The COVID-19 epidemic and its effects on Finland

Medium-term scenarios

Jouni Varanka, Seppo Määttä, Ines Gullichsen, Jaana Tapanainen-Thiess, Pasi Pohjola, Liisa-Maria Voipio-Pulkki, Vuokko Lehtimäki, Raija Volk, Pekka Rissanen, Mika Salminen, Jukka Railavo, Markus Sovala, Mikko Spolander, Tiina Tikka, Heli Nederström, Eeva-Riitta Pirhonen, Kari Auranen, Tuija Leino, Simopekka Vänskä

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Abstract

This memorandum describes three potential evolution trends that the corona epidemic might follow in Finland, together with their economic and social impacts. The scenarios start from the coming summer and extend until the end of 2023. The analysis presented here is a follow-up to the short-term scenarios (covering approx. 6 months) published in December 2020 that examined the combined and mutual effects of the epidemic and its economic and social consequences.

Compared with many other countries, Finland has so far survived the COVID-19 epidemic with relatively little damage in terms of health protection and the economy. By the beginning of February 2021, the lowest number of COVID-19 cases relative to the population than anywhere else in the EU/EEA area was recorded in Finland. In the early part of this year, the evolution has essentially followed the base case scenario of the models published last December. Since the second half of February, infections have increased rapidly, virus variants are spreading fast, and there is a growing demand for hospital beds. At present, at the turn of February and March 2021, Finland faces a very challenging epidemiological situation.

At the time of writing, it may still be possible that the ongoing major deterioration of the epidemiological situation could be halted with the strict restrictive measures that were introduced at the turn of February and March. In that case, the economic and social damage sketched out in the more negative scenarios last December could be avoided. Prolonged restrictive measures may cause very serious social problems and have major negative economic consequences, especially in sectors directly affected by the restrictions. However, in the scenario analysis performed in December on the basis of empirical research [see study by the Ministry of Finance] it was estimated that the societal and economic benefits from keeping the epidemic in control will outweigh the disadvantages caused by restrictive measures. That would seem to be the case if strict restrictive measures were scheduled in such a manner as to prevent the epidemic from accelerating uncontrollably before the expected effects of vaccinations and seasonal fluctuation will be obtained.

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Kuvailulehti

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COVID-19-epidemia ja sen vaikutukset Suomessa
Keskipitkän aikavälin skenaarioita

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Tiivistelmä

Tässä muistiossa on kuvattu kolme mahdollista koronaepidemian kehityskulkua taloudellisine ja sosiaalisine vaikutuksineen. Skenaariot alkavat kuluvan vuoden kesästä ja jatkuvat vuoden 2023 loppuun. Tässä esiteltävä analyysi on jatkoa joulukuussa 2020 julkistetuille lyhyemmän (noin 6 kuukautta) aikavälin skenaarioille, joissa tarkastelun kohteena oli yhtäläisesti epidemian, talouden ja sosiaalisten seurausten yhteis- ja keskinäisvaikutukset .

Toistaiseksi Suomi on selvinnyt COVID-19-epidemiasta sangen vähäisin vaurioin, jos tarkastellaan asiaa terveyden suojelun tai talouden näkökulmasta ja verrataan muihin maihin. Esimerkiksi helmikuun alkuun mennessä Suomessa oli todettu väestöön suhteutettuna vähiten COVID-19 tapauksia koko EU/ETA alueella. Kehitys on alkuvuonna pääpiirteissään noudattanut joulukuussa julkistettujen skenaarioiden perusvaihtoehtoa. Helmikuun jälkipuoliskolta alkaen tartunnat ovat lisääntyneet nopeasti, virusmuunnokset ovat yleistyneet nopeasti ja sairaalapaikkojen tarve on alkanut kasvaa. Suomen epidemiologinen tilanne on helmi-maaliskuun vaihteessa erittäin haastava.

On kuitenkin mahdollista, että epidemiatilanteen merkittävä huonontuminen voidaan vielä pysäyttää helmi–maaliskuun vaihteessa käyttöön otetuilla tiukoilla rajoitustoimilla. Tällöin joulukuussa hahmoteltujen kielteisempien skenaarioiden taloudelliset ja sosiaaliset vauriot olisivat vältettävissä. Pitkittyvät rajoitustoimet voivat aiheuttaa erittäin merkittäviä hyvinvoinnin ongelmia ja negatiivisia taloudellisia seurauksia etenkin suoraan rajoitusten kohteeksi joutuvilla toimialoilla. Joulukuun skenaariotarkastelussa oli kuitenkin päädytty empiirisen tutkimuksen nojalla arvioimaan, että epidemian hallinnassa pitämisen yhteiskunnalliset ja taloudelliset hyödyt ylittävät rajoitustoimista koituvat haitat. Näin olisi erityisesti tilanteessa, jossa voimakkaat rajoitustoimet ajoitettaisiin siten, että pystytään estämään epidemian kiihtyminen hallitsemattomaksi ennen rokotusten ja vuodenaikavaihtelun odotettua vaikutusta.

Asiasanat	koronavirukset, skenaariot, taloudelliset vaikutukset, sosiaaliset vaikutukset		
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Covid-19-epidemin och dess konsekvenser i Finland
Scenarier på medellång sikt

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Referat

I denna promemoria beskrivs tre olika scenarier för coronaepidemins utveckling samt de ekonomiska och sociala konsekvenserna av de olika alternativen. Scenarierna omfattar tiden från den inkommande sommaren till slutet av år 2023. Analysen som presenteras här är en fortsättning på de scenarier på kortare sikt (ca 6 mån.) som gavs ut i december 2020 och gäller i likhet med dem de sammanlagda effekterna av pandemin och de ekonomiska och sociala konsekvenserna av den .

Tills vidare har Finland klarat av covid-19-epidemin med relativt små skador med tanke på hälsoskydd eller ekonomiska frågor i jämförelse med andra länder. Till exempel fram till början av februari hade det i Finland konstaterats minst covid-19-fall i förhållande till befolkningsantalet inom hela EU/EES-området. Utvecklingen har i början av året i huvudsak följt det alternativ som gäller basnivån i de scenarier som offentliggjordes i december. Från mitten av februari har antalet smittfall och förekomsten av smittor som orsakats av virusvarianter dock ökat i snabb takt och behovet av sjukhusplatser har börjat öka. Nu vid månadsskiftet februari-mars är den epidemiologiska situationen i Finland mycket utmanande.

När detta skrivs är det fortfarande möjligt att den betydande försämringen i epidemiläget kan stoppas genom de strikta begränsningsåtgärder som infördes vid månadsskiftet februari-mars. Då skulle de ekonomiska och sociala skador som förutspås i de mer negativa scenarierna från december kunna undvikas. Om begränsningsåtgärderna drar ut på tiden kan de medföra betydande sociala problem och negativa ekonomiska konsekvenser, särskilt inom de branscher som direkt berörs av begränsningarna. I scenarierna som gavs ut i december hade man dock på basis av en empirisk undersökning [hänvisning till FM:s undersökning] kommit fram till att de samhälleliga och ekonomiska fördelarna med att hålla epidemin under kontroll överstiger nackdelarna med begränsningsåtgärderna. Detta gäller speciellt situationer där kraftiga begränsningsåtgärder införs vid en tidpunkt då det ännu är möjligt att förhindra att epidemin accelererar okontrollerbart före den förväntade effekten av vaccinationer och årstidsvariationer.

Nyckelord	coronavirus, scenarier, ekonomiska konsekvenser, sociala effekter		
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Contents

1 Summary

This memorandum describes three possible ways the COVID-19 pandemic could progress, including their economic and social impacts. The scenarios start in summer 2021 and extend until the end of 2023. The analysis presented here is a follow-up to the short-term scenarios (covering approx. 6 months) published in December 2020 that examined the combined and mutual effects of the epidemic and its economic and social consequences[1].

So far, Finland has been able to cope with the COVID-19 pandemic with fairly minor damages if we look at the situation from the perspective of health protection or the economy and compare it with other countries. For instance, by the beginning of February 2021, the number of COVID-19 cases recorded in Finland relative to the population was lower than anywhere else in the EU/EEA region. In the early part of this year, the development has essentially followed the base case scenario of the models published last December. Since the second half of February, the number of infections has increased and there has been a rapid growth in different virus variants. This has led to an increase in the demand for hospitalisation. At the time of writing this report in early March, Finland's epidemiological situation has become highly challenging.

It may nonetheless still be possible that the ongoing major deterioration of the epidemic could be halted with the strict restrictive measures that were introduced at the turn of February and March. In that case, the economic and social damage sketched out in the more negative scenarios last December could be avoided. Prolonged restrictive measures may cause very serious social problems and have major negative economic consequences, especially in sectors directly affected by the restrictions. However, based on an empirical study, the scenarios examined in December ultimately determined that the societal and economic benefits of managing the epidemic outweigh the negative effects of the restrictive measures. This would particularly be the case in a situation where strong restrictive measures would be scheduled in such a way that they could prevent the epidemic

1 http://urn.fi/URN:ISBN:978-952-383-800-0

from escalating uncontrollably before the expected impact of vaccinations and seasonal variation.

1.1 Scenario setting

The settings of the three scenarios differ in terms of their expectations for the epidemic situation at the start of the autumn in Finland and elsewhere in the world. A key question is whether the epidemic situation has alleviated and vaccinations have progressed by the end of the summer to the extent that life has returned to its normal course. From an economic point of view, it is assumed that the confidence among households and businesses plays a crucial role, generating consumer demand and courage to invest in new production. In light of the baseline situation, this document examines the development of the national economy and, in particular, the prospects for employment and the sustainability of public finances. The prospects are also considered from the perspective of a few key sectors. The examination pays close attention to both the status of social and health care services and the threats posed by the accumulation of social problems. In addition to the scenarios extending to the end of 2023, the memorandum also includes a more concise assessment of the prospects for the period 2024–2026.

Regardless of whether the epidemic situation can be improved quickly or only later in spring with harsher measures, there is still reason to expect that the situation will be significantly improved by the autumn. Before this, the strict restrictions can be gradually lifted. Respiratory infection rates tend to drop in late spring, and based on data from spring 2020, the same can be expected to happen in the coronavirus incidence this year. Meanwhile, the share of people vaccinated against the virus is expected to grow rapidly based on an assessment by the Finnish Institute for Health and Welfare. There is good reason to assume that the epidemic has mainly been brought under control by the end of the summer season both in Finland and globally. This is the base case scenario of the present analysis (scenario 1).

The other scenarios examined are based on a situation in which epidemic management will be delayed in 2021 either globally (scenario 2) or globally and also in Finland (scenario 3).

In this context, gaining control means that the epidemic does not put the carrying capacity of the health care system at risk and does not interfere with economic activity, or other activities of society and people's everyday lives. Social welfare and health care services have proceeded to providing post-epidemic care. This also means that Finland has been able to lift the strict restrictions. Recommendations and regulations are imposed at most in the extent that these do not significantly affect the national level. In practice, gaining

control of the epidemic means returning to a new normal situation after the crisis has passed. This also means that proper economic recovery can start.

The baseline of the scenarios is affected by a number of uncertainties influencing the epidemiological situation. These have joint and separate impacts on how the situation will develop by the baseline of the three scenarios. Such factors include at least:

1. Uncertainties related to the intensity and management of the epidemic
    a. The effects of the intensification of the epidemic in Finland in spring 2021
    b. The sufficiency of the imposed restrictive measures and the willingness of the population to comply with recommendations and restrictions

2. Uncertainties related to virus variants
    a. The impact of the more easily transmitted coronavirus variants that have already spread to Finland on the spread of the epidemic
    b. The impacts of the other virus variants (e.g. the South African or Brazilian variant)

3. Uncertainties related to vaccines and vaccination
    a. Accelerating the speed of vaccine deliveries or European market authorisation for new vaccines
    b. Possible additional delays in vaccine deliveries
    c. Significant slowdown in vaccinations in the summer
    d. Possible significant adverse effects of vaccines that may occur

A significant issue in managing the epidemic is the behaviour of the population in relation to recommendations and restrictions. According to the Citizens' Pulse[2], a survey that regularly measures the experiences of the population, at the end of February 2021, 55 % of the respondents estimated that other people had followed the instructions provided by the authorities during the crisis 'fairly well' or 'well'. The results were slightly better than in autumn 2020. They do not yet indicate a so-called pandemic fatigue that significantly reduces the effectiveness of restrictive measures and recommendations. In addition, 86% of the respondents in the survey reported that they would 'fairly certainly' or 'certainly' get vaccinated.

As the starting point of the scenarios occurs in the future, a few months after the time of writing this report in early March, no attempt will be made to assess, model or anticipate

2 https://valtioneuvosto.fi/tietoa-koronaviruksesta/kansalaispulssi

the presumably complex events in spring 2021. A scenario report concerning this spring and including modelling was published in December[3]. The uncertainty regarding spring 2021 has been taken into account in the epidemiological situational picture of the scenarios. A key issue is to determine what the combined effect of the uncertainty factors is on the epidemic situation.

All of the scenarios are subject to the following common assumptions or considerations:

1. The epidemic is expected to be under control by 2022 both in Finland and globally.
2. The scenarios do not assume that new discretionary government support measures will be introduced for households and businesses. Calculations related to the impacts of the Sustainable Growth Programme are completed for the government's mid-term policy review.
3. The economic calculations take into account previous experiences of the economic impacts gathered in spring 2020. It is characteristic of modelling to not take into account possible unexpected turns.
4. Economic recovery will start as soon as the epidemic subsides. The easing of the epidemic will have positive impacts on the population's mood, stress levels and future prospects.

The EU's one-off recovery instrument is used to finance Finland's Sustainable Growth Programme, which is built on four pillars. The pillars are green transition, digitalisation, employment and competence as well as social and health services. The objectives of the programme support Finland in the post-epidemic reconstruction phase, for example by speeding up the recovery and sustainable growth of the sectors most affected by the crisis, and by eliminating the care, rehabilitation and service debts in the social and health care sector. The programme and its financial impact calculations will be completed in April 2021. Funding is committed at the EU level in the period 2021–2023 and used by the end of 2026.

1.2 Summary of scenarios

We will examine three scenarios. After the written descriptions of the scenarios, we will present a summary table that also includes calculations by the Ministry of Finance Economics Department.

3 http://urn.fi/URN:ISBN:978-952-383-800-0

1. The epidemic will be under control in Finland and globally by summer 2021

In this scenario, the epidemic will subside by summer 2021, and thanks to vaccination, the epidemic may be less severe in the autumn and winter 2021–2022. As a result, economic recovery would already start in 2021 and continue in the following years. Social welfare and health care services would move on to reduce service debt and managing an increased need for support and services. The prerequisites for the operations of companies and the everyday life of the population would also be restored. However, the crisis has left its mark on many companies, communities and families. Social differences between regions and population groups have become pronounced.

The epidemiological scenario of the Finnish Institute for Health and Welfare (so-called basic scenario) corresponds to this scenario. Similarly, the baseline scenario of the Ministry of Finance's economic forecast[4] published in December was prepared according to this scenario. The new forecast will be published in April 2021. As a rule, a change in the baseline scenario does not affect this examination; alternative scenarios are similarly subject to changes and the differences between these scenarios remain unchanged.

Impacts on the national economy

A large share of industrial companies will have to adapt their operations and resort to various facilitations and subsidies to overcome the slump in demand. However, the situation varies greatly from company to company.

Strict restrictive measures imposed in early 2021 will further harm the poor financial situation, liquidity levels and employment opportunities of many companies in the service sector. The tourism sector (including catering) and the events industry are the worst struck industries, and an increase in bankruptcies in 2021 is expected in these sectors in particular.

Impacts on services and the population

The crisis has particularly impaired the situation of people and families who were already in the most vulnerable position before the crisis. There is a significant risk for their situations to escalate, resulting in a growing need for services.

The epidemic has increased the need for support and care for children, young people and families as well as pupil and student welfare services. Some of the needs have deteriorated, which means that the extent of the services needed will continue to be broader for

4 http://urn.fi/URN:ISBN:978-952-367-714-2

a longer term after the epidemic has subsided. The demand for substance abuse and mental health services has also increased during the crisis and will not immediately return to the previous level after the crisis has passed. Service deficit has emerged in the services for older people during the epidemic, and is likely to increase the later need for services.

In this scenario, the care debt in primary health will be resolved in 2023, and specialised medical care waiting times are expected to return to normal in 2022.

The epidemic can be estimated to have negative long-term impacts on the wellbeing, health and learning of children and young people and students. Early childhood education and care, pre-primary and basic education, upper secondary education and higher education institutions get to influence the learning and wellbeing gap and increased support needs emerging as a consequence of the epidemic. The need for corrective services is higher than before the crisis. Children and young people with a poorer socio-economic status as well as pupils and students with learning difficulties or life management challenges may particularly be in a more difficult position than others.

2. The epidemic will be under control in Finland by the summer, gaining control will be delayed until 2022 globally

In this scenario, the situation in Finland largely corresponds to the first scenario, but the global situation is different. The situation will continue to be difficult throughout 2021, especially in developing countries. In the context of the development of the national economy, this situation affects exports. It is also more difficult to engage in international cooperation. In addition, some sectors may face challenges in the availability of workforce, if it has been reliant on foreign labour and the epidemic situation continues to be challenging in their countries of origin.

Impacts on the national economy

The economic impacts of this scenario on Finland are related to a decline in demand for exports. The effect on imports is less severe as part of imports go directly to consumers. International cooperation is also impaired.

Finland's industry is strongly linked to international markets and production chains. The reduction of international demand affects the situation of companies and there is a risk of bankruptcies as the situation is prolonged. As production chains cross international borders, the difficulties of foreign raw material suppliers, subcontractors and customers are passed along in the change across borders. Obstacles to the mobility of experts have a significant economic impact on the development of research and innovation activities as well as business.

The number of bankruptcies grows in the service sectors. Uncertainty about the future manifests as both consumer choices, the additional costs of rapid changes, and later reduces the willingness of companies to relaunch business activities.

Difficulties in international mobility may, to some extent, complicate the international activities of companies, higher education institutions and the event sector, the recovery of the tourism sector and recruitment of personnel from abroad. For example, travel restrictions, requirements for vaccination and test certificates and other similar factors slow down international mobility.

1.2.1 Impacts on services and the population

The impacts are primarily in line with those of the previous scenario. Although some harm or stress arises from the fact that the pandemic is still partly ongoing at the global level, it is not expected to change the estimated impacts on service needs or the wellbeing of the population on a large scale.

Recruiting employees from abroad will become more difficult due to restrictions on international mobility. Labour shortages emerge at least on a points basis. Reducing the care debt would be somewhat slower than in the previous scenario, but it is difficult to make a more precise assessment.

3. Gaining control of the epidemic is delayed until 2022 in Finland and globally

In this scenario, the combined effect of the uncertainty factors concerning the epidemic will lead to a situation in which the epidemic will still not yet be under control either in Finland or globally in the following autumn or early winter. In view of the scenario, the exact reasons for this are not of particular importance. In the scenario, the epidemic situation will still require some kind of restrictive measures in the autumn and continue to disrupt economic activity, the provision of social and health services and the lives of the population. However, in this scenario, the situation will also get better in early 2022, at which point economic recovery and return to more normal everyday life will begin.

The impact of other countries' situation on Finland is similar to scenario 2.

Impacts on the national economy

In the calculations, the prolongation of the epidemic is expected to affect Finland's economy, especially through private consumption and most significantly through the demand for services. It could result in long-term impacts on industry. The threat to the

continuity of the export industry operations connected to international markets and production chains will increase. Without international demand, the situation of companies continues to deteriorate. Due to obstacles to international cooperation, research, development and innovation activities also face challenges in the private and public sectors.

The prolonged pandemic in Finland and globally will reduce private consumption of services and lead to bankruptcies. Tourism, culture and service sectors, including experience activities, may suffer major losses as consumers reduce any activities that may expose them to infections.

Restrictions to international mobility impair companies' operations, similarly as in scenario 2.

Impacts on services and the population

The current, challenging situation described in scenario 1 will continue and become increasingly difficult. The accumulation of social problems and the polarisation of society will intensify.

The prolongation of the epidemic and restrictive measures put a mental strain on the population and particularly increase the need for preventing, treating and rehabilitating mental health and substance abuse problems. Problems related to well-being are accumulating and the need for last-resort measures, such as income support and child welfare, is also increasing. There are widespread deficits in all non-urgent social and health care services; the burden caused by the deficit cannot be reduced, but, instead, this continues to grow.

As the epidemic is prolonged, personnel resources continue to be allocated to combating the epidemic for longer than 2021, and recruiting foreigners will not provide sufficient relief. A large part of the social welfare and health care service debt can only be paid after 2023.

Many of the impacts contribute to increasing inequality. A particular risk is concerned with children whose parents have mental health or substance abuse issues, whose families are affected by domestic violence or who personally have problems related to mental health or development.

From the perspective of the provision of education, the situation in the autumn will be difficult if schools have to rely extensively on distance teaching. For children and young people, the prolonged epidemic will increase the learning and wellbeing gap and the need for support. As in scenario 1, the need for corrective services is higher than before.

Particularly among children with a poor socio-economic background, the prolonged epidemic will further increase learning difficulties or challenges related to life management. Graduating from education will be delayed and there will be an increase in dropping out of education. The integration of new graduates into the labour market has become significantly more difficult.

Below is a table summarising the impacts of the three scenarios. At the overall level, the economic impacts do not differ significantly from one scenario to another. The accumulation of problems in wellbeing and the population's need for services are the most pronounced in scenario 3.

From the viewpoint of Finland's population, the most important question is whether it can return to the new normal in 2021.

Table 1. Scenario comparison table

Scenario	Scenario 1	Scenario 2	Scenario 3
Epidemic situation Q3-Q4/2021	Will be under control and the situation will subside in summer 2021.	Under control in Finland in summer 2021, gaining control delayed globally.	The situation will only be under control and back to normal in 2022 both in Finland and globally.
Change in GDP, %	2021: 2.5 2022: 2.0 2023: 1.4	2021: 2.1 2022: 2.2 2023: 1.7	2021: 0.8 2022: 1.4 2023: 2.7
General government budgetary position in 2023, % of GDP	-2.6	-2.6	-3.0
Debt-to-GDP ratio in 2023, % of GDP	73.6	73.8	75.9
Healthcare debt managed	Primary healthcare 2023 Specialised medicine 2022	As in scenario 1, but may be slightly delayed	Delayed until after 2023

Scenario	Scenario 1	Scenario 2	Scenario 3
Need for healthcare and social services	High need for corrective services, especially in 2021 and 2022. Need for services for older people may increase permanently to a higher level than currently.	As in scenario 1.	As in scenario 1. In addition, the prolonged epidemic increases emotional strain and the need for services. Challenges can become more pronounced and worse.
Accumulation of welfare problems	A large share of the population has coped relatively well, the situation of those in the most vulnerable position has deteriorated, especially among children and young people.	As in scenario 1.	As in scenario 1, but the accumulation of problems related to wellbeing and the learning gap will become worse and more extensive as of Q3-Q4/2021. Impacts are prolonged.

1.3 Overview of the period 2024–2026

There are a lot of uncertainties related to the long-term development of the pandemic. Despite this, and based on previous experiences of other cyclical respiratory viruses, it can be tentatively estimated that COVID-19 would probably be the fifth cyclical coronavirus in the longer term. At the same time, the disease caused by the virus would become less severe. With regard to future pandemics, there is a need for finding new methods and tools for early detection, prevention of the spread of infections and combating the virus.

As far as the economy is concerned, Finland will have returned to the basic questions around the middle of the decade. In the future, Finland's economic growth will not come from labour input, which is expected to decrease, but from growth in overall productivity, which will be promoted by high expertise and RDI activities.

The effects of the pandemic on industries and companies have differed. Profitable companies with strong balance sheets and companies whose purchasing, production and distribution practices are not greatly affected by the virus or the measures put in place to

contain it do best at coping with the crisis. These are not always the most productive and innovative companies, which, for their part, play an important role in the development of overall productivity. Growth and trade policy play a key role in stimulating economic growth. The EU's new trade strategy will change the EU's and, consequently, Finland's, trade policy.

The crisis has shown the value of fiscal policy flexibility. In the mid-2020s, the topic of the sustainability of public finances has returned to the forefront of discussion, and has more weight than before due to the indebtedness caused by the crisis. The impacts of demographic change have not gone anywhere. From the perspective of the impacts of the epidemic, one key question is how work-related immigration will develop in the future. The population policy report, which will be completed in spring, states that this will have a significant impact on the population, including the dependency ratio over a longer period of time.

In the midst of the crisis, it is good acknowledge that, regardless of the economic situation, a large number of jobs are created and lost in Finland, amounting to more than 200,000 jobs every year. The same applies to companies. For example, in the most badly affected industries, accommodation and catering, nearly as many companies were launched in the second and third quarters of 2020 as during the equivalent period in 2019.

The pandemic is accelerating two factors of change that were already ongoing before it: digitalisation and structural change in the economic system towards carbon neutrality. These changes will be accelerated in Finland through an EU-funded sustainable growth programme until the end of 2026.

From the perspective of social and health care services and the population, similarly as in the case of economic development, the crisis seems to make the situation more challenging, but it will not radically change it. The crisis may increase the need for services and exacerbate the shortage of staff. The key issue is preventing the accumulation of polarisation and welfare problems in society, which the crisis and the post-crisis situation may reinforce.

The question of the sustainability of public finances will also further increase the importance of the productivity benefits resulting from the health and social services reform.

1.4 Conclusions

1. At the time of the epidemic in early spring 2021, one of the main messages of this scenario exercise is to give hope for the future. Although the situation is currently very difficult, Finland will survive the COVID-19 pandemic.
2. Even in the least optimistic scenario calculation, the economy is relatively quick to recover from the crisis, and the economic shock caused by the crisis does not appear to be excessively extensive or long from the perspective of the national economy as a whole. This conclusion is reinforced by the fact that the calculations made in this context do not take into account the discretionary support measures implemented extensively in Finland's main export countries and by the EU.
3. However, the second key conclusion raises concerns: everyone will not be able to cope as well. The epidemic is prone to increase the accumulation of welfare problems and inequality in multiple ways. This would seem to be the case even if the future development of the epidemic situation was as favourable as possible, but especially if the situation was prolonged. There are particular concerns related to the situation of children and young people. Indeed, a lot of attention has been paid to this area during the crisis. Once the immediate crisis passes, this theme will continue to be topical. Instead, the effects may still be felt in the mid-2020s. Strengthening preventive measures and primary services would help averting a later need for more expensive specialised services.
4. In early childhood education and care and pre-primary and basic education, in upper secondary education and in higher education schools, the epidemic has resulted in a learning and wellbeing gap and an increase in the needs for support. The need for corrective services is higher than before the coronavirus crisis. The number of children and young people in need of support may continue to increase, their support needs increase and problems become more difficult. Those pupils and students who do not usually struggle with their studies also need support. The coronavirus crisis has particularly increased learning difficulties or life management challenges among children and young people with a poor socio-economic background.
5. The epidemic situation in spring 2021 is critical for future development and it is essential to get the epidemic under control. This would help us avert a path most in line with the third scenario. Some companies are facing a highly difficult situation this spring. The scenario report published in December found that, based on calculations, the societal and economic benefits of keeping the epidemic under control outweigh the disadvantages caused by the restrictive measures.

6. From the perspective of the economy, social and health services or the population, the crisis will not have changed the basic premises in the mid-2020s. Instead, it has made these more pronounced.
7. As the work input is not expected to grow in the future, overall productivity will serve as a driving force for economic growth. In the 2020s, the role of excellence and RDI activities as well as growth and trade policy will be even greater than before for economic growth. The EU-funded Sustainable Growth Programme plays an important role and also promotes the carbon neutrality of the reformed the economic system.
8. There will be need for balancing Finland's general government finances. In this context, is will be essential to avoid cuts that undermine economic growth or increase inequality. The epidemic has a strong impact on the growth of inequality.
9. In the context of social welfare and health care services, it is necessary to assess the impacts of the post-epidemic measures on the need for services from the perspective of costs and staff availability. Many currently ongoing processes, such as the health and social services reform, also contribute to the situation. There is a particular challenge related to the availability of staff for the services for older people.
10. The crisis also has positive impacts, especially as a result of the development leap in digital services and operating models.

2 Situational picture

At the beginning of March 2021, the epidemiological situation in Finland is once again at a critical stage. The key question is how well the epidemic can be kept under control until the combined effect of normal seasonal variation and vaccines starts alleviating the situation in late spring and early summer.

This memorandum describes three scenarios that cover the period from the beginning of July 2021 until the end of 2023. The memorandum also includes more concise assessment of the prospects of the period 2024– 2026. The purpose of the memorandum is to support the Government in forming a strategic situational picture for the next few years.

The key driver of the scenarios is the epidemiological situation at the beginning of the autumn, not only in Finland but also in the world. **The main difference between the scenarios is related to the baseline situation: whether the epidemic will be under control at the beginning of the autumn season in Finland on the one hand and globally on the other.** There is significant uncertainty surrounding the development in the coming spring and early summer, which will affect the situation in autumn 2021 as well as the development in the following few years. The uncertainty regarding this spring has been included in the different baseline situations of the scenarios, which are used as the basis for the scenario calculations and impact assessments.

The work was carried out in a cross-administrative manner under the leadership of the Prime Minister's Office between January and March 2021. The participants are listed in Appendix 1.

2.1 Finland's epidemiological and vaccination situation in spring 2021

There are major uncertainties associated with the epidemic situation during spring 2021. As the purpose of this scenario document is to help us see beyond the immediate

epidemic situation to its longer-term impacts, the situation in spring 2021 has been described as concisely as possible below. The purpose of the description is to help perceiving what the early autumn might look like.

The Government's hybrid strategy and the related action plan[5] describes the operating model used to control the epidemic during spring 2021. The purpose of the operating model is to keep the progress of the epidemic under control during the spring until vaccination has significantly reduced the most significant effects of the coronavirus epidemic (high mortality among older people and developing a serious illness among the middle-aged and older population and the resulting high risk of excessive burden on the health care services).

Until the beginning of February 2021, recommendations concerning the entire population and local and regional measures had succeeded in mitigating the epidemic to an extent that there was no reason for a nearly total lockdown of social activities. At the time of writing this memorandum in early March 2021, Finland is in a critical stage of getting the epidemic under control. The virus occurs in the population throughout the country and the incidence of more infectious virus variants is growing, especially in the HUS region. Infection rates have been rapidly increasing for a few weeks.

The Finnish Institute for Health and Welfare has estimated that the schedule for vaccinating Finland's residents will follow the schedule and order presented in Figure 1. Taking into account the current order of vaccinations and the time between vaccine doses as well as the currently known delivery schedule, the Finnish Institute for Health and Welfare estimates that the progress of vaccinations will ensure that the most high-risk population will have received both vaccine doses by week 34 or 35 (between August and September) as indicated in Table 2.

5 http://urn.fi/URN:ISBN:978-952-00-8670-1 and http://urn.fi/URN:ISBN:978-952-00-8447-9

Figure 1. Assessment of coronavirus vaccination progress

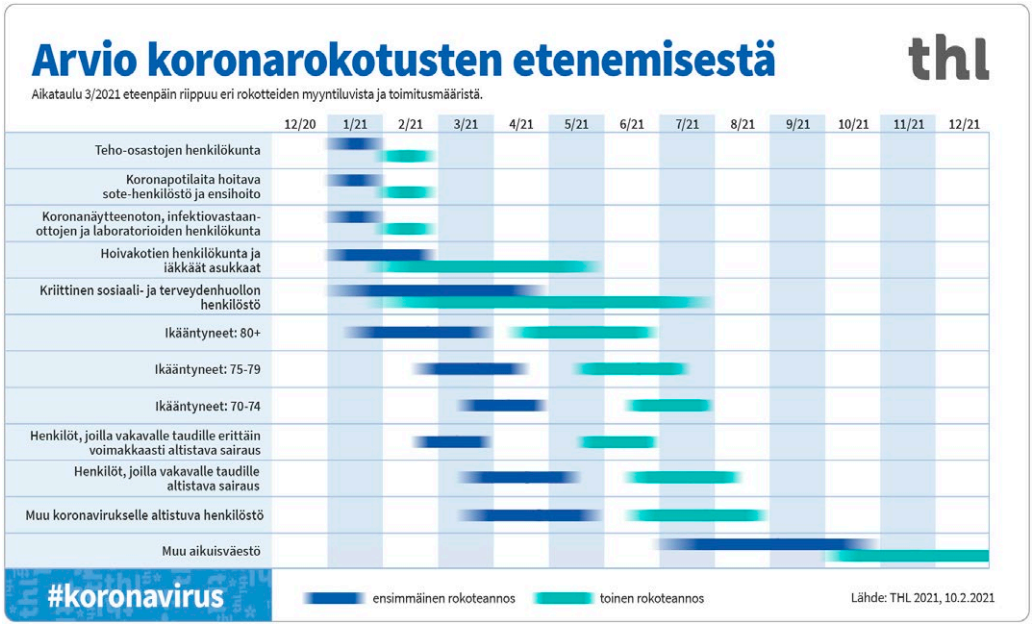


Table 2. Week when nearly entire adult population has received at least one vaccine dose

Population age group	15–19	20–29	30–39	40–49	50–59	60–69	70–79	80+
Age group size	296,671	669,629	711,550	660,848	724,665	716,579	561,908	312,406
Vaccination week number	Vaccinations for ages between 16 and 49 will start later, unless the supply of vaccines occurs at a faster rate				34	18	16	9

Vaccinations should begin affecting the severity of the epidemic to long before the entire population has been vaccinated. If the majority of people aged 70 and over will have been vaccinated by mid-April, the coronavirus mortality rate should be reduced to a fraction of the figures for the first half of the year by the beginning of May at the latest. However, morbidity rates (requiring hospital treatment) may continue to be high due to the elevated risk of a more severe disease variant among the over-middle-aged groups that not yet been vaccinated. Nevertheless, the morbidity rate can also be expected to decline once people at a higher risk of serious disease due to their chronic illnesses have been vaccinated. According to current estimates this should be the case at latest at the end of July.

As a result of the vaccine rollout, the proportion of serious cases and the burden on health care can be expected to decrease significantly by the summer. Seasonal variation can also be expected to alleviate the situation.

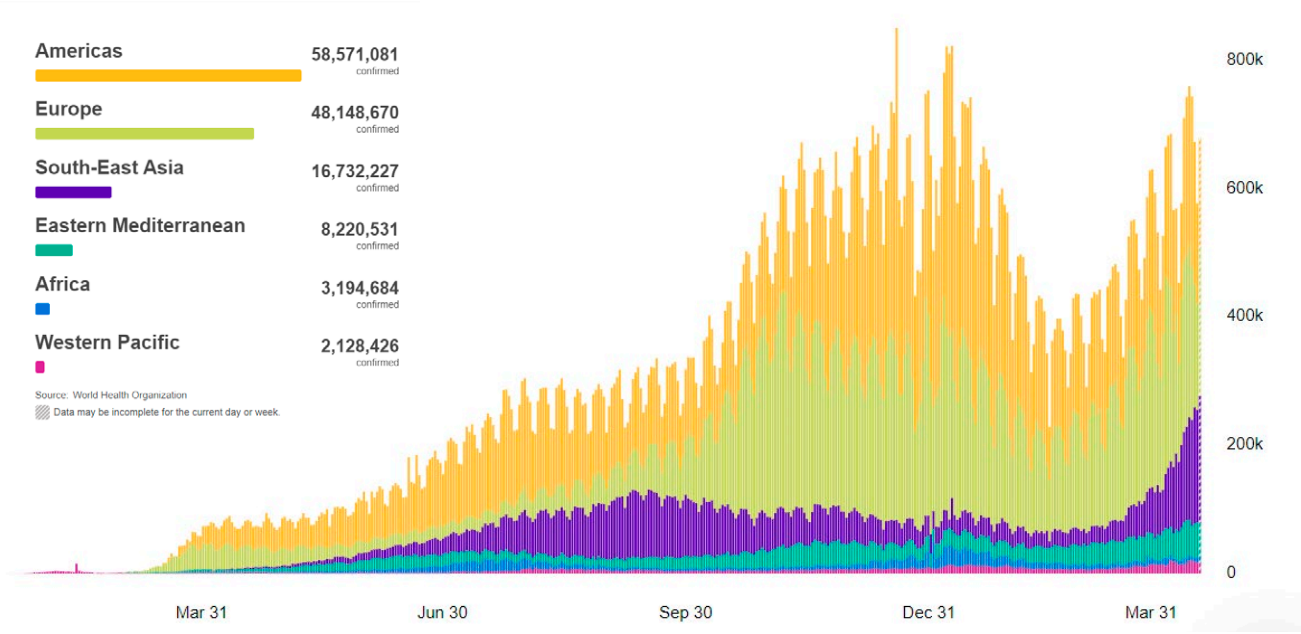
In the summer, it will be essential to maintain the vaccination pace also during the holiday season in a situation where the population no longer perceives the threat posed by the epidemic to be as significant as during the spring.

2.2 The situation and development of the pandemic in the EU and third countries

Pandemic

Based on the WHO's coronavirus statistics, the number of cases decreased in January and February. It is not yet possible to draw any conclusions based on this trend. This phenomenon is at least partly the result of extensive restrictive measures, as vaccination has not yet covered a sufficiently large share of the population in most countries to influence the course of the epidemic. On the other hand, in many developing countries, the pandemic may have spread freely without major restrictions. In fact, by the summer, many countries may be faced with a situation in which the level of immunity of the population will contribute to the decline of the global pandemic. As mentioned above, there is no certainty about this.

Figure 2. Based on the information available at the beginning of March (situation on 2 March), the global pandemic is not yet declining[6]



Vaccines

The situation in EU member states is expected to develop similarly as in Finland. Nearly all of the countries receive the same vaccines based on the same schedule and in the same population groups as Finland. As a result, it may be possible to normalise travel across EU internal borders between the member states and EEA countries at the latest in the last quarter of the year, provided that the efficacy and safety of vaccines are as expected.

Some OECD countries have managed to obtain vaccines at an early stage. These countries include the United States and Great Britain, which are important export countries for Finland. By contrast, the vaccine rollout in Japan and South Korea may be delayed by up to six months compared to the EU.

The situation in China is extremely uncertain. The country's vaccine production may not be sufficient for vaccinating the population rapidly, which may reduce border crossings. By

6 https://covid19.who.int/

contrast, the situation in India seems good from the perspective of the availability of vaccines and also possible natural immunity.

At the global level, the situation is uncertain. Many countries depend on the WHO's COVAX programme, which may not yet bring relief to the situation in 2021. The situation in South-East and Central Asia, the Middle East, Africa and South America with regard to vaccination is uncertain.

Overall, it can be estimated that in 2022, coronavirus epidemics will occur in some parts of the world during the epidemic season in the region. To a large extent, the impact of this second global pandemic wave is likely to be lower compared to the first wave occurring in 2020 and 2021. Vaccination will protect a large share of the countries that are particularly important for Finland's foreign exports.

2.3 Finland's economic situation in spring 2021

The clear economic recovery from the COVID-19 epidemic has been pushed forward to 2021, as the second wave of the epidemic temporarily slowed down economic growth around the turn of the year. The recovery of the demand for services has been particularly fragmented. The epidemic is a key driver of economic development during the spring season. Many companies are in a difficult position and the number of bankruptcies can be expected to increase from March onwards.

3 Scenario setting

The purpose of this scenario document is to help Finland's Government form a cohesive overall picture of the impacts of the COVID-19 pandemic on Finland in the coming years. The scenarios are not projections but rather describe possible alternative development paths. Many of the estimates presented are marked by uncertainty. A key driver of the scenario setting is the epidemiological situation in autumn 2021. This has been used as the basis for preparing calculations on the development of the national economy, employment and general government debt by the end of 2023. Based on these, the situation has been assessed for a few sectors as well as for social and health services and education. The cumulative nature of social problems has also been assessed and special attention has been paid to young age groups and older people. The work does not extend to making concrete policy recommendations.

The scenarios consist of a so-called epidemiological basic scenario and two alternatives. The difference between the scenarios is based on the question of gaining control of the epidemic in Finland and the world in 2021.

The three scenarios are the following:

1. The epidemic will be under control in Finland and globally by summer 2021
   The baseline scenario of the Ministry of Finance's economic forecast of December 2020 was prepared according to this scenario.
2. The epidemic will be under control in Finland by the summer, gaining control will be delayed until 2022 globally
3. Gaining control of the epidemic is delayed until 2022 in Finland and globally

In this context, gaining control means that the epidemic does not put the carrying capacity of the health care system at risk and does not interfere with economic activity, or other societal activities and people's everyday lives. Social welfare and health care services have been able to proceed to post-epidemic care. Finland has been able to lift the strict restrictions, of recommendations and orders are only valid to an extent that they have no significant

nationwide effects. In practice, gaining control of the epidemic means returning to a new normal situation after the crisis has passed. This will also enable starting proper economic recovery.

In this context, the world particularly refers to Europe and the USA, which are important regions for Finland's exports, and a number of other relevant countries.

3.1 Key epidemiological uncertainties

The initial situation of the scenarios is influenced by various factors that cause uncertainty. These influence how the situation will develop up to the initial situation in the scenarios. Such factors include at least:

1. Uncertainties related to the intensity and management of the epidemic
    a. The effects of the intensification of the epidemic in Finland in spring 2021
    b. The sufficiency of the imposed restrictive measures and the willingness of the population to comply with recommendations and restrictions

2. Uncertainties related to virus variants
    a. The impact of the more easily transmitted coronavirus variants that have already spread to Finland on the spread of the epidemic
    b. The impacts of the other virus variants (e.g. the South African or Brazilian variant)

3. Uncertainties related to vaccines and vaccination
    a. Accelerating the speed of vaccine deliveries or European market authorisation for new vaccines
    b. Possible additional delays in vaccine deliveries
    c. Significant slowdown in vaccinations in the summer
    d. Possible significant adverse effects of vaccines that may occur

Managing the epidemic

A strong acceleration of the epidemic would lead to a sharp increase in the negative effects of the epidemic, both through the direct effects of the disease and the negative impacts of the additional restrictions introduced with a high probability. The acceleration of the epidemic could also make it more difficult to trace the virus and deliver vaccinations, therefore slowing down the prevention of the epidemic.

In addition to restrictions, a key issue is how the population behaves in relation to these and recommendations. According to the Citizens' Pulse, a survey that regularly measures the experiences of the population, at the end of February 2021, 55% of the respondents estimated that other people had followed the instructions provided by the authorities during the crisis 'fairly well' or 'well'. The results were slightly better than in autumn 2020. They do not yet indicate a so-called pandemic fatigue that significantly reduces the effectiveness of restrictive measures and recommendations. In addition, 86% of the respondents in the survey reported that they would get vaccinated 'fairly certainly' or 'certainly'.

Virus variants

A higher infectivity of virus variants and poorer efficiency of vaccinations against these would mean that a higher vaccination coverage would be required to achieve herd immunity. In turn, this would delay the point in at which restrictions could be phased out without the epidemic situation getting worse.

The significance of other virus variants depends on two factors. Firstly, how well virus variants (e.g. the South African or Brazilian strain) avert the immunity brought by an earlier infection or vaccination. Secondly, how quickly these variants spread to Finland. If the variants do not completely dodge the immune response, their impact may be negligible in autumn 2021. The phenomenon may also impair positive attitudes towards the vaccine.

Vaccines

Earlier access to vaccines may speed up the vaccine rollout, as the vaccination process has already rather been well planned in municipalities. Delays in vaccination will postpone the point at which restrictions can be waived without the epidemic situation getting worse. Information on the adverse effects of vaccines could have a significant negative effect on positive attitudes towards vaccination even in situations where there is only a suspicion of serious adverse effects and even if the suspicion only concerned one particular vaccine. For the time being, however, no such adverse effects have been observed.

The scenarios do not specify or attempt to estimate the uncertainties that affect the initial situation of each scenario. **The uncertainty caused by the epidemiological situation is addressed in the scenarios at an abstract level. In practice, it is a question of whether the epidemic situation, for one reason or another, will still disrupt the nearly normal operations in autumn 2021.** These disruptions include: the immediate effects of the epidemic, recommended and restrictive measures, self-imposed restrictions on the activities of people and companies, disruption of the normal functioning of social and health services, increasing uncertainty and its impact on investments, consumer behaviour and

the mental state of the population. This is illustrated by the phrase "gaining control of the epidemic is delayed".

3.2 On scenario calculations

The scenarios include calculations made by the Ministry of Finance Economics Department on economic trends, employment and unemployment rates and the level of public debt.

In the third quarter of 2020, the restrictions imposed to prevent the spread of the COVID-19 pandemic and related economic impacts had already been eased off, but the economy had not yet returned to its pre-crisis level. In particular, the demand for services only partly returned to its normal level. Strong restrictions on mobility and gathering were still in place. The detected cases of COVID-19 were beginning to rise after having been down during the summer season in Finland and globally. This type of a reacceleration of disease cases and the return of restrictions in the third quarter of 2021 would significantly slow down economic recovery.

The calculations assume that a delay in the normalisation of the economy in the autumn of 2021 would also make recovery more difficult during 2022. As a result, in the scenarios depicting a delay in gaining control of the epidemic, GDP levels will fall below the levels presented in the Ministry of Finance's economic forecast published in December both in Finland and globally in 2023.

The calculations have been made based on demand-side changes. The effects of a prolonged pandemic on the economy have already been assessed based on the occurred developments. The development of the epidemic situation in the countries to which Finland's exports are directed is particularly relevant for the development of the Finnish economy. The table below shows the central role that Europe plays.

Finland's exports are particularly directed at Europe, but countries such as the USA and China are also important trading partners, as the below table illustrates.[7]

7 https://tulli.fi/tilastot/taulukot/maatilastoja#

Table 3. Geographical distribution of Finnish exports

Finland's exports in 2019, %	
EU	55.2
Other European countries	16.7
Asia (China 5.4%)	14.0
North America (USA 7.4%)	8.2
South and Central America	2.5
Africa	2.2
Oceania	1.2

Figure 3. Value added by sector in the year preceding the pandemic. The sectors particularly struck by the crisis are highlighted in the figure. Some of the value added in the tourism industry is included in the Transport and storage sector[8]

8 Official Statistics of Finland (OSF): National accounts [online publication], income and production by sector and industry, annually; used variables Sector, Transaction, Industry, Year and Data ISSN=1795-8881. Helsinki: Statistics Finland [referenced on 5 March 2021]. Accessed at: http://www.stat.fi/til/vtp/

An overall image of the sizes of different industries before the pandemic is also beneficial in interpreting the scenarios.

All of the scenarios are subject to the following common assumptions:

1. The epidemic is expected to be under control by 2022 both in Finland and globally.
2. The scenarios do not assume that new discretionary government support measures will be introduced for households and businesses. Calculations related to the impacts of the Sustainable Growth Programme are completed for the government's mid-term policy review.
3. The economic calculations take into account previous experiences of the economic impacts gathered in spring 2020. It is characteristic of modelling to not take into account possible unexpected turns.
4. Economic recovery will start as soon as the epidemic subsides. The easing of the epidemic will have positive impacts on the population's mood, stress levels and future prospects.

The EU's one-off recovery instrument is used to finance Finland's Sustainable Growth Programme, which is built on four key elements: green transition, digitalisation, employment and competence, and social and health services. The objectives of the programme support Finland in the post-epidemic reconstruction phase, for example by speeding up the recovery and sustainable growth of the sectors most affected by the crisis, and by eliminating the care, rehabilitation and service debts in the social and health care sector. The programme and its financial impact calculations will be completed in April 2021. Funding is committed at the EU level in the period 2021–2023 and used by the end of 2026.

4 Scenarios

The scenarios are presented based on the following structure:

- Description of the initial situation from an epidemiological perspective
- Description of economic development, the state of general government finances and employment until 2023
- Estimates of the impacts on industries
- Estimates of the impacts on health and social services and the population

4.1 Scenario 1: The epidemic will be under control in Finland and globally by summer 2021

Epidemiological outlook

In this scenario, vaccinations will progress as planned and restrictive measures are used to keep the epidemic situation under control until April and May. The preconditions for moving to a nearly normal life in Finland during June and July are fairly good in the scenario.

At the beginning of autumn and early winter 2021, the number of coronavirus cases may increase with seasonal variation, especially among the unvaccinated age groups. However, based on current information, their risk of developing a serious disease is low. As a result, the epidemic will probably not have the same effects as in autumn 2020. Some of the vaccinated adult population may also be infected because vaccines do not provide full protection from infection. However, based on current knowledge, the vaccination provides good protection against the severe forms of the disease. Consequently, the burden caused to medical care is likely to be considerably lower than in previous stages of the epidemic.

If the epidemic of autumn and winter 2021–2022 occurred in a less severe form, the society could operate normally in practice without significant restrictions and disruptions to economic activity, services or social interaction. In this scenario, the

development would be similar particularly in the countries that are key to Finland's exports.

Economic development, general government finances and employment

This scenario corresponds to the baseline of the Ministry of Finance's December 2020 economic forecast. The new forecast will be published in April 2021. As a rule, a change in the baseline scenario does not affect this examination; alternative scenarios are similarly subject to changes and the differences between these scenarios remain unchanged.

In the baseline scenario, a clear recovery from the epidemic takes place in the first half of 2021, as the epidemic temporarily slows down economic growth around the turn of the year. In Finland, the demand for services remains to be low. Exports and industrial production will suffer from the continuation of the global pandemic and will only return on a growth path in 2021. GDP is expected to decline by 3.3% in 2020 and then increase by 2.5% in 2021.

The growth will accelerate towards the end of 2021, resulting in **strengthening economic growth** in 2022. The GDP is expected to grow by 2.0% in 2022 and by 1.4% in 2023. Over the medium term, the growth will slow down as the increase in labour input slows down. However, as the growth remains at slightly under 1.5 per cent, its growth rate exceeds that of potential production.

The general government deficit will remain high in 2021, as the efforts to manage the epidemic continuing throughout the early part of the year and the support measures to mitigate its effects result in keeping the general government expenditure high. As the situation returns to normal, the deficit will gradually decrease in the coming years. However, the imbalance between revenue and expenditure will remain so high that the general government debt-to-GDP ratio appears to continue to grow throughout the first half of the 2020s.

According to the employment service statistics of the Ministry of Economic Affairs and Employment, the number of **unemployed jobseekers** (incl. lay-offs) increased by more than 100,000 to an average of 342 000 in 2020. The average number of full-time lay-offs was 78,000 of this number. In line with the baseline, the GDP growth and the easing of the epidemic will result in a slow decline in the number of unemployed jobseekers in 2021. The large number of lay-offs in unemployment rates makes the assessment more difficult, but it can be estimated that lay-offs will decrease once the epidemic situation eases.

In March 2021, the number of long-term unemployed is already close to 100,000. Long-term unemployment will peak in spring/early summer 2021, when some of the people

who have become unemployed due to the coronavirus pandemic reach the threshold of 12 months of unemployment. Based on the current projection, the number of people with long-term unemployment will stop increasing after 2021, and will take a downward turn down in 2022.

Assessments of the impacts on industry, services and certain sectors

The first signs of an increase in **industry** demand emerged at the turn of the year 2020–2021. Based on these and provided that the situation continues to follow the baseline, the worst risks concerning export industries and, in particular, the industry producing capital goods are not realised.

Although the economic uncertainty has lasted for more than a year, a large proportion of industrial companies have been able to adapt their operations and, with the help of various facilitations and subsidies, to overcome the drop in demand. However, the situation varies greatly from company to company. In this scenario, the pandemic is not expected to change consumer behaviour related to, for instance, cruise operations or driving, to the extent that it would not be possible to return to the growth track that preceded the coronavirus pandemic. Nevertheless, companies have been forced to cancel their development projects due to the economic situation, and may not yet have the resources to restart these in 2021.

According to the SME Barometer, the expectations for growth in turnover over the next year are highest in the industrial sector. As many as 51% of industrial respondents are expecting their turnover to grow, while 20% expect it to decline. In industry, expectations for turnover are also currently higher than a year ago. However, there is cause for concern as the same SME barometer indicated that only one in five SMEs in the industry sector are planning to increase their investments while one in four are planning to reduce these. SMEs have noticed changes in their operating environment, and more than half of companies are prepared for the future. In services and retail, expectations for turnover development have clearly become positive.[9]

Strict restrictive measures imposed in early 2021 will further harm the poor financial situation, liquidity levels and employment opportunities of many companies in the **service sector**. The tourism and events industry are among the worst-struck sectors where bankruptcies are expected to grow in 2021. Of individual sectors, the greatest decline in turnover was observed in travel agencies and tour operators at more than 60% in 2020. The

9 https://www.yrittajat.fi/suomen-yrittajat/tutkimukset/pk-yritysbarometrit/pk-yritysbarometri-12021-642333

industry is part of the tourism sector, where the drop in the turnover of accommodation activities amounted to nearly 47% and the decrease in catering activities to 26%.

While the economic outlook of service companies for the following 12 months was already slightly positive (balance figure + 5) in the SME barometer published in February, the prospects vary in different service sectors. The economic outlook for the tourism and restaurant sectors has slightly improved from the previous autumn, but continue to be very bleak. In the economic barometer by the Confederation of Finnish Industries, the balance figure is -55.

As uncertainty dissipates, the use of tourism and creative services will be restored. The situation in industries such as specialty goods trade is also partly challenging as consumer demand is channelled from the shops located in city centres to other sales channels, including key international online shops.

The lack of international **tourism demand** will have a downward impact on Finland's entire export of services; before the pandemic, tourism accounted for around 16% of Finland's export of services.

The use of tourism services will be slowly restored, with emphasis on domestic tourism. International tourism demand is expected to return to the 2019 level at the earliest in 2023.

The surge in bankruptcies in the tourism, events and experience activities sector will result in the disintegration of networks. Subsequently, launching new activities will take time, approximately 2-3 years, before reaching the pre-pandemic level of employment and business volume. Some of the operating models previously occurring in person will be replaced with new digital solutions. The growth of the new models will require attracting new experts to companies. This renewal also requires targeted investments. The transition to new digital distribution models and platforms can accelerate faster than domestic production can grow. The general government deficit and few investments in the events industry will delay the sector's return to its previous growth track. During the recovery period, the decline in experiential activities will have significant multiplier effects on tourism and other consumption at the regional level.

In tourism services, networks and driver companies play a key role. Especially in the tourism in Lapland, the survival of the supplier network is important from the viewpoint of the sector's capacity to recover. As the services sold to international customers in particular always combine transport, accommodation, activities and restaurant services, a lack of international customers causes major harm to all operators involved in this network.

Estimates of the impacts on health and social services and the population

Service need: once the population has been vaccinated and the situation improves, the service level is expected to return to normal. The epidemic has caused an increase in the need for support and care in the services for older people and for children, young people and families. A backlog is support needs creates an additional need for services, which will be apparent in the availability and required extent of services for a longer time. Some families will face changes in income occurring during the pandemic for a longer time. There may not be enough services to meet the increased need for support due to the poorer economic situation of municipalities and central government.

Sufficiency of personnel in health and social services: according to estimates by primary health care, social welfare and specialised medical care service providers, problems accumulated as a result of the prolongation of the coronavirus epidemic will emerge in the services for children and young people, and older people. The problems will particularly concern staff availability and sufficiency. This will impair the availability of services in a situation with increased need for services. As a result of the epidemic, the personnel shortage caused by the ageing of the population will intensify. The extent of this shortage depends on the scope and duration of the increased need for services. No quantitative assessment of this is available yet. The prolonged and possibly expanding coronavirus epidemic will inevitably reduce the number of qualified people in the reserve.

Even if the epidemic declined in mid-2021, personnel would still have to be allocated to COVID-19 testing and tracing activities and vaccination tasks that bind personnel resources. These tasks also somewhat bind school and student health care workforce, which is expected to reduce the availability of these services until the end of 2021.

If restrictions can be lifted, the domestic labour shortage can be gradually supplemented with workforce recruited from abroad, especially for nursing services and nursing work, which will also accelerate reducing the waiting times for care and treatment. The labour shortage in nursing services concerns around twenty to thirty thousand people, unless the efforts to recruit foreign labour and other measures aimed at improving the availability of labour are successful. In the longer term, the Finnish Institute for Health and Welfare estimates that services for older people alone will face a deficit of 30,000 by 2030.

Primary health care and specialised medical care: the coronavirus epidemic has had a broad impact on the activities of primary health care. The number of appointments has decreased by around 10% from the previous year's level. Service and care debt has emerged during the epidemic and is prone to grow as the situation drags on. In specialised medical care, care debt particularly occurs in some specialities. It is not yet possible to reliably assess the long-term effects of the situation on the incidence of serious diseases, such as cancer, and the prognosis of chronic long-term illnesses.

Digital services and telehealth appointments have been developed and their use increased. In this scenario, the increasingly good availability of various remote services will accelerate reducing waiting times for treatment. **In this scenario, Finland has been able to bring the primary health care debt back to normal in 2023.**

The health care debt incurred in specialised medical care applies to the entire population and reducing it will put a strain on specialised medical care at least in the years 2021 and 2022. Overall, the availability of non-urgent specialised medical care has deteriorated during the epidemic, but the efforts to short the waiting times for treatment have been launched. While there are rather large differences in waiting times for treatment between hospital districts, in this scenario, the **waiting times for specialised medical care will probably be reduced to a normal level in 2022**.

Legislation on increasing the volume of personnel in 24-hour care will be adopted in the **services for older people**. As a result, the care sector will need a lot of additional labour in the period 2021-2023. The increase in staffing in 24-hour care will require recruiting approximately 5,000 additional employees for nursing and care work over the coming two-year period.

Vaccination coverage will increase in the older population during the spring. Due to the epidemic, health promoting group services aimed at older people have been shut down. The shutdown of group activities also affects mental health, and the loneliness of older people is particularly increasing. It is essential to resume them quickly as soon as the epidemic subsides. If the efforts to maintain the functional capacity of older people whose health is still good have failed during the epidemic, it is possible that the services for older people will be unable to meet the growing need for services in the coming years. As a whole, the epidemic has led to a shortage of services and has impaired the situation of the older population in many ways or increased their risks related to the exacerbation of the situation related to aspects such as mental health, substance abuse, loneliness, memory disorders and functional capacity. There is a risk that the situation of many older people may be deteriorating, which would lead to an increase in the need for more intense and expensive services. The development should be closely monitored in order to better assess the extent to which these risks appear to be realised.

Substance abuse services: the growing groups of those using the services for substance abusers include young people, young adults and persons with an immigrant background. Homeless people and clients no longer reached as a result of closing day centres have been most often mentioned as customer groups excluded from the services. Overall, the situation of the clients of the services is becoming more difficult and there are more clients in poor condition, which will increase the future need for care and social welfare services.

Children, young people and families: the epidemic has long-term effects. According to studies, negative experiences during childhood and youth may still be reflected in a person's health long after the event. The pandemic can already be seen to have caused harmful experiences for at least some children and young people. As a result, there will be a lot of need for supporting families with children, pupil and student welfare services and psychiatric services for children and young people in autumn 2021. The need for child welfare has also increased due to the epidemic.

The general descriptions presented in this section are illustrated by the results of a Finnish Institute for Health and Welfare survey conducted in autumn 2020. Of maternity and child welfare clinic staff, between 59 and 90% estimated that there had been a considerable increase in families' financial difficulties, loneliness and insecurity, parenthood challenges and problems in relationships and mental health issues compared to the previous year. Of those working in social services for families with children and child welfare services, 44–65% estimated that there had been a significant increase in families' financial difficulties, mental health issues, parenthood challenges, distress of children and young people, and loneliness and insecurity compared to autumn 2019. The situation is unlikely to be better in autumn 2021, as the epidemic situation continues for the beginning of 2021.[10]

Early childhood education and care, schools and educational institutions: Early childhood education and care and pre-primary and basic education can start taking measures to affect the learning and well-being deficit caused by the coronavirus epidemic and the related increased support needs. The need for corrective services is higher than before the coronavirus crisis. Some children and young people need more support and their problems are more difficult than before. The situation of the most vulnerable children and young people has particularly deteriorated. The interruption of support services important to children extending to several months may have caused long-term negative effects on some children's development, learning and wellbeing.

The absence of in-person education is expected to have the largest impact on the realisation of equality, especially among pupils in need of support and those representing language minorities. The provision of support for learning and school attendance has been less effective than in a normal situation for a long period, and the learning outcomes of students have deteriorated during the coronavirus epidemic. The situation of pupils and students with a poorer socio-economic status and learning difficulties or life management challenges may particularly be more difficult compared to others.

10 http://urn.fi/URN:ISBN:978-952-343-579-7

The transition to contact teaching in upper secondary education institutions will reduce the mental burden on young people and help them cope with their studies. The percentage of students dropping out of education will return closer to the pre-epidemic levels. The opportunities for young people to find employment will also become better as restrictive measures are removed and the economy starts recovering, but sufficient attention should be paid to the young people close to graduating from their studies. There might be a reduction in the number of students applying for further education and the risk for social exclusion may grow.

Clearing the backlog of delayed studies in vocational education and training will affect the activities of education providers, once the postponed studies can be offered again.

As the situation becomes more normal in higher education institutions, returning to contact learning, student services and services supporting the wellbeing of students will gradually start to mend the learning and wellbeing gaps that have resulted from the situation. The demand for support services will be at least initially higher than before. As the economy normalises, it will be easier for new graduates to find work in the labour market, although the difficulties of those who graduated during the coronavirus crisis will probably be visible for a longer time. Student and staff mobility related to international cooperation in higher education and research will gradually begin to return to normal levels.

The long-term coronavirus epidemic has also affected the wellbeing of children and young people through restrictions imposed on hobbies and leisure time activities. It has been more difficult for children and young people to maintain social relationships, their hobbies have changed or been interrupted, and the right of children to participate in cultural life, arts and sports has been limited considerably. Physical activity among children and young people has decreased significantly during the coronavirus outbreak. This will have significant physical, psychological and social impacts on children and young people. In this scenario, these restrictions will be lifted, after which it will be important to monitor how the situation develops: for example, will hobbies and physical activity return to their previous levels?

4.2 Scenario 2: The epidemic will be under control in Finland by the summer, gaining control will be delayed until 2022 globally

Epidemiological outlook

In this scenario, the epidemic has been brought under control in Finland at the beginning of the autumn period. Finland's scenario corresponds to that described in scenario 1. Finland will move on to a nearly normal life in around June and July, and the epidemic situation will not get significantly worse after this.

However, at the global level, the pandemic situation continues to be difficult during the autumn. There are differences between countries, which are particularly affected by the vaccination situation. The eurozone and the United States are recovering relatively quickly thanks to good vaccine coverage. However, developing economies are facing more severe difficulties and the economies will continue to suffer from a prolonged epidemic in 2022.

Economic development, general government finances and employment

In this scenario, the pandemic will continue in autumn 2021 outside Finland, while Finland's development will normalise as depicted in scenario 1. The global epidemic situation will slow down the recovery of the largest economic areas.

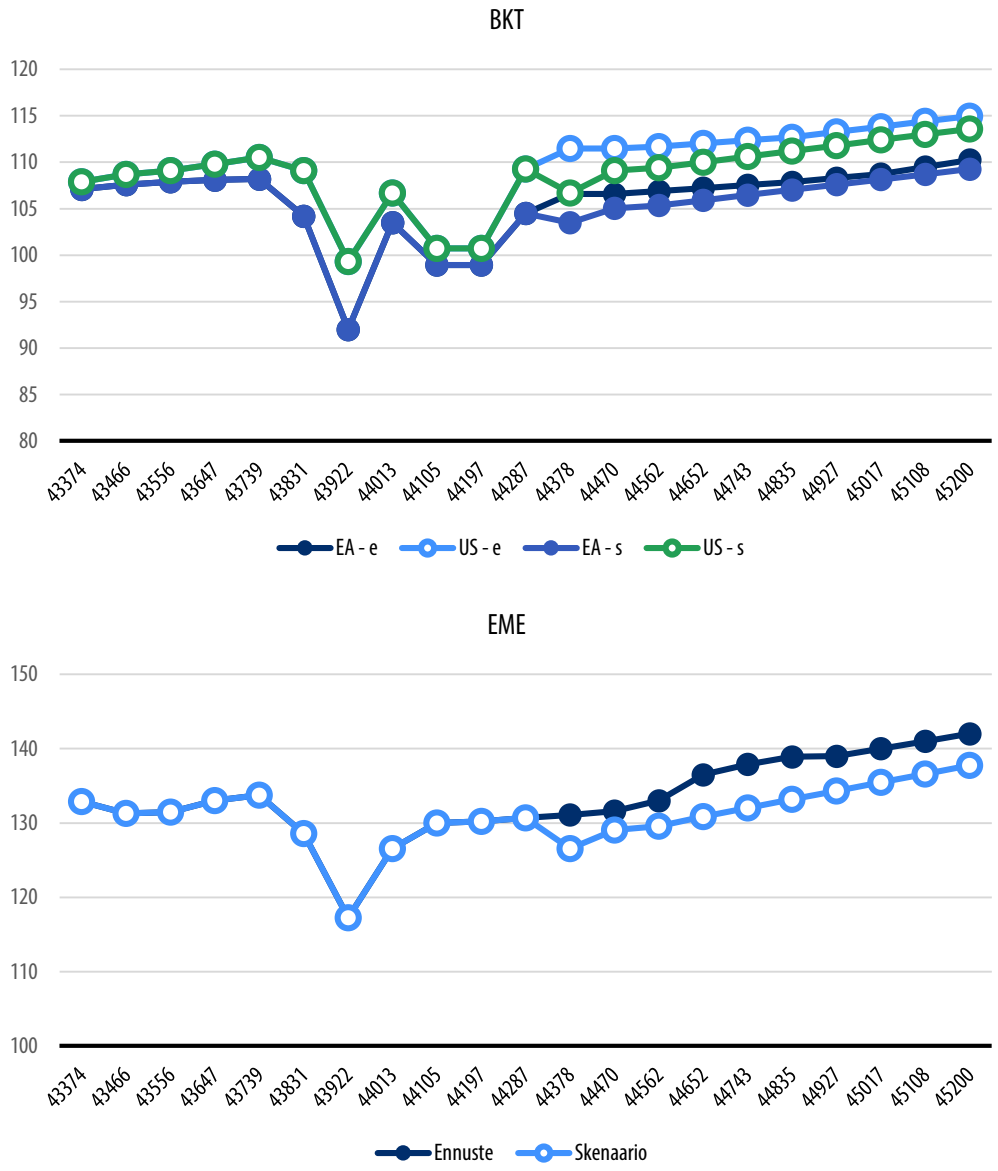
Table 4. Scenario 2: epidemic is prolonged globally

Forecast, December 2020						Scenario					Export demand in Finland	
	QoQ Growth in GDP		QoQ Growth in imports			QoQ Growth in GDP		QoQ Growth in imports			QoQ	
	Eurozone	USA	Eurozone	USA	EME	Eurozone	USA	Eurozone	EME		Projection	Scenario
2020	-7.7	-5.1	-8	-5.3	-5.1	-7.7	-5.1	-8	-5.3	-5.1	-6.7	-6.7
2021	4.5	4.1	7.1	6.5	4.2	3.3	2.4	4.8	5.2	2.8	6.1	4.2
2022	3.1	3.7	3.6	4.1	4.3	3.1	3.6	3.6	4.1	1.8	3.9	3.1
2023	1.7	1.7	3.6	3.0	2.9	2.1	2.2	4.3	3.5	3.5	3.3	4.0
						Deviation from projection, % points						
2021						-1.2	-1.7	-2.4	-1.3	-1.4		-1.9
2022						0.0	0.0	0.0	0.0	-2.6		-0.8
2023						0.4	0.5	0.7	0.5	0.6		0.6

Finland's economic growth in this scenario is impaired by the decline in the demand for exports, which is estimated based on the development of imports from trade partners. The calculation assumes that GDP and imports will fall in the eurozone and the United States in the third quarter of 2021 to the same level as during the same time in the previous year. Furthermore, it is assumed that at the end of 2023, the GDP of the eurozone and the United States will be around one per cent below the baseline, as the challenges in managing the epidemic will reduce confidence in the future and the poorer economic prospects impair companies' operating conditions. However, economic growth will return to normal in 2023.

For emerging economies, the assumptions made only concern imports. The assumption describes a situation where partial lockdown measures are still in force, but societies have partly adapted to them. In emerging economies, the effects of the pandemic will be visible for longer due to issues such as a slower vaccine rollout.

Figure 4. GDP (top) and EME (bottom)



The economic impacts of this scenario on Finland occur through a decline in the demand for exports. The effect on imports is less severe as part of imports go directly to consumers.

The negative demand shock will undermine the prospects of export companies and domestic production, resulting in a slight decline in nominal wages, despite the assumption that wages will not adapt immediately to changes in the economy. As consumer prices will decline slightly less than wages, negative real wage developments reduce private consumption. **Poorer business revenue potential will result in fewer job vacancies and an increase in unemployment.** As private consumption declines and employment and nominal earnings decrease, there is a drop in central government tax revenue as tax bases fall, and the general government debt to GDP ratio increases.

As a result of the decrease in the demand for exports, Finland's gross domestic product will grow more slowly than predicted in 2021, but will subsequently accelerate and return to the track of the December forecast. Unemployment will decline and employment will improve. For unemployed jobseekers and those with long-term unemployment, the difference between this scenario and the baseline is small. Exports will begin to grow, and imports are hardly declining any more as private consumption begins to return to the baseline in accordance with the forecast.

Table 5. Impacts of global economic slowdown on Finland

	Projection					Scenario, international shock				
	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate
2019	1.1	7.7	0.8	72.5	6.7	1.1	7.7	0.8	72.5	6.7
2020	-3.3	-10.4	-3.9	71.5	7.8	-3.3	-10.4	-3.9	71.5	7.8
2021	2.5	5.0	3.8	71.5	8.0	2.1	3.0	3.6	71.2	8.2
2022	2.0	4.5	2.5	72.3	7.6	2.2	3.8	2.5	72.1	7.7
2023	1.4	2.2	1.8	72.8	7.2	1.7	3.0	2.0	72.8	7.1
						Difference in % points				
						-0.4	-2.0	-0.2	-0.3	0.2
						0.2	-0.7	0.1	-0.2	0.1
						0.4	0.8	0.2	0.1	-0.1

Table 6. Impacts of prolonged global pandemic on general government finances

% of GDP	Surplus		Debt	
	Baseline	Scenario 2	Baseline	Scenario 2
2019	-1,0	-1,0	59,3	-1,0
2020	-6,1	-6,1	69,0	-6,1
2021	-5,2	-5,4	71,4	71,8
2022	-3,3	-3,4	72,5	72,9
2023	-2,6	-2,6	73,6	73,8

The slowdown of economic growth and the increase in unemployment will further impair the position of general government finances. While deficits return to the previous level at the end of the calculation, the level of debt will remain slightly higher.

Estimates of the impacts on industries

Finland's **industry** is strongly connected to international markets and production chains. Due to low international demand, the situation of companies remains poor and there is a risk of bankruptcies as the situation is prolonged. As production chains are international, the difficulties faced by foreign suppliers of raw materials, subcontractors and customers are passed on in the production chain, which was already noted in spring 2020.

The demand for the products of industrial companies is based on purchasing decisions made by consumers. As a result, the purchasing power of consumers reduced by the prolonged pandemic, changes in consumption habits or restrictions on consumption imposed to prevent the spread of the pandemic will ultimately lead to changes in demand for industrial investment products (machinery, equipment). For example, the continuation of the shutdown of cruises departing from the United States seriously threatens the operations of Finland's cruise ship building ecosystem.

The **service sectors** will see an increase in bankruptcies. Uncertainty about the future manifests as both hesitant behaviour of consumers, the additional costs of rapid changes and, later, as the courage of companies to relaunch business activities. The consumption of creative services will also shrink as a consequence of the decline in trade and industry. These are typically the kinds of costs that companies cut first as the economy falls.

The globally poor coronavirus situation and the imposed travel policies and restrictions make the recovery of international **tourism demand** uncertain and slow, for instance,

when it comes to the Asian market, which is significant for Finland. The demand for domestic tourism supports the tourism industry as the pandemic accelerates again in autumn 2021. Restoring the confidence of consumers also takes time. In the tourism sector, the number of bankruptcies, lay-offs and terminations of employment will continue to increase until the international demand for tourism is restored. International tourism demand will return to the pre-pandemic 2019 level at the earliest in 2023.

Despite the aforementioned problems caused by uncertainty, services such as **event production** can get off to a good start if the lifting of restrictions is perceived as permanent. As regards content creation, Finland has already gained prominence as a country with expertise in safe production. The potential for making use of this opportunity will grow if uncertainty continues elsewhere in the world. During the time of uncertainty, the consumption of digital content will increase and intensify as consumers consume content at their homes.

Estimates of the impacts on health and social services and the population

The estimates presented in the first scenario are not repeated below. This is because service needs and the situation of Finland's population are particularly influenced by the epidemic situation in Finland and the measures taken to manage it. Below are some supplementary considerations relevant to the second scenario in relation to the first one.

Sufficiency of personnel in health and social services: the situation in social welfare and health care services remains largely similar to that described in the first scenario. Reducing care debt will mostly continue at the current, slow, pace in 2021, but this process will accelerate, particularly once health care resources are freed up to the tasks performed during "normal times".

Primary health care and specialised medical care: in this scenario, a significant proportion of the resources of primary health care could also be directly allocated to COVID-19-related tasks, and specialised medical care would have to maintain the readiness to treat COVID-19. This would influence the increase in care debt, or at least prevent the reduction of the health care debt already incurred. Nevertheless, as vaccine coverage increases globally, the situation will improve everywhere. While a large share of the care deficit could be addressed, delays might occur in relation to the estimate presented in the previous scenario.

There is enough domestic workforce available for reducing the waiting times for specialised medical care, but as recruiting nursing staff from abroad is more difficult than normally, the service debt accumulated in nursing services cannot be reduced. Labour

shortage emerges on a point-basis in different regions similarly as coronavirus infection clusters, and these last between 1 and 2 months. Especially in regions with a county-level joint municipal authority for health and social services, resources can be moved more flexibly between different parts of the region, which will compensate for labour shortages.

Services for older people: the worsening of the epidemic at the global level may affect the implementation of the Act on Supporting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons. It has been proposed that additional staff should also be hired to the services for older people from abroad, and this might become more difficult if the movement of employees between countries is restricted. This may lead to a situation in which private elderly care service providers would have to reduce the number of clients they can accommodate. According to the Finnish Institute for Health and Welfare's follow-up survey on the state of the services for older people, problems with recruiting employees to the services for older people are widely reported. A key aim is to do any means necessary to promote maintaining functional capacity among community-dwelling older people whose health is still good.

Children, young people and families, and schools and educational institutions: in this scenario, Finland's financial situation is slightly more difficult than in the first scenario. This affects the situation of those families faced with unemployment or other uncertainty caused by the crisis. Financial problems, stress etc. affect relationships and the wellbeing of families. Despite Finland's improved situation, emotional threat caused by the pandemic is present and affects people's wellbeing.

From the perspective of early childhood education and care, teaching and educational institutions, scenario 2 is similar with scenario 1. The need for support for learning and school attendance is higher than before the crisis. Some children and young people need more support and their problems are more difficult than before. The situation of the most vulnerable children and young people has particularly deteriorated. There is still need for supplementary measures to address learning gaps and support the wellbeing of children and young people.

When it comes to higher education and research, scenario 2 resembles scenario 1, but international cooperation will not return to normal due to the efforts taken to limit the spread of the epidemic outside Finland's borders. International student and staff exchanges and the number of foreign degree students will remain at a fraction of the normal level due to travel restrictions. International research cooperation will not return to normal. The research activities of higher education institutions are highly international, and research is often carried out in international groups.

4.3 Scenario 3: Gaining control of the epidemic will be delayed in Finland and globally

Epidemiological outlook

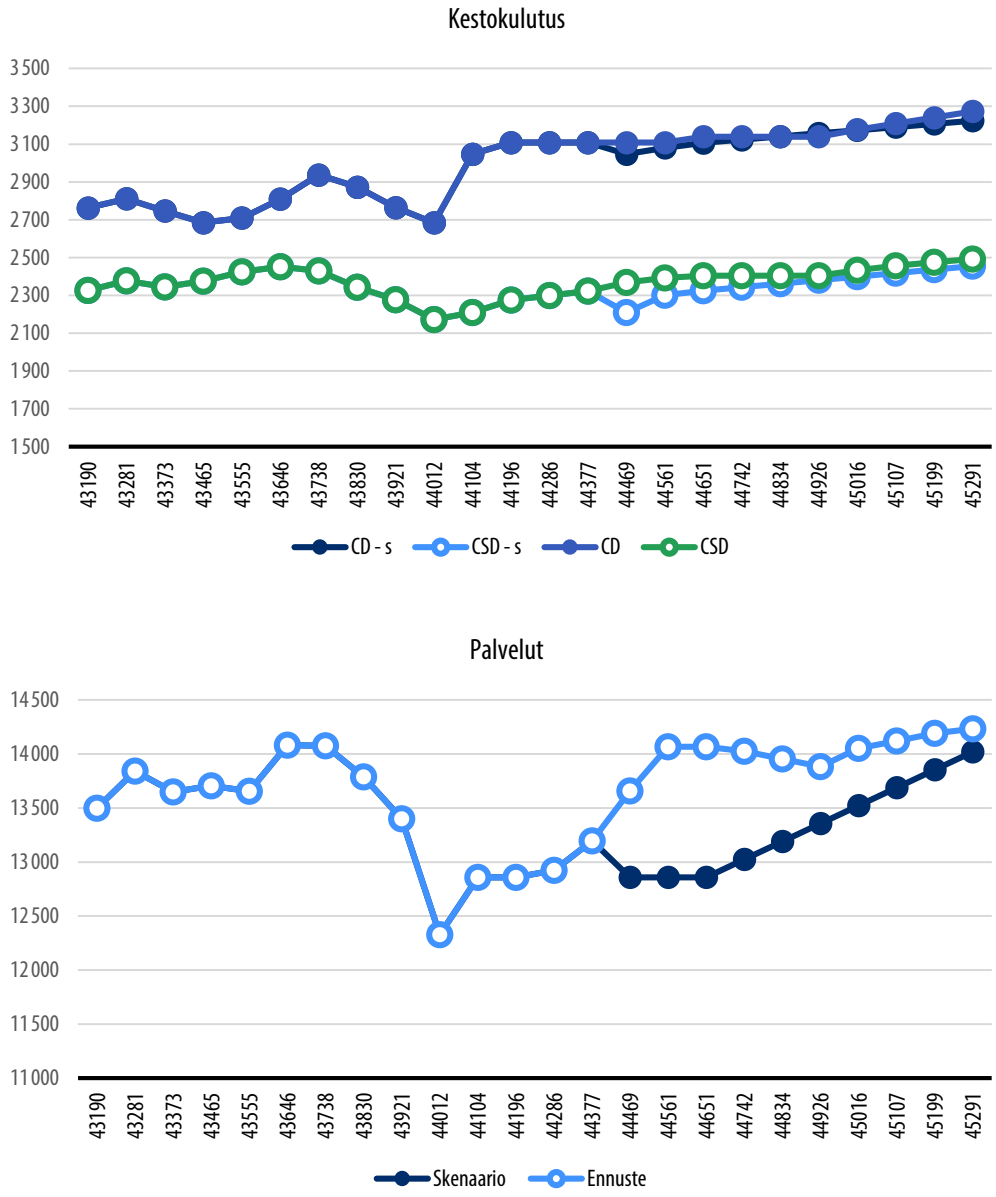
In this scenario, gaining control of the epidemic is delayed for one reason or another both in Finland and abroad. This could occur in many different ways, in practice through the uncertainties concerning the epidemic described earlier. An essential part of this scenario is that the epidemic situation will continue to be challenging at the end of 2021 and will only ease during 2022. In practice, the recovery of the economy and society are delayed.

If the epidemic situation in spring 2021 developed particularly negatively in Finland, it would also have impacts similar to those described this scenario. This would also be the case if the autumn period subsequently corresponded to the description of scenario 1.

Economic development, general government finances and employment

In contrast with the scenarios presented above, scenario 3 assumes that the prolongation of the epidemic in Finland will also have a direct impact on private consumption, especially through services. In this scenario, the industrial sector may face long-term impacts. Resuming production after bankruptcies, which would be likely in this scenario, requires major investments. Similarly, the calculation presumes that the difficult epidemic situation in the third quarter of 2021 will decrease the level of the consumption of goods to match the level of the third quarter of last year. The same applies to the consumption of services. Full recovery has not been achieved at the turn of the year 2021–2022. Consumption items are not expected to reach the level of the December forecast by the end of 2023.,

Figure 5. Consumption of goods (top) and services (bottom)



The growth in private consumption will slow down considerably in 2021 and remain slower than in the December forecast in 2022. Although the recovery is expected to be slower than in the forecast, private consumption growth will accelerate faster than expected in 2023. As the growth of consumer demand slows down, the growth of supply will also shrink. According to the calculation, GDP growth would remain 1.2% for 2021 and 2022 until accelerating in 2023 to near 2.5%, which is sooner than in the December forecast.

Table 7. The impact of the decline in private consumption.

	Projection					Scenario, Finland, service consumption is slow to recover				
	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate
2019	1.1	7.7	0.8	72.5	6.7	1.1	7.7	0.8	72.5	6.7
2020	-3.3	-10.4	-3.9	71.5	7.8	-3.3	-10.4	-3.9	71.5	7.8
2021	2.5	5.0	3.8	71.5	8.0	1.2	5.0	1.4	70.6	8.6
2022	2.0	4.5	2.5	72.3	7.6	1.2	4.5	1.2	70.9	8.5
2023	1.4	2.2	1.8	72.8	7.2	2.4	2.2	3.7	72.1	7.7
						Difference in % points				
						-1.3	0.0	-2.4	-0.9	0.6
						-0.7	0.0	-1.3	-1.4	1.0
						1.0	0.0	1.9	-0.7	0.5

The slowdown in GDP growth has an impact on the development of employment. The employment rate would continue to go down in 2021 and turn to modest growth in 2022. In 2023, employment would improve significantly, but the employment rate would still remain below the December forecast.

Table 8. Impacts on general government finances caused by a decline in private consumption

% of GDP	Surplus		Debt	
	Baseline	Scenario 3	Baseline	Scenario 3
2019	-1,0	-1,0	59,3	-1,0
2020	-6,1	-6,1	69,0	-6,1
2021	-5,2	-5,8	71,4	72,8
2022	-3,3	-4,2	72,5	75,0
2023	-2,6	-3,0	73,6	75,6

The consequences of the slowing down of private consumption are significantly reflected in an increase in the **general government** deficit. In the scenario, general government debt will rise to a clearly higher level than the baseline at the end of the calculation.

The impact of the prolonged epidemic in Finland, together with the difficulties of the global economy, on the Finnish economy will be significant, yet Finland's economic growth would remain positive in the period 2021–2023. However, the cumulative growth would be almost one percentage point slower than in the December forecast. According to the calculation, the 2.5% economic recovery projected for 2021 would be postponed until 2023. Finland's unemployment rate would rise to nearly 9% and would continue to be higher than expected in 2023.

The number of unemployed jobseekers would be higher than in the baseline in 2021 and 2022. The number of unemployed people would also decrease in 2023 in this scenario, but the decrease would be slower than in the baseline and the level would be clearly higher than in the baseline. People who have been laid off are included in the unemployed jobseekers. As a result of the prolonged pandemic and bankruptcies, lay-offs would no longer buffer unemployment in the same way as in 2020. This means that a larger share of unemployed people than in the earlier years would no longer be able to return to their previous jobs. However, new jobs are constantly being created despite weak economic development. Those who have found work in other industries may also stay in their new

jobs. If a lot of employees find employment in industries and regions that have already previously struggled with attracting workforce (due to seasonal nature, salary level, location), the related market mismatch may become worse once recovery begins. On the other hand, as economic growth resumes, there may be potential for the rapid mobility of the labour force if other preconditions (such as the renewal of competence, place-independent work) are ensured. This would enable avoiding a more severe market mis-match.

In the calculation, domestic demand plays a larger role than the shock from the world economy. This is because most of Finland's GDP originates from domestic demand.

Table 9. Effects of the prolongation of the epidemic

	Projection					Scenario				
	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate	GDP	Foreign natural resources	Individual consumption	Employment rate	Unemployment rate
2019	1.1	7.7	0.8	72.5	6.7	1.1	7.7	0.8	72.5	6.7
2020	-3.3	-10.4	-3.9	71.5	7.8	-3.3	-10.4	-3.9	71.5	7.8
2021	2.5	5.0	3.8	71.5	8.0	0.8	3.0	1.2	70.3	8.8
2022	2.0	4.5	2.5	72.3	7.6	1.4	3.8	1.2	70.7	8.6
2023	1.4	2.2	1.8	72.8	7.2	2.7	3.0	4.0	72.1	7.6
						Difference in % points				
						-1.7	-2.0	-2.6	-1.2	0.8
						-0.5	-0.7	-1.3	-1.5	1.1
						1.4	0.8	2.2	-0.7	0.4

Table 10. Impacts on the entire public sector Finland + the rest of the world

% of GDP	Surplus		Debt	
	Baseline	Scenario 3	Baseline	Scenario 3
2019	-1,0	-1,0	59,3	-1,0
2020	-6,1	-6,1	69,0	-6,1
2021	-5,2	-6,0	71,4	73,3
2022	-3,3	-4,4	72,5	75,6
2023	-2,6	-3,0	73,6	75,9

Estimates of the impacts on industries

The threat to the continuity of the export industry operations connected to international markets and production chains will increase. Without international demand, the situation of companies continues to deteriorate. As production chains are international, the difficulties of foreign suppliers, subcontractors and customers move up and down the chain across regional and national borders. This was already observed in spring 2020, and the risk of these difficulties grow if the pandemic is prolonged.

The prolongation of the pandemic would weaken the purchasing power of consumers and could permanently change consumption patterns. The changes affect companies engaged in manufacturing capital goods for industry and operating as part of the value chain of consumer products. Companies' opportunities for investing in change have deteriorated due to the coronavirus crisis.

The prolongation of the pandemic in Finland and globally will reduce private consumption of **services** and lead to bankruptcies. Tourism and service sectors, including experience activities, may suffer losses as consumers reduce any activities that may expose them to infections. The consumption of tourism services is also among the first activities which private consumers tend to abandon when the economy contracts. Similarly, companies tend to cut down their use of creative services. Indeed, the consumption of creative services is clearly reduced in this scenario, but will gradually return to its previous levels as companies recover. A long downturn in operations reduces the number of agents involved in producing them, impairs competence and therefore slows down new growth.

Domestic **tourism demand** will support Finland's tourism industry as the pandemic drags on, provided that no new restrictive measures to restrict domestic mobility are imposed

in autumn 2021. However, domestic tourism demand is not sufficient to compensate for the lack of international demand in the sector, vital for the industry, whose recovery is uncertain and slow in this scenario. As the pandemic drags on, delays in preparing practices enabling cross-border travel (such as harmonised international practices for coronavirus test result certificates, vaccine coverage) may result in a situation in which Finland is unprepared once the market for tourism reopens. In this case, Finland would be excluded from the emerging market.

In the context of creative industries, the consumption of digital content and the related copyright revenue is expected to increase. The transition to new distribution models and platforms will accelerate, but mainly for the benefit of large international companies (Netflix, Amazon, etc.).

Estimates of the impacts on health and social services and the population

Service need: the prolonged epidemic and restrictive measures increase the need for care and rehabilitation related to mental health issues and psychiatric problems. The prolongation of these situations will contribute to an increase in early retirement. Care debt will also accumulate in non-urgent care, but this burden cannot be reduced and will increase instead.

For example, it takes a relatively short amount of time of a lack of measures that support and maintain people's functional capacity to impair the daily functional capacity of a large share of the population. For example, this will reduce the need for nursing services in the long term. Similarly, the prolonged social isolation of the most vulnerable groups is quicker to reduce the functional capacity of people with disabilities compared to a normal situation. This results in a higher need and demand for more intense (incl. 24-hour) care and nursing services.

Avoiding to seek services due to a fear of an infection may become a more permanent tendency among the population. The most vulnerable people may not leave their homes. There is a need for more outreach and mobile services, which cannot be provided using remote solutions.

A prolonged epidemic will cause emotional burden to the **population**. The emotional burden caused by the continuation of the pandemic will cause increasing mental health issues.

Sufficiency of personnel in health and social services: the prolongation of the epidemic results in a need to allocate human resources to the tasks specified in the strategy for combating the epidemic beyond 2021. Staff availability is reduced by the infections and

quarantines of employees. The shortage of staff cannot be compensated by foreign recruitment. Instead, human resources must be taken from school and student health care, but also increasingly from services provided in the private sector, such as occupational health care. An underlying issue is the decline in nursing staff availability caused in a few years by aspects such as retirements and legislation related to staffing.

Primary health care and specialised medical care: in this scenario, a significant proportion of **health care resources** have been allocated to COVID-19 tasks in the second half of 2021. In this case, the care debt will emerge from the treatment of some patient groups and in preventive services. Differences within the country may also increase considerably, especially in areas where labour reserves and private purchasing services are not available.

In this scenario, a large part of the social welfare and health care service debt can only be paid after 2023. The service debt may have long-term impacts on life expectancy and mortality caused by cancer, for instance.

However, the emotional burden on older people is reduced by the increase in vaccination coverage, as this will improve the possibilities for meeting loved ones. The Finnish Institute for Health and Welfare estimates that vaccination will improve the mental coping of older people to a better level than previously.

Children, young people and families: the need for primary and specialised mental health services for children and young people is increasing. Substance abuse is increasing, which is visible as increasing domestic violence and distress in families. This will particularly burden substance abuse and social services and child welfare. There will be an increase in economic inequalities between families. The prolonged closure of public spaces will have a greater impact on those young people whose social and financial situation is poorer. This will cause further inequality among young people.

Inequality between families will increase as not all families have the same opportunities for using remote services. Identifying support needs will also become more difficult when services are provided remotely, as a result of which families' circumstances are more likely to escalate.

Early childhood education and care, schools and educational institutions: as exceptional teaching arrangements are employed, basic education can be provided, for example, by using remote connections or as a combination of contact teaching and remote education. The coronavirus epidemic can be estimated to have negative long-term impacts on the wellbeing, health and learning of children and young people.

Long-term distance learning will increase the negative effects of the coronavirus epidemic on children and young people. The learning gap as well as the number of children and young people experiencing loneliness and anxiety will grow. There is also a significant need for support for pupils who usually do not have any problems related to studying. Particular needs are likely to arise for children with a poor socio-economic background and for other vulnerable pupils. There is an increasing need for support among children, young people and families, and the need for special services may also grow.

A particular risk is concerned with children whose parents have mental health or substance abuse issues, whose families are affected by domestic violence or who personally have problems related to mental health or development. Many of the negative effects on children and young people are conveyed through the financial and social problems faced by families.

The pedagogy and systematic approach of early childhood education and care has been developed to some extent during the coronavirus crisis, which facilitates paying more attention to children as individuals. Digital platforms can be utilised more in communication with guardians, and multidisciplinary cooperation developed into new activities making use of remote connections.

Extensive distance learning in general upper secondary education and vocational education and training increases some students' risk of dropping out. Prolonged distance education particularly harms the studies of students with a particularly high need for guidance, such as immigrants and students receiving special support. A delay in making progress in studies delays the transition to further studies and working life. Students with learning difficulties or life management challenges are particularly in a poorer situation than their peers.

The prolonged crisis exacerbates the shortcomings in learning and significantly reduces the wellbeing of both large student groups but also staff. At the beginning of the period that the scenario covers, higher education institutions continue to have to provide a significant proportion of their education as distance learning. This sets back the full implementation of practical training in certain fields, such as teacher training and the provision of studies requiring attendance, such as laboratory work. As a result, there are delays in graduation. The economic situation harmed by the epidemic will slow down the transition of graduates to the labour market. The prolongation of the situation or the further tightening of restrictions will have a detrimental effect on the possibilities of higher education institutions to cooperate with third parties, such as companies, both in Finland and internationally. International student and staff exchanges are reduced to a fraction of the normal amount and educational institutions will not obtain the income originating from foreign students. Entrance examinations have to be largely carried out remotely.

The crisis will have significant long-term effects on children and young people. The situation of the most vulnerable children and young people will be injured the most, and the availability of support for learning and school attendance and pupil welfare services is insufficient. As a result of the multidimensional impacts of the crisis, the significance of the availability and continuity of mental health services is also emphasised.

The coping of children and young people is declining and loneliness and isolation are increasing as hobbies and restrictions on leisure time continue. Children and young people lack the counterbalance to their school work and studies: social activities, hobbies and participation in cultural life and sports. As a result of the restrictive measures imposed because of the epidemic, children and young people continue to have fewer opportunities to engage in guided and independent physical activity and many even abandon their former hobby. This will have significant physical, psychological and social impacts on children and young people. Once the epidemic is contained in 2022 in accordance with the scenario, the situation will get better, it may have long-term effects.

Without significant and effective public intervention, the prolongation of the coronavirus crisis will further increase inequality. The allocation of the resources of the service system to the management of tasks related to the pandemic increases the lack of support for the people in the most challenging position and causes an increasing delay in the treatment of illnesses unless compensatory measures are introduced. Measures that are urgently needed include supporting families experiencing income difficulties, strengthening pupil and student welfare services and learning support, and enhancing mental health services for children and young people and social support for families. In addition, the increase in health care and service debt will result in prolonged treatment of illnesses and the accumulation of health problems for certain sections of the population.

5 Overview of the period 2024–2026

This section assesses the outlook for epidemiology, the economy, social and health services and the population until mid-2020s. In summary, the epidemic does not significantly change the key issues. Meanwhile, it intensifies many existing settings.

5.1 Epidemiological outlook

Currently, COVID-19 continues to be a virus whose function is not entirely known. As a result, there are no reliable or certain predictions of the long-term progress of the global pandemic. This means that assumptions must be made, for instance, by making comparisons with other respiratory tract viruses that follow seasonal variation.

Based on this type of assessment, it can be assumed that after the first couple of epidemic years, the virus will no longer causes such high levels of morbidity or mortality as in the first year of the pandemic. The virus will probably become the fifth human coronavirus following seasonal patterns. Most will probably have the disease during childhood, in which case later infections in adulthood would be less severe due to partial immune response. In this case, most of those infected with the virus would have either an asymptomatic infection or a relatively mild common cold.

However, it is also possible that the infection would continue to cause a serious disease to a significant extent. The introduction of vaccines does not mean that the pandemic has been permanently eradicated. Modified virus strains can pose challenges by reducing vaccine efficacy. The duration of immunity provided by vaccination is unknown and we must be prepared that there will be a need for new rounds of vaccination.

Lancet has published an article on 16 February 2021, which describes the scenario work by an international team of experts to be completed in autumn 2021. In the optimistic scenario, first-generation vaccines are effective for circulating viruses, including current and new variants, and countries succeed at effectively preventing the spread of the virus. At the other extreme is a pessimistic scenario, according to which the emergence of new,

transformed, vaccine-resistant viruses will continue, to which wealthy countries can react to quickly with updated vaccines, while other countries are left to combat the new waves of the epidemic vaccines that are not effective enough. Disease clusters are also likely to occur in rich countries.

There are a lot of uncertainty factors related to the epidemiological development, particularly in the long term, such as uncertainty about maintaining immunity and the effects of new variants. It will take several years until we know what the actual will be like, and the work on monitoring the situation, improving vaccines and also developing possible pharmacotherapy must continue for several years.

It is important that we learn our lessons from this pandemic in both Finland and internationally, so that we will be better prepared if faced with another pandemic. It would be absolutely necessary to find new approaches and tools for the early detection of epidemics and preventing and combating the spread of infections, which could help avoiding the sort of widespread lockdowns of the basic functions of society introduced in the present situation and the paralysis of international mobility.

The pandemic has also revealed the vulnerability of health systems in the event of a rapidly spreading outbreak. Nearly no country in the world had been prepared for the rapid increase in the number of patients requiring inpatient and intensive care caused by the coronavirus pandemic. In this context, there is also a need for new ideas and approaches related to how we can collaborate to be better prepared for a similar situation in the future.

A Government report on the experiences of crisis management during the COVID-19 epidemic investigated the experiences of crisis management and the adoption of the Emergency Powers Act during the first half of 2020. According to the main findings of the report, the Emergency Powers Act was adopted at the right time, but the decisions made in the spring were largely made based on a health perspective. While communications to the general public were perceived as particularly successful, future efforts to combat the crisis should be faster in the future. According to the report, Finland had not prepared well for a crisis such as the coronavirus pandemic and, from a future perspective, it is important to identify and prepare for different crises as comprehensively as possible.[11] A follow-up report on the topic assessing autumn 2020 and spring 2021 is currently underway.

In August 2020, the WHO Europe set up an independent Pan-European Commission on Health and Sustainable Development also known as the Monti Commission. The

11 https://valtioneuvosto.fi/-/10616/selvitys-kartoitti-valtioneuvoston-covid-19-kriisijohtamisen-kokemuksia

Commission will prepare recommendations on investments and reforms covering a wide range of industries necessary for ensuring the sustainability of health systems during future crises. The Monti Commission will soon publish its so-called March Declaration to provide recommendations for the near future. It will publish its interim report in the summer and final report in autumn 2021.

The economy of wellbeing has become an increasingly topical issue as a result of the coronavirus crisis. During reconstruction, the role of the economy of wellbeing is to lay a sustainable foundation for a fair, equal, climate-friendly and highly competent society that is better equipped to respond to future crises and quicker at coping with these.

5.2 On the impacts of the pandemic on the economy

Consideration of the economy in the longer term requires us to go back to basic questions. The crisis has not fundamentally changed the economic setting, but rather intensified some of its features instead. There are three key perspectives:

1. Conditions for economic growth
2. General government financial balance
3. Economic system dynamics, including questions of the carbon-neutrality of digitalisation

Conditions for economic growth

As the crisis continues, the possibility of long-term, or structural, changes in the economy increases. There is uncertainty as to whether the sudden decline is a one-off deviation from productivity potential or whether the potential has also decreased.[12]

Labour input starts to decline as the working-age population decreases and the improvement in the participation rate stops. Finland's population will only grow as a result of net migration now and in the future. From the perspective of the impacts of the epidemic, one key question is how work-related immigration will develop in the future. The year of the pandemic was the record year of net migration in the 2000s. According to a demographic report completed in March, this will have a significant effect on population growth, amount of workforce, and the dependency ratio. The report also highlights the significance of remigration during the pandemic. Foreigners who have studied in Finland may also be included in the concept of remigration in this context.

12 https://www.talouspolitiikanarviointineuvosto.fi/raportit/raportti-2020/

Increasing structural unemployment also limits the increase in labour input. As a result of the recession, unemployment will increase and can partly become structural as periods of unemployment are extended. According to the projection, the low investment rate resulting from the epidemic will slow down production growth compared to the pre-crisis period.

As labour input decreases, growth in **total factor productivity** will be the most significant source of economic growth in the coming years. This has been weaker in recent years compared to previous decades across the western world. The weaker growth can be attributed to the structural changes in the Finnish economy.

The production of high-productivity sectors in Finland has decreased compared to the beginning of the 2000s.

Profitable companies with strong balance sheets and companies whose purchasing, production and distribution practices are not greatly affected by the virus or the measures put in place to contain it will cope best with the COVID-19 pandemic. Young companies, companies with weak balance sheets and companies that are strongly affected by the virus or the measures taken to contain it are the worst hit by the recession.

From a total factor productivity growth perspective, it is bad if the most productive, dynamic or innovative companies are less likely to cope with the crisis caused by the COVID-19 pandemic, as they play the most important role for productivity growth. They also create most new jobs. More jobs seem to be created and lost in SMEs than in large enterprises.

In Finland, the number and share of unprofitable companies also referred to as zombie companies has been increasing throughout the 2000s. According to the Bank of Finland, at its worst, approximately 10 per cent of the workforce and capital of Finland's enterprises has been found in such companies. The group of enterprises classified as zombie companies is heterogenous, also containing growing businesses whose poor profitability is a temporary feature and which may have a revitalising impact on economic growth in the longer term.

The main long-term challenges for Finland's **labour market** include insufficient labour supply and labour market mismatch. There are also structural problems in related coordination because of the uneven regional distribution of Finland's population and jobs, which means that jobs and jobseekers are found sparsely in extensive regions, and the likelihood that these match is low. Similarly as other types of recession, the recession will exacerbate these problems. As a result, the employment rate may remain permanently low and the unemployment rate high.

Unemployment may also be caused by a structural change in the entire national economy or in a certain sector, in which case the demand for certain types of work will decrease permanently. Long-term unemployment has taken an upward turn as the labour market situation has deteriorated. Unemployment is a significant channel for recessions to leave long-term marks. Higher long-term unemployment (or structural unemployment) rates mean poorer labour market operation, less effective reallocation efforts, and lower productivity and growth. Indeed, the COVID-19 epidemic may increase the deterioration of human capital.

Debt and the balance of Finland's general government finances

The crisis has shown the value of fiscal policy flexibility. Nearly all countries in the world – including Finland and the European Union – responded to the crisis through massive public support and stimulus measures. Globally, the amount of general government debt is at the highest level in history. There has been worrying growth in central government debt in poor and developing countries throughout the 2010s. The pandemic has further increased the already previously elevated risks of indebtedness everywhere in the world, but especially in the poorest countries. We cannot rule out a development in which the consequences of indebtedness in other counties would cause economic shocks in Finland during the 2020s.

Finland's general government deficits will rise as a result of the management of the epidemic and the support measures taken to mitigate its effects. Once the epidemic subsides, the deficit will gradually decline in the coming years. However, the imbalance between revenue and expenditure will remain so high that the general government debt-to-GDP ratio appears to continue to grow throughout the first half of the 2020s. The interest rates have been exceptionally low for a longer time, which has reduced public debt management costs. In the longer term, there is reason to prepare for an increase in interest rates.

Dynamics of the economic system

The role of creative destruction has varied in different times in Finland. According to research, the creation and destruction of jobs in the business sector in Finland has been surprisingly stable since the 1990s depression. From the mid-1990s until the financial crisis, the rate of destruction of jobs was fairly stable, but increased sharply during the crisis (Ilmakunnas and Maliranta, 2011). [13]

13 http://urn.fi/URN:ISBN:978-952-327-693-2, originally Ilmakunnas and Maliranta, Finnish Labour Review 2/2011

Regardless of the economic situation, a considerable number of jobs are created and lost. In 2019, there were more than 764,000 vacancies in Finland's workplaces, a record number so far[14] (Räisänen and Ylikännö. Reports of the Ministry of Economic Affairs and Employment 104/2021). According to a study carried out in 2015, the long-term average rate of job creation and destruction in Finland's corporate sector was around 12%. Annually, this amounts to around 220,000 jobs created and lost in Finland's companies. In addition to the creation and destruction of jobs, employment relationships are terminated and new ones are started for other reasons. According to research, these employee flows amount to, on average, a quarter of all employment relationships, which means that, each year, companies would employ more than 480,000 employees who were not their employees a year earlier.[15]

Based on statistics, the number of enterprises established in April and June 2020 was almost 8,500 and the number of companies ending their operations was 5,500. While new companies were founded in all main sectors, nearly as many companies had been launched in the accommodation and catering sector most severely struck by the coronavirus epidemic in the second and third quarters of 2020 as in 2019.

The coronavirus pandemic is further accelerating the digital transformation that was already underway before the pandemic. Commerce will become digitalised both in Finland and internationally with increasingly rapid and extensive leaps. There has been a considerably increase in the transport services and parcel deliveries of grocery and online shops, while many traditional brick-and-mortar shops have been abandoned. Saving time was considered a more significant reason for transitioning to shopping convenience goods online than the coronavirus pandemic. It has been estimated that by 2030, more than 20 per cent, possibly up to 40 per cent of Finland's retailers will be lost. It has also been estimated that by 2030, the retail trade sector will lose around 11,000 to 25,000 jobs and the wholesale market will lose 5,000 jobs in Finland. The above estimates were made before the coronavirus pandemic in spring 2020. The pandemic is expected to further accelerate the loss of jobs, especially in specialised and utility goods trade.

Pandemic is also an opportunity to accelerate the transition of the economic system towards carbon neutrality. The four key elements of the Sustainable Growth Programme for Finland will contribute to the renewal of the country's economic system in the 2020s. The key elements are: A green transition, digitalisation, raising the employment rate and

14 http://urn.fi/URN:ISBN:978-952-327-693-2

15 Kauhanen, Antti, Maliranta, Mika, Rouvinen, Petri, Vihriälä, Vesa (2015). Työn murros – Riittääkö dynamiikka? Helsinki: Taloustieto Oy

competence level, and improving access to health and social services and increasing cost-effectiveness.

5.3 On the impacts of the pandemic on social and health services and the population

The long-term impacts of the pandemic and particularly the epidemic in Finland on social welfare and health care services and the population are linked to two themes that have already been discussed above: the development of service needs and inequalities between population groups. Similarly as in the context of the economy, the crisis has also intensified the existing tensions and pressures, but has not fully transformed the basic situation.

The crisis has impaired general government finances. As a result, there is even more pressure to balance general government finances in the mid-2020s. At the same time, the crisis has intensified the accumulation of social problems for more vulnerable people and the polarisation of society. If the efforts to halt and reverse this development fail, there will be an increased need for services that play a corrective role and that are more intense than prevention or primary services and therefore also more expensive. Pressures on the service system have intensified, for example, in terms of curbing the increase of costs and ensuring sufficient staffing.

A specific question of services concerns services for older people. During the epidemic, services supporting functional capacity were significantly reduced, which may also increase the need for services over a longer period of time. The effects of the epidemic are combined with demographic changes. According to population projections, the number of people aged 75 or over will increase by around 23% in the period 2019–2026, exceeding 700,000. At the same time, a large share of the workforce in health and social services is retired. The Finnish Institute for Health and Welfare has previously estimated the number of additional personnel required for services for older people to amount to 30,000 nurses by 2030. Insufficient services for older people increase the burden on health services, especially emergency services and inpatient units.

Balancing general government finances increases the pressure to reduce the services from their current level. The deterioration of child health clinic, family and student welfare services is particularly detrimental to the wellbeing and learning of children and young people. Municipalities' situations vary, which reduces equality in access to services. Cutting down primary services would create a pressure for a growing need for special services, which in turn would further increase costs.

To a great extent, the effects of the pandemic have been different in different countries. Overall, it can be noted that both morbidity and mortality as well as income loss have most severely affected those already in a vulnerable position. It has also been more difficult to respond to the needs of those requiring special support as local services have been reduced and in contexts such as making arrangements on education. One of the challenges of the mid-2020s will involve preventing prolonged polarisation.

The coronavirus epidemic is expected to have negative long-term impacts on the well-being, health and learning of children and young people. The learning gap as well as the number of children and young people experiencing loneliness and anxiety will grow. Particular needs are likely to arise for children with a poor socio-economic background and for other vulnerable pupils. There may be an increase in dropping out of education and a delay in applying for further studies, making progress in education and graduating with professional qualifications. Many of the negative effects on children and young people are conveyed through the financial and social problems faced by families.

Indeed, an essential issue to consider is how to balance general government finances in a way that ensures that this does not lead to further inequality.

However, it is also good to acknowledge that several reform and development measures concerning the service system are currently underway. For example, the health and social services reform, the social welfare reform, and the key element of the Sustainable Growth Programme for Finland on access to health and social services all contribute to the setting described here in the 2020s. They improve the possibilities for targeting the productivity of the service system.

In addition, the post-crisis phase should be used for scanning the use of resources and the further development of new forms of services developed during the crisis. The versatility of service channels and flexibility of approaches must be increased. In fact, a careful analysis of the experiences gathered from the coronavirus crisis may prove to be highly useful in the renewal of service production carried out alongside the health and social services reform.

6 Appendix: Participants in preparing the memorandum

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