



Institute for Fiscal Studies

IFS Green Budget 2020: Chapter 2

Benjamin Nabarro

UK economic outlook: the long road to recovery



2. UK economic outlook: the long road to recovery

Benjamin Nabarro (Citi)

Key findings

- 1 **Following a record 19.8% quarter-on-quarter (QQ) fall in the second quarter of 2020, we expect output to rebound by 17.5% QQ in Q3.** Household consumption in particular has been recovering well, driven by the return of capacity, deferred expenditures and additional policy support.
- 2 **But we expect the recovery to slow sharply from here.** Virus fears, and weak associated demand, are instead likely to come to the fore. **In our central scenario, 2020 Q4 GDP will remain 6.2% below 2019 Q4 levels, a larger fall than the 5.9% peak-to-trough fall during the financial crisis. Even by the end of 2024, we think GDP will still be only 1.9% above 2019 Q4 (and 4.7% below its 2016–19 trend).**
- 3 **The recovery from here hinges on households.** Impaired business balance sheets and changes to trade patterns will likely weigh on investment and exports initially. By contrast, households on average saved a record 28.1% of their incomes during Q2 (compared with 6.1% between December 2016 and 2019). **The question now is primarily about household confidence and whether it can drive a pick-up in spending. While possible, we are not optimistic.**

- 4 The COVID-19 shock is unusually concentrated in labour-intensive sectors. **Payroll data to August suggest there has already been a loss of over 700,000 employee jobs, even before the end of the furlough scheme.** While official unemployment figures are confused at present, the fact that the Labour Force Survey suggests 500,000 more people than in March are out of work and want a job is a cause for concern. **We expect the unemployment rate to increase to around 8–8.5% (2.8 million) in the first half of 2021**, feeding back into weaker sentiment.
- 5 **There are clearly enormous uncertainties surrounding all of these forecasts.** Our outlook is conditioned on three judgements. First, we assume no effective protection against the virus is widely available before 2021 Q2; second, we expect lingering health concerns to weigh on demand until this point; and third, we anticipate that the medium-term reconfiguration (due to both COVID and Brexit) implies a larger and more persistent increase in unemployment, as well as an associated loss of capacity.

2.1 Introduction

The UK faces a long road to recovery in the wake of the COVID-19 pandemic. The ‘COVID shock’ in the first half of 2020 was one of the largest among the advanced economies. This reflected the length of the lockdown, but also the structure of the UK economy, where a larger share of output is concentrated in sectors that were more exposed (such as consumer services). Over the summer, activity rebounded strongly. Capacity has recovered as the proportion of household consumption subject to COVID restrictions fell from nearly 40% in April to less than 2% at the end of July (Bank of England, 2020b). This has facilitated a sharp recovery in household spending in particular – supported, we think, by previously deferred expenditures and an unprecedented level of front-loaded fiscal support. After falling 19.8% in the second quarter of 2020 (Q2), we expect GDP growth of 17.5% in Q3.

However, we expect the recovery to slow sharply from here. Trends that have supported growth over the summer are likely to fade. Repeated local virus surges seem likely until either an effective vaccine or effective treatment is widely available. Alongside ongoing social distancing, we think associated precautionary behaviour is likely to weigh heavily on demand. These effects are likely to be concentrated in a handful of sectors (including hospitality services and transport) that account for a comparatively large share of UK output and employment. A more urbanised economy also increases the risk of more persistent weakness. We therefore expect output in 2020 Q4 still 6.2% below 2019 Q4 levels – a larger reduction than the peak-to-trough fall during the financial crisis.

We expect these effects to weigh sharply in the second half of the year. Over the summer, incremental improvements in some of the economic data have combined with growing pessimism regarding the medium-term outlook. Hiring and investment intentions have remained commensurately weak. As output continues to lag, we expect this to feed back into depressed investment and, especially, weaker employment. During the initial stages of the crisis, the labour market was in large part insulated by the government's Coronavirus Job Retention Scheme and Self-Employment Income Support Scheme. With support now dialling down, reported redundancies are increasing sharply, with unemployment increasing to over 8% in Q4.

The wider recovery from COVID hinges primarily on households. A collapse in consumption in Q2 due to COVID restrictions, coupled with considerable government support, meant that the household saving rate in 2020 Q2 increased to a record 28.1%. The question now is to what degree this might support consumption in the quarters to come. With unemployment now increasing sharply, we think these effects are likely to prove only limited. Savings so far this year also seem to have been accumulated disproportionately by wealthier households, who are likely to spread any subsequent increase in consumption over many years. Taken together, the implication is that these 'lockdown savings' should provide only limited support to consumption in the coming months.

The COVID-19 shock has not hit all industries equally. Combined with another major structural shock in the form of the end of the Brexit transition period (see Chapter 3), the effect will be to force a reconfiguration of the economy as some sectors take on a smaller share of total output. In the near-to-medium term, this implies a period of persistent weak sentiment, spare capacity and lacklustre growth

as capacity is reallocated (Kozlowski, Veldkamp and Venkateswaran, 2020). We now expect output to recover to 2019 Q4 levels only in 2023 Q2. But even by fiscal year 2024–25, we expect output would still be 4.5% below the pre-COVID trend (as forecast by the Office for Budget Responsibility (OBR) in March 2020).

Ours is not the only plausible path for the UK economy over the coming years. If demand is stronger initially, reconfiguration is avoided and the labour market is resilient, the recovery could be somewhat faster. This optimistic path could see output potentially recovering to pre-COVID levels by 2022 Q2. On the other hand, a severe second national lockdown could see a full recovery pushed back materially – potentially leaving the economy below its pre-crisis size throughout the forecast horizon. Uncertainty is substantial, but we think the risks to our forecasts are broadly balanced.

In this chapter, we consider the near-term outlook in depth. We begin by discussing the downturn and rebound associated with the virus (Section 2.2) and the lingering effects for the second half of the year (Section 2.3). We then move to discuss the outlook for each expenditure component of GDP in Section 2.4, followed by the outlook for the labour market (Section 2.5) and inflation (Section 2.6). Section 2.7 discusses the key questions regarding the UK economic outlook and potential alternative scenarios before Section 2.8 concludes.

2.2 COVID-19 in the UK

Economically speaking, the COVID-19 pandemic constitutes the temporary impairment of an essential public good – a stable public health environment. The subsequent economic shock has affected both supply and demand (Haskel, 2020). On the supply side, the public health response has resulted in some sectors being forced to close. On the demand side, consumer and business fears appear to have weighed on demand for some goods and services. Both affect different sectors and geographies to varying degrees, depending on the degree of virus risk.

The ongoing economic recovery depends on the spread of COVID-19, the public health response to it, and the reaction of various economic actors. Our forecasts are conditioned on the assumption that virus fears remain elevated over the coming months amidst ongoing local virus outbreaks and associated restrictions. We then expect virus concerns to dissipate over the first three quarters of 2021 (perhaps with the roll-out of a vaccine or treatment). However, this remains highly uncertain.

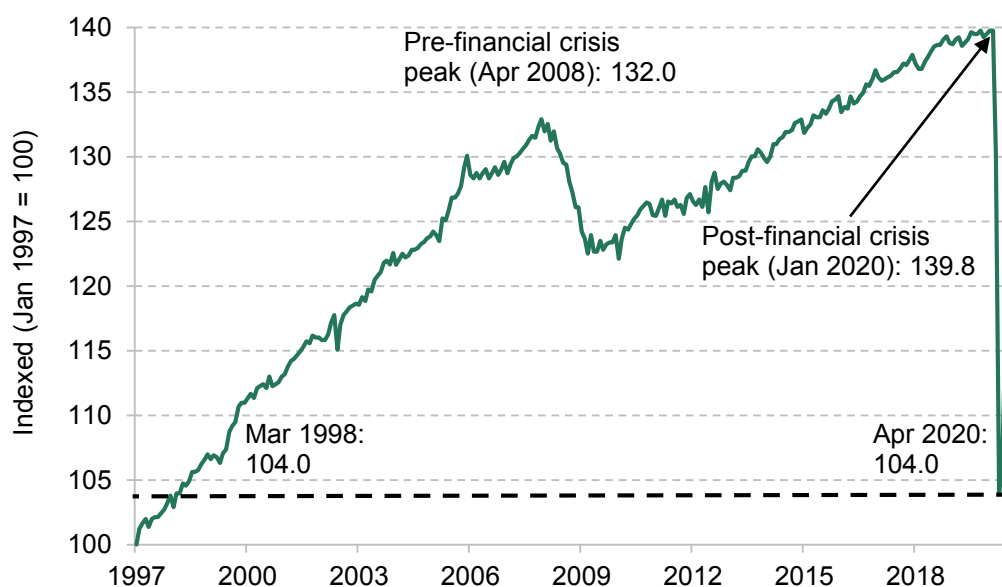
The key point here is even with the economy now broadly reopened, the virus is still likely to have a significant impact on economic activity. Local restrictions aside, repeated local resurgences are likely to mean concern regarding the virus remains elevated. We think this will continue to weigh on demand. Overall, we expect output to remain 6.2% below 2019 Q4 levels in 2020 Q4 (compared with a peak-to-trough fall of 5.9% during the 2008–09 financial crisis).

The impact of lockdown

The record reduction in activity in 2020 Q2 was primarily driven by the mandated public health restrictions implemented at the end of Q1. After concluding on 5 March that the virus was spreading widely, the government enacted compulsory social distancing requirements on 20 and 23 March. A summary of measures is displayed in Box 2.1. Most compulsory measures were subsequently maintained throughout most of Q2.

These lockdown measures have coincided with loss of nearly two decades of growth in the UK economy in only two months. Monthly real output in April was at a similar level to early 2002. On a per-capita basis, the fall was even more dramatic; Figure 2.1 shows that output per head fell to levels last seen in early 1998.

Figure 2.1. UK real GDP per capita index (Jan 1997 = 100)



Source: ONS and Citi Research

Box 2.1. Timeline of COVID-19-related restrictions in the UK

Following the outbreak in Hubei, China over the New Year, lockdown measures in the UK progressed only slowly. Lockdown measures were implemented in the final weeks of March, and were eased in the latter half of June and the start of July (before some measures started to be reintroduced in September).

UK-wide lockdown measures

- 31 January – first confirmed cases of COVID-19 in the UK.
- 5 March – England’s Chief Medical Officer, Chris Whitty, tells MPs that the UK has now moved from the ‘containment’ to the ‘delay’ phase of responding to the virus, reflecting widespread domestic transmission.
- 12 March – government asks anyone displaying COVID-19 related symptoms to self-isolate for seven days.
- 16 March – Prime Minister Boris Johnson advises all in the UK against non-essential travel and contact with others, including avoiding restaurants and theatres.
- 20 March – cafes, pubs, restaurants, nightclubs, theatres, cinemas, gyms and leisure centres are told to close.
- 23 March – public are instructed that they must stay at home, except for certain ‘very limited purposes’ such as shopping for essential items (such as food and medicine) and exercise. Schools, childcare and non-essential retail are all closed (with limited exceptions).

Easing measures

- 10 May – UK government updates its coronavirus message from ‘stay home’ to ‘stay alert’.
- 13 May – those who cannot work from home, such as construction workers and those in manufacturing, are encouraged to return to work.
- 1 June – government allows schools to reopen for Reception, Year 1 and Year 6 pupils, though take-up is very low.
- 15 June – non-essential shops are allowed to reopen.
- 4 July – hospitality and other consumer services sectors are allowed to reopen.

The government has reintroduced some national restrictions on 14 September with the so-called ‘Rule of Six’ outlawing any gathering of more than six people other than in some specific circumstances. The government has also increasingly resorted to additional local lockdown measures – these now cover 23% of the population in England, 76% in Wales and 32% in Scotland.

Source: Public Health England; UK government; press reports.

Output has recovered somewhat since, but as of July it remained 11.8% below the pre-crisis peak (February 2020), at levels last seen in early 2015.

Compared with other major economies, the reduction in output in the UK was relatively large. There are three reasons for this: the duration of the UK's COVID-19 lockdown; the sectoral and geographic composition of its economy; and the way in which the UK accounts for public sector output.

The UK's lockdown timetable

The UK locked down for a longer time than many other countries. In France, for example, lockdown was imposed on 15 March – eight days before the UK. However, the reopening of non-essential retail and the hospitality sector occurred roughly 28 days before the equivalent changes in the UK. In part, this may reflect a cost of having locked down later. New infection rates in the UK also seem to have been more persistent compared with continental Europe, potentially reflecting additional challenges within the UK's care system (Office for National Statistics, 2020).

The sectoral and geographic composition of the UK economy

The UK's economic structure has also compounded the impact of lockdown. Some of the sectors that have been most disrupted by the measures (and least able to adjust) make up a larger share of the economy in the UK than in other developed countries. Hospitality and leisure services, for example, make up roughly 13% of UK output compared with 10% in the Euro Area or 11% in the US. As Figure 2.2 shows, the sectors that make up a larger share of UK output (relative to the US) tend to have seen larger reductions in activity in Q2.

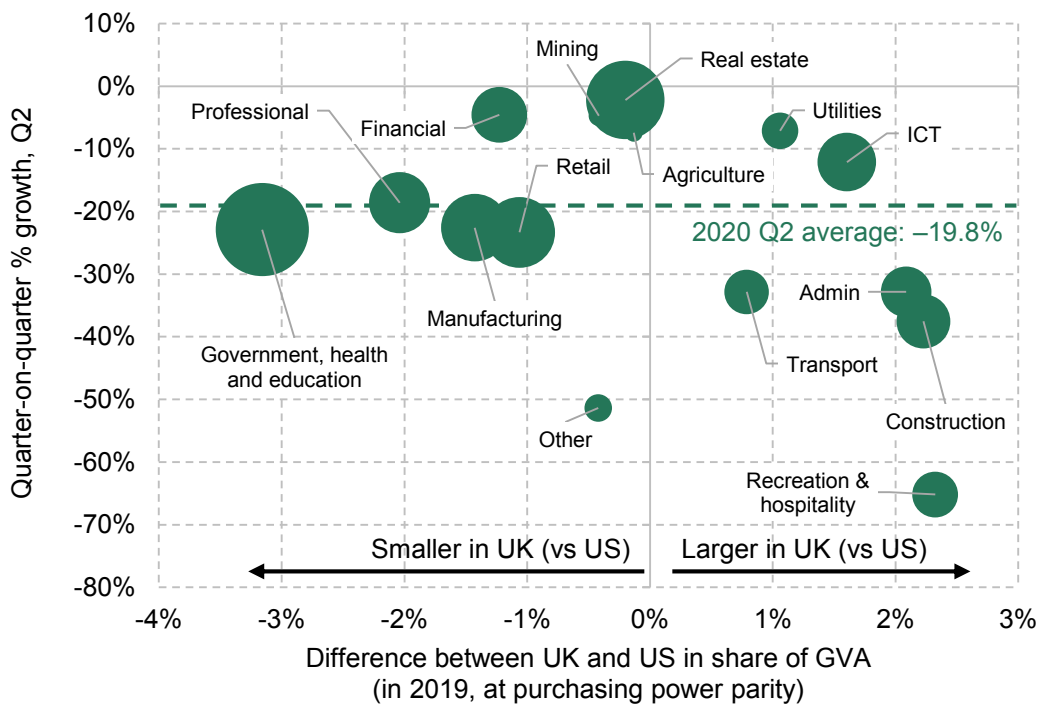
The geographic structure of the UK economy has an important role to play here too. The UK is a relatively urbanised economy (see Chapter 7). Over a quarter of the UK population live in cities with populations greater than 1 million – compared with 9.6% in Germany and 22.6% in France. Urban centres also account for a relatively high share of UK GDP.¹ We think lockdown measures have proven more disruptive and costlier here, especially in cities with a particularly large population, high population density, high service intensity and widespread use of public

¹ 60.8% of UK GDP is produced in cities, compared with 51.7% in France and 55.3% in Germany.

transport. These characteristics tend to denote some of the UK’s largest and most productive centres. As Figure 2.3 shows, Google mobility data for urban centres such as London and Manchester fell further and recovered more slowly than in smaller towns.

Economic links between sectors – with businesses acting as suppliers to and customers of businesses in other sectors – have meant larger downturns in both of these areas have likely had knock-on effects for other areas (Lenoël and Young, 2020). We suspect these effects have been particularly extensive in the UK’s case. The recreational and hospitality sectors are good examples of ‘downstream sectors’. While a relatively large share of their output is determined by final demand (i.e. sales to consumers), they are intensive users of intermediate inputs purchased from businesses in other sectors. The larger scale of these sectors in the UK economy has

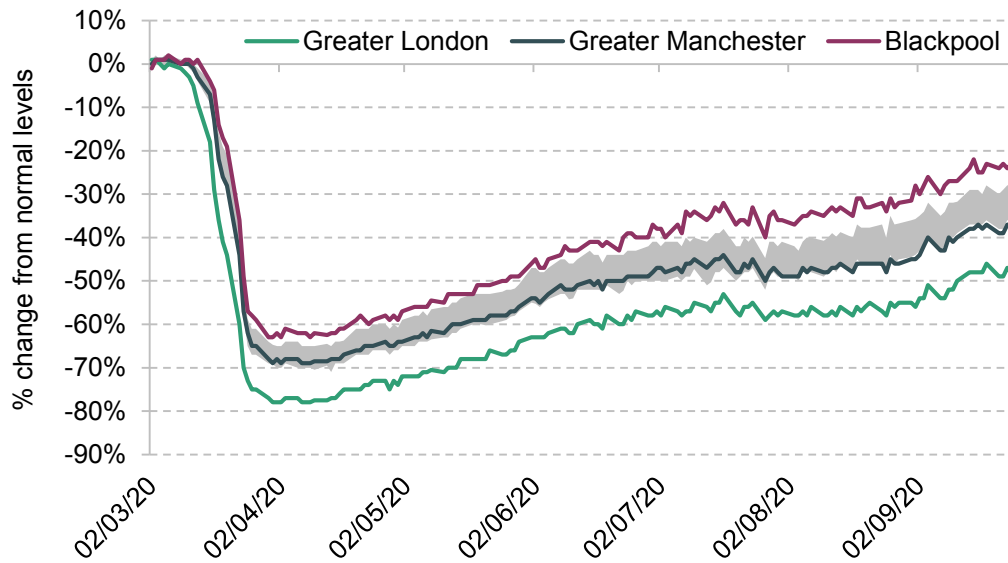
Figure 2.2. Share of gross value added (versus the US) and change in output in Q2



Note: Difference in share of 2019 gross value added (GVA) measured by subtracting the share of output in a given sector in the US from the equivalent share in the UK. The right-hand side of the graph therefore denotes a comparatively large sector. The size of the bubble reflects the share of output of each sector in total UK GDP.

Source: ONS, Bureau of Economic Analysis and Citi Research.

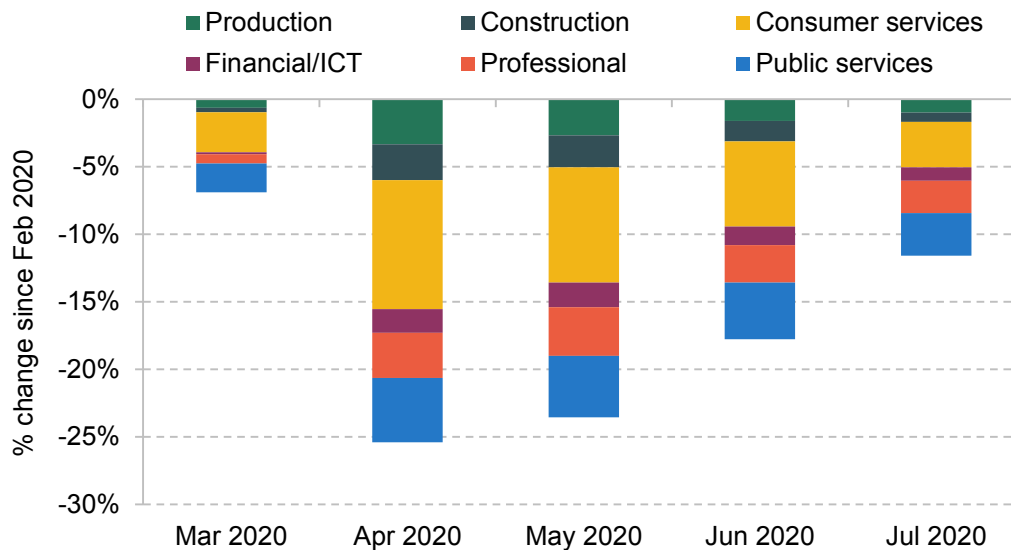
Figure 2.3. Google mobility data across UK local authorities



Note: Google mobility data across 150 UK county and metropolitan administrative areas. Interquartile range is shown in grey.

Source: Google Mobility and Citi Research.

Figure 2.4. Cumulative changes in output (% change since February 2020)



Note: Each sector weighted by GVA share.

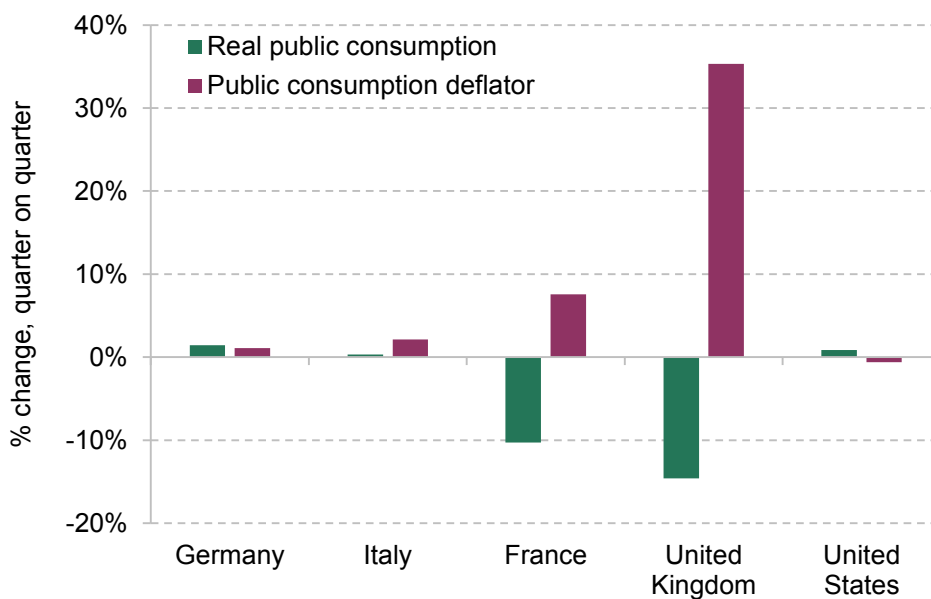
Source: ONS and Citi Research.

therefore not just meant weaker output within these sectors, but also more disruption elsewhere. We think these effects have been especially evident in business services. As Figure 2.4 shows, financial and professional services output actually fell in May despite the rest of the economy recovering as the direct impact of lockdown began to dissipate.²

Accounting for non-market output

Lastly, the way the UK accounts for non-market output may have also compounded the fall in headline GDP in Q2. Government's contribution to GDP is based on the real public services that it purchases and provides. But in most cases, these do not have a market price attached to them. Instead, different countries take different approaches to measuring the value of real public services. Some countries, such as Germany, Italy and the US, divide the relevant components of public spending by

Figure 2.5. Growth in public consumption and public consumption prices, 2020 Q2



Source: OECD and Citi Research.

² While consumer services grew by 9.0% month on month (MM) in May, financial services actually fell by 0.3% MM and professional services fell by 2.7%.

changes in input prices. As public spending rose and input prices fell during the lockdown, this measure of the ‘output’ of government spending was flattered. Other countries, such as France and the UK, base their measure of real consumption on a series of direct indicators for public services activity – such as the number of children in school or the number of NHS operations. Since many of these activities were disrupted during the lockdown, Figure 2.5 shows that measured UK government consumption actually fell by 14.6% in Q2 (deducting 2.8% from output overall). Since government spending on public services jumped at the same time, Q2 also saw a dramatic increase in the output deflator (a measure of the gap between cash spending and actual output).

Lockdown easing and the initial recovery

On 10 May, the UK government changed its core virus guidance from ‘stay home’ to ‘stay alert’. The subsequent, gradual, easing of lockdown restrictions (see Box 2.1) has generated a strong rebound in activity in the summer months. GDP grew by an estimated 8.7% and 6.6% month-on-month (MM) in June and July respectively. We expect further improvement in August.

The primary driver of the recent uptick has been private consumption. Between 29 May and 10 July, the share of consumption subject to COVID-19 restrictions fell from 34.7% to just 1.4% (based on pre-pandemic purchasing patterns) (Bank of England, 2020b). As household demand recovered, growth in associated sectors subsequently ticked up strongly in June and July as a result. Figure 2.4 shows that the wholesale, retail and motor sectors were behind much of the rebound in June – adding 2.8 percentage points (ppt) to month-on-month growth as conventional retail reopened from 15 June and car sales rebounded. In July, growth among other consumer services (transport, hospitality, culture and recreation) contributed 5.3ppt to month-on-month growth as consumer services reopened from 4 July.

These data have recovered further in the latter part of the summer. Barclaycard, Visa and Fable data all point to positive year-on-year growth in consumer spending in August (see Table 2.1) – if only marginally in the case of Barclaycard. This came alongside further improvement in mobility indices as well as business surveys. The Purchasing Managers’ Index (PMI) for August, for example, recovered strongly to 58.8 for services and 55.2 for manufacturing (with numbers above 50 reflecting conditions improving month on month). These eased somewhat in September to 56.1 and 54.1, but remain well in expansionary territory. They measure business

Table 2.1. Monthly indicators of economic activity in 2020

	Feb	Mar	Apr	May	Jun	Jul	Aug	1–14 Sep	Latest
GDP (% 3M/3M)	0.1	-2.1	-10.7	-18.7	-20.4	-7.6	-		-
GDP (% 3M YY)	0.8	-1.8	-10.3	-18.3	-21.7	-17.3	-		-
Bank of England agents (SD)	-1.4	-1.8	-22.5	-22.8	-22.8	-22.8	-21.8		-
PMI (SD)	-0.2	-7.9	-18.0	-10.7	-2.6	1.6	2.6		1.1
NCI (SD)	-4.4	-5.7	-8.0	-10.7	-12.6	-12.4	-10.5		-8.0
EC economic sentiment (SD)	-1.4	-2.0	-6.7	-6.8	-6.3	-4.6	-4.7		-3.4
Lloyds Business Barometer (SD)	-0.1	-0.4	-4.5	-4.5	-3.8	-3.3	-3.3		-3.0
GfK consumer confidence (% bal.)	-7	-9	-34	-34	-30	-27	-27		-
Barclaycard spending (%YY)	2.2	-6.0	-36.5	-26.7	-14.5	-2.6	0.2		-
Visa consumer spending (%YY)	0.6	-12.0	-27.8	-19.9	-6.6	2.2	4.7		-
Fable consumer spending (%YY)	-1.6	-9.6	-26.1	-17.8	-17.0	-22.8	7.1	4.7	0.6
Experian retail footfall (%YY)	-6.4	-44.9	-86.0	-82.3	-66.7	-48.9	-38.3	-38.5	-39.6
OpenTable bookings (%YY)	-57	-57	-100	-99	-99	-56	34	-14	-5
Energy Performance Certificates, new dwellings (%YY)	0.0	-13.5	-74.5	-64.1	-32.1	-5.6	4.1	-0.8	-
Weekly shipping (no. of visits)	363	363	290	305	363	379	336	335	317
Adzuna vacancies (2019 = 100)	92.9	81.6	46.4	36.8	40.7	43.7	53.6	53.5	-
Citi – digital mobility (SD)	-	-1.2	-3.3	-3.1	-2.7	-2.2	-1.8	-1.3	-1.3
Google mobility – workplaces (%baseline)	-7	-25	-69	-62	-51	-47	-48	-41	-37
DfT – motor vehicles (%baseline)	-	-20	-62	-46	-28	-16	-10	-7	-7
DfT – national rail (%baseline)	-	-38	-95	-94	-87	-76	-65	-57	-63
TfL – London tube (%baseline)	-	-49	-95	-93	-87	-78	-69	-65	-65

Note: Series presented in standard deviations (SD) are standardised by subtracting the mean from a four-year period to December 2019 and dividing by the standard deviation from that same period. This gives a sense of how unusual these changes are relative to recent history (for normally distributed data, 99.7% of data fall within ± 3 SDs). The latest data are for the final two weeks in September. The Citi digital mobility indicator is a composite of a range taken from Moovit, Citymapper and several others. The Fable consumer spending data are taken from releases using a digitiser, and so may not be exact.

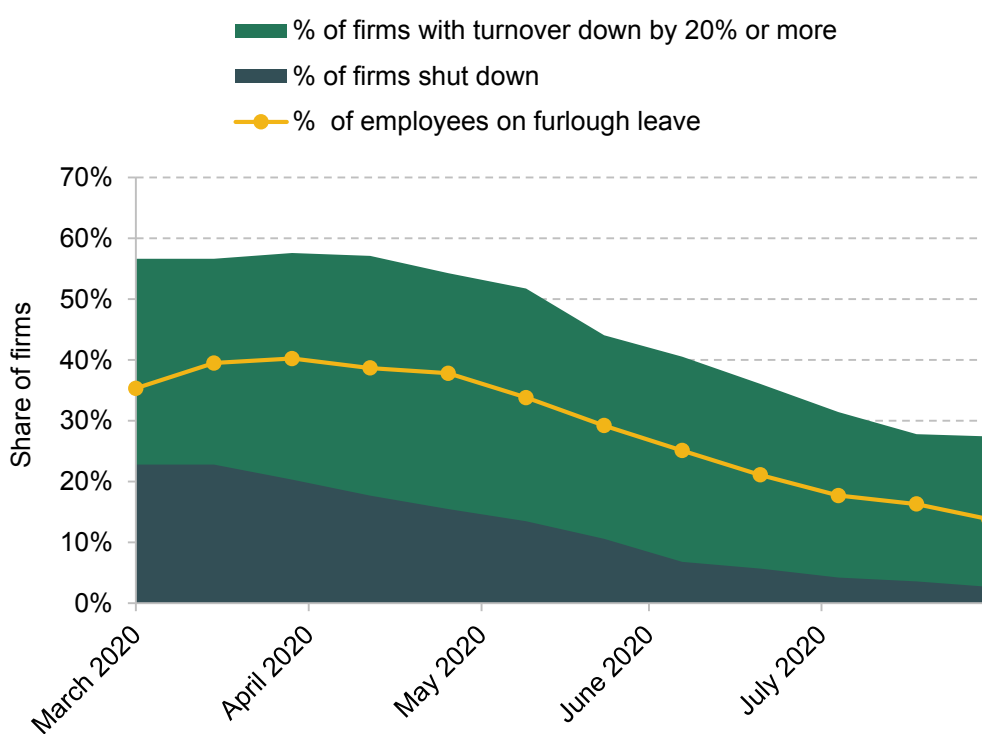
Source: ONS, Bank of England, IHS Markit, Now-Casting Economics, European Commission, Lloyds Bank, GfK, Visa, Barclaycard, Fable, Experian, Opentable, MHCLG, Adzuna, Google, DfT and Citi Research.

leaders' reports of business activity. Both releases noted a substantial boost as a result of economic reopening, with revenues recovering accordingly.

We expect continued (if more moderate) growth in September. During Q2, the reduction in business services lagged consumer equivalents. The recovery here may also therefore lag the rest of the economy; indeed, the PMI data point to relatively strong growth in business services in September, even as growth among consumer services has eased somewhat. Some wider social restrictions, including the closure of schools, were also relaxed during this period, with more returning to work in early September as a result. Mobility data seemed to tick up further in the first two weeks of the month.

As Figure 2.6 shows, the sharp recovery has seen the number of firms temporarily closed fall from 23% at the height of lockdown to just 2.7% in the first week of

Figure 2.6. Share of private firms closed or suffering reduced revenue and share of employees furloughed



Note: Responses based on a sample of roughly 6,000 private UK businesses. Dates used represent the mid-point of the survey. Latest data collected 24 August to 6 September.

Source: ONS Business Impact of COVID-19 Survey (BICS) and Citi Research.

September. Productivity will likely continue to be impaired by ongoing social distancing requirements, such as the Rule of Six and mandatory table service.³ However, we think pre-pandemic capacity is now likely back around 95% of 2019 Q4 levels. Notably here we include not just those firms that are open, but also those firms that are shut but could open if demand conditions were sufficiently strong.

Despite the rebound, actual output still appears well below pre-COVID levels. GDP in July remained 11.8% below that in February. UK mobility data also remain weak compared with international equivalents (see Chapter 1) and pre-COVID levels. Figure 2.6 shows that 27% of firms continue to report turnover below 80% of normal levels; while this has fallen since July (when 36% of firms reported low turnover), it has largely plateaued since then. And, of course, these are only averages; the share of firms whose turnover has fallen significantly is much higher in sectors such as culture (60%), transport (26%) and hospitality (42%).

We think this reflects the lingering effects of virus fear on demand. As we discuss below, these effects are likely to persist until either a vaccine or effective treatment is found. Even before the recent tightening of national social distancing rules, business optimism for the next 12 months had fallen back in August even as the economic recovery has gathered steam – reflecting expectations of a slower, more drawn-out recovery. This has been associated with continued weakness in both employment and investment intentions.⁴ As COVID-19 case numbers have increased further over the start of the autumn, expectations here have likely deteriorated further. For many firms (especially in some of these underperforming sectors), we think recent developments have likely reaffirmed previous suspicions that conditions in late summer are likely to prove ‘as good as it gets’ until 2021.

³ In the most recent round of the ONS Business Impact of COVID-19 Survey (24 August to 6 September), 9.6% of firms reported substantial increases in operating costs as a result of COVID-19.

⁴ Citi’s summary indicator of employment intentions (comprised of measures from the CBI, BCC, Bank of England and European Commission) suggests employment intentions for the coming 12 months remain –6.2 standard deviations below recent averages. Bank of England investment intentions fell further in August; these are now at their lowest level on record.

2.3 COVID-19 and the outlook for the second half of 2020

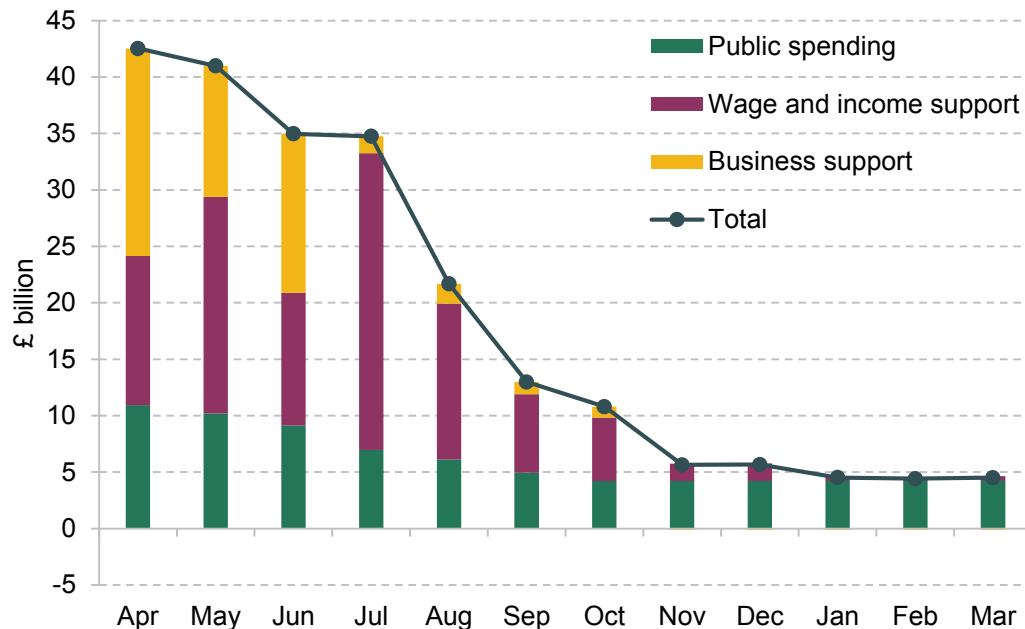
We expect output to grow by 17.5% quarter on quarter (QQ) in Q3 and 2.0% QQ in Q4. This, however, will still leave output in Q4 roughly 6% below where it was a year earlier.

The scale of the reduction in Q2 and the recovery in Q3 both primarily reflect changes in capacity associated with lockdown. The sharp rebound in Q3 has also been facilitated by temporary seasonal effects and front-loaded fiscal support. These effects are now likely to fade. Instead, we expect lingering (and potentially growing) virus fears to weigh on activity for some time to come, implying a sharp slowdown in the recovery in Q4 and weaker output into 2021.

Temporary factors boosting the Q3 recovery

Fundamentally, strong recent growth has primarily been supported by an exceptional level of policy support in recent months. Between March and September, total discretionary stimulus implemented in response to COVID has totalled £188 billion (see Figure 2.7). Much of this support has been heavily front-loaded – particularly with respect to household income support. This has been complemented by additional support in the form of bans on evictions, mortgage holidays and roughly £70 billion in government-backed lending to private businesses. The impact, especially for households, has been to insulate incomes from the wider economic consequences of the virus. This has allowed households' own assessment of their financial situation to climb to record highs, even as GfK data report that their assessment of the general economic situation has plummeted. However, on current plans, much of this support will be scaled back over the autumn and winter. A much-less-generous Job Support Scheme will replace the generous furlough scheme at the end of October. Many of the substantial, but temporary, measures such as boosts to benefits, tax deferrals and tax breaks are also due to expire (see Chapter 8).

Figure 2.7. Discretionary fiscal stimulus implemented so far since March 2020, spending by month (£ billion)



Note: Figures based on OBR monthly spending profile, alongside some Citi estimates. Public spending refers to additional departmental expenditure approved in response to Coronavirus. Wage and income support includes the Coronavirus Job Retention Scheme, the Job Support Scheme, the Kickstart Scheme, the Self-Employment Income Support Scheme, additional benefit support and self-assessed income tax deferrals. Business support includes the reduction in business rates and associated grant schemes, as well as the Eat Out to Help Out scheme and VAT deferrals.

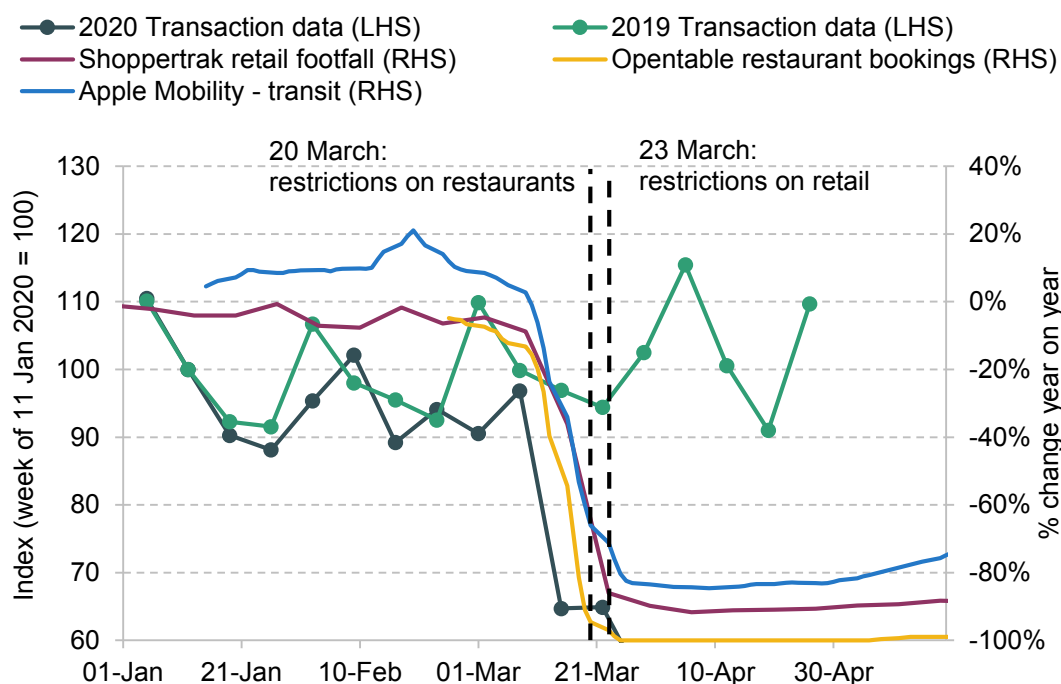
Source: ONS, OBR, Saunders (2020) and Citi Research.

Weaknesses in consumption over the coming months

When seen in this light, we think current levels of consumption appear weak, rather than strong. As supports fade from Q3, we expect the outlook to weaken materially. The key here is that virus fears are instead likely to persist, with a substantial, additional, impact on economic behaviour.

These effects have been shown to be significant in other jurisdictions. For example, Goolsbee and Syverson (2020) exploit differences in local measures in the US and find only a modest impact associated with formal lockdown measures. Chetty et al. (2020) have come to similar conclusions and we think these effects have already

Figure 2.8. Indicators of UK household spending and mobility



Note: 2019 and 2020 transaction data taken from Hacıoglu, Känzig and Surico (2020). The retail footfall series is compiled by Experian.

Source: Hacıoglu, Känzig and Surico (2020), ShopperTrak, OpenTable, Apple mobility and Citi Research.

proved significant in the UK in the weeks leading up to lockdown.⁵ Figure 2.8 shows that reductions in consumer spending seem to have largely preceded rather than coincided with the mandatory imposition of business closures. Household expenditure fell by almost 20% in the second week of March – before official advice to avoid restaurants and non-essential travel was issued, but as surveyed fear increased⁶ (Hacıoglu, Känzig and Surico, 2020). High-frequency data in other jurisdictions have shown a similar pattern, as have the mobility data (Baker et al., 2020; Carvalho et al., 2020).

⁵ These conclusions have been corroborated by studies in a range of other jurisdictions, including the Scandinavian economies (Andersen et al., 2020) as well as other studies of the United States (Brzezinski, Kecht and Van Dijcke, 2020).

⁶ Levels of virus fear (surveyed by YouGov) increased sharply in March from 24% saying they were very or somewhat scared of catching the virus on 1 March to 48% on 20 March (<https://yougov.co.uk/topics/international/articles-reports/2020/03/17/fear-catching-covid-19>).

Surveyed fear of the virus remains high in the UK. Data from YouGov on 29 September suggest 52% remain very or somewhat concerned about catching the virus.⁷ Levels of concern have been increasing again in recent weeks alongside the rise in case numbers.

These effects, we think, are likely to dominate the outlook for the coming months. The easing of restrictions is likely to be just a necessary, rather than sufficient, condition for economic recovery. Instead, with the virus seemingly impossible to fully contain solely through public health measures, the associated risk is likely to linger until an effective vaccine or treatment is widely available. Low levels of government trust and difficulties with the roll-out of the ‘test and trace’ regime could compound the impact by reducing trust in the government’s ability to handle the pandemic. We expect these precautionary effects to weigh on demand over the coming months.⁸

The economic impacts of rising concern over the virus are augmented by the impacts of the policy response. Increasingly strong signals from government that consumers should adapt their behaviour to reduce virus transmission will – intentionally – have an impact on economic activity, even without mandatory lockdown measures. For example, while relatively little economic production takes place in the pub between 10p.m. and midnight, the intention of the 10p.m. curfew is to signal that consumers should think twice about their need to go to the pub at all. Alongside tightening mandatory restrictions around the country, these concerns are already having an impact on mobility and social consumption, with OpenTable bookings, for example, easing substantially since mid September. These behavioural effects seem likely to persist until there is a convincing narrative that fundamental virus risks have abated.

There are no easy answers here: while there are clear costs to the government signalling that consumers should reconsider their plans for social and other forms of consumption, this is likely to be a sensible response to the risks of rising virus transmission. Certainly a more sweeping national lockdown (if the virus spirals out

⁷ <https://yougov.co.uk/topics/international/articles-reports/2020/03/17/fear-catching-covid-19>.

⁸ Others have drawn similar conclusions including Tenreyro (2020) and Lenoël, Macqueen and Young (2020).

of control once more) would be significantly worse for the economy than the measures that have been taken so far.

How might virus fears impact the economy from here?

These effects are primarily reflected in weak demand, and specifically household consumption. Here there are three points worth highlighting.

- First, these effects are likely to be highly asymmetric across sectors. While consumption in some areas (such as online shopping) will be unimpaired, others will be more severely affected. Usually, such a shift would have only limited implications for the overall size of the economy. But this case may be different. Consumers believe that the current changes are largely temporary.⁹ Since the goods and services that remain available are generally relatively poor substitutes for those that do not, households may choose to spend less today and save in anticipation of a return to normal later on (Guerrieri et al., 2020). Since many of the most adversely affected sectors are heavy consumers of inputs from other industries, these effects are also likely to permeate across the economy.
- Second, while these effects primarily affect demand, some losses in supply are likely to follow. Data from the Bank of England's Decision Maker Panel survey suggest that both demand and supply effects are concentrated in the same sectors. Compulsory restrictions aside, firms are likely to reduce capacity in order to improve social distancing in the face of virus-conscious consumers.
- Third, as we discuss in the sections below, virus-related concerns are not just likely to affect behaviour via individual health concerns, but also by the associated risks to the economy. First, higher economic uncertainty alone is likely to depress both consumption and investment – this is typically associated with both higher household and corporate saving rates.¹⁰ Second, to the degree this contributes to expectations of weaker demand and/or lockdown, this is also

⁹ While the proportion of households expecting it to take longer than 12 months for life to return to normal has risen (41% between 16 and 20 September, compared with 11% between 27 March and 6 April), the proportion expecting things to have permanently changed remains relatively small at just 7%, according to data from the ONS Opinions and Lifestyle Survey (<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandthesocialimpactsongreatbritaindata/current>).

¹⁰ A 1 percentage point increase in household and corporate savings is usually associated with a 0.5ppt reduction in output (Bank of England, 2020b). Most measures of uncertainty have increased significantly in recent months (Altig et al., 2020), which may yet drive savings up on a more persistent basis.

likely to drive more conventional precautionary saving. These effects have likely grown significantly following the tapering of government support in September.

The progression of the virus clearly has a key role to play here in the severity and persistence of these effects. Our current forecasts are conditioned on the assumption of continued local outbreaks and associated restrictions but no further sweeping national lockdown. However, if the outbreak proves more severe, the additional effect of not only fear but also widespread formal restrictions would constitute downside risks to our forecasts. On the other hand, the more rapid development and roll-out of an effective treatment could see the economy recover more quickly and completely than we predict.

2.4 The outlook for the different components of GDP

Given the risks to the recovery from virus fears, lockdown rules and the tapering of government support, we expect a material margin of spare capacity to persist well into the future. We do not expect the economy to make a full recovery to its pre-pandemic size before 2023 Q2.

The sharp slowdown in the recovery in Q4 primarily reflects a slowdown in private consumption. Having grown by 26.2% in Q3, we expect this to all but stagnate in Q4 as transitory supports fade and virus fears tick up (see Table 2.2). Business investment, we think, is likely to remain relatively weak as demand remains subdued and uncertainty associated with both the medium-term economic outlook and Brexit plays out. Residential investment has the potential to prove something of a bright spot in the near term with a rush to completions before current policy support is wound down from April 2021. Trade, we think, will receive some boost in Q4 in the run-up to the December 2020 Brexit transition deadline; however, we think the outlook here is likely to remain relatively weak thereafter (see Chapter 3).

Table 2.2. Growth forecasts for UK GDP and its components

	2019	2020	2021	2022	2023	2024
Real GDP	1.3	-9.4	4.6	3.6	2.4	1.2
Final domestic demand	2.0	-12.0	7.4	2.6	2.4	1.2
Private consumption	0.9	-10.6	5.5	3.3	2.6	1.1
Public consumption	4.1	-5.0	10.6	-1.6	0.1	0.8
Fixed investment	1.3	-13.7	7.9	6.7	4.4	2.3
<i>Business investment</i>	1.1	-16.5	4.1	8.4	5.9	2.6
<i>Construction of private dwellings</i>	0.1	-18.6	9.0	0.8	2.6	1.6
Stocks (contribution to YY GDP growth)	0.1	-0.5	0.2	0.1	0.0	0.0
Exports of goods and services	2.8	-7.4	3.0	3.4	2.0	1.4
Imports of goods and services	3.3	-16.4	8.2	1.4	2.2	1.3
Net exports (contribution to YY GDP growth)	-0.2	3.1	-1.5	0.6	0.0	0.0

Note: Actual data for 2019; Citi forecasts for 2020 through 2024.

Source: ONS and Citi Research.

Private consumption

Private consumption has a particularly important role to play in the recovery from COVID-19. Having fallen by 23.7% in Q2, we expect consumption to have grown by 26–27% in Q3, with consumption 6–7% short of 2019 Q4 levels. However, we expect the recovery to stall in Q4.

This sharp rebound in Q3 has been highly asymmetric. Consumption here can be broadly broken down into four categories (see Bank of England (2020a)):

- **Staples:** around 51% of all UK household consumption. This is generally invariant to all but sharp increases in the number of credit-constrained households. However, this has benefited from some additional demand in recent months as households have adjusted to lockdown.
- **Work-related spending:** around 7% of the consumption basket. This includes spending such as rail fares and fuel. Here consumption has fallen sharply and has continued to lag somewhat as commuter patterns have been disrupted.
- **Delayable and discretionary goods:** 23% of the total. This includes the purchases of discretionary, storable goods such as clothing.
- **Social consumption:** another 19%. This is spending on services that depend on close human contact and interaction.

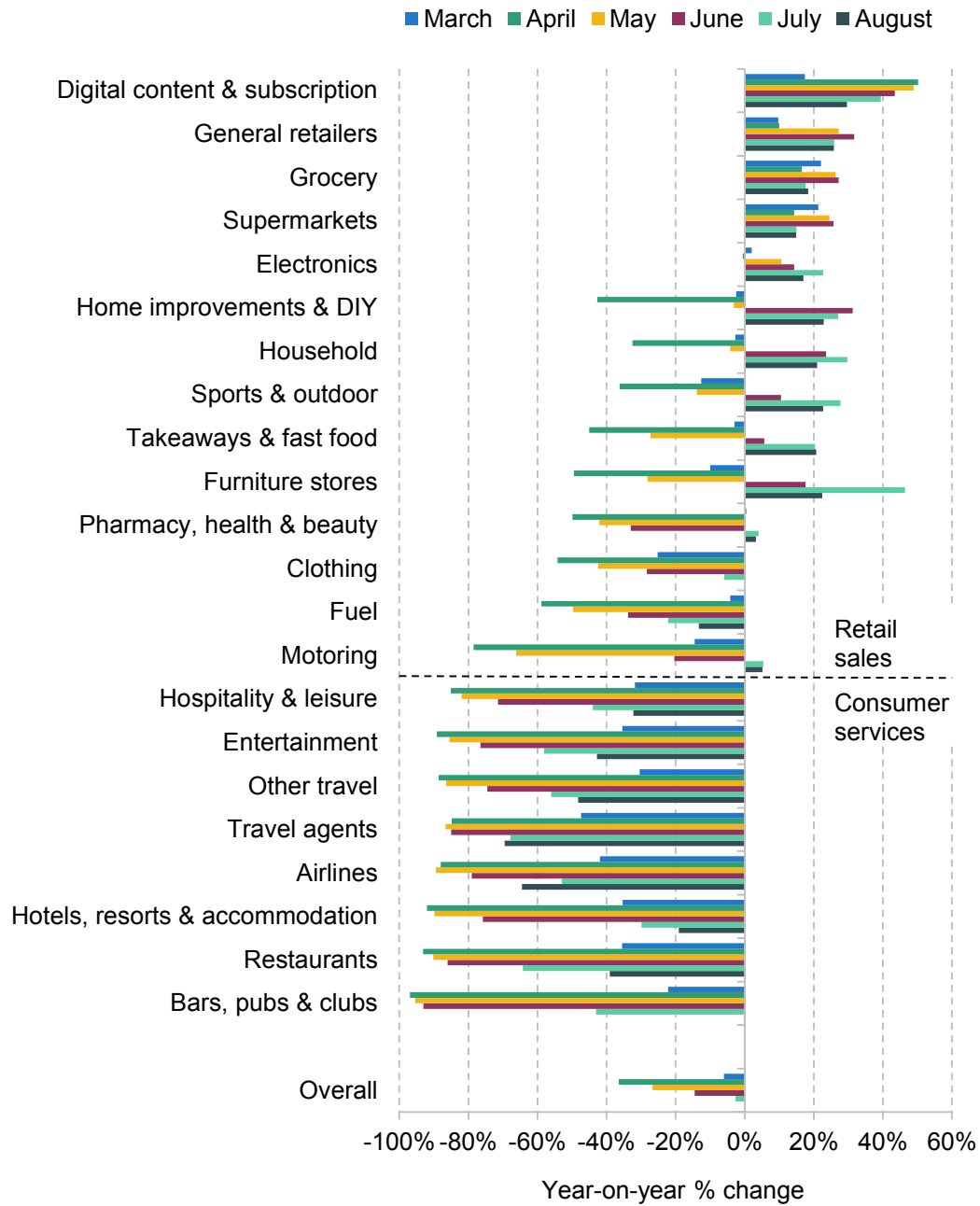
The main upside surprise has been the sharp rebound in durable goods spending. This recovered relatively quickly following a sharp reduction in April (see Figure 2.9). In the months since, this has driven relatively strong growth in retail, with sales excluding auto fuel 4.3% higher in July than the same month a year earlier. A strong rebound in social consumption is also evident in the data for August. This likely reflects policy support – particularly the ‘Eat Out to Help Out’ scheme, which supported more than 100 million meals during the month.¹¹

The key issue is whether recent headline strength is likely to translate into more persistent consumer resilience. There are some notable tailwinds here. Strong house price growth, for example, has traditionally provided support to both household sentiment and consumption. Households have also emerged from Q2 with elevated liquid savings following very high saving rates during the lockdown.

However, we are somewhat sceptical that consumption will continue to prove resilient. As we noted above, a range of transitory factors have been supporting consumption so far. Some types of consumption were not possible during the lockdown, and so consumers entered Q3 with pent-up demand. In other cases, particularly related to spending on durables, households might have brought forward purchases that would otherwise have taken place later in the year because they expected to spend more time at home and consumers rotated away from consumer services.

¹¹ <https://www.gov.uk/government/news/uk-diners-eat-100-million-meals-to-protect-2-million-jobs>.

Figure 2.9. Year-on-year changes in transaction volumes, March–August 2020



Source: Barclays and Citi Research.

Figure 2.10. Attitudes to and take-up of eating in a restaurant



Note: Percentage of all respondents – sample is of all UK adults.

Source: ONS Opinions and Lifestyle Survey and Citi Research.

Instead, we think virus fears are also likely to continue to weigh here. As Figure 2.10 shows, attitudes towards eating in restaurants had improved over the summer months, but consumers already seem to be turning more cautious in recent weeks as case numbers have increased and new restrictions have been imposed. During winter, there will be less opportunity for businesses to adapt by moving outdoors; this means that there is even more scope for virus fears to weigh on demand (as well as supply). We do not expect lost spending here to be fully redirected elsewhere in the near term, driving saving higher.

Household saving rates

Household saving rates jumped to 28.1% in Q2, but they are likely to have fallen sharply in Q3 alongside recovery in consumption. Over the rest of the year, though, we expect elevated saving and weaker consumption as virus fears continue to weigh on consumption.

- First, the accumulation of household saving in Q2 seems to have been quite regressive. Incomes have fallen across the income distribution, but most studies suggest reductions in consumption have been focused among wealthier households, at least in absolute terms (see Hacioglu, Känzig and Surico (2020) and Brewer and Gardiner (2020)). This means lower-income households that are likely at greatest risk of unemployment in the coming months are also less likely to have built up substantial savings during the lockdown to help cushion the financial blow. Some of these households may continue to save at higher-than-normal rates to build up a buffer against the risk of unemployment.
- Second, higher uncertainty is also likely to put upward pressure on saving. While uncertainty has had only a muted impact on household consumption in recent years (Nabarro and Schulz, 2019), the key distinction is that household unemployment expectations are materially higher now than they were before (when uncertainty was mostly related to Brexit). In general, the economic impact of uncertainty is driven disproportionately by the possibility of a ‘bad’ outcome, such as losing employment (Bernanke, 1983). This implies uncertainty could now have a greater adverse impact here.

As we noted above, on current plans, policy support will also start to wind down over the autumn and winter. We expect this to also weigh on household sentiment, especially with respect to employment. This risks further weighing on the private consumption outlook even after virus concerns abate (see below).

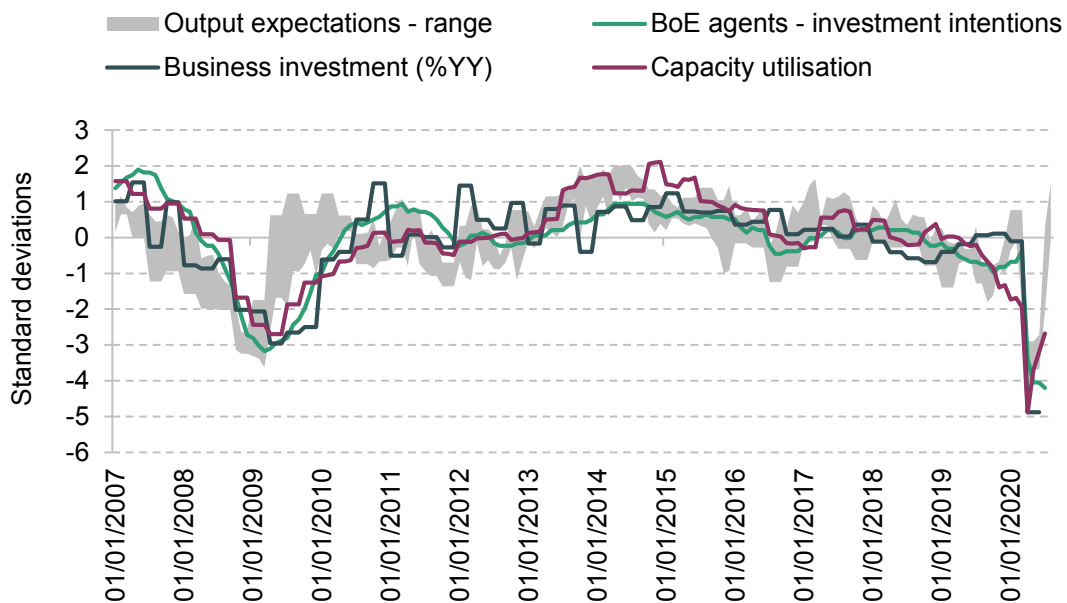
Private investment

The near-term outlook for private investment may prove somewhat weaker still. Having fallen by 34.2% in Q2, we expect business investment in Q3 to make up only some of these losses, with 24.0% QQ growth (even with the support from previously deferred expenditures).

Through lockdown, business investment has been depressed by a focus among firms on accumulating cash. This was also compounded by a drop in the rate of new business formation,¹² since new firms are typically disproportionately responsible

¹² For example, VAT registrations have remained weak in recent months. See <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronavirustheukeneconomyandsocietyfasterindicators/3september2020>.

Figure 2.11. Change in business investment and other indicators



Note: Output expectations are based on data from European Commission and CBI, weighted by GVA where needed. Capacity utilisation is an average of respective indicators from BCC, Bank of England and the European Commission.

Source: Bank of England (BoE), BCC, CBI, European Commission and Citi Research.

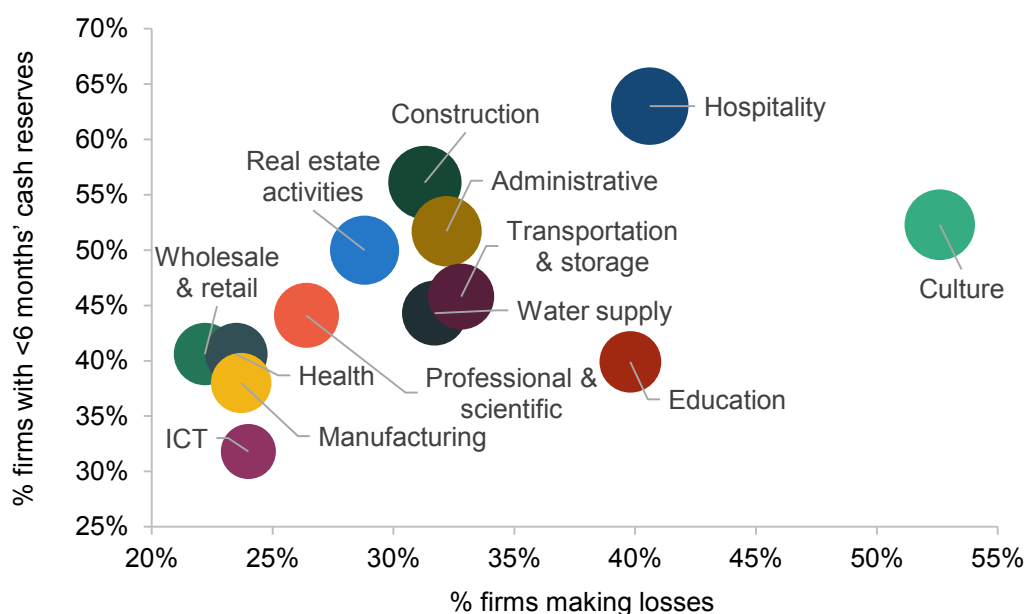
for investment growth (Bank of England, 2020b). Going forward, we expect the outlook here to remain weak. Business expectations of future output remain relatively pessimistic. For the period three months ahead, for example, expectations have improved across most sectors in recent months, but output is expected to remain steady, rather than rebound further. Expectations 12 months ahead – while still positive – have also fallen back. With capacity utilisation scraping all-time lows, this suggests little incentive to invest across the economy as a whole (see Figure 2.11).

High uncertainty seems likely to weigh here too. Even among those firms enjoying relatively strong demand, a lack of clarity regarding the future economic outlook is still likely to incentivise delay to costly investment plans that may or may not pay off. We have discussed these dynamics previously with respect to Brexit (Nabarro and Schulz, 2019). Low confidence in the government's handling of the virus may

also compound these effects (including by raising uncertainty about the timing and extent of future lockdowns).¹³

Weak firm balance sheets will also weigh down business investment. Unlike households, who have typically enjoyed high levels of income replacement during the crisis, firms have received only partial support with their costs (and much of this support has come in the form of loans rather than grants). The implication has been a sharp increase in corporate debt levels.¹⁴ For the time being, credit conditions remain relatively accommodative. Most firms that think they will need additional funding over the coming months also think they should be able to acquire it (Bank of England, 2020c). However, issues may remain further out. As Figure 2.12 shows,

Figure 2.12. Cash reserves and share of UK firms making a loss, August 2020



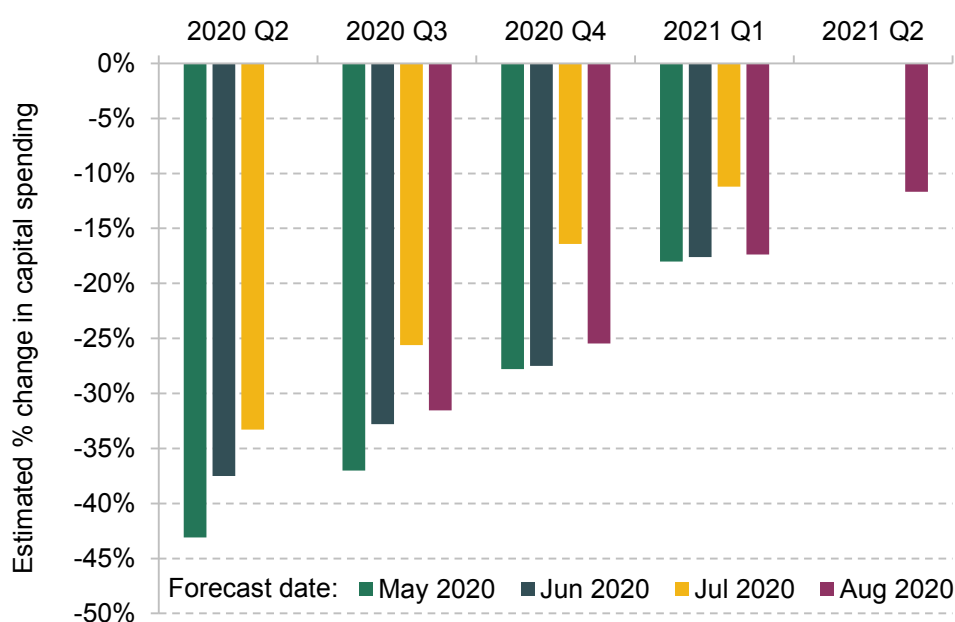
Note: In each case, percentages reflect percentage of all private firms continuing to trade. Size of the bubble reflects each sector's share of employment.

Source: ONS Business Impact of COVID-19 Survey and Citi Research.

¹³ See <https://yougov.co.uk/covid-19> and Nabarro (2020a).

¹⁴ These have grown at record levels in recent months, even as consumer borrowing has fallen sharply according to data from the Bank of England. This may imply a higher rate of corporate risk aversion going forward (see Di Tella and Hall (2020)).

Figure 2.13. COVID-related changes in business investment intentions



Note: Answer to the question 'relative to what would have otherwise happened, what is your best estimate for the impact of the spread of COVID-19 on the capital expenditure of your business in [various quarters]'.

Source: Bank of England Decision Maker Panel survey and Citi Research.

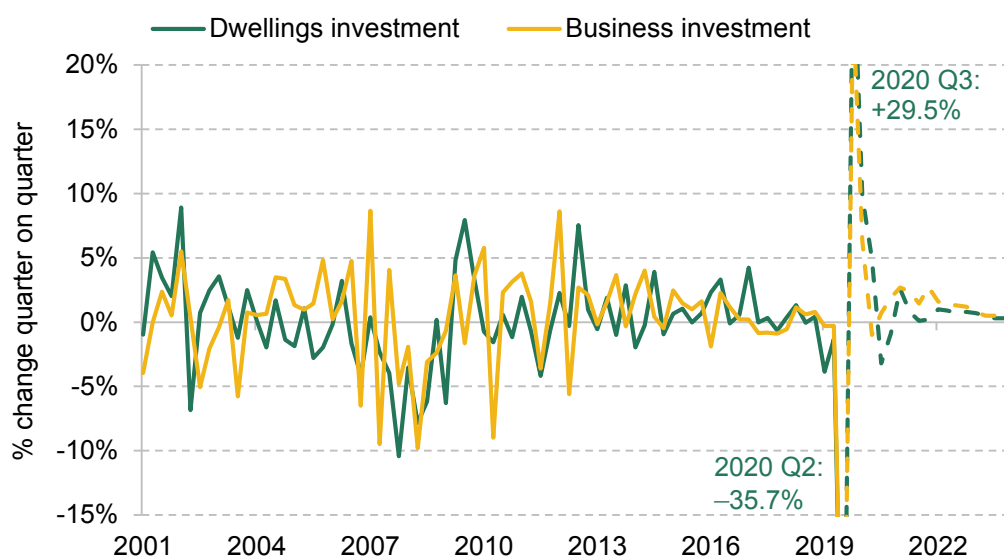
those sectors likely to suffer most because of ongoing weak consumer demand also appear to have the lowest cash reserves. For many firms, boosting cash reserves, rather than expanding capacity, seems more likely to remain the focus.

For now, this high uncertainty regarding both demand and future liquidity implies a weak outlook for business investment. Decision Maker Panel survey data, shown in Figure 2.13, suggest that firms are still set to invest substantially less than usual over the coming months because of COVID-19, with expectations of increasing investment actually falling back over the summer. With Brexit also set to weigh (see Chapter 3), we expect output here to lag rather than lead the recovery.

Residential investment

Residential investment may prove somewhat stronger in the near term. Having fallen further than business investment in Q2 (-35.7% QQ), we expect a recovery of 29.5% in Q3 (shown in Figure 2.14). In the months since lockdown, some of the initial data for residential investment have been encouraging. Energy Performance Certificates for new dwellings have recovered in recent months from 70-80% below

Figure 2.14. UK business and dwellings investment (%QQ)



Note: Forecasts shown in dashed lines.

Source: ONS and Citi Research.

normal levels in mid April to near normal levels in recent weeks (see Table 2.1).¹⁵ The construction PMI for July rebounded markedly, with residential construction the best-performing sector.¹⁶ And housing market activity seems to have been relatively strong over the (late) summer.

Anecdotal evidence has highlighted a bump in housing market activity reflecting previously deferred transactions, the impact of the temporary cut to stamp duty that began in July and new demand as households reassess their housing needs in the wake of lockdown (RICS, 2020). To the degree that this last factor translates into a shift in demand for housing with different characteristics from the current housing stock, it could also spur higher residential investment (as there is more of a need to build).

However, the key near-term support for the housing market is more likely to be policy. We expect a dash for completions in the second half of 2020, as

¹⁵ <https://www.ons.gov.uk/releases/coronavirusandthelatestindicatorsfortheuकेconomyand society17september2020>.

¹⁶ <https://professionalbuildersmerchant.co.uk/news/ifs-markit-cips-uk-construction-pmi-july/>.

construction firms seek to pre-empt the end of both the stamp duty cut and the Help to Buy equity loan scheme in March 2021.

Further out, however, we expect both house prices and residential investment to subsequently weaken. Residential investment is generally less sensitive to changes in the output gap, but it is more sensitive to changes in unemployment. As we discuss in Section 2.5, we think the UK labour market is likely to deteriorate sharply in the latter half of 2020. Unlike in 2008–09, a stronger financial sector should preclude a more severe reduction in house prices.¹⁷ But we think this should still result in a more gradual reduction in prices over the coming years. In 2008–09, house prices fell by 17% between 2007 Q3 and 2009 Q1. We expect house prices to fall cumulatively by 11% over two years (from 2020 Q3 to 2022 Q3).

Exports and trade

Both exports and imports fell sharply in the first half of 2020. As in the financial crisis, imports have fallen further than exports in recent months, reflecting the relative underperformance of the UK economy in comparison with its major trading partners (see Chapter 1). As Figure 2.15 shows, services imports have been particularly weak. Goods exports (adjusting for the export of non-monetary gold¹⁸) have proven stronger. The main support here in recent months has been resilient goods exports to the EU, especially in chemical and medical goods.

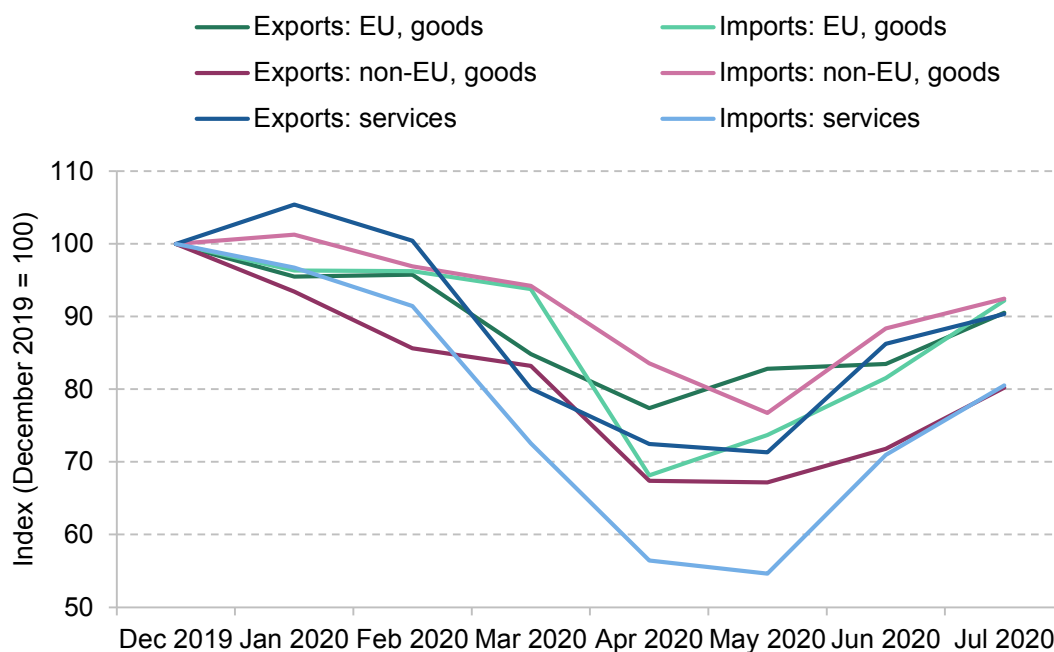
More recent data suggest UK trade is beginning to tick up a little faster. UK exports of consumer goods to the EU also seem to have rebounded strongly as the EU recovery has progressed (see Chapter 1). We expect a further recovery in imports alongside the rebound in private consumption in Q3.

In Q4, we expect similar ‘pre-Brexit’ dynamics to those we saw in October 2019. Specifically, we think imports are also likely to be boosted by domestic stockpiling.

¹⁷ In recent weeks, for example, the Financial Conduct Authority (FCA) has extended guidance requiring mortgage lenders to support homeowners struggling with repayments as a result of the ongoing impact of COVID-19 (<https://www.fca.org.uk/publications/guidance-consultations/mortgages-and-coronavirus-additional-guidance-firms>). Such measures, we think, should reduce the rate of foreclosures.

¹⁸ The UK trade data have been distorted in recent years by increasingly volatile moves in non-monetary gold. Such moves are neutral for GDP overall, and therefore are excluded from this analysis.

Figure 2.15. Level of components of UK trade (index, December 2019 = 100)



Source: ONS and Citi Research.

However, in comparison with, for example, 2019 Q1 ahead of the original March Brexit deadline, we expect these effects to prove somewhat more muted since firms already have high levels of outstanding inventories and may face additional constraints on working capital. We also expect the boost to GDP to prove significantly smaller. This reflects a weaker boost to exports as many EU firms seem to have already adapted their supply chains to rely less on UK exports. This suggests less of a boost to both exports and domestic industrial production than in 2019 Q1.

In the longer term, we think the risks are skewed towards weaker trade growth. Goods exports to the EU are likely to be hit hard by the imposition of non-tariff barriers and customs checks at the start of 2021. As we discuss in Chapter 3, recent developments in the negotiations suggest these costs may prove even greater than those implied at the start of the year, with greater costs associated with a thinner deal and a risk of no deal at all.

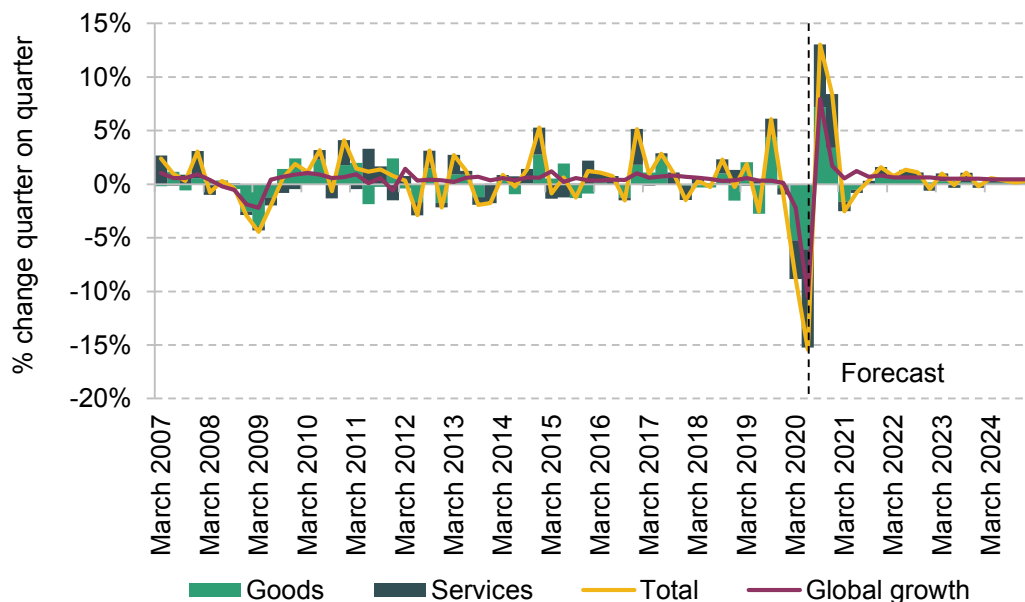
Importantly, we think these changes are likely to prove disruptive to UK goods exports not just to the EU, but also to the rest of the world. In the near term, this may be the result of acute border disruption at the start of 2021 (see Chapter 3). It

may also reflect challenges in rolling over trade agreements with third countries (19 of the 40 agreements reached by the EU have so far been renegotiated). However, in the medium term, trade with countries outside the EU may also be disrupted, with some existing UK comparative advantages potentially based on access to highly specialised value chains with the EU (Schulz, 2018).

Perhaps more notable are the potential risks to the UK’s trade surplus in services. As with goods, many of these exports are likely to be subject to additional regulatory barriers when the UK leaves the EU Single Market. Moreover, these services are often highly specialised, making it more difficult for the UK to find new markets in other countries. Indeed, trade deals that offer comprehensive coverage of services are much less common than those that cover goods, with the EU Single Market being the most notable exception. We expect services export growth to remain relatively weak (see Figure 2.16).

Service exports may also face more direct and lasting challenges from COVID. First, lasting virus fears may pose ongoing challenges for international travel – this

Figure 2.16. Exports of goods and services, and global (UK trade-weighted) GDP growth



Note: Global growth weighted by UK value added exports from the OECD TiVA database; last observations are rolled forward.

Source: ONS, OECD and Citi Research.

has already been noted in some recent surveys as adversely affecting not just tourism and travel services but professional and business services too. In addition, virus fears could also affect the UK's comparative advantages in producing some of these services. Specifically, the pandemic risks more lasting damage to urban agglomeration economies where some of these industries are clustered. In 2016, London made up 46% of total services exports, compared with around 25% of GDP.¹⁹ The transition towards remote working, in particular, may ultimately make it easier – and more attractive to both firms and many employees – to offshore service employees and relocate activity out of the country.

2.5 Looming challenges for the UK labour market

The recovery from COVID hinges on households. Following the jump in saving in Q2, a key question for the recovery from here is the degree to which households utilise new-found liquid assets to drive consumption and a broader subsequent rebound. The fundamental issue is that the shock from COVID also poses a particularly severe risk to the UK's labour market. This risks undermining household sentiment just at the point when strong household confidence is most needed.

Labour demand has fallen sharply in recent months. So far, policy has done a lot of the heavy lifting to help insure households against the risk of unemployment or (much) loss of earnings, and to support businesses. But as this support starts to be withdrawn, we think substantial challenges are likely to emerge. In particular, as virus fears and lockdown measures continue to depress demand in some sectors, some are likely to be forced into redundancies.

The risk to jobs

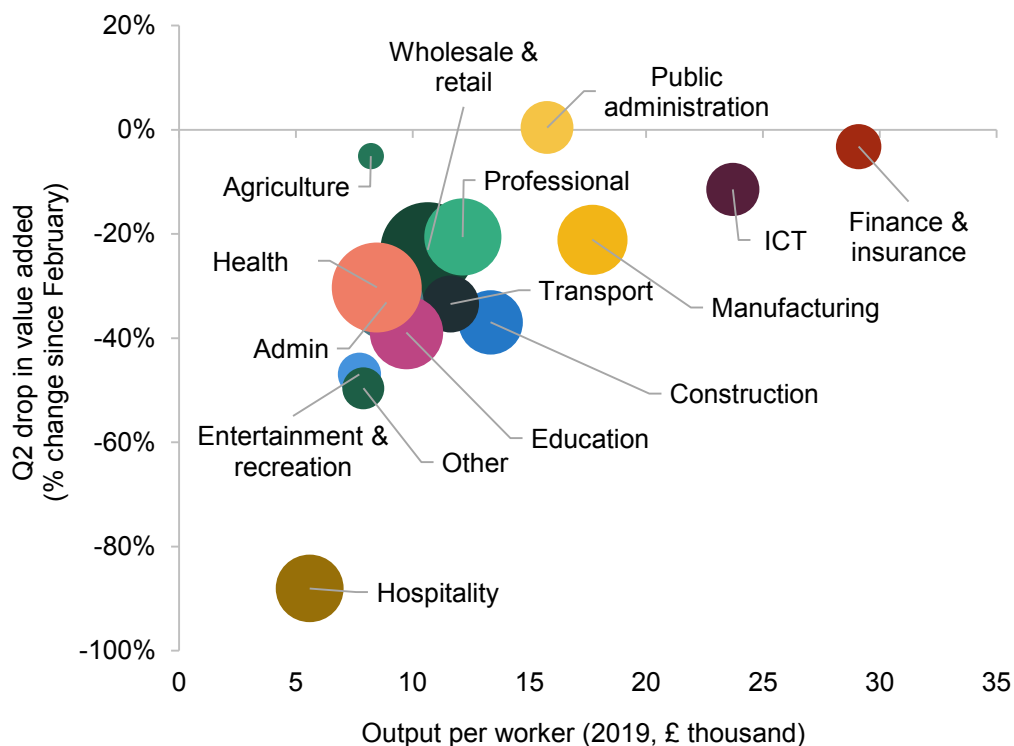
The character of the economic shock from COVID increases the risk to the UK labour market. Not only is the shock very large, but it also disproportionately hits labour-intensive sectors with lower output per worker, as shown in Figure 2.17. Sectors such as hospitality and recreational services – which are highly labour

¹⁹ <https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/datasets/regionalisedestimatesofukserviceexports>.

intensive – saw some of the largest falls in activity in March and April as they were almost entirely shut down. Given virus fears and further social distancing measures such as the ‘Rule of Six’ and pub and restaurant curfews, we also expect weaker demand going forward to be concentrated in these sectors. This will contribute to a slower rebound and leave more jobs at risk.

Since the 2016 referendum, many firms in the domestically focused consumer services sector have also seen their margins squeezed by the combination of relatively high unit labour cost growth and low price inflation (Nabarro, 2020c). In part, this reflects increases in the living wage, but more notably it reflects some of the specifics of the UK’s post-2016 economic cycle – with wage costs likely driven up by the tradable sector in particular as firms compensated for low investment with higher hiring. This means many firms in domestically focused sections of the economy now have less ability to absorb any fall in productivity (for example, because of social distancing regulations) or a fall in demand. This could imply greater, front-loaded risks to employment.

Figure 2.17. Output per worker and average drop in sectoral value added in 2020 Q2



Note: Size of the bubble reflects the number employed in a sector before the outbreak.

Source: ONS and Citi Research.

The UK labour market during the lockdown

So far, policy has effectively protected the UK labour market from the economic fallout from COVID-19. Hours worked fell by 19.3% in Q2 compared with the previous year – broadly commensurate with the reduction in output (see Table 2.3). However, employment as measured in the Labour Force Survey (LFS) was broadly steady, though this did include roughly 5–7 million more workers registering as ‘temporarily away from work’ than in previous years – primarily reflecting the impact of the furlough scheme.

The impact of the government’s interventions since March has been enormous. Historical relationships between employment and hours worked and GDP would have implied an increase in the headline UK unemployment rate of 10.3 percentage points in Q2 (Nabarro, 2020b). Instead, the unemployment rate remained steady at 3.9% – unchanged from Q1. Data from the labour support schemes themselves suggest these may have prevented unemployment increasing to as much as 15%. This reflects the disproportionate exposure of more labour-intensive sectors, and also part-time workers within this area of the economy.

However, even with this exceptional support in place, some notable signs of weakness were still evident in the data from Q2. Employment among part-time workers has fallen sharply. Employment among the youngest and oldest workers has also softened somewhat, with 156,000 16- to 24-year-olds dropping out of employment in the three months to July (compared with the three months prior).

All of this likely understates the severity of recent deterioration, since the survey data from the LFS are likely somewhat flattering. The LFS suggests that there are roughly 750,000 workers who report both that they are temporarily away from work for three weeks or more (but employed) and that they are no longer receiving any earnings. This, we think, reflects growing numbers of furloughed workers who were previously employed by firms that have since closed. In addition, a spike in non-reporting in recent months has seen a growing share of previous responses carried forward, potentially inflating employment. Data from actual payrolls, shown in Figure 2.18, imply a much weaker picture. Compared with the LFS data (which suggest the number of employees actually increased by 159,000 on average in the three months to July compared with February through April), the payrolls data suggest a fall of 497,000. Overall, February to August, the payrolls data now suggest the UK economy has shed 707,000 employee jobs. This is a significantly

Table 2.3. Various labour market data, 2020

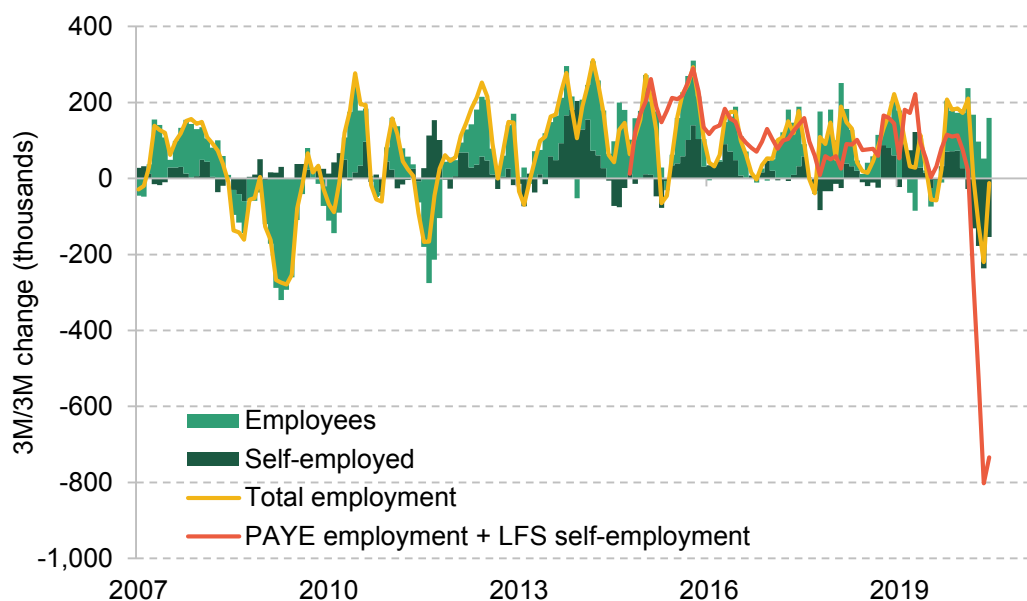
	2016–19 average	Feb 20	Cumulative change since February					
			Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20
Employment ('000)	32,264	33,073	71	-82	-125	-149	-94	-
Employees ('000)	27,251	27,856	108	72	97	160	231	-
Self-employment (‘000)	4,828	5,028	-29	-126	-178	-266	-280	-
Full-time employment ('000)	23,715	24,455	-2	-59	37	142	201	-
Part-time employment ('000)	8,549	8,618	74	-23	-162	-291	-294	-
PAYE employees (‘000)	28,430	29,016	-11	-471	-606	-626	-741	-707
Unemployment rate (%)	4.3	4.0	-0.1	-0.1	-0.1	-0.1	0.1	-
Marginally attached ('000)	2,005	1,848	21	161	253	238	108	-
Average weekly earnings (%YY)*	2.8	2.9	-0.6	-1.9	-3.2	-4.1	-3.9	-
Total hours worked (%YY)*	1.2	-0.1	-1.1	-8.9	-16.6	-19.2	-17.4	-

* The rows for average weekly earnings and total hours worked are year-on-year changes.

Note: Employees and self-employed series will not sum to total employment owing to the exclusion of unpaid family workers and those on government-supported training. AWE refers to average weekly earnings.

Source: ONS, HMRC and Citi Research

Figure 2.18. Employment changes based on LFS and PAYE estimates



Note: 'PAYE employment + LFS self-employment' reflects changes in a combined index of both tax-based employment estimates and LFS self-employment data. 3M/3M average refers to the change over a given three-month period, compared with the three-month period beforehand.

Source: ONS, HMRC and Citi Research

sharper deterioration than anything seen during the 2008–09 financial crisis – here the economy shed roughly 785,000 employee jobs peak-to-trough (between June 2008 and February 2010).

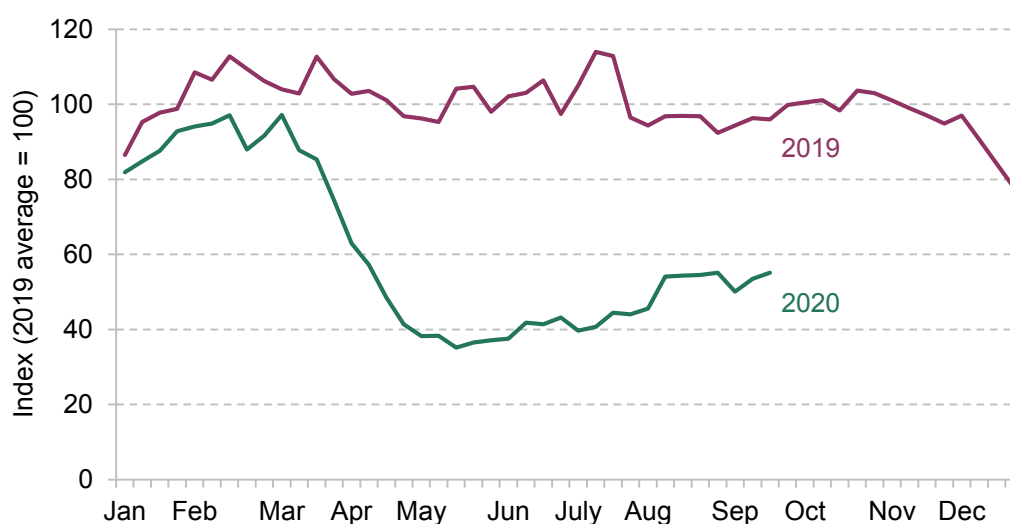
Within the LFS data, we think there are already signs of a larger increase in unemployment to come. The number of workers moving into inactivity but who said they would like a job increased by 511,000 between 2020 Q1 and Q2, by far the largest quarterly increase since 2000. Assuming that many of these would-be workers started looking for jobs in Q3 but not all found paid work, we expect some of these workers to add to unemployment. Similarly, of the 750,000 who were reporting they were temporarily away from work, but were no longer receiving some furloughed income, a proportion of these workers are now likely to start

looking for work. If just half of both groups start looking for work in Q3,²⁰ this alone would imply an increase in the unemployment rate to roughly 6%, even without any further redundancies.

Weak labour demand

Reductions in employment to date have largely been driven by fewer people finding new jobs, rather than more people leaving their existing employment.²¹ Vacancies have dropped to record lows in recent months (see Figure 2.19), while widespread indicators of labour demand are also at their lowest level on record. Despite the UK economy having now broadly reopened, data here remain very weak. Online vacancies measured by Adzuna remained just 55.1% of their 2019 average in the

Figure 2.19. Total weekly job adverts on Adzuna, UK



Source: Adzuna, ONS and Citi Research.

²⁰ Specifically, (1) those temporarily away from a job at a closed firm, (2) a portion of self-employed workers unable to claim support under the Self-Employment Income Support Scheme and (3) a portion of those moving out of employment into inactivity (see <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetype/bulletins/uklabourmarket/august2020>).

²¹ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/earningsandemploymentfrompayasyouearnrealtimeinformationuk/august2020>.

week to 19 September.²² The latest official data on vacancies in July also remained 53% of January 2020 levels.

Weak labour demand reflects three factors:

- Average labour costs per unit of output have likely increased significantly. This primarily reflects weaker demand. However, new capacity constraints and fixed operating costs have also likely gone up, weighing on worker productivity. As output continues to lag pre-COVID levels, both effects are likely to weigh, especially among sectors most affected by continued virus fears.
- Emerging financial constraints may also be weighing on hiring as firms seek to conserve cash.
- High uncertainty may also be weighing on labour demand (though likely to a lesser degree than investment, given hiring decisions are more easily reversed) (Di Tella and Hall, 2020).

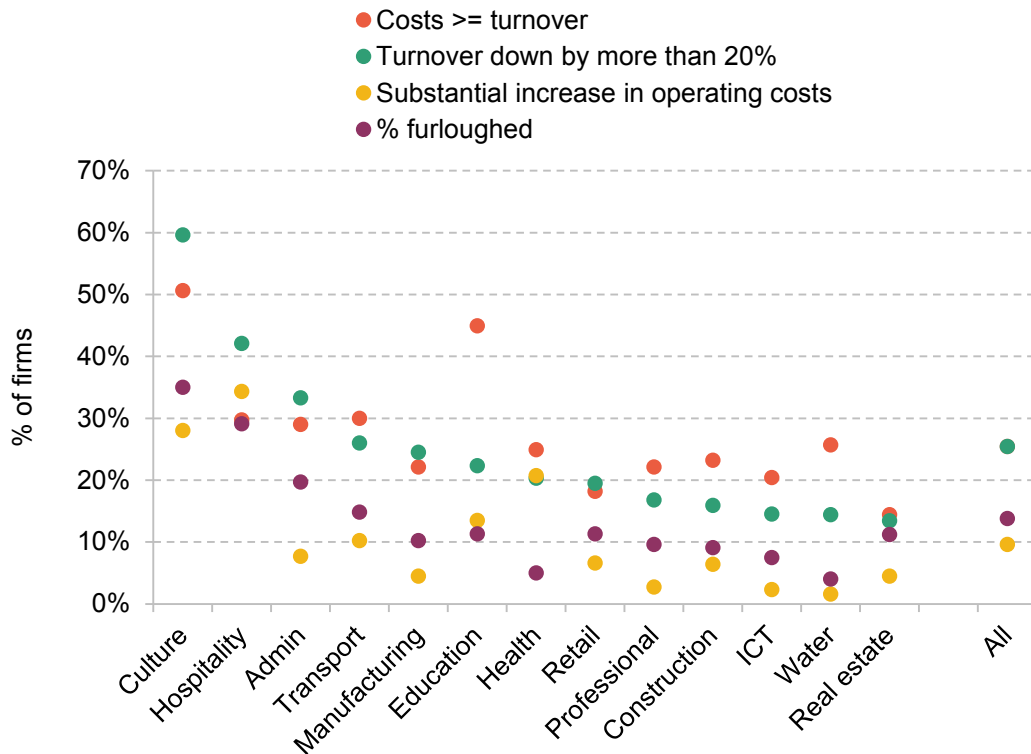
The first of these factors poses a key challenge for furloughed workers. Sharp reductions in product demand in some sectors have already resulted in a relatively large share of the workforce being placed on furlough.²³ Data from HMRC suggest 8.3 million employments were furloughed on average during Q2; we think this amounts to between 7 and 8 million workers, significantly more than the 6 million previously estimated by the Bank of England. Even as the economy has reopened, demand in many of these sectors has remained weak. 25% of private firms are currently reporting turnover either just meeting or falling short of operating costs. And many furloughed workers are employed in sectors where the picture is even worse (see Figure 2.20). As we noted above, we think demand is likely to remain weak here as virus fears linger.

As support is wound down, we expect this to result in a material increase in unemployment within these sectors. In the Winter Economic Plan on 24 September, the Chancellor confirmed the Coronavirus Job Retention Scheme would not be

²² <https://www.ons.gov.uk/releases/coronavirusandthelatestindicatorsfortheukeconomyandsociety24september2020>.

²³ 8.3 million workers were furloughed on average during Q2 (30% of private employees), with 6.8 million still furloughed at the end of June – timelier data suggest this may have fallen to around 4.2 million by the start of August. During July, we think around 18% of private employees remained furloughed.

Figure 2.20. Share of firms suffering lower turnover, higher operating costs and negative profits, September 2020

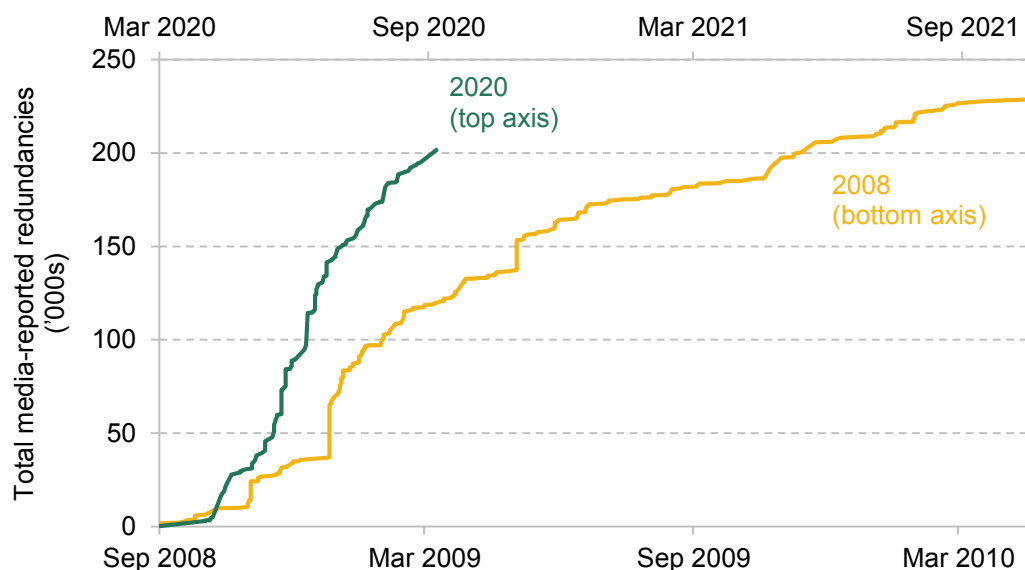


Source: ONS BICS and Citi Research.

extended beyond October. The replacement Job Support Scheme is substantially less generous: employers will need to pay around 57% of normal labour costs for employees using the scheme, up from 29% under the furlough scheme in October. Over the coming months, we think this is likely to result in a sharp increase in redundancies, especially in these sectors suffering persistently weak demand.

Some of these effects may already be beginning to materialise. From August, firms started to incur some of the labour costs associated with furloughed workers (which increased through September and October). In just the seven months from March to September, nearly 202,000 redundancies have been reported in national media. This compares with roughly 230,000 throughout the 18 months following the 2008-09 financial crisis (see Figure 2.21). During the financial crisis, 230,000 media-reported redundancies corresponded to around 4.5 million redundancies as measured in the LFS over the same period (a ratio of almost 20 ‘real’ redundancies for every redundancy reported in the press). However, more-affected sectors today tend to include a greater share of small firms, which could suggest an even higher

Figure 2.21. Cumulative media-reported redundancies (thousands) during the Great Financial Crisis (2008–10) and Coronavirus Crisis (2020)



Note: Only includes announcements reported in national media outlets.

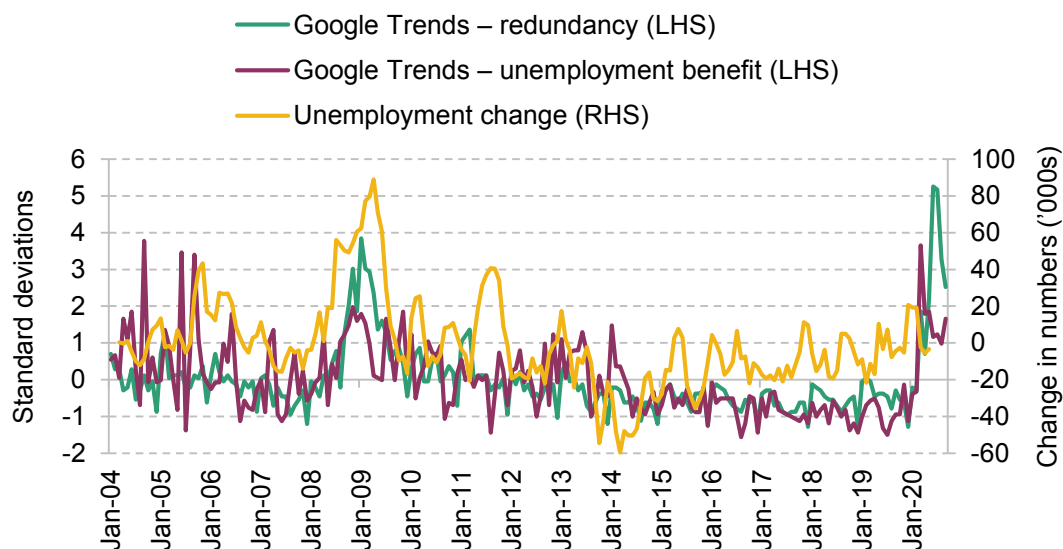
Source: Guardian redundancy tracker, personneltoday.com, various national media outlets and Citi Research.

ratio of job losses to public announcements.²⁴ Figure 2.22 shows that Google searches for terms such as redundancy, which have historically been a good indicator of increases in redundancies, have also increased sharply in recent weeks (Leslie and McCurdy, 2020).

Important here is that we expect these effects to be driven by weakness in a handful of these more adversely affected sectors. We think these effects are likely to prove persistent. Changes in patterns of demand due to the twin shocks of COVID-19 and Brexit will see some sectors shedding jobs. The affected sectors will not always be the same in both cases, as discussed in Chapter 7; while COVID has (at least so far) been particularly hard on consumer services sectors, the combination of weak sterling and high uncertainty in the tradable sector has driven a substantial increase in employment that is now more exposed to the increased cost of trading with the

²⁴ Another change since the financial crisis has been the new consultation periods for collective redundancies, which came into force in 2013. Where the number of employees to be dismissed is more than 99, the minimum period has been reduced – from 90 days to 45 days.

Figure 2.22. Google searches for terms relating to redundancy, and changes in unemployment



Note: Google search terms measure the intensity with which different items are being searched for on Google's respective platforms. The index is linked to the peak interest in a term since 2004. We have normalised these data over the 2004 to September 2020 period to express these series in conventional standard deviations (with a mean of zero and standard deviation of one). The change in unemployment numbers is a three-month moving average.

Source: Google Trends, ONS and Citi Research

UK that will come from January. Economic reconfiguration in both respects is therefore likely to see a spike in job losses as sectors and workers in both contexts adjust, and potentially a more persistent increase in unemployment too (see Chapter 3).

We expect unemployment to increase sharply from here as the freezing effect of the furlough scheme begins to ease. Our forecasts currently see unemployment increasing to 8.3% in 2021 Q2 when the impacts of both the pandemic and Brexit are felt. The risks here are skewed towards even higher unemployment, especially if further labour market support is not forthcoming. As we noted above, this risks feeding back into a weaker recovery.

Who's at risk?

The sectoral composition of the current economic crisis has important implications for those who are at risk of unemployment. Three characteristics seem to be associated with a greater risk of redundancy.

- **Age.** Younger workers are disproportionately likely to be either furloughed or unemployed so far in the crisis. A study from IFS in April found that workers under 25 were two-and-a-half times as likely to work in a sector that was closed during the lockdown, and that these shut-down sectors employed nearly a third of all young workers (Joyce and Xu, 2020). While many – though by no means all – of these young people will be able to receive some support from their families, this age group in general has low savings, so reductions in income likely imply a sharper reduction in overall consumption.
- **Income.** Lower-income people are also more likely to be affected, with many of the jobs in these consumer services sectors relatively poorly paid. 27% of workers in the bottom quintile of the earnings distribution have been furloughed according to Resolution Foundation data, compared with 21% in aggregate. Here too some workers may be able to depend on household rather than individual savings – Cribb, Joyce and Xu (2019) showed that lower earners often live in middle-income households. However, of course, not all lower-income workers will have this safety net available.
- **Gender.** Findings on the impact of gender have been mixed. On the one hand, women disproportionately work in more-affected areas of the economy, including hospitality. On the other, women are also more likely to be essential workers. However, we do think that, overall, women are also likely more exposed to the lingering economic impact of the virus.

These effects are all likely to increase the risk to consumption posed by higher unemployment. These compositional effects suggest households with lower savings are likely to be disproportionately exposed. To the extent that credit-constrained workers are subsequently hit harder, this implies a larger reduction in consumption and demand.

2.6 The near-term outlook for inflation

Our outlook implies that the second half of 2020 will see overall capacity in the UK economy outstrip demand, leading to negative output gaps and unemployment (both of people and of capital). We expect this to weigh down on inflation throughout the end of 2020, and potentially into 2021. But we expect this downward pressure will be moderated by the sectoral composition of the shock and firms' attempts to hoard cash. This, we think, is likely to mean low inflation, but no deflation, over the coming months.

During the lockdown in Q2, there were pockets of higher inflation: prices for a series of goods, including non-perishable food, increased sharply in March as households adjusted to lockdown, with food prices overall increasing by 1.5% between March and April according to the ONS high-demand products index.²⁵ However, price pressures seem to have eased subsequently. Price expectations for the coming three months have also eased further, in part reflecting some of the lagged benefits of lower energy prices.

Even during the lockdown, these price rises were somewhat offset in the overall inflation index by the ONS methodology for imputing prices in shut-down sectors. Between April and June, 13–16% of the CPI basket was unobserved owing to the shutdown in large swathes of the consumer services sector. For many of these items, the ONS chose to adopt ‘whole index imputation’, assuming that prices grew at the same rate as did the (observed) index as a whole.²⁶ But since inflation in these shut-down sectors is usually slightly higher than elsewhere, this generated a disinflationary bias to these data – especially given the reduction in energy prices.

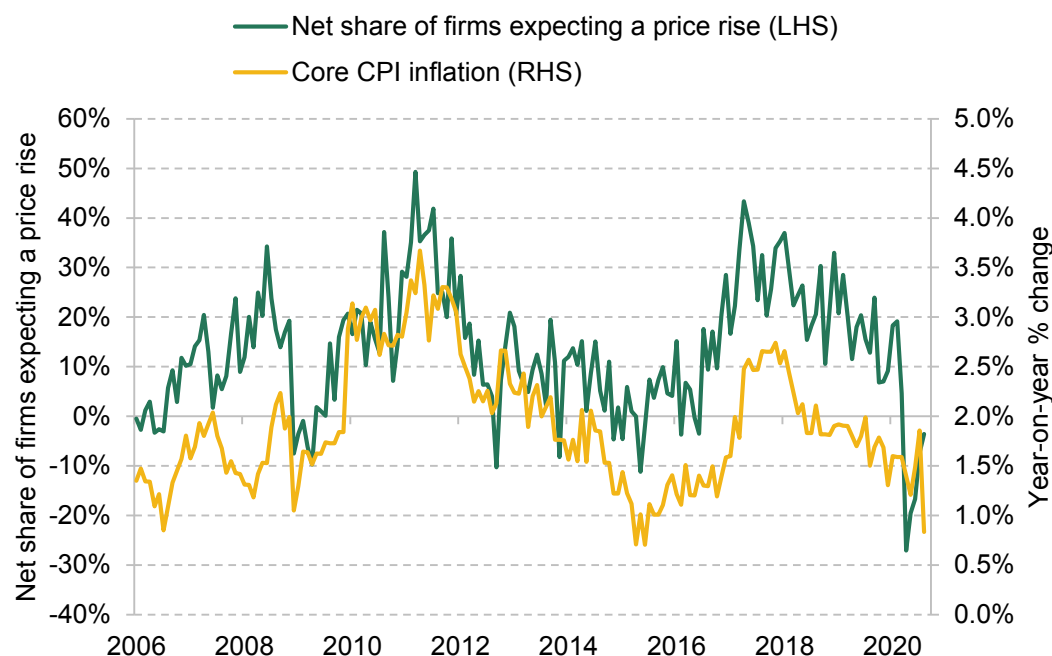
We expect further disinflation in the latter part of 2020 (see Figure 2.23). This primarily reflects weak demand as policy support is dialled down. The 15ppt cut in VAT for the hospitality and recreational sectors is also likely to put downward pressure on prices, though these effects are likely to be partially offset by higher operating costs in some cases. Evidence from the cut in 2008 suggests the impact of such measures tends to be backloaded in these sectors, with the greatest reduction in price observable in the weeks before the measure is lifted.

Given these disinflationary pressures, we expect headline CPI inflation to fall to 0.3% YY in Q4, well below the 1.7% YY inflation seen in Q1 (not to mention the 2% annual inflation target ascribed to by the Bank of England). While a significant fall, any positive inflation is perhaps surprising given the extent of spare capacity in the economy. This is a result of four factors:

²⁵ <https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/onlinepricechangesforhighdemandproducts>.

²⁶ <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/coronavirusandtheeffectsonukprices/2020-05-06>.

Figure 2.23. Core CPI inflation (% change YY) and firms' price expectations for core CPI components over the coming three months



Note: Price expectations are based on European Commission data and plot the difference between the share of firms expecting prices to rise and the share expecting prices to fall in the next three months. Sectors/goods are weighted by their share in core CPI – Consumer Prices Index excluding food and energy.

Source: ONS, European Commission and Citi Research.

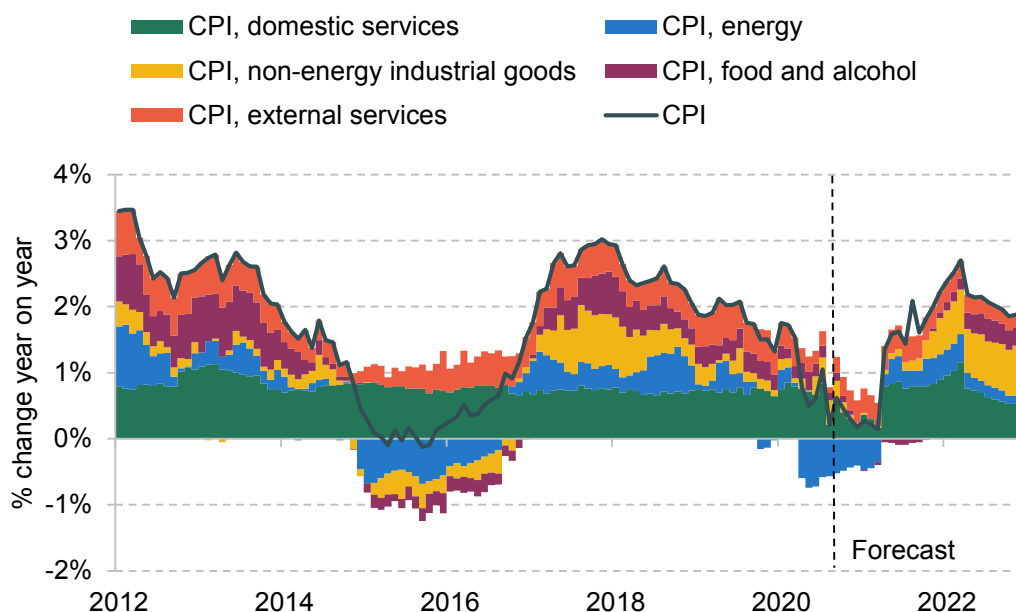
- First, pass-through from spare capacity to domestic (dis)inflation tends to be lower when demand is weak. This is because consumers tend to become less price-sensitive in times of low demand, disincentivising price cuts (Tenreyro and Thwaites, 2016).
- Second, we think weak demand is likely to prove most extensive in sectors that have stickier and less cyclically sensitive prices. Compared with the rest of the economy, prices in the consumer services sector tend to change only infrequently (Bunn and Ellis, 2011). This means pass-through from weak demand to lower prices may be slower (Carvalho, 2006), but also weaker if uncertainty remains high (Woodford, 2009). Some of these sectors also exhibit a weaker relationship between demand and inflation more generally.
- Third, if firms are concerned about their internal liquidity position, this can result in very limited pass-through as long as their consumers are not very price-sensitive (Gilchrist et al., 2017). These characteristics may describe

conditions in parts of the consumer services sector, where demand is typically not very sensitive to price changes. As we noted above, firms do indeed seem to be hoarding cash in an attempt to insulate themselves against potential further shocks.

- Fourth, stronger house prices could also provide some additional support to inflation. While the direct impacts of house prices on headline inflation are relatively small, these can drive near-term inflation expectations higher. Nationally, house price growth does seem to have a statistically significant impact on near-term (12-month-ahead) household inflation expectations. Within the CPI basket, many prices – for example, in consumer services – only change once a year, so inflation expectations 12 months out could have a notable impact (Bunn and Ellis, 2011).

However, despite these upward pressures, we expect underlying domestic inflation to remain relatively subdued for some time to come. Transitory and base effects may push headline CPI above 2% later in 2021, but we think these effects may prove somewhat short lived, with inflation subsequently stabilising at below target levels as spare capacity continues to weigh (see Figure 2.24). However, it is worth noting that several medium-term risks could still push inflation higher over this period, in particular high inflation expectations (see Chapter 3).

Figure 2.24. CPI inflation (% change YY)



Source: ONS and Citi Research.

2.7 Understanding the outlook, thinking about the judgements

Our outlook is more pessimistic than many others for the UK over the coming years. These differences largely reflect different judgements regarding the fundamental effects of COVID-19 and Brexit. Given the considerable uncertainty regarding the path of COVID, the public health response, and the reaction of firms, households and the economic authorities, no single forecast can confidently claim to be best. Instead, greater degrees of dispersion serve to highlight the risks to the near-term economic outlook. We discuss some of the longer-term risks and Brexit in Chapter 3. With respect to the near-term impact of COVID, however, we think these differences can be broadly summarised via three questions.

- **The development of the virus.** First, we expect virus risk to persist well into 2021. We think risks remain until either an effective vaccine or therapeutic treatment is developed and made widely available. In practice, this could turn out either better or worse than we expect. There have been reports of a vaccine potentially becoming available sooner than the first half of 2021. Recent advances in the therapeutics could also significantly reduce the risks associated with the disease. At the same time, the risk of a second major outbreak and more stringent national lockdown also remains. We judge virus risks remain elevated through the rest of 2020, but then begin to ease between Q1 and Q3 2021.
- **Near-term impact of the virus on demand.** We expect lingering virus concerns to weigh on both supply and demand. As we discussed above, we think these effects are likely to be relatively substantial, but naturally there is disagreement on the scale of these effects and their balance across supply and demand.
- **Reconfiguration and its impact on the labour market.** We think the UK economy is likely to undergo substantial structural reconfiguration in the wake of both COVID and Brexit. We discuss the longer-term effects of this in Chapter 3. However, this also implies a weaker cyclical recovery, with (1) a larger initial increase in unemployment, (2) more substantial reductions in business and household confidence and (3) more persistent negative output gaps. Official forecasts assume a more limited degree of reconfiguration, with the Bank of England's August forecasts, for example, suggesting some issues

with respect to mismatch in the near term, but little reconfiguration in the longer term (Bank of England, 2020b).

Alternative pathways for the economy

Alongside our central forecasts, we have produced three other illustrative scenarios for this Green Budget, reflecting substantial uncertainty across all three questions.²⁷ These seek to tease out several alternative paths that the UK economy might chart as the economy emerges from lockdown.

- **Central scenario.** This is Citi’s central forecast, adjusted to exclude the impact of assumptions of further fiscal support over the coming months.
- **Optimistic scenario.** In this scenario, virus fears dissipate more quickly than expected, with consumption and the labour market subsequently more resilient. The economy subsequently rebounds more quickly, and output recovers to a level closer to its pre-crisis trajectory in the longer term, with economic reconfiguration kept to a minimum.
- **Pessimistic scenario.** In this case, a repeat outbreak over the winter of 2020–21 forces the imposition of widespread social distancing requirements. Rather than a sweeping and comprehensive national lockdown as in March, this scenario instead reflects some national sectoral shutdowns (such as for the hospitality sector) as well as more comprehensive local lockdowns applying to roughly 15–20% of the UK population at any given time. Given the accumulating risks to firm balance sheets, this scenario is expected to result in a spike of bankruptcies and redundancies, compounding the longer-term economic impact. We expect some support for household incomes in this scenario, but less than in 2020 Q2.

Broadly, the optimistic scenario is comparable to the August Monetary Policy Report forecasts produced by the Bank of England and the ‘upside scenario’ produced by the OBR in its July 2020 Fiscal Sustainability Report, though unlike the OBR’s scenario our optimistic scenario does include some scarring, which seems appropriate. However, our pessimistic scenario is based on different assumptions with respect to the passage of the virus from those used by the OBR in July. Instead, the virus assumptions underlying this scenario seem broadly similar

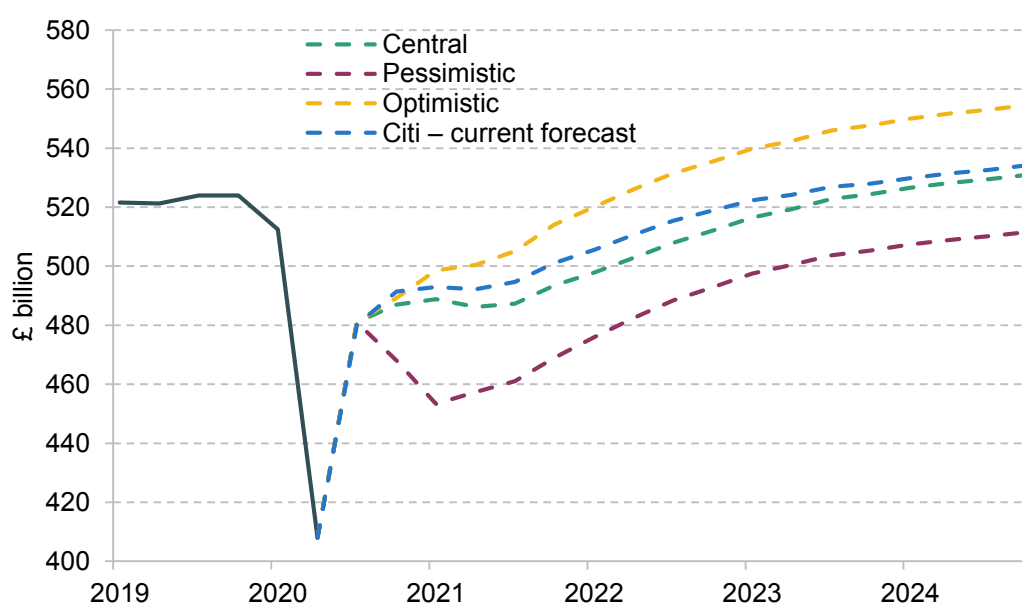
²⁷ These scenarios broadly build on previous work conducted by both Citi and IFS (Emmerson, Nabarro and Stockton, 2020). This has since been updated.

to the ‘plausible worst case’ scenario reportedly developed by SAGE for the Cabinet Office. This includes both a COVID resurgence and a bad conventional winter flu outbreak: an outcome that would clearly be bad for the UK economy and population and one, we hope, which does not materialise.

In all three cases, we still assume the UK exits from the EU Single Market and Customs Union in early 2021 with a relatively rudimentary trade agreement (see Chapter 3). In all three cases, beyond the repetition of the Coronavirus Job Retention Scheme in the pessimistic scenario, we do not assume any additional fiscal easing beyond what had been announced by 24 September.

We also assume additional support from monetary policy in both the central and pessimistic scenarios. In the central scenario, this takes the form of a cut in Bank Rate (to -0.1 by August 2021) and additional asset purchases to the tune of £110 billion. In the pessimistic scenario, we assume that severe stresses on the financial sector will mean that the Bank of England needs to tread cautiously, and so will avoid cutting Bank Rate and potentially exacerbating these issues. However, the Bank will still respond with monetary support via an even larger, £160 billion programme of asset purchases.

Figure 2.25. Scenarios for real UK GDP



Note: GDP figures are based on chained value methodology. Forecasts shown in dashed lines.

Source: ONS, IFS and Citi Research.

2.8 Conclusion

Substantial uncertainty aside, the UK faces a long and difficult adjustment in the wake of both COVID and Brexit. The sharp rebound in Q3 was driven by a sharp recovery in capacity and exceptional levels of policy support. Neither driver is likely to last. Instead, we now expect the recovery to slow dramatically. The direct impact of the virus on the economy is unlikely to end with lockdown. Instead, lingering concerns and weak demand are likely to weigh heavily on the outlook through the first half of 2021. Some consumer services sectors in particular will be badly affected. As such, we expect output in Q4 to remain more than 6% below levels in 2019 Q4 – if anything slightly greater than the peak-to-trough fall during the financial crisis.

In reality, the economic challenges associated with COVID are likely just beginning. The key difficulty with respect to the economic outlook from here is what will happen to households: the recovery depends disproportionately on consumer confidence, but the character of the shock poses a specific and considerable risk in terms of unemployment or falls in earnings. We expect meaningfully higher unemployment as policy support is dialled down. This, we think, is likely to weigh sharply on household confidence, which will in turn weigh on the recovery. The sectoral composition of this weakness likely poses particular difficulties. Not only is the immediate economic shock due to hit more labour-intensive sectors; the risks of more-lasting reconfiguration and lower household savings among the workers most at risk mean a larger increase in precautionary saving is also a possibility. High uncertainty and weak expectations are also likely to weigh on household sentiment here, as well as on investment.

Several different paths are possible from here. On the one hand, the lingering impact of the virus could prove less severe. Demand could prove stronger, employment more resilient and the rebound much stronger. On the other hand, a worsening virus outlook could even lead to a second national lockdown. In addition, regardless elevated virus concerns and economic reconfiguration could still weigh sharply on demand and employment. For now, we expect both effects are likely to weigh extensively on the outlook from here. However, either scenario remains a possibility. On balance, we think the risks are probably still marginally skewed to the downside.

References

- Altig, D., Baker, S., Barrero, J. M., Bloom, N., Bunn, P., Chen, S., Davis, S. J., Leather, J., Meyer, B., Mihaylov, E., Mizen, P., Parker, N., Renault, T., Smietanka, P. and Thwaites, G. (2020), ‘Economic uncertainty before and during the Covid-19 pandemic’, Bank of England Working Paper 876, <https://www.bankofengland.co.uk/working-paper/2020/economic-uncertainty-before-and-during-the-covid-19-pandemic>.
- Andersen, A. L., Hansen, E. T., Johannesen, N. and Sheridan, A. (2020), ‘Pandemic, shutdown and consumer spending: lessons from Scandinavian policy responses to COVID-19’, CEPOS, May.
- Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M. and Yannelis, C. (2020), ‘How does household spending respond to an epidemic? Consumption during the 2020 COVID-19 pandemic’, *Review of Asset Pricing Studies*, <https://doi.org/10.1093/rapstu/raaa009>.
- Bank of England (2020a), *Monetary Policy Report: May 2020*, <https://www.bankofengland.co.uk/report/2020/monetary-policy-report-financial-stability-report-may-2020>.
- Bank of England (2020b), *Monetary Policy Report: August 2020*, <https://www.bankofengland.co.uk/report/2020/monetary-policy-report-financial-stability-report-august-2020>.
- Bank of England (2020c), ‘Monthly Decision Maker Panel data – August 2020’, <https://www.bankofengland.co.uk/decision-maker-panel/2020/august-2020>.
- Bernanke, B. S. (1983), ‘Irreversibility, uncertainty, and cyclical investment’, *Quarterly Journal of Economics*, 98, 85–106, <https://doi.org/10.2307/1885568>.
- Brewer, M. and Gardiner, L. (2020), ‘Return to spender: findings on family incomes and spending from the Resolution Foundation’s coronavirus survey’, Resolution Foundation Briefing Note, <https://www.resolutionfoundation.org/publications/return-to-spender/>.
- Brzezinski, A., Kecht, V. and Van Dijke, D. (2020), ‘The cost of staying open: voluntary social distancing and lockdowns in the US’, CEPR VoxEU, June.
- Bunn, P. and Ellis, C. (2011), ‘How do individual UK consumer prices behave?’, Bank of England Working Paper 438, <https://www.bankofengland.co.uk/working-paper/2011/how-do-individual-uk-consumer-prices-behave>.

- Carvalho, C. (2006), 'Heterogeneity in price stickiness and the real effects of monetary shocks', *B.E. Journal of Macroeconomics*, 6(3), <https://doi.org/10.2202/1534-6021.1320>.
- Carvalho, V. M., Hansen, S., Ortiz, A., Ramón García, J., Rodrigo, T., Rodriguez Mora, S. and Ruiz, J. (2020), 'Tracking the COVID-19 crisis with high-resolution transaction data', CEPR Discussion Paper DP14642, https://cepr.org/active/publications/discussion_papers/dp.php?dpno=14642.
- Chetty, R., Friedman, J. N., Hendren, N., Stepner, M. and the Opportunity Insights Team (2020), 'How did COVID-19 and stabilization policies affect spending and employment? A new real-time economic tracker based on private sector data', <https://opportunityinsights.org/wp-content/uploads/2020/06/tracker-summary.pdf>.
- Cribb, J., Joyce, R. and Xu, X. (2019), 'The future path of minimum wages', <https://www.ifs.org.uk/election/2019/article/the-future-path-of-minimum-wages>.
- Di Tella, S. and Hall, R. E. (2020), 'Risk premium shocks can create inefficient recessions', NBER Working Paper 26721, <https://www.nber.org/papers/w26721>.
- Emmerson, C., Nabarro, B. and Stockton, I. (2020), 'The outlook for the public finances under the long shadow of COVID-19', IFS Briefing Note BN295, <https://www.ifs.org.uk/publications/14891>.
- Gilchrist, S., Schoenle, R., Sim, J. and Zakrajsek, E. (2017), 'Inflation dynamics during the financial crisis', *American Economic Review*, 107, 785–823, <https://doi.org/10.1257/aer.20150248>.
- Goolsbee, A. and Syverson, C. (2020), 'Fear, lockdown and diversion: comparing drivers of pandemic economic decline 2020', NBER Working Paper 27432, <https://www.nber.org/papers/w27432>.
- Guerrieri, V., Lorenzoni, G., Straub, L. and Werning, I. (2020), 'Macroeconomic implications of COVID-19: can negative supply shocks cause demand shortages?' NBER Working Paper 26918, <https://www.nber.org/papers/w26918>.
- Hacioglu, S., Känzig, D. R. and Surico, P. (2020), 'Consumption in the time of COVID-19: evidence from UK transaction data', CEPR Discussion Paper DP14733, <https://cepr.org/content/free-dp-download-14-may-2020-consumption-time-covid-19-evidence-uk-transaction-data>.

- Haskel, J. (2020), 'From lockdown to recovery – the economic effects of COVID-19', Imperial Future Matters online webinar, 23 July, <https://www.bankofengland.co.uk/-/media/boe/files/speech/2020/imperial-future-matters-from-lockdown-to-recovery-speech-by-jonathan-haskel.pdf?la=en&hash=6BD13B32852866D8AAD81252DAD909B6FEF22DD2>.
- Joyce, R. and Xu, X. (2020), 'Sector shutdowns during the coronavirus crisis: which workers are most exposed?', IFS Briefing Note BN278, <https://www.ifs.org.uk/publications/14791>.
- Kozlowski, J., Veldkamp, L. and Venkateswaran, V. (2020), 'Scarring body and mind: the long-term belief-scarring effects of COVID-19', NBER Working Paper 27439, <https://www.nber.org/papers/w27439>.
- Lenoël, C., Macqueen, R. and Young, G. (2020), 'Prospects for the UK economy', *National Institute Economic Review*, 253, F4–34, <https://doi.org/10.1017/nie.2020.36>.
- Lenoël, C. and Young, G. (2020), 'Prospects for the UK economy', *National Institute Economic Review*, 252, F10–43, <https://doi.org/10.1017/nie.2020.20>.
- Leslie, J. and McCurdy, C. (2020), 'The economic effects of coronavirus in the UK: utilising timely economic indicators', Resolution Foundation, <https://www.resolutionfoundation.org/publications/the-economic-effects-of-coronavirus-in-the-uk/>.
- Nabarro, B. (2020a), 'Why the UK may emerge from COVID-19 an underperformer', UK Economics View, Citi Research, <https://www.citivelocity.com/t/r/eppublic/1rSfo>.
- Nabarro, B. (2020b), 'When the tide recedes: emerging risks to the UK labour market', UK Economics View, Citi Research, <https://www.citivelocity.com/t/r/eppublic/1tF2I>.
- Nabarro, B. (2020c), 'Could low inflation trigger a BoE rate cut?', UK Economics View, Citi Research, <https://www.citivelocity.com/t/r/eppublic/1mc2T>.
- Nabarro, B. and Schulz, C. (2019), 'Recent trends to the UK economy', in C. Emmerson, C. Farquharson and P. Johnson (eds), *The IFS Green Budget: October 2019*, <https://www.ifs.org.uk/publications/14420>.
- Office for Budget Responsibility (2020), 'Economic and fiscal outlook – March 2020', <https://obr.uk/efo/economic-and-fiscal-outlook-march-2020/>.
- Office for National Statistics (2020), 'Impact of coronavirus in care homes in England: 26 May to 19 June 2020',

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/impactofcoronavirusincarehomesinenglandvivaldi/26mayto19june2020>.

RICS (2020), 'July 2020: UK Residential Market Survey', <https://www.rics.org/globalassets/rics-website/media/knowledge/research/market-surveys/uk-residential-market-survey-july-2020.pdf>.

Saunders, M. (2020), 'The economy and Covid-19: looking back and looking forward', Bank of England, speech on online webinar, September, <https://www.bankofengland.co.uk/speech/2020/michael-saunders-speech-the-economy-and-covid-19-looking-back-and-looking-forward>.

Schulz, C. (2018), 'Global outlook: forward to the past', in C. Emmerson, C. Farquharson and P. Johnson (eds), *The IFS Green Budget: October 2018*, <https://www.ifs.org.uk/publications/13513>.

Tenreyro, S. (2020), 'Covid-19 and the economy: what are the lessons so far?', Bank of England, speech on London School of Economics webinar, July, <https://www.bankofengland.co.uk/speech/2020/silvana-tenreyro-speech-as-part-of-the-lse-covid-19-policy-response-webinar-series>.

Tenreyro, S. and Thwaites, G. (2016), 'Pushing on a string: US monetary policy is less powerful in recessions', *American Economic Journal: Macroeconomics*, 8(4), 43–74, <https://doi.org/10.1257/mac.20150016>.

Woodford, M. (2009), 'Information-constrained state-dependent pricing', *Journal of Monetary Economics*, 56, S100–24, <https://doi.org/10.1016/j.jmoneco.2009.06.014>.