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COVID-19 update: A disinflationary shock - Part 1

Sifting through the inflation debate: Price dispersal, complexities and a system-wide approach

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Key points

- The inflationary impact has been one of the most debated macroeconomic effects of the COVID-19 shock. The virus is likely to have different effects on different sectors and result in a greater dispersal of prices.
- Some sectors will suffer supply-capacity reduction from measures to contain the virus. But these sectors are likely to be less than one-third of consumer price baskets. Even here, it is not clear demand will outstrip pared supply.
- The virus presents other difficulties in analysing general price change – missing data, changing consumer weights and quality adjustments. On balance, we expect these will weigh on recorded inflation over the coming years.
- Our broader assessment is that the pandemic primarily presents a demand shock, that is likely to dominate over the next few years, weighing on inflation and threatening a fall in inflation expectations.
- We forecast 2020 inflation averaging just 0.4% in the Eurozone, 0.5% in the US, 0.6% in the UK and 0.1% in Japan. Base effects should see changes in annual rates for 2021 to 0.7%, 1.7%, 1.0% and -0.1% respectively.

The great inflation debate

Of all the economic uncertainties that the COVID-19 pandemic has raised, the most confusion appears to be focused on inflation. Amidst the ambiguity over the scale of the economic shock, reactions to the size and nature of policy responses, concerns about post-lockdown life and speculation over what a post-pandemic world will look like, we have been witness to a range of expectations over the inflation outlook.

In this first of two papers, we attempt to sift through the different and overlapping arguments surrounding this issue. It is our view that the impact of the pandemic will be a net disinflationary shock. We hold that view with conviction for the short-term (2020) and believe it will add to the already subdued inflationary environment – prevalent over the past decade – in the coming years (at least through 2022), although we acknowledge that base effects will tend to lift annual inflation rates in 2021.

Of course, central banks are working hard to lift inflation in many key jurisdictions, in line with their target mandates. Over the longer-term – beyond 2022 – we expect some success. There are also several interesting and insightful conversations taking place about long-term structural adjustments to the global economy. Materialisation of some of these factors over the coming years may lay the groundwork for inflation to rise and possibly exceed targets over the longer-term.

In this paper, we first look at the number of complications surrounding the short-term inflation outlook, including the consideration of bottom-up effects that we expect to deliver an increase in price dispersal, despite general price disinflation. We then consider a top-down assessment, to consider more systematically the influences on the general price level over the medium term, rather than individual sectors.

In a companion paper[1], which follows this note, we will consider the longer-term inflationary prospects, including official stimulus, the increase in government debt and central bank balance sheets as well as broader institutional change that might arise over the coming years.

Confusion and price dispersion: The short-term, bottom up approach

The impact of COVID-19 on prices is unlikely to be uniform. The major disruptions to everyday life have created significant increases in demand for certain products – including the short-term destocking of key items from shops. This rise in demand is likely to support price increases for certain products.

The impact of the virus is also likely to require ongoing changes to activity over the coming quarters, with enforced social distancing likely a feature of daily life over the medium term. This social distancing is likely to have the effect of reducing capacity in many areas. Restaurants are a good example. Social distancing here is likely to restrict the number of tables a venue can operate with – therefore reducing its capacity. This is also likely to apply to transport, and other leisure services, including gyms, cinemas and theatres, as well as personal services such as hairdressing. This restriction of supply would add upward inflationary pressure.

Exhibit 1: Sectors of CPI basket vulnerable to social distancing

US CPI components expected to suffer adverse supply	
CPI category	Weight
Food away from home	6.2
Other lodging (hotels and motels)	0.9
Apparel	2.9
Public transport (inc airlines)	1.2
Medical care	8.7
Recreation (pets, vets, clubs and admissions)	2.0
Education	6.6
Personal care services (in haircuts)	0.7
Total	29.2

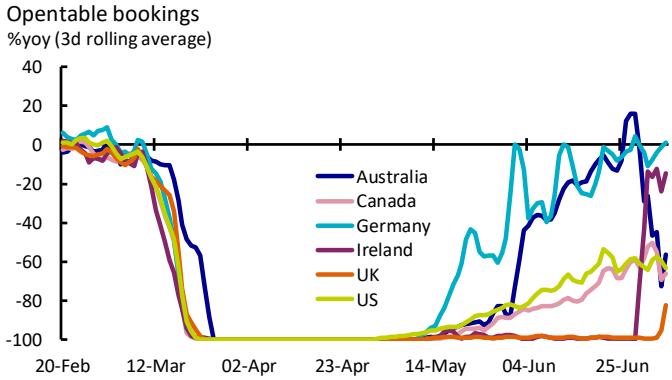
Source: Bureau of Labour Statistics (BLS) and AXA IM Research, June 2020

An analysis of the US consumer price basket suggests that sectors likely to face this sort of constraint account for around 30% of total CPI[2] (Exhibit 1). Conducting a similar exercise in the Eurozone and Japan, we estimate a respective 28% and 22% of the consumer baskets likely vulnerable to social distancing. As such, most consumer prices are unlikely to be negatively affected by COVID-19 related supply issues.

Moreover, even in sectors where supply is constrained, it is not obvious that prices will rise. To return to the restaurant example, if capacity is halved, but the number of diners falls by more than half – as customers may be more reticent about eating out for health or income reasons – then prices could still fall in these sectors. Exhibit 2 shows restaurant bookings from Opentable for different countries. For now, bookings appear to be recovering, but are not back to pre-lockdown levels – indeed across our selection of countries, bookings remain down by more than half, suggesting that demand falls are greater than supply reduction. Additionally, many restaurants are now turning to take-away services (or at-home dining experiences)[3] to boost output relative to kitchen capacity. This increase in supply of take-away food should depress prices in this sub-sector.

A similar balance of effects will be underway for airline tickets, hairdressers, gyms and any number of other products and services, each potentially yielding a different net balance of excess demand or supply.

Exhibit 2: Demand response still critical in these sectors



Source: Opentable and AXA IM Research, June 2020

By contrast, the short-term reality for most economies is that demand is likely to be subdued over the coming years. The unemployment rate reached 14-20% in the US in April before falling back and could rise to more than 10% in the UK and 12% in the Eurozone. It is even set to rise to 4% in Japan. While we have hopes that unemployment will fall quickly over the coming months as furlough schemes help prevent permanent job losses, we still expect unemployment to be far higher at the end of 2021, than at the start of 2020 in these economies. And while governments have worked hard to protect the incomes of the unemployed, Europe and Japan have not fully replaced lost income. The US federal government has been closer to achieving this goal, but it is not clear for

[1] Page, D., "Covid-19 update: a disinflationary shock – Part 2: Longer-term inflation drivers: government debt financing and institutional change", AXA IM Research, July 2020.

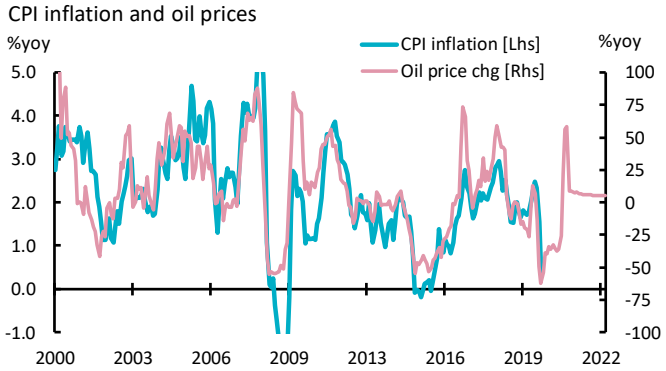
[2] Consumer Price Index

[3] This includes Paris' Michelin Star rated La Chiberta.

how long such generosity will be maintained[4]. We therefore expect demand to be subdued across the board as incomes fall and precautionary savings rise amidst an uncertain environment. While demand for *some* products will rise, for the majority it will be lower.

More specifically, this weakness in generalised demand is already reflected in oil prices. A lack of demand for oil products as a result of reduced levels of driving and air transport – and subdued manufacturing – has contributed to the steep fall in prices, a situation which has been compounded by a rise in supply[5]. Exhibit 3illustrates the relationship between headline inflation and oil, showing a steep disinflationary impact in the short term before base effects neutralise thereafter.

Exhibit 3: Oil price weakness to keep inflation subdued



Source: BLS and AXA IM Research, June 2020

An overall inflation assessment based on a consideration of individual price effects is difficult and non-intuitive as it requires the consideration of all prices, rather than the ones on which we choose to focus. However, we believe that supply constraints will not affect most prices, while the fall in demand is likely to be felt across most price categories. We therefore expect that the effect will continue to be dominated in the short term by the sharp drop in oil prices.

We forecast inflation to fall sharply in 2020 to average 0.4% in the Eurozone, 0.8% in the US and UK, down from 1.2%, 1.8% and 1.8% respectively in 2019. We also expect inflation to fall to 0.1% in Japan in 2020, from 0.5% – a much smaller fall given the ongoing impact of the increase in the Japanese consumer tax in October last year. Base effects from the oil price drop will mechanically lift the annual rate next year, neutralising some of this impact. We will also see the longer-term impact of capacity withdrawal from social-distancing and longer-term bankruptcy. However, with unemployment expected to remain elevated by end-2021, incomes subdued and increased indebtedness, means we continue to forecast below target inflation in 2021 (Eurozone 0.7%, US 1.7%, UK 1.5% and Japan -0.1%[6]) and 2022.

Technicalities of compiling inflation figures

Beyond the specific demand and supply balances of each sector, there are likely to be numerous technical issues for statisticians to grapple with as they try to compile inflation statistics over the coming quarters. These include:

Missing data. Price collection will not be possible for some inflation items, for example the price of a haircut. In April 2020 missing products constituted 34% of the consumer price basket[7]. Statistical advice is that for where prices are not available, authorities should use the last observation. Economists will argue that this does not use a proper counterfactual – and a representative price should be substituted[8], but this is unlikely. Moreover, where statistical agencies can substitute an 'in store' price for an 'online' price, they are likely to do so – albeit that the use of online prices might introduce a downward bias to pricing.

Consumer expenditure weights. Overall CPI inflation is calculated by aggregating individual price movements by the proportion of consumer expenditure they receive. In most countries these are based on the previous year's consumer expenditure pattern[9], appropriate where expenditure patterns typically evolve only slowly over time. However, consumer spending patterns have shifted markedly during the COVID-19 outbreak. On balance, this should add a further downside bias to the inflation print. This is because prices will fall (rise) the most where spending in that sector falls (rises). With fixed weights, calculated inflation will overrepresent falling prices and underrepresent rising prices. Recent estimates suggest this bias amounted to 0.7 percentage point (ppt) in US headline CPI inflation and 0.3ppt to core CPI in April 2020[5] but was smaller across Europe at 0.5ppt in Italy, 0.3ppt in France, and at less than 0.1ppt in Germany, Spain and the UK (it was -0.4ppt in the Netherlands). Assuming statistics agencies follow a one-year lag to re-weighting the basket, this downward bias is likely to be repeated in the following year. This is because prices are likely to rebound (retreat) the most in sectors that saw the biggest price falls (increases) the previous year, where consumer expenditure fell (rose). Hence consumer weights will be reduced for sectors where prices are likely to rebound and be increased for prices that are likely to soften.

[4] Page, D., Yao, A., Menut, A. and Le Damany, H., "Covid-19 update: Labour market deterioration to dampen rebound", AXA IM Research, 7 May 2020.

[5] This fall was compounded by an increase in supply, that reflected the initial collapse of the OPEC supply restriction agreement. This effect is an increase in supply, but it too was triggered by demand-induced price falls that resulted from the pandemic.

[6] An expected fall in Japanese inflation next year is again an artefact of the 2019 consumer tax hike.

[7] Cavallo, A., "Inflation with Covid consumption baskets", NBER, June 2020

[8] Theoretically such a counterfactual is considered as a price that would reduce the volume of demand to zero, which would lead to a material and artificial inflation of prices. IMF guidance to use the last available price is more pragmatic.

[9] A two-year lag is used in the US

Quality adjustments. Statistical agencies have always had to adjust price movements to account for product quality. Smartphones are a good example, where the quality – screens, cameras and battery life – has improved significantly and needs to be accounted for in price differences. A post-lockdown world could add complications to this process. Education and healthcare (general practitioner services) are two areas that have made enhanced use of technology to provide video-linked lessons, lectures and consultations throughout the lockdown. This provisioning is likely to persist. While this provides increased efficiencies for education and doctor practices, it is not obvious how it will be viewed by consumers. Some may see a quality improvement in not having to visit the doctor to receive medical advice, others may not feel they are getting the service they were before. Statistical agencies will have to decide how to account for the quality change.

Psychological constraints. It is also apparent that not everyone in the world is 'homo-economicus' i.e. an individual who follows an economists' assumptions of rational behaviour. As such, what economists perceive as rational responses to supply and demand imbalances – for example putting up the price of haircuts as supply is restricted and demand pent-up, does not always occur. 'Price-gouging' is a term that describes price increases to 'take advantage' of difficult conditions, rather than responding to shifts in economic circumstances. This can result in sellers having to 'justify' price increases, or foregoing price pressure in the short-term and such considerations may limit any upwards inflation pressures.

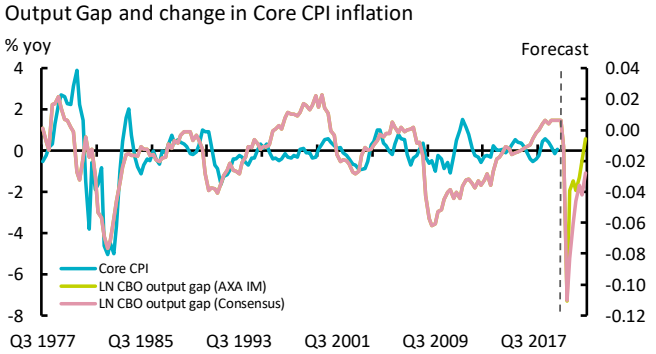
These technical complexities are similarly diverse and will not all work in one way. Yet we have argued that, on balance, these complexities are likely to have a bias in recording inflation lower – perhaps even lower than 'underlying' inflation. Insofar as inflation expectations are driven by experiences of past inflation (adaptively), this could exacerbate a decline in inflation expectations. However, it might also give rise to a suspicion that official inflation rates do not adequately capture the true "cost of living".

System-wide assessment – a medium-term approach

The difficulty of the bottom-up approach is its sheer complexity. We cannot accurately forecast each individual price or sectoral development. In addition, our human, heuristic approach causes us to focus on only some aspects of the broader picture, while our intuitions are not well placed to weight each factor appropriately.

Rather, when we consider the general price level, we need to take a system-wide approach. We assess the overall level of demand in the system – the growth forecast – and see how this compares with the outlook for supply (potential growth in the economy). Combining these two measures we get the 'output gap' a measure (as a % of GDP) that actual demand is above or below the non-accelerating level of activity. Exhibit 4 illustrates the historic relationship between US excess supply and demand in the system as a whole, and its relation to CPI inflation.

Exhibit 4: Output gap points to disinflation pressures



Source: BLS and AXA IM Research, June 2020

We argue that the net effect of the coronavirus shock will be negative for demand. In the US, we forecast that the level of GDP will end-2020 over 5% below its pre-COVID-19 trend and 2.5% lower by end-2021 with an expectation that it will remain below that trend even by end-2022. Many interconnected factors provide reasonable conviction to that view. First, we expect unemployment to remain above its natural rate for the next two years, weakening household income and spending. Second, we expect corporate indebtedness to be elevated, weighing on corporate spending. Third, we expect virus-related uncertainty to prevail over the coming quarters adding to precautionary behaviour. This argues that levels of demand are likely to remain subdued relative to pre-coronavirus levels.

It is more difficult to assess the impact on long-term supply conditions. As noted, in the short-term some sectors may see effective capacity reduction with social-distancing reducing the number of people allowed in certain areas. However, over the medium-term, as countries learn to better manage the spread of coronavirus, this impact should soften, if not disappear. In the long-run a vaccine should remove this constraint entirely. Broader supply, however, could still be reduced by long-term scarring, including elevated levels of unemployment and increased bankruptcies. Policy measures have been put in place to avoid this outcome in many jurisdictions, although it remains to be seen how successful these policies are. Where corporate failures do occur, they are likely to be accompanied by demand reduction (for example as unemployment rises, dampening demand growth further).

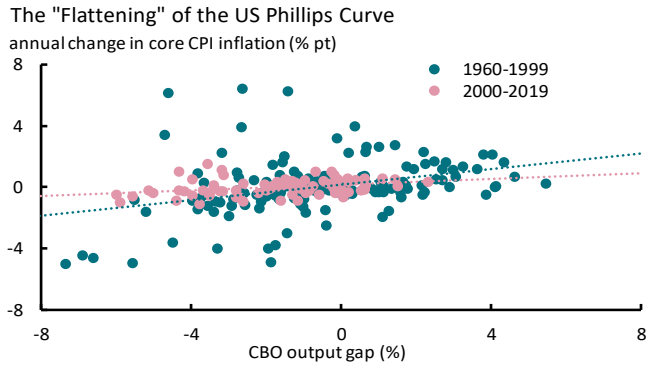
In the long term we could envisage supply growth weakening as debt and uncertainty deter investment spending, weighing on productivity growth. But over the coming three years we see the economy characterised by excess supply.

Does a flatter Phillips Curve affect this outlook?

A further observation is that recent periods of excess supply/demand no longer seem to have had the same impact on the general price level, illustrated by the lack of inflation response to the excess demand of the late 1990s or the excess supply in the aftermath of the global financial crisis (GFC). The latter 'missing deflation' has led many to infer that

a deterioration between the change in the output gap and the general price level is the result of a flattening of the Phillips Curve – which tracks the inverse relationship between inflation and the unemployment rate (Exhibit 5).

Exhibit 5: Is inflation-output gap sensitivity affected by a flattening Phillips Curve?

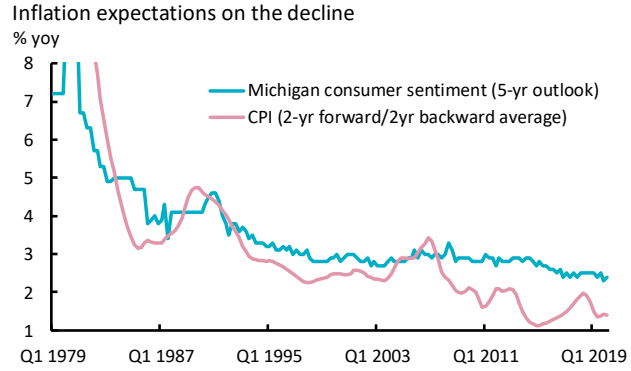


Source: Federal Reserve Bank (FRB) and AXA IM Research, May 2020

Federal Reserve (Fed) research[10] explains that this flattening could be caused either by the proposed flattening of the Phillips Curve, or by an increased anchoring of inflation expectations[11]. It then estimates these two factors to determine which is responsible and show that the slope of the Philips Curve has remained broadly stable between sub-periods 1960-1983, 1984-2007 and 2007-2019, actually increasing modestly in the latest period. They conclude that inflation is increasingly anchored by inflation expectations, which is what makes it less sensitive to excess supply or demand.

However, this conclusion suggests another risk to the inflation outlook. The COVID-19 shock could accelerate the recent trend in falling inflation expectations, thereby creating a self-fulfilling loop which ultimately drives expectations lower, risking a further inflation reduction. Exhibit 6 shows how inflation expectations have continued to fall over recent decades, an issue that could be exacerbated by the fall in headline inflation towards zero in several monetary jurisdictions.

Exhibit 6: Inflation expectations reduced by COVID



Source: FRB and AXA IM Research, May 2020

The Bank of Japan (BoJ) and European Central Bank have both recognised the risk of falling inflation expectations. Indeed, the BoJ has worked hard to try and increase expectations in line with its inflation target, to some success in recent years. The Fed has also been mindful of the risk of falling domestic inflation expectations as it has observed in other countries. This appears to have been a prime consideration behind the Fed's Monetary Policy Review and the expected transition of its inflation target to an inflation-average target, designed to arrest any further weakening in expectations.

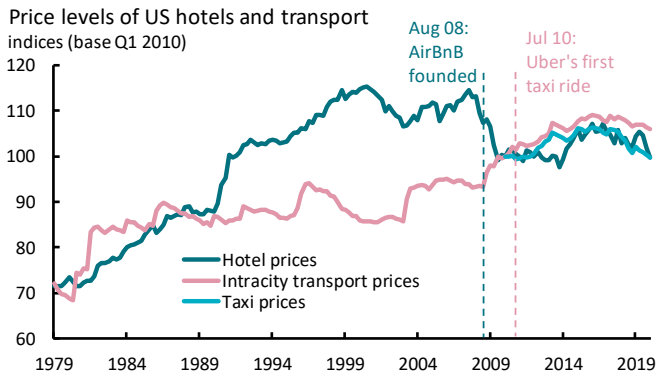
Of course, as central banks engage in much faster balance sheet expansion, there is also the possibility that households begin to believe that central banks are no longer targeting inflation, but rather the concept of keeping yields low at all cost. The perception of fiscal dominance could risk pushing expectations higher. However, recent history over the GFC – when QE was first introduced – and in Japan shows no evidence of this, and if anything, we would consider this more of a risk for market inflation expectations, not households.

The pandemic's effect on technology adoption

The adoption of digital technology likely contributed to disinflationary pressure before the virus struck but it might have been exacerbated by the pandemic. Digital technology is likely to affect prices through many different channels. Our focus is not on the ambiguous effects that digital has had on pricing (increased transparency vs. algorithmic pricing) or competition (increased access vs. winner-take-all oligopolies). Rather, we consider the effects that are more unambiguous, namely the creation of additional capacity within industries from digital technology.

Exhibit 7 shows the price level changes of hotel rooms and taxi services (from 2009), marking the change since the advent of Uber and AirBnB. These digital platforms suddenly and swiftly increased capacity in the taxi and hotel industries by effectively transferring private assets into this space.

Exhibit 7: Permanent price level effect after technology platforms introduced



Source: FRB and AXA IM Research, May 2020

[10] Jorgensen, P.L. and Lansing K.J., "Anchored inflation expectations and the flatter Phillips Curve", Federal Reserve of San Francisco, November 2019.

[11] This term 'unexpectedly' occurs in the reduced form of Exhibit 5: the change in prices compared with the change in output gap.

Coronavirus has led to a further acceleration of digital technology adoption. It will likely take time to consider the full ramifications of efficiency gains that this forced adoption might yield over the medium term. We might consider changes in medical practice (video triaging) and education (online lectures) as something that could reduce costs and prices over the medium term. However, in the shorter term, we consider the increased use of video calls as something that is likely to reduce the volume of business travel. Insofar as business travel creates demand for much of the air travel industry and hotel accommodation in key business centres, this is likely to prove disinflationary as well.

Looking ahead

The pandemic is likely to have a divergent impact on prices across different sectors, leading to a dispersal of prices. We also acknowledge some of the difficulties in measuring CPI inflation. Yet we conclude, based on an analysis of the economic system as a whole, that inflation is likely to be subdued, falling below the central bank's inflation targets in most developed market jurisdictions for the next three years.

In our concluding note, we will consider the longer-term implications for inflation when considering financing government debt and broader institutional changes.

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