

## Box 2

## COVID-19, inflation, and household consumption patterns

The COVID-19 pandemic has spread all over the world and profoundly affected the global economy (see Chapter I). Global supply chains have been disrupted, and food and commodities markets have been thrown into disarray. This Box discusses the main effects of the pandemic on inflation and household consumption patterns in Iceland. Households have changed their consumption habits as a result of public health measures and personal disease prevention choices, and inflation has risen in the recent term, partly due to the depreciation of the króna and increased demand for various goods. Lower petrol prices and airfares have pulled in the opposite direction, however. This Box also includes a discussion of potential distortion of CPI measurements as a result of pandemic-related changes in household consumption patterns.

### The COVID-19 pandemic led to significant disturbances in global supply chains ...

The effects of the pandemic on the global economy began to show in January 2020, when a number of Chinese manufacturing firms were closed in an attempt to curb the spread of the disease. Because China is a major producer of various goods, commodities, and other inputs, the closures severely affected both global supply chains and the supply of a large number of goods worldwide. A shortage of inputs led to disruptions in production at many firms in the technology, motor vehicles, chemicals, and textile manufacturing industries, among others. The interruptions in China therefore had a multiplier effect on supply chains all over the world, an effect that escalated as the contagion spread internationally and firms scaled back operations in the hope of curbing the spread. Worldwide travel restrictions played a role also, disrupting cross-border transit of goods. Afterwards, product shortages developed in Iceland, particularly to include recreational goods and clothing.

### ... global oil prices fell ...

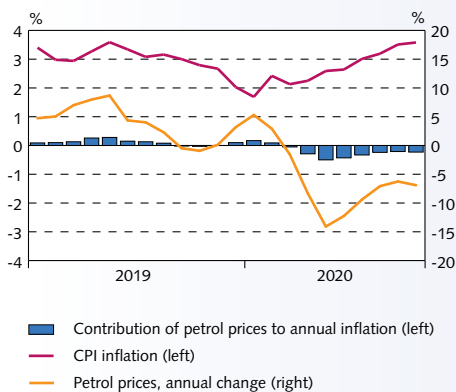
Global oil prices plunged early in 2020, with worldwide demand contracting markedly when governments began implementing measures aimed at curbing the spread of the pandemic. Motor vehicle traffic declined when public health measures took effect and bans on public gatherings were imposed, people were encouraged to work from home, and passenger travel by air virtually halted. Domestic petrol prices started to fall as early as February and, by May, were down more than 12% since the turn of the year. The decline pushed inflation downwards by as much as ½ a percentage point (Chart 1).

### ... but retail food and beverage prices rose

People in many countries began to stockpile necessities such as food and medicine, causing prices of these goods to rise (Chart 2). Despite a general decline in global commodities prices at the beginning of the pandemic, disruptions in production and declining capacity appear to have reduced supplies to the retail sector and pushed retail prices upwards.<sup>1</sup> For example, travel restrictions led to a shortage of migrant workers, who are important for agricultural production, resulting in smaller harvests in many parts of Europe. Reduced agricultural supplies then led to price hikes. The spikes in food prices have largely reversed in many areas, however.

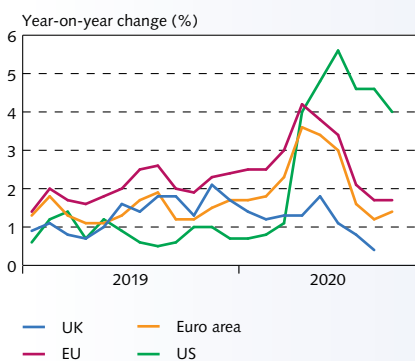
1. Global food and commodity indices do not contain exactly the same food categories as consumer price indices do, and different subcomponents carry differing weights. As a result, they could develop differently. See International Monetary Fund (*World Economic Outlook*, Chapter 1, October 2020).

Chart 1  
Contribution of petrol prices to inflation  
January 2019 - October 2020



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2  
Foreign inflation: Food and beverages  
January 2019 - September 2020



Source: Refinitiv Datastream.

### Depreciation of the króna has led to rising imported goods prices

The króna has depreciated since the pandemic reached Iceland in late February (see Chapter II). The depreciation passed rapidly to imported goods prices. By June, the króna had fallen by nearly 10% since the turn of the year. Over the same period, imported food and beverage prices had risen by over 7% and new motor vehicles and spare parts by 5.8%, while miscellaneous other imported goods (excluding petrol) rose by only 2.6%. Presumably, increased demand for certain categories of goods, such as food and beverages, caused the exchange rate pass-through effect to show sooner than it would have otherwise. On the other hand, public health measures and personal disease prevention efforts resulted in a delay in pass-through to clothing and household goods prices (see further discussion later in this Box). By October, the króna had depreciated by 14.8% since the turn of the year, and imported good and beverage prices were up 10.5%, new motor vehicles and spare parts by 8.5%, and other imported goods by 5.5% (Chart 3).

### Changed consumption patterns during the pandemic

As was discussed in Box 1 in *Monetary Bulletin* 2020/2, a large share of household consumption was strongly affected by the Government's public health measures in H1/2020, and changes in demand varied across consumption categories. An estimated 40% of the household consumption basket was directly and strongly affected, as some expenses simply ceased during the most stringent public health restrictions, while others were deferred. Still other subcategories were affected very little, such as housing and telecom expenses. Spending on consumption categories such as groceries increased, however, partly due to a shift in spending away from overseas travel and services requiring close physical proximity to other people.

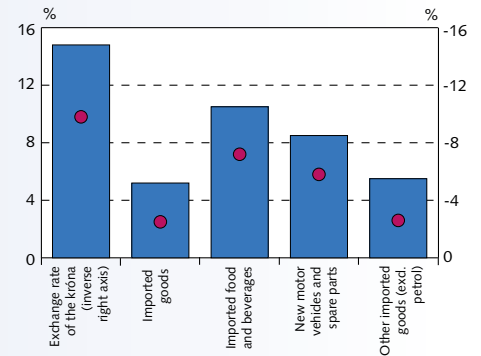
This can be seen clearly in the change that took place in the distribution of consumption spending, as data from the Meniga MarketWatch suggest. The data show that household spending on categories involving close interactions with other people or in sectors severely affected by public health measures contracted sharply in the spring, when the first wave of the pandemic was at its peak (Chart 4). Spending on goods whose purchase can easily be deferred – for example, clothing and footwear – also declined, while there was an increase in spending on items such as electronic equipment and in categories defined as necessities.

When the first wave of the pandemic subsided and public health measures were eased, there was a swift turnaround in the categories where spending had contracted. However, since the autumn, when COVID-19 case numbers began to rise again and public health measures were re-tightened, spending on services requiring close proximity to others has fallen once more. Sales of petrol have also declined as remote working has resumed, but spending on clothing and household goods has held its ground.

### Temporary challenges in measuring the CPI

The Government's measures to minimise the spread of COVID-19 have also given rise to price measurement challenges. From mid-March until well into May, many businesses were closed or services prohibited under public health restrictions. In those instances, Statistics Iceland used price measurements from the previous month to estimate the price of the items in question, in addition to collecting price information from companies' websites and by telephone. According to Statistics Iceland, less than 10% of the CPI base was

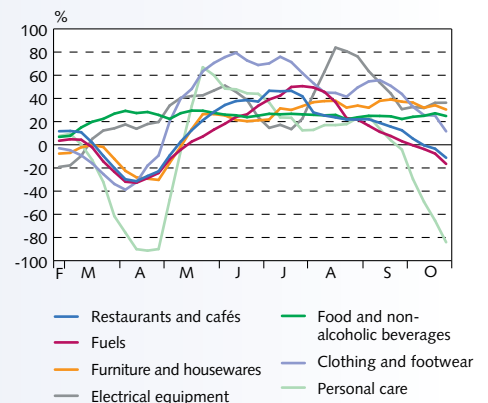
Chart 3  
Depreciation of the króna and imported inflation 2020<sup>1</sup>



■ Price change December 2019 - October 2020  
● Price change December 2019 - June 2020

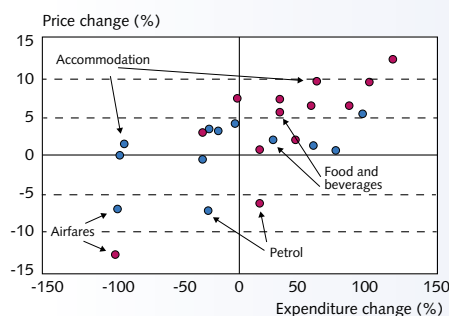
1. Price of foreign currency in krónur (narrow trade index).  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4  
Change in household expenditure across selected categories in 2020<sup>1</sup>



1. Change since January 2020. Four-week moving average.  
Sources: Meniga Marketwatch, Central Bank of Iceland.

Chart 5  
Changes in household expenditure and price of selected goods categories



- February 2020 - May 2020
- February 2020 - September 2020

Sources: Meniga Marketwatch, Statistics Iceland.

estimated using this approach during the peak of the public health measures in April.<sup>2</sup>

In addition to the temporary challenges faced by Statistics Iceland in measuring inflation, the pandemic and restrictions on public gatherings have led to significant changes in households' consumption patterns, as has previously been discussed. It is possible that the consumption basket used to calculate the CPI does not give a fully accurate view of households' actual consumption patterns for the period after the pandemic reached Iceland.<sup>3</sup> As Chart 5 shows, price increases tended to be concentrated in categories such as food, where demand rose at the beginning of the pandemic. On the other hand, there was less demand in the categories that declined in price, such as airfares and petrol. When public health measures were eased, strong pent-up demand for various goods and services contributed to a rebound, thereby making it easier for firms to boost prices. It is also possible that the depreciation of the króna came more decisively to the fore in the goods categories where demand was strong. As a result, the CPI measurement for this period could represent an underestimation of the inflation experienced by households.

### Distortions in observed inflation due to changed consumption patterns appear to have been negligible

In order to estimate how large the distortion could be, data from the Meniga MarketWatch spending study were used to recalculate the main weights in the CPI. Inflation based on this "COVID-19 consumption basket" appears to have been marginally higher at the beginning of the pandemic. This is mainly because price rises for food and beverages weighed heavier than in the headline CPI numbers; furthermore, the weight of petrol declined, with the result that the drop in petrol prices lowered inflation less in the COVID-19 basket than it would have under normal circumstances. After the public health measures were relaxed, motor vehicle traffic increased, so that higher petrol prices were reassigned a heavier weight in the COVID-19 consumption basket. Moreover, there was increased demand for miscellaneous services such as accommodation, which rose in price over the summer. On the other hand, the decline in airfares lowered inflation less according to the COVID-19 basket than the CPI basket, as demand for air travel has been very limited. As the autumn advanced, the weight of expenditures for household goods and clothing rose higher than in a typical year, and price increases in these categories therefore exaggerated the difference between the two measures. Since February 2020, the estimated difference between headline inflation and inflation according to the COVID-19 basket has been in the 0.1-0.3 percentage point range. This is comparable to findings from other countries (see, for instance, Cavallo, 2020; Bank of England, 2020; and Bank of Canada, 2020). It is also consistent with information from Statistics Iceland, which is of the opinion that the distortion stemming from the decline in consumption could lead to an underestimation of the price level, but that the distortion is negligible if consumption returns to its previous pattern.

As has been discussed previously, social distancing and the bans on public gatherings have led to a contraction in spending on goods and services requiring close personal interactions with oth-

2. The subcategories affected were international airfares, package tours, hair and beauty salon services, healthcare (dentistry and physiotherapy), athletic and recreational activities, and cultural events, with some restaurants and cafes also closed.

3. The CPI is calculated using weights derived from prior years' surveys of consumer spending. After the CPI base was changed in March 2020, the weights were based on survey findings from 2016-2018. This is in line with international standards and is well suited to a typical year featuring few changes in households' consumption patterns.

ers. Chart 6 shows how CPI goods categories that are not sensitive to restrictions on gatherings – such as food, housing, and heat and electricity – accounted for a large share of measured inflation at the beginning of the pandemic. As the pandemic progressed and limitations on gatherings were eased, however, there was an increased contribution from goods categories sensitive to the restrictions.

### Corporate insolvencies and changes in world trade could impede competition and lead to rising prices

Competition limits firms' ability to raise prices, and as competition increases, firms are less able to widen their profit margins by charging higher prices. The possibility cannot be excluded that as the pandemic forces more companies around the world into insolvency, consumers will face rising prices, particularly in the tourism and restaurant sectors.

Increased competition in the wake of globalisation and the rise of e-commerce could explain why global inflation has been so low over the past decade. Increased globalisation has also fostered the development of large global supply chains. The importance of these supply chains became obvious at the beginning of the pandemic, when, as has previously been discussed, interruptions in manufacturing in China affected goods supplies worldwide. Now that tighter measures have been reinstated and more businesses have closed in a bid to curb the spread of the disease, shortages of certain goods could result and prices could rise. If the pandemic drags on, some companies may be forced to reassess their supply chains in order to prevent future disruptions.<sup>4</sup> In that event, they would tend to favour domestic trading partners over foreign ones. As a result, productivity could suffer and firms' costs could rise, ultimately pushing consumer prices upwards.

The goods categories comprising products most likely to be affected by repeated disruptions in production or changes in global value chains are shown in Chart 7. It is estimated that the categories comprising goods susceptible to these effects account overall for slightly more than one-fifth of the CPI base in Iceland.<sup>5</sup>

### Summary

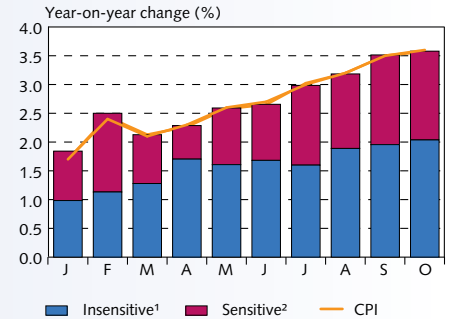
Changes in consumption patterns in the wake of the COVID-19 pandemic, owing to both public health measures and individuals' disease prevention efforts, have affected price developments in Iceland and elsewhere. Furthermore, the depreciation of the króna has led to rising imported goods prices. The weight of various goods categories in households' expenses has changed temporarily, and as a result, the CPI has slightly underestimated inflation. The contribution of various goods categories to inflation has also changed, depending on the public health measures in place at the time in question.

As is discussed in Chapter V, the inflation outlook in Iceland will depend to a considerable degree on the path the COVID-19 pandemic takes and on the slack that has developed in the economy as a result of the shock. If the pandemic proves more persistent than is assumed in the baseline forecast, or if it changes consumption patterns permanently – for instance, by increasing the share of e-commerce – longer-term price developments could be affected. In

4. This could also apply to countries' trade policies. If countries adopt a protectionist stance in order to boost domestic production (for instance, in manufacturing of pharmaceuticals or medical goods), it could have a similar impact on prices.

5. Based on an analysis by Deutsche Bank of the impact of changes in global supply chains on goods prices in the US. See, for example, Sveriges Riksbank (2020).

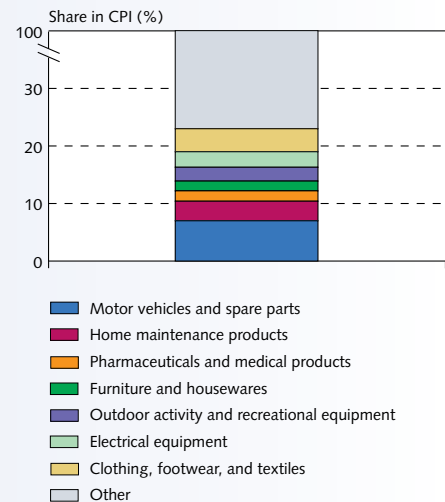
Chart 6  
Contribution of goods categories to inflation  
January - October 2020



1. Categories for which demand is insensitive to public health measures (food and beverages, housing, heating and electricity, health, postal and telephone services, education, and miscellaneous services). 2. Categories for which demand is sensitive to public health measures (alcohol and tobacco, clothing and footwear, furniture and housewares, travel and transportation, recreation and culture, hotels and restaurants, and personal care).

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 7  
CPI components potentially affected  
by changes in global value chains



Sources: Statistics Iceland, Central Bank of Iceland.

this context, developments in consumer demand are important, as are the effects of public health measures on the supply of goods and services.

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