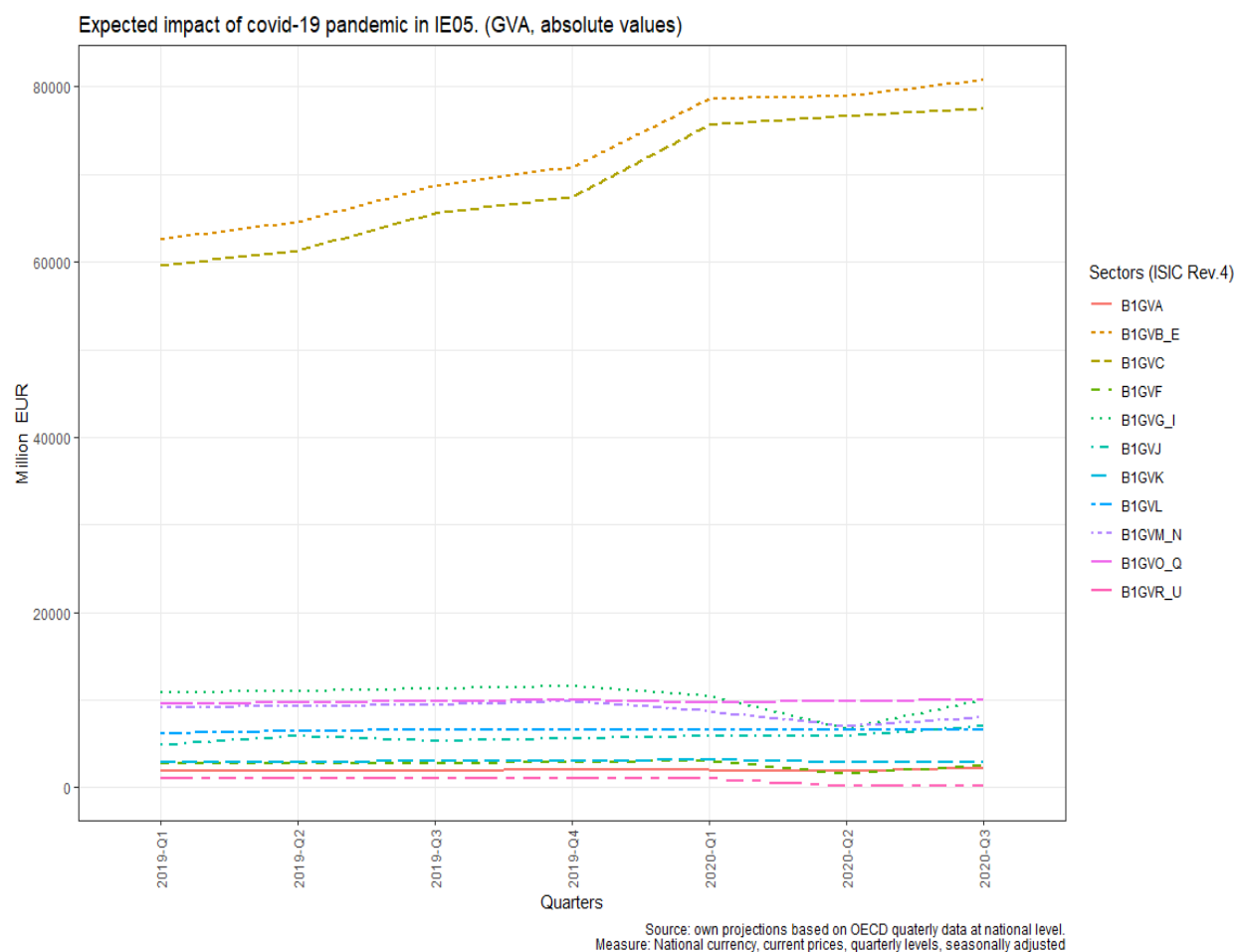
In Brunswick (CA13), public administration is also the largest sector and its GVA decreased from C\$ 9,000 to 8,750 million between 2020Q1 and 2020Q2. The decline in tourism, the second largest sector, was more pronounced as it fell from C\$ 5,625 to 5,225 million. At the national level, in Canada, the sectors most affected by Covid-19 were service activities, trade and tourism, and manufacturing. In 2020Q2 these sectors lost about 38%, 21% and 19% respectively of their GVA. At the other end of the spectrum, the primary sector, comprising agriculture, forestry and fishing, grew about 2% in 2020Q2.



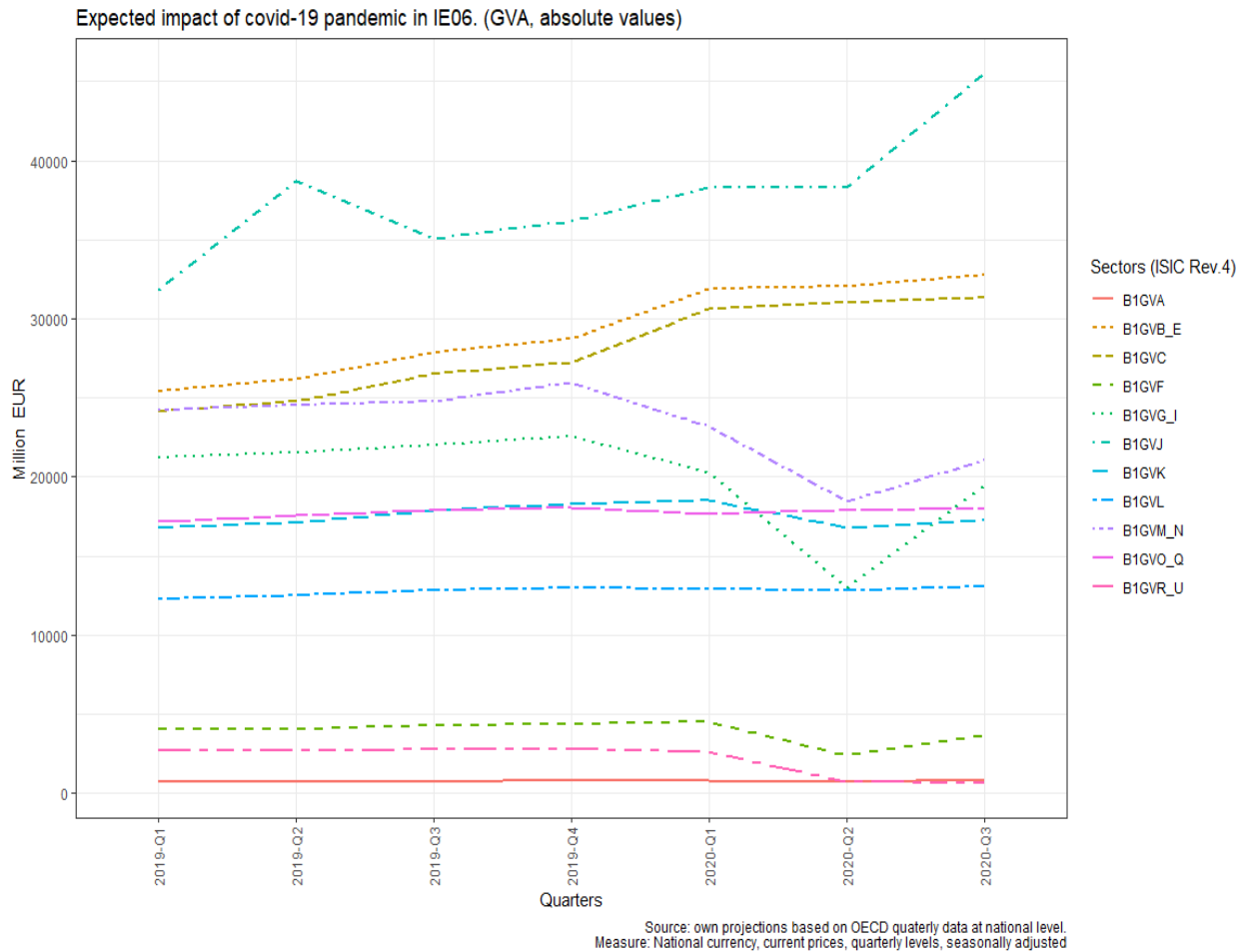
In the case of Ireland, by the 2020Q3 all Irish regions had recovered their GVA levels of 2020Q1 as we can see in this Graph.



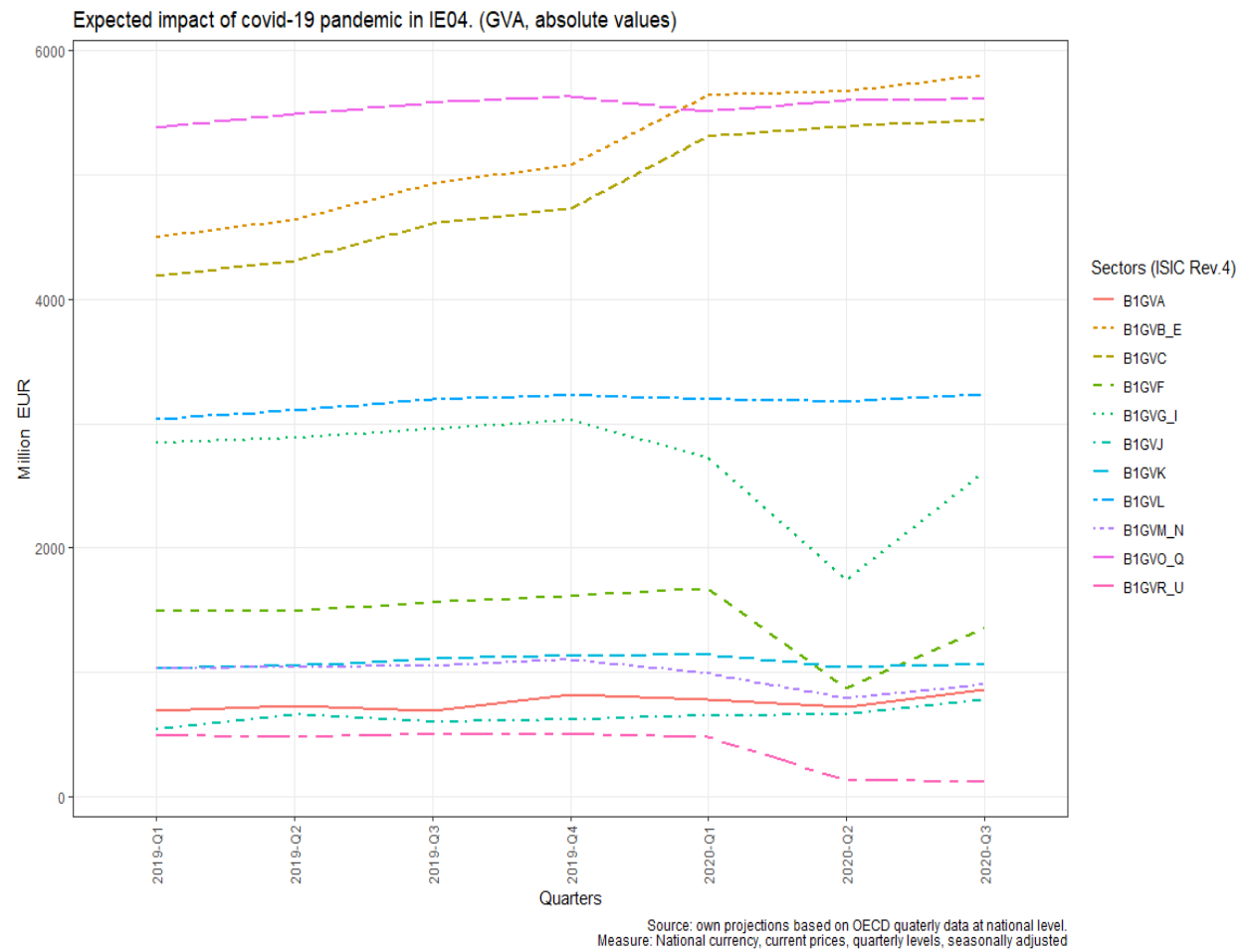
The Southern region (IE05), with large manufacturing and energy sectors, has not been severely impacted by the pandemic as the GVA of these sectors has remained stable.



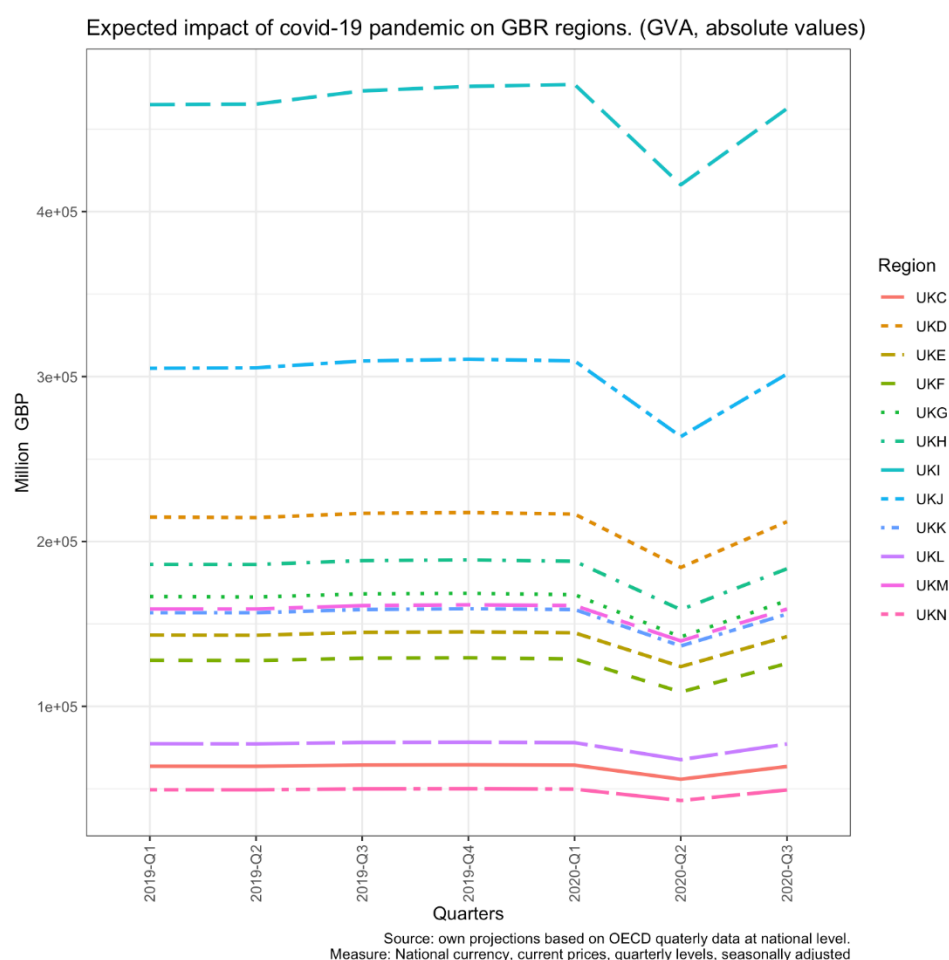
In the Eastern and Midland region (IE06) the information and communication sector is the largest and neither has been hit by the Covid-19 outbreak. In fact, this sector's GVA has grown from €38,000 million in 2020Q2 to more than €45,000 million in 2020Q3.



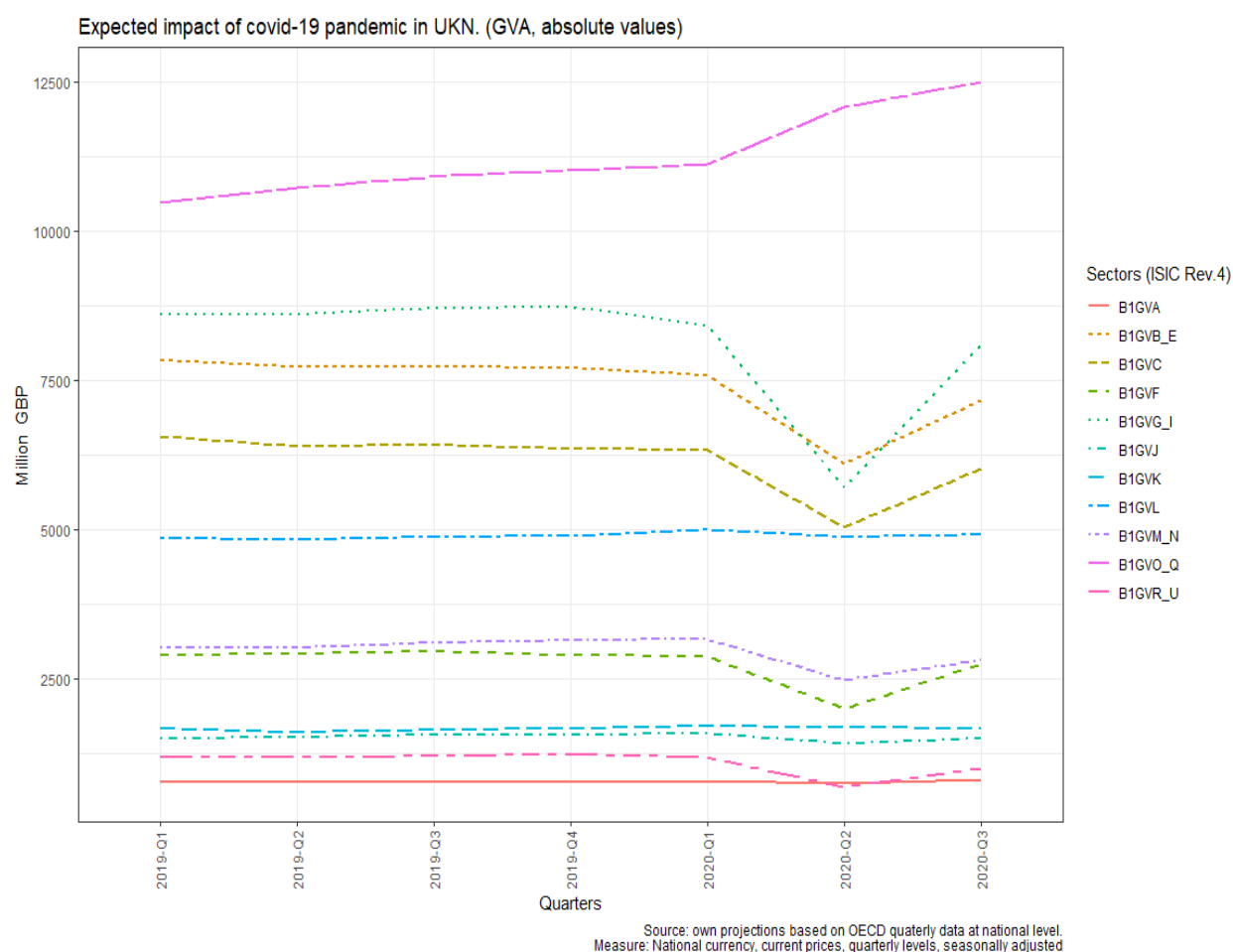
At the national level, the sectors more affected were the other services sector, construction, and tourism. While the first sector does not represent a significant share of the regions' GVA, construction and tourism are relatively strong in the North Western region (IE04), and to a lesser extent in the Eastern and Midland region (IE06). In the North Western region, the construction's sector GVA decreased from €1 800 million in 2020Q1 to about €900 million in 2020Q2, to later increase to €1,500 million in 2020Q3. A similar pattern took place in the tourism sector as the sector's GVA decreased from €3,000 million in 2019Q4 to €1,850 million in 2020Q2 to later rise to €3,750 million in 2020Q3.



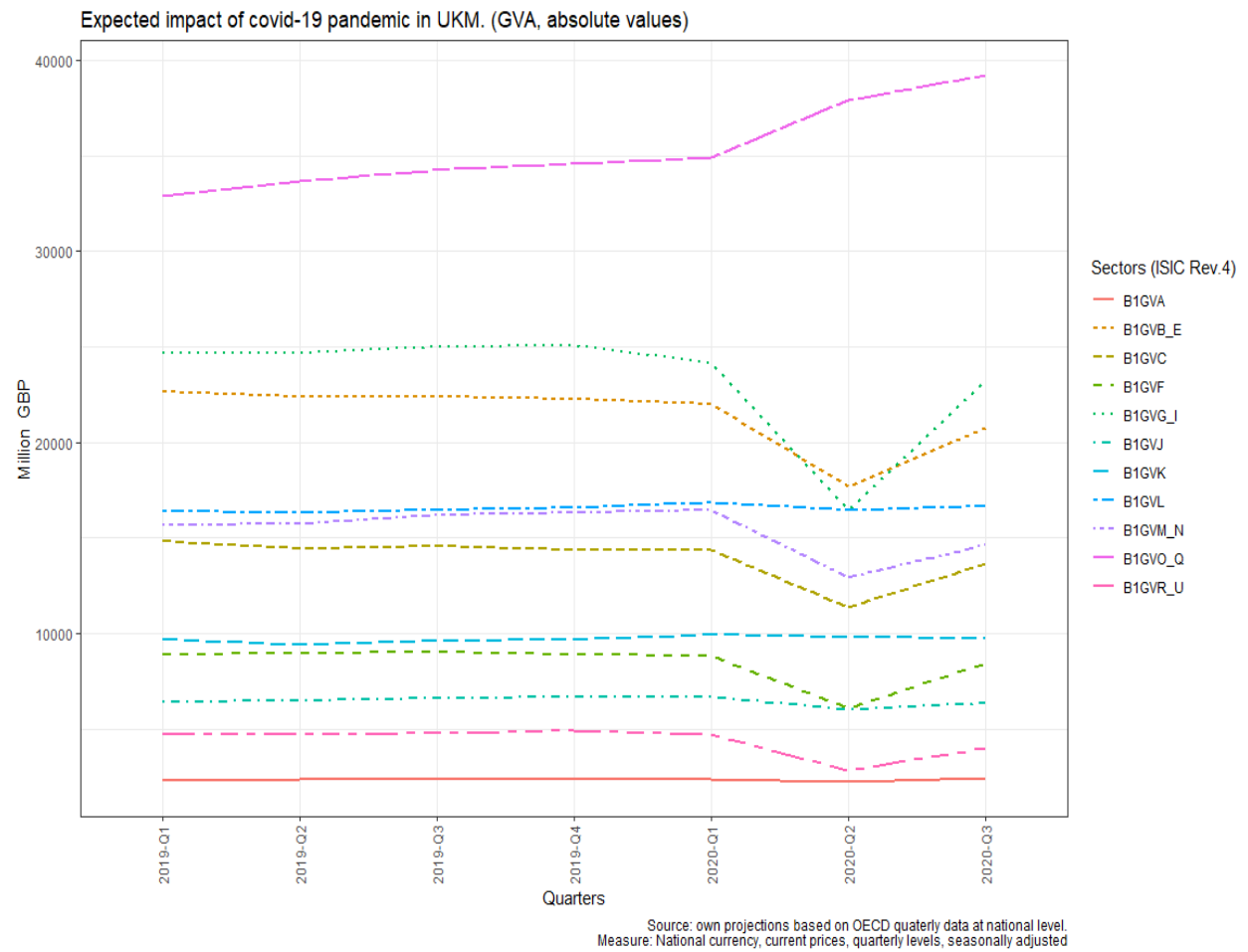
The next graph shows how the GVA of British regions plummeted in 2020Q2 but grew quickly in 2020Q3 to similar levels seen during 2019 and 2020Q1, when it reached its peak. Of special interest are North Ireland (UKN) and Scotland (UKM), which are the two NPA regions in the United Kingdom.



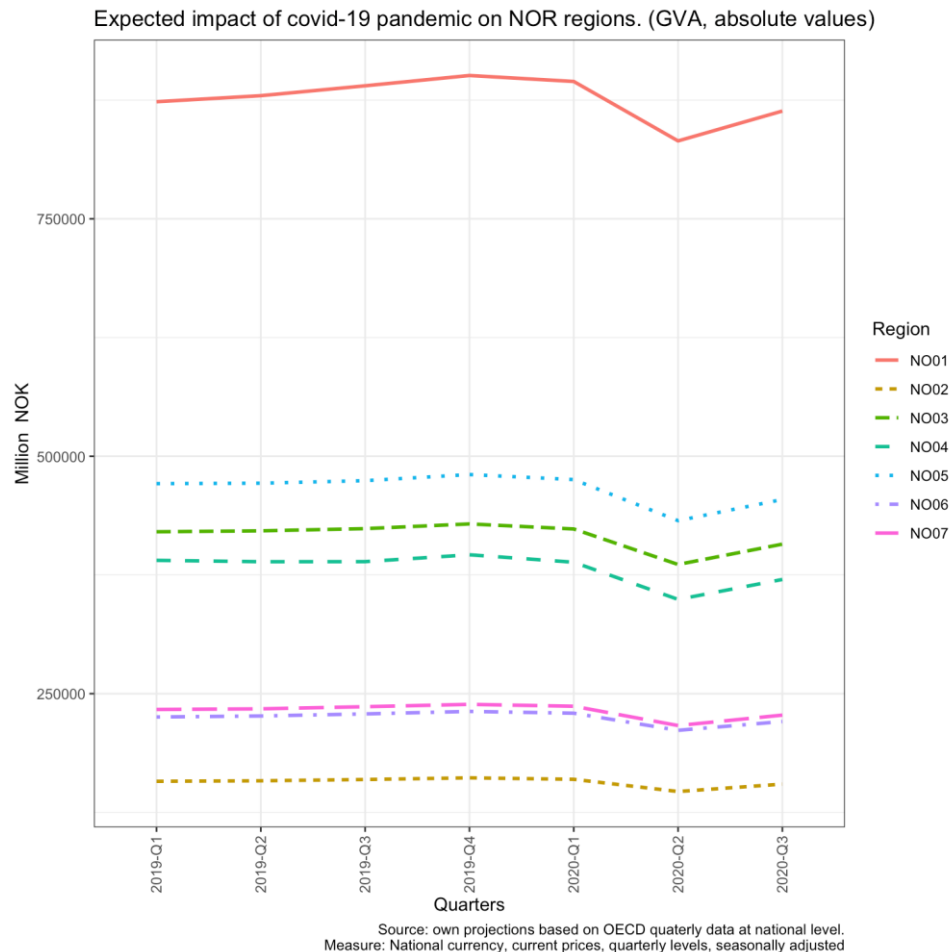
Both regions present a similar structure in their economies where public administration is the largest sector followed by tourism and industry. The impact of Covid-19 in these sectors went in opposite directions. While public administration saw its GVA grow between 2020Q1 and 2020Q3, tourism and industry's GVA dropped in 2020Q2 and slightly recovered in 2020Q3. In North Ireland, for example, public administration GVA went from £11,125 to £12 500 million between the first and third quarters of 2020. On the other hand, tourism GVA fell from £8,750 million in 2020Q1 to less than £6,250 million, to later climb to £7,800 million.



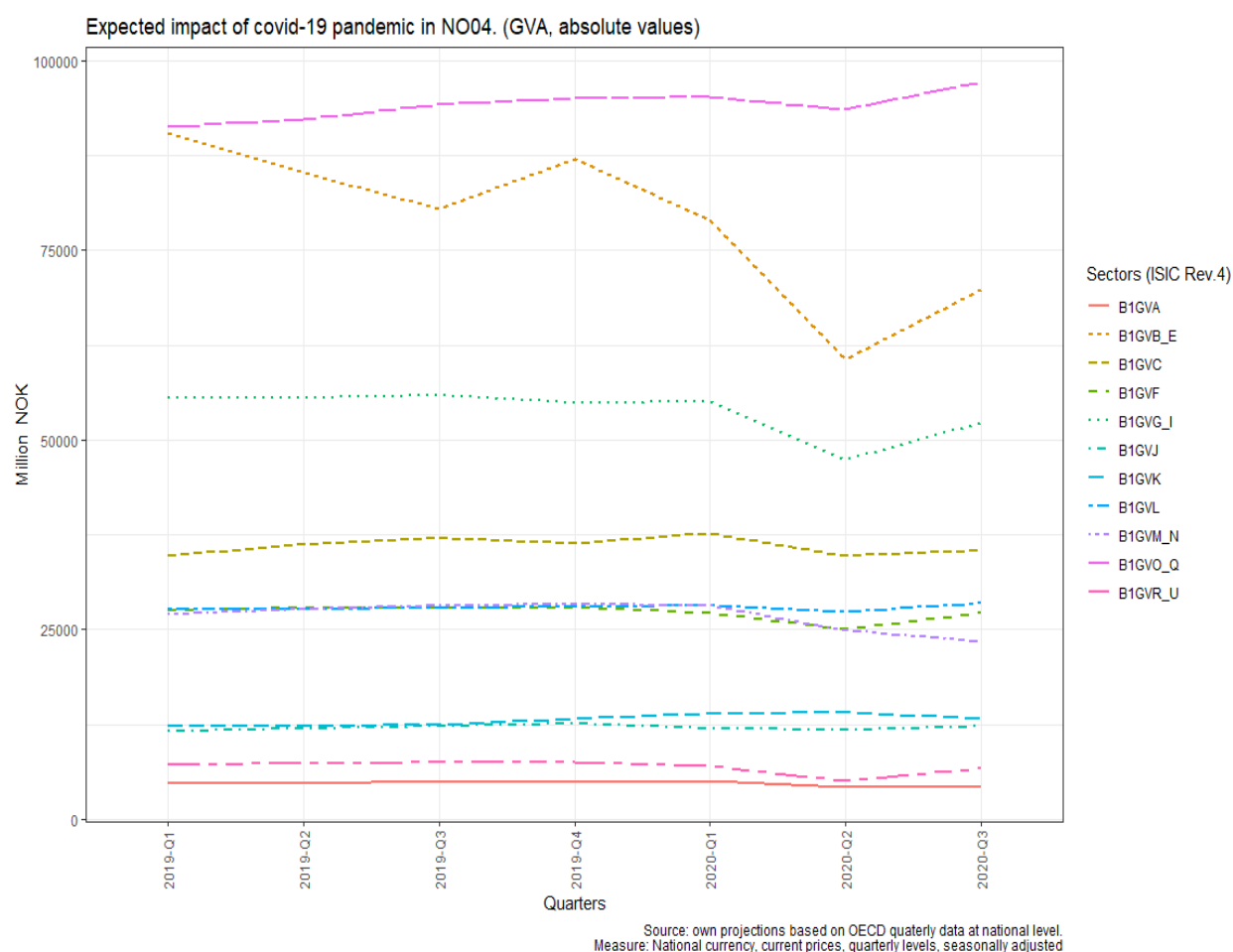
In Scotland, public administration GVA rose from £35,000 to £40,000 million from 2020Q1 to 2020Q3. Tourism fell from £24,000 to £17,000 million in 2020Q2 to rise to £23,000 million in 2020Q3. Less severe was the impact on the industry sector which declined from £22,500 to £18,000 million between 2020Q1 and 2020Q2, to then recover to £21,000 million in 2020Q3.



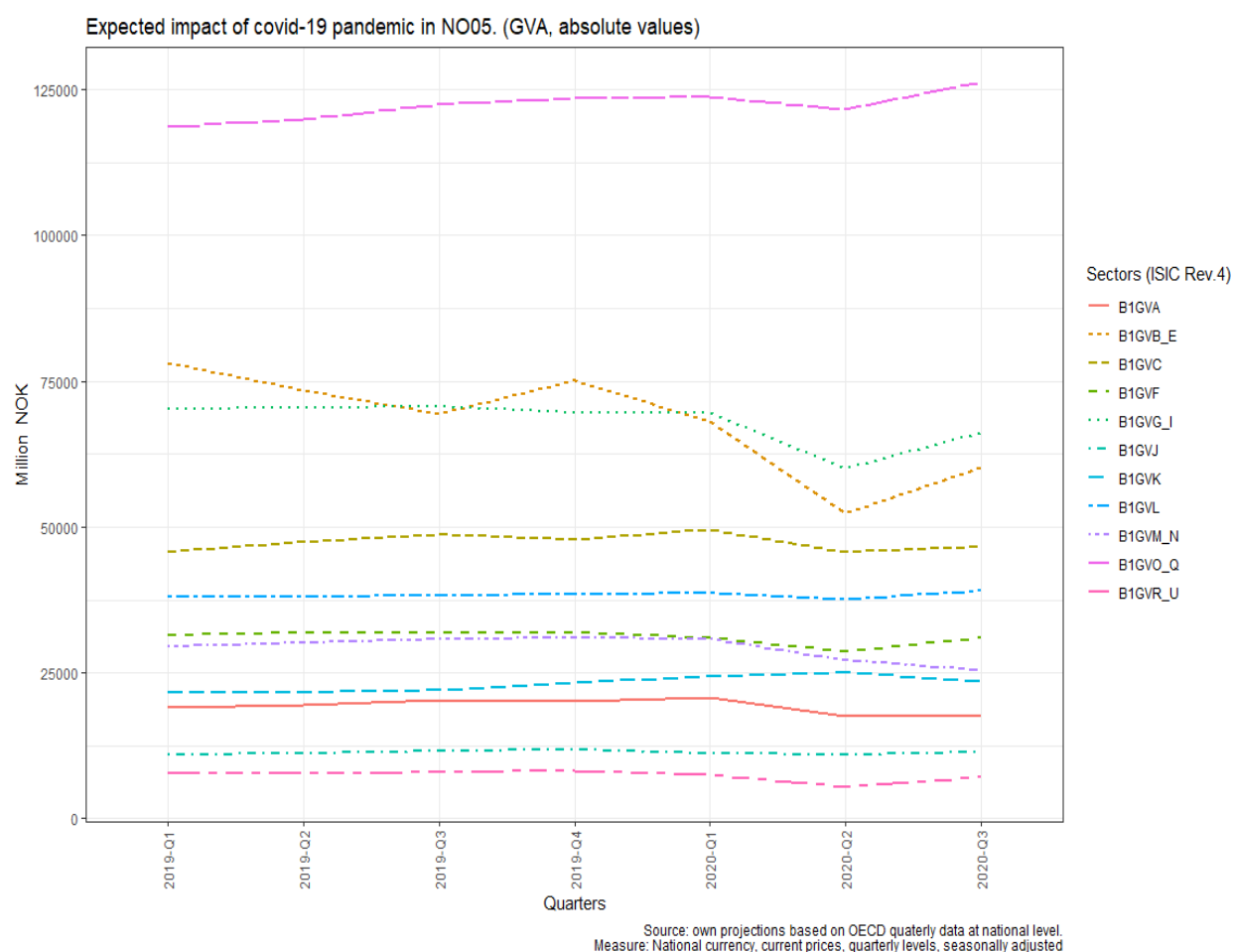
Norwegian regions have also seen a reasonable recovery although perhaps not as strong as the Irish or British. In Norway, too, GVA dropped to its lowest point in 2020Q2 and slightly recovered in 2020Q3.



Norwegian NPA regions are strongly driven by their public administration sectors. In all of them public administration is the largest sector and, in some of them, the size of this sector is double that of the following sector. The impact of Covid-19 has thus resembled to a large extent that of Irish and British regions. In Rogaland (NO04), for example, public administration experienced an imperceptible decline during 2020Q2, but the trend remained positive over the first three quarters of 2020. However, the industry sector, the second largest in Rogaland, experienced a more difficult development as its GVA declined from NOK 80,000 to 62,500 million between 2020Q1 to 2020Q2. The tourism sector, the third largest in Rogaland, also declined between 2020Q1 and 2020Q2 and recovered between 2020Q2 and 2020Q3.

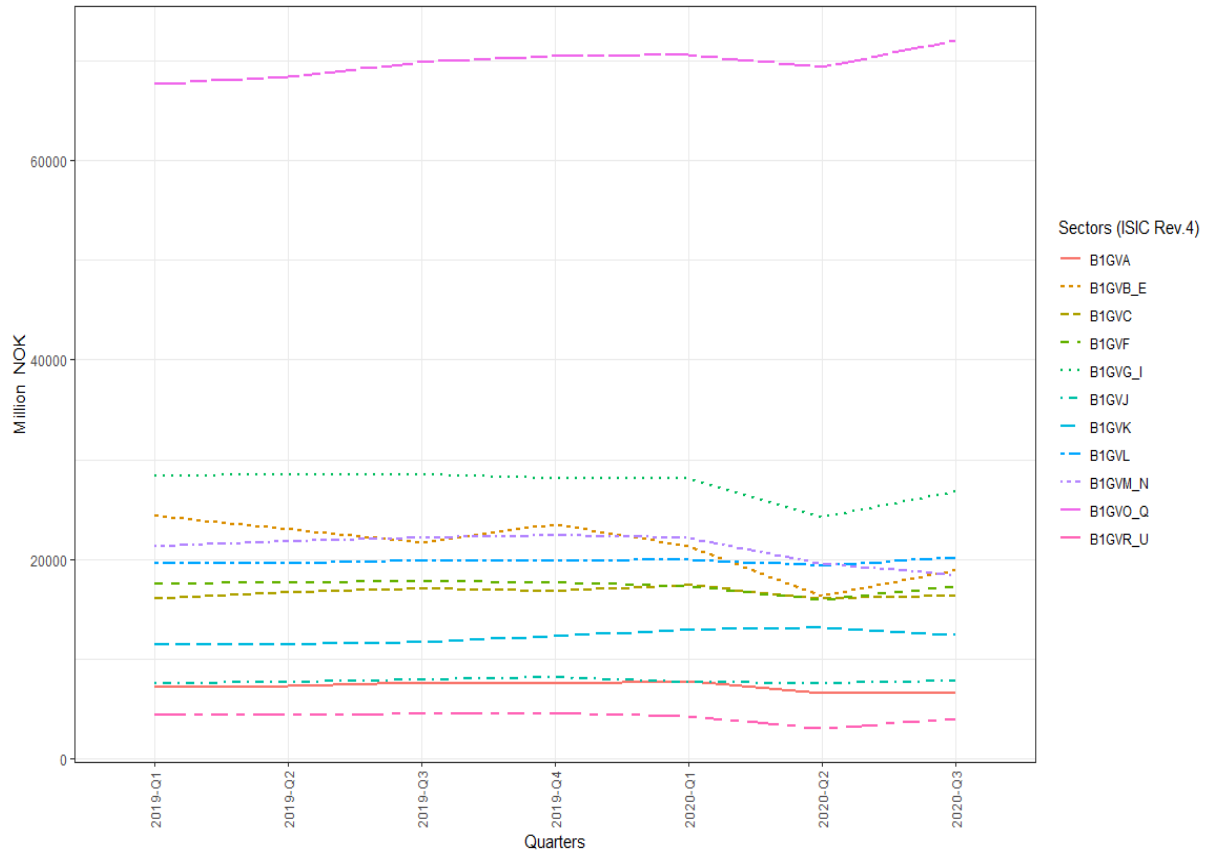


Public administration, industry, and tourism were also the largest sectors in Vestlandet (NO05). Before the outbreak (2019Q4), public administration GVA stood at NOK 125,000 million, industry GVA at NOK 75,000 million, and tourism GVA at NOK 70,000 million. In Vestlandet, as in Rogaland, the public sector did experience a very slight decline during 2020Q2, but by 2020Q3 its GVA was larger than at the beginning of the outbreak. However, the industry and tourism sectors suffered more severely from the impact of Covid-19. The GVA of industry, for example, dropped from NOK 70,000 to 52,000 million between 2020Q1 and 2020Q2. The GVA of tourism did not decline as much but, nonetheless, the sector also receded from NOK 70,000 to 62,500 million in the same period. Although these two sectors recovered in 2020Q3, the difference with the public administration sector highlights the impact of Covid-19 in the region. By 2020Q3, public administration GVA was NOK 125,000 million, tourism was then the second largest sector at NOK 65,000 million, and industry the third at NOK 60,000 million.

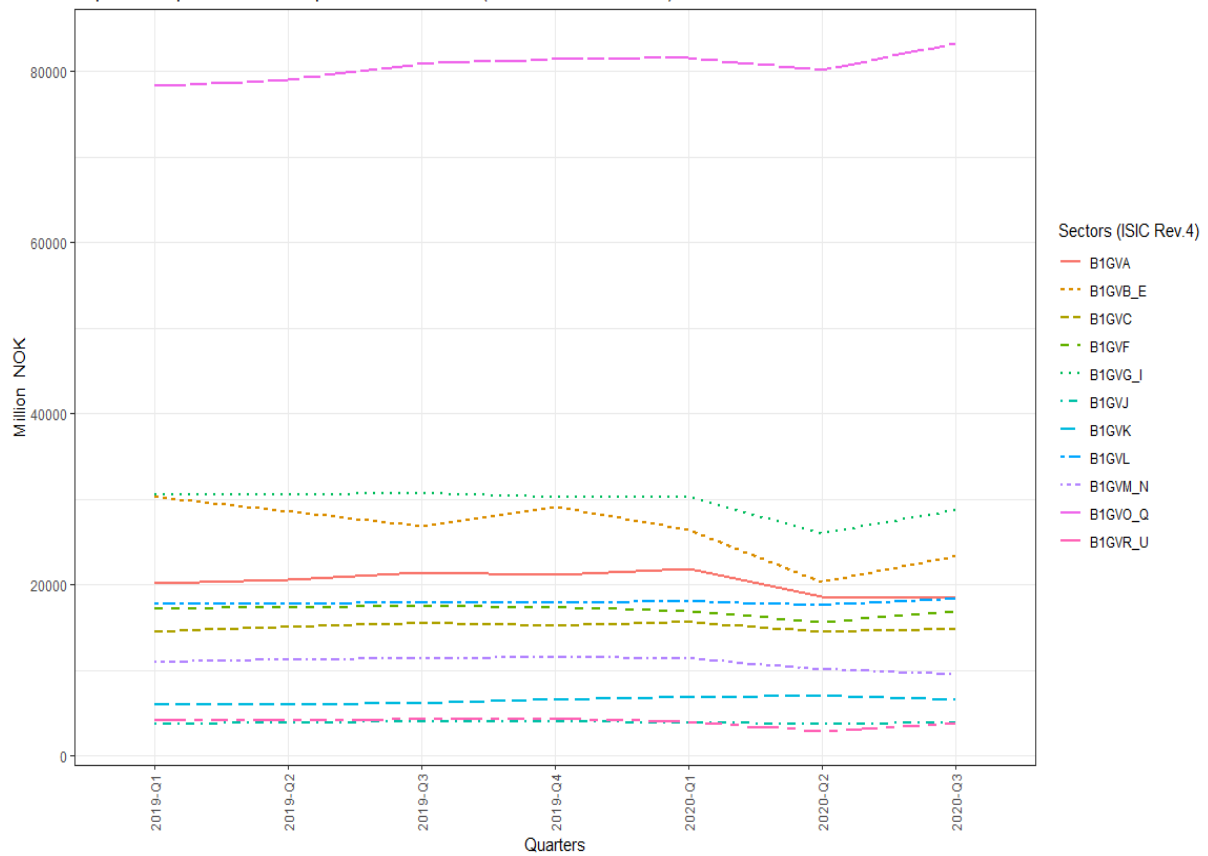


In Trondelag (NO06), public administration is by far the largest sector as it is more than double the second largest sector in the region (tourism). During the pandemic, the GVA of public administration has steadily risen from NOK 70,000 to 72,000 million. In contrast, tourism has decreased from NOK 29,000 to 26,000 million. The same trend was replicated in North Norway (NO07) where public administration is also the largest sector, almost triple that of tourism, which is the second largest sector.

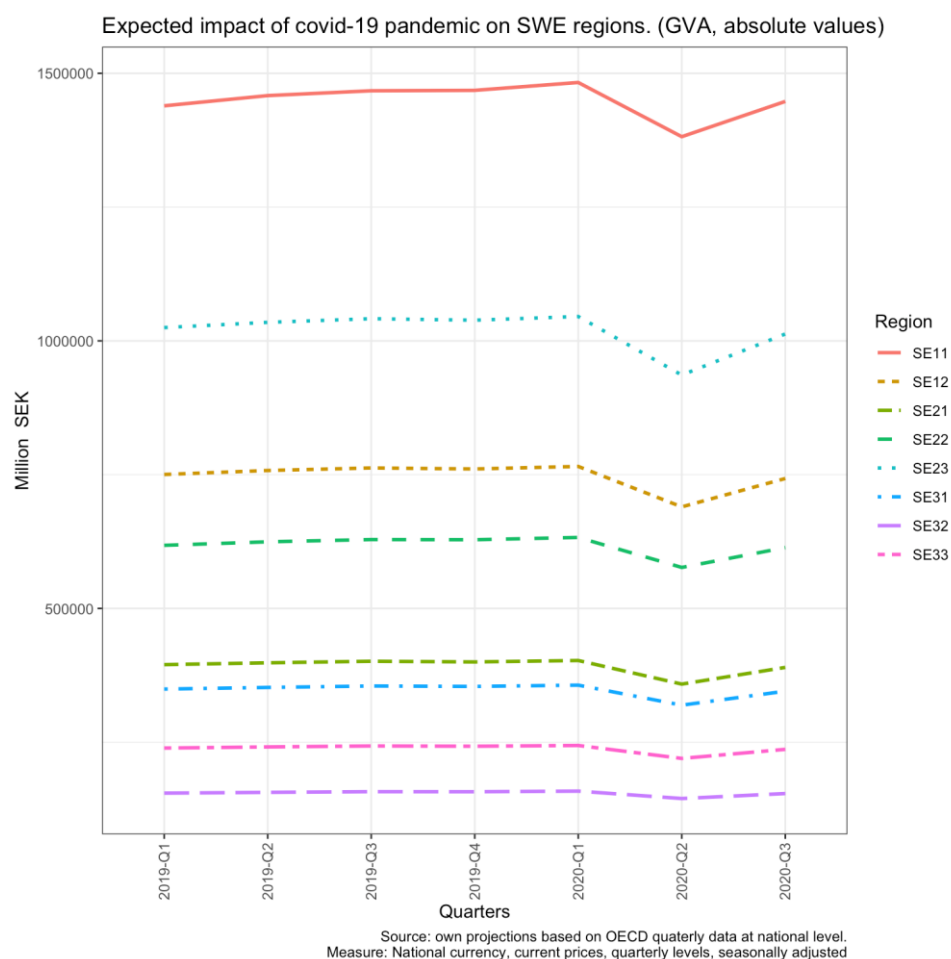
Expected impact of covid-19 pandemic in NO06. (GVA, absolute values)



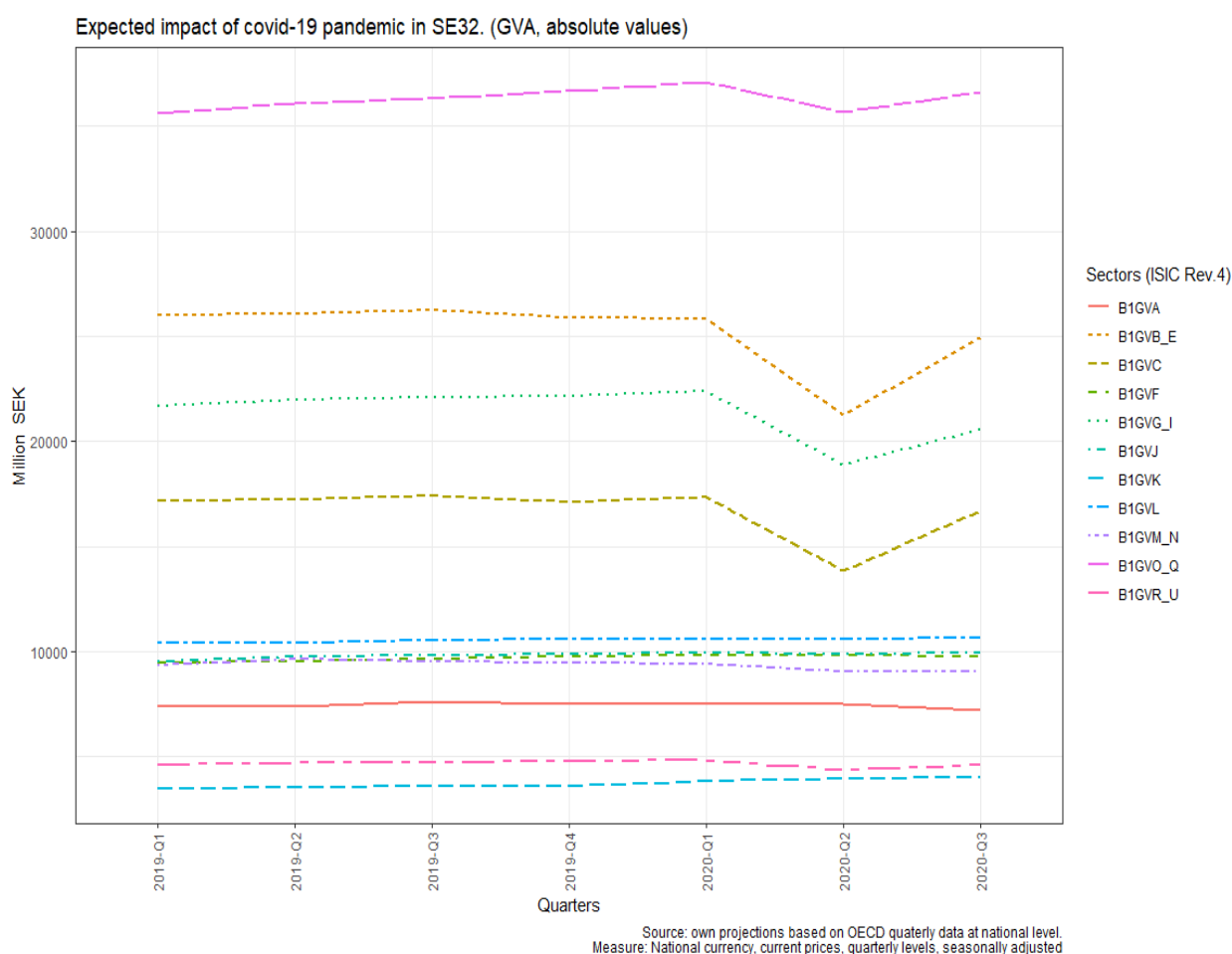
Expected impact of covid-19 pandemic in NO07. (GVA, absolute values)



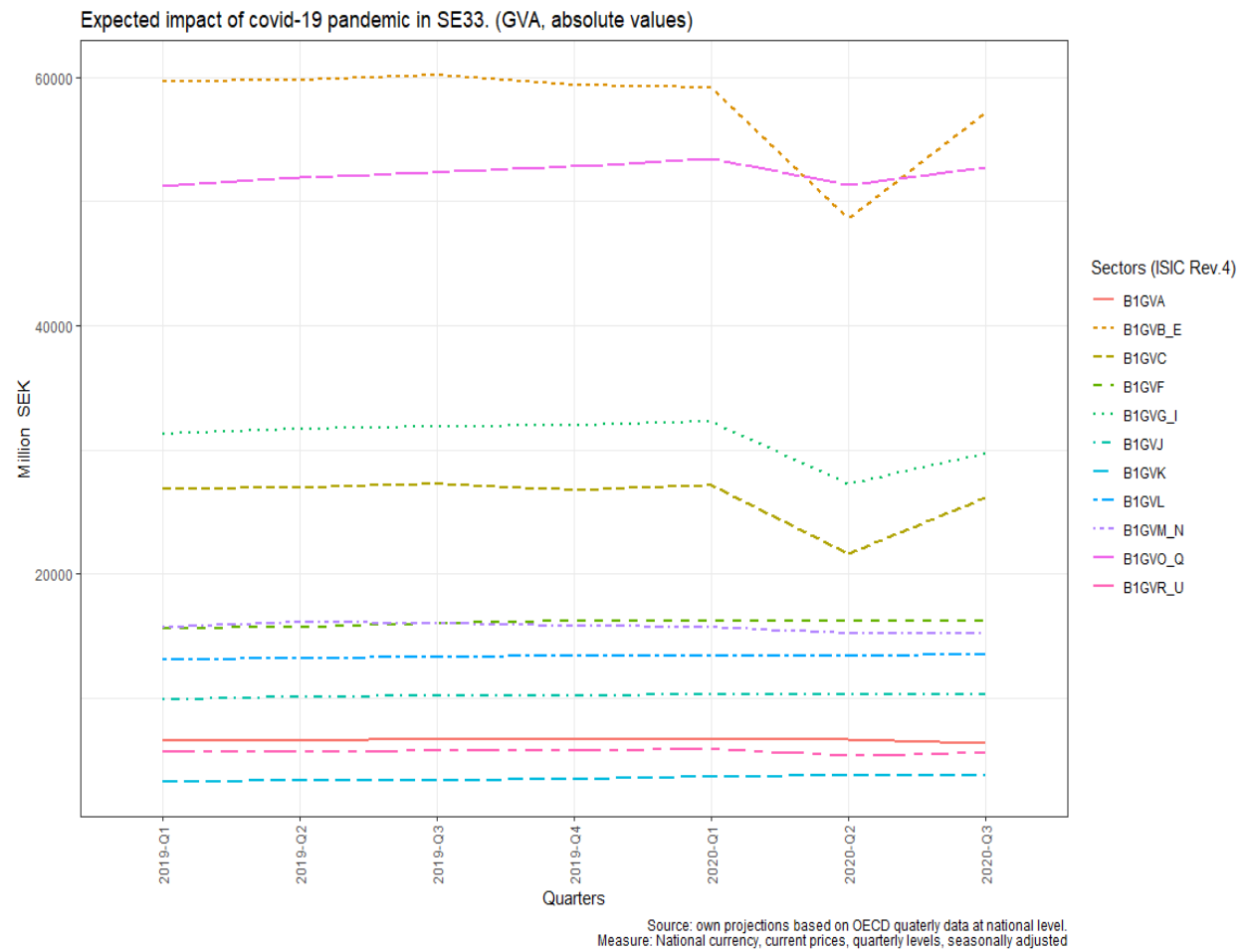
The same trend can be seen in Swedish regions where GVA also grew during 2019 and 2020Q1, only to drop in 2020Q2 and recover in 2020Q3, although without reaching pre-Covid-19 levels. NPA regions in Sweden, Mellersta Norrland (SE32) and Övre Norrland (SE33), are the smallest in the country. Nonetheless, their economic structure differs slightly.



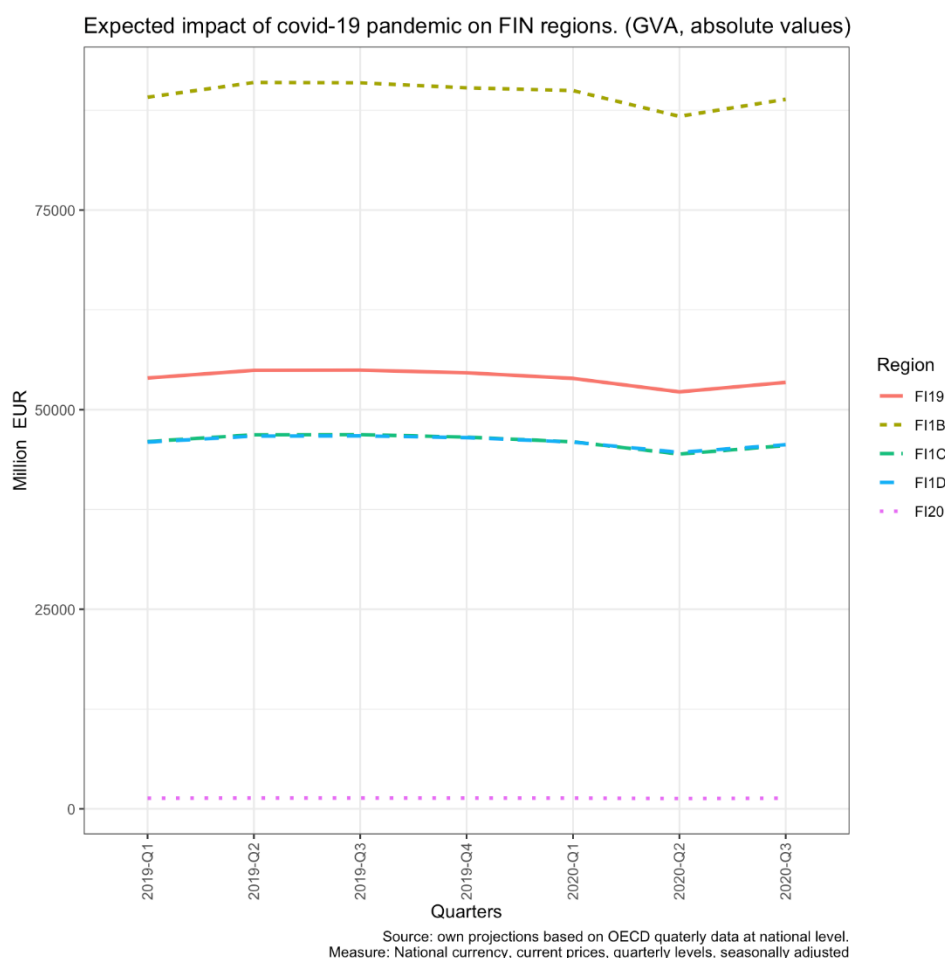
The public sector dominates in Mellersta Norrland (Middle Norrland) while industry, tourism, and manufacturing come second, third, and fourth respectively. As in other regions, the public sector did not suffer a strong decline in GVA, although the growth accumulated through 2019 vanished in 2020Q2. Before the outbreak (2020Q1) of Covid-19, the GVA of this sector was at its peak (it reached around SEK 37,000 million), but then declined to SEK 35,000 million in 2020Q2, to come back to SEK 37,000 million in 2020Q3. The industry, tourism, and manufacturing sectors suffered major losses and their recovery was not as strong. Industry, for example, saw its GVA decline from SEK 26,000 (2020Q1) to 21,000 million (2020Q2), and later increase to SEK 25,000 million in 2020Q3. GVA in tourism fell from SEK 22,500 to 19,000 million and then rise to SEK 20,000 million. Finally, GVA in manufacturing declined from SEK 17,500 to 14,000 million to then reach SEK 16,000 million in 2020Q3.



As we have been seeing so far, the tourism, industry, and manufacturing sectors were the most vulnerable to Covid-19 in several countries. This was also the case in Övre Norrland (Upper Norrland) where these lost GVA during 2020Q2. Furthermore, industry in this region used to be the largest sector but the impact of Covid-19 caused the sector to decline heavily. In 2020Q2, the public administration sector was for first time the largest sector in the region. The industry sector remained stable during all 2019 and in 2020Q1 showed a GVA of SEK 60,000 million that fell sharply to SEK 50,000 million in 2020Q2. It partially recovered in 2020Q3 and reached SEK 58,000 million. The public sector in 2020Q1 had a GVA of around SEK 53,000 million that, although decreasing slightly, remained stable during 2020. Tourism and manufacturing also saw their GVA decrease during 2020. In the case of tourism, it dropped from SEK 32,000 to 28,000 million to finally reach SEK 30,000 million in 2020Q3. In manufacturing, the drop was more pronounced as it fell from SEK 28,000 to 21,000 million. Nonetheless, in 2020Q3, the sector recovered and reached SEK 27,000 million.

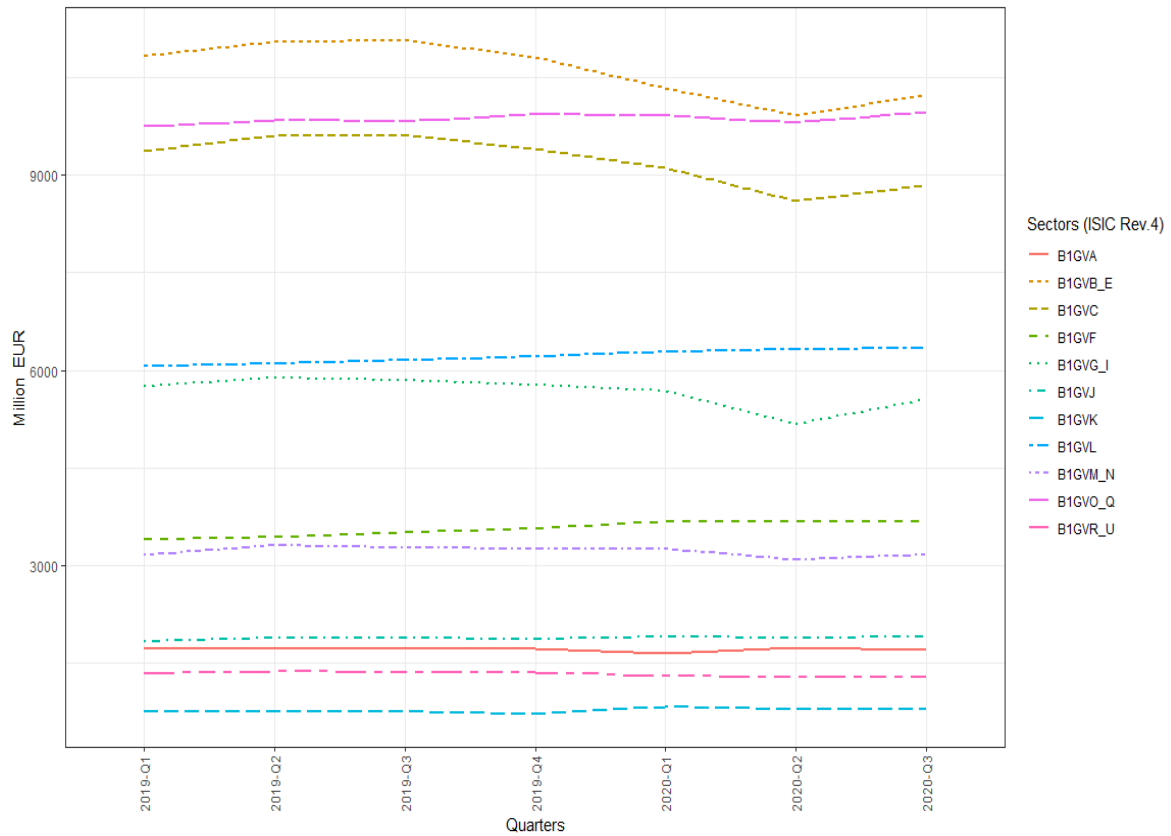


Finally, Finish regions also experienced a loss of GVA in 2020Q2, after a stable 2019 and 2020Q1, although it was a rather light decline which was quickly recovered in 2020Q3.



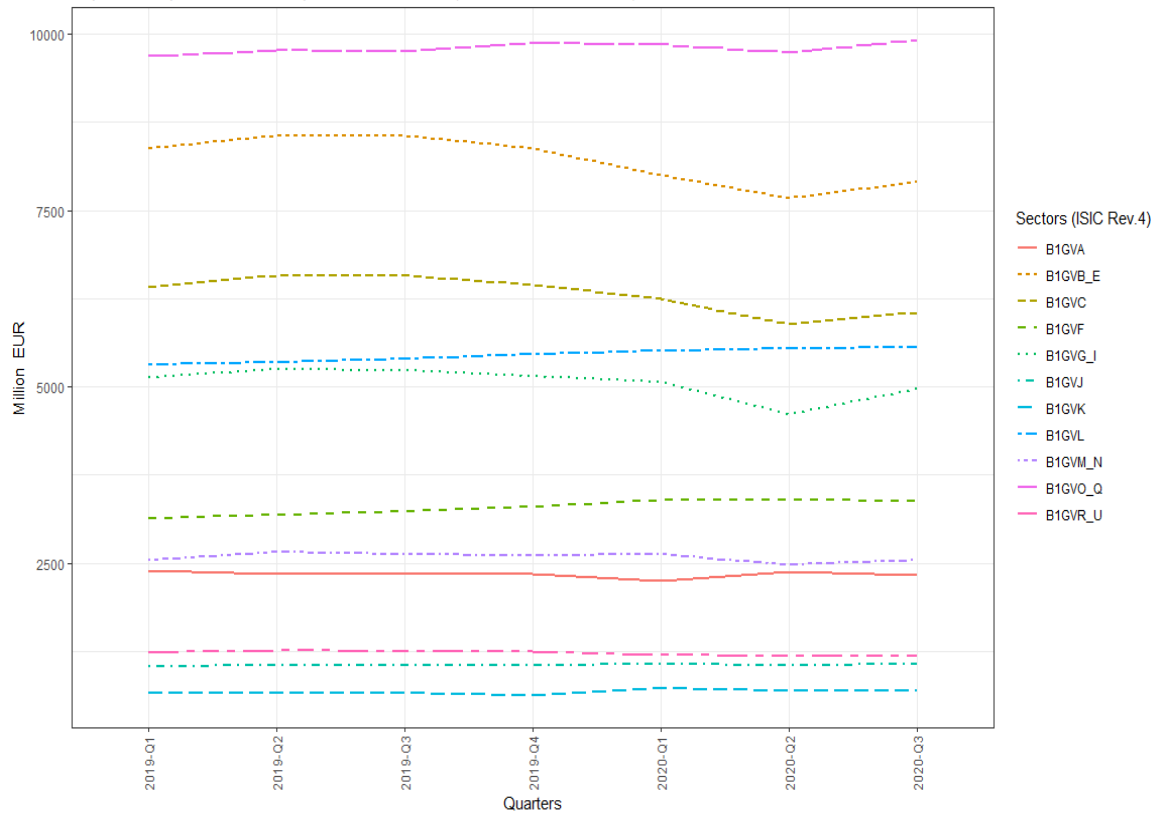
Länsi-Suomi (West Finland, FI19) and Pohjois-ja Itä-Suomi (East and Northern Finland, FI1D) are the two NPA regions in Finland. They represent a significant share of the national GVA, and their economic structure is quite diversified among sectors. For example, in Länsi-Suomi, before the pandemic the industry, public administration, and manufacturing sectors were the largest and their GVA stood between €9,000 and 11,000 million. However, the impact of the pandemic was greater for industry and manufacturing, although not extreme. The GVA in industry decreased from €10,500 million in 2020Q1 to €10,000 million in 2020Q2, to later reach €10,400 million in 2020Q3. The same trend took place in manufacturing where GVA dropped from €9,000 to 8,700 million between 2020Q1 and 2020Q2. In the last quarter of 2020, it slightly recovered up to €8,900 million. During this period, the public administration sector remained stable at around €10,000 million.

Expected impact of covid-19 pandemic in F119. (GVA, absolute values)



Source: own projections based on OECD quarterly data at national level.
Measure: National currency, current prices, quarterly levels, seasonally adjusted

Expected impact of covid-19 pandemic in F11D. (GVA, absolute values)



Source: own projections based on OECD quarterly data at national level.
Measure: National currency, current prices, quarterly levels, seasonally adjusted