ARTICLE – Inflation outlook during the corona crisis

There are clear signs of temporary effects that are restraining inflation at present, such as low energy prices, measurement problems and unusually large weight adjustments. When these effects have eased off, inflation may rise relatively rapidly again. However, the crisis in which the Swedish economy finds itself will have more permanent effects. Some effects will restrain inflation in the period ahead, while other effects will act in the opposite direction. The noticeable fall in resource utilisation, both in Sweden and abroad, suggests that inflationary pressures will be restrained over the next few years. On the other hand, a number of factors having negative effects on the supply side of the economy may lead to a period of higher inflation. One example is that the trend towards increasingly internationally integrated production processes may be broken, which may lead to deteriorating productivity and weakened competitiveness. In turn, this may lead to higher prices. The Riksbank's overall assessment is that the effects on inflation of the weaker demand will be dominant in the years to come. However, there are a number of sources for upside risks for inflation, particularly in the later part of the forecast period.

Both economic outlook and inflation prospects have changed rapidly since the start of the year. In media and research circles, it has been discussed whether deflation or higher inflation will be the most likely scenario when looking ahead. A small part of that discussion is summarised here from a Swedish perspective.

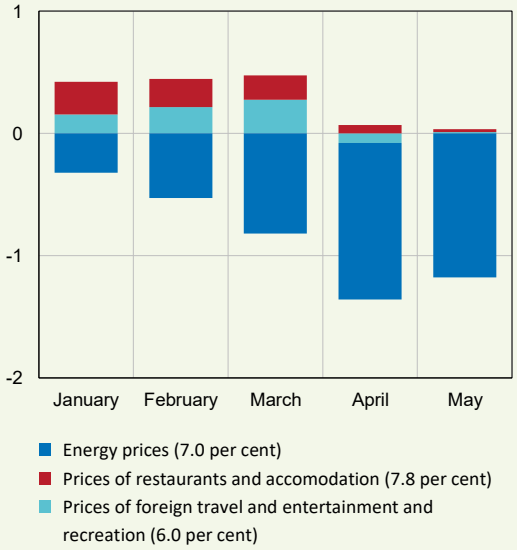
Several temporary factors are restraining inflation just now

There are clear signs of temporary effects that are restraining inflation at present.

The sharp fall in the price of oil from almost USD 70 a barrel at the end of 2019 to the record low quotation in April has directly affected consumer prices via lower fuel prices. Electricity prices have shown a similar development. While the low oil price can be explained by reduced demand and difficulties in cooperation between the oil-producing countries, the low electricity price is mainly due to the unusually mild winter and spring.

The measures to restrict the spread of infection have affected the production of statistics and, not least, the collection of prices that forms the basis of the monthly calculation of the CPI. Some services, such as package holidays and tickets to various entertainment and sporting events, have had no sales at all and Statistics Sweden has therefore had to use special measures, so called imputation method, to manage the situation.[29] This means that temporary, artificial price observations have been included in the statistics. Measurement problems also exist abroad, where they are significantly greater as restrictions on social life have been tighter. Figure 3:38 shows how much energy prices and prices more or less directly affected by the coronavirus crisis have contributed to CPIF inflation so far this year.

Figure 3:38. Contribution to CPIF inflation from prices especially affected during the coronavirus crisis
Percentage points



Note. The bars show each price group's contribution to the rate of increase in the CPIF. The figures in brackets refer to the weight in the CPIF.

Sources: Statistics Sweden and the Riksbank

In April and May, the negative contribution of energy prices to CPIF inflation was 1.3 and 1.2 percentage points respectively. These are the greatest negative contributions

[29] See the article "More difficult to calculate inflation" in Monetary Policy Report April 2020. The method involves allowing price indices for the products lacking price observations to follow the same price development as the nearest higher-level aggregate. For products without any appropriate higher-level aggregate, the price development is replaced by the annual percentage change in the total CPI.

measured in 40 years. The inflation contributions of the product groups foreign travel, entertainment and recreation, and restaurants and hotels, where many prices have had to be imputed, were also much smaller in April and May than earlier in the year. Overall, the contributions of other prices to CPIF inflation were, in principle, unchanged between March and April and rose clearly in May. Together, the product groups presented in the diagram weigh just over 20 per cent in the CPIF.

In addition to this, the effect of updated weights in the calculation of the CPI was unusually great this year. The changed weights are expected to restrain CPIF inflation by just over 0.2 percentage points more than has been historically normal.[30]

The consumption pattern has changed further in conjunction with the crisis. It is too early to say whether the change is temporary or more permanent, but the shifts this year will lead to the weights in the CPI system being adjusted in the period ahead, after a time lag. The effect of the weight changes will probably not be so great in Sweden, but it could be significantly greater abroad.[31] [32]

The recoil is expected to be clear when the temporary effects disappear

Among other things, the temporary effects described above mean that CPIF inflation does not reflect trend inflation very well just now.

It is difficult to assess the development of energy prices in the period ahead, but, as inflation is calculated, the negative contribution will disappear even if energy prices stay still at today's low levels until March-April next year. The most recent development, however, suggests that energy prices will make a positive contribution to inflation. Prices for both petrol and electricity have risen slightly over the recent period.

However, the low energy prices could lead to what are known as secondary effects or indirect effects if the situation becomes more prolonged. Examples of these could include lower transport costs, generating, in turn, lower mark-ups for various end products and lower prices for travel.[33]

The measured rate of price increase for the product groups in the CPIF that cannot be measured for price just now fell clearly when imputation started to be used. Once price measures function again in the aviation sector and entertainment and events, the level of inflation will rise if prices develop more or less as they did before the crisis. The situation may also look different in the travel industry, with higher prices, for example if the number of passengers is limited for a period or if budget airlines close down and competition is affected.

Furthermore, the annual weight adjustments are expected to become more normal in January next year, which, in turn, will lead to inflation then rising by approximately as much as the negative contribution was this year.

At the same time, inflation is thus expected to rise at the end of the year when the temporary effects wear off. Some sectors that have been affected particularly strongly by the crisis may be expected to attempt to compensate for this by raising prices a little extra.

Lower inflation expectations and substantial fluctuations in the krona exchange rate may affect inflation in the longer term

Prospera's survey shows that short-term inflation expectations have fallen sharply among all participants and are now close to the levels measured at the turn of 2014/2015. If inflation continues to be low, there is a risk that inflation expectations will become entrenched at low levels and impede wage formation and pricing mechanisms. So far, expectations over longer horizons have not fallen as much and, for money market participants, five-year expectations actually increased in June, compared with May. It is reasonable to expect long-term expectations to remain relatively stable on levels close to the target, as the pandemic has not fundamentally changed the possibilities and capacity of monetary policy to affect inflation.

The krona exchange rate weakened clearly from February until mid-March. Since then, the krona has strengthened significantly, which seems to a large extent to be due to more positive risk sentiment in financial markets. Such an exchange rate development is not so common if comparisons are made with previous crises. Changes in the exchange rate affect inflation with a certain delay, but the strong fluctuations in the exchange rate are also contributing to increasing volatility in inflation.

Weak demand is having a dampening effect on inflation

Companies' costs and mark-ups – and thereby inflation – are affected by variations in demand. In a crisis like this, with gradually rising unemployment, the resources of the economy will not be fully utilised. Companies' costs then tend to increase more slowly and prices can be kept low. The relationship between inflation and resource utilisation suggests that inflation will be low over the next few years. The circumstance that resource utilisation in certain parts of Europe was already low before the crisis and that the

[30] This is not actually a price effect but the weight adjustment affects the level of inflation for the current year.

[31] Consumption patterns have probably not been affected as much in Sweden as in other countries. The shifts in consumption taking place this year will probably not affect the weights in the CPI until 2022.

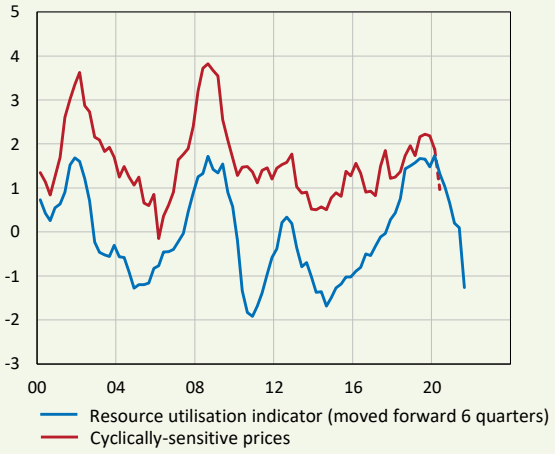
[32] See A. Cavallo (2020), "Inflation with covid consumption baskets", NBER Working Paper Series 27352, NBER.

[33] The final price companies set for a product or a service can usually be divided up into marginal costs and mark-ups. The prices for labour, capital and intermediate goods make up the company' costs.

situation is now deteriorating may spill over onto the Swedish economy and further restrain inflationary pressures.[34]

Weighting together price indices that have previously tended to covary with economic activity gives a view of how resource utilisation is affecting inflation just now and for some time to come (see Figure 3:39).[35] According to the aggregated index, economic activity seems to have had a positive effect on inflation from 2015 until 2019. Following this, the rate of increase has slowed for the prices sensitive to cyclical fluctuations. As these prices seem to be affected by resource utilisation with some delay, it can be assumed that the rate of increase will be dampened further for some time to come.

Figure 3:39. Resource utilisation indicator and cyclically-sensitive prices
Standard deviations and annual percentage change, respectively, quarterly data



Note. The RU indicator is a statistical measure of resource utilisation. It is normalised so that the mean value is 0 and the standard deviation is 1. The final observation for the time series with cyclically-sensitive prices (broken line) contains just two months (of three to obtain a full quarter) and should be interpreted with caution. The total weight for the product groups included in the index amounts to just over 48 per cent of the total weight in the CPIF.

Sources: Statistics Sweden, National Institute of Economic Research and the Riksbank

More bankruptcies and changes in global supply chains may lead to higher inflation

Pricing is also affected by the competitive situation. The tougher competition is in a sector, the greater pressure there will be on companies to reduce mark-ups and push margins down.[36] Survey data from the Economic Tendency Survey and elsewhere clearly indicates that the competitive situation is an important factor behind companies' pricing behaviour. The number of bankruptcies has increased during the crisis. This may mean reduced competition, particularly in certain sectors such as hotels and restaurants. This, in turn, could contribute to higher prices.

One phenomenon that is linked to the discussion of competition and other matters is what are known as global value chains. These are international networks of companies, which may include developers, producers, subcontractors, investors and dealers. In the 1990s, when world trade was expanding rapidly, Swedish companies' participation in global value chains also increased. These upward trends, which research suggests seem to have held back inflation in recent decades, saw a clear break in conjunction with the financial crisis. After this, world trade has not developed as quickly anymore and companies in Sweden and abroad have not expanded their collaboration to the same extent as previously. It is still too early to say how the coronavirus pandemic will affect these trends, but it is likely that many companies will review their production processes in the period ahead.[37] The crisis has revealed how vulnerable such chains can be. If the number of corporate chains is reduced or supply chains are shortened, this could affect productivity and competition, and contribute to costs and consumer prices rising.

Table 3:4 below presents the subgroups in the consumer price index that may primarily be affected by changes in global value chains. Their weight in the CPI is just over 20 per cent. Over the last ten-year period, the prices for these goods have together contributed an average of −0.2 percentage points per year to CPIF inflation.

Table 3:4. Goods in the CPIF that may be affected by changes in global value chains[38]
Weights of various product groups in the CPIF

	Weight
Clothes, shoes, textile fabrics, yarns and haberdashery	4.5
Repair goods: Own housing	0.5
Furniture, carpeting and lighting	2.0
Household textiles and fittings	1.1
Household appliances and utensils	2.1
Purchases of vehicles, spare parts for cars etc.	5.2
Radio, TV, video, cameras, film etc.	2.7
Sporting and outdoor articles	0.7
Toys, games and hobby items	0.7
Diverse leisure goods excluding repairs	1.2
Total	**20.6**

Note: Weight refers to per cent in the CPIF.
Sources: Statistics Sweden and the Riksbank

[34] See for example R. A. Auer, C. Borio and A. Filardo (2017), "The Globalisation of Inflation: The Growing Importance of Global Value Chains", CESifo Working Paper Series 6387, CESifo Group Munich.
[35] This weighting is inspired by earlier studies of data for the United States; see T. Mahedy and A. Shapiro (2017), "What's down with inflation?", FRBSF Economic Letter (November 27), 2017-35 and M. Luzzetti, B. Ryan and J. Weidner (2019), "Revisiting cyclical and acylical inflation: How much can the Fed impact core?", Deutsche Bank Research, US Economic Perspectives.
[36] In a special survey conducted by the National Institute of Economic Research on behalf of the Riksbank in 2014, a majority of companies reported that competition had increased and that this had also led to mark-ups being low.
[37] See E. Frohm (2020), "Restrained foreign trade after 2009: discussion of possible consequences for Sweden", *Staff Memo*, Sveriges Riksbank.
[38] This is only an estimate and the number of product groups affected may be greater or smaller. This breakdown has been inspired by an analysis made by Deutsche Bank of how changed global value chains may affect the CPI in the United States.

Other supply factors and changed consumption patterns may also affect inflation in the longer term

Furthermore, it could be asked whether new consumption patterns may partly become permanent. Will international air traffic come up to the same levels as before the crisis and how will prices in that sector develop in the slightly longer run? New working patterns may also have affected our need for work-related travel and digital goods and services.

eCommerce, which had already clearly increased before the crisis, has presumably received another boost and the trend may start to lean even more sharply upwards.[39] This should have a restraining effect on inflation, at least for a time.

In addition to more bankruptcies and changes in global supply chains, there are also other supply factors that could lead to higher inflation. If the pandemic is not brought under control and new waves of increased infection take place, closed borders may reduce world trade by preventing products from being produced and transported as easily. More consumer prices may also be affected if the pandemic leads to demands for better contingency planning with a higher degree of self-reliance and more protectionism.

It cannot be ruled out that the pandemic, even in the longer run, will restrain the international freedom of labour. In addition, there may be demands for structural changes and compensation in some badly affected sectors, such as healthcare and elderly care. Structural transformation may also lead to shortages of qualified workers and impaired matching. These are factors that could affect the development of costs and prices.

Could the increased liquidity and higher debts affect inflation?

Powerful monetary policy measures have been implemented around the world recently and central bank balance sheets have grown rapidly following major asset purchases and comprehensive lending. There has been some discussion of whether all of this liquidity could lead to higher inflation. One aim of the measures has been to facilitate credit granting to companies. These monetary policy measures should therefore be seen as supplying lubrication to the financial system and not as a more traditional increase of the money supply, in which more banknotes and coins are used to purchase consumer-related goods and services.[40]

There has also been a discussion of whether rapidly increased public debt may lead to higher inflation. The arguments in the debate may vary, but most are based on a broad field of research concerning the interaction of fiscal policy and monetary policy. The final link in the chain of causes often indicates the risk that inflation will be allowed to pick up to reduce thereby a further increase of the debt burden. There are several examples of such processes in history and the scenario may be more likely now, after a long period of low global inflation.[41]

Inflation prospects are uncertain

The measurement problems suggest that the level of inflation may change rapidly in the coming months. These outcomes should be interpreted with great caution and international inflation comparisons will be particularly difficult to make. Ongoing fluctuations in the exchange rate may also contribute to increased volatility in inflation.

The Riksbank's assessment is that inflation will be very low this year. Dampened energy prices, more direct effects of the pandemic and unexpectedly large weight adjustments are contributing to this development. A change to a higher rate of inflation is expected at the end of the year when these temporary effects wear off.

But the crisis will also have more far-reaching effects on inflation. Some of these suggest that inflation will rise, while others point in the opposite direction. These mechanisms have been discussed in the international debate in recent months.

The Riksbank's overall assessment is that the weak demand and low resource utilisation in Sweden and abroad suggest dampened inflationary pressures over the years 2021–2023. But there are also a number of factors that are expected to lead to a higher rate of price increase towards the end of the forecast period.

[39] See S. Tenreyro (2020), "Monetary policy during pandemics: inflation before, during and after Covid-19", Speech, Bank of England.
[40] See M. Wolf (2020), "Why inflation might follow the pandemic", Financial Times, 19/5 and C. (2020), "Inflation after the pandemic: Theory and practice", VOX CEPR Policy Portal, June 13.
[41] See O. Blanchard (2020), "Is there deflation or inflation in our future?", VOX CEPR Policy Portal, May 24, J. Plender (2020) "Fears of Japanification spreading are misplaced", Financial Times, May 22 and L. Pastor (2020), "Will COVID-19 be followed by inflation? An inter-generational transfer perspective", VOX CEPR Policy Portal, June 12.