Analysis

The depths of the COVID-19 crisis, and the recovery

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AUTHORS

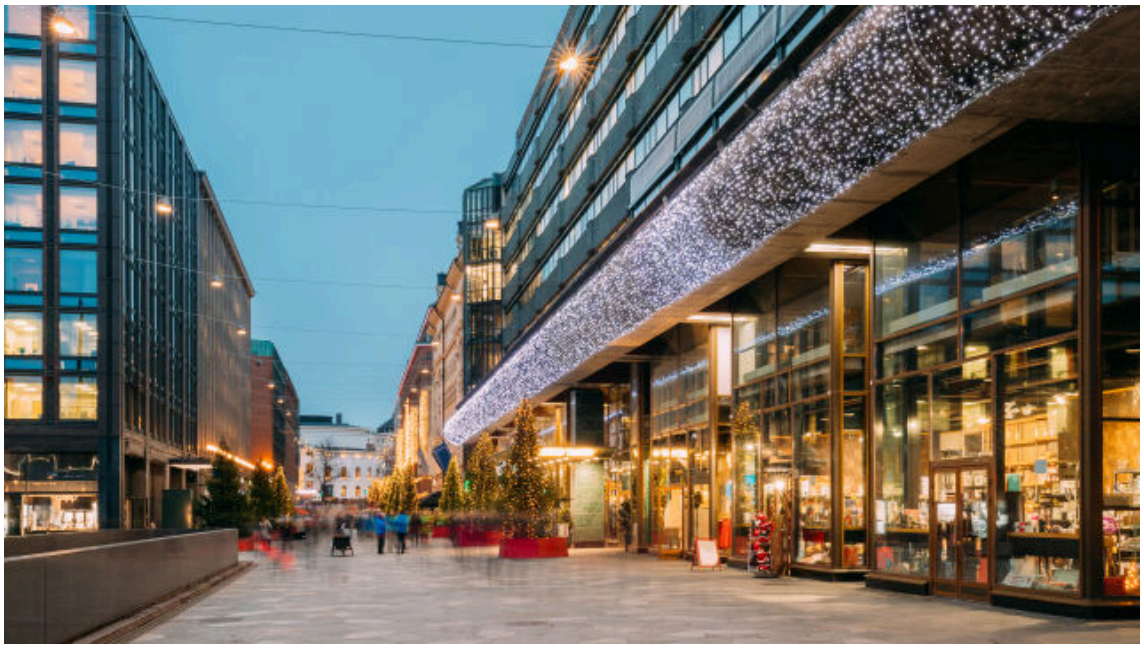


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In the Bank of Finland's December 2020 forecast, the crisis caused by COVID-19 is not expected to be as deep as the global financial crisis and recovery is expected to be faster. Although both recessions have had a broad-ranging impact, in the recession caused by the COVID-19 pandemic it is mainly service industries that have suffered. According to the forecast, the current crisis will result in temporarily slower economic growth in the next few years, but in the medium term the economy will see a return to the growth rates that preceded the crisis. However, the crisis may leave longer-lasting scars than anticipated in such areas as employment, capital stock and productivity, through a number of channels. Examples might be the hysteresis effects of long-term unemployment, low levels of investment and a slowdown in the reallocation of resources. This article takes a look at the background to the crisis caused by the COVID-19 pandemic, the current state of play, and recovery in the light of current forecasts.



We start by examining the initial stage of the crisis with reference to common economic indicators. In addition, we propose a new model that allows us to assess the empirical performance of the most widely used business cycle indicators employed in output gap analysis for Finland. This model is based on a study by Roeger et al. (2019), and it is supplemented by information from service industries in order to consider the special features of the current crisis.[1]

The article also compares recovery from the crisis according to the Bank of Finland's December 2020 forecast with developments following the financial crisis. The investigation takes as its starting point the production function for the economy, where production is divided into the trends in labour input, capital and productivity. At the end of the article, the effect of the crisis is examined in terms of potential economic growth over the long term.

The output gap is a tool used by economists to assess the cyclical position at any one time. In this, it is important to ensure that the method employed takes into account the exceptional way in which the service industries have been affected by the crisis. The model including information from service industries suggests that there were signs that the economy was cooling even before the COVID-19 crisis. Poor performance in the service industries had a huge impact on the sudden widening of the output gap when COVID-19 made its presence felt in the spring. The lower estimate for the output gap was also influenced by the rise observed in short-term unemployment, the greater difficulties faced by industry with the fall in capacity utilisation, and generally weakening confidence as levels of uncertainty increased. For now, though, the economic decline measured with reference to the output gap has been less severe than that associated with the financial crisis.

The current information available suggests that the fall in production during the COVID-19 crisis has not been as dramatic as it was in the financial crisis. Moreover, recovery from the crisis is expected to be faster this time, according to the Bank of Finland's baseline forecast. Recovery from the financial crisis was delayed by such phenomena as the collapse of the electronics industry, which put a brake on any increase in productivity. Even after the financial crisis, the economic activity rate fell for several years in a row, as a result not only of the crisis itself but of an ageing population. Furthermore, the external environment was in crisis for a long time after the financial crisis. According to the Bank's forecast, the present crisis is expected to slow potential economic growth temporarily in the next few years, but in the medium term the forecast is that there will be a return to pre-crisis growth rates.

If the crisis goes on for longer than predicted, it may slow down potential growth permanently. The crisis may affect the workforce in particular through a rise in long-term and structural unemployment and a decrease in the participation rate. As for capital stock, the effects of the crisis on investment and on the destruction of capital are key considerations. For example, reduced investment in research and development could also slow down production growth in the long term. Protracted disruptions and interruptions in production chains and increased protectionism would also hamper the growth in production. Recovery from the crisis will depend very largely on an effective reallocation of resources to both increase productivity and boost employment.

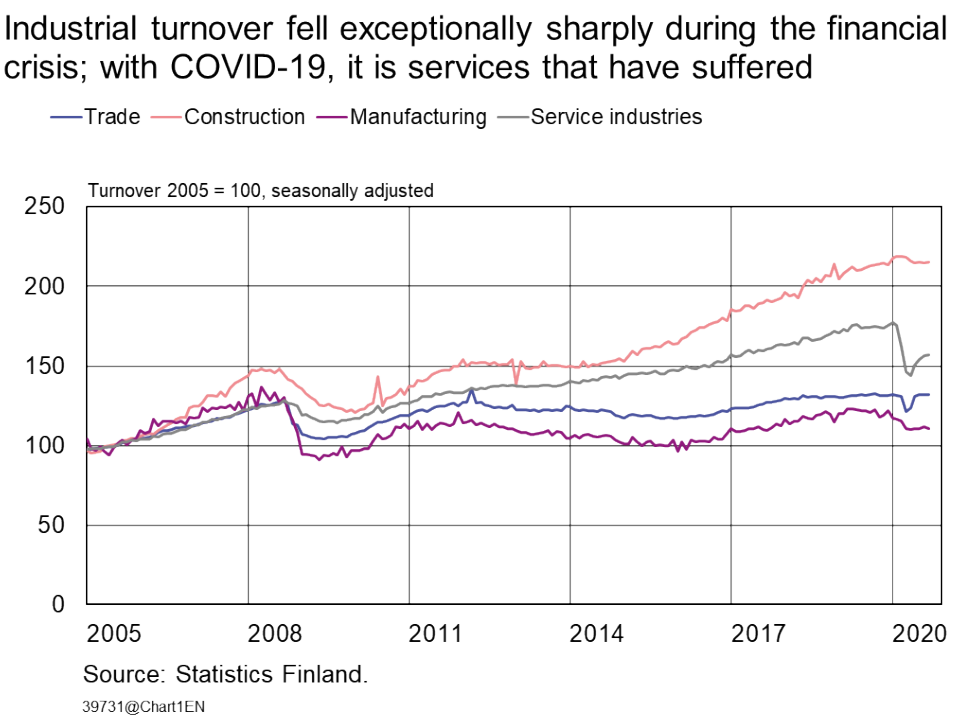
How is the coronavirus crisis captured in general cyclical indicators?

The Finnish economy declined suddenly in the spring when the coronavirus first spread from China to southern Europe and soon afterwards to Finland. Current information shows that even before that the Finnish economy had been contracting over a period of two successive quarters at the end of 2019. The economy was already cooling, regardless of any global crisis.

The service industries in particular have seen a dramatic fall in turnover

The start of the current economic crisis was very different from the international financial crisis of a good ten years ago. The current crisis was triggered by the severe pandemic, not by economic factors. Of course, this time too there has been a decline in foreign trade, but so far it is the service industries that have experienced the greatest difficulties, reliant as they are on people's mobility and contact with others (Chart 1).[2]

Chart 1.



Within the service industries, it is particularly services such as travel and tourism, transport and many face-to-face services that have suffered most.[3] During the financial crisis, the fall in turnover in the service industries was on the whole less evident than with other sectors. The most dramatic decline at that time was in manufacturing. Trade turnover also decreased sharply in the initial stages of the financial crisis, whereas the downturn in construction came gradually, which is typical of that branch of industry. Turnover from trade also dipped overall during the current crisis when containment measures were at their most stringent in April and May, but afterwards the levels preceding the crisis were exceeded. Meanwhile, turnover in the construction industry has as yet not clearly declined.[4]

The wide-ranging impact of the COVID-19 crisis is visible in general cyclical indicators

Next, we provide an assessment of how the initial stage of the COVID-19 crisis is visible in selected indicators of the economic cycle, i.e. price and wage inflation, capacity utilisation, the current account balance, short-term unemployment, GDP growth, the overall economic confidence indicator, and turnover in the service industries.

Business cycle indicators

Among the indicators to assess the business cycle, the same variables have been selected as those used in the study by Roeger et al. (2019), but supplemented with an indicator describing trends in the service industries, in order to consider the special features of the current crisis.[5] The cyclical information obtained from these indicators has then been compiled with the aid of the model to give an estimate of the output gap later in the article.

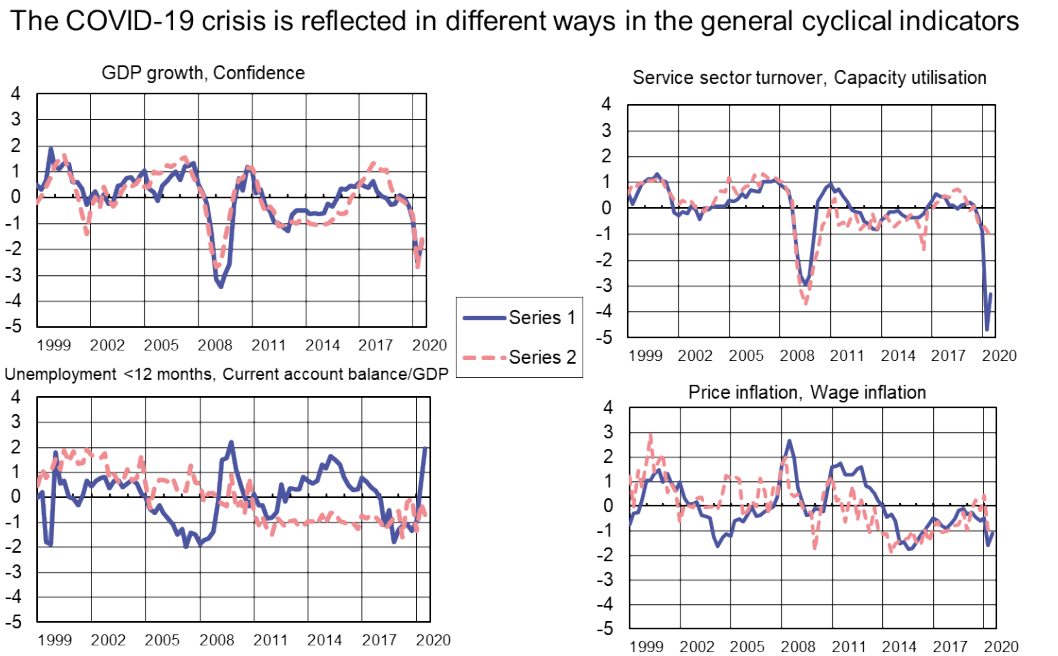
- **Price inflation:** The rate at which prices rise is a very common indicator, which it is believed incorporates information on the cyclical position of the economy and the volume of free resources. For example, during a period of boom, prices rise quickly, because productive resources are being used to the full. Both demand and supply affect inflation. The Harmonised Index of Consumer Prices is an indicator of price inflation.
- **Wage inflation:** Salaries and fees paid per hour are the indicator used in this article to represent wage increases. Wage inflation is expected to contain cyclical information. In the literature, NAWRU[6] refers to the lowest level of unemployment that can occur when wage growth is stable. Wage inflation would be expected to accelerate if unemployment fell below this level.
- **Capacity utilisation:** If capacity utilisation is higher than normal, the demand for a company's products may be assumed to be greater than what is usually the case in relation to production capacity, i.e. supply. Supply can also fluctuate, although changes in supply are normally slow. Capacity utilisation is identified on the basis of surveys conducted with industrial enterprises.
- **Current account balance:** The current account balance (CAB) is linked to the output gap, but the connection is not straightforward. External imbalances can occur for a number of reasons. There may be a CAB surplus owing to low domestic demand and high levels of savings. But a CAB surplus may also be due to buoyant external demand. In both cases a surplus arises, although the economic situation is different. The current account balance over several business cycles is also affected by long-term trends, such as the impact of an ageing population on the need to save. In this article, the CAB is expressed as a proportion of GDP.
- **Short-term unemployment rate:** There is a direct link between short-term unemployment and the cyclical position of the economy. Economic decline pushes up the figure for short-term unemployment. If a period of unemployment is prolonged and it becomes more structural in nature than short-term, that will be reflected in an

increase in long-term unemployment. Short-term unemployment is defined as unemployment lasting less than a year.

- **GDP growth:** There is a clear link between growth in GDP and the economic cycle. As Roeger et al. state, GDP growth is not just correlated with the cycle but will generally also be correlated with the trend.[7]
- **Economic sentiment indicator:** The confidence indicator for the economy as a whole represents the aim to describe the situation at the level of the entire economy and possibly even the state of the economy in the near future. The indicator is used widely; it has the advantage of a short publication lag and is not revised. Here we use a lagged observation of the confidence indicator, as this tends to forecast future economic trends.
- **Service industry turnover:** During the COVID-19 pandemic it has been the service industries in particular that have suffered as a result of the considerable reduction in consumer mobility, the containment measures and voluntary changes in consumption behaviour. Gauging service industry activity during the current crisis is crucially important. An increase in turnover in the service industries also correlates strongly with the confidence indicator for services.[8]

The cyclical indicators given in Chart 2 have been normalised, so that the way in which the series have varied during the time Finland has been in the euro area can be compared with one another. In other words, the mean for all the series is 0, and most of the observations (approximately 95%) lie between +2 and -2. We describe observations outside these limits as exceptional situations. Consequently, GDP declined to an exceptional extent during the spring, when COVID-19 hit, as did overall confidence in the economy and turnover in the service industries. In the third quarter of the year the economic difficulties are reflected in a sudden rise in short-term unemployment.

Chart 2.



The data in the graphs (1999Q2–2020Q3) have been normalised, so that the ways in which the series vary can be compared with one another. The mean figure for all the series is 0, and around 95% of the observations lie between +2 and -2.
Sources: Statistics Finland, European Commission and calculations by the Bank of Finland.

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We can see from the chart that economic growth was slower than average even before the COVID-19 crisis took off, and that growth then slowed less than during the financial crisis. Short-term unemployment was at a lower level than usual prior to COVID-19, as was the case prior to the financial crisis. During both crises, the short-term unemployment rate rose rapidly.

When the present crisis started, price and wage inflation were subdued compared with the time preceding the financial crisis. The rate at which consumer prices increased was slower than average, and the dramatic decrease in demand generally in the spring of 2020 slowed the rise in prices even more. The wage inflation rate had also been slower than the average for the time Finland has been in the euro area and did not begin to accelerate until the eve of the crisis. The crisis has meant a reduction in price pressures.

The indicators selected suggest that the COVID-19 and financial crises have thus far impacted the service industries and manufacturing very differently. During the global financial crisis, manufacturing capacity utilisation plunged, but this time the decline has been gentle, at least so far.[9] Turnover in the service industries, meanwhile, has plummeted to an unprecedented extent. There was a substantial decline in turnover during the financial crisis as well, but nothing like the complete halt in activity when the COVID-19 crisis hit in the spring. In general, however, both

crises have had an adverse impact on both services and manufacturing.[10]

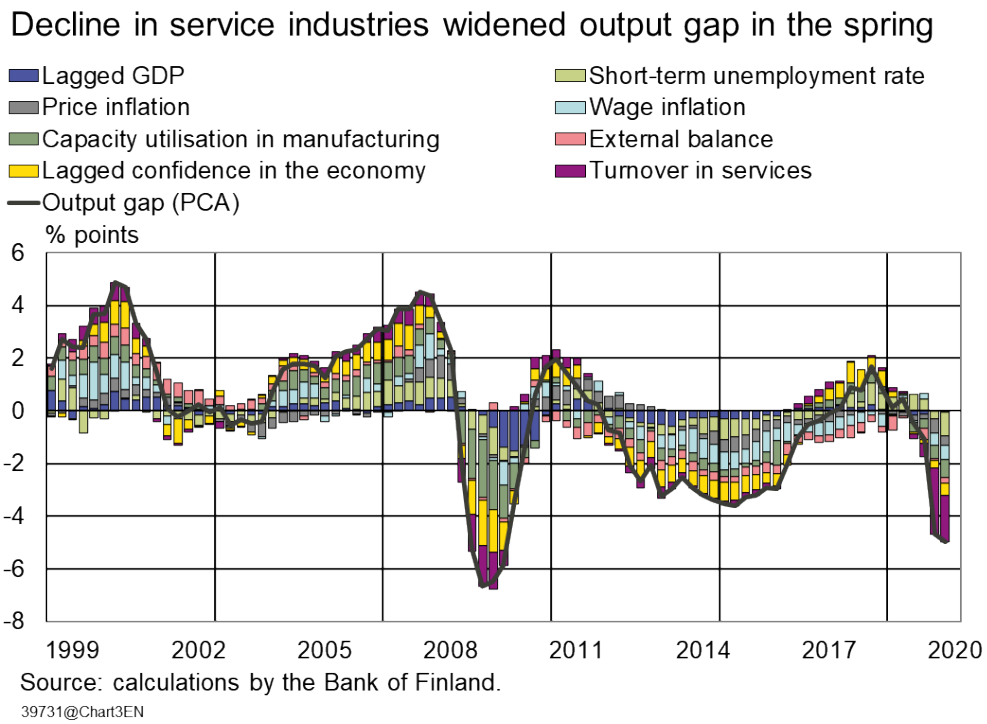
The cyclical indicators suggest that the output gap is exceptionally large

The cyclical indicators shown above may be combined into one to describe the general economic situation, with the aid, for example, of a Principal Component Analysis (PCA).[11] This measures the combined dynamics of the indices, i.e. the common factors affecting all of them at the same time.[12]

The model describing the economic situation in Finland is based on the study by Roeger et al. (2019), supplemented with information obtained from the service industries. The first principal component accounts for half of the overall dynamic of the indicators.[13] It can thus be referred to as depicting the cyclical change common to the variables around the normal economic situation, i.e. the output gap.[14] With this new method, and to facilitate the comparison, the output gap has been scaled to correspond to the estimate for the output gap generally used by the Bank of Finland.[15]

The advantage with the new method is that the effect of different cyclical indicators on changes in the output gap can be described in more detail than previously, and this therefore improves our understanding of the reasons for a cyclical downturn. The method confirms that the slowdown in activity observed in the service industries had, among various factors, the greatest single impact on the sudden widening of the output gap in the spring, when COVID-19 hit (Chart 3). Of the different cyclical indicators, the lower estimate for the output gap was also partly due to increased difficulties in manufacturing, with the fall in capacity utilisation and a general decline in confidence. After the spring, the increase in short-term unemployment had an ever-increasing effect on the estimate for the output gap.

Chart 3.



Decreased activity in the service industries during the financial crisis also had a fairly big impact on the rather gloomy estimate for the output gap, though less so than the sudden sharp fall in manufacturing seen at the time. During the financial crisis, the decline in public confidence also emerges as a significant factor in the exceptionally large output gap.

Chart 3 also illustrates other interesting phenomena related to the business cycle for the time that Finland has used the euro as its currency. For example, the rate at which consumer prices rise does not appear to be a major factor in theestimate of the output gap. Since 2013, inflation has been slower than normal, and it has not had any favourable effect on the estimate for the output gap at any time during this period. In other words, on the basis of the information obtained from the rate of increase in prices, the economy was not overheated before COVID-19 hit the country in spring this year.[16] The information available from the labour market would seem to be useful in assessing the cyclical position.[17] Short-term unemployment has an obvious impact on the output gap. Except in recent years, wage inflation would appear to have moved procyclically (and more markedly than price inflation), thus reflecting the economic situation.[18]

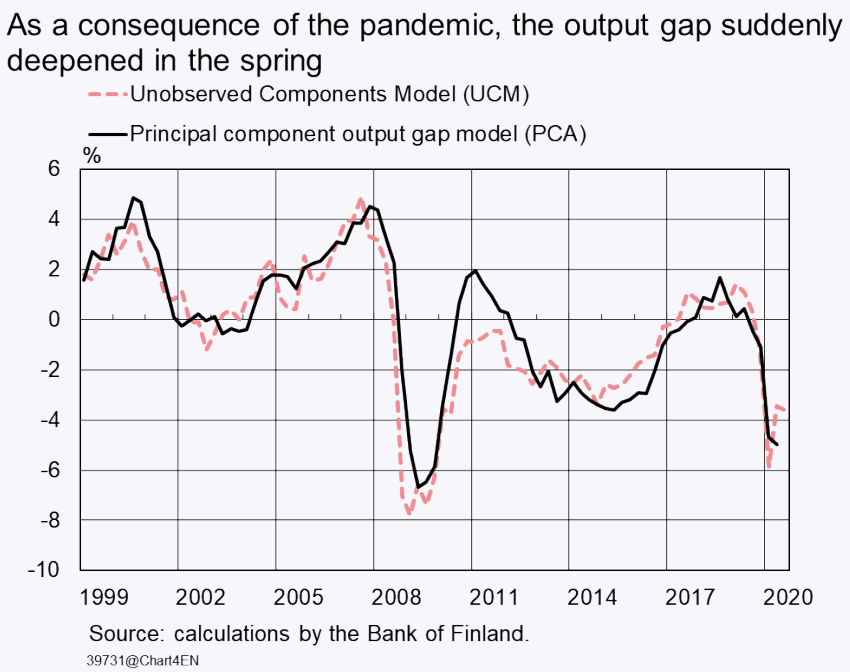
ⓘ Output gap estimate similar, if uncertain, based on various methods

The principal component model (PCA) presented is only based on the common behaviour observed from the cyclical indicators and does not predetermine the links between the variables based on economic theory. The PCA output gap, however, produces a very similar picture to the Unobserved Components Model employed by the Bank of Finland, which also relies on economic theory (Chart 4). The model based on cyclical indicators would suggest that the economy had already cooled halfway through 2019 and was in fact more robust immediately after the financial crisis, although the differences are ultimately tiny.

It is worth noting that the principal component gap does not take account of any changes in the trend rate of growth of the economic variables, which could lead to a misleading estimate of the output gap. The series used in the principal component gap model are concentrated around the mean value for the time Finland has been in the euro area. If the long-term trend rate of growth has slowed because of a fall in the working-age population and increased productivity, that can result in an excessively low estimate for the output gap at the end of the review period, as no account is taken of the decline in potential production growth. The same also applies to price and wage inflation in the periods examined. Since the global financial crisis, inflation expectations and actual inflation seem to have shown a slower trend. The Unobserved Components Model shown in Chart 4, however, can take changes in the trend rate of growth into account to some extent, and the gap estimates do not appear to deviate so very much from one another.

The creation of a reliable situational picture might well involve the use of a number of tools, as the output gap is an 'unobserved' variable that cannot be checked directly in the statistics even in retrospect. It is normal for the estimate for the output gap at the time to change when the indicators employed are revised later.[19] Furthermore, because of the COVID-19 crisis, output gap estimates are associated with exceptional uncertainty, since, for example, when the crisis was in its acute stage, production fell due to the restrictions that businesses faced, which is a challenge to take account of in the models.

Chart 4.

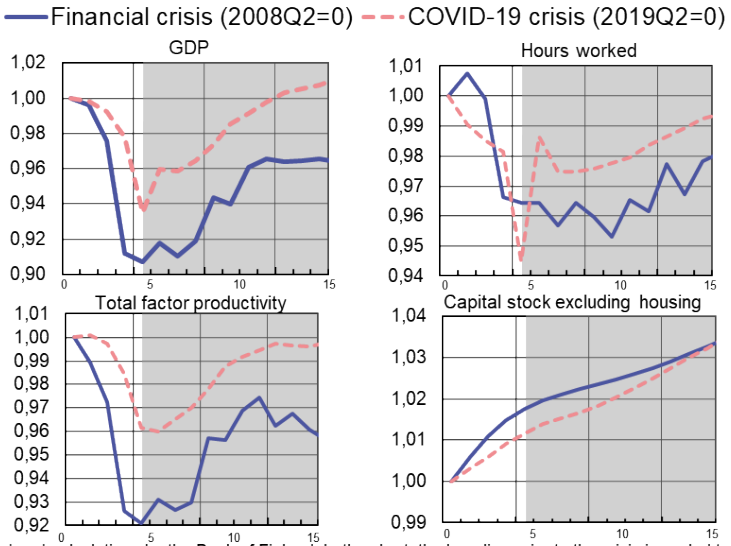


The depth of the crisis, and the recovery – a comparison with the financial crisis

Next, we shall examine the crisis caused by the COVID-19 pandemic and the recovery from it in the light of the Bank of Finland's December 2020 forecast. At the same time, the development of various factors is compared with the time of the financial crisis. The examination takes as its starting point the production function for the economy, where production is divided into the trends in labour input, capital and productivity (Chart 5). To facilitate the comparison between the crises, the variables shown in the chart have been scaled in such a way that their baseline is 1 in the quarter preceding the crisis.[20] The numbers for the coronavirus crisis in the shaded area are based on the Bank of Finland's forecast.[21]

Chart 5.

Forecast suggests a faster recovery this time than after the financial crisis



Sources: Statistics Finland and calculations by the Bank of Finland. In the chart, the baseline prior to the crisis is scaled to a value of 1. The periods on the horizontal axis are the quarters from the start of the crisis. The shaded area for the COVID-19 crisis shows the Bank of Finland

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As shown by the output gap estimates, according to the information now available, the decline in production during the COVID-19 crisis has been less dramatic than it was during the financial crisis. Recovery from the financial crisis was an extremely slow process, and it was not until 2017 that production finally exceeded pre-crisis levels. Finland's slow recovery was explained in part by the severe and partly permanent contraction of the electronic and electrical industry that started at the same time as the financial crisis.[22] At the same time, too, the number of people aged between 15 and 64 decreased. Furthermore, the external environment was in crisis for a long time after the financial crisis. In the current projection, recovery from the present (COVID-19) crisis is expected to be much quicker than it was the last time, and GDP is predicted to exceed pre-crisis levels by 2022. The projection assumes that the economy will improve in 2021, when an effective vaccine is available, uncertainty fades and people have fewer health worries. As a result, the service industries will recover. Although the Bank of Finland's baseline forecast projects a faster recovery, a closer analysis also reveals similarities between the crises. Both exhibit typical features of a demand-driven recession, such as a long-term decline in employment and investment.

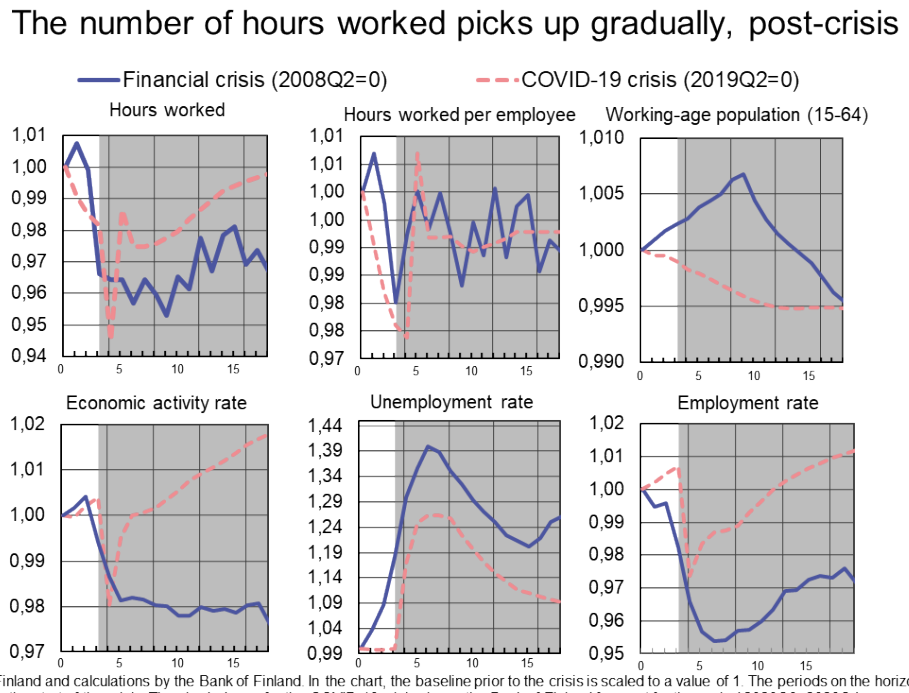
It is also worth pointing out that the situation at the start of each crisis was markedly different from when the other began. Before the financial crisis, potential growth was still at around 3%. On the eve of the COVID-19 crisis, it was only just under 1.5%, as an ageing population and a

prolonged period of poor levels of investment and productivity had slowed potential growth. Even if the recovery from the crisis is indeed faster this time, the gloomy long-term outlook for economic growth stretches back to the turn of the millennium.

The number of hours worked fell dramatically in the spring but picked up quickly in the third quarter

Total labour input for a country's economy is normally indicated by the number of hours worked, which can be broken down to participation rate, the size of the working-age population, the unemployment (employment) rate, and the average number of hours worked (Chart 6).

Chart 6.



Sources: Statistics Finland and calculations by the Bank of Finland. In the chart, the baseline prior to the crisis is scaled to a value of 1. The periods on the horizontal axis are the quarters from the start of the crisis. The shaded area for the COVID-19 crisis shows the Bank of Finland forecast for the period 2020Q3–2023Q4.

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There was a reduction in the number of hours worked in the initial stage of the COVID-19 crisis as a result of the containment measures introduced to stop the spread of the virus and social distancing (Chart 6). The drop in the second quarter of 2020 was over 5% from the same period a year earlier. The number of hours worked decreased slightly more than during the financial crisis, as activity in many labour-intensive service industries came to a virtual halt and a record number of workers were furloughed. As we saw earlier, turnover in the service industries fell especially dramatically.

As the first wave of the epidemic receded, the number of hours worked picked up substantially in

the third quarter. However, the progress of the disease and the containment measures to control it will also be hugely relevant during the forecast period and will have an impact on the number of hours worked from now on also. In the final quarter of 2020, the number of hours worked is expected to fall again compared with the previous quarter owing to the second wave of the epidemic. In the Bank of Finland's December forecast, however, the expectation is that the number of hours worked will pick up more quickly than after the financial crisis and finish up at almost pre-crisis levels at the end of the forecast period. At the start of the financial crisis, production fell considerably more than at present, which was also reflected in the reduction in the number of hours worked, and the recovery was lacklustre.

The average number of hours worked – or working time per person employed – also fell substantially in the second quarter of 2020 (Chart 6). Average hours worked fell less than actual hours worked, however, because the number of those in work went down less than the number of hours, on account of layoffs/furloughs, for example. It is assumed that average working hours will remain slightly below pre-crisis levels for the longer term, given the prevailing downward trend. But in the short term, furloughs will have the effect of reducing the average number of hours worked. During the financial crisis, average working hours fell only slightly, apart from during the initial reaction to the crisis, whereas there was a clear decrease in the number of hours worked and in employment. Altogether, the impact on the average number of working hours at the time was relatively small.

As in the financial crisis, the increase in unemployment has been rapid

The crisis caused by the coronavirus pandemic also resulted in the number of jobless rising suddenly in May 2020. It was only the month before that the Labour Force Survey by Statistics Finland reported that the number of people unemployed was slightly down in the annual context, but by May the number of those out of work was already around 46,000 more than the year before. At the same time, the unemployment rate increased to 8.4%, after which it improved only very slightly to 8.3% (according to the latest information in October). Nevertheless, since May, some sort of recovery in the employment rate has been discernible, and by October it had risen to 71.5% and stood at only 0.5% lower than a year earlier.

However, the sudden rise in the unemployment rate in the spring does not give a complete picture of the effects of the crisis on the labour market, as the furlough scheme tended to dampen the impact. The number of layoffs increased in the spring of 2020 to a record high, affecting almost 164,000 people by the end of April, according to employment statistics from the Ministry of Economic Affairs and Employment. Since then the number of those furloughed has decreased, although in October there were still 58,000 people laid off, which figure is as much as it was at its

peak during the financial crisis in April 2009. The unemployment rate has remained virtually unchanged since May, although, if the crisis continues, the risk of people being let go completely increases.

In the Bank of Finland December 2020 forecast, unemployment is expected to rise to an annual rate of 8.3% in 2021, as the pandemic has the effect of reducing companies' turnover. After that, the unemployment rate will fall only gradually, reaching 7.4% in 2023. Because of the recession, there may be a vocational mismatch between the unemployed and job vacancies, which will slow down the reduction in unemployment. For now, the projection gives no indication of a structural change such as that at the time of the financial crisis, when long-term unemployment rose for several years in a row. But even now there is a danger of an increase in structural unemployment if the crisis drags on and there is an increase in long-term unemployment.

The beginning of the financial crisis saw a gradual deterioration in both employment and unemployment from mid-2008. From April 2008 to November 2009 the unemployment rate rose from 6.2% to 8.8%. At the same time, the employment rate fell by 3% to 67.8%. The number of unemployed people soared by 67,000 in July compared with a year earlier.

Both the unemployment rate and the employment rate began to recover after the financial crisis, although the trend came to a halt at the end of 2011. The financial crisis and the structural change in industry that followed it ended the downward trend in structural unemployment. Structural factors and hysteresis meant that it took a long time for employment to recover, and it was not until 2018 that the annual employment rate exceeded 70.6%, which was the figure for 2008.

The participation rate fell after the financial crisis – how is it now?

Changes in the unemployment rate are typically reflected in the activity rate, that is, the percentage of the population of working age in the labour force, since, when there is an economic downturn, some people of working age move from unemployment to being officially inactive. As will be seen from Chart 6, at the start of the present crisis the participation rate fell sharply. According to the Labour Market Survey of Statistics Finland, in the second quarter of 2020, the activity rate for the age range 15-74 was 1.4% lower than at the same time a year earlier. By October, however, the activity rate had recovered to reach virtually the same level as the year before. The participation rate is expected as a whole to pick up in the forecast period and to resume its pre-crisis upward trend.

ⓘ The trend in employment in different age groups reacts to a recession

in different ways

The trend in employment in different age groups reacts to a recession in different ways. The hardest hit by economic decline are typically those at a stage of life where there are more obviously other alternatives to participation in the labour market. Such people are the young, women with families and older people (Grönqvist and Kinnunen, 2009)[23]. The current crisis, too, has been seen to have a greater than average effect on the employment rate among women and young people. In October, the employment rate for women aged 15–64 was down by 1.2% on the previous year, at 70.4%, while it was up for men by 0.3%, at 72.7%[24]. On the other hand, the employment rate for young people (aged 15–24) had fallen in October by 5.4% compared with the previous year, whereas the decrease for the age group 15-64 was just 0.5%.[25]

The participation rate fell sharply at the start of the current crisis. According to the Labour Force Survey by Statistics Finland, the activity rate for those aged 15–74 in the second quarter of 2020 was 1.4% lower than at the same time the previous year. It fell most obviously among those in the 15–24 age range, owing to some extent to the lower number of summer jobs available and the fact that young people tend to work in the service industries. In October, the activity rate for those aged 15–74 had picked up on the whole and almost returned to the level it had been a year before, but the participation rate among young people was more than 4% lower than 12 months previously.

Regarding the participation rate, it is worth noting that, in the short term, a decrease is not problematic in all respects. In recessions, high levels of unemployment reduce the opportunity costs of education/training, and this prompts young people to take part in education and training courses (see, for example, Heylen and Pozzi, 2007)[26]. Higher levels of education have in the long term a favourable impact on economic growth.[27] The increase in the number of people starting higher education courses has been a step in the right direction in this respect inasmuch as they tend to relate to sectors where future employment prospects look good. Young people on the labour market also act as a factor for increasing flexibility. When the impact of the crisis fades, young people who have remained active will be qualified and ready to fill posts in the service industries, for example, that will become available afterwards. Of course, a crisis can also have a scarring effect on young people who drift into inactivity.

The participation rate does not seem to have reacted as strongly in the COVID-19 crisis as it did in the financial crisis, at least not so far. In the financial crisis, the activity rate fell substantially and stayed low for a long time after the crisis. Data in the Labour Force Survey suggest that the participation rate fell from 67.5% in 2008 to 65.3% in 2016. After that it began to rise again, reaching 66.6% in 2019.

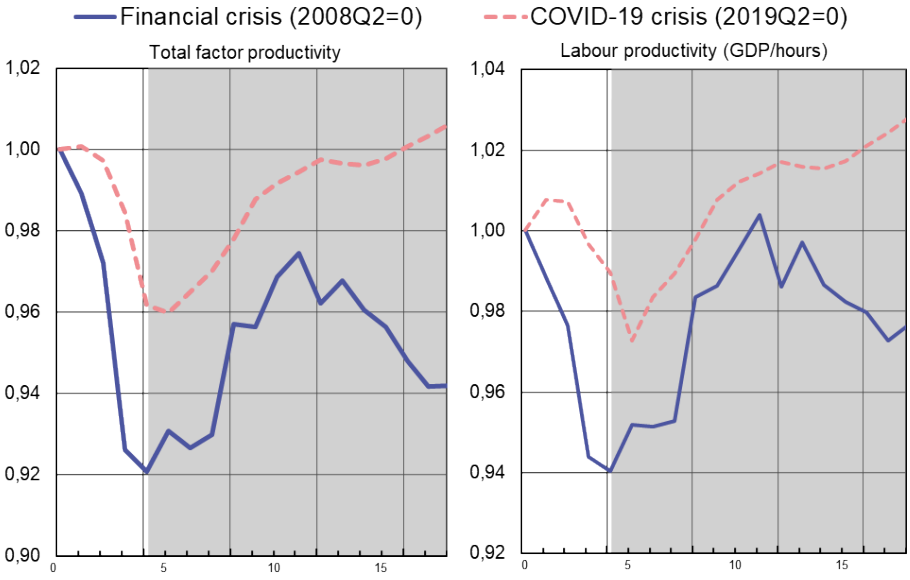
The ageing population is having an impact on the trend in the working-age population and, in any case, will reduce labour input in the years ahead. In the aftermath of the financial crisis, the phenomenon of an ageing population was also significant for the recovery, as the number of people aged between 15 and 64 began to fall in 2011. The demographic structure has reduced the labour force participation rate, and this was particularly the case in the years following the financial crisis, when the 'baby boomers' retired.[28] In this present crisis, meanwhile, the number of those aged between 15 and 74 has dipped, which may cause the participation rate to rise but the labour force to shrink.

In the projection the effects of the coronavirus crisis on productivity growth are less drastic than with the financial crisis

In the Bank of Finland's projection the coronavirus crisis is expected to slow overall productivity growth temporarily. In the initial stage of the crisis, productivity fell dramatically in overall terms (Chart 7), but the recovery is predicted to be relatively swift compared with that following the financial crisis. Labour productivity decreased slightly less and is expected to exceed pre-crisis levels towards the end of 2021. Due to the nature of the crisis, there is much greater uncertainty than usual with the forecasts.

Chart 7.

In the forecast, productivity growth slows temporarily as a result of the COVID-19 crisis



Sources: Statistics Finland and calculations by the Bank of Finland. In the chart, the baseline prior to the crisis is scaled to a value of 1. The periods on the horizontal axis are the quarters from the start of the crisis. The shaded area for the COVID-19 crisis shows the Bank of Finland projection for the period 2020Q3–2023Q4. 39731@chart7EN

In Finland, productivity growth was rapid up until the financial crisis but fell sharply as a result of the crisis, and recovery was sluggish. The fall in productivity following the crisis was on the one hand due to structural changes in the electronics and forestry industries, but on the other hand also because of the poor competitiveness of the Finnish economy, both of which factors suppressed production growth for quite some time.[29]

In the years following the financial crisis, productivity growth was sluggish for a long time both in Finland and elsewhere. The subject has been discussed in the research literature, where it has been found that negative demand shocks can also have long-term consequences for supply, as a result of both labour input and productivity growth. Anzoategui, Comin, Gertler and Martinez (2019)[30] found that, after the financial crisis, the slow adoption of innovations in the United States was a major reason for poor productivity growth.[31] The findings of Schmöller and Spitzer (2018)[32] also suggest that a demand shock was a major factor in poor productivity growth in the euro area in the wake of the financial crisis.

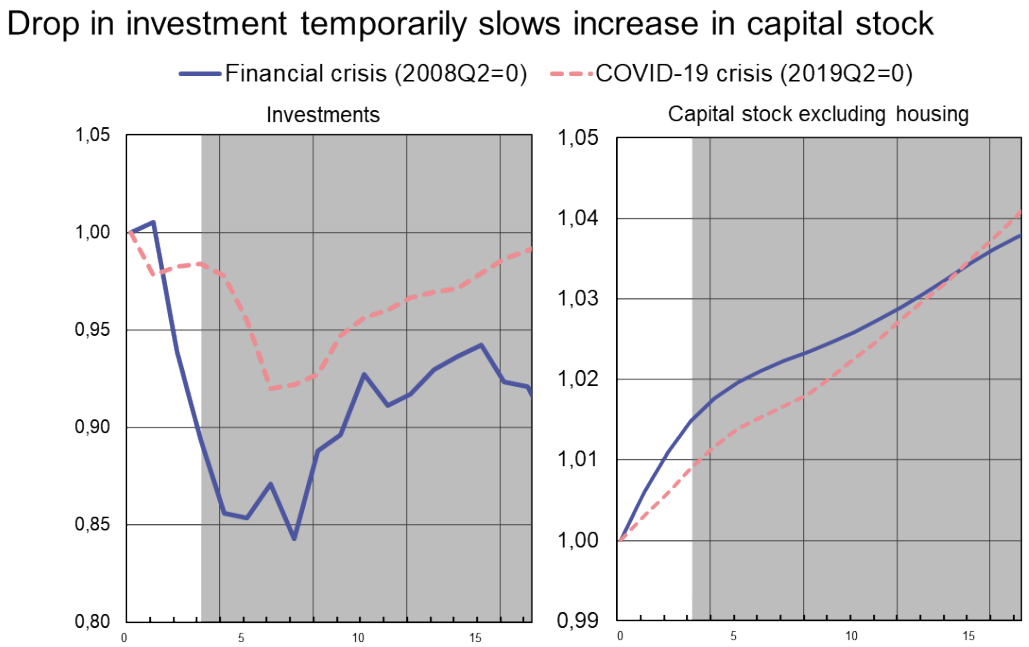
Drop in investment slows increase in capital stock

Crises have a negative impact on the increase in capital stock, both because there is reduced investment and on account of the premature scrapping of capital. Uncertainty weakens

investment prospects. In addition, investments may have to be cut for savings purposes, with some investments not going ahead and some being postponed. Chart 8 shows how, in the Bank of Finland's December forecast, the biggest fall in investment comes with a delay because of the slowdown in construction investment currently visible in the numbers of permits issued and new projects.

In the Bank of Finland's December projection, investment is expected to drop by 3% in 2020 and by slightly less in 2021. It is anticipated that investment will pick up towards the end of the forecast period, though progress is bound to be gradual. Furthermore, support measures will have an effect on the way investment recovers, and, for example, the Next Generation EU COVID-19 recovery package will provide support for investment in climate action and digitalisation. Appropriately allocated investment – say in digitalisation – can also promote productivity growth. In Finland, investment in ICT as a share of total investment is below the OECD average.[33] However, many other indicators for digitalisation, such as that showing the extent to which the ICT sector accounts for all those in work, or that for use of the Internet and broadband by businesses, show that Finland is doing well.[34]

Chart 8.



Sources: Statistics Finland and calculations by the Bank of Finland. In the chart, the baseline prior to the crisis is scaled to a value of 1. The periods on the horizontal axis are the quarters from the start of the crisis. The shaded area for the COVID-19 crisis shows the Bank of Finland projection for the period 2020Q3–2023Q4.

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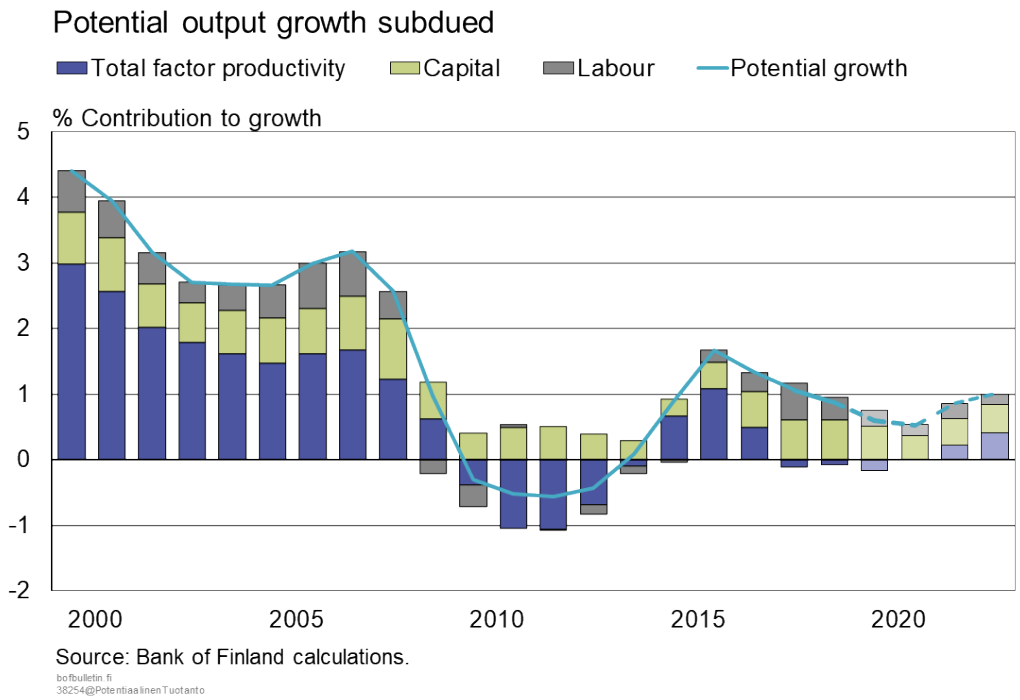
Investment in the present crisis is not expected to collapse to the extent it did during the financial crisis, when the volume of gross fixed capital formation fell by 12% in 2009 on the previous year.

More than half of the reduced investment returned to previous levels by 2011, but, as with GDP, the volume of investment did not surpass the 2008 figure until 2017. The decline in investment in research and development in particular had a scarring effect on output growth in the medium term.

The COVID-19 crisis has awakened concern of a long-term decline in supply

The European Central Bank[35] and the IMF[36], among others, have raised the matter of the possible long-term economic impact of the COVID-19 crisis. Next, we examine the possible channels via which the crisis could affect the trends in labour input, productivity and capital, and at the same time the potential for economic growth in the Finnish context. In the Bank of Finland's December 2020 forecast, potential output growth is expected to slow only temporarily as a result of the COVID-19 crisis (Chart 9). The channels presented are thus in many respects the risks in the forecast that, were they to materialise, could slow the increase in supply factors in the longer term in the way observed in the financial crisis.

Chart 9.



If prolonged, the crisis could have a wide-ranging impact on the labour force

The scarring effects of the crisis for the labour force are mainly related to an increase in long-term unemployment and a downward trend in participation. If long-term unemployment increases and the increase in activity slows, there may be hysteresis effects that slow potential output.[37] This could in turn lead to a rise in structural unemployment. If the crisis continues, the likelihood of the sort of structural changes observed during the financial crisis will increase, as the effects of the crisis in some sectors will be long-term or even permanent. This could push up the structural unemployment rate, as the reallocation of human resources will not be a smooth process.

Increased long-term unemployment has a damaging impact on human capital and, consequently, on productivity growth. If unemployment is prolonged, human capital may start to deteriorate, there may be a decline in skills and expertise, and, in addition, labour market engagement may weaken.[38] An increase in human capital as a result of additional training and education has been a key factor in Finland's long-term economic growth.[39] For this reason, we should pay attention to the importance of human capital growth for the economy across business cycles.

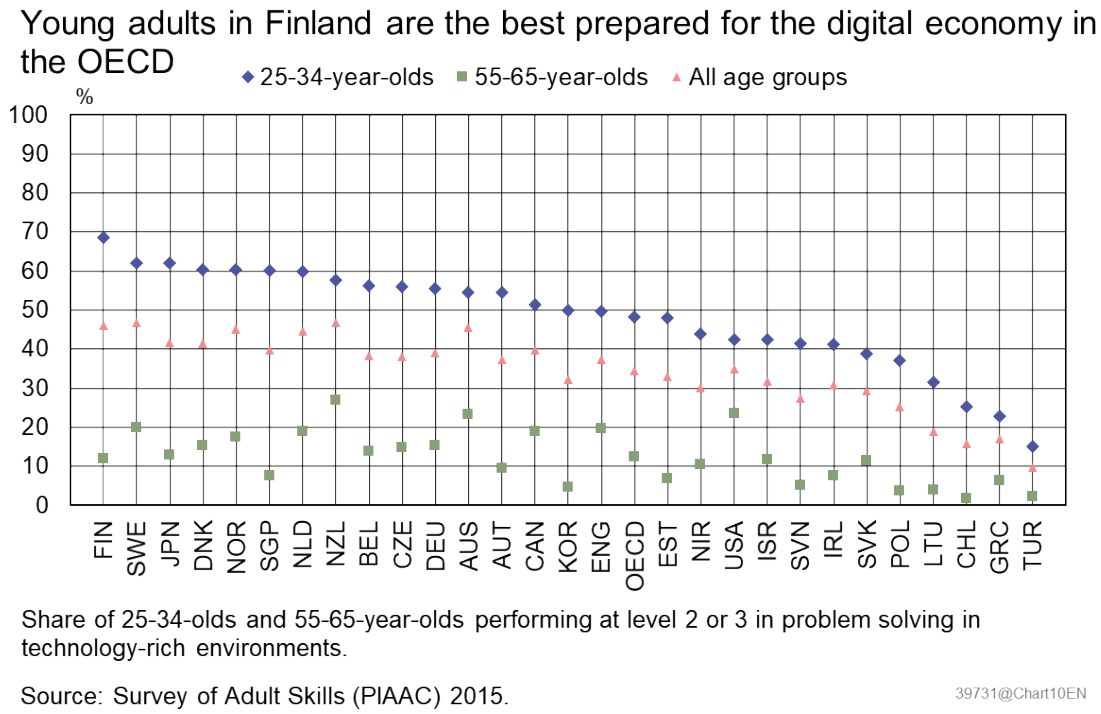
The COVID-19 crisis may have an impact on trends in the working-age population as a result of patterns of labour mobility and migration. For example, the OECD expects international migration movements to remain at an all-time low in OECD countries in 2020, and mentions that there are many signs that mobility will not return to pre-crisis levels for a long time.[40] A reduction in immigration to Finland would mean that the decline in the number of people of working age would accelerate further. Reduced mobility might also have an impact on productivity growth, especially in sectors of high productivity, where the availability of foreign specialists and experts is important.

If prolonged, the COVID-19 crisis may slow the increase in the participation rate. The crisis has hit service industries that predominantly hire female workers very hard, and if the effects drag on, the participation rate for women may well start to fall. The recession and changes to economic structures could also speed up the rate at which older people withdraw from the labour market and retire.[41] The probability that older people will return to work is small, so the effects could be long-term. The risk of youth exclusion could also grow, which would have other harmful consequences and a major adverse impact on the participation rate.

If the COVID-19 crisis accelerates the trend in digitalisation and automation, some old jobs are in danger of disappearing. The OECD estimates that as many as a quarter of jobs in Finland will in the next few decades be at risk because of the increased use of automation. It would appear, however,

that Finland is in a better position compared with other OECD countries.[42] The OECD takes the view that, in Finland, people (particularly between the ages of 25 and 34) are better prepared for the digital workplace than is the case in other OECD countries. And if all age groups are examined, Finland is generally among the best in the OECD (Chart 10).

Chart 10.



Share of 25-34-olds and 55-65-year-olds performing at level 2 or 3 in problem solving in technology-rich environments.

Source: Survey of Adult Skills (PIAAC) 2015.

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Investment and the destruction and consumption of capital

The crisis will have an adverse impact on capital as a result of reduced investment and capital destruction. Uncertainty, in particular, will have a harmful effect on investment, which will either be postponed or cancelled altogether.[43] Firms may also have to cut investment to make savings. The negative effects will mainly be felt in the sectors that suffered most during the crisis, as capital will be allocated to those industries that were able to continue to operate. The crisis may have a lasting impact in particular on sectors that had benefited from globalisation, such as hotels and catering, travel and tourism, and transport.

With closures and bankruptcies, some capital will be destroyed prematurely. The number of bankruptcies during the COVID-19 crisis in Finland has not as yet begun to grow. A partial explanation for this, according to the information available at this time, is the temporary amendment to the Finnish Bankruptcy Act in force until the end of January 2021. This restricts

bankruptcy proceedings in respect of a debtor on application by a creditor. The aim of the amendment is to ensure that companies do not have to file for bankruptcy if their problems of insolvency can be resolved after the COVID-19 epidemic has ended. If there is a wave of bankruptcies after the amendment has expired, this could have a major impact on employment and economic growth and result in capital destruction. Fallen capacity utilisation rates as a result of the crisis could nevertheless partly slow down the consumption of capital.[44]

The decline in investment in research and development would have especially scarring effects on productivity growth in the medium term, which proved to be the case in the 2010s. If the COVID-19 crisis has similar long-lasting adverse impacts, particularly for investment in product development, productivity growth could slow even further and for the long term as a consequence of this current crisis also.[45]

Reallocation of resources a key role in productivity growth

The COVID-19 crisis may also have a significant impact on productivity growth. This will take several forms and directions. Prolonged supply chain disruptions and increased protectionism will weaken productivity growth. On the other hand, a favourable scenario presents itself in the shape of increased digitalisation, as, for example, the adoption of new technology makes it possible to work from home. The crisis has compelled businesses to introduce new practices that could support productivity growth.

After the COVID-19 crisis it will be hugely important that resources be reallocated to strengthen growth in employment and productivity. Recessions can have a cleansing effect in the shape of creative destruction, if the effects of the crisis are felt by the least productive companies. The resources in 'zombie' companies, where productivity is weak, are used inefficiently, which can contribute to a slowdown in economic growth, constrict the market, and limit the growth of more productive enterprises.[46] However, there is a very great deal of uncertainty associated with the rate at which resources can be reallocated and how effectively this can be achieved. For example, taking workers out of low-productivity service industries and finding them employment in the ICT sector will mean retraining, and the process will hardly be smooth.

The establishment of new companies speeds up economic growth as a result of accelerated employment and productivity growth. Their arrival on the scene also promotes the reallocation of resources and fosters creative destruction.[47] In recessions, however, there is a significant decline in the creation of new companies, and that tends to slow any increase in employment or productivity.

Conclusions

The background to the COVID-19 pandemic differs significantly from that of the financial crisis, and the greatest impact has been felt in different sectors from those most affected by the financial crisis. When the pandemic began, the economy had already cooled, regardless of any global crisis. Although both recessions have had a widespread impact, it is the service industries that have particularly suffered from the pandemic-driven recession. The estimate for the output gap based on the principal component analysis we have presented shows that the decline in activity in the service industries had a huge impact on the sudden widening of the output gap in the spring, when COVID-19 hit the country.

In the Bank of Finland's December forecast, the COVID-19 crisis is not expected to be as deep as the financial crisis and recovery is expected to be faster. According to the projection, it is thought that the current crisis will slow potential economic growth temporarily in the next few years, but in the medium term there will be a return to pre-crisis growth rates. A slower recovery such as that experienced after the financial crisis would require expectations that differed from the baseline projection regarding, for example, the spread of the pandemic or major structural changes. But there is uncertainty with forecasts, and if the crisis continues it could have a long-term, adverse impact on employment, the capital stock or productivity.

Notes

1. Roeger, W., Mc Morrow, K., Hristov, A., and Vandermeulen, V. (2019) Output Gaps and Cyclical Indicators, European Economy Discussion Paper 104. ↑
2. In the Chart, a turnover graph is employed because the index of services output only starts from 2010 and there are consequently no comparable series available for the time of the financial crisis. ↑
3. The industrial structure is relevant to productivity growth, as several service industries are lower productivity sectors compared with manufacturing. ↑
4. Although no obvious decline has been seen in turnover in the construction industry, there has been a steady fall in recent months in the number of building permits granted and construction projects getting under way. ↑
5. The publication by Roeger et al. (2019) gives a broader description and a more detailed rationale for the variables chosen. In this article we present the main arguments for the choice of variables as described in their publication. ↑
6. NAWRU = Non-accelerating wage rate of unemployment. ↑
7. In the model presented hereinafter an attempt is made to reduce the correlation with the trend by using lagged annual GDP growth in the four quarters. ↑
8. The correlation between the confidence indicator for the service industries and turnover in ↑

the service industries is very strong: while Finland has been in the euro area the correlation coefficient for annual and quarterly turnover growth has been 0.78 and 0.67 respectively. The confidence indicator has the advantage of a short publication lag and of not being revised, unlike turnover.

9. The possibility cannot be ruled out that the situation in manufacturing may decline in the future, as, for example, there has been a fall in the number of new orders in the sector during the year. ↑
10. Obviously, some sectors and companies have also benefited from the changes in demand, even if the impact on the main sectors has been negative. ↑
11. There are a number of different confidence indicators, but only one is chosen for the analysis of the cyclical indicators (overall economy confidence indicator). The reason for this is that the objective is to assess the economic situation, not GDP growth, from the angle of the output gap. In other words, the analysis is conducted in terms of levels and not growth rates. As Roeger et al. state, overuse of confidence indicators can lead to a situation where level and growth signals are mixed. For the predictive features of confidence indicators, see, for example, Lindblad ja Silvo (2020) Consumer confidence foreshadows developments in the economy, Bank of Finland Bulletin 3/2020. For this analysis we use the lagging overall economy confidence indicator in two quarters. ↑
12. See, for example, Jolliffe I. (2002) Principal Component Analysis, Second Edition, Springer Series in Statistics, Berlin, Heidelberg. ↑
13. The cyclical variables used in the model were normalised before estimates were made for the principal component model. ↑
14. The intention is not to use the model to describe the growth cycle, but rather levels of production in relation to normal levels (i.e. the trend or so-called potential output). In the model, an attempt is made to reduce the correlation of GDP growth with trend by using lagged annual GDP growth in the four quarters. ↑
15. See more on the Bank of Finland's unobserved components method in Sariola, M. (2019) An unobserved components model for Finland: Estimates of potential output and NAWRU, BoF Economics Review 2/2019 (2019). ↑
16. There is occasionally some discussion about the Phillips curve. See, for example, and where it relates to the euro area, Bańbura, M. and Bobeica, E. (2020) Does the Phillips curve help to forecast euro area inflation? Working Paper Series 2471, European Central Bank. ↑
17. The first principal component correlates strongly with the variables used in the model, and the signs for the correlation coefficients are as expected. The stronger the correlation, the more useful the variable is in assessing the cyclical position. The principal component correlates most strongly with capacity utilisation (0.88), lagging overall economic confidence (0.82) and turnover in the service industries (0.81). The weakest correlations relate to price inflation (0.44) and current account balance (0.50). Between the two are wage inflation (0.73), short-term unemployment (-0.65) and lagged GDP (0.61). ↑
18. The 'Competitiveness Pact' could have had an effect in recent years on assessing the significance of wage inflation for the output gap, as this agreement slowed the rise in average hourly earnings. Other factors too may affect the assessment, such as changes in ↑

the trend rate of growth for price and wage inflation.

19. The forecasts in the Unobserved Components Model also have an effect on estimating the real-time output gap. Thus, the output gap can also change later, with the forecasts replaced with actual observations. ↑

20. The scaling process is based on the last quarter that saw growth compared with the previous quarter prior to two consecutive quarters showing a decline. As far as the COVID-19 crisis is concerned, this is the second quarter of 2019: with the financial crisis it is the second quarter of 2008. In the chart, capital stock excluding housing indicates actual net capital stock. ↑

21. At the time the projection was being drawn up (24 November 2020) the accounts for the third quarter of 2020 were not available, so they are based on a forecast. ↑

22. See, for example, Several reasons behind weak labour productivity. Bank of Finland Bulletin 5/2018; Kokinen, Mäki-Fränti and Silvo, Manufacturing is not fostering labour productivity growth as it did before, Bank of Finland Bulletin 3/2019. ↑

23. C. Grönqvist & H. Kinnunen (2009) Taantuman vaikutus työvoiman tarjontaan: 1990-luvun kokemuksia ('Impact of a recession on the supply of labour: experiences from the 1990s') BoF online, 1/2009. ↑

24. Source: Labour Force Survey 2020, October. Statistics Finland. ↑

25. The employment and participation rates for those between the ages of 25 and 34 fell as a result of the financial crisis, but no similar trend has been observed as yet with the present crisis. ↑

26. F. Heylen & L. Pozzi (2007) Crises and human capital accumulation, Canadian Journal of Economics 40:4, pp.1261–1285. ↑

27. Kokkinen (2012), among others, has examined the effects of human capital on economic growth in Finland: On Finland's Economic Growth and Convergence with Sweden and the EU15 in the 20th Century. ↑

28. See Obstbaum, Demographic change reduces the labour force and number of employed. Bank of Finland Bulletin 3/2016. ↑

29. Finnish Productivity Board (2019) Tuottavuuden tila Suomessa: Miksi sen kasvu pysähtyi, käynnistyykö se uudelleen? ('State of productivity in Finland: What stopped the growth; will it start again?') Publications of the Ministry of Finance 2019:21. There is also an account of the effect of structural change in forestry and the electronics industry by, for example, Borg A. and J. Vartiainen, in Strategia Suomelle ('A Strategy for Finland'), Prime Minister's Office Publication Series 5/2015 and OECD Economic Surveys Finland 2014. ↑

30. Anzoategui D., Comin D., Gertler M. and J. Martinez (2019) Endogenous Technology Adoption and R&D as Sources of Business Cycle Persistence, American Economic Journal: Macroeconomics, 11:3, 67–110. ↑

31. See also Andrews, Dan, Criscuolo, Chiara and Gal, Peter N. (2015) Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries. OECD Productivity Working Papers 2, OECD Publishing. ↑

32. Schmöller M. and M. Spitzer (2019) Endogenous TFP, Business Cycle Persistence and the ↑

Productivity Slowdown, Bank of Finland Research Discussion Papers 21/19.

33. In its report, The Size of the Digital Economy in Finland and Its Impact on Taxation, the Research Institute of the Finnish Economy, ETLA, 2020, shows that the share of value added generated by the digital economy in Finland grew at a relatively slow pace during the 2010s. The value added from digital goods and services comprised 11% of GDP in Finland in 2017, or over EUR 21 billion euros. ↑
34. OECD (2017) OECD Digital Economy Outlook 2017, OECD Publishing, Paris. ↑
35. Bodnar et al. (2020) The impact of COVID-19 on potential output in the euro area, ECB Economic Bulletin 7/2020. ↑
36. IMF WEO economic outlook: A Long and Difficult Ascent, October 2020. ↑
37. The subject of hysteresis effects in the context of demand-driven recessions has been dealt with by, inter alia, Furlanetto et al. (2020) Estimating hysteresis effects, VoxEU; Cerra, Valerie, Fatas, A. and Saxerna, Sweta Chaman 2020. Hysteresis and Business Cycles, IMF Working Papers 20/73, International Monetary Fund; Kozlowski, Julian, Veldkamp, Laura and Venkateswaran, Venky 2020. Scarring Body and Mind: The Long-Term Belief-Scarring Effects of COVID-19 Working Papers 2020-009, Federal Reserve Bank of St. Louis, revised 14 Apr 2020. ↑
38. See, for example, Finnish Productivity Board (2020) Tuottavuus ja kilpailukyky Suomessa ('Productivity and competitiveness in Finland'). Publications of the Ministry of Finance 2020:81. ↑
39. Kokkinen (2012) On Finland's Economic Growth and Convergence with Sweden and the EU15 in the 20th Century. ↑
40. OECD International Migration Outlook 2020. ↑
41. The 'fast track to retirement' reduces the incentive for older unemployed people to seek work, and, on the other hand, makes it more likely that they will remain unemployed. See, for example, Työttömyysputken lyhentäminen lisäsi ikääntyneiden työllisyyttä ('Shortening the period of extended unemployment benefits increases employment among older workers'), and Kyyrä & Pesola (2020) Long-term effects of extended unemployment benefits for older workers. Labour Economics 62. ↑
42. OECD (2018) OECD Economic Surveys: Finland 2018, OECD Publishing, Paris, https://doi.org/10.1787/eco_surveys-fin-2018-en and OECD (2017), OECD Employment Outlook (2017) OECD Publishing, Paris, https://doi.org/10.1787/empl_outlook-2017-en. ↑
43. Crises can also have a scarring effect on expectations, with a long-term impact. See, for example, Kozlowski, Julian, Veldkamp, Laura and Venkateswaran, Venky (2020), The Tail That Wags the Economy: Beliefs and Persistent Stagnation, Journal of Political Economy, University of Chicago Press, vol. 128(8), pages 2839–2879. ↑
44. The slowdown in capital consumption would soften the fall in the growth rate of the capital stock as a result of the reduction in investment. Nevertheless, this may only be a factor of minor relevance. For example, information technology, whose share of capital it is assumed will increase even further on account of the crisis, becomes obsolete quickly, regardless of use. ↑

45. Ikonen, P, Oinonen, S, Schmöller M and Vilmi, L (2020) Corona crisis has increased the risk of stagnation in the euro area. Bank of Finland Bulletin 5/2020. ↑

46. See, for example, Adalet McGowan et al. (2017) The Walking Dead? Zombie Firms and Productivity Performance in OECD Countries, OECD Economics Department Working Papers No. 1372; Vanhala J. and Virén, M (2018) Are weakly profitable firms suppressing economic growth? Bank of Finland Bulletin 3/2018; Nurmi S., Vanhala J. and Virén, M. (2020), The life and death of zombies – evidence from government subsidies to firms, Bank of Finland Research Discussion Papers 8/2020; Banerjee, R. and Hofmann, B. (2018) The rise of zombie firms: causes and consequences, BIS Quarterly Review, September 2018. ↑

47. See, for example, J. Kilponen (2017) Yritysdynamiikka ja makrotalous – luovan tuhon merkkejä etsimässä, ('Business dynamics and macroeconomics – in the search for signs of creative destruction'). BoF Economics Review 3/2017. ↑

Keywords

COVID-19, financial crisis, output gap, potential output, service sectors