Economic consequences of the pandemic – The Nordic countries

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Executive summary

The global pandemic created by the Covid-19 virus (officially named SARS-CoV-2) has had major negative economic consequences in numerous countries, including the Swedish economy and in particular the Swedish business community. The Swedish Corona Commission decided to have a background report in which the measures undertaken by the Swedish government to mitigate the economic consequences of the pandemic are evaluated in a comparative perspective with respect to other Nordic countries (Denmark, Finland and Norway).

The main findings of the report are:

- From a macroeconomic perspective the developments in the major Nordic countries during the pandemic have been qualitatively similar and the differences have been quantitatively small or at most moderate. The first wave of the pandemic triggered a severe drop in economic activity but the recovery has been swift in all four Nordics bringing activity by mid 2021 back to or slightly above the pre-pandemic level. There are significant sectoral differences in impacts and recovery, and in particular service and tourism related sectors have been affected.
- The four Nordic countries introduced big packages of unconventional, even unprecedented support policies to help firms, labour markets and households. The measures were introduced quickly as a package in the very beginning of the pandemic, and there were many subsequent changes which makes it impossible to assess the efficacy of single policy measures. The report gives a qualitative discussion and assessment of the pros and cons of key support measures.

- The policy packages in the four Nordics differed in detail, though they had the same aim of supporting firms, labour markets and households through the difficult period. While many design issues can be discussed, the policy interventions have succeeded in preserving production capacity and job matches to make a swift recovery possible. The packages have not only maintained production capacity by supporting jobs and firms but also ensured that domestic demand was largely intact by supporting the income of households. This may be interpreted as a two-handed approach to which addressed the economic consequences of the pandemic.
- The policy strategy was not without risk, and it is probably crucial that the containment restrictions were only applying for a relatively short period of time, and with an interim reopening between the two waves (rather than one long period of equal total length). The economic support measures have a status-quo bias and may stifle reallocation of human and real capital and thereby reduce economic performance in the future. It is therefore essential that such non-market conform interventions are temporary.
- The Nordic countries have done well compared to other most other countries. Denmark, Finland, and Norway are among the countries having experienced the mildest health and economic consequences. The economic consequences in Sweden are at about the same level as the other Nordic countries, but so far the health consequences have been more dire.
- The pandemic is continuing with a new wave of infections due to the omicron variety of the virus, so it is premature to make final assessments of the economic impacts.

Postscript

The report is based on data and other information available to the authors on December 10, 2021 at the latest.

A new wave of an increasing number of infected and hospitalized people has hit the Nordic countries after this cut-off date for the report, and the appearance of the new omicron variant shows that the pandemic has not ended.

Some containment and relief measures have been re-introduced or planned but not as severe as during the earlier waves. At present there is substantial uncertainty with respect to the consequences and future developments. It is too early to conclude whether the newly introduced measures would be sufficient.

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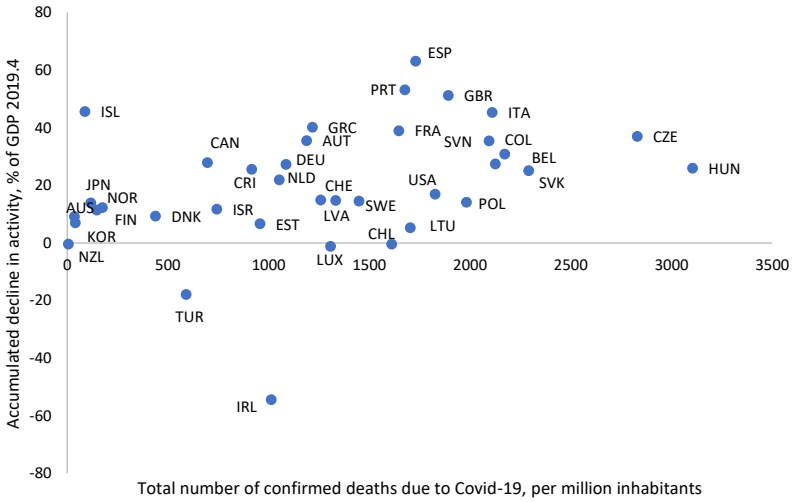
1 Introduction

In response to the Covid-19 pandemic countries have taken resort to both unusual containment policies to reduce the spread of the virus and unconventional economic policy measures in the form of so-called emergency or relief packages to support households, job-matches, and firms.

The pandemic has had severe health and economic consequences world-wide. A summary of the development is given in Figure 1 showing a cross-plot for OECD countries of the accumulated decline in economic activity relative to the fourth quarter of 2019 (2019.4), for the period 2020.1 to 2021.2, as well as the total number of confirmed deaths due to Covid-19 until the end of March 2021. Most countries have experienced declines in economic activity, which are unprecedented, large and abrupt also compared to other crises. Global GDP declined by 9.1 % in 2020.2 and in the Euro-area by no less than 14.6 %. Countries having been most severely affected along the health dimension tend also to have been most affected along the economic dimension. These differences do not only reflect different policy strategies along the health and economic dimensions but also structural differences e.g., importance of tourism, digitalization, demographic factors etc. see below.

Figure 1 **The Covid-19 crisis, accumulated number of deaths and decline in economic activity per 2021.2**



Note: Accumulated decline in activity is the sum of the difference in activity to 2019.4 in the period from 2020.1 to 2021.2, based in seasonally adjusted GDP statistics from www.oecd-ilibrary.org. Mortality data is total deaths due to Covid-19 from start of 2020 to end of March 2021 based on data from www.ourworldindata. org.

The Nordic countries have done well compared to other most other countries. Denmark, Finland, and Norway are among the countries having experienced the mildest health and economic consequences. The economic consequences in Sweden are at about the same level as the other Nordic countries, but the health consequences have been more dire so far. This observation is of course preliminary as the pandemic continues with vengeance and the omicron virus variety is highly contagious and is currently becoming dominant. The outlook for the future is quite uncertain as information about the severity of disease from omicron variety is currently imperfect.

This report takes a closer look at how the Covid-19 pandemic has affected the four Nordic countries (Denmark, Finland, Norway, and Sweden) providing an overview of the economic developments, a comparative overview of measures taken to mitigate the economic consequences of the Covid-19 pandemic, and an assessment of the effects of the economic measures to protect incomes, jobs, and firms in the short-run, and their implications for recovery post re-openings.

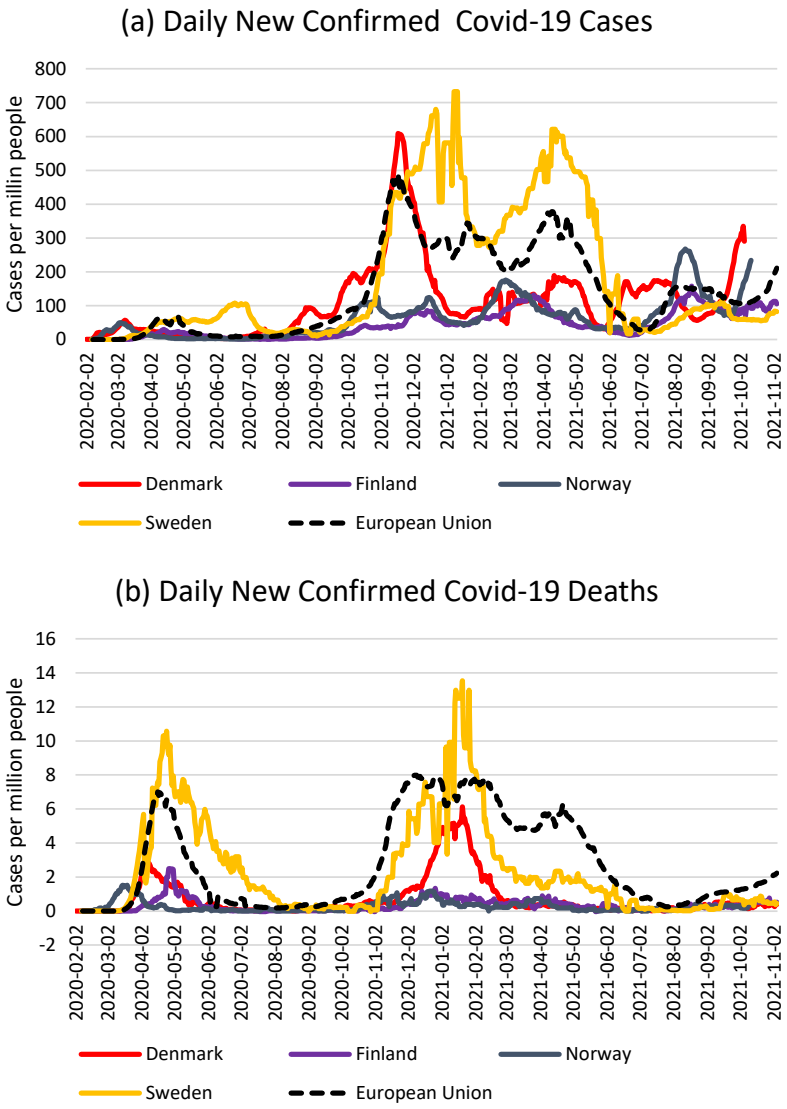
This report focuses on developments from the onset of the Pandemic in 2020 and until mid-2021, and hence data mainly applies to the period up to the second quarter of 2021. The focus is on policies and economic development over this period, and the report is organized as follows. First health developments and containment policies are briefly reviewed (Section 2) followed by an overview of the economic developments (Section 3) in the four Nordic countries in a comparative perspective. The principal arguments underlying the relief packages and instruments used are reviewed (Section 4) followed by a more in-depth discussion of key elements of the relief packages; job-retention schemes (Section 5), direct support to firms (Section 6) and monetary and macroprudential policies (Section 7). The role of the relief packages is discussed (Section 8) followed by a few concluding remarks (Section 9).

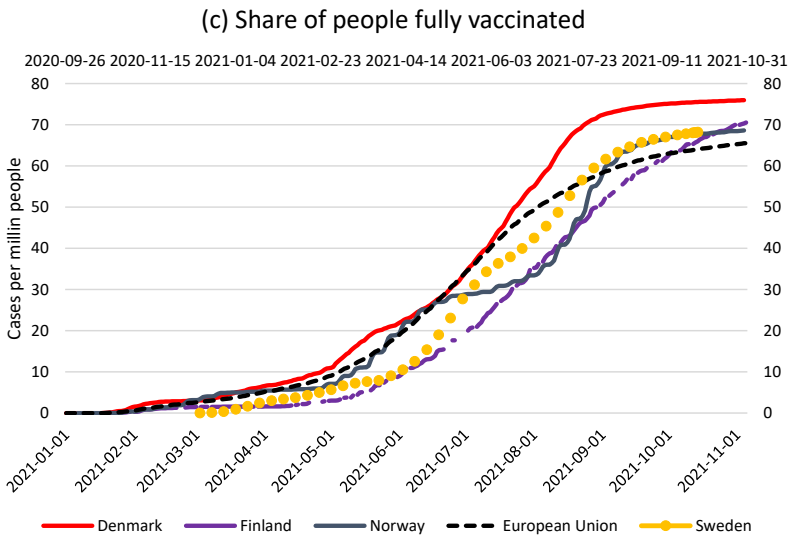
2 Health developments and containment policies

Since the onset of the Covid-19 pandemic in early 2020 and until the mid of 2021 the Nordic countries experienced two large waves of increases in the cases and number of deaths. Figure 2 shows the development in the number of reported cases,[1] daily new confirmed Covid-19 deaths, and the vaccination rate. Sweden has generally suffered worse health consequences than the other Nordic countries both in terms of number of cases and Covid-19 related deaths (see also Figure 1). The Nordic countries are among the frontrunners in terms of vaccinations and have reached rather high levels of vaccination rates.

[1] Observe that data on the number of cases crucially depends test activity, which has varied over time and in particular was low in the initial phase of the pandemic.

Figure 2 **Key facts on the pandemic – the Nordic countries and Europe**





Source: www.ourworldindata.org.

In response to the Covid-19 pandemic numerous containment policies and restrictions (or non-pharmaceutical interventions NPI) have been deployed to contain the spread of the virus. This includes both containment (lockdowns, restrictions on gatherings, travel restrictions etc.) and health-oriented measures (test, trace and isolate, hygiene, masks etc.). Moreover, so-called relief packages were introduced to compensate for some of the economic consequences of the restrictions imposed, see discussion below.

There were large differences across countries in the choice of strategy to contain the virus (see Baker et al (2021) for descriptions of different health strategies and Hanefeld et al. (2020) for a survey of strategies taken in various countries). In high income countries in Europe and North America, most countries chose a suppression strategy, aiming to push infection rates down to very low numbers. Some countries started out with a mitigation strategy, trying to contain the pandemic to avoid that the capacity of the health care was overwhelmed. However, in several cases infection rates increased sharply, causing a switch to a suppression strategy with strict containment measures. China and several other Asian countries, as well as Australia and New Zealand, instead chose an elimination

strategy with much stricter lockdown measures to stop transmission completely.

Among the Nordic countries, Denmark, Finland, and Norway implemented strict measures to suppress the pandemic, while Sweden adopted a less strict strategy. Sweden did not adopt stringent lockdown restrictions with compulsory stay-at-home-orders, school closures or mandated working from home, instead it relied more on recommendations and softer containment restrictions.[2] The containment policies in Denmark, Norway and Sweden are compared in Conyon et. al (2020), and it is concluded that stricter containment measures in Sweden would have reduced the number of Covid-19 deaths. Aburto et al. (2021) report that life expectancy fell by more than 0.5 years in 2020 in Sweden, while there was no change in the other Nordic countries. Juranek and Zoutman (2021) conclude in an analysis of Denmark, Norway, and Sweden, that the stricter containment policies in the two first countries were important for reducing the pressure on hospital capacity both in terms of number of hospitalizations and patients in intensive care.[3]

There are obvious problems in measuring and comparing containment policies and restrictions across time and countries. Table 1 below gives an overview of the health containment measures adopted by the Nordic countries in the first phase of the pandemic (darker colours = more stringent measures) based on the Oxford COVID-19 Government Response Tracker. Sweden generally adopted less stringent measures than the other Nordic countries, but it is misleading to portray Sweden as a country without restrictions, see also Bricco et al. (2020).

[2] The Swedish policies were coordinated by the Public Health Agency, which motivated the less strict policies with a desire to avoid negative side effects on physical and mental health from reduced mobility and isolation, and a wish to impose a regime that could be sustained for a long period of time, see Hensvik and Skans (2020).

[3] Comparing the Scandinavian countries, Brooks et al. (2020) find that "Economic costs of the pandemic and government fiscal and monetary interventions to reduce their impacts have been dramatic and similar across countries, while Sweden has had the most severe loss of life". A diverging view is Born et. al (2020), who find, based on a synthetic control method where the development in Sweden is compared to counterfactual consisting of a group of European countries, that Covid-19 infections and deaths would not have been significantly different in Sweden under a lockdown.

Table 1 Health containment measures, first wave 2020

	School dosing (3)	Work-place dosing (3)	Cancel public events (2)	Restric-tions on gathe-rings (4)	Close public tran-sport (2)	Stay at home require-ments (3)	Move-ment restric-tions (2)	Inter-national travel (4)
Denmark	2.7	1.9	1.0	3.9	1.0	1.0	1.0	4.0
Finland	1.9	2.0	2.0	3.9	0.0	1.0	1.4	4.0
Norway	2.9	2.0	1.6	3.4	1.0	0.0	1.7	4.0
Sweden	1.9	1.0	1.7	2.7	0.6	0.8	0.9	3.0

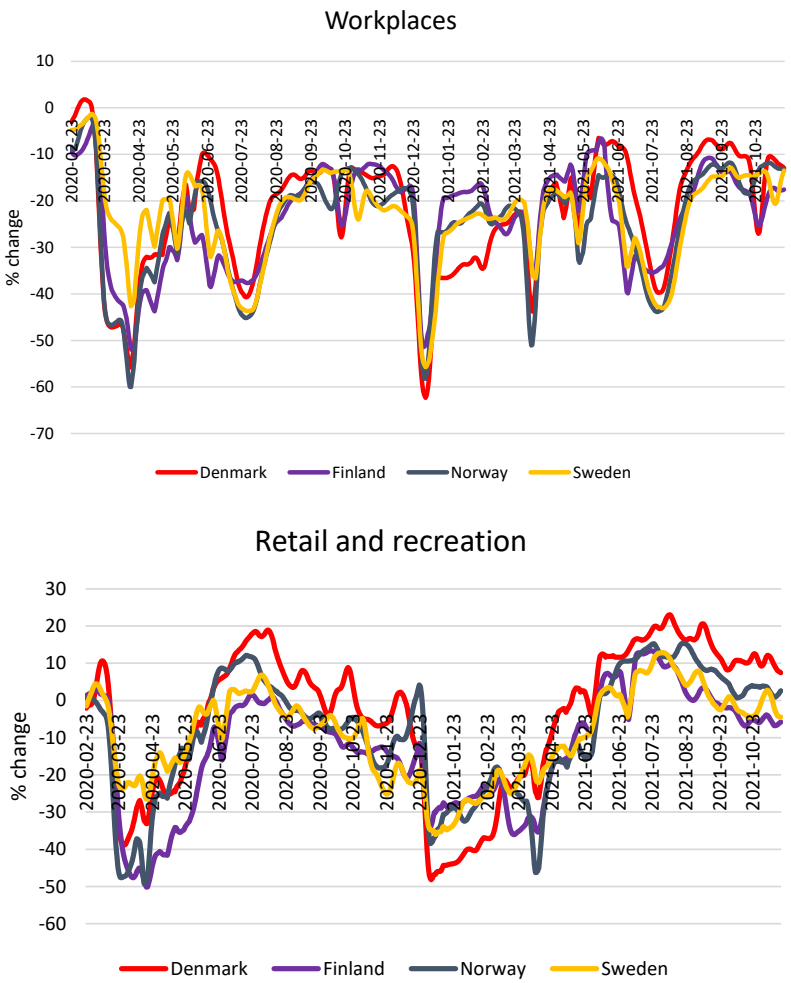
Note: The index comprising the following eight main types (further divided into 23 categories depending on an ordinal scale depending stringency), see Hale et al. (2021): School closing (3 levels of strin-gency), Workplace closing (3 levels of stringency), Cancel public events (2 levels of stringency), Re-strictions on gathering size (4 levels of stringency), Close public transport (2 levels of stringency), Stay at home requirements (3 levels of stringency), Restrictions on internal movement (2 levels of strin-gency),Restrictions on international travel (4 levels of stringency). The index is an average across these entries. Data is simple average over the period March 15th to April 31st, 2020.

Source: Own calculations based on the Oxford COVID-19 Government Response Tracker.

The strict containment policies pursued in Denmark, Finland and Norway in the early phase were so effective that infection rates were pushed down to very low levels, and it was possible to relax many of the measures. Behavioral changes and seasonality effects probably also contributed to reduced infection rates, and infection rates also came down in Sweden. Subsequent waves have nevertheless created a need for reintroduction of containment measures.

The implications of the containment policies are reflected in mobility data. Figure 3 shows mobility in relation to retail and recreation and workplaces, and developments are similar across the Nordic countries. Although one can detect a smaller reduction in mobility in Sweden in the early phase, reflecting less stringent containment measures, this difference is of the same magnitude as differences later in the pandemic. Especially for retail and recreation there is a clear drop in relation to the two waves, and the same applies for workplace (but less clearly due to the effects of holidays).

Figure 3 Mobility indicators – Nordic countries



Note: These datasets show how visits and length of stay at different places change compared to a base¬line corresponding to the same day of the week, during the 5-week period Jan 3–Feb 6, 2020. The graph shows the indicator as a seven say smoothed average value. Especially for workplaces note the im¬portance of holiday periods.

Source: https://www.google.com/covid19/mobility/.

Broadly, from the onset of the pandemic and until mid-2021 the Nordic countries went through two waves with increasing case numbers and various containment policies. During the second wave

containment policies were at a slightly higher stringency level (except for Finland) than during the first wave.

Containment policies and behavioural effects

There is a rapidly growing empirical literature[4] assessing the effects of containment policies, mainly using data from the first wave of the pandemic. It is a general finding that early intervention is important and can reduce the probability of arriving at a trajectory where more severe containment policies are required. Access to reliable information is critical for early intervention, and this applies to knowledge on both international (risk of import of variants of concern) and domestic factors. It is also a finding that behavioural responses were important, but they were not sufficient to control the pandemic.

The empirical evidence strongly supports the view that the package of containment policies applied in a number of countries in response to the Covid-19 pandemic did succeed in reducing the reproduction rate and in that sense in bringing the pandemic under control, see e.g., Caselli et al. (2020), and Demirguc-Kunt et al. (2020). Furthermore, the evidence also indicates that the countries which used strict measures at an early stage in the pandemic, also fared better in economic terms, partially because the "late-comers" often had to use stricter measures to contain a bigger wave of the pandemic (Caselli et al., 2020; Demirguc-Kunt et al., 2020).

The empirical evidence on the effect of specific containment policies is uncertain reflecting a fundamental identification problem arising because a large variety of measures were implemented within a very short span of time making it impossible to disentangle the contribution of the single elements.[5] This is further complicated by the unpredictability of the pandemic as well as behavioural responses, seasonal effects, country differences etc. With these reservations in mind several studies point to workplace closures and

[4] See Andersen (2021) for a survey and references. For theoretical work motivated by the Covid-19 pandemic, see Eichenbaum et al. (2021) for an analysis of optimal policies in a SIR model and optimal policies; Buelens (2021) for a static analysis of the trade-offs in policy choice; and Gupta et al. (2021) and Chudik et al. (2021) for simple household models for behavioural responses to health risks.

[5] The effects are moreover interdependent, e.g., the effect restrictions on transport depends on whether a work-from-home policy is already in place.

school closures as the most effective containment policies to control the pandemic.

The containment policies were introduced in an acute situation of emergency, and in hindsight it seems likely that in some cases less severe interventions could have been sufficient. Some scholars argue that smart containment measures in the form of public health policies (testing, contact tracing and quarantine) and public information campaigns in some cases can substitute for a full lockdown, see Fotiou and Lagerborg (2021) and Turner et al. (2021). Technological developments and the build-up of test capacities changed the situation from the early phase of the pandemic and suggest that eventual future waves can be handled in a more flexible way without having to take resort to stringent containment measures, especially against the background of the roll out of effective vaccines.

The spread of the virus depends on behaviour, but also influences behaviour as individuals will take precautionary measures to reduce the risk of being infected. This includes handwashing, avoiding handshakes, keeping distance, staying at home.[6] [7] These behavioural responses clearly have economic consequences. However, risky behaviour also involves an externality, as it increases the risk that others are infected. Most individuals are unlikely to take fully into account the infection risk they may impose on others, which provides a strong argument for the use of public policies to contain the pandemic.

Several studies consider the behavioural responses finding that they may precede containment measures and, in some cases, contribute significantly to a reduction of contacts and the spread of the virus. Most studies use various mobility data and identify changes in the extent and nature of mobility preceding implementation of

[6] There is a large pre-covid-19 epidemiological literature, which also includes a literature integrating behavioral responses, see McAdams (2021) for a survey and references. The literature on how risk affects behavior e.g., consumption is also relevant, see Bloom (2014) and Coibion et al. (2021). Bavel et al. (2020) provide a general discussion of some channels through which behavioral responses arise and influence the development of the pandemic.

[7] There is complex interaction between behavioral responses and containment policies. They may be mutually reinforcing, e.g., if policy actions are an important signal that the situation is serious which in turn can strengthen behavioral responses. Oppositely, containment policies may weaken behavioral responses if they are taken as a signal that the authorities have the situation under control. Moreover, the behavioral responses may weaken over time, and there is evidence of lockdown fatigue, see e.g., Goldstein et al. (2021). Auld and Toxvaerd (2021) find in a multi-country (112) study that vaccination is associated with a lower incidence of disease but also less social distancing. Vaccinations thus release behavioral responses which counter the effects of the vaccine.

containment measures see e.g., Gupta et al. (2020) and the references given. These behavioural responses in turn contribute to reduce the spread of the virus,[8] see e.g., Audirac et al. (2020) and reduce economic activity, see e.g. Caselli et al. (2021) and Goolsbee and Syverson (2021). The latter implies that the decline in economic activity in, e.g., the first part of 2020 cannot solely be attributed to the containment measures deployed and, even in the absence of those, economic activity would have fallen.

It is in general difficult to separate the effects of voluntary behavioural responses from the effects of containment restrictions due to the clustering of events within a small time period. Moreover, policy discussions and initiatives may be important information signals triggering behavioural responses. In a study of nine European countries Chudik et al. (2021a) analyse the importance of containment measures, voluntary actions, and relief packages for the evolution of reproduction rates. They conclude that a non-linear interaction between containment policies, behavioural responses, and economic relief packages can contribute to explain why countries with very different health strategies have had relatively similar developments measured by the number of cases during the pandemic.

Behavioural responses are also relevant for the compliance to recommendations and containment measures. The information available to individuals and the reliability/trust attached to information sources matter, see discussion in Perra (2021). The strong trust in institutions and policy makers in the Nordic countries is reflected in the high vaccinations rates. It also implies that the effects of recommendations may be stronger than in other countries, which helps to explain the similar development in Sweden to other countries despite less stringent containment measures.

Containment measures impose costs on individuals, economic as well as non-economic (less personal freedom), which can be important for compliance. Both Wright et al. (2020) and Papageorge et al. (2021) find that compliance with self-protective behaviour (social distancing, masks) has a clear socio-economic gradient. Lower compliance among low-income groups can among other things be explained by circumstances making adoption self-protective behaviours more difficult, for instance an inability to working from

[8] As also seen under previous epidemics where, e.g., tourism has been affected, see IMF (2021).

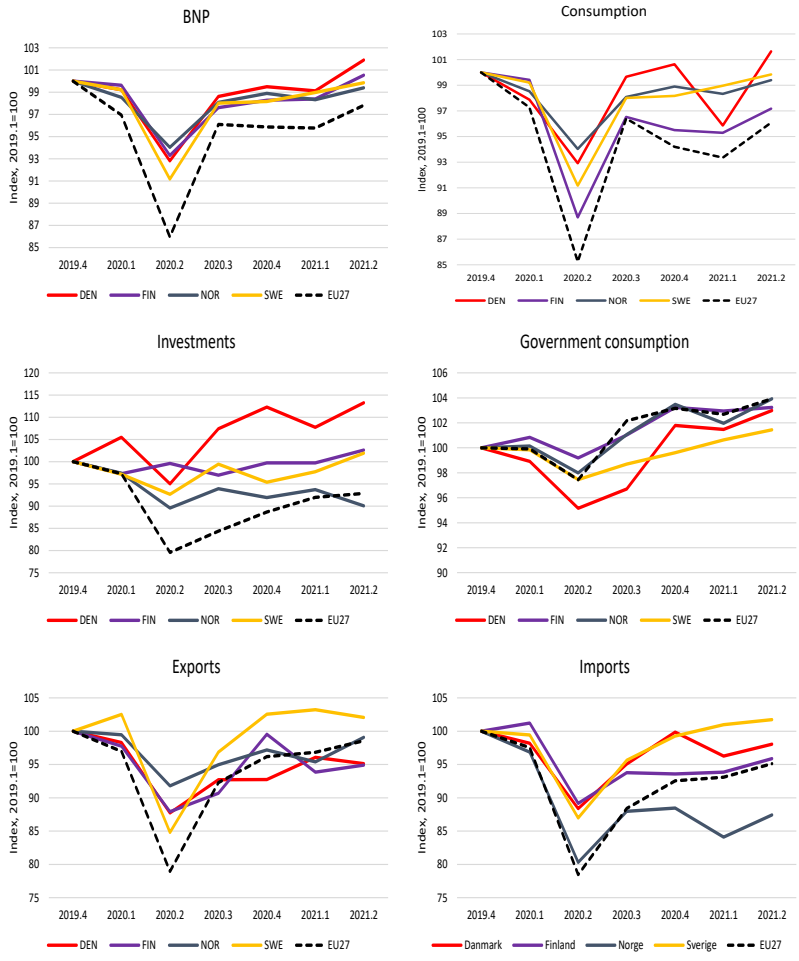
home. Empirical evidence shows that, e.g., access to paid leave schemes increases the likelihood of workers staying home in case of illness, which in turn contributes to reduce the transmission rate for contagious illnesses, see Pichler et al. (2021). Hence, relief packages also reduce the private costs of reductions in contacts which support the health strategy, and this is a separate argument for such relief packages.

3 Economic Developments

The pandemic caused a sharp decline in economic activity in the start of 2020, although the Nordic countries were less affected than most other countries, see Figure 4 below. In the second half of 2020 activity recovered, and second round of containment policies have not had the same negative effects on activity as the first round. This is interesting since the strictness of containment measures are of about the same level or stricter than during the first round, see above. This suggests a difference between the unanticipated and unexperienced event in the first round, and the subsequent adaptation and learning during the second round.[9] The economic support policies and private sector knowledge that the support policies were in place, may also have played a role. By 2021.2 economic activity had recovered to a level close to the level prior to the pandemic (2019.4) and in Denmark it had even surpassed this level. In short, the decline in economic activity in the Nordic countries is smaller than in most other countries, and activity has recovered to a pre-pandemic level.

[9] Gamtkitsulashviili and Plekhanov (2021) conclude, based on an empirical analysis comprising 53 countries, that economic activity became less sensitive to mobility during the pandemic which shows an adjustment to containment restrictions. However, economic activity remains closely correlated with mobility, and increased activity has been primarily associated with increased mobility.

Figure 4 Key facts on economic developments – Nordic countries and EU



Note: For investments the index applies to the average value for 2019 for Finland. The index for EU27 consumption is an unweighted average.
Data source: Eurostat.

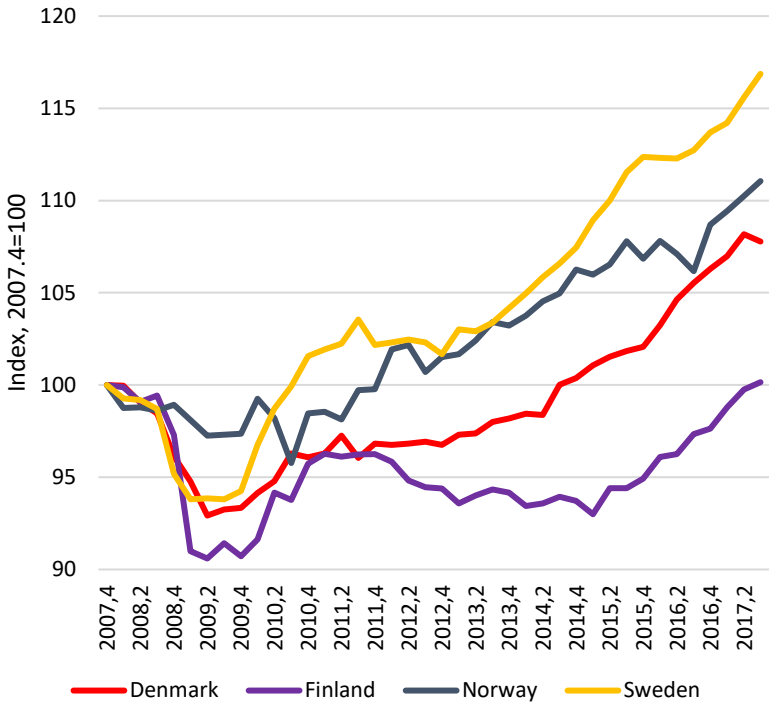
Looking closer at the aggregate demand components, a typical business cycle picture emerges with declines in private consumption (and hence imports), investments and exports. However, these declines were not driven by the usual business cycle mechanisms or economic imbalances (e.g., as during the Financial crisis in 2008-2009, see Figure 5 below) but by lockdown restrictions and behavioural responses to the pandemic. This is also important for the

recovery since - in combination with economic policies, see below – aggregate demand "capacity" was maintained and could be released alongside re-openings of the economy.

The similar response of consumption in the first phase of the pandemic across the Nordic countries despite the differences in health strategies is particularly noteworthy. Sheridan et al. (2020) explores this issue in a comparison of Sweden and Denmark using real-time transaction data from a large bank in Scandinavia (see also A.L. Andersen (2020) et al.). They find a drop in aggregate spending by around 25 % in Sweden and about 29 % in Denmark, indicating a strong behavioural response in Sweden despite much more lenient policy measures. There is an interesting age-gradient in the behavioural response, as spending dropped much less in Sweden than in Denmark for the young low-risk group, and more for the older the high-risk group. Thus, the containment policies in Denmark reduced the economic activity of the low-risk population, which provided protection for the older high-risk group, implying less reduced spending for the latter group.

The quick recovery in activity, despite the sharp drop, stands in contrast to the financial crisis which also had large declines in economic activity – except for Norway – but a much slower recovery, see Figure 5. This underlines how to Covid-19 crisis differs from the typical business cycle downturn.

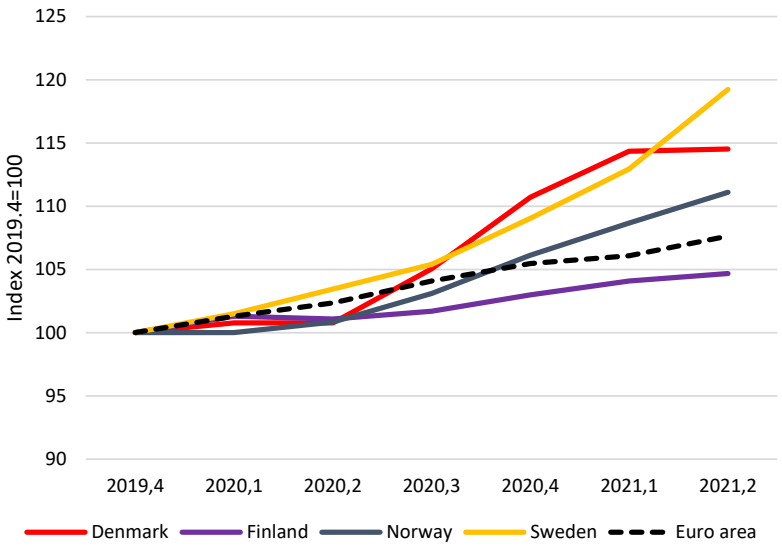
Figure 5 Output path during the Financial Crisis



Note: Quarterly GDP, calendar and seasonally adjusted.
Data source: Eurostat.

While some developments in key macro-variables are similar to previous downturns, there are also some notable differences stressing that this crisis was different. A particularly striking fact is that house prices were generally increasing, see Figure 6. The increases are large in Denmark and Sweden, but also noticeable in Norway and the Euro area, and somewhat smaller in Finland. Increasing house prices is surprising, as a downturn is usually associated with declining house prices due to falling incomes, unemployment, and economic uncertainty. However, low and declining levels of interest rates have contributed to support housing prices, and the stay-at-home policies may also have increased demand for housing. It could also be interpreted as showing that the crisis did not trigger a significant increase in economic uncertainty, perhaps due to the relief packages.

Figure 6 Development in real house prices



Source: OECD, Main Economic Indicators.

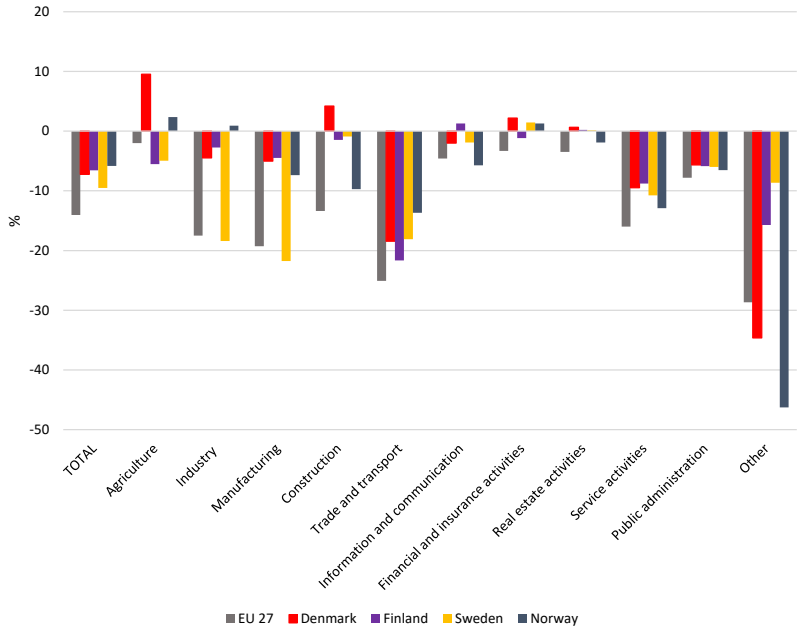
There are large sectorial differences in both the impact of the pandemic and the subsequent recovery rate, see Figures 7 and 8. Some sectors were hardly affected, or even experienced increasing activity, while others were severely affected. While the recovery has been rather broad based; trade, tourism, entertainment, and recreation have not yet recovered to pre-crisis levels of activity.

Figure 7 displays interesting differences between the Nordic countries. Sweden experienced a stronger reduction in the industry and manufacturing sectors in the second quarter of 2020 than the other Nordic countries, which likely reflects a negative impact from reduced foreign demand. On the other hand, activity in the Other sector, which includes among other things Arts, entertainment, and recreation as well as other service activities, fell much less in Sweden than in the other Nordic countries in 2020.2. This suggests that the weaker restrictions in Sweden involved some economic gain in the form of smaller activity reduction in these sectors, even if the difference is not noticeable in the aggregate.

Bougroug, Kjos and Sletten (2021) analyse the role of the sectoral structure for the economic responses to the pandemic in Denmark,

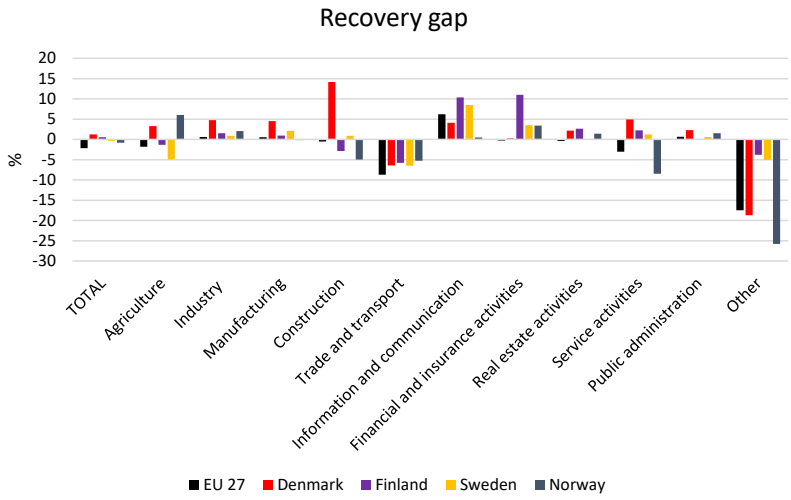
Norway, and Sweden. Sweden has a relatively larger industry sector and smaller service sector than Denmark and Norway. The authors conclude that differences in sector structure account for only a small fraction of the differences in overall economic performance in the three countries.

Figure 7 **Sectoral changes in value added, Decline 2020.2 relative to 2019.4**



Data source: Eurostat.

Figure 8 **Sectoral changes in value added, Recovery gap: Value added 2021.2 relative to 2019.4**



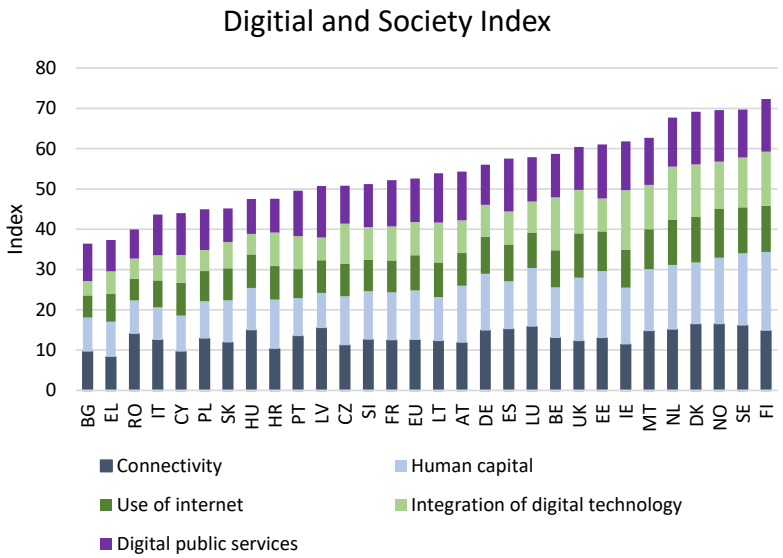
Note: Recovery gap – difference between activity/value added 2021.2 relative to 2019.4. Service= Professional, scientific, and technical activities; administrative and support service activities; Other= Arts, entertainment. and recreation; other service activities; activities of household and extra-territorial organizations and bodies.
Data source: Eurostat.

It is now well understood that both the health and economic implications of the corona pandemic and lockdown policies depend not only on health and economic policies but also on behavioural responses, country characteristics including population structure, urbanization, health care system, sector structure, degree of digitalization, and the economic situation at the eve of the corona pandemic; see e.g., Furceri et al. (2021), and Sapir (2020).

An important factor is the degree of digitalization since it allows a substitution from physical activities to virtual activities (e-commerce, meetings, teaching, working from home etc.). The higher the degree of substitution between physical and virtual activities, the lower the economic consequences of containment restrictions. The degree of substitution depends on the sectoral composition of the economy and the level of digitalization. Empirical evidence documents that digitalization played a significant role for how the pandemic has affected economic performance, see e.g., Zhuang (2021). All the Nordic countries are among the most digitalized countries

in Europe, see Figure 9, and this is a contributing factor in explaining why the Nordic countries have seen a relative smaller decline in economic activity than most other countries. Dingel and Neiman (2020) also report the Nordic countries to be among the countries where the largest share of jobs can be done at home.

Figure 9 **Digital and Society Index, 2020**



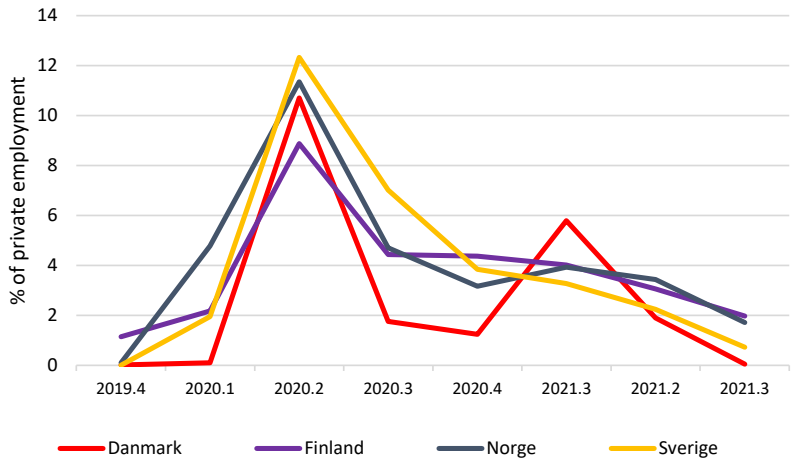
Note: The five indicators are evaluated on scale 0 to 100, and the index is a weighted average (25%,25%, 15%, 20%, 15%). EU countries and Norway.
Source: https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2020.

Labour market

The pandemic and containment policies caused an abrupt reduction in the activity level in all the Nordic countries and in particular the contact intensive sectors were affected. Working hours fell sharply in some sectors, and the Nordics as well as other OECD countries made use of new or existing job retention schemes to prevent permanent job losses, cf. section 5 below. Juranek et al. (2021) point out that the negative labour market effects in the early phase were slightly smaller in Sweden than in the other Nordic countries, reflecting the lighter restrictions in Sweden. Gross number of workers being in a work-sharing, temporary lay-off or wage com-

pensation scheme are shown in Figure 10. The figure displays gross numbers based on readily available statistics. It is open for discussion how the impact of such schemes should be assessed. The gross number informs on the number of workers being involved, and which thereby have maintained a relation to their job, while a measure in full-time equivalents would be informative on the actual importance of the schemes in terms of hours not worked. For all the four Nordic countries the use of these scheme was most prevalent during the first wave of the pandemic, and they have subsequently been of less importance.

Figure 10 **Work sharing/Wage compensation/short-time work/temporary lay-offs, Nordic countries 2019.4 to 2021.3**



Note: Data is quarterly averages for Denmark work sharing and wage compensation, for Finland temporary lay-offs and people on short week, for Sweden short-time work and for Norway temporary layoffs. The numbers are based on approved cases, and the actual numbers may thus deviate.
Source: TEM (FI), NAV (NO), www.tillvaxtverket.se, www.erhvervsstyrelsen.dk.

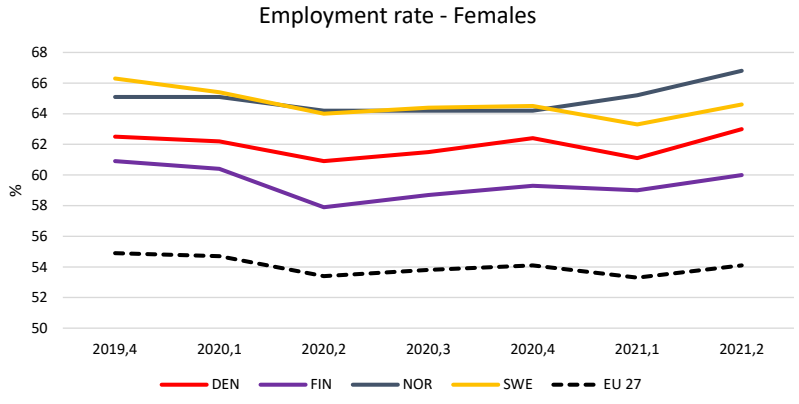
The sectoral composition of the drop in activity level had important implications for which groups of workers were affected. Contact-intensive sectors typically employ more young and low-skilled workers, as well as more immigrants, and consequently working hours fell much more for these groups (Alstadsæter et al., 2020a,b; Campa et al, 2020; Hansen et al, 2020). The unequal effects are amplified by the tendency that white collar workers have better possibilities for teleworking than blue collar workers (Hansen et al.,

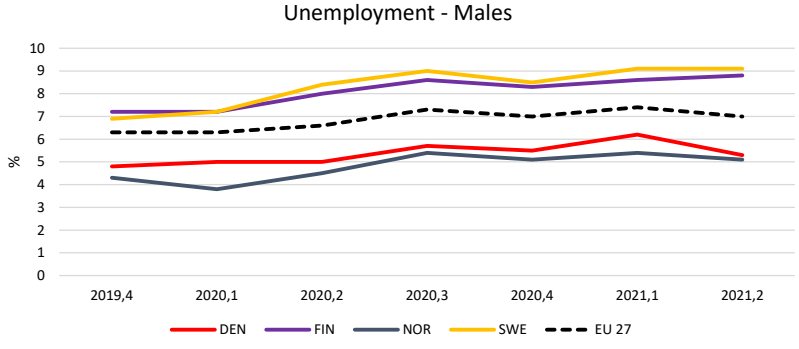
2020). The labour market effects seem to be relatively balanced across genders.

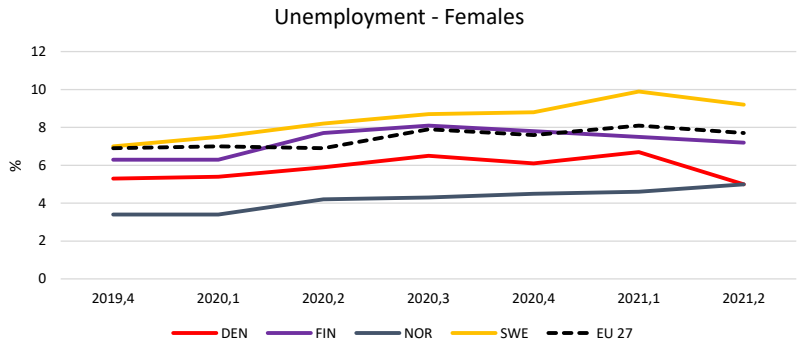
The increase in short-time work is not reflected in the employment and unemployment statistics from the Labour force surveys, as the employees typically are classified as employed as long as they have a job, even if they are on a job retention scheme and not actually working.[10] Thus, there is only a modest increase in unemployment rates, and a corresponding modest decrease in employment rates during the pandemic, with no big differences between genders. The modest effects reflect the role of relief packages directed at the labour market (work sharing, wage compensation, see below).

[10] In Norway, employees on furlough are classified as employed in the Labour Force survey for the first 6 months on furlough. In Finland, temporary layoff is not considered unemployment if the layoff period is at most three months.

Figure 11 Employment and unemployment rates







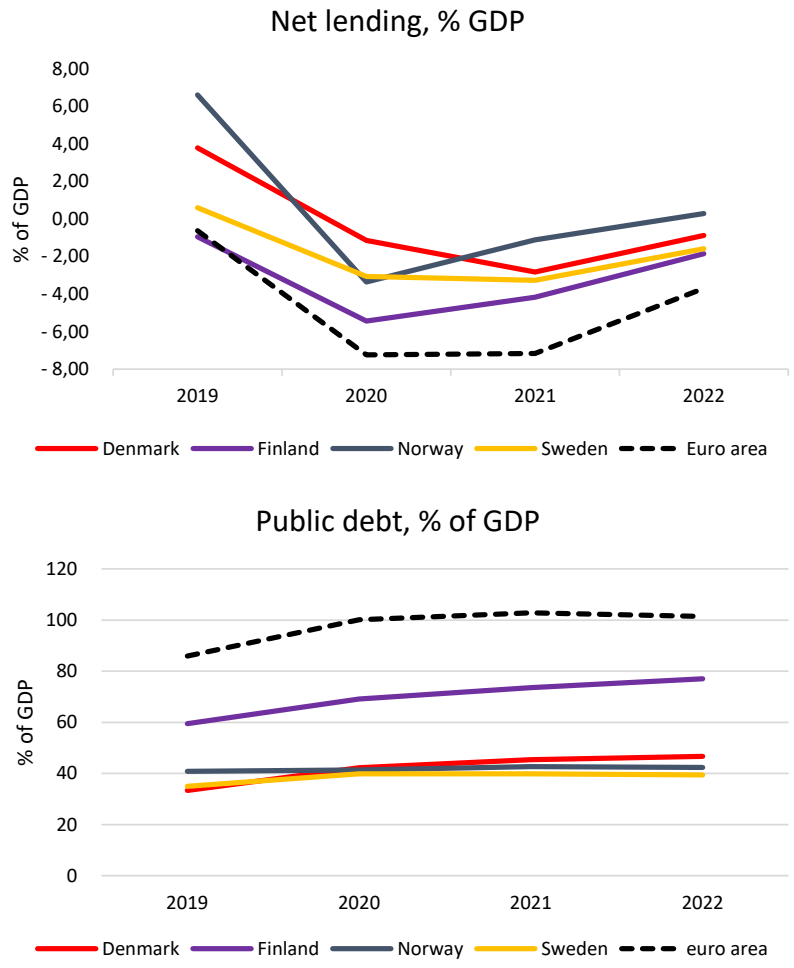
Note: For age-group 15–74 years. Both employment rates and unemployment rates are for the age group 15-74 years, since Eurostat only reports unemployment rates on a quarterly basis for this age group. There are potential time-series breaks in 2021.1, due to updated labour status definitions in the European Union Labour Force Survey. This may affect the numbers, and the effect may differ between countries depending on to what extent the new definitions were already implemented, cf. Eurostat (2021).

Source: Eurostat.

Public Finances

As expected, there was a significant deterioration in public finances as indicated by the developments of net lending. This deterioration was not as severe as than in most other countries, which reflects that the downturn in the Nordics was not as deep as in other countries. The initial levels of public debt levels were low, which gave some capacity to cope with a crisis. (Finland is somewhat more affected and has a higher debt level initially, and projected debt exceeds the 60% limit.) It should be noted that the final count has not been done as liquidity and loan arrangements were one of the fiscal tools in the crisis. (The next section on relief packages contains information about the decisions of discretionary fiscal measures in the Nordic countries, see Table 3.) It must also be noted that the counterfactual of no fiscal relief packages would have resulted in a deeper recession with a large impact on public finances.

Figure 12 Net lending and public debt



Note: Debt is Maastricht debt. Data for 2021 and 2022 are forecasts from the OECD.
Data source: OECD Outlook 109, 2021 and www.statistica.

4 Economic policies – relief packages

The imposition of containment restrictions was largely an unanticipated event. The lockdown restrictions were motivated by the externalities arising from the spread of the virus caused by too many and

close contacts between people. These restrictions may thus be interpreted as an unanticipated "market-closure" or "business interruption" shock; an event which is largely non-insurable.

The containment restrictions constrain the market mechanism. In the first instance this takes place in areas where close contact between customers and employees are important, but also workplaces where employees are in close contact. While the lockdown regulations address a health externality and thus have a collective justification, specific firms, workers, and households carry the consequences and costs.

Therefore, governments have launched relief-packages ranging from direct support to firms for loss of revenue, coverage of fixed costs, work-sharing arrangements, and liquidity and loan arrangements.[11] This also involved existing tax and welfare schemes, which in some cases were extended. These schemes are collectively financed via the public budget. While activity declined – in part due to behavioural responses – traditional aggregate demand measures to support economic activity were not appropriate in the situation since attempting to boost activity would conflict with the overriding health concern to reduce physical contacts and thus the spread of the virus.

Therefore, unconventional measures were needed. These are not standard toolkits, not even when steps are taken to affect activity or employment in deep recessions. There are three key arguments in support of such unconventional measures.

The first type of argument is that the containment and lockdown policies can be viewed as effectively an expropriation of market opportunities justifying compensation. It could be argued that suppressing the pandemic is a common good, and the sectors which carry the burden of the measures should be compensated. The same may be argued in respect to workers prevented from work, where the usual coverage offered by the social safety net may be considered insufficient for this particular shock (also here there is no ex-ante moral hazard problem). The compensation measures may also be interpreted as an ex-post insurance of an unanticipated aggregate shock. Since firms and workers had no influence on the occurrence

[11] Some of the support measures are in conflict with the EU rules for State Aid. In response to the Covid-19 pandemic the EU commission determined general rules for support and specific rules allowing temporary support. EU rules have influenced the specific design of some of the support measures.

of this shock (no ex-ante moral hazard), there is no direct incentive problem in providing the support. Especially the support to firms has been contested and it raises difficult issues including which events to cover (demand may fall for many reasons), and whether there are alternative ways for firms to cope which such situation, see discussion in Section 6 below.[12]

The second type of argument for the support is that it is important to preserve production capacity to increase the likelihood that containment restrictions followed by reopening results in a V-shaped path for economic activity. Perceiving the health situation and the containment restrictions to be temporary, it is important to minimize the risk that the economic repercussions become persistent. The negative effects of the containment restrictions cannot be avoided, but a removal of these restrictions will only result in a quick economic recovery if the production and demand capacity is intact.[13] Layoffs of workers breaking job-matches and closure of firms, to be followed by hiring and reopening of (new) firms is associated with substantial transactions costs, time lags and loss of both real and human capital. From a societal perspective these are frictional costs which can be reduced by the relief packages.

Thirdly, support to workers also helps to maintain income/consumption and reduce risks. This supports aggregate demand, preventing reduced demand in other sectors that were not closed down. Financial support to affected households also implies that aggregate demand can quickly pick up when the economy reopens. The support includes work sharing/wage compensation but also temporary changes of the social safety net, e.g., extended benefit periods or increasing benefit levels. Note that this argument applies not only to the sectors directly affected by containment restrictions, but also other sectors by reducing risk and preventing a decline in aggregate demand.

[12] Furthermore, Henriksen, Moen, and Natvik (2020) argue that the insurance argument applies to households and not to firms – based on the view that capital owners receive high profits in good times, and may choose to diversify, so they should not be provided insurance in bad times. Thus, the authors conclude that support to firms can be justified only in terms of efficiency (as is included in the second type of argument for support) and not insurance arguments.

[13] Guerrieri et al. (2020) show how lockdown of some sectors (a supply shock) can reduce demand for sectors still open, a so-called Keynesian supply shock where the change in aggregate demand is larger than the initial supply shock. In a setting with capital market failures (borrowing constraint, incomplete insurance) firm closure and lay-offs may be excessive giving a rationale for support to firms, including support to job-matches.

All the three arguments above apply for containment restrictions, while arguably only the last two are relevant for the behavioural responses released by the pandemic (reduced activity due to a behavioural responses are different since they are not the result of a lockdown restriction).

The "relief" packages raise several issues in terms on design and implementation. Some of the key instruments used have no precedents and they had to be implemented with short notice, hence they have a "crude" design. This was also necessitated by the need for simple and easily administrative arrangement. Timeliness of the support was essential and, given the immense uncertainty at the start of the pandemic, the quick launch of the relief measures served an important signalling role to households and firms. The choice of measures at the onset of the pandemic was largely an improvisation to a situation requiring acute action and where experience and knowledge on the effects – both health and for society more generally – of the interventions was largely absent. There was little time for detailed planning and most countries launched a "package" of unusual initiatives within a small time-window in response to a new situation.

The design is furthermore complicated by the difficulty of separating the direct effects deserving support from other changes caused by general business cycle repercussions or second round effects arising from the global economic effects of the pandemic. Such business cycle fluctuations are normally not insured at the firm level since this creates obvious incentive problems and disrupts the market mechanism. The applied schemes are based on simple criteria like, e.g., the decline in turnover or risk of layoffs. Such measures capture effects of the pandemic, but they are not perfectly targeting. Firms also experience declines in turnover, lay-offs etc. in normal economic times, and such criteria do not directly identify the effects of the pandemic. In the unusual crisis situation, it can be argued that the consequences of ensuring support was more important than precise targeting, and that could justify more lenient criteria. The flipside is a large burden falling on the public budget and possible misallocation of real and human capital, see discussion below.

A key problem with the emergency packages and the unconventional measures is that they have a status quo bias. This applies to measures covering part of fixed costs or loss of income and work

sharing arrangements which impair the reallocation of capital and labour. Incentive problems also arise since firms may have insufficient incentives to adjust to the new situation (ex post moral hazard problem: the consequences of the shock are worsened). These measures thus have a lock-in problem in relation to both real and human capital. It is accordingly important that they are temporary and have well-defined sunset clauses.

Policy instruments

The list of unconventional policy measures includes:

- Liquidity/loans/guarantees
- Subsidies
  - Fixed costs
  - Job matches (work sharing/wage compensation)
  - Specific sectors e.g., tourism
  - Miscellaneous, e.g., culture
- Income support
  - Self-employed
  - Households generally.

More conventional measures include:

- Fiscal policy
  - Expenditures
  - Taxation
- Monetary policy
- Macroprudential policy.

Table 2 below gives an overview of the unconventional policy instruments used in the Nordic countries, and it is seen that overall, there are strong similarities in terms of interventions, although there are some differences in the specific designs to be discussed below.

Table 2 Overview – unconventional policies, Nordic countries

	Denmark	Finland	Norway	Sweden
Firms	Liquidity and loan facilities (deferred tax/VAT payments). Support for fixed costs. Support to self-employed. Targeted support to specific sectors.	Liquidity and loan facilities (deferred tax/VAT payments and pension contributions). Temporary reduction in pay roll tax. Support for fixed costs. Support to self-employed. Targeted support to specific sectors.	Liquidity and loan facilities (deferred tax/VAT payments, guarantees). Temporary reductions in pay roll tax (arbeidsgiveravgift). Support for fixed costs for firms with large reduction in revenues. Support to self employed. Targeted support to specific sectors. Reduced employer contribution in the furlough scheme (permittering).	Liquidity and loan facilities (deferred tax/VAT payments). Support for fixed costs (omställningsstöd). Support to self-employed. Targeted support to specific sectors. Lower employer contribution.
Job-matches	Temporary wage compensation scheme. New work-sharing arrangement.	Elimination of waiting period in unemployment compensation. Unemployment security for entrepreneurs.	Wage support to re-hire workers on furlough	Implementation of a new discretionary scheme for work sharing.
Households	Softening eligibility conditions in the social safety net. Release of “frozen” holiday pay.	Softening conditions for support for Children, the young, families and the elderly. Support for different levels of education and learning.	Higher unemployment benefits. Softening eligibility conditions in the social safety net (unemployment benefits, sickpay, temporary disability pension, students).	Higher unemployment benefits and softer eligibility conditions in the social safety net. Active labour market policies – education and training.

Table 3 shows the discretionary fiscal measures in the four Nordic countries as percent of GDP 2020 of the country. The numbers give the announced decisions of measures taken for 2020, 2021 and beyond. They are upper limits for spending items as the actual uptakes are a lot smaller in some cases (see examples in the note below). The magnitudes of the items in the different countries are broadly similar.[14] Tables in Appendix 1 give details of the items for Denmark, Finland, Norway, and Sweden (some data problems).

Table 3 Decisions on discretionary fiscal measures during Covid-19 crisis since January 2020

Percent of GDP

	Denmark	Finland	Norway	Sweden
Additional spending or foregone revenue	3.4	4.8	7.4	4.2
Accel. Spending, deferred revenue	13.7	0.2		6.7
Equity, loans, asset purchase	12.1	0.5	2.0	0.2
Guarantees	3.5	5.2	2.6	5.0
Quasi-fiscal operations		1.7		

Notes: For Denmark the uptake of tax deferrals is 8.9 and of loans to firms and guarantees 0.74. For Sweden the uptake of deferred revenue is 0.94. Norwegian data groups together additional spending groups and tax deferrals. Actual uptake is also lower in Norway, but exact information is not available.
Source: IMF Covid-19 measures data base (2021).

A particular measure taken in Denmark by "unfreezing" holiday pay[15] is an example of an (unconventional) aggregate demand policy which simultaneously directly improved disposable income of households and tax revenue, since holiday-allowances are taxable income. In the autumn 2020, holiday pay corresponding to 31 billion DKK (1.4 % of GDP) were paid out, and in early 2020 22 billion DKK (1 % of GDP). This had a considerable impact on disposable income of households.

In the following section the more specific design of labor market and employment support schemes (Section 5), support to firms

[14] It should be emphasized that there are uncertainties in the details of classifications. IMF warns about these problems in making comparisons between countries.
[15] In Denmark, a part of wage income (typically 12.5 %) is reserved for a holiday-allowance paid out during holiday periods. In the past, holiday allowances depended on wage income earned in a previous period (i.e., there was a lag between accrual of holiday allowances and the pay-out period). A recent reform synchronized the earnings and the holiday period, and to avoid a double pay-out of holiday allowance, one part was frozen until retirement. In response to the Covid-19 crisis, it was decided to allow individuals to demand pay-out of the frozen holiday allowances in two rounds (autumn 2020 and early 2021).

(Section 6) and monetary and macroprudential policy instruments (Section 7) are discussed. It is important to note the interdependencies across these schemes. Support to workers in the form of work-sharing (to avoid lay-offs) also benefit firms, and support to firms also benefit workers in terms of avoiding job-destruction. The support schemes (via reductions in lay-off, unemployment and bankruptcies) also benefit financial institutions.

5 Labour market and employment support schemes

The pandemic and lockdowns led to a sharp reduction in economic activity and employment levels across the world. To prevent job losses and dampen the income loss for households, the Nordic countries, as well as almost all other OECD countries, used various types of job retention schemes. In this section we will describe the labour market effects in the Nordic countries, as well as the policy measures used to mitigate the effects.

On average across OECD-countries, hours worked fell by 15 percent from 2019.2 to 2020.2, cf. Figure 13 below.[16] In Europe, most of the reduction took place by a large increase in temporary layoffs, while in North America, most of the reduction was caused by an increase in joblessness.

The reduction in total hours was smaller in the Nordic countries, with around 5 percent, varying from 6 percent in Finland, 5.5 percent in Denmark, 4.7 percent in Sweden and 3.7 percent in Norway. The smaller reduction also reflected a shorter duration of the first wave and lockdown, as activity picked up towards the summer. In the Nordics, both joblessness and temporary layoffs increased, while for employees at work, hours in fact increased in Denmark, Finland, and Norway, but not in Sweden. In the fourth quarter of 2020, the reduction in total hours was about 5 percent in Sweden and Norway, while it fell to below 1 percent in Finland and Denmark.

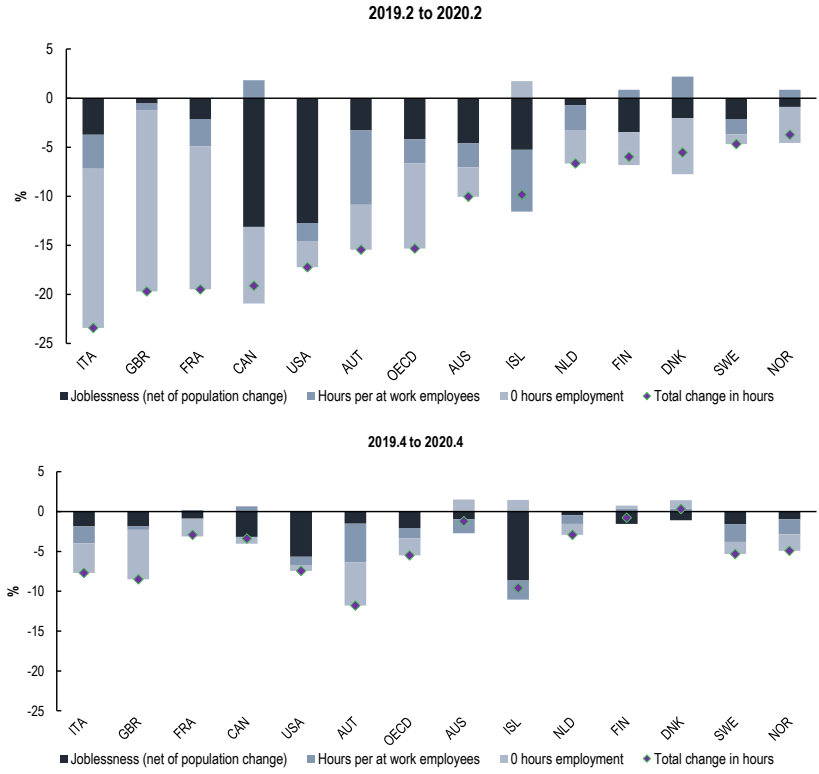
The reduction in hours was larger for youths between 15 and 24 years, with around 10 percent reduction in 2020.2 relative to 2019.2 (somewhat higher in Denmark and Finland, and lower in

[16] The figures in this section are based on OECD Employment Outlook (2021).

Norway). The number of young people between 15 and 29 years not in employment, education, or training (NEET) increased by about 3 percentage point across OECD countries in 2020.2 relative to 2019.2, and between 1 and 2 percentage points in the Nordics.

Figure 13 Decomposition of total hours change, 2019.2 – 2020.2 and 2019.4 – 2020.4, selected countries

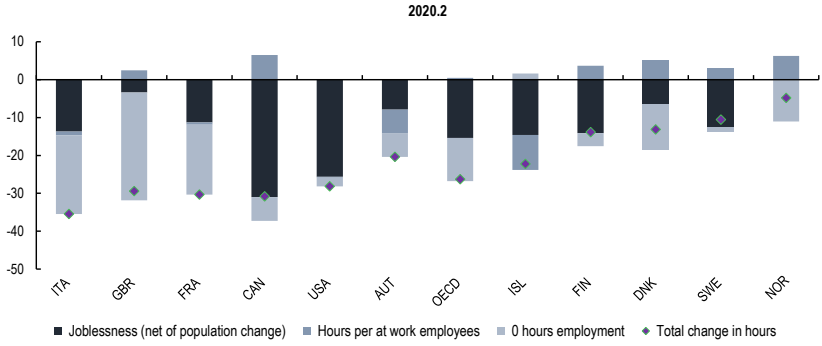
Percent change over the year



Note: The figure reports the contribution of each category to the change in total hours.
Source: OECD Employment Outlook June 2021.

Figure 14 **Decomposition of total hours change for youths, 2019.2 – 2020.2, selected countries**

Percent change over the year

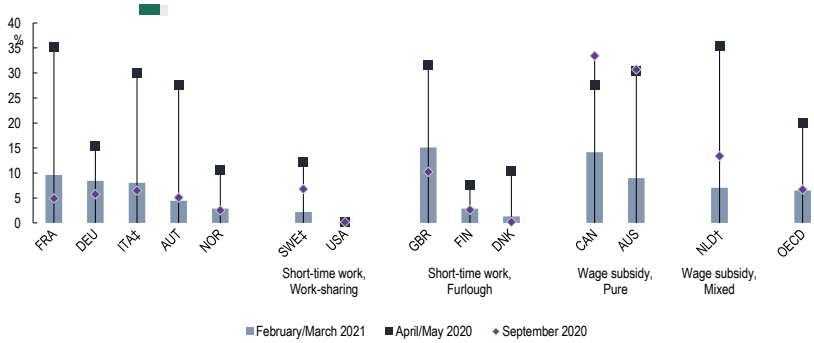


Note: Youths is defined as those aged 15–24 years.
Source: OECD Employment Outlook June 2021.

The reduction in hours worked was reflected in a sharp rise in the use of various types of job retention schemes. On average across OECD countries, the take-up rate of retention schemes corresponded to 20 % of dependent employment in April/May 2020. In September 2020, the average take-up rate in OECD was down to 6.5 %, about the same as in February 2021. In the Nordic countries, the take up rate was lower, with 10–12 % in Denmark, Norway, and Sweden at the peak in April/May 2020, and 7.5 % in Finland. In Sweden, the take up rate was 6.5 % in September 2021, as the OECD average, for then to fall to about 2 % in February/March 2021. In the other Nordic countries, the take up rate was below 3 percent both in September 2020 and February/March 2021.

Figure 15 The use of job retention schemes

Percent of dependent employment, selected countries



Note: Short-time work – unrestricted: no significant limits on the reduction in working time; short-time work – furlough: no partial reductions in working time allowed; short-time work – work-sharing: significant limits on the maximum reduction in working time; wage subsidy – pure: based on wage bill only; wage subsidy – mixed: based on wage bill and reduction in business activity. Take up rates are calculated as a percentage of all dependent employees in 2020.1. ‡ Italy: Latest data refer to December 2020, the United States: Refer to short-time compensation benefits. Sorted by latest available data.
Source: OECD Employment Outlook June 2021.

Many OECD countries had a job-retention scheme prior to the pandemic, but most nevertheless modified the scheme to increase take-up, and/or they introduced new schemes, see OECD (2021). OECD countries without a job-retention scheme typically introduced one early in the pandemic. There are important differences in the schemes across the OECD countries, and the only common component is a substantial government support of wage costs. The support may be paid out to the employer or to the employees, and there is large variation as regards the reduction in working hours and in the financial burden for employers and employees. In many countries, including the Nordics, the job retention schemes have links to national-level collective agreements.

Many countries, including Germany, France, and Norway, had short-time work programs prior to the pandemic, with no or limited restrictions on the reduction in working time. Several of these countries expanded their program during the pandemic, among other things increasing the generosity to increase the take-up rate.

Finland has had a permanent furlough scheme, where employees on furlough are not allowed to work in the firm. Several other coun-

tries introduced a furlough scheme during the pandemic, including Denmark and the UK.

A few countries, including Denmark, Sweden, and the United States, had a permanent work-sharing program with significant limits on the maximum reduction in working time. During the pandemic, some other countries introduced work-sharing programs and some countries implemented wage subsidy programs without requiring a reduction in working hours.

There are noteworthy differences between the schemes in the Nordic countries. The description below focuses on the main aspects of the schemes during the first phase of the pandemic, omitting many details and subsequent changes in the schemes in later phases.

In Denmark, the new furlough scheme ("lønkompensationsordningen") was introduced to compensate firms which would otherwise have laid off at least 30 percent of the employees, or more than 50 employees. The furloughed workers are not allowed to work, yet they receive regular wages. Per every 3 months, 5 days are counted as holidays. The compensation for firms is 75 % of the wage cost of a white- collar worker and 90 % for blue collar workers, in both cases with a maximum of DKK 30 000 per month. Firms are not allowed to lay off the employees permanently while using the scheme. There is flexibility allowing firms to take back employees if needed, with a corresponding reduction in the support to the firm.

In the work-sharing arrangement in Denmark[17] ("arbejdsfordelingsordningen"), firms may reduce the working time partially for some or all workers, while workers receive unemployment benefits ("dagpenge") for the days they do not work. Firms cover the benefits for the first two days when employees don't work, and afterwards firms only cover other costs like insurance etc.

In Norway, there has for a long time been a furlough or short-time work scheme ("permitteringsordning") allowing firms to temporarily lay off workers if there is a temporary and unforeseen reduction in the activity. The reduction in working hours must be at least 40 %, and workers receive regular unemployment benefits

[17] Denmark did at the onset of the pandemic only have a specific work-sharing arrangement for a small subset of the labor market, with specific rules for the extent of work-sharing, and workers receive (supplementary) unemployment benefits for periods not working. The social partners agreed on a more general, but temporary work-sharing arrangement applying for the period September 14th, 2020 to March 31. 2022.

while not working. In the pre-corona scheme, firms were required to pay full wages for the first 15 days, but this was reduced to 2 days early in the lockdown. As compensation, the government paid full wages (up to about NOK 50 000 per month) for the first 20 days, then employees may receive unemployment benefits. Unemployment benefits were increased up to 80 % of the salary for the first NOK 25 000 per month, and 62,4 % of the salary between NOK 25 000 and NOK 50 000 per month. If firms lay off employees permanently, the firms must pay regular wages in the notice period.

In Sweden, a new short-time work scheme was introduced in April 2020, for firms suffering temporary, serious financial difficulties caused by circumstances beyond its control. In contrast to the schemes in the other Nordic countries, working time can only be reduced by up to a maximum of 60 % or 80 % (the maximum has varied over time). A reduction in working time of 80 % involves a reduction in wage costs for the firm of 72 %, and a reduction in the remuneration of the employees of 12 %. (Tilvaxtverket, 2021)

In Finland, there was an existing system for temporary layoffs (furloughs) based on national level rules. Furloughs may be for a specific period of time or until further notice. A shortened working week is also possible. Employees who are laid off receive unemployment benefits, which to a considerable part is paid for collectively by the employers and employees. The compensation for the employees is lower than in the other Nordic countries, with 56 % for a salary of 3 000 euro per month and a bit less than 50 % for 4 000 euro per month. (TYJ, 2021). However, part-time furloughed workers may receive partial UI benefits on top of partial wages and obtain considerably higher replacement rates (Juranek et al, 2021).

Motivation and considerations

The key motivation for job retention schemes is to reduce wage costs for firms in severe financial difficulties, with the aim of preventing bankruptcies and avoiding permanent layoffs. Job retention schemes allow firms to reduce working hours instead of laying off workers on permanent basis. Bankruptcies and permanent redundancies may lead to permanent job losses and loss of productive

firm-employee-matches, which again may lead to lower employment and lower value added for the overall economy.

When the corona pandemic emerged, it was also viewed as important to mitigate the costs for the firms and employees who were most affected. The costs of the pandemic were unevenly distributed, and the unequal effects increased the risk of discontent and lack of trust in the population. Discontent and lack of trust are a problem in itself and it may also have adverse effects on the handling of the pandemic, by reducing the willingness of the population to follow the rules and guidelines issued by the public authorities.

The fact that essentially all OECD countries used various types of job retention scheme suggests that the support of such schemes was widespread.

However, job retention schemes also involve various types of costs. Short-time work schemes imply that the government subsidizes firms for making their employees work less. This may involve efficiency costs, when employees are on furlough even if their marginal productivity in the firm is higher than in the relevant alternative, because the firm wants to save wage costs. Even if the regular activity of the firm is reduced, for example due to a lockdown, employees might have other productive activities, e.g. adapting the activities to the corona pandemic, maintenance, or training. However, if the value of such activities is less than the wage costs, or the firm is liquidity constrained, the firm will profit from furloughing the employees.

Job retention schemes may also involve efficiency costs by making the employees on furlough stay at home rather than taking other, vacant jobs while they are not working for their original employer. While furloughed employees in principle are expected to take other vacant jobs when possible, this rarely happens. The costs to the society will depend on whether there are other individuals, unemployed or outside the labour force who can take the vacant jobs or whether they remain unfilled. Furthermore, if the layoff becomes permanent, i.e., the firm does not take the employee back, the probability that the employee finds another job is likely to be decreasing in the duration of the layoff.

Job retention schemes also involve financial costs to the government. The Nordic countries, as most other OECD countries, can borrow at low interest rates. However, increased public expendi-

tures will have to be financed by higher taxes or a reduction in other expenditures. Higher taxes involve efficiency costs.

The design of the job retention scheme is important for the effects, both to the extent the scheme succeeds in preventing bankruptcies and permanent job losses, and at what costs. As the government has limited information and for legal and administrative reasons cannot micro-manage firms' and workers' behavior in these matters, it is important that the scheme is designed so that firms and workers make the appropriate decisions.

Consider first the decisions of the firm. A short-time work scheme where firms are subsidized for not using the employees, may make firms lay off employees even if they still have some productive value at the firm, as long as the productive value of the employees is lower that the wage costs that are saved. To mitigate this problem one can let the firm pay some wage costs, e.g., by requiring that the firm covers the wage costs for the first 15 days (as in the Norwegian scheme pre-corona) or that only a part of the wage costs is covered (like in the Danish and Swedish scheme).

An alternative would be a wage subsidy scheme, used for example in Ireland, Canada and Australia, where firms are refunded some or all wage costs also for employees who are working. This may ensure that employees are working, but it will also increase costs for the government as firms may request support also for employees who would work normal hours also without support. To reduce the risk of excessive requests for support, some countries like the Netherlands and Poland have mixed wage subsidy schemes where the support also depends on the reduction in business activity.

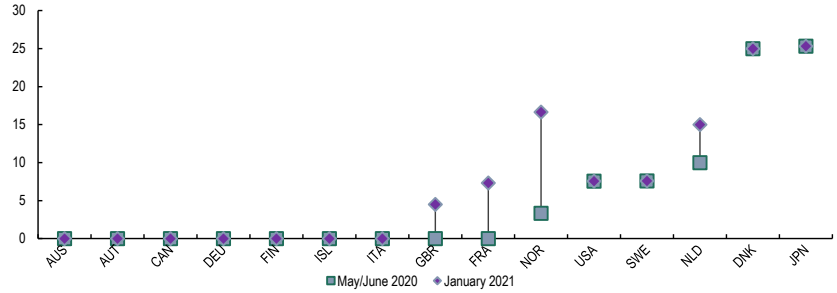
Another potential problem is that the firm may use a job retention scheme also for employees who are unlikely to be taken back to work. If firms incur no or low costs for employees who are furloughed, it may be tempting to keep employees furloughed in the hope that business eventually improves, even if the probability is low. The probability of finding a new job might fall over a long period on furlough, so this may reduce the overall employment probability for the employees on furlough.

Firms may also have an incentive to keep employees on furlough even if they are unlikely to be taken back to work. If firms are obliged to pay wages in the notice period (as is required in Norway), it will be more costly for the firm to take employees back from

furlough to lay them off permanently, requiring the firm to pay wages in the notice period, than if the firm keeps the employees on furlough until they find a new job and quit voluntarily.

Among the Nordic countries, the Danish scheme seems to involve the highest costs to the employers, as firms are required to cover 25 % of the labour costs for white collar workers, and 10 % for blue collar workers, up to a cap of DKK 30 000. In Sweden, firms cover 8 % of the labour costs for the maximum permissible reduction in working time of 80 %. In Norway and Finland, employees on furlough receive unemployment benefits instead of wages. However, in Norway, firms have to pay wages during an initial period of the furlough. Early in the pandemic, this initial period for which firms pay the wage cost was reduced to two days, making it cheap to furlough employees, which probably induced more firms to do so. From September 2020, the firm payment period was increased to 10 days. Overall, it seems that firms in Norway and Finland will carry a smaller share of the costs than firms in Denmark and Sweden, and thus have stronger incentives to use this type of scheme.

Figure 16 Cost of hours not worked for firms, selected countries



Note: Cost of hours not worked for firms as percentage of labour cost for the maximum permissible reduction in working time, May/June 2020 and January 2021. † Schemes no longer operational in January 2021. Mandatory employer contributions for private insurance are not taken into account. For Norway the first 3 months (60 days).
Source: OECD Employment Outlook June 2021.

The compensation of employees in a job retention scheme has the usual trade-off between insurance and welfare on one hand and incentives and costs on the other. Insurance and welfare of em-

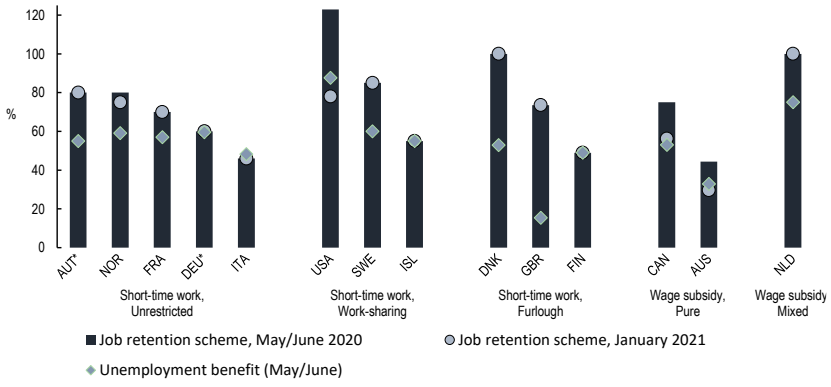
ployees suggest full compensation, while concerns of incentives and costs to the government suggest reduced compensation so as to lower public costs and to incentivize employees on furlough to look for other jobs. During the pandemic, this trade-off is tilted toward insurance and welfare for employees, in the sense that employee compensation should be higher than in normal times, to share the burden of the pandemic and policy measures, and to increase trust and public support to the handling of the pandemic. Furthermore, at least during a situation with broad-based lockdown, there are less vacant jobs and thus less need to incentivize unemployed or furloughed individuals to look for other jobs.

When the economy is opening up, the situation changes. The insurance/welfare argument may be the same, but there will be more available jobs and thus stronger reasons to motivate employees on furlough to look for other jobs, at least if they are unlikely to come back to their original employer. In this case a generous job retention scheme may lock-in workers in jobs that are likely to disappear on permanent basis, thus preventing the workers from finding new jobs elsewhere.

Among the Nordic countries, employees on a job retention schemes receive the highest gross replacement rate in Denmark, where they receive full compensation. In Sweden, employees on a job retention scheme may receive 85 %, as compared to 60 % for workers on unemployment benefits. In Norway, employees on furlough receive full wage up to a cap for a first period (which was 20 days during the first part of the pandemic), and then they receive unemployment benefits. In Finland, employees on a job retention scheme receive the same as those on unemployment benefits.

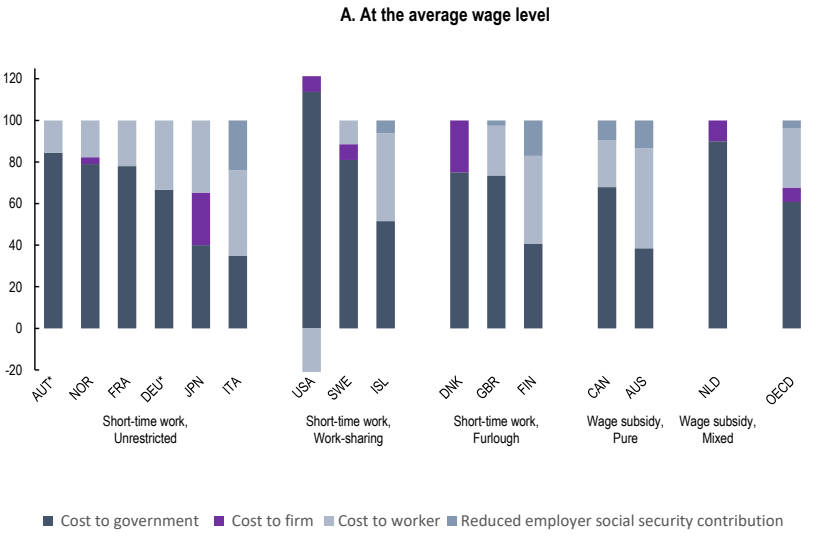
Overall, the Finnish and Swedish job retention systems seem to be the most favourable to the employers, and the Danish system least favourable to the employers. For the employees, the Danish scheme is the most favourable and the Finnish system least favourable, while the Norwegian and Swedish system are in between.

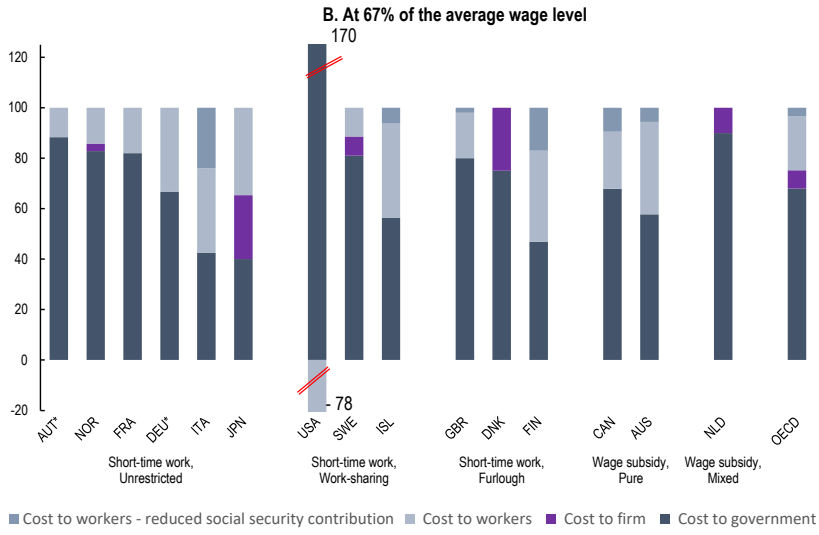
Figure 17 **Gross replacement rates in job retention schemes and unemployment benefits, selected countries**



Note: Percent of gross wage, evaluated at the average wage for the maximum permissible reduction in working time. * Net terms (after taxes and other benefits). † Ended schemes in January 2021. Unemployment benefit for a single adult with no children and two months of unemployment.
Source: OECD Employment Outlook June 2021.

Figure 18 **The costs of hours not worked for the government, firms and workers, selected countries**





Note: Percentage of labour cost for maximum permissible reduction in working time, May/June 2020. * Net terms (after taxes and other transfers). Short-time work – unrestricted: no significant limits on the reduction in working time; short-time work – furlough: no partial reductions in working time allowed; short-time work – work-sharing: significant limits on the maximum reduction in working time; wage subsidy – pure: based on wage bill only; wage subsidy – mixed: based on wage bill and reduction in business activity. Mandatory employer contributions for private insurance are not taken into account (consistent with the OECD methodology of Taxing Wages). If job retention benefits are paid directly to workers, it is assumed that firms pay no employer social security contributions over hours not worked. Norway: for the first 3 months (60 days). Sweden and the United States: for a maximum reduction of working time. the United States: includes weekly lump-sum of USD 600 that was paid irrespective of the reduction in working time to all short-time compensation recipients as part of CARES, resulting in an increase in earnings in both cases considered here. If there are several schemes in the country, the figure relates to the primary scheme in May 2020 (Denmark: Wage compensation scheme (Lønkompensation); Ireland: COVID-19 Wage Subsidy Scheme; the United States: short-time compensation). For Sweden there was an additional reduction in payroll taxes in March-June 2020 for the first 30 employees which implies a reduction in the costs to the firm which is not reflected in the figure (European commission, 2021).

Source: OECD Employment Outlook June 2021.

Effects of job retention schemes

In general, the employees on a job retention scheme have come back in employment when the pandemic was less widespread and the containment measures less strict. In Denmark, about 90 % of those on wage compensation in April 2020 when the first wave of the crisis was at its top were in employment in October 2020; see Figure 4. This is very close to normality, since there are always in- and outflows from the labor market (retirement, sickness etc.), see Andersen et al. (2021).

It is difficult to assess the effect of the job retention schemes, as we have no counterfactual. There are however some studies indicating that the schemes have contributed to preventing layoffs. Bennedsen et al (2020) collect survey data for some 10 000 Danish firms, and match them to furlough and administrative accounting data. Comparing actual outcomes with the counterfactual, based on firms' responses of what they would have done without the support schemes, Bennedsen et al. estimate that the support schemes led to 81 000 fewer workers were laid off and 285 000 workers were furloughed. The authors conclude that the policy was effective in preserving job matches at the start of the pandemic. Based on survey information for Southern and Eastern European firms, Janzen and Radulescu (2020) find that state aid in the form of deferral of payments and wage subsidies were the most effective types of aid, and that firms receiving wage subsidies recorded 34% fewer redundancies compared to firms receiving other types of support.

The clear view among observers is that job retention schemes have helped to save jobs, by preventing bankruptcies and preventing a large number of permanent redundancies (see OECD, 2021; Hansen et al, 2020, Da Silva et al., 2020; Giupponi and Landais, 2020; Taylor et al, 2021). This is consistent with our own assessment of the effects. Without such schemes, the firm might have terminated many of the employment relationships, due to profit maximization, or because the firm faced a strict short-run financial constraint. Termination of employment contracts would imply efficiency costs due to permanent job losses and increased macroeconomic uncertainty. However, it also seems likely that many of the furloughed employees would have been kept on job by the firms if there had been no furlough scheme. In such cases the furlough scheme reduces costs to the firm, at considerable cost to the government.

It is difficult to assess in a reliable way how many employees would have been retained and how many had their contracts terminated. Furthermore, it is difficult to assess to what extent employees who were laid off would come back to productive job matches in the same or other firms than before, when the situation allowed for this. Empirical evidence suggests that workers who are laid off have a higher risk of ending up in disability schemes, see e.g. Rege et al. (2009) and Bratsberg et al. (2013). This would suggest that the use

of furloughs rather than termination of employment contracts may reduce the outflow of the labour force to disability schemes.

Overall, there seem to be good efficiency and stabilization arguments to have an extensive job retention scheme in a crisis like the pandemic. There are also clear arguments that employers should incur some costs when workers are laid off temporarily, to prevent excessive use of such schemes. The rapid increase in furloughs in Norway in March/April 2020, when employers only had to cover the wages for two days, supports this conclusion.

These conclusions are consistent with previous findings in the literature on job retentions schemes. In a study of the use of short-time work programs in France during the Great Recession in 2008–2009, Cahuc et al (2018) find that such programs save jobs in firms hit by strong negative revenue shocks, but not in in firms that are less severely hit, where hours are reduced without any effect on jobs. Yet the authors find that the costs per saved job is very low compared to other employment policies. Balleer et al (2013a, b) also find that the German rules-based short-time work program works as an automatic stabilizer, reducing job losses by roughly 20 % in a recession. In a survey of short-term work programs during the Great Recession, Boeri and Bruecker (2011) find that these programs contributed to reduce job losses, but the number of jobs saved were smaller than the full-time equivalents involved by these programmes, pointing in some cases to sizeable deadweight costs. The authors find that the effects depend on the institutional framework.

6 Support to firms

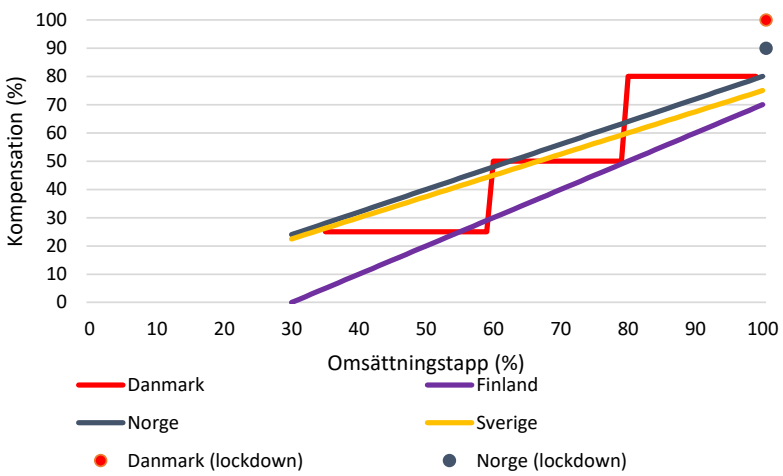
The economic relief packages for firms include two general instruments, liquidity/loan facilities and support for fixed costs. In addition, there are instruments targeting specific sectors and schemes providing income support for self-employed which are not discussed here. The relief packages are not standard toolkits and have no precedents even in large crises in the past.

A key element in liquidity provision is running via the tax system via postponement of tax and VAT payments, lower penalties for late payments (reduced interest rates, or even interest rate free postponement) or explicit loan arrangement based on tax and VAT pay-

ments and pension contributions by the firm. This is a swift way by which to provide liquidity to firms. It is targeted at firms with positive tax and VAT liabilities, and since this depends on past performance the provision of liquidity is positively correlated with past performance. In this sense there is some targeting but, e.g., new firms with an increasing revenue profile are less well covered. In addition, various loan arrangements have been extended either in the form of guarantees or explicit loans.

In all Nordic countries there are schemes to support the fixed costs of firms depending on the decline in turnover. Figure 19 illustrates the main characteristics of the schemes as they were implemented in the first part of 2020. Later there have been adjustments, as an example Denmark has later adopted a smoother compensation curve and schemes for second round effects are re-openings of the economy. Support is increasing in the decline in turnover, but with lower threshold determining eligibility and an upper cap (excess for 100 % lockdowns) for the support. Generally, support is higher for moderate declines in turnover in Norway and Sweden compared to Denmark and oppositely for large declines in turnover. The Finnish scheme is the least generous one. In addition, there are country-specific details on the measurement of turnover (and the reference period) and the definition of fixed costs.

Figure 19 Compensation scheme for fixed costs – 2020



Note: Rules as applying at the introduction of the schemes in 2020. In most cases there are also a lower threshold in and an upper cap on the amount to be received in compensation.

These measures directed at firms are very unusual and were introduced due to containment policies and behavioural responses affecting business opportunities. The mandatory (restrictions) and voluntary precautionary behavioural responses by households due to the pandemic trigger substitution across activities and time. This may lead to a substitution from activities with a high intensity of physical contact (e.g., restaurants) to low contact intensive activities (e.g., acquisition of durables). The precautionary responses may also induce postponement of consumption and precautionary saving shifting purchasing power forward in time. These effects create an asymmetric demand shock since not all parts of the economy are affected. While this may have some resemblance to a classical downturn, it did not in the situation make sense to use the standard logic of aggregate demand management policies to support economic activity by stimulating demand since that would increase the spread of the virus. In addition, containment restrictions of various forms were implemented to contain the spread of the virus but were simultaneously a business interruption shock restricting or precluding normal business activities. Lockdown restrictions may be interpreted as an expropriation of market opportunities justifying compensation, cf. above. Obviously, behavioural responses and lockdown restriction are mutually dependent, and it is not possible to sharply distinguish the effect of the two empirically, and therefore not possible to base policies directly on the different reasons for declining activity.

In contrast to traditional stabilization policy in terms of aggregate demand management policy, the direct support schemes to firms used during the pandemic are firm specific, and this raises a number of questions. In a normal situation positive and negative shocks affect business opportunities, and in the process some firms may go bankrupt because they are mis-managed, or demand for various reasons decline. Such firm closures are not a policy problem but part of the market mechanism and serve to reallocate resources and ensure an efficient allocation of resources. Likewise, savers can diversify such shocks via their portfolio composition. But when many firms are affected simultaneously a systemic issue arises since a large part of the economy is affected. A few firms going bankrupt is no problem, but a simultaneous bankruptcy of many firms may be so depending on the cause.

Large scale destruction of production capacity and job-matches caused by a temporary disruption of market activities has vast social costs. Both firm closure and establishment of new firms are associated with various costs. Firm closure typically implies a haircut on the value of real capital[18] and there is loss of human capital (experience and firm-specific knowledge and explicit lay off costs) and establishing new firms[19] is associated with various administrative challenges (delays) and costs of hiring workers etc. The process from firm closure to recovery of production is therefore lengthy and costly, and it has negative feedback effects to the labour market (persistence) which may further prolong the adjustment period. A lockdown associated with widespread firm closure and job destruction followed by a reopening that initiates a process of firm creation and job creation may thus be associated with excessive social costs (including fiscal costs) and avoiding such costs to support a V-shaped recovery is an efficiency argument in favour of direct support to firms.[20]

However, firm specific compensation policies interfere with the market mechanism and have a status quo bias by supporting existing firms based on historic performance measures like turnover. If the support measures are in place too long, they may impair adjustment and an efficient use of real and human capital. Incentive problems also arise since firms may have insufficient incentives to adjust to the new situation, e.g., by adapting their business model (for example e-commerce). There is an ex-post moral hazard problem which may worsen the consequences of the shock.

The firm specific nature of the intervention raises questions whether firms could either self-insure or insure against such events.[21]

Firms can self-insure either via financial buffers or loan financing. However, this also raises issues, especially for small and medium sized firms. While firms generally hold buffers to cope with normal

[18] Bankruptcy has deadweight costs since it is time-consuming and dissipates a significant fraction of firm value, see discussion and references in Merton and Thakor (2021).
[19] Depending on country specific bankruptcy laws, a bankrupt owner may have difficulties in starting a new firm. Hence, entrepreneurial skills may be lost since bankruptcy due to the pandemic is not necessarily the result of bad management skills.
[20] Henriksen, Moen, and Natvik (2020) argue that capital owners receive high profits in good times, and may choose to diversify, so they should not be provided insurance in bad times. Thus, the authors conclude that support to firms can be justified only in terms of efficiency and not insurance arguments.
[21] The nature of the "pandemic" shock makes it impossible to diversity the shock in financial markets since that would require assets offering contingencies depending on the pandemic.

variations in business, the situation created by the pandemic is different, and self-insurance is far from unproblematic. To see this, consider a very stylized representation of a lockdown where a firm is precluded from operating for a given period, upon which business returns to normal. This is an example of a fixed time interruption of business in which no revenue is generated, but there are some irreversible/fixed costs which accumulate into a total lockdown cost. Assume a well-functioning capital market and consider the scope for the firm to cover these lockdown costs via borrowing. The lockdown cost corresponds to a restart or re-entry cost which, contrary to a normal investment activity, is not matched by any improvement in profitability post re-opening and in the optimistic scenario business returns to normal. Hence, a financial institution only grants the loan if the business generates a sufficiently high rent ("above normal" profit) that can cover debt servicing. It follows that loan financing of the lockdown cost is only feasible for firms operating in imperfectly competitive markets, while firms in competitive markets would not be able to finance the lockdown costs via financial markets. A firm generating a rent has a liquidity problem only, a firm in a more competitive environment is more likely to have both a liquidity and solvency problem! Relying on self-insurance via capital market during the pandemic thus has important implications for competition and is not as market conform as it may seem at first. Oppositely, a general support scheme would also imply supporting firms who could self-finance the consequences, see below on targeting.

Moving beyond this stylized example, financing possibilities may be affected by the severity of containment policies and behavioural responses, past performance, solvency, changes in business opportunities post the pandemic, uncertainty about the length of the disruption of business, entrepreneurial skills, etc. Given the systematic nature of the event, a credit squeeze may also arise. Moreover, the decision by financial institutions does not take the excessive social costs of bankruptcy into account, and hence the borrowing options may be too restrictive from a social point of view. Oppositely, when an otherwise financially viable firms is in trouble creditors (financial institutions, landlords etc.) may accept a haircut since

it is to their advantage in comparison to a firm closure.[22] In this way the negative shock is shared with others, and this mechanism is reduced by direct support to firms which shift the burden to public budgets.

Explicit insurance involves issues on both the demand and supply side. The event is a rare but high-impact hazard for which it may be difficult ex ante to assign probabilities (risk vs. uncertainty). Moreover, it is a global aggregate shock which impairs the scope for establishing risk sharing arrangements in markets. Insurance markets for natural disasters/pandemic do exist,[23] but these markets are incomplete, and in most cases depend on public intervention/subsidies. For natural disasters it may be more straightforward to assess the damage than for the business interruption shock released by a pandemic. The insurance in case of natural disasters is covering destruction of real capital. A business interruption shock is less well defined and it also depends on policy interventions (containment policies). Demand for such insurance may also be low due to "optimism bias" or simply not perceiving the risk.

There are thus various market failures or problems in relying on self-insurance or financing of the consequences of the pandemic. The public sector has the possibility of providing "retrospective" or ex-post insurance and to diversify aggregate shock over time via the public budget. The relief packages may be interpreted as an ex-post insurance of an unanticipated aggregate shock. Since firms and workers had no influence on the occurrence of this shock (no ex-ante moral hazard), there is no direct incentive problem in providing the support.

There is an important difference between schemes providing direct support and liquidity/loan arrangements. Liquidity/loan arrangements overcome a short-run problem but are effectively implying self-financing or insurance in the sense that firms are offered a possibility to smoothen the effects over time. Due to market imperfections discussed above, the risk of a credit squeeze and the urgency of providing liquidity/loans to a large number of firms, there is an argument for such schemes. However, they do not resolve the

[22] However, the large number of firms affected may release a financial accelerator effect arising via the declining value of collateral for loans.
[23] See Cebotari and Youssef (2020) and IMF (2021) for a discussion. Radu (2021) discusses and reviews disaster risk-financing in the EU.

liquidity/solvency dilemma raised above, which pertains to firms in more competitive environments.

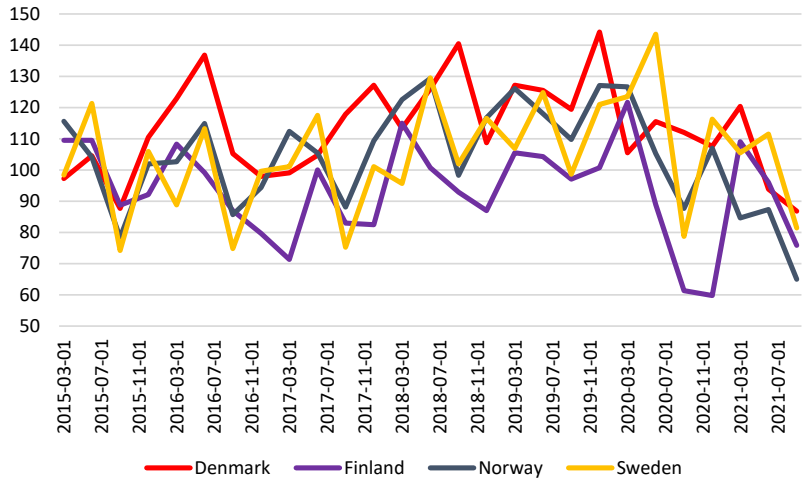
Tax credits are effectively loans, without any credit assessment. This allows a swift provision of liquidity but creates a risk that excessive tax/VAT liabilities are accumulated which later results in defaults (and loss of tax revenue). This is clearly an extreme alternative to market-based financing since it relies on self-selection of firms (provided they meet the conditions for "tax loans"). Ex post a difficult problem arises for tax authorities on how to handle tax loans not honoured. Each case would require a credit assessment to decide whether the firm is viable, and whether a haircut on the debt is optimal.[24] Such assessments are outside the normal competencies of tax authorities.

Supporting firms for fixed costs is far from unproblematic and raises many design issues. The design of the relief packages has three key dimensions: i) when is a firm eligible for support, ii) what kind of support is available, and iii) for how long can support be received? The eligibility conditions are crucial and in the applied schemes they are rather broad depending on the decline in turnover. This criterion is simple and relatively easy to implement, but it is not precisely targeted to firms adversely affected by the pandemic. Targeting involves both type I errors where insufficient support is given to viable firms, and type II errors where support is given to firms that are not viable post the pandemic. Support for non-viable firms will delay the adjustment process and induce misallocation of resources (human and real capital). There is a trade-off between the two. If the eligibility criteria are lean to prevent type I errors, the risk of numerous type II errors is generally high. In contrast, very restrictive eligibility criteria reduce type II errors and increases the risk of type I errors that otherwise viable firms are closed before the economy is reopened contrary to the purpose of the intervention. A further problem is that fixed costs are not a well-defined term, and there may be different adjustment possibilities (including re-contracting e.g., of leasing contracts). Moreover, there are wide differences in the importance and nature of fixed costs across firms.

[24] It is normal for financial institutions to assess whether bankruptcy or a haircut on the debt is recovering most funds. A similar decision is needed for tax-loans based on the relevant social costs and benefits.

The consequences of the targeting problems are mitigated by the eligibility threshold for the decline in turnover and when the compensation is partial (except in the case of full lockdown) and increasing in the decline in turnover. The fact that firm closures have been very low during the pandemic, see Figure 20, can be interpreted as a sign that there have been few type II errors and a potentially large deadweight loss by providing support to firms not needing the support. However, it is too early to conclude this due to administrative delay, and the fact that problems may appear later when tax credits are payable.

Figure 20 Bankruptcies



Source: Statistics Denmark, Statistics Finland, Statistics Norway, and Statistics Sweden.

The decline in turnover is determined by relating turnover in a specific period to a reference period (typically the same period the previous year). While this is relatively simple, it raises issues since turnover in the reference period may be low or high for various reasons, and in any period some firms experience changes in turnover relative to the past. While a 30 % decline in turnover is large, it is not unusual. Andersen et al. (2021) report data for Denmark showing that between 15 and 20 % of firms experienced a decline in turnover of at least 30 % between 2019 and 2018, a period in which the economy was performing well. Hence, there is a non-trivial

targeting issue since the scheme provides support both to firms affected by the crisis and to firms which for other reasons experience a decline in turnover. The length of the reference period also matters. A short defining period implies that short-term variations are eligible for support, while a longer period implies some smoothing and therefore only support to more lasting declines in turnover (more self-insurance).

The criteria should also be seen relative to the administrative costs for both firms and the public sector, the risk for errors and fraud. Concepts like turnover and fixed costs both have measurement problems, and while they are relatively easy to administer, neither is precisely targeting the specific firm consequences of the pandemic. More specific criteria – as for example for some of the more specific measures – are also more complicated which is a cause of uncertainty among firms (can we get support?) and administratively demanding.

A particular issue is that the length of the unusual situation and thus the support period was not known ex ante. The arguments above implicitly presume a relatively short support period. But the pandemic has proven unpredictable, and the longer the support period, the more problematic the status quo bias of the scheme impeding structural adjustments.[25] It is important that such measures have an explicit sunset clause both to give firms a clear planning platform but also to signal that the scheme is unusual for an unusual situation. Across the Nordic countries the approach has been different. In Denmark there have been explicit sunset clauses and the closing down of the schemes has been followed reopening (with a short lag), in Finland some schemes were closed down at the end of 2020 and most of the rest at the end of 2021, in Norway the schemes in general continued until the fall or end of 2021, although there were changes over time, and Sweden has not had any sunset clauses but announced that ad hoc decisions would be made.

Supporting firms for fixed costs or loss of revenue have a status quo bias which may be interpreted as a guarantee applying until business has improved. Basing policies on a perception that the economy returns to a situation similar to the pre-corona situation is

[25] The direct support to specific firms and industries in the emergency packages also have implications for industrial policy and trade policy. These measures have the bias that they support firms located in the country, and therefore they could only be implemented given exemptions from EU rules.

naive. There is always a substantial dynamism with firms opening and closing, and creation and destruction of jobs. Moreover, structural factors may have changed after the corona crisis. Tourism, restaurants may be more permanently affected, a declining trend for retail trade has been accelerated by e-commerce during the lockdown etc. It is important to allow for these dynamic processes to work. Emergency relief to support specific firms and jobs risks impairing the dynamic adjustment processes essential to the market mechanism. This could prolong the downturn and even imply lower growth in the medium run. A relative speedy exit from the less market-conform elements of the emergency packages is thus essential. The political economy problem is that the status quo argument has strong support from interest groups benefitting from these schemes.

At the time of writing, there is little detailed evidence on the effects of the support schemes. However, there is some evidence about the situation of the firms which received support. For Norway, the online newspaper E24.no reports that half of the firms which received compensation ended up with higher profits in 2020 than in 2019 (E24.no, 2021). More than half of the firms receiving support would also have had positive profits even without support. In total, these firms received NOK 1.7 bn. One example is Onepark AS, a parking company, which received 26.7 million kroner in support in 2020, and had an annual result of 32.7 million.

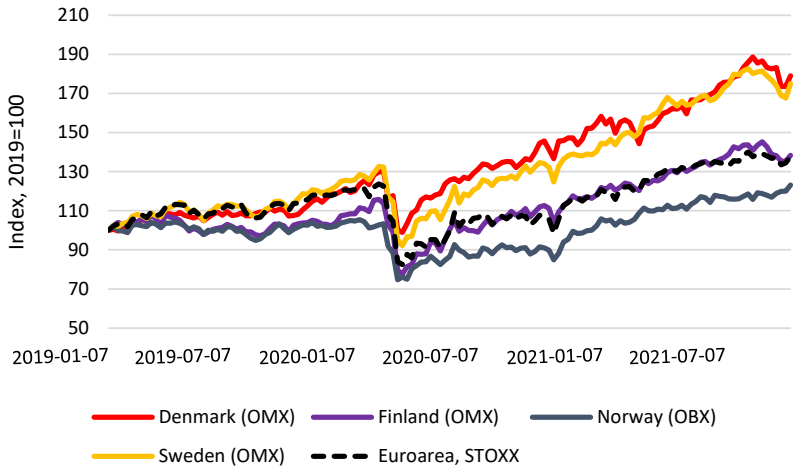
7 Monetary and Macroprudential Policy Instruments

The sudden stop of the economies due to the covid crisis was first visible in February 2020 in the big decline and turbulence in stock markets as well as greatly increased uncertainty.[26] Unlike other recessions, the decline caused by the pandemic was very quick and thus visible, even if regular economic statistics arrived with a delay. Some information, e.g., credit card purchases were available rapidly.

[26] As a measure of uncertainty, the VIX index of option markets shot up in February (not shown).

While the sudden shock was dramatic, the decline of stock prices in different countries lasted about 2 months after which the stock prices recovered and reached the pre-crisis level in the end of summer or in autumn 2020, see Figure 21.

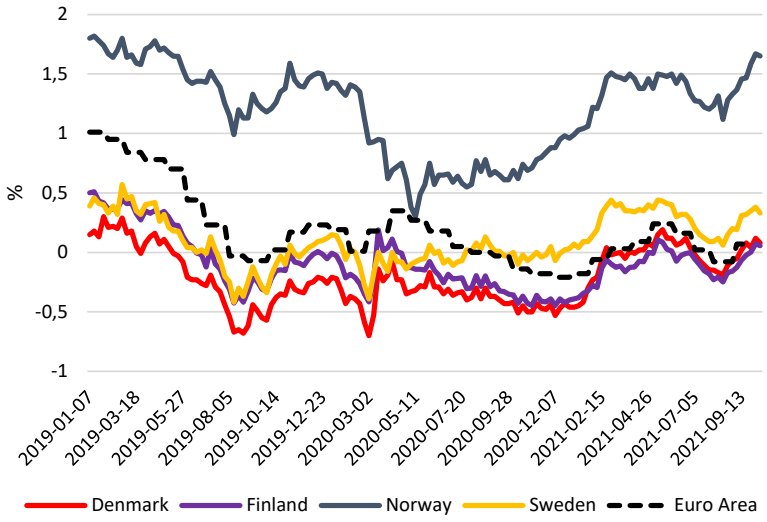
Figure 21 Stock market prices



Source: Macrobond.

The Covid-19 crisis has also affected the markets for bonds. Before the pandemic there was in general a downward trend in yields of long-term bonds. As a result of central banks' easing operations this trend was initially strengthened and long-term interest rates strongly declined at the start of the covid crisis. This trend began to level off in the summer 2020 and in the autumn the interest rates started to rise as the situation of the pandemic started to worsen again. Thus, their development has been variable overall, see Figure 22.

Figure 22 Government bond yields



Note: Yields on bonds with a 10-year maturity.
Source: Macrobond.

After the first signs of a recession in financial markets in February 2020, the sudden decline in the real economy became visible in March 2020 (for the recession, see the figures in Section 3). Importantly, the decline manifested itself in significantly varying degrees in different sectors of the economy, see Section 3 for discussion. Governments reacted quickly to these developments by introducing a large variety of fiscal policy measures.[27]

The general objective of government was to mitigate the major negative developments in employment and production. Easing fiscal policies took a central place in government actions, which was natural as it is possible to tune fiscal instruments to mitigating differential negative developments in different sectors of the economy.

Simultaneously, central banks in different countries introduced packages of easing monetary and financial regulation policies as the crisis was anticipated to have significant impacts on liquidity of

[27] Many economists called for speedy and large menu of fiscal and monetary policies to mitigate the economic effect of the pandemic. For example, see the papers in Baldwin R. and B. Weder di Mauro (Eds.) (2020) and recent commentaries by Blinder (2021) and Gopinath (2021).

firms.[28] By their nature monetary policy measures are general and take the form of lending and related activities inside the financial system, so that monetary and macroprudential measures cannot be easily targeted to specific real sectors or activities.

Fiscal policy measures were crucial to mitigate the loss of income for households and firms affected by the pandemic and containment policies. Monetary policy measures to increase provision of liquidity as well as mitigate the squeeze for households and firms with large debt, were also important. Additional monetary policy to stimulate the economy had perhaps a less central role. There are also indications from research that complementarity of fiscal and monetary easing policies can be important in crisis situations.[29] Thus complementarity of macroeconomics policies was probably helpful in mitigating the economic effects of the Covid-19 pandemic and achieving a turnaround. Using either easing policy alone would have meant increased risks from insufficient policies that could have deepened the recession. It is better to do too much than too little as the risks are asymmetric in a deep crisis.

Monetary policy

In most market economies the macroeconomic situation was on improving or stable trend when the pandemic hit. However, several market economies were still in the process of recovering from the global financial crisis of 2008. Policy interest rates in most advanced economies were around, or in some cases slightly below, the zero level. Norway is an exception as its policy interest rate was at 1.5 percent before the start of the pandemic.

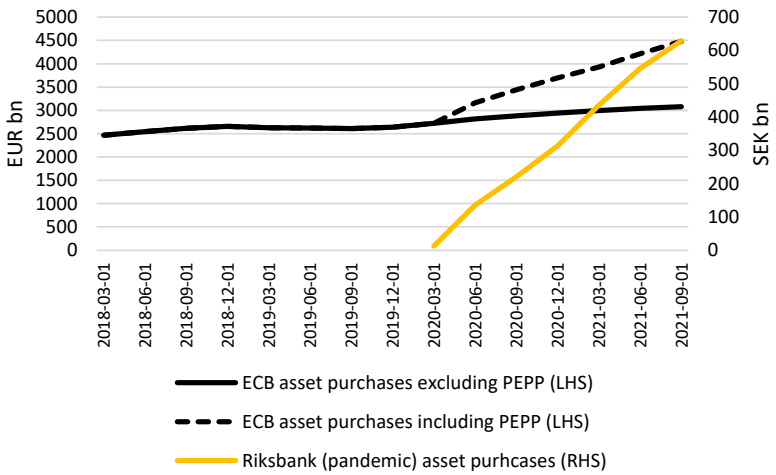
The zero level of the policy rate meant that conventional monetary easing in the form of cuts in the policy interest rate was usually not available and central banks had to employ so-called unconventional policies.[30] These unconventional policies were first introduced during the 2008 global financial crisis and some of these measures

[28] See for example Demmou et al (2021) and Alstadsæter (2020a,b).
[29] See for example Bartch et al (2020) and Chadha et al (2021) for model simulations and general discussion. Theoretical arguments for complementarity of fiscal and monetary policy are given, for example, in Woodford and Xie (2021) and Evans, Honkapohja and Mitra (2022). These studies treat the covid-19 pandemic as a recessionary shock, and the interactions of covid-19 and economic dynamics are not modelled.
[30] Usually, the measures were combinations of large-scale asset purchases, refinancing of bank lending to firms and forward guidance by the central banks in different countries.

were still in use in many countries in the beginning of 2020. When the sudden economic recession brought by the Covid-19 pandemic started, many central banks initiated new asset purchase programs, liquidity provision and credit support as monetary policy measures to mitigate the recessionary effects of the pandemic.

Looking at the Nordic countries, the Swedish Riksbank and the European Central Bank (ECB)[31] initiated new programs of large-scale asset purchases. The ECB initiated a special pandemic emergency purchase program (PEPP) in March 2020 and the Riksbank introduced a new asset purchase program in early 2020. Figure 23 below shows the stock of outstanding net asset purchases by the European Central Bank and Riksbank. At the start of the crisis Norway reduced the policy rate to zero from 1.5 percent and initiated special lending and liquidity support to banks. Being bound by the fixed exchange rate of the krona to euro, Denmark also provided credit support to banks. Further details of monetary policy measures taken by the Nordic countries are given below.

Figure 23 **Asset purchase programs of ECB and Swedish Riksbank**



Source: ECB and Swedish Riksbank.

The policy operations of the central bank work as follows. Large scale asset purchases by the central bank are transactions in which

[31] As Finland is a member of the Euro area, the ECB is the monetary policy maker for Finland.

the central bank purchases government bonds, covered bonds and possibly commercial bonds from the investors and pays for the purchases with cash. These transactions have effects on investors' portfolios who then have reduced amounts of bonds, which have relatively long maturity and more cash. Investors are likely to re-balance their portfolios by buying additional long-term assets which pushes up bond prices and lowers their yield, i.e., longer interest rates. Lower interest rates in turn encourage real investments by the private sector and thus the central bank asset purchase program supports real activity in the aggregate economy.

Liquidity provision and credit support are instruments in which central bank lends additional funds to banks (against collateral). This increases banks' lending capacity and is likely to increase banks' lending to businesses and households. Induced better financing possibilities are in turn likely to support real investments in the private sector. Various studies concerning the post 2008 period indicate that the effects of unconventional monetary policies are empirically in line with the suggested theoretical arguments. The magnitudes of the effects have, however, been variable.[32]

Monetary policy measures in the Nordics

Next, the different monetary policy measures are summarized for the four Nordic countries. Macroprudential and other financial regulation measures are listed in the next subsection. (We note that in the list there may be borderline cases in provision of loans or credits to firms in general or to firms in specific categories.)

Denmark

Denmark has a fixed exchange rate system which is a major constraint for monetary policy. Danish kroner is pegged to the Euro. With this system in place, there have been only a few monetary policy measures in the covid episode in Denmark. Swap lines and credit facility to banking sector were employed in March 2020 to avoid liquidity problems in the financial system and to avoid reduc-

[32] See Moessner et al (2017), DellAriccia et al (2018) and Kuttner (2018) for reviews of the empirical literature on unconventional monetary policy.

tions bank lending to firms. In addition, the policy interest rate was increased slightly so that it reached a less negative level.[33] The latter move was made to maintain the exchange rate of the Krona again the euro in its pegged level.

The detailed instruments were:

- policy rate increased from -0.25 to -0.10 percent,
- Bilateral swap agreement between the US Federal Reserve and Danish National Bank amounting to 30 billion USD,
- EUR Swap line between the European Central Bank and Danish National Bank was reactivated and its amount was raised from 12 to 24 billion Eur,
- Credit facilities to the banking sector in the form of three-month loans against collateral and at variable interest rate that follows the rates of one-week loans.

Finland

Finland is part of the Euro area, so nearly all monetary policy measures affecting the Finnish economy have been Euro-area wide. The European Central Bank (ECB) introduced a variety of measures designed to significantly ease monetary policy in response to the onset of the pandemic.[34]

The measures by ECB were:

- new asset purchase program PEPP (Pandemic emergency purchase program) of 1,850 billion eur designed to lower costs of borrowing and increase lending in the Euro area economy,
- forward guidance about maintaining low policy interest rates,
- several changes in existing long-term refinancing programs (TLTRO's), a new pandemic emergency long-term refinancing program and easing of lending conditions,
- measures to support short-term liquidity of banks and money market activities,

[33] See Danmarks NationalBank (2021).
[34] For example, see Lane (2021).

– international liquidity support through currency swap lines.[35]

There were also bank supervisory measures by the ECB and instructions to banks to refrain from paying dividend and other distributions, see the section on macroprudential policies below.

There has also been one national measure by the Bank of Finland. In March 2020 the Bank restarted its program to purchase commercial bonds and other commercial paper in the domestic corporate paper market. The size of this program has been one billion EUR.

Norway

Monetary policy in Norway is based on inflation targeting and the exchange rate for Norwegian Krona is flexible. This exchange rate regime gives monetary policy stabilizing powers in the domestic economy. The main instrument is the policy interest rate which stood at 1.5 percent at the start of the covid-19 crisis.

The measures of monetary policy easing were the following:[36]

– The policy interest rate was reduced to 1 percent at the start of the Covid-19 crisis and subsequently it was gradually reduced to zero. On 22nd September 2021 the rate was increased 0.25 percent,
– provision of additional liquidity (three-month loans) to banks on several occasions; normalization of this program was achieved in August 2021,
– provision of USD liquidity to banks on several occasions,
– regulations on collateral were made less restrictive,
– countercyclical capital requirements of banks were reduced from 2.5 to 1 percent; later they were raised to 1.5 percent.[37]

The loans and USD liquidity to banks were designed to ensure that the Norwegian financial system can avoid a liquidity crunch which can lead to financing difficulties for firms.

[35] For details see ECB (2021) and European Parliament (2021).
[36] See Bank of Norway (2020) for an overview of the measures and Bank of Norway (2021) for latest information.
[37] This measure can also be thought as a macroprudential instrument.

Sweden

The monetary policy regime of Sweden is based on floating krona and inflation targeting in the economy.[38] However, since 2014 the policy interest rate has been zero or negative, so that in the period from 2014 monetary policy has been based on unconventional policies. The latter are broadly similar with corresponding policies in other countries. With the onset of the covid crisis existing unconventional policies were continued and new large-scale asset purchases, new liquidity provision and other support programs were introduced.[39]

More precisely, monetary easing measures were the following:

- Asset purchase programs for specified assets, treasury bills, covered bonds, corporate bonds, municipal bonds, and commercial paper,
- lending operations (against collateral) to banks, increases of liquidity in domestic currency and in US dollars,[40]
- relaxation of some conditions for loans,
- lower interest rates on loans.

Macroprudential policies

Concurrently with other economic policies, there was also a swift policy reaction with macroprudential policies (and some micro prudential policies) to contain the adverse financial developments. In fact, the recession caused by the Covid-19 pandemic is the first example of using the new framework for macroprudential policy in a potential financial crisis. The policy objectives were to keep the financing conditions favourable, to provide liquidity support to firms and to stabilize household incomes. The policy instruments have included measures such as debt moratoria, restraints in dividend payments and related distributions, release of structural buffers in banks and other financial institutions, and instructions about lending criteria.

[38] See Jahnsson (2021) for a discussion of Swedish monetary policy in 2020.
[39] See Sveriges Riksbank (2021) for a recent summary.
[40] Dollar lending relied on Swap agreement with the US Federal Reserve.

Macroprudential policy is an approach to financial regulation that aims to limit risks that occur in the financial system as a whole. It thus operates between macroeconomic policies and micro prudential regulation.[41] Macroprudential supervision is an outgrowth of the experiences from financial crises – especially the 2008 global financial crisis – that showed the importance of focusing on systemic risks, i.e., risks that arise in the network of different institutions in the financial system. Thus, systemwide financial oversight and supervision complements the micro prudential regulatory policies which are directed at individual banks and institutions.

Macroprudential regulation has a common European infrastructure. All four Nordic countries are members in the European System of Financial Supervision (ESFS) which is described in Box 1.

[41] The general objective of microprudential regulation is to look after the well-being of individual banks.

Box 1. The System of European Macroprudential regulation

ESFS consists of the European Supervisory Authorities (ESAs), the European Systemic Risk Board, the Joint Committee of the European Supervisory Authorities, and the national supervisory authorities of EU member states. There is also the Single Supervisory Mechanism (SSM) that supervises the largest banks in the Euro area (smaller banks are supervised by national regulators).

The European Systemic Risk Board (ESRB) is responsible for the macroprudential oversight of the EU financial system and the prevention and mitigation of systemic risk. Its remit covers banks, insurers, asset managers, shadow banks, financial market infrastructures and other financial institutions and markets. There are three EU level ESAs: European Banking Authority (EBA), European Insurance and Occupational Pensions Authority, and European Securities and Markets Authority (ESMA) which are responsible for financial supervision of individual banks, insurance institutions and financial markets and securities, respectively.

ESFS involves extensive European level cooperation, but many parts of the implementation are carried out by national supervisory entities. The national supervisory authorities in the member countries receive recommendations of policy measures from the European authorities and adopt them in their home countries.

Central mechanisms of macroprudential measures in the Covid-19 crisis operated as follows. Capital buffers of banks[42] which stipulate banks' holdings of required reserves as percentages of balance sheets were lowered. This allowed banks to lend more money to the private economy which in turn supported investments and production activities of firms and the rest of the real economy. Other prudential policies are more directed as they are designed to financially strengthen banks and other financial institutions, so that these insti-

[42] The types of buffers vary between countries.

tutions do not have curtail their lending activities in various sectors. In turn these measures are often beneficial to the real economy.[43]

Financial developments and macroprudential policies of the Nordics during the pandemic crisis are considered next.

Financial developments during the Pandemic

The immediate effects of the covid-19 pandemic were seen in the financial markets, especially in the stock and bond markets (see Figures 21 and 22 above). The pandemic and its negative impact on economic activity in the real economy also led to worsening of liquidity and financing conditions for firms, households, and the financial system. The extensive support packages also shielded financial institutions by reducing losses triggered by lay-offs, unemployment, bankruptcies and therefore also contributed to the quick financial rebound.

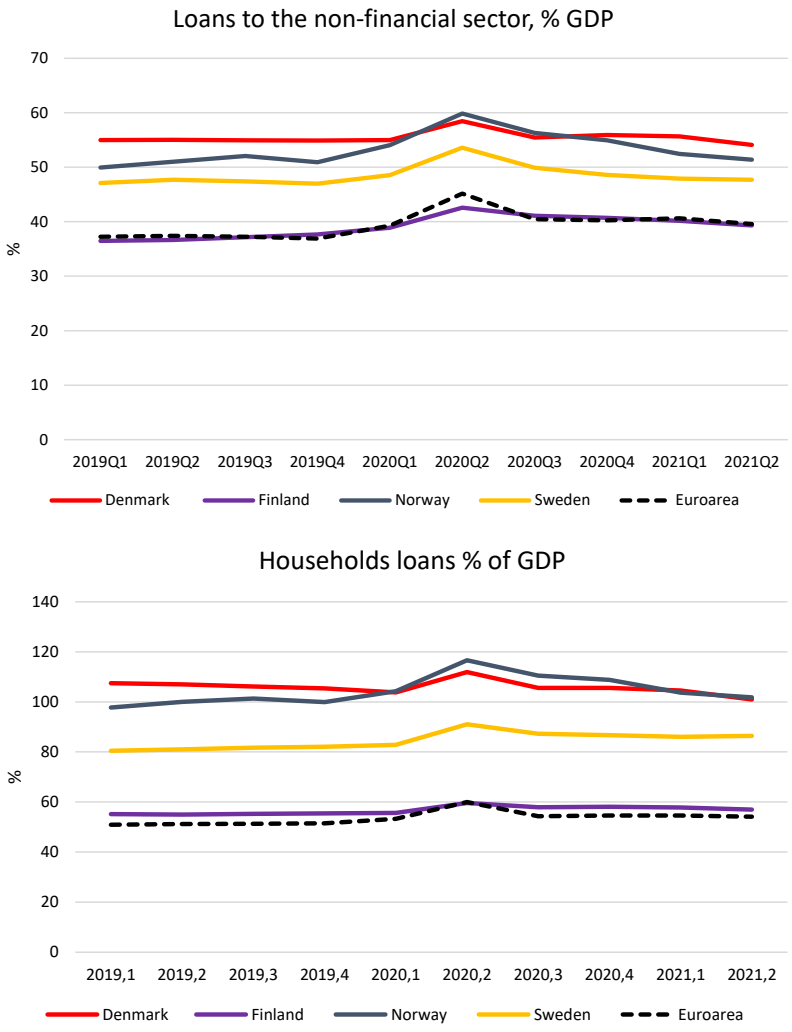
The early developments in the pandemic were not visible at all in development of house prices which continued the preceding upward trends and in fact these trends become stronger in the pandemic in all four Nordic countries. The development of bankruptcies of firms was different to some extent. The statistics in the four countries were fluctuating but without clear trends before the start of the pandemic recession. Then with some delay the bankruptcy numbers started to decline on average (with some fluctuations), see Figure 20 above.

The negative effects of the pandemic recession on the banking institutions have been gradual. The amounts of bank lending to firms and households in the four Nordic countries increased at the start of the pandemic, but there was a decline in the third quarter and in later stages there is a slight negative trend in the four countries. (See Figure 24 below). The corresponding development for the Euro area has the same general pattern. Lending to households has analogous declines without subsequent negative trends in the four Nordic countries and in the Euro area.

[43] Macroeconomic effects of macroprudential polices are studied, for example, in Araujo et al (2020), Boar C. et al (2017) and Richter, Schularick and Shim (2018).

Figure 24 **Loans to non-financial sectors and households**

Percent of GDP



Data source: National statistical offices and Macrobond.

Looking at the performance of banks, it is seen that the crisis resulted in a decline of profitability as measured by returns on equity of banks in 2020 in all four Nordic countries. However, the situation has improved in 2021. Analogous development is seen in another profitability indicator, the cost-to-income ratios of banks in the four

Nordic countries. The situation worsened in 2020 in comparison to 2019, but the situation started to improve in the first half of 2021, see Table 4.[44]

Table 4 Return to equity and cost-to-income ratio, Nordic Banks

	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Return to Equity, %								
DK	7.80	8.70	-3.90	2.00	3.50	4.10	8.70	8.10
FI	4.20	4.80	6.60	4.60	5.90	6.00	8.10	9.00
NO	11.50	10.90	5.90	6.90	7.20	7.40	10.20	
SE	11.90	12.00	3.80	6.80	7.90	8.90	11.10	11.80
Cost-to-income ratios, %								
DK	62.00	64.20	95.70	72.00	68.10	67.10	56.70	59.00
FI	61.50	59.80	64.90	60.80	57.60	57.00	56.90	53.50
NO	41.30	42.60	35.40	37.90	39.80	41.90	44.50	
SE	46.50	46.70	59.80	53.70	52.00	51.30	46.50	48.30

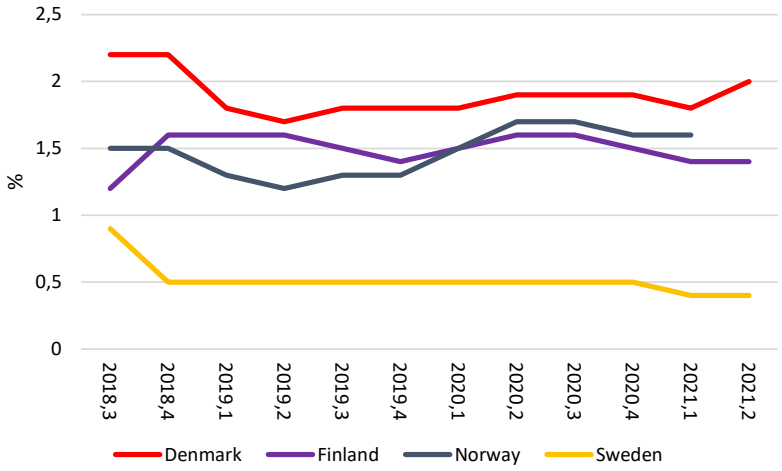
Data source: EBA Risk Dashboard.

As regards systemic risks in the financial system, it was feared that the recession caused by the pandemic would lead to gradual worsening of solvency of banks' customers and, if solvency problems emerge, they would feed back to the financial institutions. Looking at basic indicators for increased credit risk, development of ratio of non-performing loans in banks shows small increases in 2020 for Denmark, Finland, and Norway while there is no change for Sweden. The situation seems to have stabilized in the first half of 2021, except possibly for Denmark. It may be noted that another indicator of possible non-performing loans, called stage 2, shows a similar development. There were some increases the percentage of stage 2 loans during 2020 in the four Nordics, but the indicators show no further increase or even decreases in the first half of 2021.[45]

Household indebtedness is another indicator that is used in assessing credit risks. Figure 26 below shows that for Sweden this indicator increased, whereas the development has been relatively smooth for the other three countries.

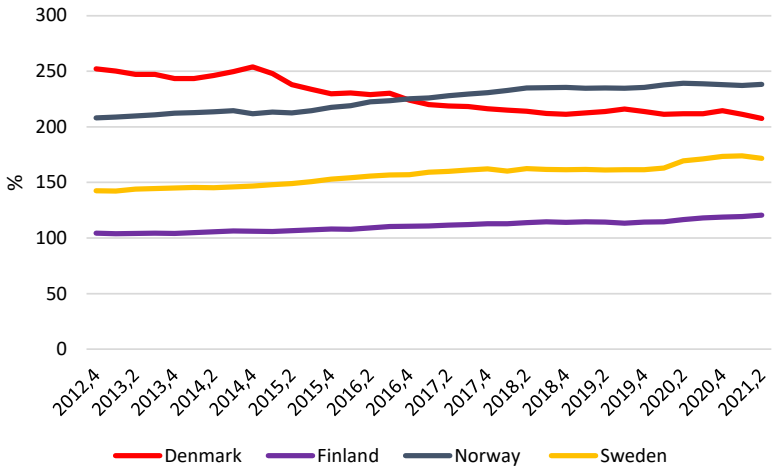
[44] It appears that in the United States the prudential regulation system has kept the banks relatively robust during the covid crisis, see Abboud et al (2021).
[45] Denmark is possibly an exception.

Figure 25 Non-performing loans, banks



Note: Non-performing loans, % of loans and advances.
Source: EBA, Risk Dashboard.

Figure 26 Household indebtedness ratio



Note: Gross debt-to-income ratio.
Source: Eurostat for Denmark, Finland and Sweden, Macrobond for Norway.

Macroprudential policies in the Nordics[46]

At the start of the pandemic financial supervisors in the four Nordic countries introduced a variety of easing measures to mitigate potential liquidity problems and other strains in their banking sectors. These took the form of reductions in the capital buffers of banks and relaxation of lending standards. Reductions of capital buffers for banks have evidently been the main instrument for policy easing.

The macroprudential measures by the Nordic counties taken in the pandemic are listed here.[47]

Denmark

- The counter-cyclical buffer for banks was reduced to zero level,
- some relaxation of lending standards (such as collateral requirements) and of procedures for short-term lending to sound customers,
- reporting requirements for companies under supervision and time extension for sending annual reports were done.

Finland

- Systemic Risk Buffer was abolished,
- O-SII buffer was reduced for the cooperative bank group,
- LTC limit for households was lowered to 85 from 90 perfect, but the limit for first-time buyer was kept at 95 percent.

Norway

- reliefs of capital requirements for systemically important and limitedly important banks,
- Systemic Risk Buffers were lowered for banks,

[46] ESRB (2021) gives a summary of economic policy measures toward the covid-19 pandemic in European countries.
[47] There are differences in the system of buffers and their importance among the countries. The taken measures reflect the different systems.

- O-SII buffer was reduced for one bank,
- insurers and all other financial institutions were called to postpone dividend payments and share buybacks,
- deadlines for supervisory reporting and public disclosure were extended,
- pension funds were given extra three months for filing annual statements and extra time was given for other periodic reporting,
- Single Supervisory Mechanism measures for systemically important institutions were extended to Less Important Institutions.

Sweden

- countercyclical buffer rate for banks was reduced to zero percent,
- phasing in Minimum Requirement for Own Funds and Eligible Liabilities for banks was extended,
- New guidelines on exemption from amortization for mortgages and payments reliefs for loans of small and mid-size firms in government guarantee program,
- Insurance undertakings and occupational pension funds were instructed to use their buffers,
- banks and credit market companies were to refrain from paying dividends, making distributions and share buybacks,
- banks and insurance companies were given flexibility to deadlines for supervisory reporting and public disclosure,
- lending to non-financial corporations via the banking system with collateral but without upper limit,
- collateral requirements in lending made more flexible, interest margin to repo lowered to from 0.75 to 0.10 percent.

The table below shows the easing of capital buffers of banks in the Nordic countries in the pandemic.

Table 5 Capital Requirements in Four Nordic Countries

Requirements as a percent of CET 1 capital from Risk Weighted Assets

	Q1/2019	Q3/2019	Q1/2020	Q3/2020	Q1/2021	Q3/2021
Denmark						
CCyB	0,5	0,5	0,0	0,0	0,0	0,0
SIFIs: OSII+SyRB lower limit	1,0	1,0	1,0	1,0	1,0	1,0
SIFIs: OSII+SyRB upper limit	3,0	3,0	3,0	3,0	3,0	3,0
SIFIs: Total capital requirement lower limit	8,5	8,5	8,0	8,0	8,0	8,0
SIFIs: Total capital requirement Upper limit	10,5	10,5	10,0	10,0	10,0	10,0
Other banks than SIFIs: Total capital requirement	7,0	7,5	7,0	7,0	7,0	7,0
Finland						
CCyB	0,0	0,0	0,0	0,0	0,0	0,0
SIFIs: OSII+SyRB lower limit	0,5	0,5	0,5	0,5	0,5	0,5
SIFIs: OSII+SyRB upper limit	2,0	3,0	2,0	2,0	2,0	2,0
SIFIs: Total capital erquirement lower limit	7,0	8,5	7,5	7,5	7,5	7,5
SIFIs: Total capital requirement Upper limit	9,0	10,0	9,0	9,0	9,0	9,0
Other banks than SIFIs: Total capital requirement	7,0	8,0	7,0	7,0	7,0	7,0
Norway						
CCyB	2	2,0	1,0	1,0	1,0	1,0
SIFIs: OSII+SyRB lower limit	3	3,0	2,0	2,0	1,0	1,0
SIFIs: OSII+SyRB upper limit	5	5,0	3,0	3,0	4,5	4,5
SIFIs: Total capital erquirement lower limit	14	14,0	14,0	14,0	13,5	13,5
SIFIs: Total capital requirement Upper limit	14	14,0	14,0	14,0	14,5	14,5
Other banks than SIFIs: Total capital requirement	12	12,0	12,0	12,0	12,5	12,5
Sweden						
CCyB	2,0	2,5	0,0	0,0	0,0	0,0
SIFIs: OSII+SyRB lower limit	2,0	2,0	2,0	2,0	1,0	1,0
SIFIs: OSII+SyRB upper limit	3,0	3,0	3,0	3,0	3,0	3,0
SIFIs: Total capital erquirement	14,0	14,5	12,0	12,0	11,0	11,0
Other banks than SIFIs: Total capital requirement	9,0	9,5	9,5	9,5	7,0	7,0

Note: Abbreviations: CCyB = countercyclical capital buffer, OSII = other systemically important institution, SIFI = systemically important financial institution and SyRB = systemic risk buffer.
Source: Nordic and Baltic exchange and public data.

8 Assessment

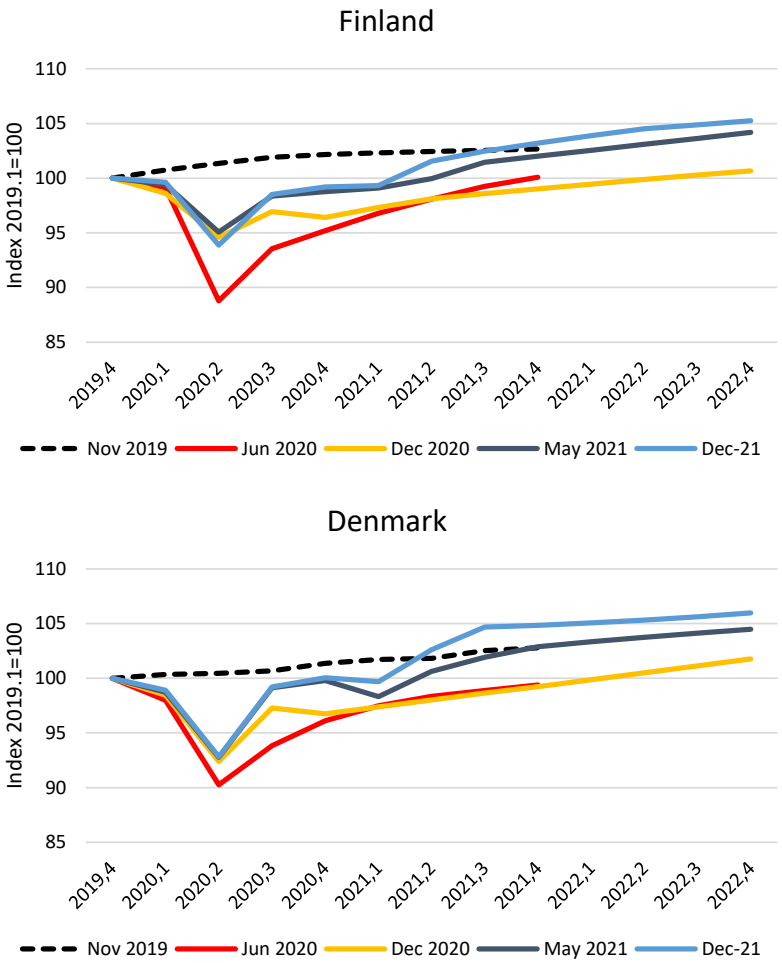
The pandemic has been unusual in many respects, including the containment restrictions and emergency relief measures for which there are no precedents and thus no previous empirical knowledge. Even ex post it is difficult to discern the effects of the different elements due to the clustering of events within a narrow time window. Therefore, the literature is scant on precise quantifications of the effects of the specific economic instruments used. For some references see Section 2.

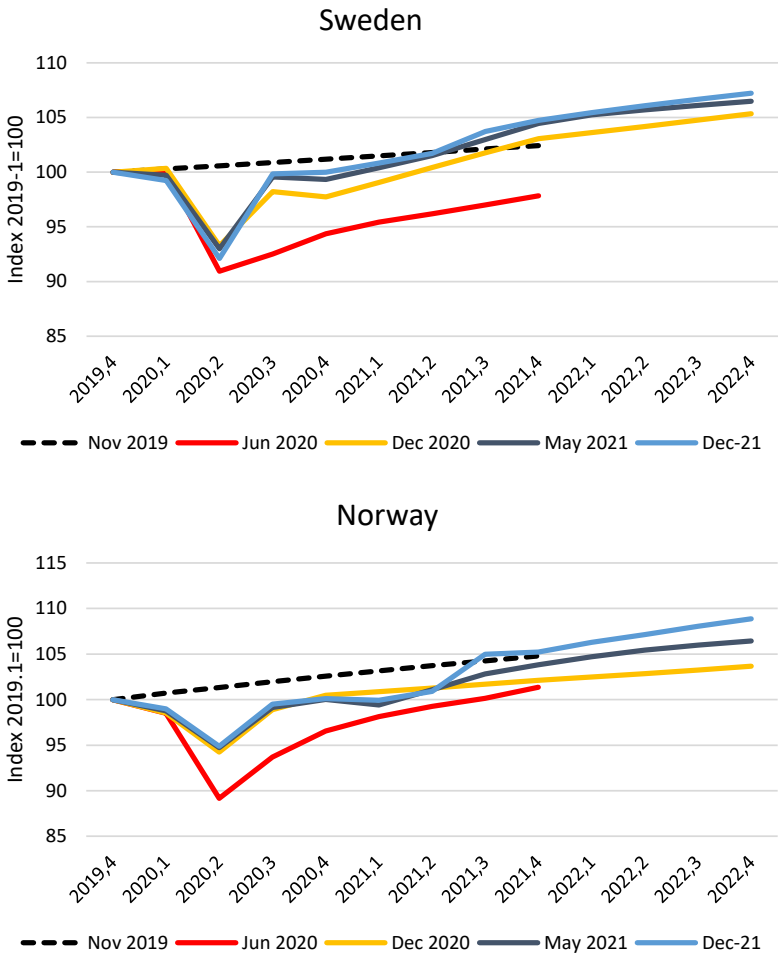
However, looking at the economic development over the pandemic there are some general observations for the Nordic countries. While the decline in economic activity was historically large, the recovery alongside re-openings of the economy has been surprisingly fast. This is illustrated in Figure 27 showing projections for economic activity at various points in time during 2020 and 2021. The fast recovery despite of the large downturn is interesting from the perspective of business cycle models predicting that declines in activity (especially if they are large) are associated with persistence and a gradual recovery process. Empirically persistent responses to economic downturns are also well-documented and illustrated by the Financial Crisis, see Figure 5 above about development of Nordics during and after the 2008 global financial crisis.

The health strategies of Sweden differed from those of the other three Nordics. At the first stages Sweden used less strict measures to contain the pandemic and relied more on guidelines and voluntary restraint. This led to higher infection rates and more deaths in the period 02.2020-03.2021. In Autumn 2020 Sweden began to switch to somewhat more stringent policies.

It can be noted that the activity in some sectors (Arts, entertainment, and recreation) as well as other service activities, declined much less in Sweden than in the other Nordic countries in 2020.4. See data in Figures 7 and 8. This suggests that the weaker restrictions in Sweden involved some economic gain in the form of smaller activity reduction in these sectors, even if the difference is not noticeable in the aggregate data.

Figure 27 GDP forecasts for the Nordic countries





Note: Forecasts for GDP fixed prices from OECD Economic Outlook, 106 November 2019, 107 June 2020 (single-hit scenario), 108 December 2020, and 109 May 2021.
Source: www.ilibrarry-oecd.org.

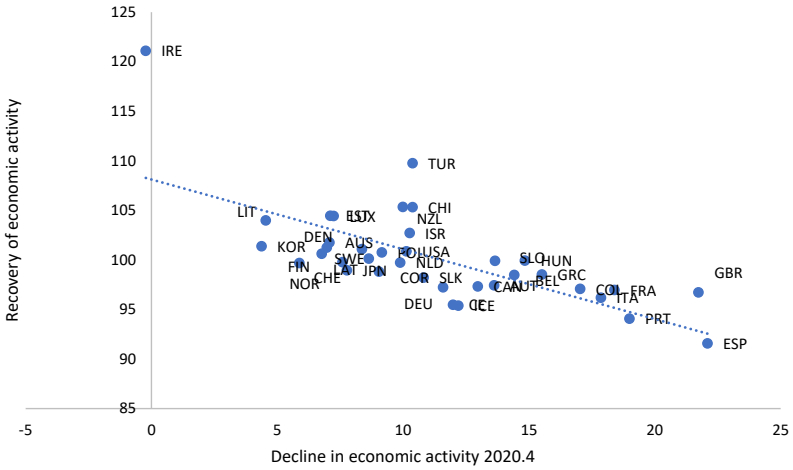
As illustrated by GDP forecasts from the OECD, cf. Figure 27, all the Nordic economies seem to recover well from the pandemic, although there is clearly still considerable uncertainty as the pandemic is not over. The panels of the figure show forecasts at different time points (the most recent forecasts are from December 2021) and the actual outcomes could turn out to be different. Explaining the development in Sweden, the OECD forecast points to

"very expansionary fiscal and monetary policies" and Konjunkturinstituttet has a similar conclusion and points to a strong rebound in consumption and export as well as the expansionary policy, also for 2022.

From a cross-country perspective, there is evidence that severe downturns are usually associated with a slower recovery. Figure 28 shows for OECD countries a cross plot of the decline in activity in the second quarter of 2020 (relative to 2019.4) when containments restrictions were implemented, and the recovery of economic activity in the second quarter of 2021 (relative to 2019.4). In comparative perspective the Nordic countries have experienced small declines in economic activity, and they have almost recovered to the pre-pandemic level of activity in the first half of 2021. The regression line indicates that on average across OECD countries 40 % of the decline in activity is recovered and 60 % of the decline still has to be recovered.[48] In absolute terms countries experiencing the largest decline have also recovered the most, but the recovery is not complete. It should be noted that all countries have not reopened to the same extent during 2021, and notably travel restrictions remain important which is of particular importance for countries relying heavily depending on tourism. Still, it is impressive that countries like the Nordics that experienced a deep decline in activity in the second quarter of 2020 have recovered so swiftly. Given the global decline in activity, this is even more striking for these economies as they are small and very open. However, note that the GDP measure now includes activity to handle and adapt to the pandemic, which does not give welfare relative to a situation without corona. Thus, considering the effect on aggregate GDP does not take into account that some decline in activity has been replaced by activity to handle and adapt to the pandemic.

[48] Denote the decline in activity by D and the recovery by R and consider the linear relation R=100-aD. Then no recovery of activity corresponds to a=1, and full recovery to a=0. The estimated coefficient is 0.6, implying that 60% of the decline has not yet been recovered.

Figure 28 Decline in activity 2020.2 and recovery of activity 2021.1



Note: The decline in economic activity is the ratio of GDP in 2020.2 relative to 2019.4, and the recovery rate is the ratio of GDP in 2021.2 relative to GDP in 2019.4 based on quarterly, seasonally adjusted data from www.oecd-ilibrary.org.

One possible interpretation of the developments in the Nordic countries is that the logic of the economic policy of preserving production capacity and job matches to make a swift recovery possible has worked. The packages have not only maintained the supply side but also ensured that domestic demand was largely intact. This may be interpreted as a two-handed approach to address the economic consequences of the pandemic. The general structure of the Nordic societies with high levels of trust and cooperation, reliance on digitalization, together with well organised society with good social safety net has been a contributing factor to the recovery process.

The policies implemented to cope with the pandemic have had large fiscal costs,[49] but they should be compared to a pandemic without relief measures, and not to a no-pandemic scenario. The Nordic countries entered the pandemic with fiscal space allowing active policy intervention, in contrast to many other European countries which entered the pandemic with high debt levels and unsolved fiscal sustainability problems.

[49] It is too early to make definite conclusions on the fiscal costs since there is still an issue in relation to postponed tax and VAT payments. Moreover, the pandemic is not over, and further fiscal spending might be required.

In contrast to the Financial Crisis, the Covid-19 pandemic has not caused a sovereign debt crisis, although debt levels for some countries are as high or higher than during the Global Financial Crisis. The main reason is the extensive asset purchase programmes by central banks. An implication is that government bond rates remained low (facilitating debt servicing) implying that the high debt levels have not triggered a deeper recession. Given the strong reliance on international trade, this has also benefitted the Nordic countries, and is one factor contributing to the recovery.

In hindsight the policy strategy seems successful although many specific elements can be discussed. It is also clear that the success was not based on "grand design" since the policy measures were an improvisation rather than based on well-planned interventions. The policy strategy was not without risk, and it is probably crucial that the containment restrictions were only applying for a relatively short period of time, and with an interim reopening between the two waves (rather than one long period of equal total length). The interim period allowed most firms to recover activity in the second half of 2020 rebuilding some buffers to the next wave but also allowed learning and adaptation contributing to a lower decline in activity during the second wave.

The Nordics as well as other OECD countries have used a broad set of measures to dampen the negative impact on households, firms, and the overall economy. The job retention schemes have been important to shelter affected sectors and prevent permanent job losses. However, employers should incur some costs when workers are laid off temporarily, to prevent excessive use of such schemes. Other types of support to firms have also been useful to prevent closures, bankruptcies and permanent job losses. Linking support to reduction in revenue ensures that firms with normal activity do not receive support. Yet it has been difficult to avoid giving support also to firms where the reduction in revenue is caused by other factors, and firms which could have done well also without the support. It seems important to evaluate the various support schemes to make improvements for new crises that may emerge in the future.

The relatively short period of time in which the measures have been in place is also crucial and was not a given when the policies were implemented. As noted, the relief packages may be justified as temporary measures in an unusual situation, but a more prolonged

lockdown period would have posed a difficult dilemma. The cost in terms of hampering adjustment and reallocation of resources would in that case be much larger. If the application of unusual policy measures were extended beyond the covid pandemic, political demands for using such measures as part of a policy package for "normal" times might emerge. In this case the aforementioned costs would become correspondingly higher.

It is also plausible that this policy strategy worked because the crisis was not triggered by pre-existing economic imbalances. The Nordic countries were all performing reasonably well at the onset of the Covid-19 pandemic, including having fiscal space to credibly pursue this strategy.

9 Concluding Remarks

As a general conclusion we wish to emphasize that the future situation about the pandemic remains very uncertain. While vaccination programs have been effective, the pandemic is still raging and there is a risk of new and more contagious variants of the virus. At worst there could be a resurgence of the pandemic with dampening effects on the economy. It is an open question how resilient the Nordic economies would be to a new global downturn. Moreover, there have been second-round economic effects which affect the global economy. Lengthening delivery lags in international trade and rapidly rising prices of energy, raw material and other input are examples of somewhat surprising new concerns in the global economy.

Although so far economic recovery has been fast and strong, there can also be long-term negative effects from the policy measures, some of which are not yet visible. For example, there will be the adverse effects of lockdowns, decreased mobility of students and other restrictions in educational institutions, see e.g., OECD (2020) for an overview and discussion of education systems. Most likely, there are also positive structural effects which will become evident only gradually. It is possible that changes in work practices, with more work at home, may raise the productivity of some workers.

The economic recovery has led to a gradual dismantling of the economic policy measures introduced in 2020. Internationally,

countries are in very different situations and even the Nordic countries differ in this respect. In Denmark the emergency economic policies have been terminated while Finland and Norway in the late fall 2021 were in the process of stopping these policies. In Sweden the situation is currently open as regards the termination dates.

In monetary policy Norway has already started to raise policy interest rate and is about to stop the regime of unconventional policies. We note that Sweden probably has the option of a quick termination of the asset purchase program as it was started only in early 2020. In contrast, the "tapering process" for ECB asset purchases will probably take a longer time.

While our assessment above praises the economic policies of the Nordic countries, it should be noted that other advanced countries have also used extensive economic support schemes. At present, we do not have sufficient information to compare the economic policies of Nordics to those of other countries. This is an important topic for future study.

In conclusion we note that Sweden used less stringent containment policies in the early phase of the pandemic which probably led to the more dire health consequences. There is some indication that Sweden also had some economic benefits from this in the early phase, in terms of less reduction in activity in specific sectors (arts, services, etc.). However, this gain is not visible in the aggregate data, where the four Nordic countries have had similar developments.

Appendix

I. Announced Discretionary fiscal measures prompted by the Covid-19 pandemic (EUR bn.)

The tables give details on the discretionary fiscal measures since the start of the pandemic. The data are decisions made for the years 2020-2021 beyond. The decided amounts can differ from uptake of the funds until October 2021, see the notes on Table 3.

I.a. Denmark

	DKK bn.
Additional spending	
grants to businesses	35.8
employment support and unemployment benefits	30.8
boosting business activity	9.6
consumption support to households	2.2
upskilling and education	1.1
Accelerated Spending and deferred revenues	
advance payments of tax credits	1.0
tax deferrals	317.8
Equity injections, asset purchases, loans	
government interest free loans	264.0
equity injections and asset purchases	18.0
SAS recapitalization by Danish govt	3.8
Danish recapitalization fund	10.0
The Danish Growth Fund (for SMEs or smaller midcaps)	3.0
equity to start-ups	1.2
Guarantees	**82.2**

Source: IMF Covid 19 measures data base (2021).

I.b. Finland

	Eur bn.
Additional health and related spending	
health and social services, equipment, research and other spending on covid	4.0
Additional spending	
support for enterprises	4
extension of unemployment security, wait-off elimination	0.7
extension of social benefits, spending on children, the young and the elderly	0.5
investment projects	0.4
R&D&I, competence and well-being	0.4
Deferred revenue	
easing of taxes, lowering interest payments and pension contributions	1.6
Equity injections, asset purchases	
capital injections, investment	0.9
capital arrangement for state-owned companies	0.3
Guarantees	
Finnvera, Business Finland authorizations	10.3
guarantees to Finnair financing needs	0.5
other guarantees to business activities	1.4
Quasi-fiscal operations	
State Pension fund investment to comm. paper	1.0
Bank of Finland investment to comm. paper	1.0
authorizations to Financial Stability Fund to meet obligations to meet deposit guarantee	2.0

Source: IMF Covid-19 measures data base (2021).

I.c. Norway

	NOK bn.
Additional health and related spending	**79**
Additional spending	
grants to businesses	104
support to households	39
culture, sports, NGOs	10
Equity injections, asset purchases	
equity injections, asset purchases, loans	60
funding for corporate bond purchases	50
funding for innovation, grant to Avinor etc.	9
Guarantees (on loans, deposits etc.)	
govt guarantee scheme for bank loans to SMEs	50
re-insurance of credit insurance providers	20
guarantees for aviation industry	6
loans package for tour operators	2

Source: The Ministry of Finance, National budget 2022; Revised National budget 2021; IMF Covid 19 measures data base (2021).

I.c. Sweden

	SKK bn.
Tax reductions	
reduced employers' social security contributions, temporary income tax deduction	36.6
Expenditures	
compensation of employees, intermediate consumption and changes in inventories	3.3
subsidies, expenditure, other than furlough schemes	52.7
furlough schemes (and similar such as short-time labour schemes), expenditure	40.0
social benefits (other than social transfers in kind), other than furlough schemes	23.2
capital transfers, expenditure	6.7
other, excluding furlough schemes	82.3

Note: Only additional spending and tax reductions are shown.
Source: Data from Ministry of finance (2021).

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