



BANK OF ENGLAND

# Speech

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## Assessing the Health of the Economy

Speech given by

Gertjan Vlieghe, External Member of the Monetary Policy Committee

Bank of England

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## 1. Where are we? The current state of the economy

Let me start with a bit of simple arithmetic to illustrate what is happening to the UK economy.

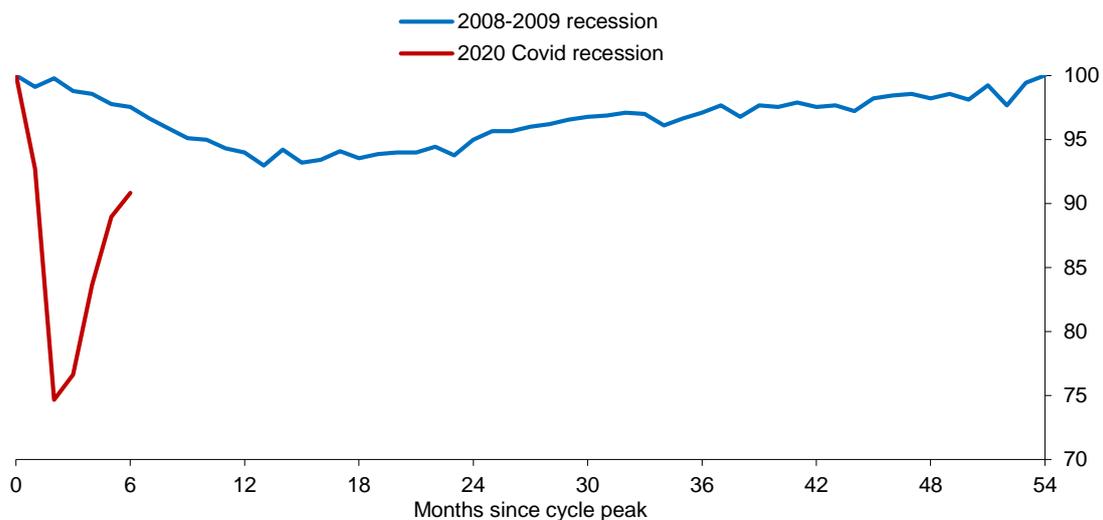
If something drops by a quarter and then increases by a quarter, it ends up a little more than 6% short of where it started.

It turns out that this is, approximately, what has happened to the UK economy during the pandemic so far. It's actually a little bit worse. Between February and April, GDP fell by 25%. Since then, between April and August, GDP has risen by 22%. In August, GDP was about 9% below its February level.

Rather than trying to figure out what letter of the alphabet this looks like, I would like to give you some context of what it means to be 9% short of where you started, in GDP terms.

In the global financial crisis, UK GDP declined by 6% relative to its pre-crisis peak. Since we are 9% short of the pre-pandemic peak, in GDP terms, we are therefore not even at the bottom of the financial crisis, as shown in Chart 1.

**Chart 1: Monthly GDP indexed to cycle peak**

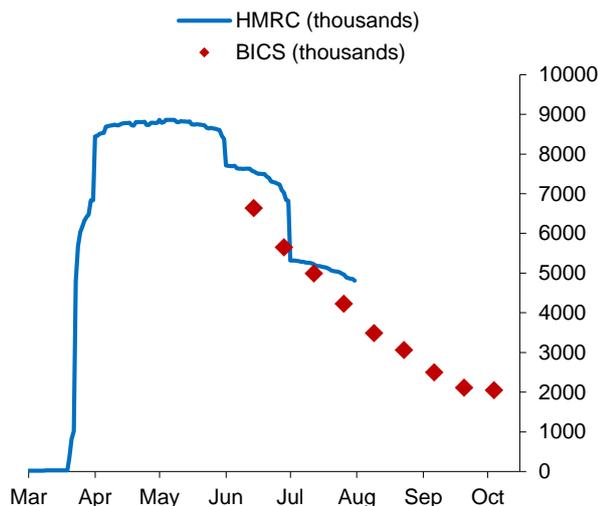


Source: ONS. Latest observation: August 2020.

Even if you want to argue that August GDP is already out of date, and the economy has recovered some more since then, we are currently - at best - at the trough of a normal to large recession. My point is that it is easy to be baffled by “largest ever rates of decline” followed by “largest ever rates of growth”, and lose track of where we are. There is quite a way to go before we can say we have recovered.

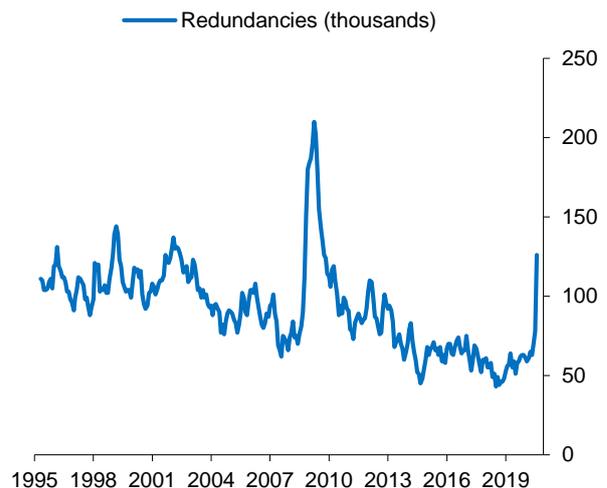
The labour market tells a similar story. Even though the headline rate of unemployment has moved up only moderately so far, evaluating unemployment accurately during the pandemic is a phenomenal challenge. At the height of the pandemic earlier this year, according to the ONS BICS survey (Chart 2), over 30% of the private sector workforce was on furlough. Since then, we have made tremendous progress, and more than two thirds of those workers are back at work. But that still leaves 9% of the private sector workforce, or just over 2m, who are not back at work.

**Chart 2: Number of furloughed workers**



Source: HMRC, ONS, Bank calculations. Latest observation: 04 October 2020 (BICS wave 15 preliminary).

**Chart 3: Redundancies**



Source: ONS. Latest observation: August 2020.

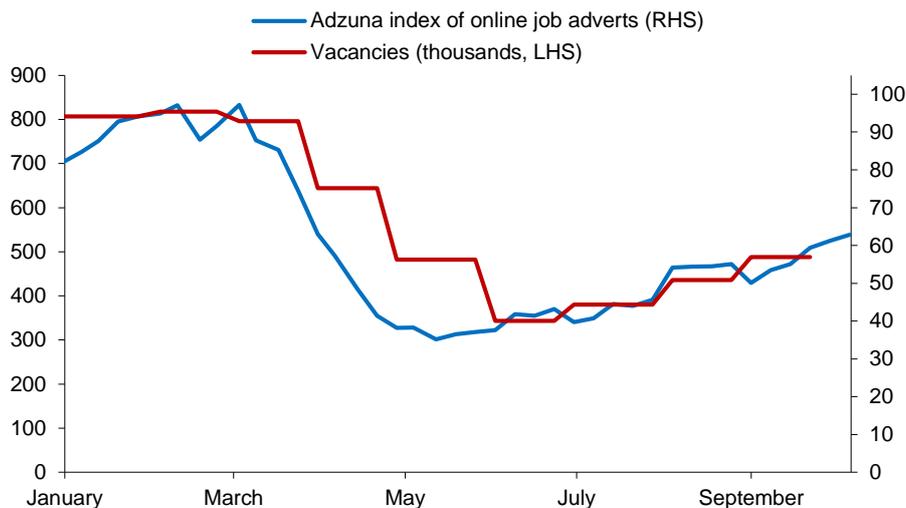
To put that into context, in the global financial crisis a net 3.3% of the workforce lost their job.<sup>1</sup> In the 1990s recession, that number was 3.8%, and in the 1980s recession, it was 6.6%.

To be clear, we do not expect the 9% of private sector workers who are currently on furlough to lose their jobs. We expect many of them to either be re-employed by their current employer, or to find new work relatively quickly. But our August central forecast was for unemployment to reach a peak<sup>2</sup> of 7½%, implying aggregate net job losses on the same scale as in the global financial crisis. The fact that redundancies are rising sharply (Chart 3) and the number of vacancies is only at around 60% of its level at the start of this year (Chart 4) makes it difficult to see a scenario where all of the remaining furloughed workers are reintegrated seamlessly into the labour force. There is huge uncertainty about the scale of job losses, in both directions, but in my view, the risks are skewed towards even larger losses, implying even more slack in the economy than in our central projection.

<sup>1</sup> To be precise, the unemployment rate rose by 3.3 percentage points, which is the net result of an even larger percentage of the workforce losing their jobs, but some of those finding a job again over the period.

<sup>2</sup> The August modal forecast for the unemployment rate, conditioned on market rates peaked at 7.5%, the mean forecast peaked at 8.0%, reflecting the downside skew to the economic outlook

**Chart 4: Labour market slack**



Source: ONS. Latest observation: September 2020 for vacancies, 09 October 2020 for Adzuna index.

To get some insight into where we might go from here, I would like to spend some time discussing the interaction between the economy and the path of the virus.

## **2. Is there a trade-off between the economy and public health?**

Some argue that there is a simple trade-off between the economy and public health. The argument goes: if the government imposes fewer restrictions, the economy will be in a better state, but public health will be in a worse state. It is the job of politicians to find an acceptable trade-off.

The point I want to make is that this trade-off is much less severe than you might think. To a large extent, measures to contain the spread of the virus can help both the economy and public health.

How can this be? Even though no country has actually tried this, imagine a hypothetical country that has a virus outbreak, but where the government imposes no restrictions on movement or economic activity at all.<sup>3</sup> Under the trade-off view, one would argue that, although such a policy would be very bad for public health, the economy would basically be fine, it would be unaffected as there are no restrictions imposed.

However, we have accumulated a lot of evidence in the past months that this argument is not correct at all. The hypothetical country that ignores public health but saves the economy does not and cannot exist. This is

<sup>3</sup> This is not a reference to Sweden. Contrary to popular perception, Sweden imposed several restrictions. Secondary schools and universities were closed, care homes visits were banned, working from home was encouraged, non-essential travel was discouraged, large gatherings were banned, and the hospitality industry had to implement a range of Covid-related safety measures.

because the majority of the damage to the economy arises from restrictions that people voluntarily impose on themselves in order to protect their health, not from restrictions that the government imposes. In a country where the virus is more widespread, people will cut their spending more as they avoid crowded places, cutting back on travel, hospitality, leisure, culture, i.e. what we have started to call “social spending”. On the other hand, a country that puts in place a range of measures to contain the spread of the virus, will experience less of an economic hit, as people are relatively more willing to engage in “social spending” if it is associated with much lower health risks.

Of course, the trade-off between the economy and public health does become starker at the extremes. One way to minimise the damage to public health is to keep everyone at home until a vaccine is found. That would come at an enormous cost to the economy. Instead, the government could impose measures that have a similar benefit to public health but less of an economic cost. My point is that, away from the extremes, there is a region where measures to contain the virus actually help both public health and the economy, and it is misleading to think that, without government restrictions, the economy would have continued to function as normal.

What evidence do we have to support this claim? I will show you three different approaches to analyse this question. First, it is instructive to look at the precise timing of when the virus started spreading, when spending was starting to fall, and when government restrictions were imposed. Second, I will discuss evidence from neighbouring regions or countries that are quite similar to each other, but had very different restrictions imposed, and show that their economic outcomes did not differ that much. Third, I will present evidence from a cross-country analysis that I have carried out, taking into account both virus prevalence and government restrictions, and show the extent to which each of these affected economic outcomes.

Several studies (e.g. Chen et al, 2020) have shown that, in the US and across many European countries, there was a substantial reduction in mobility and economic activity even before lockdowns took effect. In other words, people had already changed their own behaviour in ways that materially affected the economy before the government imposed a lockdown. The point is that, attributing all of the decline in economic activity to government restrictions is likely to be wrong if some of the decline took place before the restrictions were there.

The second category of evidence that the economy-health trade-off is not that stark comes from a number of studies that have compared countries or areas that are similar in as many respects as possible, but have different government restrictions imposed on them, to tease out the direct impact of government restrictions. The reason this is not straightforward is because the government restrictions are not random. They are typically imposed after the virus starts to spread, and the more prevalent the virus, the more stringent the restrictions tend to be. Therefore, after the fact, it is difficult to disentangle how much of the reduction in aggregate spending was the result of people voluntarily restricting their own activities due to concerns about the virus, as opposed to the result of the government imposing restrictions.

A study of the 1918 flu pandemic by Correia et al (2020) tackles the question by comparing economic outcomes in US cities that took very different approaches to imposing official restrictions, also known as non-pharmaceutical interventions (NPIs). The authors find that those cities that imposed more restrictions actually saw better economic outcomes. Lilley et al (2020) question these results, but even they do not argue that there is a negative relationship between restrictions and the economy, just that the impact is zero. In other words, restrictions that improved public health also improved economic health, or they improved public health and did not worsen the economy. Either way, there was no evidence of a trade-off in that period.

Other studies have focused on the current pandemic. Fernandez-Villaverde and Jones (2020) document that most countries in the current pandemic fall either in a “high virus prevalence, high economic cost” or “low virus prevalence, low economic cost” category, which again argues against a simple trade-off where looser restrictions could achieve a better economy at the expense of worse public health. Baek et al (2020) examine the variation of unemployment claims and spending across US states that implemented restrictions at different times. They find that three quarters of the decline in spending or the rise in unemployment is due to people’s voluntary changes in spending, with only one quarter due to the additional effect of government restrictions. Goolsbee and Syverson (2020) examine consumer traffic using mobile phone data, and compare nearby areas with and without legal restrictions. They find that almost 90% of the decline in traffic is due to people’s voluntary response to higher virus prevalence, and a little over 10% is due to the restrictions themselves. Andersen et al (2020) compare spending patterns in Sweden and Denmark, and find that despite much milder restrictions in Sweden, consumer spending fell by nearly as much as in Denmark (Sweden’s fall was 85% as large as Denmark’s fall). Brzezinski et al (2020) use location data from mobile phones and compare it across US counties, and also find that most of the reduction in mobility is voluntary rather than mandated. Focusing on the ending of restrictions, rather than the start, Balla-Elliott et al (2020) document that firms do not immediately re-open when restrictions are lifted, also consistent with reductions in demand not being primarily driven by the restrictions themselves.

The overall conclusion that I take away from this rapidly growing literature is that the bulk of spending reductions are due to restrictions that people voluntarily impose on themselves, not due to government-imposed restrictions.<sup>4</sup> People react strongly to actual or perceived virus risk, and government measures that reduce the spread of the virus are good for public health as well as for the economy, relative to a counterfactual where the virus is allowed to spread more widely.

The third category of evidence that I want to present is some new data analysis across a large number of countries, taking into account both different virus prevalence and different government restrictions.

When you look at data that only compares government restrictions and economic performance across countries, there appears to be a negative relationship. Tighter restrictions are associated with weaker economic performance. But that does not tell the full story. Correlation is not causation. We are ignoring that

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<sup>4</sup> I make this point only in relation to aggregate spending. Government restrictions can have a large effect on how that aggregate spending is distributed across sectors. If activities A and B are equally risky from a public health point of view, but the government restricts A and not B, this will cause sector A to suffer a larger economic cost than sector B.

the government restrictions are not random: to a large extent, governments are responding to the severity of the virus outbreak. More virus prevalence, measured by cases or deaths, typically leads to tighter government restrictions. What I am trying to uncover is to what extent the weaker economic performance is linked to the virus prevalence, and to what extent it is linked to government restrictions.

This is not something that can be shown in a simple chart, since it involves more than two variables. The table below shows a cross-country analysis where we allow economic performance to depend on both virus prevalence and government restrictions. The first column in Table 1 just replicates the result that many have documented: in countries with tighter restrictions (NPI), the economy appears to have suffered more. But that analysis is only partial, in the second column we add virus prevalence (Covid) as an explanatory variable. The results show that virus prevalence has significant explanatory power: higher virus prevalence is associated with weaker economic performance. But tighter government restrictions do not appear to have a clear additional effect on the economy: the coefficient on government restrictions is not significantly different from zero.

**Table 1: Results of instrumental variables estimation**

	OLS1	OLS2	IV1	IV2
Constant	-2.1769 (4.0732)	-3.2769 (3.8273)	5.553 (11.4092)	5.1657 (9.4513)
$\Delta$ GDP(t-1)	0.6096* (0.3199)	0.4961 (0.3017)	0.4570 (0.3574)	0.4381 (0.2961)
NPI(t)	-0.1118* (0.0584)	-0.0777 (0.0559)	-0.1917 (0.1716)	-0.1832 (0.1422)
Covid(t)		-0.0114** (0.004)	-0.0218** (0.0074)	-0.0235** (0.0062)
N	53	53	53	53
RMSE	5.18	4.84	5.49	5.58

Notes: For all columns, the dependent variable is the change in real GDP from 2019 Q4 to 2020 Q2. The sample comprises 53 countries for which Q2 GDP growth was available on Refinitiv Datastream at the time of estimation. The implementation of non-pharmaceutical interventions (NPI) in each country is measured by the average of the Oxford Stringency Index (Hale et al. 2020) over the quarter; the outbreak severity variable Covid denotes new Covid-19 deaths per 1 million pop within the quarter as reported on Refinitiv Datastream. For the instrumental variables (IV) specifications, the instrument set includes lags of all endogenous variables as well as outbreak severity within the country's UN M49 intermediate region but excluding its own outbreak. The IV2 specification adds also average stringency within the region (excluding own) and the number of days in 2020 until the country first crossed 3 deaths per million to the instrument set.

However, the simple estimation method (OLS) in the first two columns might be biased.<sup>5</sup> The third and fourth columns aims to reduce the bias from endogeneity by allowing for the possibility that consumer choices, virus prevalence and government restrictions affect each other, which seems likely. When we do this we find higher coefficients on both variables. However, while the estimated impact of the prevalence of the virus remains statistically significant, the estimated impact of government restrictions on economic performance is still not statistically significant. Experimenting with a third specification to include a richer set of instruments, we still find that the impact of government restrictions in explaining cross-country economic differences is not statistically significant, while the estimated impact of the prevalence of the virus remains statistically significant.<sup>6</sup>

This is not the final word on this issue. Many more studies will be carried out in the future, using more and better data, and in particular using the additional variation from subsequent recoveries and from second waves of the virus. So I urge you to take my results as imprecise and preliminary. Moreover, governments, households and firms are learning as the pandemic progresses, and may make different decisions in the current (second) wave than they did in the first wave.

Nevertheless, the findings from this preliminary cross-country data analysis are consistent with the other evidence I have considered. Virus prevalence has a clear direct impact on aggregate economic performance. Government restrictions, on the other hand, have had a much smaller *additional* direct impact on aggregate economic performance so far, once we account for the prevalence of the virus.

It is important to be quite clear about what I am saying here. I am not saying that government restrictions do not matter. They matter a lot. They help suppress the virus<sup>7</sup>, and suppressing the virus is good for public health and good for the economy. But *good for the economy* is a subtle concept here, because it means *good relative to a scenario where the virus is not suppressed, which would result in a lot of economic damage*. I am also not saying that there is no health/economy trade-off at all. Governments are carefully trying to implement measures that have a large impact on the spread of the virus while minimising the adverse impact on the economy.

What I am saying is that, so far, the differing economic performance across countries does not appear to be primarily explained by governments making different choices along a health/economy trade-off. And it is striking that this is a repeat of the patterns we also observed in the 1918 pandemic.

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<sup>5</sup> Because economic performance depends on social consumption choices, virus prevalence and government restrictions, but government restrictions and virus prevalence also affect each other and are affected by social consumption choices, the estimates might suffer from endogeneity bias. We therefore need to use instrumental variables to capture only plausibly exogenous variation in government restrictions and virus prevalence to estimate the impact on economic activity.

<sup>6</sup> Casselli et al (2020) in an IMF study run a similar cross-country regression, but use cases rather than deaths as the Covid variable, and do not use IV estimation. They find that restrictions do have a significant effect on the economy, over and above Covid, but for advanced economies the majority of the economic differences across countries are explained by Covid effects rather than the effects of restrictions, broadly consistent with all the other evidence that I have cited.

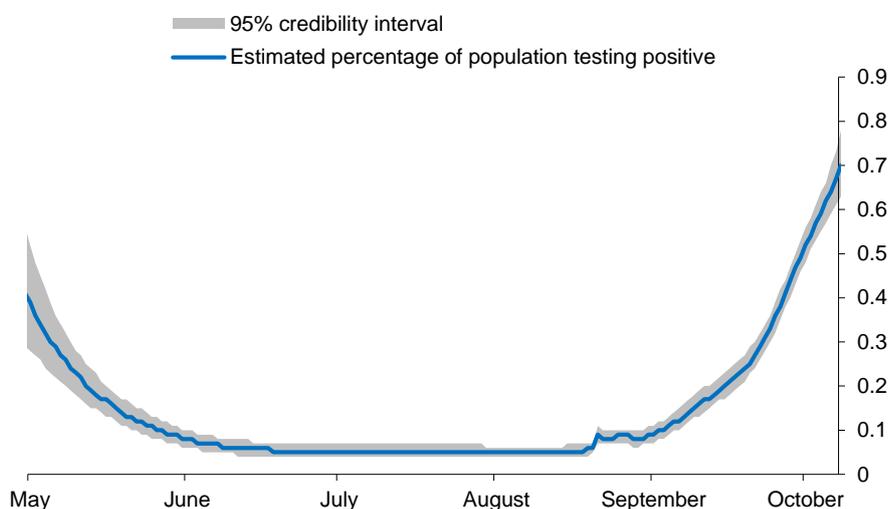
<sup>7</sup> Multiple studies have established the efficacy of non-pharmaceutical interventions in suppressing the spread of the virus relying on various statistical methods (e.g. Hsiang et al. 2020). Islam et al. (2020) and Ali et al. (2020) use interrupted time series methods to evaluate the effect of lockdown orders across countries. Using a synthetic control approach, Born, Dietrich and Müller (2020) study the Swedish experience compared to its neighbours.

### 3. The outlook for the economy: temporary or persistent sectoral change?

When thinking about how the economy might evolve next, this analysis has important implications. It suggests that, as long as there is enough virus prevalence to cause people to worry about risks to their own health, it is likely to cause a drag on economic activity.

The increase in virus prevalence since the summer as shown in Chart 5 is therefore both a public health concern and an economic concern. In terms of the economic outlook, it represents to some extent a crystallisation of the downside risks that the MPC has highlighted in our communications in the past six months. The speed of the recovery is likely to be slower while the virus prevalence remains a concern, with risks of a higher and/or more prolonged trajectory of job losses.

**Chart 5: Virus prevalence in England**



Source: ONS. Latest observation: 08 October 2020.

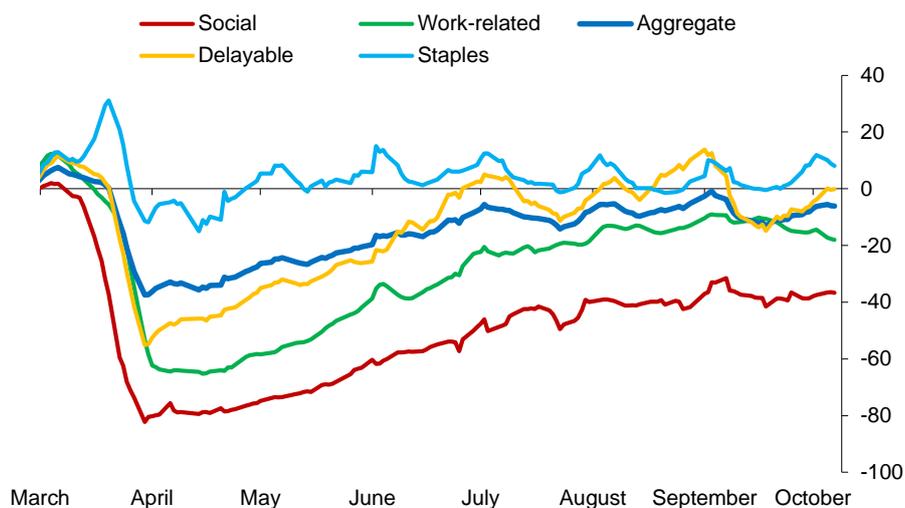
What to make then, of the fact that so far, the economy has recovered rapidly? For example, retail sales have already returned to the levels seen at the start of year. Does that not suggest that the economy is returning to “normal”?

There are two points I want to make here.

First, looking into the detail of consumer spending, it seems there have been large reallocations across time and across sectors, changes which are not entirely reassuring.

Second, even though retail sales are back to the levels seen at the start of the year, indicators related to investment remain very weak indeed.

**Chart 6: High-frequency spending indicators**



Source: Bank of England and Bank calculations. Notes: Based on the CHAPS payments that a sample of around 90 UK companies receive from their merchant acquirers on a daily basis. These payments reflect the sales that companies make through debit and credit card purchases, which are summed to estimate rolling seven-day revenues. Latest observation: 07 October 2020.

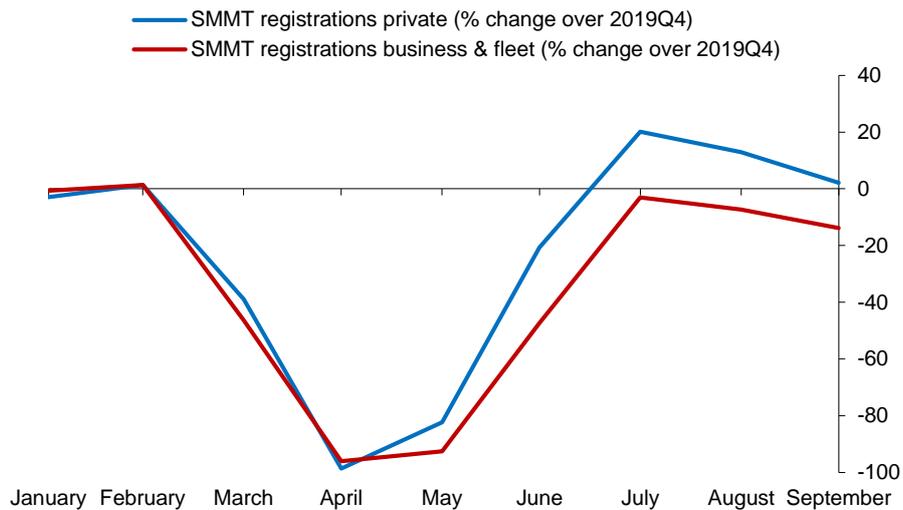
Chart 6 shows the evolution of consumer spending in a range of categories. It shows that while some categories of spending fell sharply and recovered little, other categories are now above their levels of the start of the year.

This strong substitution across categories of spending is in some respects reassuring. It shows that, when consumers cut back social spending, they increased spending in other categories. That is a positive development, because the economy would have suffered even more if consumers had not made these substitutions.

But it is not only a positive development. These substitutions also imply risks to the future.

Some of the rapid increases in spending in recent months reflect pent-up demand. For example, those consumers who did not buy a car in April or May ended up buying a car in July. But customers who were planning to buy a car in July all along still bought a car in July. So July was an unusually strong month for car sales, as it partly reflected postponed sales from earlier in the year (Chart 7). Consumers have substituted demand across time: less in the second quarter, more in the third quarter. The strength of car sales during such a period of pent-up demand is not a good indicator of underlying demand. In the subsequent months, we should expect car sales to ease back, and indeed the data already show this pattern of easing back.

**Chart 7: SMMT car registrations**



Source: Society of Motor Manufacturers and Traders. Latest observation: September 2020.

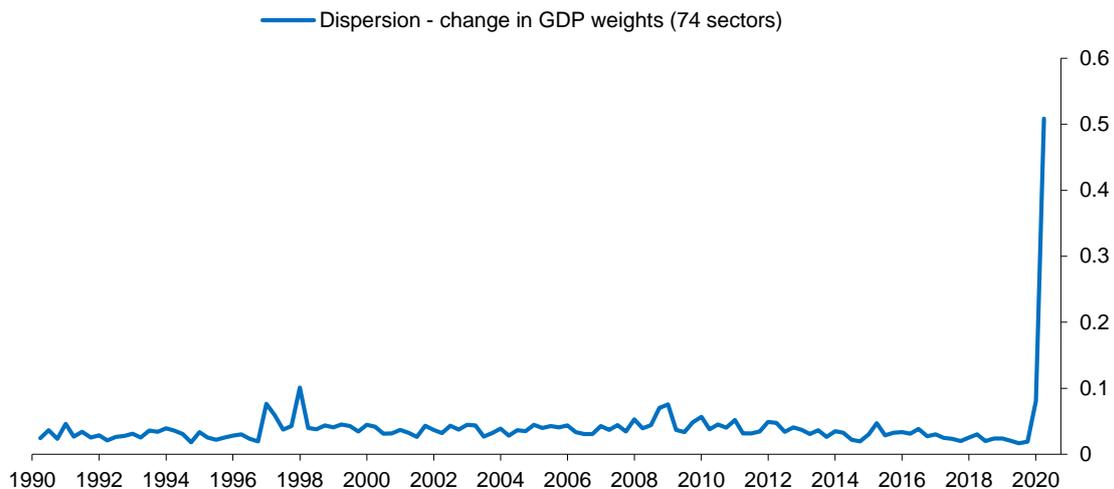
Cars is just one example, but the principle applies to other durable goods as well, such as housing and housing-related goods. So to the extent that total consumer spending is being supported by pent-up demand, we should not take too much comfort from it, as this is expected to be a temporary boost that is either already fading, or is expected to fade in the coming months and quarters.

There is also a different type of substitution, not across time, but across sectors. For example, if consumers spend less on hospitality and travel, they might spend more on food and drink at home, or buy a nicer television, or subscribe to more TV streaming services. Again, these are useful and welcome substitutions, because without them, the economy would have been worse off.

But these substitutions across sectors also add great uncertainty to the outlook.

The scale of the substitution, or reallocation, is absolutely remarkable, as Chart 8 shows. This chart needs a few words of explanation. What I have done is to take each sector of the economy, measure how its share in GDP has changed from one period to the next, and then measure how wide the distribution of changes is. If all sectors decline or rise by the same amount, the indicator will be zero. The more there is a wide dispersion between some sectors that are suffering declines and others that are rising, the higher the indicator. What the chart shows is that, before the pandemic, the share of each sector in the economy changed little from quarter to quarter, by around 0.05 percentage points. In other words, most sectors in the economy rose and fell by similar amounts. But during the pandemic, the changes were around 0.5 percentage point, an order of magnitude larger. So some sectors declined by very large amounts while others remained little changed or even increased. And this has happened on a completely different scale to, for example, the experience of the global financial crisis. We are really not all in this together. It is far, far worse for some than for others.

**Chart 8: Dispersion of changes in GDP weights (percentage points quarter-on-quarter)**



Source: Refinitiv Datastream, Bank calculations. Latest observation: 2020 Q2. Data series shows the cross-sectional standard deviation, period by period, of changes in each sector's GDP weights.

If this reallocation across sectors is temporary, it need not necessarily have macroeconomic consequences that are different from a downturn where all sectors fall by a similar amount. If the sectors that have been hit hardest experience a rapid normalisation in output and employment, there is no lasting reallocation of resources: each sector returns to its pre-Covid level of activity.

However, some of the reallocation is likely to persist. People might have persistently lower appetite for business travel, with all the related airline, hotel, restaurant, conference facility spending that this is normally associated with. People might have persistently lower appetite for spending five days per week in the office, with a related reduction in spending on office space, on commuter travel, on food and drink consumed near the workplace. And on-line shopping, which in any case was already growing more rapidly than bricks-and-mortar retail, is likely to become even more prevalent in the future.

These persistent reallocations will require workers in declining sectors to find work in expanding sectors. It will require disinvestment by firms in declining sectors and new investment in expanding sectors. To some extent, the economy goes through such reallocations all the time. Think of the decline in farming as share of employment, a trend which has been in place for several centuries. Or the decline in the manufacturing share of employment, offset by the rise in the share of services employment, a trend which has been in place for half a century. The question is, can the economy cope with a potentially large reallocation in a short space of time without causing some temporary unemployment?

A related challenge is uncertainty: I do not know which of the very large reallocations that we have just experienced will be temporary, and which will persist. Neither does anyone else. And that uncertainty has

macroeconomic consequences. Firms in expanding sectors will be less willing to invest and hire if they do not know to what extent the strong demand in their sector is temporary or permanent. That in turn means that new employment and new investment in expanding sectors might not be strong enough to offset a reduction in employment and investment in declining sectors. Given enough time, the economy will eventually adjust. But a concern for monetary policy is whether that adjustment involves a longer period of slack, of higher unemployment, so that demand falls short of potential supply.

Potential supply itself is likely to be affected as well, although the direction is unclear. The fact that workers that newly enter a sector need some time to learn and adjust generally acts as a drag on potential supply, but the batting average effect of workers joining higher productivity sectors would push in the other direction.

This uncertainty about the scale and persistence of reallocation of activity across sectors, comes at a time when the transition period agreed to in the UK Withdrawal Agreement is coming to an end, and new trading arrangements with the EU and other countries come into effect from 1 January 2021. The MPC has previously discussed, at length, the evidence that this uncertainty that firms face about how the economy will adjust to future trading arrangements has been weighing on investment (Bank of England 2019, see also Bloom et al. 2019) Given time, the economy will adjust, but the concern for monetary policy is whether and to what extent there is a shortfall of demand relative to supply in the intervening period.

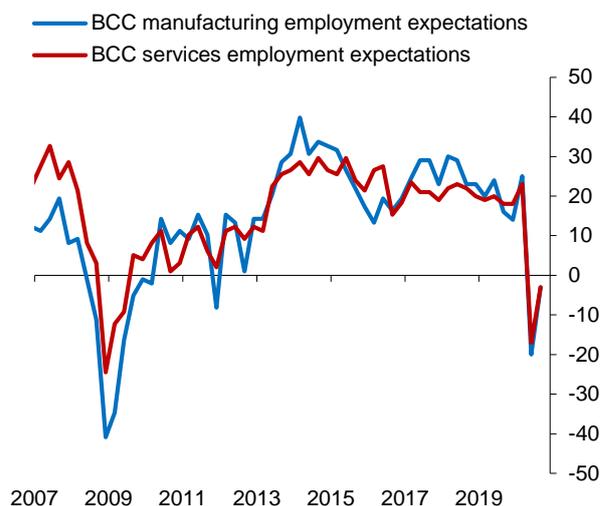
For now, it is striking that, although indicators related to aggregate consumer spending have returned to levels seen at the start of the year (even if some of that strength is temporary), indicators related to investment (Chart 9) and employment intentions (Chart 10) have remained quite weak.

**Chart 9: BCC investment intentions**



Source: British Chambers of Commerce. Latest observation: 2020 Q3.

**Chart 10: BCC employment intentions**



Source: British Chambers of Commerce. Latest observation: 2020 Q3.

#### 4. The outlook for monetary policy

The economy is going through a process of unprecedented reallocation across sectors. Some sectors of the economy have suffered tremendously, others have been less affected and some have seen increased demand. The fact that the economic hit has been so unevenly distributed has meant that fiscal policy has appropriately made a far larger contribution to the economy than monetary policy. Unlike monetary policy, which can generally only stimulate aggregate demand and inflation, fiscal policy can directly reach those who are suffering most.<sup>8</sup>

But monetary policy has also played a role and is continuing to play a role, contributing to attenuating the impact of the health crisis, in both scale and duration, on jobs and income. Monetary policy will continue to ensure that financing for households and businesses remains available at low cost, and will continue to act against any unwarranted rise in borrowing cost due to financial market instability, in order to support demand and, ultimately, to return inflation to target and keep inflation expectations anchored.

Policy rates and long-term interest rates are very low. But despite this monetary policy stance, investment is weak, vacancies are low, and around 9% of the private sector workforce has yet to be reintegrated into the labour market from their current furloughed status. The scale and persistence of the economy's reallocation across sectors, associated with both the pandemic and with Brexit, is likely to weigh on employment and investment.

The risks to the economic outlook are skewed towards a longer period of labour market slack with weak inflationary pressure. The risks to the monetary policy stance are therefore skewed towards additional monetary stimulus.

Additional asset purchases remain an available policy tool. They have served us well so far. However, I continue<sup>9</sup> to stress that the effects of QE are state-dependent, and that a key channel through which QE works is by affecting expected future real interest rates, which are already very low. These arguments suggest QE is probably less potent now than in March, at the height of market disruption and uncertainty.

The MPC has also been discussing the possibility of further interest rate cuts in the future, into negative territory. Let me reflect briefly on this. On several occasions in the past decade, the MPC has discussed the effective lower bound, i.e. how low interest rates can go before they become counterproductive to the aims of monetary policy. In 2016, the MPC concluded that the effective lower bound was “close to, but above 0%”.

Over the past few years, several countries have cut interest rates into negative territory. We have now accumulated a range of evidence about how effective negative rates have been in terms of stimulating

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<sup>8</sup> In a highly stylised model, Woodford (2020) shows that the highly uneven sectoral nature of the economic shock from Covid means that monetary policy cannot eliminate some of the “effective demand” shortfall. This is not because of any limits to our toolkit, but because monetary stimulus is incapable of providing the right stimulus needed (similar to La’O and Tahbez-Salehi, 2020). For example, if sector A needs to be closed for public health reasons, there is no way for monetary policy to redirect income back towards sector A to allow sector A workers to maintain their income levels. Only fiscal policy can address this particular misallocation problem.

<sup>9</sup> I first made this point in Vlieghe (2018).

demand and inflation in other countries. There is some debate about the scale of the stimulus that negative rates have imparted on these economies, but the growing empirical literature finds that the effect has generally been positive, i.e. negative rates have not been counterproductive to the aims of monetary policy.<sup>10</sup>

The question the MPC is currently tackling is whether there is any reason to think that the UK experience might be different, either because of differences in the structure of the UK's financial system, or because of the different circumstances in which negative interest rates are now being contemplated. A move to negative rates, if it happens, would require three conditions to be met: it must be feasible, effective and appropriate. Feasible refers to the financial system being able to cope, operationally, with negative rates.<sup>11</sup> Effective refers to the benefits of negative rates outweighing the costs by a sufficient margin, i.e. negative rates should not be counterproductive to the aims of monetary policy. Appropriate refers to the economy actually requiring more monetary stimulus in order to meet the inflation target.<sup>12</sup>

My own view is that the risk that negative rates end up being counterproductive to the aims of monetary policy is low. Since it has not been tried in the UK, there is uncertainty about this judgement, and the MPC is not at a point yet when it can reach a conclusion on this issue. But given how low short term and long term interest rates already are, headroom for monetary policy is limited, and we must consider ways to extend that headroom.

To conclude: I have made the case that, while the economy so far has grown quickly, we must not lose track of where we are. There is a tremendous challenge ahead. GDP and labour market indicators stand at levels that are below what has historically been the trough of a recession. Given that virus prevalence has been increasing again recently, it is likely to weigh more heavily on economic activity. Indeed, it appears that the downside risks to the economic outlook are starting to materialise. In my view, the outlook for monetary policy is skewed towards adding further stimulus.

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<sup>10</sup> A number of papers document the beneficial effects of negative policy rates on bank lending and the wider macroeconomy (e.g. Rostagno et al. 2019, Boucinha & Burlon 2020, Demiralp et al. 2019, Altavilla et al. 2019). For certain caveats, see Heider et al. (2019). For theoretical papers that suggest negative rates can be counterproductive under certain circumstances see Brunnermeier and Koby (2019) and Eggertsson et al. (2019).

<sup>11</sup> To assess operational readiness, the Bank and PRA have commenced structural engagement with financial institutions. See <https://www.bankofengland.co.uk/prudential-regulation/letter/2020/info-request-operational-readiness-policy-rates>

<sup>12</sup> These criteria are likely to evolve gradually over time, as the structure of the financial system is never fixed, and specifically as the financial system adjust further to a low interest rate environment.

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