



UK Economic Outlook

July 2021



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Key points

The latest UK economic data

1

Despite tighter restrictions, the quarterly hit to UK GDP in Q1 2021 was 18 percentage points smaller than Q2 2020. The UK economy contracted by 1.5% in Q1 2021, as lockdown measures held back activity and spending. However, with lockdown restrictions at their most stringent level yet, the fall in GDP was smaller than expected. The headline message is now how well the economy continues to adapt to restrictions. The lockdown between January and April 2021 was 10% more stringent than April 2020, according to the Oxford stringency index.¹ But the monthly hit to GDP in January was just a seventh of the month-on-month contraction in GDP in April last year.

2

Monthly GDP growth has outperformed expectations over the third national lockdown. The UK economy is estimated to have grown by 2.3% in April for the third consecutive month – the fastest monthly growth rate since July 2020. It means that now 83% of the output lost from the first national lockdown has now been recovered. While there is cause for optimism in the latest figures, there was negative growth in the production and construction sectors.

3

Data on UK-EU trade in the first four months of the year illustrate the challenges businesses are facing adapting to new trading arrangements, but it is too early to draw conclusions. Total UK trade with EU countries was 27% lower in the first four months of this year compared to the same period in 2019. This is a much larger fall compared to the 13% drop in trade with non-EU countries, meaning total imports and exports with EU countries has lagged behind non-EU countries, reversing pre-pandemic and pre-Brexit trends. While it is too early to make conclusions about the impact of Brexit on EU trade – given the multitude of factors related to the pandemic which are influencing world trade, and the time required to negotiate trade deals with other key trading partners, including the US – there is a risk that these new trade patterns become established as long-term trade barriers persist. If this happens, the UK could lose out on the benefits associated with trading with geographically close partners.

Our projections for the UK economy

1

UK GDP output is expected to continue its upward trend, with month-on-month growth of 1.8% in May, followed by a modest 0.2% increase in June before picking up speed to about 2.5% in July under our ‘quick recovery’ scenario, or around 0.4% if Stage 4 of the reopening roadmap is delayed further under our ‘slow recovery’ scenario.

2

We have upgraded our projections of annual UK GDP growth in 2021 and beyond. Under our ‘slow recovery’ and ‘quick recovery’ scenarios, the expected annual GDP growth rates range from around 6.5% to 7.2% in 2021, continuing to grow by 4.1% to 5.5% in 2022 before slowing down to about 1.2% and 1.9% in 2023. For 2021, the upward revision is around 3 percentage points, which is equivalent to every person in the UK being roughly £1,000 better off than initially anticipated. However, by the end of this year, we expect economic output to still stand at 1.5% and 0.2% below its pre-crisis levels under the two scenarios.

¹ University of Oxford, Covid-19 Government Response Tracker – [link](#)

Please note, the Oxford COVID 19 Government Response Tracker (stringency index) uses 20 indicators to score the strictness of government restrictions between 1 and 100, with a higher number representing more stringent restrictions.

3

We expect the UK economy to recover to its pre-crisis levels as early as Q1 2022. Under the 'quick recovery' scenario, we expect the UK will reach its Q4 2019 levels by the end of Q1 2022, and by the end of 2022 under the 'slow recovery' scenario. These are 4-6 quarters sooner than our previous forecasts made in February.

4

The upwards revisions to our projects reflect some key upside trends. These include the UK's stronger-than-expected economic performance during lockdown this year, the rapid vaccination programme, the successful delivery of the first 3 Stages of the government's reopening roadmap with full school resumption, and extensions of various government support including the furlough scheme. On the downside, the recovery has been partly offset by the emergence of new variants.

5

Our two scenarios reflect the considerable uncertainty over the pace of the UK's economic recovery over our projection horizon. While we expect the rapid rollout and early success of the vaccination programme to boost business and consumer confidence in the short run, the long term trajectory depends on: (i) how businesses and workers respond to winding down of various government support, (ii) uncertainties around the continued pace of vaccination, its effectiveness against new variants associated with likelihood of further delays to Stage 4, (iii) the extent to which businesses adapt to various new trading arrangements with UK trading partners, including the US, and (iv) the degree of long-term economic scarring.

6

Uncertainty associated with the pandemic has caused unprecedented and sizable revisions to the UK GDP predictions among forecasters. Back in August 2020, forecasters were optimistic that the economy would quickly rebound, and return to the pre-pandemic levels as early as Q2 2021. However, the second wave of infections and winter lockdown raised fears of a prolonged economic downturn, resulting in an approximately two quarter delay in their timelines on average. A successful vaccine rollout in early 2021 has boosted hopes of a faster recovery, with the timeline expectations now similar to those made at the start of the pandemic and pace of recovery markedly upgraded to the highest levels since the Second World War. Going forward, we expect cautious upward revisions as uncertainty around impact of new variants and household spending priorities gradually fades.

7

Household spending and government consumption will likely drive growth this year, as consumers unleash some of their £180 billion of excess savings on the economy. We expect business investment to be positive but cautious, boosted by the government's super-deduction on capital allowances. However, new variants, trade challenges and long-term economic scarring continue to create uncertainty and risk to the UK's recovery in the medium and long run.

8

We expect most sectors to return to growth in 2021, albeit at uneven rates. At the top end, the health and social sector, construction and education are likely to lead growth in 2021, growing between 9%-23% under our 'quick recovery' scenario and between 7%-19% under the 'slow recovery' scenario. Already surpassing their pre-crisis levels, growth in construction and education sectors are expected to be supported further by growing demand for larger properties post-lockdown, home upgrades and education support to help school children catch up from their lost learning last year.

9

But lingering effects from the pandemic will drag on growth in the hospitality and entertainment sectors. Continued restrictions or social distancing requirements, spending pattern changes and consumer caution could weigh down on recovery of these sectors, which are likely to remain subdued during 2021. Going into next year, we expect a large vaccinated UK population, supported by behaviour changes post-pandemic, to assist the recovery of the sectors, with the hospitality sector to grow between 25%-31% in 2022, and entertainment output to increase by 8%-10% under our two scenarios. Despite expected strong growth, both sectors are likely to remain 34%-40% and 23%-26% below their pre-crisis levels by the end of 2022.

The UK labour market

1

The health of the labour market appears to be improving. The headline LFS unemployment rate fell to 4.7% in the three months to April, down from 5% in the previous quarter. The rate of redundancy is now back to pre-pandemic levels and vacancies in most industries are now above pre-pandemic levels. These recent improvements are encouraging for the UK's economic recovery and the unwinding of the government's furlough scheme. But there is still a long road to recovery, as payroll employees remain 553,000 below pre-pandemic levels.

2

We expect the unemployment rate to average around 5% in 2021, rising to a high of around 5.5%. We expect the key drivers of the unemployment rate to be the ending of the furlough scheme and an increase in labour market participation as the economy reopens. It is likely the unemployment rate could gradually fall back down towards 4.5% in 2022 and beyond. As the furlough scheme winds down, it is uncertain how businesses and workers will respond. While we are unlikely to experience a 'big bang' of unemployment, we are also unlikely to see a completely smooth transition of all furloughed workers back to their old jobs.

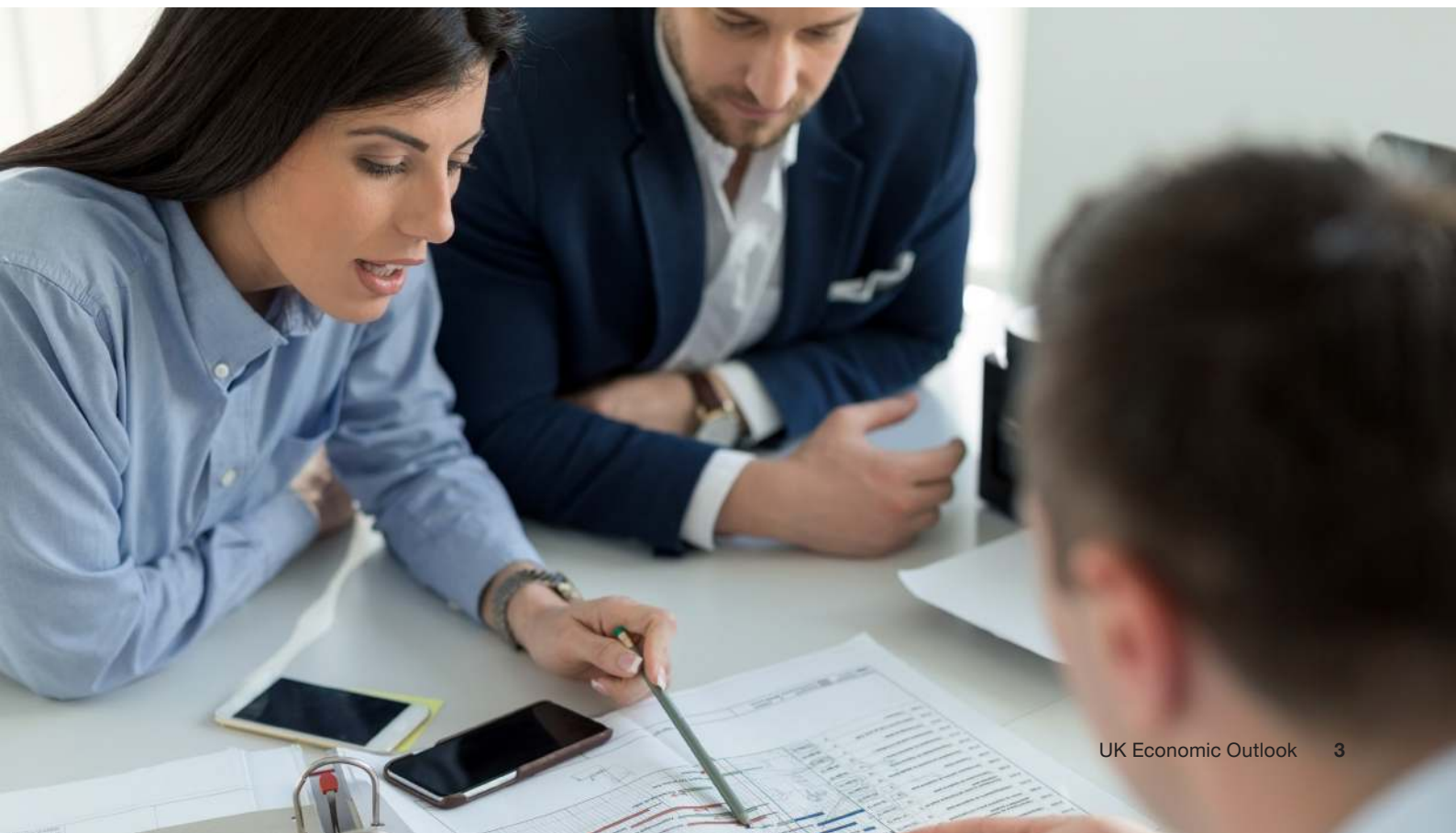
Inflation outlook

1

CPI inflation hit the Bank of England target in May at 2.1%, as core inflation (which excludes energy, food, alcohol and tobacco) increased from 1.3% in April to 2%. But it is important to interpret the latest data in the context of the low prices we saw 12 months ago during the pandemic. This means that so-called 'base effects' are driving up the rate of inflation, and will likely do so for a few more months.

2

We expect inflation to peak between 2.5% and 2.8% in Q4 this year, and then to gradually return to target from 2022 onwards. In the short term, inflation is unlikely to follow a smooth path, with many different factors feeding irregularly into the monthly data. In general, inflation is likely to follow an upwards trend as the economy continues to reopen. We expect the Bank of England to continue to prioritise supporting the recovery with low interest rates, over reducing inflation.





Recent developments in the UK economy



1

Recent developments in the UK economy

In this section, we discuss how the UK economy has performed in recent months. The UK economy was one of the hardest hit of major economies by the COVID-19 pandemic in 2020, with annual GDP declining by 9.8% compared to 2019. This was due to the UK's high incidence of COVID-19 and death rate, as well as its service-based economy, for which it is harder to implement social distancing, and its dependence on consumer spending, which was hit hard by restrictions.

By the end of 2020, UK GDP was 6.3% below its pre-pandemic level in February 2020. So to what extent has UK GDP recovered so far in 2021?

Box A: The global economy

As with the UK, many other regions across the world experienced an increase in COVID-related restrictions in response to rising cases. Quarter-on-quarter global GDP growth was 0.5% in Q1 of this year, with momentum picking up in the US, but negative growth in the euro area and Japan. Growth in China also slowed, following its strong recovery over the previous three quarters and reflecting the reintroduction of some restrictions. Global output as of March was 1.5% below pre-pandemic levels.

The US economy grew by 1.6% in Q1, boosted by its fiscal stimulus and successful vaccine rollout. While headline GDP growth conveys a very similar picture to the UK (with its Q1 GDP growth rate of 1.5%), there are a number of key distinctions in the US policy response and current economic conditions which will have different implications for its outlook, compared to the UK.

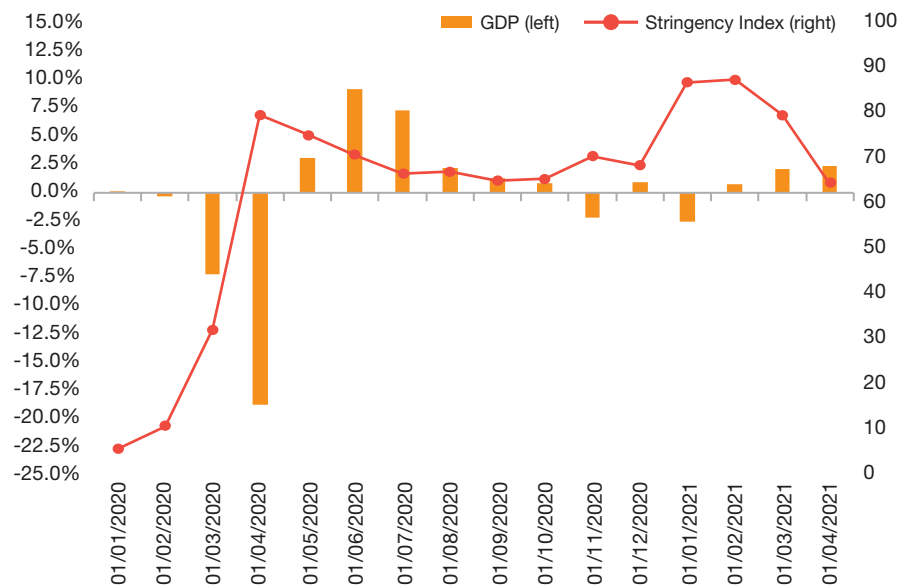
- **Fiscal stimulus:** US growth is expected to be supported in the short-term by additional fiscal stimulus. In March, a package of \$1.9 trillion was approved. In addition, President Biden has announced plans for two further stimulus packages. These are more long-term in nature, and focus on infrastructure, transport, education and child care. If passed, President Biden's spending would total over \$6 trillion. The US' total spending on the COVID-19 pandemic as of April 2021 stands at over 25% of GDP, compared to 16% in the UK.
- **Direct payments:** A unique feature of the US' stimulus is the direct payment cheques given to eligible households. Without accounting for the stimulus checks, it is estimated that US households have accumulated more than \$2 trillion of excess savings.² Together, they are expected to drive a significant splurge in consumer spending.
- **Inflation:** The annual rate of US inflation jumped to 4.2% in April. The inflation outlook in the US looks different to the UK's, in part because of its far greater stimulus and potential for consumer spending. The other piece of the puzzle is the change in the Federal Reserve's mandate towards average inflation targeting. This means the Fed is now aiming to achieve an average inflation level of 2% over time, meaning inflation will be allowed to moderately overshoot its target to balance periods when inflation was below target.

² Moody's Analytics, Weekly Market Outlook, June 2021 – [link](#)

UK GDP contracted by 1.5% in Q1.

With the reintroduction of tighter lockdown restrictions at the end of 2020, the UK economy began the year with negative quarterly growth. However, the headline message from Q1 is how well the economy is adapting to restrictions. The government's lockdown restrictions between January and March 2021 were the tightest seen since the start of the pandemic, averaging 85 on the Oxford stringency index, compared to an average of 70 between April and December 2020.³ The economic impact of tighter restrictions has been significantly smaller compared to the first national lockdown in April. To illustrate, the lockdown between January was 10% more stringent than April 2021, according to the Oxford stringency index.⁴ But the monthly hit to GDP in January was just a seventh of the month-on-month contraction in GDP in April last year.

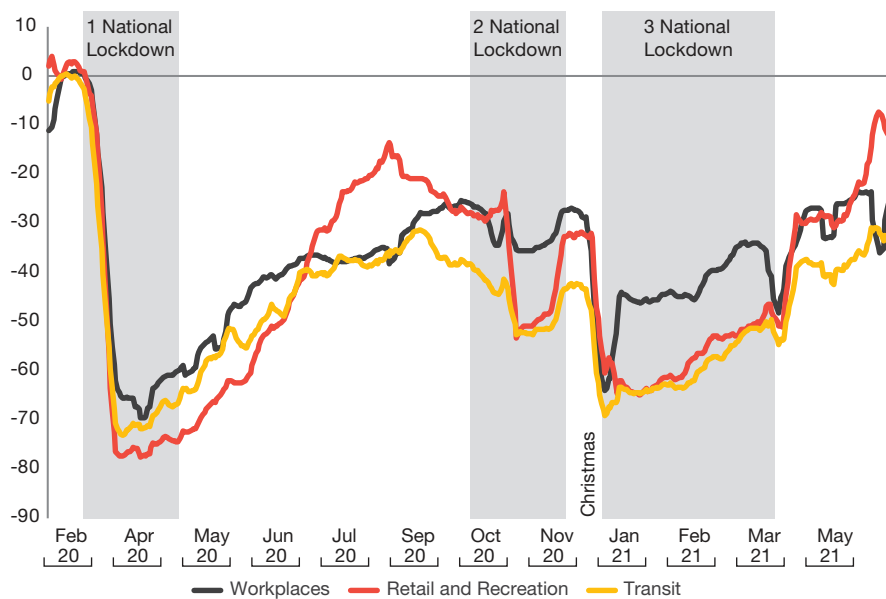
Figure 1.1: UK monthly GDP growth (%) vs stringency index of government restrictions



Source: ONS (left), Oxford Stringency Index (right)

Firms and employees are now much better prepared to work under restrictions, especially in sectors like construction and manufacturing. Consumers are also well adapted; over Q1, online sales as a share of total retail sales reached a new record high of 34%. This adaptation to restrictions is evidenced by a smaller fall in Google mobility data compared to the first national lockdown, and the recovery in mobility even while restrictions remained between January and March.

Figure 1.2: Change in number of visitors from the beginning of the pandemic (February 2020) in the United Kingdom, 7-day rolling average, %



Source: Google Mobility Data

³ University of Oxford, Covid-19 Government Response Tracker – [link](#)

Please note, the Oxford COVID 19 Government Response Tracker (stringency index) uses 20 indicators to score the strictness of government restrictions between 1 and 100, with a higher number representing more stringent restrictions.

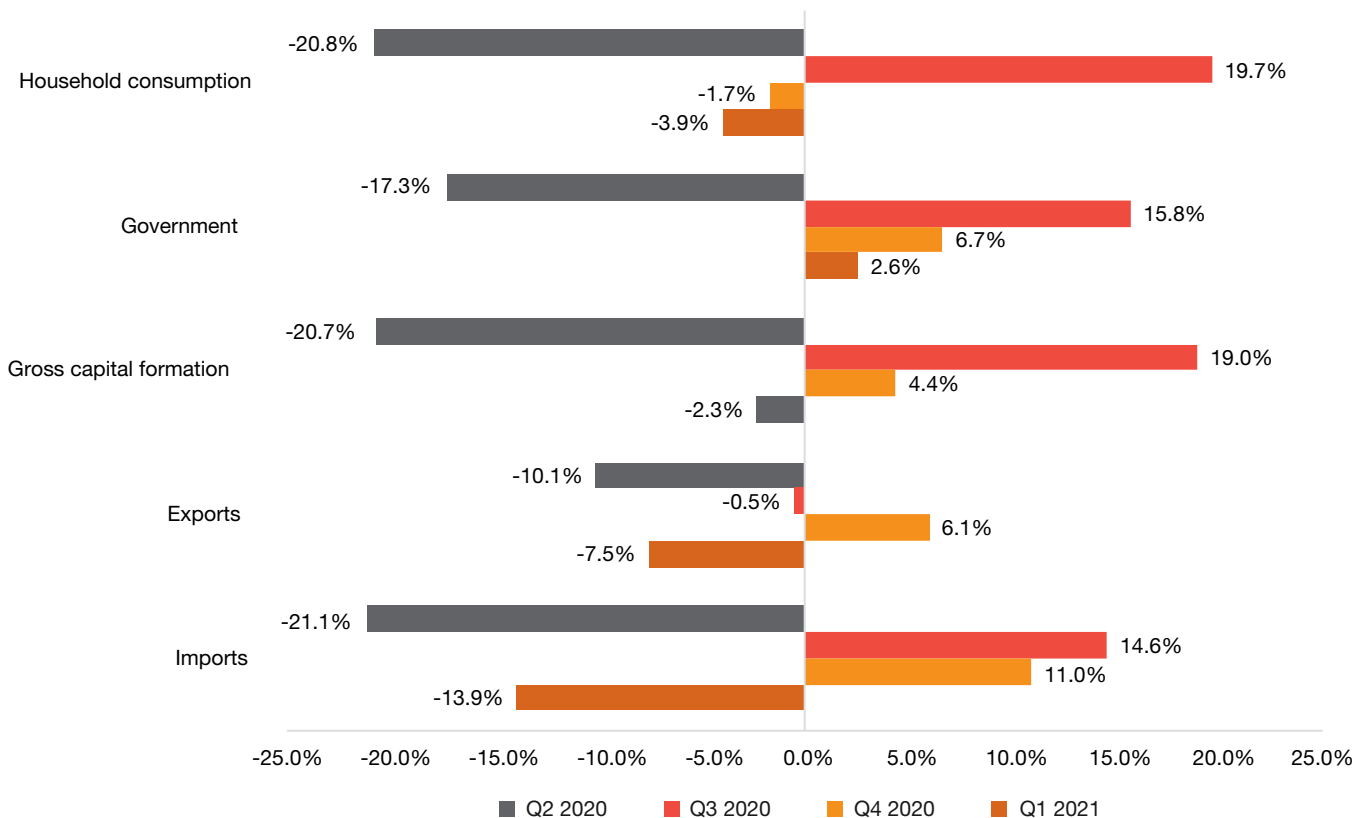
⁴ University of Oxford, Covid-19 Government Response Tracker – [link](#)

Please note, the Oxford COVID 19 Government Response Tracker (stringency index) uses 20 indicators to score the strictness of government restrictions between 1 and 100, with a higher number representing more stringent restrictions.

The contraction in growth in Q1 was mainly driven by a decline in household consumption and gross capital formation. UK trade contracted further in Q1 2021, with a fall both in imports and exports of goods and services.

- Household consumption:** Household consumption declined for the second consecutive quarter, falling by nearly 4% in the three months to March relative to Q4 2020, following the reintroduction of stringent restrictions. Spending in restaurants and hotels took the biggest hit, declining by 26% in Q1 2021 relative to the previous quarter. The restrictions also weighed on retail activity and spending on transport, although less so than during the first lockdown, reflecting the adaptability of consumers and businesses. Household consumption remains 12.8% below pre-pandemic levels (Q4 2020), but high frequency data from the start of Q2 points to an emerging recovery. For instance, credit and debit card spending in May stood at 98.7% of pre-pandemic levels, compared with only 80.6% in March, as easing restrictions led to the reopening of bars, shops and social events.
- Government consumption:** Government consumption was the only component of GDP to experience positive q-on-q growth in the first quarter of 2021. The 2.6% quarterly increase was driven by government health expenditures, mainly in relation to COVID-19 vaccinations and NHS test and trace, as well as spending on defence. These more than offset the fall in spending on education given school closures.
- Gross capital formation:** Quarterly growth was -2.3% in Q1 of this year, with the recent decline mainly driven by a 51.8% fall in transport equipment. Business investment also fell by 11.9% in Q1, reversing the majority of the recovery made during the last three quarters of 2020, as some caution about the UK and global economic recovery remains. Gross capital formation stood at 95.2% of its Q4 2019 level.
- Net exports:** UK exports and imports fell in Q1 of this year, reflecting the previous stockpiling ahead of the Brexit transition period and the ongoing impact of COVID-19. On balance, there was a greater fall in imports resulting in an improvement of the UK's trade balance, recording a deficit of 0.5% of nominal GDP, compared to 2.7% in Q4 2020.

Figure 1.3: Quarter-on-quarter growth in GDP expenditure components, Q2 2020 – Q1 2021



Source: ONS

Box B: UK trade with the EU

Businesses are continuing to grapple with the UK's new trading arrangements with the EU. Survey evidence from the CEP shows that over a third of all businesses have been affected by delays at the border, a further third by additional customs costs, and over 20% by regulatory checks at the border. Manufacturing firms in particular have been impacted, with almost 50% of firms impacted by delays and customs costs, compared to less than 10% of professional and IT services firms.⁵

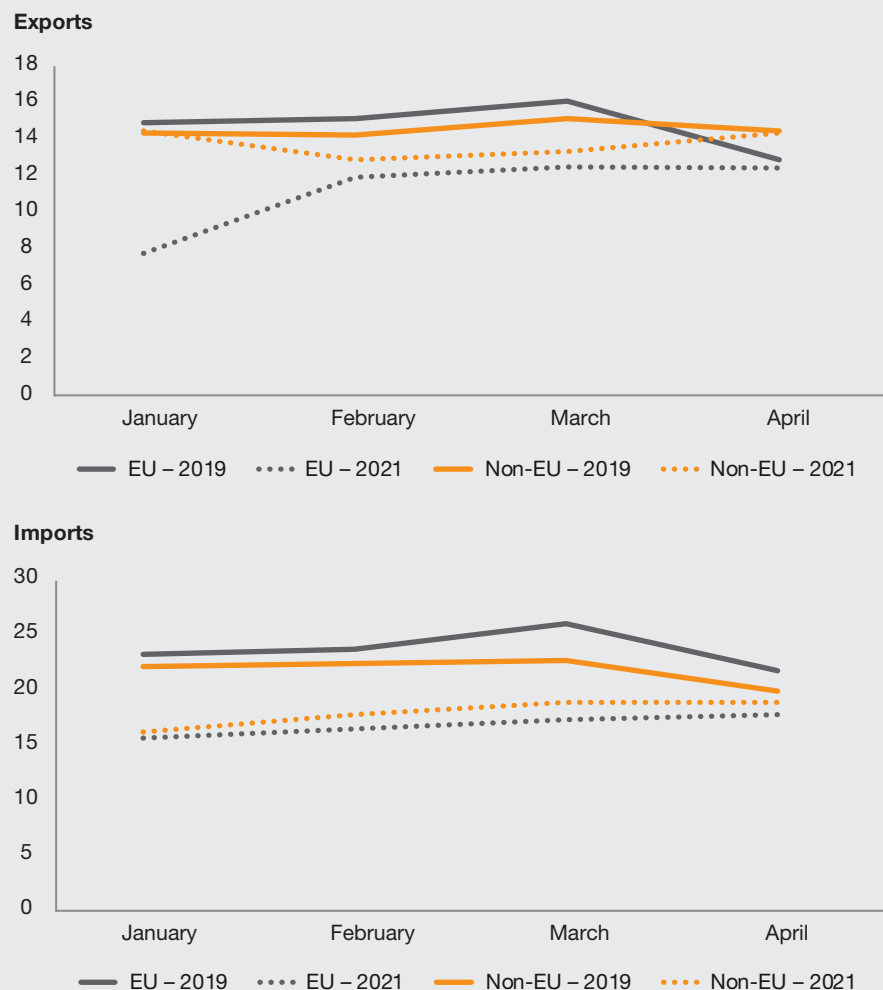
In recent months, trade with non-EU countries has exceeded EU trade – total imports and exports over January to April were 13% higher with non-EU countries compared to the EU. While it is too early to make conclusions about the impact of Brexit on trade, especially given the multitude of other factors impacting trade such as the pandemic and global supply chain distortions, Figure 1.4 illustrates the extent to which EU trade has fallen compared to its pre-pandemic, relative to non-EU trade.

Comparing trade over January to April 2021 to the same period in 2019:

- Total trade (exports plus imports) with the EU is 27% lower, compared to a 13% fall with non-EU countries.
- EU exports are down 24%, compared to a 5% fall with non-EU countries.
- EU imports are down 29%, compared to a 18% fall with non-EU countries.

With trade shifting to non-EU countries (for example, UK exports to non-EU countries now account for more than 50% of total UK food and drink exports), these trends may become structural as a result of long-term trade barriers or if new trading patterns become established before businesses fully adjust to new EU arrangements.

Figure 1.4: UK imports and exports of goods with the EU and non-EU, Jan – Apr 2019 vs 2021, £ billion, chained linked volume measures



Source: ONS, PwC analysis

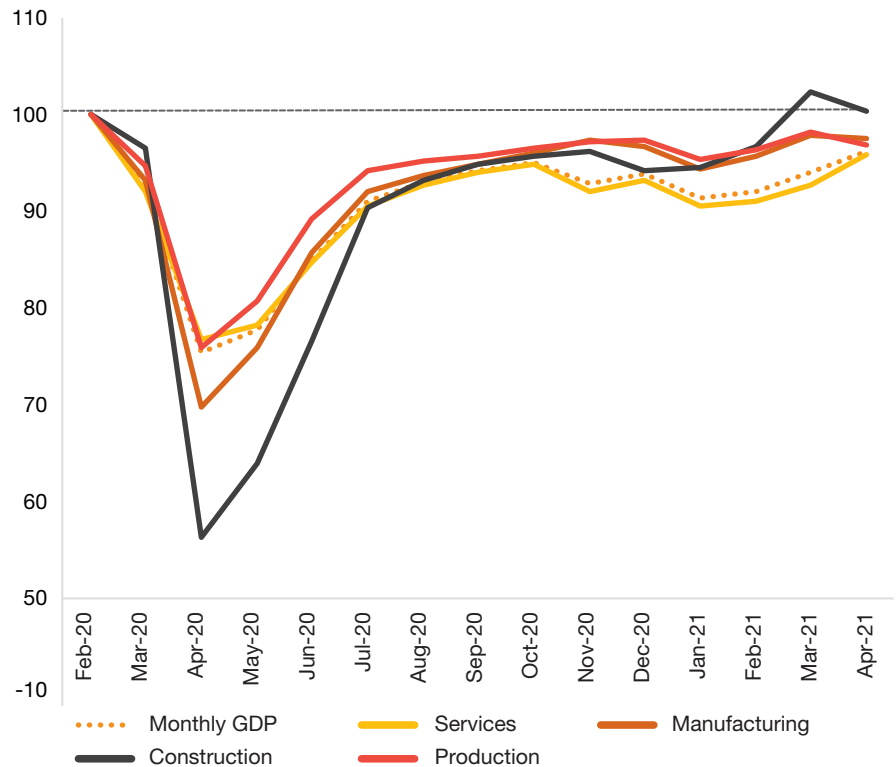
⁵ Centre for Economic Performance, The impacts of COVID-19 and Brexit on the UK economy: early evidence in 2021, May 2021 – [link](#)

UK GDP is estimated to have grown by 2.3% in April for the third consecutive month. According to the latest ONS estimates, this is the fastest monthly growth since July 2020. It means that now 83% of the output lost from the first national lockdown has now been recovered. We caution, however, that the monthly GDP data is highly volatile and should be treated with caution – previous months data have been heavily revised.

While there is cause for optimism in the latest figures, there was negative growth in the production and construction sectors. The next few months could be critical for the government as restrictions hopefully ease and the furlough scheme comes to an end.

- **Services:** output grew 3.4% in April, but remains 4.1% below pre-pandemic levels. Growth was driven by strong monthly growth in retail volumes of over 9% as non-essential retail reopened, and education as more pupils returned to school.
- **Production:** output fell by 1.3% in April, with manufacturing contracting slightly by 0.3% as five out of its 13 subsectors experienced negative growth. Most notably, the manufacture of basic pharmaceutical products and the manufacture of transport equipment.
- **Construction:** output fell for the first time this year by 2%, following strong growth in March, but the sector's output does remain slightly above pre-pandemic levels.

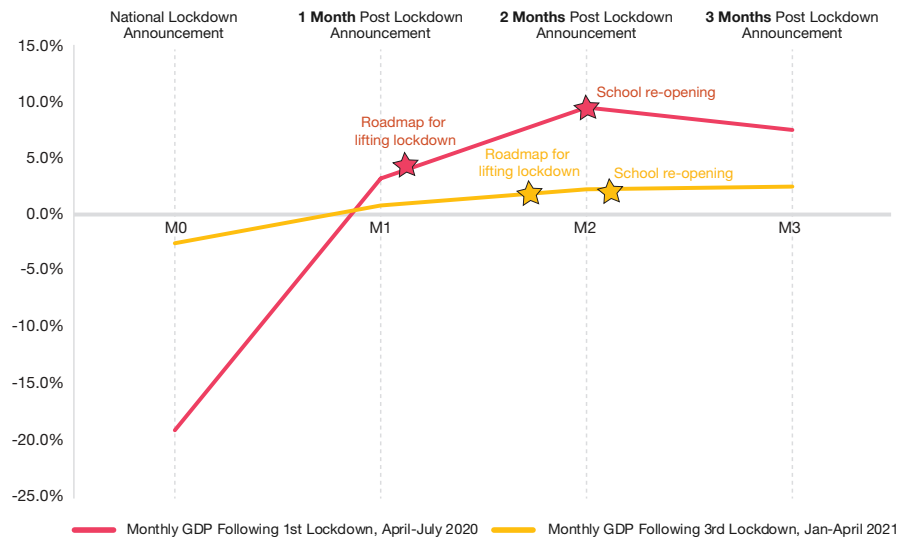
Figure 1.5: Monthly output index of UK sectors, seasonally adjusted, Index (Feb 2020 = 100)



Source: ONS

The UK economy followed different recovery patterns in April 2020 and January 2021 (Figure 1.6). The month-on-month decline in GDP following the reintroduction of restrictions in January 2021 was 16 percentage points smaller than the decline in April 2020. This is despite the January 2021 lockdown being more stringent and reflects the improved adaptability of firms and consumers. Slower monthly growth in the three months following the January 2021 lockdown, compared to the first lockdown at the beginning of the pandemic, are to be expected as GDP edges closer to pre-pandemic levels. For example, GDP in April stood at over 96% of February 2020 levels, compared to only 78% in May last year.

Figure 1.6: UK monthly GDP growth following the 1st and 3rd National Lockdown, Apr 20 (M0) – Jun 2020 (M3) vs Jan 21 (M0) – Apr 21 (M3), %



Source: ONS

Business activity

According to the Business Insights and Conditions Survey (BICS), the number of businesses currently trading has increased to 87% at the end of May, the highest proportion since comparable estimates began in June 2020 and an increase from around 80% in April. There were almost 137,000 new businesses created in the first quarter of this year, 71% higher than pre-pandemic (Q4 2019), with the

retail, wholesale and logistics sectors leading the way. Low interest rates, confidence about the recovery and a surge in online shopping have been key supporting factors.

The uptick in business activity across the UK has also been reflected in a preliminary reading of the May Composite Purchasing Manager Index (PMI), which hit its highest level since

its launch in 1998 at 62.0. A faster than anticipated recovery, partly driven by a successful vaccine rollout, and the revival in world trade flows, have contributed to accelerating business sentiment. Over 70% of companies forecast higher production in one year's time, compared to only 3% expecting a decline.



Outlook for the UK economy



Outlook for the UK economy

In this section, we discuss the outlook for the UK economy as it continues to reopen and we outline our projections for GDP growth over the next three years.

Following three consecutive months of growth to April 2021, UK GDP growth is expected to continue its upward trend. The four-week delay to the end of restrictions, announced on 14 June, is expected to moderate potential GDP growth in July, but we don't anticipate it to hamper recovery as most parts of the economy have already reopened during Stage 3,⁶ and the UK's rapid vaccination rollout has boosted business and consumer confidence. As the remaining restrictions are cautiously lifted, we expect quarter-on-quarter growth in Q3 to range between 1.0% and 2.3%, and the UK to remain around 1.5% and 0.2% below its pre-crisis level by the end of this year under our 'slow recovery' and 'quick recovery' scenarios.

First published in November last year, our Nowcasting model continues to provide real-time estimations of the UK monthly GDP growth. A Nowcasting model is an econometric model which uses fast data indicators, such as Google mobility data, to provide more timely estimates of economic activity than official data.⁷ In our February **UK Economic Update**, our

Table 1.1: Projected annual real GDP growth by scenario

Real GDP growth	2021	2022	2023
Quick recovery scenario	7.2%	5.5%	1.9%
Slow recovery scenario	6.5%	4.1%	1.2%

Source: PwC analysis

prediction for month-on-month growth in February of 0.36% aligns to the ONS' subsequent official estimate of 0.4%. In March, monthly GDP growth outperformed our expectation of 1.1%, reaching 2.1% due to extensions of various government support measures in the Chancellor's Spring Budget 2021 totalling to £65bn,⁸ and the introduction of a four-stage roadmap to the easing of lockdown restrictions starting as early as March.⁹

Looking ahead, we expect the UK economy to grow by 0.2% in June relative to May, followed by 0.4% – 2.5% in July under the 'slow recovery' and 'quick recovery' scenarios. The 'slow recovery' scenario takes into account the possibility of a further delay to Stage 4, beyond 19 July. The July monthly growth rate is expected to be much smaller than the 7.3% month-on-month growth experienced a year ago when all restrictions from the first national lockdown were lifted in July 2020.¹⁰ There are a number of reasons for this:

- The rebound from the lifting of restrictions (if Stage 4 goes ahead) is occurring from a much higher base than the same time last year, with output expected to be around 2% below pre-crisis levels, compared to around 15% last summer.
- One of the main drivers of the recovery last summer was business investment (grew by 9.4% in Q3 2020),¹¹ which was mostly to ensure covid-secured workplaces. As those measures have been largely put in place, we expect businesses to be relatively cautious about large investments as uncertainties remain over the summer.
- While the delay to the final stage of the reopening roadmap will affect some businesses that are heavily reliant on large indoor events such as live music and nightclubs, and those operating at reduced capacity, like hospitality, the majority of the economy has already reopened under Stages 2 and 3 of the roadmap. Therefore, the expectation is that GDP will continue to grow post-Stage 4, but at a slower pace.

⁶ Please note, during stage 3 of the roadmap, some restrictions remain in place for 'high-risk' sectors, such as nightclubs and larger indoor performance venues

⁷ See our PwC Blog for technical details – [link](#)

⁸ HM Treasury, The UK Budget 2021 announcement, March 2021 – [link](#)

⁹ Cabinet Office, COVID-19 Response – Spring 2021, February 2021 – [link](#)

¹⁰ ONS – [link](#)

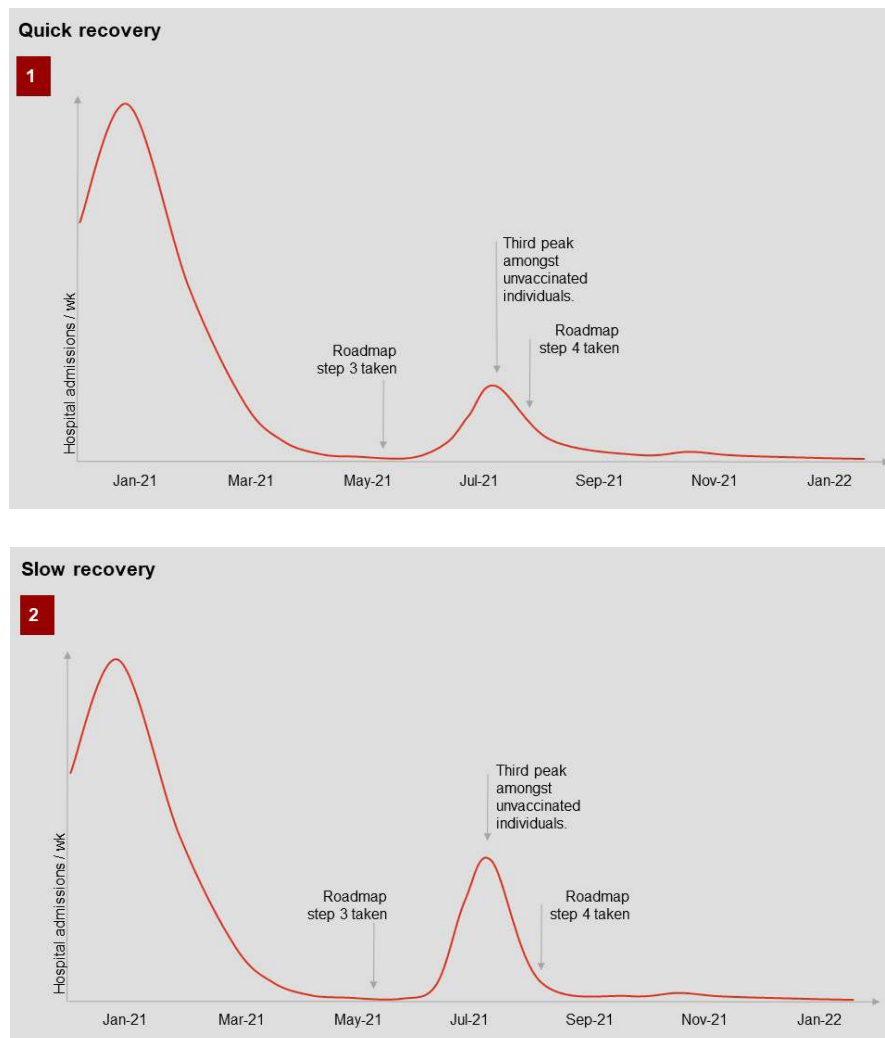
¹¹ ONS – [link](#)

Outlook for 2021 and 2022

There are a number of factors which we expect to determine the pace of the UK's economic recovery over our projection horizon. These include the following:

- The response of businesses and workers as various government measures are winding down, most notably the furlough scheme.
- The continued pace of mass vaccination against COVID-19 in the UK and the effectiveness of such vaccines at protecting people against new variants and therefore at halting the spread of the virus. Specifically, there is a risk of a surge of cases among unvaccinated individuals (see Figure 1.7 for our epidemiological scenarios).
- The extent to which economic scarring impacts the UK's long-term recovery.
- The outcome of the UK trade negotiations with trading partners, including the US, and how businesses adjust to various new trading arrangements.

Figure 1.7: Epidemiological scenarios



Source: PwC analysis

To reflect the range of likely outcomes across these various factors, we have designed two illustrative scenarios that capture the extent to which early success of the vaccination programme supports the resumption of normal activity in the economy,¹² businesses adapt to the new trading relationships and possibility of long term economic scarring.

Under the 'quick recovery' scenario, we assume the following:

- The four-week delay in the Government's roadmap is sufficient in keeping the hospital admission rate low and allowing more people to be vaccinated.
- There is limited long-term economic scarring, as various government support schemes assist the recovery of the economy as a whole and the labour market in particular.
- Trade negotiations between the UK and key trading partners, including the US, go smoothly. Under this scenario, we assume that most businesses adapt successfully and quickly to various new trading arrangements.
- Under this scenario, we expect that UK GDP recovers to its pre-pandemic levels by the end of Q1 2022.

¹² Please note, we assume that a combination of a successful vaccination programme and cautious lifting of restrictions in the UK enables the ongoing reduction in hospital admissions. While there is a possibility of local or national restriction measures being put in place temporarily to control small surges of new variants, it is unlikely to be to the same extent as in the last three national lockdowns.

Under the ‘slow recovery’ scenario we assume the following:

- A further delay to Stage 4 of the government’s roadmap is required to curb the transmission of new variants.
- Long term economic scarring is partially managed by various Government support schemes, but scarring remains significant especially in the labour market.
- Trade negotiations between the UK and key trading partners, including the US, progress slowly but smoothly. Under this scenario, we assume that businesses take longer to adapt to various new trading arrangements.
- UK GDP is assumed to recover much slower compared to the ‘quick recovery’ scenario, and will not reach the pre-pandemic levels until the end of 2022.

In both scenarios, we assume a mass vaccination campaign will be largely completed in 2021 although regular boosters might be required. Generally, we expect early success of the vaccination programme to boost business and consumer confidence in the short run, supporting the UK’s recovery in the second half of 2021. However, the effect may be short-lasting, as the persistence of the pandemic across the world, weak global economic performance and possible economic scarring take their toll.

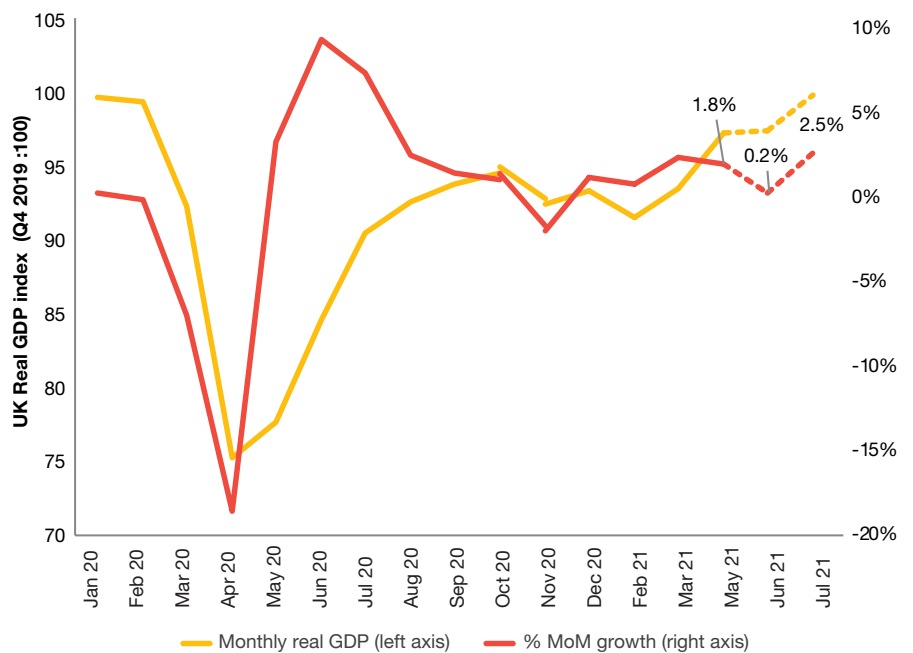
Monthly GDP profile

We provide projections of GDP growth three months ahead of official ONS data (see Figure 1.8). Our projection for May is developed using our Nowcasting model and is scenario-agnostic. Our projections for June and July have been developed using a hybrid approach, which uses our Nowcasting model, as well as other techniques, and may vary by scenario. Beyond July, we provide quarterly projections.

Using our Nowcasting model, we expect UK GDP growth to be 1.8% in May 2021. Breaking down our nowcast by sector, we see that the construction sector is expected to grow the strongest in May. The service sector is expected to contribute the most (79%) to the May growth rate, mainly due to its size (it accounts for almost 80% of the economy).

The economic recovery is likely to continue in June but at a slower pace of around 0.2% compared to May. This is due to relatively high GDP levels expected after three consecutive months of strong growth (in March-May) combined with a prolonged Stage 3 of the Government roadmap moderating the recovery.

Figure 1.8: UK monthly Real GDP in the ‘quick recovery’ scenario



Source: PwC analysis

Under our two scenarios, monthly GDP growth varies for July to reflect the possibility of a further delay to Stage 4 of the lockdown roadmap due to new variants. Within our ‘quick recovery’ scenario, month-on-month growth is estimated at 2.5% in July, as the economy fully reopens, boosting confidence, investment and activity.

Under our ‘slow recovery’ scenario, monthly growth in July is expected to be more moderate at 0.4%, as businesses and consumers adjust to further delays to lifting of all lockdown restrictions.

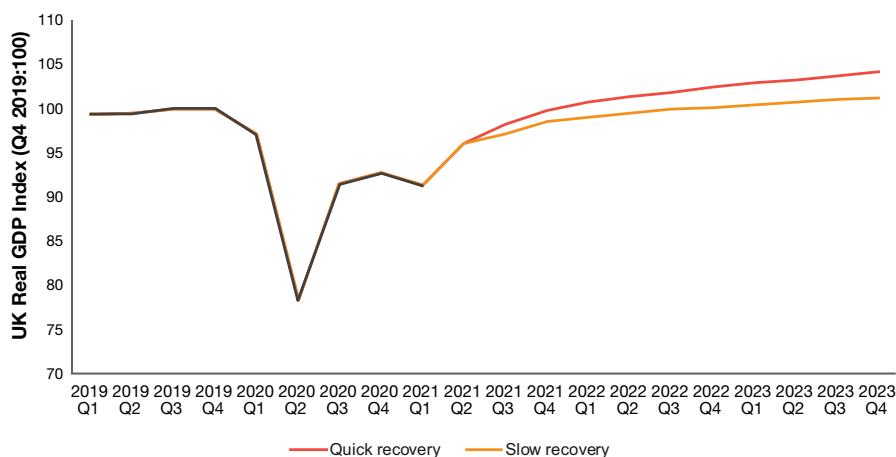
Quarterly GDP profile

In terms of our short to medium term view, our quarterly GDP projections up until the end of 2023 show a skewed ‘W-shaped’ recovery for the UK (see Figure 1.9).

Under our ‘slow recovery’ and ‘quick recovery’ scenarios, the expected annual GDP growth rates range from around 6.5% to 7.2% in 2021, followed by 4.1% to 5.5% in 2022 before slowing down to about 1.2% and 1.9% in 2023 as the UK economy begins to return to its pre-pandemic long-term growth trend.

Our expectation is that the economy will recover to the pre-crisis levels by Q1 2022 under the ‘quick recovery’ scenario, and by Q4 2022 under the ‘slow recovery’ scenario. These are around 4-6 quarters faster than our previous forecasts made in February, as stronger-than-expected economic performance during lockdowns means the UK economy is set to recover its lost output faster than initially anticipated. This is supported by early success of the vaccination programme, the successful delivery of the first 3 Stages of the government’s reopening roadmap with full school resumption, and extensions of various government support including the furlough scheme and Stamp Duty holiday, but partly offset by the impact of the new variants.

Figure 1.9: UK Real GDP index (Q4 2019 = 100), quarterly levels in each scenario

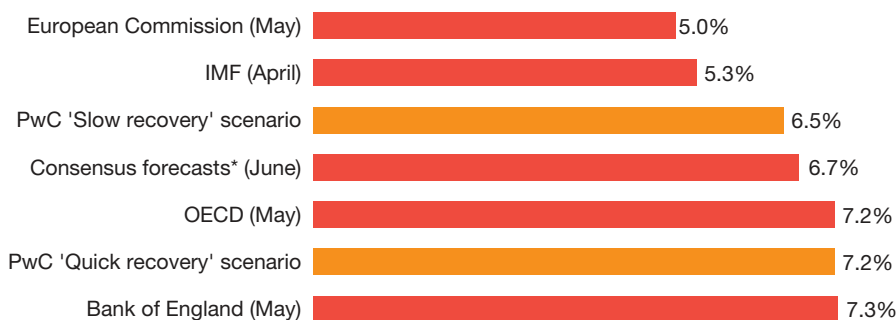


Source: PwC analysis

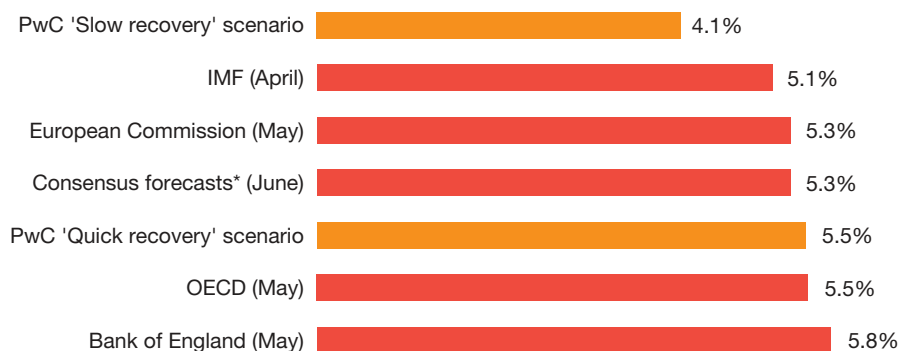
We have, therefore, revised up markedly our projections for 2021 from between 3.4% and 4.6% under the ‘slow recovery’ and ‘quick recovery’ scenarios to between 6.5% and 7.2% (see Box C for further discussion on forecast revisions). These projections are broadly in line with other third-party projections (see Figure 1.10).

Figure 1.10: Comparison of GDP growth projections, 2021-2022

2021 projections



2022 projections



Source: PwC, EC, OECD, HMT, IMF, BoE

* HMT comparison of independent forecasts (June 2021) – average of new forecasts made in last month

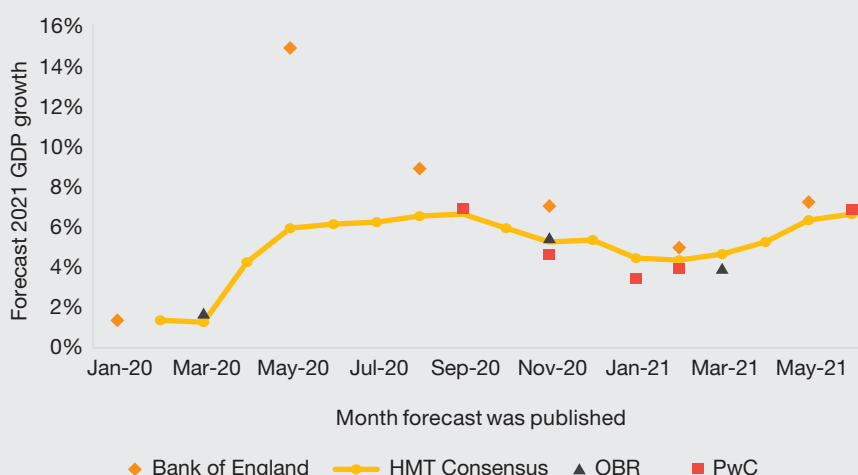
Box C: Uncertainty associated with the pandemic has caused unprecedented and sizable revisions to the UK GDP forecasts

There have been swings in forecasters' optimism over the past year about the UK's economic recovery in 2021. Forecasters were initially optimistic that GDP growth would quickly rebound, with the Bank of England forecasting a likely return of GDP to pre-pandemic levels in the second half of 2021 or first half of 2022 back in August 2020. However, the second wave of infections and winter lockdown raised fears of a prolonged economic downturn. On average, forecasters extended their timelines for a full recovery by approximately two quarters. A successful vaccine rollout then boosted hopes of a faster recovery, with expectations now similar to those made at the start of the pandemic.

Figure 1.11 illustrates how GDP forecasts have evolved over the past year from various sources. The GDP projections made in Q2 2020 assumed there would be a swift economic rebound in 2021. It was expected that social distancing measures would be gradually lifted from Q3 2020, and that GDP would therefore recover relatively rapidly. The government moved quickly to support businesses through the furlough scheme, and with grants, loans and tax holidays to businesses. It was anticipated that these measures would prevent any deep economic scarring and support a swift recovery..

The decline in expected 2021 GDP growth in the second half of 2020 reflects a faster than expected recovery in the months following March 2020. While consumer spending fell more than household incomes, retail sales (mostly e-commerce) rose sharply in Q2 2020. Businesses adapted to social distancing measures, so only 11% of businesses closed or paused trading in November compared to 24% in the first lockdown. The result was that, when a second wave was still uncertain,

Figure 1.11: Changes in forecasters' expectations for 2021 GDP growth*



Source: BoE, HMT, OBR, PwC analysis

* Mid-point of forecasts taken when more than one forecast scenario made

forecasters expected that the UK was on an encouraging path to recovery.

As the second wave of infections materialised towards the end of 2020, the reinstating of Covid-related restrictions caused forecasters to downgrade their growth predictions for 2021. At the beginning of 2021, most forecasters predicted that GDP would fall in Q1 2021 as the restrictions squeezed consumer spending. It was expected that vaccines would boost economic growth in the second half of the year, but that the greatest proportion of the post-covid recovery could fall in early 2022.

Most recently, forecasters have markedly upgraded their growth predictions for 2021, with the Bank of England and CBI respectively revised their forecasts to 7.3% and 8.2% – the fastest rates since the Second World War from around 5% and 6% made at the beginning of the year.¹³ The impact of the UK's winter Covid-restrictions on spending was less than was generally anticipated. The government also increased its output above expectations with higher spending on activities related to test and trace.

The rapid vaccination of the UK population accelerated the easing of restrictions in April and May. GDP growth in 2021 is expected to be further supported by fiscal measures that were announced in the March Budget. The Chancellor's £65 billion plan includes an extension to the Coronavirus Job Retention Scheme (CJRS) and a new government loan guarantee scheme. These effects make forecasters cautiously optimistic that UK GDP will return to pre-pandemic levels between Q3 2021 and Q4 2022.

Most forecasters anticipate that the lifting of restrictions will coincide with an upswing in consumer spending, before a seasonal resurgence of the virus slightly moderates growth over the winter. The extension by four weeks of the last phase of restrictions is likely to reduce hospitality and leisure spending below forecasters' expectations. Though it remains uncertain whether further delays would be required and if unspent consumer spending would be deferred until later in 2021 or 2022. Therefore, we expect cautious upward revisions as uncertainty steadily fades.

¹³ The BoE forecasts were made in February and May 2021 – [link](#)
CBI forecasts were made in December 2020 and in June 2021 – [link](#)

Drivers of recovery



Stronger household spending

As the largest component of GDP, household spending could be an important driver of the UK's economic recovery this year. Since March 2020, lockdown restrictions have resulted in pent-up demand and led households to accumulate excess savings, which are estimated to reach £180bn by the middle of 2021.¹⁴ With the reopening of non-essential retail and hospitality, consumers will likely be keen to go out and spend money on leisure and goods and services. However, it is uncertain to what extent consumers will spend their excess savings this year (see Box D for further discussion). Even if a significant share of the UK's excess savings are spent over the next 2-3 years, this additional consumption activity is likely to be a one-off and should be considered as a short to medium term driver.



Increased government consumption

We anticipate the government will continue some forms of covid support package beyond 2021, currently totalling more than £407 billion,¹⁵ with marked winding down toward the end of the year. The Treasury has signalled its intention to embed the levelling agenda within its economic recovery strategy, helping businesses invest and grow across the whole country. While borrowing reached 16.9% of GDP in 2020-21 – the highest level in peacetime Britain – the government expects that its investment-led recovery, driven by its Green Industrial Revolution plan and upskilling, will cause underlying debt to fall as a share of GDP from 2023-24. It could take time before the direct and multiplier effects of these investments to feed through the economy. It would, however, provide a much needed boost to investment and to sentiment in the short term.



Positive but modest growth in business investment

Following a year of subdued business investment, we expect it to contribute positively to GDP growth this year, albeit modestly. The continued reopening of the economy will likely boost confidence and a recovery in demand and sales, incentivising businesses to invest. The super-deduction on capital allowances announced in the Chancellor's March budget could also encourage companies to bring forward their investment in the next two years, although it may then cause a drop off in investment once the policy ends. Caution among some investors may impact the take-up rate. In the Bank of England's Q1 Agent's summary of business conditions, investment intentions have picked up, but remain weaker than pre-pandemic, with most plans conditional on demand recovering over the summer.¹⁶ The strength of intentions varies by sector – higher in manufacturing, with plans to invest in IT and upgrading machinery, and lower in consumer services. However, continued uncertainty over the easing of restrictions, the possibility of new variants of the virus causing a rise in infections, and the return to the office, together with a desire to strengthen balance sheets may continue to weigh on investment intentions.

¹⁴ Office for Budget Responsibility (OBR), Economic and Fiscal Outlook, March 2021 – [link](#)

¹⁵ HM Treasury, The UK Budget 2021 announcement, March 2021 – [link](#)

¹⁶ Bank of England (BoE), Agents' summary of business conditions 2021 Q1, March 2021 – [link](#)

Box D: To what extent will households spend their excess savings?

This is currently one of the biggest economics questions and one which will have implications for the pace of the UK's recovery, especially given household consumption is the largest element of GDP in the UK economy, accounting for around two-thirds.

Over the past year, households have accumulated huge amounts of savings in excess of what they would have if it were not for the pandemic, as lockdown restrictions prohibited spending. Precautionary savings likely also played a role, given the uncertainty regarding the economic and employment outlook. The household savings ratio reached a historic high of almost 30% in Q2 last year and remains high at 16% as of Q4. To put this into perspective, the savings ratio has averaged 8% since the start of the 21st century. The Bank of England estimates that between March and November 2020, households accumulated a stock of savings of over £125 billion.¹⁷ This stock is likely to reach £180 billion by the middle of 2021.¹⁸

The extent to which households run down these excess savings this year will determine the path for consumer spending. Below, we discuss the upside and downside factors at play.

- **Spending intentions have increased:** There has been a rise in the reported share of households planning to spend part of their savings in recent months, for example according to a recent Bank of England/NMG survey (see Figure 1.12). The Bank of England is now assuming 10% of excess savings will be spent in the next three years, up from 5% before.¹⁹ PwC's latest Consumer Sentiment survey from Spring 2021 supports this, with consumer confidence now at its highest level since the Sentiment Index began back in 2008, and it is the first time it's been back in positive territory since before the start of the pandemic. This has been driven by older consumers' growing confidence on the back of the vaccine rollout.²⁰ It is also worth noting that the majority of these excess savings have been held in liquid form – as shown in Figure 1.17, around two-thirds of people plan to hold it in a bank account. This means it can easily be accessed and run down. Survey evidence also suggests that vaccinated people are more likely to intend to increase their spending, with 27% of vaccinated respondents to a Bank of England survey reporting a plan to increase spending, compared to 20% of non-vaccinated. This means that as the UK's vaccination programme continues at pace, we can expect more excess savings to be run down.²¹

- **Employment outlook is uncertain:** When deciding whether to spend or save, consumers' perceptions of the future economic outlook play a role. Historically, during downturns households tend to increase savings as a share of disposable income – referred to as precautionary saving. To date, the labour market has fared relatively well over the pandemic, propped up by the government's furlough scheme and other business support measures. But the outlook for unemployment remains uncertain with the end of the government's furlough scheme in September this year. Furloughed workers will have to balance their expectations of job security against the risks of redundancy.
- **Accumulation of savings is uneven across the income distribution:** A record high aggregate household savings ratio hides huge disparities in savings by households of different incomes. Survey evidence suggests that the large stock of excess savings is concentrated with higher income households and retirees, while lower income households and unemployed persons were more likely to have experienced a fall in their savings.²² On the upside, retired households, boosted by their earlier vaccines, could spend more of their savings and sooner. On the downside, higher income households tend to spend less from any extra savings they accumulate and could be more likely to use their savings for other purposes, such as investing or buying a property. In addition, lower income households may also be looking to restore lost savings over the last year by increasing precautionary savings and delaying spending.

¹⁷ BoE, Monetary Policy Report, February 2021 – [link](#)

¹⁸ OBR, Coronavirus and the flow of funds, March 2021 – [link](#)

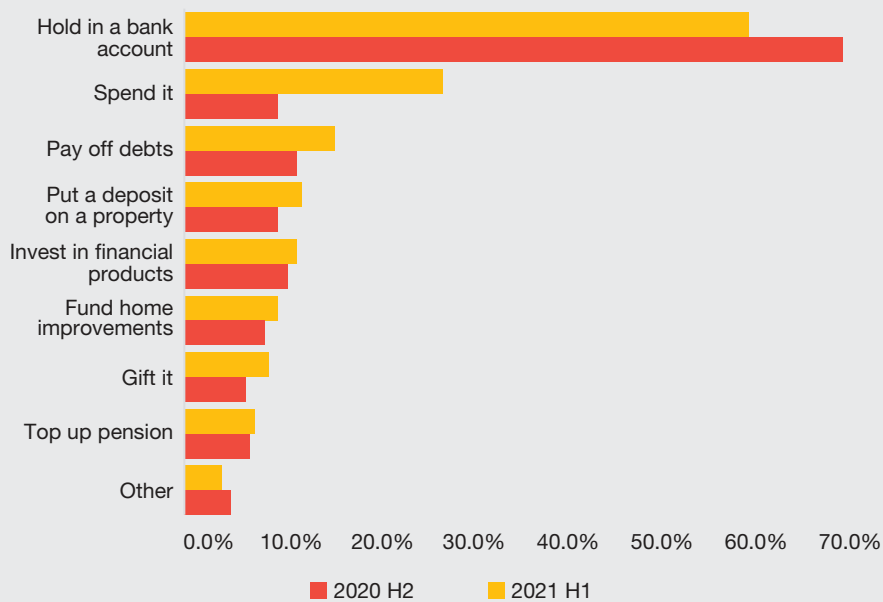
¹⁹ BoE, Monetary Policy Report, May 2021 – [link](#)

²⁰ PwC, Consumer Sentiment Survey Spring 2021, March 2021 – [link](#)

²¹ Bank of England, How have households' spending expectations changed since last year? June 2021

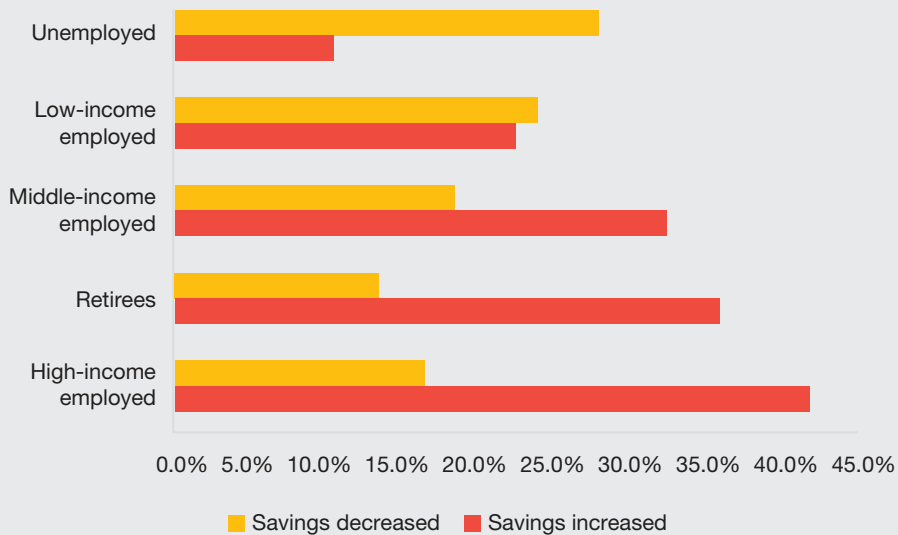
²² Bank of England, Monetary Policy Report, February 2021 – [link](#)

Figure 1.12: Planned use of funds among households with increased savings, %



Source: Bank of England

Figure 1.13: Percentage of households reporting changes in their savings, %



Source: Bank of England

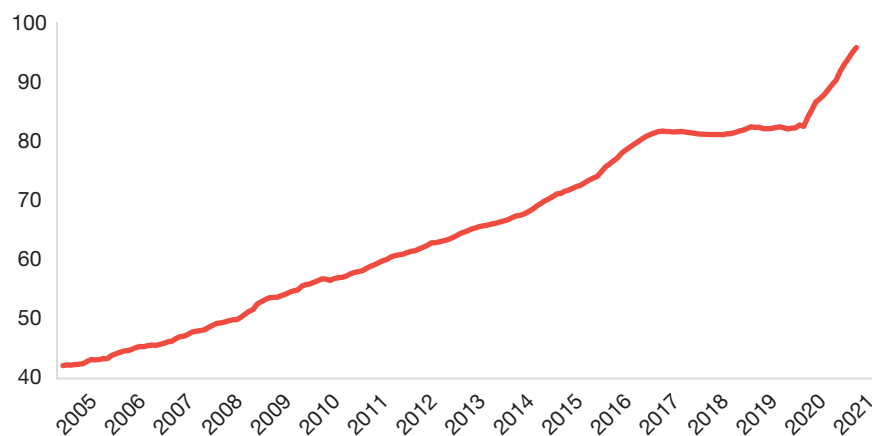
Risks to recovery:

New variants could drag on the recovery in the medium term:

While there has been evidence that some vaccines are effective against the new variant, the extent to which they can protect against the current and future variants remains uncertain. This uncertainty and possibility of further delays in lifting restrictions would weigh down on growth. Regional recoveries in the North West and East of England could lag behind following an early uptick in Delta COVID cases.²³ This could restrain long term growth and hold back the recovery, with potential implications for the levelling up agenda.

Trade challenges: The strength of the post-covid recovery of the UK's trading partners will likely shape future demand for the UK's imports and exports. Weak growth in the Eurozone could extend the time from Q1 2020 where the value of non-EU total trade in goods exceeds EU-trade in goods. The timeline for when UK-EU could return to pre-pandemic levels is unclear, with many businesses continuing to experience challenges with the new trading arrangements, especially structural issues caused by long term trading barriers with the EU (see Box B). However, there are some countervailing forces that favour growth in UK-EU trade. Short-term disruption to UK-EU trade is likely to diminish as traders adapt to the new paperwork. The UK's trade deal with the EU and countries such as Australia and Japan will likely dampen the impact on trade from leaving the UK. But trading on WTO terms could lower the UK's competitiveness and push up the price of imports, the latter of which have already increased due to a spike in global shipping costs.

Figure 1.14: Monthly average amount outstanding of total sterling notes and coin in circulation, sterling millions, seasonally adjusted



Source: Bank of England

Long-term economic scarring: There are two main ways economic scarring could occur following the pandemic. First, the stock of human capital could shrink as a potential rise in unemployment leads to an increase in economic inactivity and a reduction in the skills of the workforce. Second, the stock of physical capital could fall as businesses reduce or delay investing. Both would limit the level of output the economy can sustainably produce. The Bank of England estimates that the supply capacity of the economy will be 1.25% lower by the end of 2024.²⁴

Young people will likely bear the brunt of long-term scarring to the labour market. They tend to be over-represented in the sectors with the weakest job recovery prospects (like hospitality, leisure and retail) and under-represented in the sectors which are likely to see the strongest job growth (like professional and scientific occupations). Young people without higher level qualifications will likely be hardest hit in the future, as demand for employees with lower-level qualifications is expected to decline in the long term. Without government support with upskilling and to help young people enter the workforce, there is a risk that scarring could increase and hamper the long-term recovery.

Equity market volatility: Over the past year, liquidity within the global economy has been rising. This has largely been driven by the significant amounts of excess cash, on aggregate, that households have accumulated due to postponed spending and also policies such as the US stimulus checks. In Figure 1.14, the amount of money in circulation in the UK has jumped up since the start of the pandemic. With additional money in the bank, people have been looking to make greater returns – against a backdrop of record low interest rates – and investing in equity markets and cryptocurrency. This has been a driver behind the V-shaped recovery in many stock indices, including the FTSE 100 in Figure 1.15.

There is a risk that the volume of spare cash going into equities markets is overinflating it, which risks causing volatility and a potential bubble. In the lead up to 2008, the extent of liquidity in the market was a contributing factor to the global financial crisis. The potential for another bubble would harm the UK's economic recovery and lead to many households losing some of their excess savings.

²³ Public Health England (PHE), Confirmed cases of COVID-19 variants identified in UK, June 21 – [link](#)

²⁴ Bank of England Monetary Policy Report, May 2021 – [link](#)

Figure 1.15: FTSE100 index

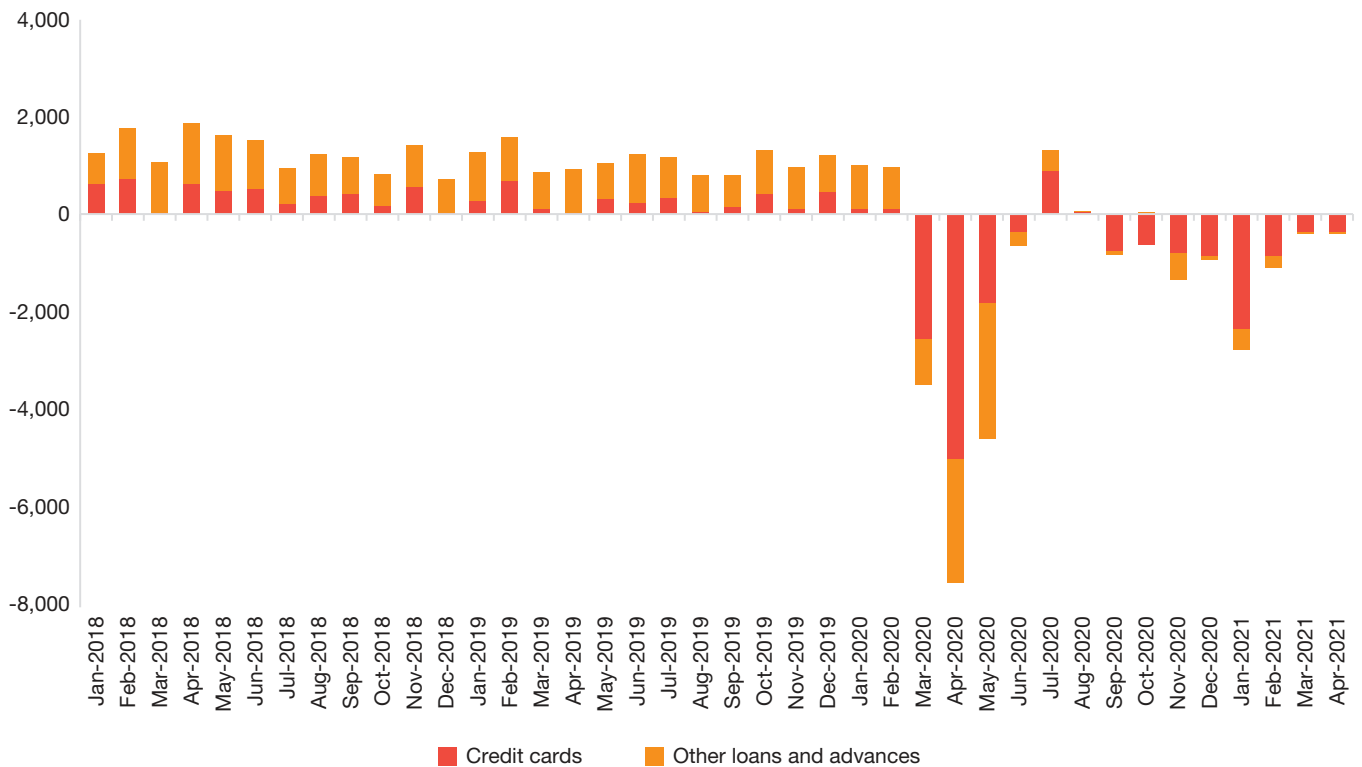


Source: Yahoo Finance

On the other hand, there are many reasons to believe that this time is very different from the global financial crisis. Firstly, the liquidity in the lead up to the global financial crisis was financed by excessive borrowing; this time, it's financed by excess savings and from cash in people's bank accounts. Figure 1.16 shows that, on aggregate, consumers are continuing to pay off more credit than they are taking out.

Secondly, markets are not at record highs. For example, the FTSE 100 index is around 10% below its peak in 2018. This suggests that the amount of money going into the equity market is not yet at the stage where we should worry unduly about a bubble.

Figure 1.16: Consumer credit flows, £ millions



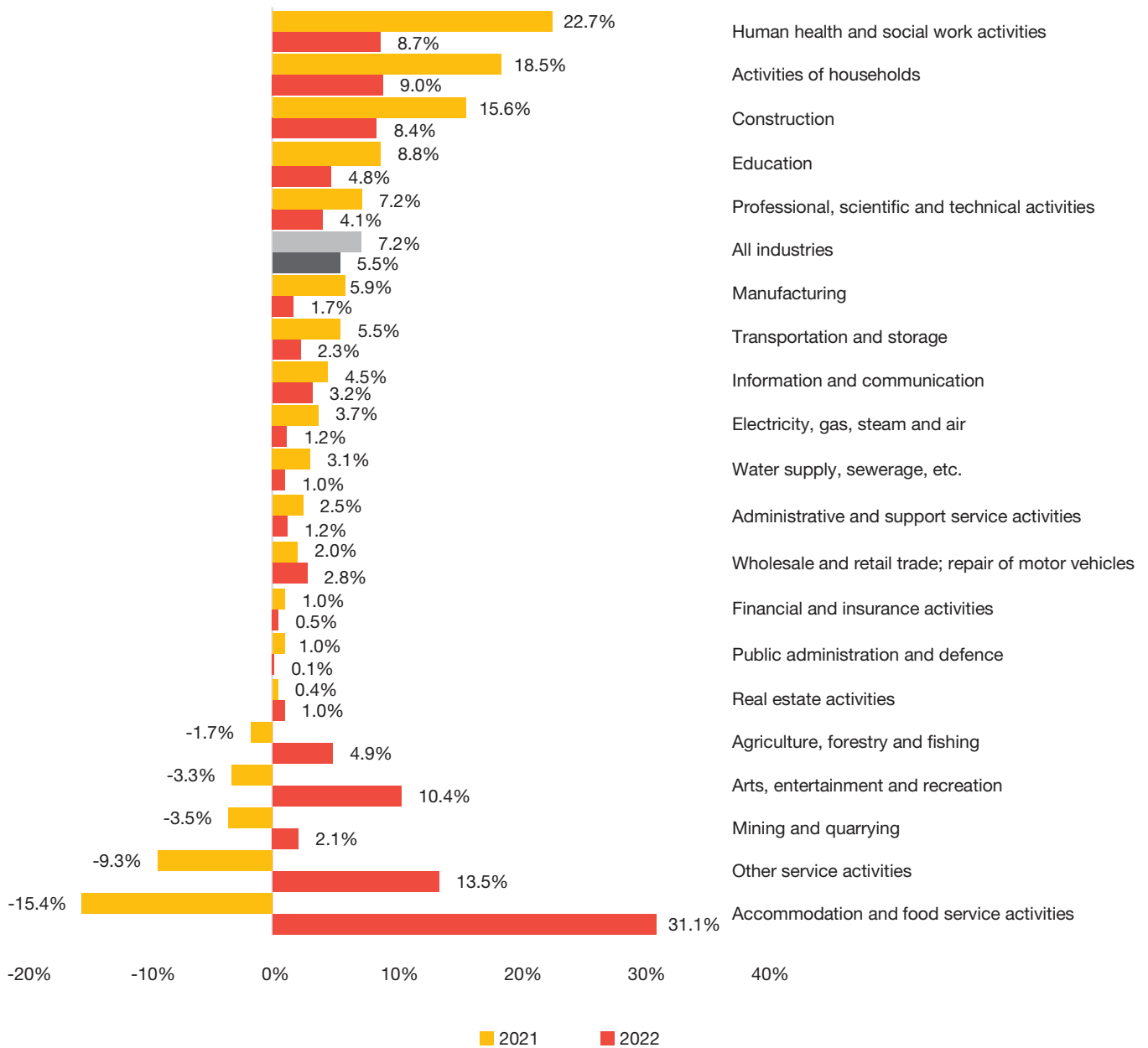
Source: Bank of England

Sectoral outlook

We expect most sectors to return to growth in 2021, but lingering effects of the pandemic are expected on some sectors, such as accommodation and food service activities, and arts, entertainment and recreation, where restrictions, spending pattern changes and consumer caution could weigh down on recovery (see Figure 1.17).

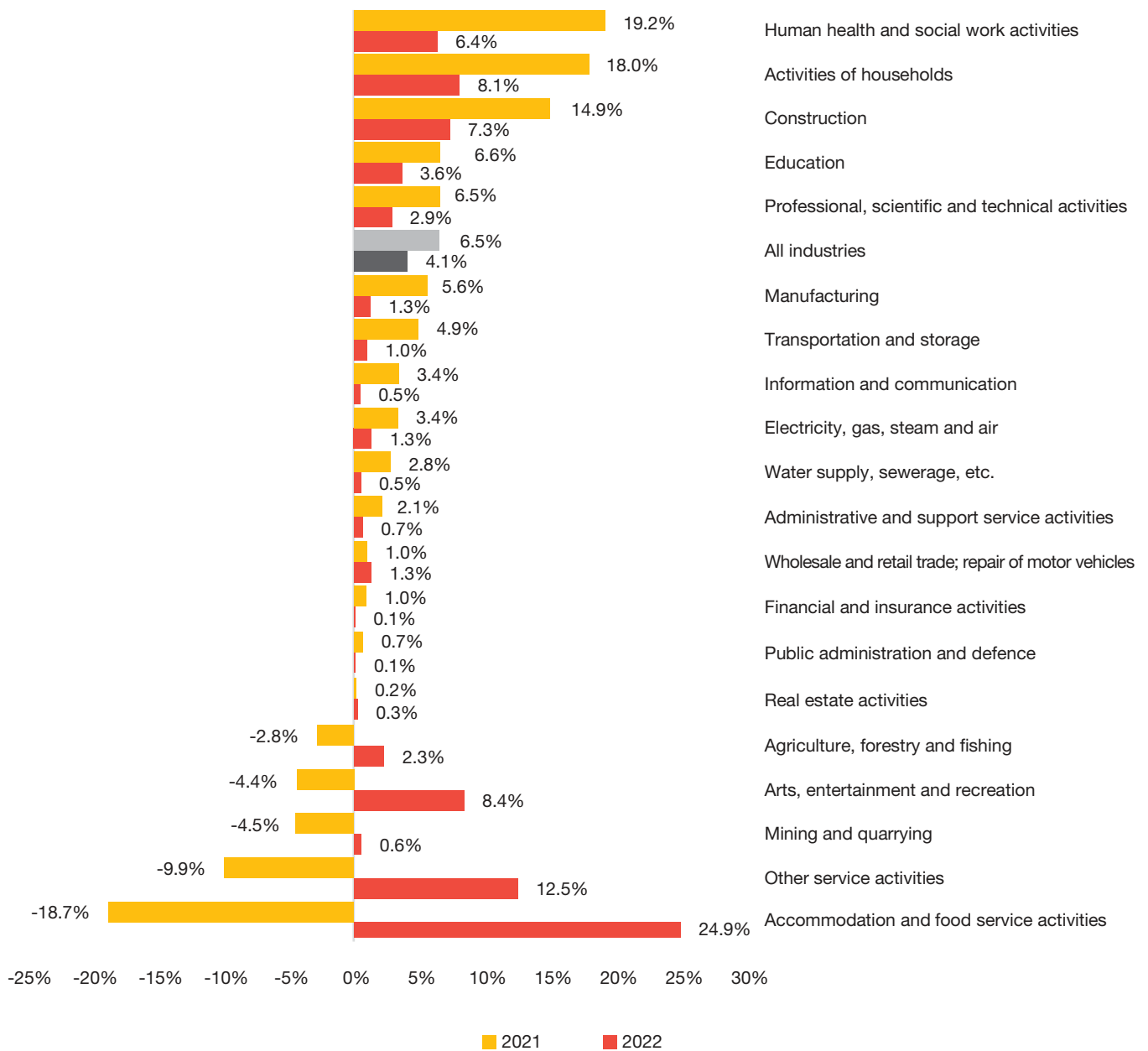
Figure 1.17: Projected GVA growth by industry sector, % annual change, 2021 and 2022

Quick recovery scenario



Source: PwC analysis

Slow recovery scenario

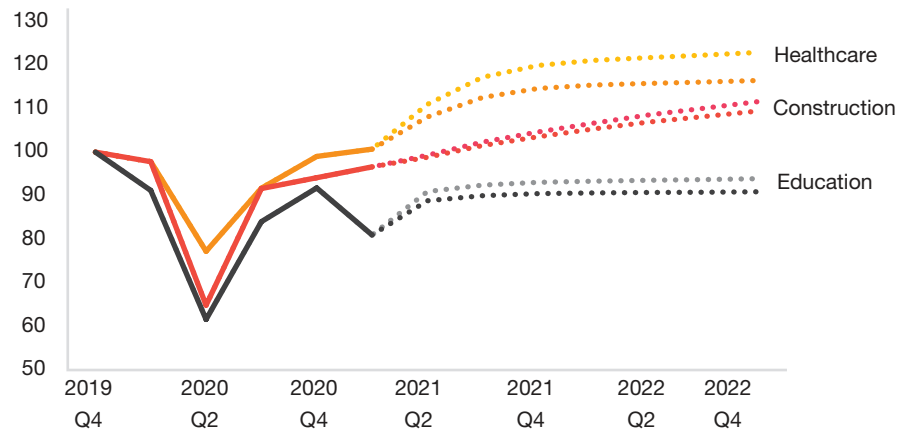


Source: PwC analysis

Accommodation, food services and arts, entertainment and recreation sectors are expected to remain subdued in 2021 as some people may still be reluctant to go out to restaurants or large events even when allowed because of concerns about the virus. A recent PwC Consumer Sentiment Survey also shows that more people have shifted their spending priorities from leisure activities to groceries and home improvements during lockdowns.²⁵ However, a larger vaccinated population, supported by behaviour changes, for example regular handwashing, could see the hospitality and entertainment sectors recover strongly from its low base, growing between 25%-31% and 8%-10% in 2022, respectively under our two scenarios.²⁶ Despite an expected strong recovery next year, the hospitality and entertainment sectors are likely to still remain 34%-40% and 23%-26% below their pre-crisis levels by the end of the year under our 'quick recovery' and 'slow recovery' scenarios.

Other sectors that have been hit hard by the lockdown restrictions, such as transportation and wholesale and retail, are also expected to return to growth as early as this year, although their recovery could be delayed if restrictions are reimposed due to new variants. Google mobility trend data shows slower recovery in footfall after the arrival of the new Delta variant (6 percentage point recovery in June compared to more than 8.5-9 percentage points in April and May 2021).²⁷

Figure 1.18: Projected GVA levels for 3 leading sectors in 2021 by scenario*, Q4 2019=100



Source: PwC analysis

* Dotted lines are GVA forecasts under the 'quick recovery' and 'slow recovery' scenarios

At the other end of the spectrum, we expect human health and social work to lead growth in 2021, driven by the UK's vaccination programme as well as the full resumption of normal non-elective health care and GP appointments (see Figure 1.18). The expanded testing and vaccination programmes have allowed the sector to return to its pre-crisis level in Q1 2021. Expansion of vaccine offerings to wider age groups and the potential for regular booster jabs are likely to drive growth of the sector as it goes into the next year (between 19% – 23% under our 'slow recovery' and 'quick recovery' scenarios).

Among the few sectors that have fully recovered to the pre-crisis levels,²⁸ construction has benefited from its adaptability to operating under lockdown restrictions and stronger demand for repair and maintenance as lockdowns posed a unique window for carrying out work with minimal disruption.²⁹ While we expect the

positive growth to continue, the majority of the sector output next year is likely to come from new work as demand for larger properties increases post-pandemic (see Section 2.1 for more details).

Following strong growth of 11.2% in April 2021 as more pupils returned to onsite lessons, education output is likely to continue its upward trend this year in order to help school children catch up from their lost learning last year. Another sector that is expected to return to its long term growth rate by the end of this year is financial services as uncertainties over UK-EU trade arrangements for financial services are gradually lifted.³⁰

Overall, we expect the uneven recovery across sectors to continue for the rest of 2021 and into next year. Targeted government support is expected to be required for hard hit sectors, such as hospitality and entertainment sectors, where changes in spending habits and behaviour are here to stay.

²⁵ PwC, Consumer Sentiment Survey Spring 2021, March 2021 – [link](#)

²⁶ In the next 12 months, more people intend to prioritise eating out and holidays while keep their new-found spending habits on groceries and home improvements, according to the PwC Consumer Sentiment Survey, March 2021 – [link](#)

²⁷ Google Community Mobility report – [link](#)

²⁸ Other sectors include electricity, gas and water supply, which have largely been driven by the working from home requirements, according to ONS Monthly GDP, June 2021 – [link](#)

²⁹ The construction sector is currently 0.3% above the February 2020 levels in April 2021, with repair and maintenance output standing at 7.2% above its pre-crisis levels.

³⁰ On 26 March 2021, the UK and EU have technically agreed a Memorandum of Understanding, laying a foundation for trading relationships between the two parties in financial services. However, detailed negotiations to be followed – see our PwC blog for more details – [link](#)



Performance and outlook of the labour market



3

Performance and outlook of the labour market

The recent performance of the UK labour market

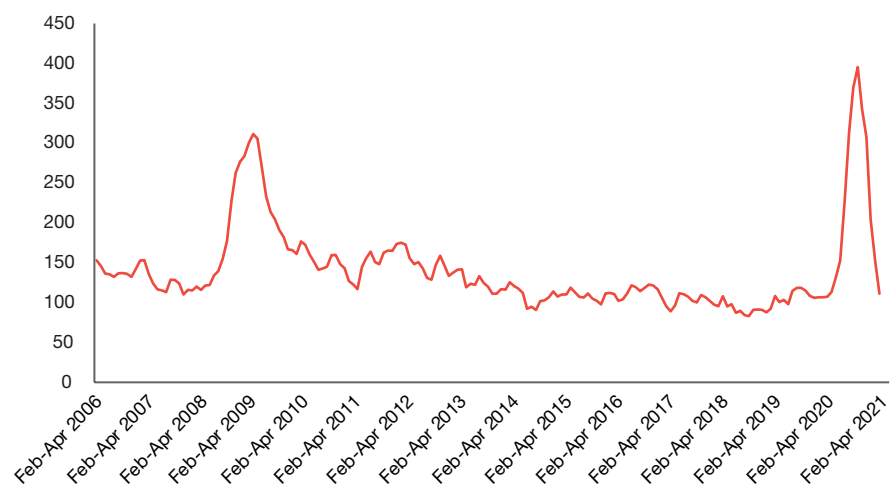
The UK jobs market has remained relatively stable in recent months. The unemployment rate, as measured by the Labour Force Survey (LFS), stood at 4.7% in the three months to April. Despite the unprecedented fall in GDP, the unemployment rate is only around one percentage point higher than it was before the pandemic, as the government's furlough scheme has protected jobs through sector shut downs and while demand remains below pre-pandemic levels. In the aftermath of the global financial crisis, for example, the unemployment rate was around 7.5% – 8%. The UK's unemployment rate over the pandemic peaked at 5.1% in Q4 2020 but then fell by 0.3 percentage points in Q1 2021, despite tighter restrictions. This reflects the following:

- A 0.1 percentage point rise in the employment rate between Q4 2020 and Q1 2021 as the faster than expected vaccine rollout boosts confidence and businesses adapt to lockdown restrictions.
- A 0.2 percentage point rise in the economic inactivity rate between Q4 2020 and Q1 2021, driven by a rise in people studying as young people face challenges entering the labour market.

Payroll data implies a higher rate of unemployment. While the headline rate of unemployment portrays a relatively resilient labour market, other measures suggest that the labour market has been under more stress over the first quarter of the year. For example, experimental and real time data from HMRC shows that there were around 771,000 fewer payrolled employees in April 2021 compared to February 2020. This would imply an unemployment rate of around 6%. The number of payrolled employees dipped in November, over 960,000 lower than its pre-pandemic level. Since then, the number of employees on the payroll has increased for six consecutive months and currently is estimated to be 553,000 lower than pre-pandemic as of May 2021.

Redundancies are at pre-pandemic levels. In the three months to April 2021, the redundancy rate declined at a record pace, falling to 4.0 people per thousand, from 12.3 people per thousand between October and December 2020. This means the number of people made redundant between February and April this year was over 70% lower than the peak towards the end of last year. This occurred despite tighter restrictions, as the extension of the furlough scheme and the adaptation of businesses to lockdown encouraged employers to hold on to staff.

Figure 1.19: UK redundancies (people aged 16 and over), seasonally adjusted, thousands



Source: ONS

Labour market outlook

The furlough scheme will continue to support the labour market in the near term. Around 3.4 million workers were still on the government's Job Retention scheme as of the end of April. This has been gradually declining from around 5 million at the start of the year, and remains significantly lower than the peak of almost 9 million during the first national lockdown a year ago. However, it is higher than the trough of around 2.5 million workers in November last year.

As the furlough scheme begins to unwind, it is uncertain how businesses and workers will respond. We are unlikely to experience a 'big bang' where employment levels fall off a cliff the day the scheme ends, but to expect a completely smooth transition of furloughed workers back to their old jobs would be optimistic. Employees might find their job roles changing, they may be offered reduced hours, and a proportion will unfortunately find that their job no longer exists. However, provided demand within the economy gradually returns to normal, so should demand for workers.

There is likely to be more slack in the labour market than implied by the unemployment rate. The underemployment rate – the share of workers who wanted to work more hours than they did – was 8.1%. This is an improvement from 8.9% in the three months to December 2020, but remains higher than the 7.6% average in 2019. This means that employers have room to increase the hours of their current workforce. In addition, after a year of uncertainty and stasis in the labour market, many employees may now be looking for new jobs.

Job optimism is on the rise. As the successful vaccine rollout paves the way back to normality, optimism about employment prospects is increasing. According to the latest quarterly survey from the Chartered Institute of Personnel and Development (CIPD) of over 1,000 UK employers, job optimism is at an eight-year high, with all sectors expecting to add more jobs than cut.³¹ In PwC's 2021 CEO Survey, over 55% of UK CEOs expect their headcount to increase this year, compared to 20% who expect a decrease.³²



³¹ CIPD, Labour Market Outlook, Spring 2021 – [link](#)

³² PwC, 4th Annual CEO Survey – [link](#)

This optimism is reflected in recent data on rising vacancies. In the three months to May, according to the ONS, the estimated number of vacancies grew by 24.0% compared with the three months prior, with improvements reflected in 17 out of 18 industries. Most notably, vacancies in accommodation and food services were up 260% during this period, as the sector gradually opened up again. The sector is also grappling with labour shortages as foreign workers leave the UK due to a combination of post-Brexit immigration rules and the impact of the pandemic on work.

The ONS data suggest that, as of April, vacancies were at 93% of pre-pandemic levels. However, more real-time data from Adzuna online job adverts suggest that vacancies in the majority of sectors exceeded pre-pandemic levels in May (Figure 1.20).³³

The unemployment rate is likely to average around 5% this year.

We expect the headline LFS rate of unemployment to rise to between 5% and 5.5% over the course of this year as, i) the furlough scheme comes to an end, and ii) labour market participation increases as the economy reopens and the effects of economic inactivity unwind. It should then gradually fall back down towards 4.5% in 2022 and beyond.

Figure 1.20: Total job adverts by UK Countries and English Regions, May Average, Index (February 2020 = 100)



Source: Adzuna

³³ ONS, Online job advert estimates – [link](#)



Current inflation developments and outlook



4

Current inflation developments and outlook

Recent trends in UK inflation

Consumer price index inflation remained weak in Q1, reflecting the ongoing government restrictions. The 12-month CPI rate averaged 0.6% between January and March 2021, taking the UK to eight consecutive months of inflation below 1%, which is half of the Bank of England's 2% target.

Subdued inflation can largely be attributed to temporary COVID-related factors, with weak demand for services and things like clothing and footwear, and policies such as the VAT cut for hospitality and tourism. COVID has disrupted typical seasonal pricing patterns for clothing and footwear,

with discounting occurring during lockdowns and retailers attempting to offload unsold stock against a backdrop of weak demand.

In April, the 12-month CPI rate rose to 1.5%, more than doubling from March, and has since reached the Bank of England's target at 2.1% in May. It is important to interpret the latest data in the context of the low prices we saw 12 months ago during the pandemic. For example, petrol prices in May 2020 reached a four year low, with transport costs being one of the main factors behind the 12-month rise in inflation in May 2021. This means that so-called

'base effects' are driving up the rate of inflation, and will likely do so for a few more months. The recent rises in inflation have also been driven by higher household energy bills, due to Ofgem's increase in the price cap by 9%, and the price of motor fuels.

But there has also been an increase in core inflation, which excludes energy, food, alcohol and tobacco, from 1.3% in April to 2.0%. This suggests a reopening effect is also at play, with the prices of clothing and footwear, restaurants and hotels, and other services like hairdressers, all increasing as restrictions are eased.



Outlook for UK inflation

The prospect of rising inflation has made headlines in recent months, with the more than doubling of the 12-month rate of CPI inflation rose in April. It is important to put this rise, and the prospect of further rises into context. First, the higher rate of annual inflation in April and May, to a large extent, reflects that prices a year ago at the start of the pandemic were low. Secondly, coming out of the financial crisis, average annual CPI was 3.3% in 2010 and 4.5% in 2011. It did not settle below the Bank's target of 2% until 2014.

In the short term, inflation is unlikely to follow a smooth path, with many different factors feeding irregularly into the monthly data. In general, inflation is likely to follow an upwards trend as the economy continues to reopen.

Factors that could put upwards pressure on prices in the near-term:

- With around 10% of business having paused trading and around 20% of private sector jobs on furlough, spare capacity currently exists within the UK economy. In addition, many businesses are likely operating at a reduced capacity to permit social distancing. As the economy continues to reopen, this spare capacity is expected to decline, putting upwards pressure on prices.
- A continued recovery in global oil prices could continue to feed through to fuel prices and household energy costs over the summer, boosting inflation.
- A number of temporary COVID-19 factors could also unwind this year, including unseasonal retail discounts and the VAT cut for hospitality and tourism. We expect the latter to temporarily boost inflation when the policy comes to an end in October.

- Weak demand will likely recover as the economy continues to reopen, boosted by consumer optimism from the vaccine rollout and as households spend some of their large stocks of excess savings.
- Ofgem's increase of the energy price cap by 9%, combined with a continued recovery in global oil prices, could see households pay more for their energy bills.
- In recent months, input costs such as freight and raw materials have been rising, especially for manufacturers, driven by global supply chain shortages. In the UK, supply-side distortions are amplified by Brexit and the higher costs of importing from the EU. If these higher costs persist, they could begin to be passed through to consumer prices.
- Businesses might also look to recoup lost revenues from the past year. This could result in them increasing prices, especially in service sectors which have been most hit by restrictions over the pandemic.
- Business and household expectations of inflation may also create self-fulfilling upwards pressure on prices, potentially driven by expectations of a higher cost of imports due to Brexit or rising inflation in the US. The five year inflation projection read off the UK instantaneous implied inflation forward curve in June is around 3% – 3.5% and remains largely unchanged from May. The Bank of England, in their latest Monetary Policy report, conclude that most measures of inflation expectations have been broadly stable and that inflation expectations remain well anchored.³⁴

Factors that could put downwards pressure on prices in the near-term:

- The economy and jobs are still being propped up by large amounts of Government support and through the Autumn, this will start to unwind. We are unlikely to see a completely smooth transition of furloughed workers back to their old jobs. Disruption in the labour market and a rise in unemployment would reduce consumer confidence and spending, which could moderate the recovery in demand.
- A rise in unemployment would also increase spare capacity in the labour market and subdue wage growth, putting downward pressure on prices.
- Wage growth could also be subdued over the next two to three years as businesses exercise caution and rebuild their cash reserves.
- The risk of mutations of COVID-19 leading to a resurgence of cases and the reintroduction of restrictions would stall the UK's economic recovery, reduce consumer confidence and put downwards pressure on prices.

We expect inflation to peak between 2.5% and 2.8% in Q4 this year, and then to gradually return to target from 2022 onwards. We expect the Bank of England to prioritise supporting the recovery with low interest rates over reducing inflation. This was more recently confirmed by the Bank of England's decision in May to keep the Bank Rate at 0.1% and maintain its existing bond purchasing programme. In addition, given the future path for inflation is likely to be relatively volatile, the Bank is unlikely to respond to any temporary rises in inflation with a rise in interest rates.

³⁴ BoE, Monetary Policy Report, May 2021 – [link](#)



Optimising energy efficiency in the housing market

To what extent can it lower energy bills and contribute towards net zero?

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Optimising energy efficiency in the housing market

To what extent can it lower energy bills and contribute towards net zero?

Key points

1

UK house prices have grown markedly in recent months, with annual growth reaching 10.2% in March 2021, a level not seen since August 2007. By contrast, private rental prices have grown much more steadily, in line with their pre-pandemic trend.

2

House price transactions have recovered strongly from a dip during the first months of the COVID-19 pandemic, reaching their highest volume on record in March 2021. This partly reflects a catch-up of market activity, but transaction volumes have also been buoyed by the temporary Stamp Duty holiday, which is being phased out over 2021.

3

Since mid-2020, all UK regions have experienced strong house price inflation. The fastest growing regions (North West and Yorkshire and The Humber) have seen average price growth of over 7.5%. London has seen the slowest growth (3.9%), but it remains the most expensive region by far with average house prices now at £500,000.

4

We have developed two scenarios to project UK house prices to 2025. In our quick recovery scenario, we expect house prices to grow at around 7% in 2021, which is the fastest rate in 5 years. In our slow rebound scenario, we expect UK house prices to grow by around 5% this year

5

Our special feature investigates the potential financial and environmental benefits from improving the energy efficiency of UK housing. Our findings show that upgrading home energy efficiency has the potential to create gross energy bill savings for households, while also substantially reducing carbon dioxide (CO₂) emissions and contributing to the UK's net zero target.

6

New build properties typically have much higher levels of energy efficiency than existing properties. We find that on average, annual household energy bills in England and Wales are around £374 lower for new build properties compared to those built before 2018.

7

To aid and encourage households to make energy efficient upgrades to their homes, all Energy Performance Certificates (EPC) issued in England and Wales include government recommendations on how to upgrade each property and the potential rating improvement those could collectively achieve. In this article, we estimate the energy bill savings and emissions reductions that could be associated with such recommended improvements.

8

We find that upgrading a property built before 2018 (hereafter, an existing property) to their potential energy efficiency levels could save an average household in England and Wales around £178 per year in gross energy costs. This is about one quarter of average annual energy bills and 0.3% of an average annual household disposable income. The savings are unsurprisingly smaller for new builds (defined as properties built after 2018).

9

If all households in England and Wales were able to achieve these upgrades it could save 46 million tonnes of CO₂ annually. This is around 14% of the reduction in annual CO₂ emissions required to meet the UK's net zero target by 2050 (not accounting for other greenhouse gases).

10

Over the long-run, the UK government aims to upgrade as many properties in the UK as possible to EPC band C, in line with its Clean Growth Strategy. We estimate that the gross annual energy bill savings for UK households could total £9.5 billion.

11

While all regions in the UK need to play their part towards achieving net zero, some regions have further to go. Domestic emissions account for a greater share of total emissions in more urban and populated regions such as London (37% of total emissions), compared to regions such as Yorkshire and the Humber (23%) and Wales (21%).

12

Property characteristics and their shares in the regional housing stock also play an important role in the potential emissions savings each region could generate. We found that virtually all (around 99%) of the total emissions savings could come from upgrading the pre-2018 housing stock. For example, London could potentially avoid more than 4.8 million tonnes of carbon emissions per year from upgrading existing properties to their EPC potential level (11% of the total savings in England and Wales).

13

Regions with higher proportions of houses and bungalows (e.g. East Midlands) could face more challenges in improving home energy efficiency as these property types tend to release more emissions and have higher energy consumption. On average, a house built before 2018 releases twice the amount of carbon dioxide than a flat of a similar age, or around 1.4 times if the house is a new build, according to our analysis, given the challenges of improving energy efficiency in larger properties.

14

Our survey of UK households reveals growing public awareness and willingness to invest in energy efficient and sustainable homes. However, results show that living in rented accommodation and upfront costs are the main reasons preventing households from investing in energy efficiency upgrades.

15

Policymakers could maximise the benefits though boosting public awareness of the benefits and solutions to improving home energy efficiency, and providing long-term financial incentives for households and landlords to upgrade.



Introduction

In this article, we explore the following:

Section 1



A discussion of how the UK housing market has performed since mid-2020, focussing particularly on how COVID-19 and temporary Stamp Duty holiday policy have impacted housing market trends.

Section 2



We then present our latest projections for UK house price inflation to 2025, based on two scenarios. Technical details of our house price modelling methodology are presented in the technical annex.

Section 3



We assess the potential financial and environmental benefits to UK households from improving the energy efficiency of their properties, including the contribution to the UK's net zero target. We supplement our analysis with a survey of UK households to better understand their priorities and intentions regarding home energy efficiency. Based on the findings, we also discuss potential challenges and policy implications of optimising energy efficiency in the housing market.



Recent housing market developments



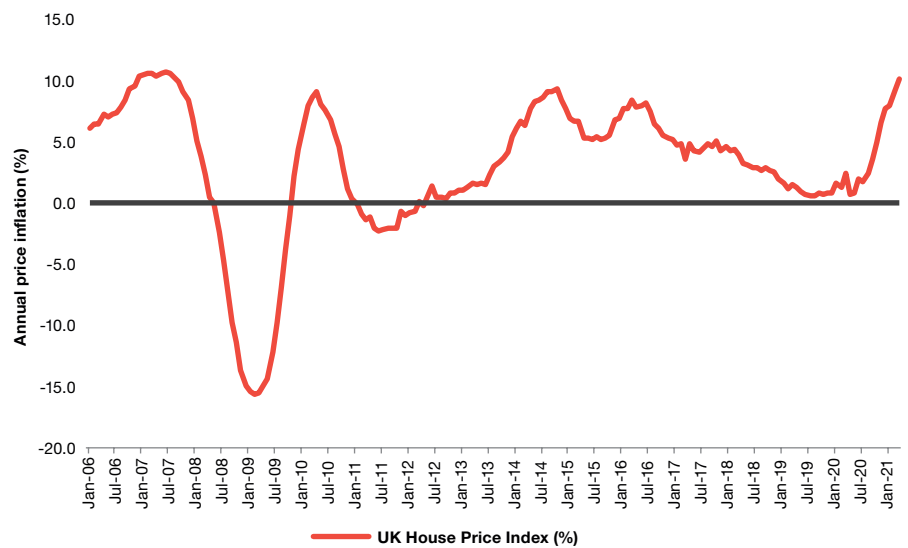
1 Recent housing market developments

UK house price inflation has been strong in recent months, despite uncertainty in the economic outlook and government lockdown restrictions. Between July 2020 and March 2021, house price inflation increased for eight consecutive months. Year-on-year price inflation reached 10.2% in March 2021, which is the highest rate recorded since August 2007.

10.2%

Year-on-year price inflation reached 10.2% in March 2021, which is the highest rate recorded since August 2007.

Figure 1: UK house price inflation, Jan 2006 – Mar 2021



Other indicators also suggest the housing market activity has performed strongly over recent months, for example:

<p>Nationwide's House Price Index shows purchase prices rose by 5.7% year-on-year in March 2021 (compared to 10.2% for the ONS UK House Price Index) and 7.1% in April 2021³⁵</p> <p style="text-align: right;">1</p>	<p>Completed transactions reached 180,690 across the UK in March 2021³⁶ according to HMRC, the highest volume since current records began in 2005</p> <p style="text-align: right;">2</p>	<p>Estate agents and property websites have reported a significant year-on-year increase in demand</p> <p style="text-align: right;">3</p>
<p>According to estate agent ludlowthompson, the number of foreign investors in UK property reached a five-year high of 184,000 in April 2021³⁷</p> <p style="text-align: right;">4</p>	<p>According to the Bank of England's March 2021 Money and Credit report,³⁸ net mortgage borrowing reached a record high £11.8bn in March, up sharply from £6.4bn in February (and lower still in previous months). The number of mortgage approvals for house purchases has fallen back from its November peak of 103,126 to 82,735 in March, although this remains significantly above pre-pandemic levels</p> <p style="text-align: right;">5</p>	

³⁵ Nationwide, House Price Index, April 2021 – [link](#)
³⁶ This statistic is not seasonally adjusted and is a provisional HMRC estimate which may be subject to further revision over future months.
³⁷ ludlowthompson, Number of overseas landlords hits five-year high, April 2021 – [link](#)
³⁸ Bank of England, Money and Credit, March 2021 – [link](#)

There are multiple factors driving these trends

- The record low interest rate environment has allowed households to borrow at a cheaper rate
- COVID-19 restrictions have helped many households save towards a deposit, as there has been limited opportunity to spend on entertainment and holidays
- Pent-up demand from Q2 2020, when strict COVID-related restrictions imposed on housing market activity
- A shift in preferences towards larger properties with outdoor space, brought about by lockdowns and working from home
- The Stamp Duty holiday, introduced by the UK government in July 2020 and extended with a phased return to pre-pandemic tax rates between 31 March 2021 and 1 October 2021. Existing homeowners have been able to save more than £2,000 on an average property
- The successful rollout of vaccinations since December 2020 has boosted confidence and reduced the degree of medium-term economic uncertainty

£2,000

Existing homeowners have been able to save more than £2,000 on an average property due to the Stamp Duty holiday.

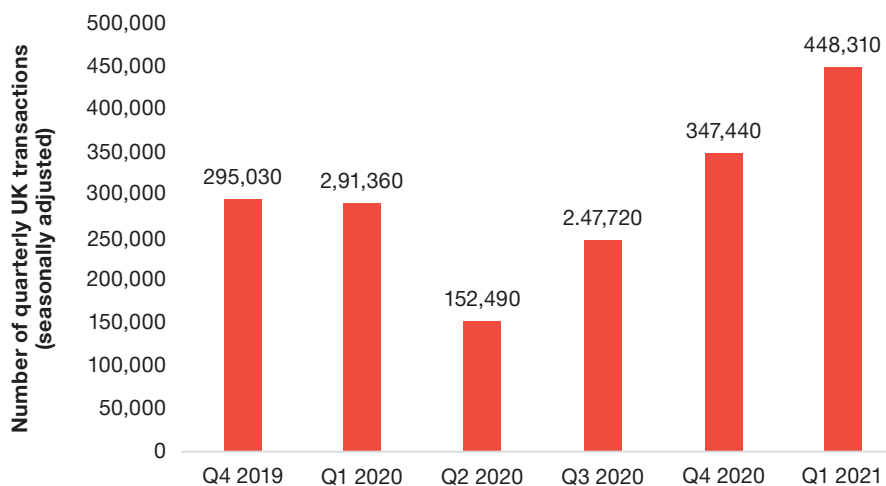
The sharp price growth seen in the property purchase market has not been replicated in the ONS experimental index of private rental prices, which has seen relatively stable year-on-year price growth of 1.2-1.5% since July 2020. In recent months, this has led to a significant divergence between price growth for property purchases and private rentals.

Transactions are booming across all parts of the UK

Property transactions fell sharply during the first few months of the COVID-19 pandemic, with strict restrictions imposed on housing market activity. Since July 2020, transaction volumes have recovered strongly, making up the ground lost during the early stages of the pandemic. Figure 2 shows quarterly UK property transactions since Q4 2019.

This shows that total transactions over the last two quarters (Q4 2020 and Q1 2021) are far greater than during the first months of the COVID-19 pandemic, but also significantly greater than their pre-pandemic level in Q4 2019. It is likely that the high recent transaction volumes partly reflect 'catch-up' from mid-2020 and pent-up demand, but the Stamp Duty holiday has further reinforced volume growth.

Figure 2: Quarterly UK property transactions, Q4 2019 to Q1 2021 (seasonally adjusted)



Source: HMRC, PwC Analysis



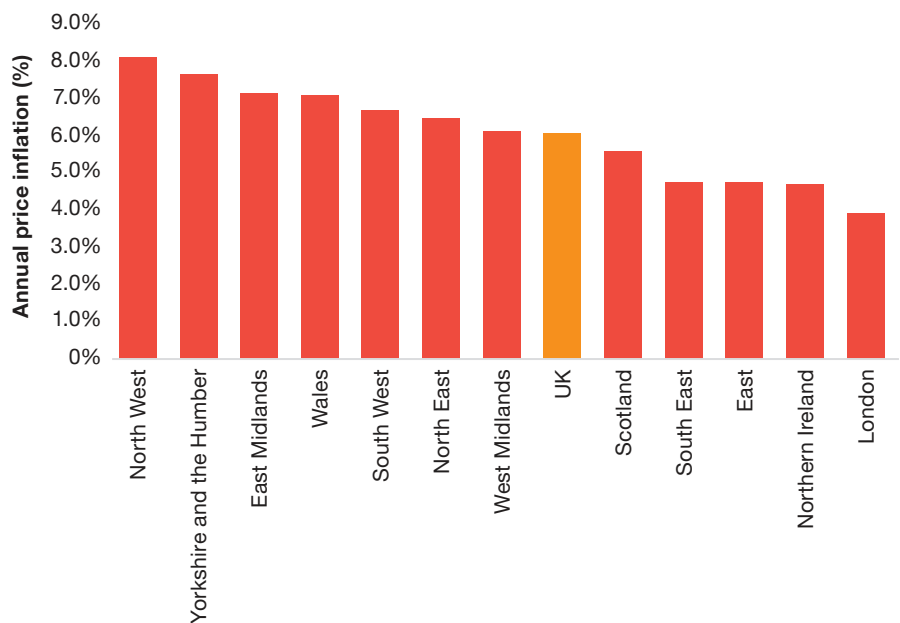
House price growth has been strong across all UK countries and regions

Between July 2020 and March 2021, average annual house price inflation has exceeded 3.8% across all UK countries and regions, as shown in Figure 3 opposite³⁹. The North West and Yorkshire and The Humber have recorded average annual price growth of over 7.5%. London recorded the lowest regional house price growth, although it remains the most expensive region by far with an average house price of £500,000 in March 2021.

£500,000

Average house price in London in March 2021.

Figure 3: Average annual house price inflation by region, Jul 2020 – Mar 2021



Source: ONS, PwC Analysis

³⁹ The period July 2020 to March 2021 is chosen for multiple reasons: 1) we covered prior periods in the October 2020 UKEO housing article; 2. July 2020 marks the start of the consecutive month-on-month HPI inflation increases observed through to March 2021; 3) it provides us with exactly three quarters of data to study.



Housing market outlook



2

Housing market outlook

The outlook for the housing market is positive, although some uncertainties remain

The outlook for the UK economy continues to face uncertainties, but prospects have improved in recent months, buoyed by the successful vaccine rollout and the gradual reopening of the economy. Many of the factors that have been driving UK house price growth over recent months, combined with a stronger economy and continued monetary and fiscal support, are likely to sustain house price growth.

Below we summarise a number of opportunities and risks for the trajectory of the housing market:

Opportunities



- The OBR estimate personal savings could reach £180bn by the middle of 2021 (equivalent to 12% of total consumer spending in 2019), which consumers may look to spend over the coming years, including on housing⁴⁰
- The Chancellor's recently announced budget measures, including the extension of the job support scheme until September and deferred tax increases, will likely support jobs and incomes, GDP growth, and ultimately the housing market in the short term
- The new mortgage guarantee scheme, aimed at boosting availability of 95% LTV mortgages, will help those with smaller deposits to purchase a home (particularly in the capital where prices are higher), as well as push down the cost of borrowing
- The Government announced a range of measures in the Queen's Speech to support the housing market including plans for a planning bill to improve the speed at which proposed developments go through the planning system. This will help to increase supply, address housing shortages and improve affordability, but could put downward pressure on prices
- The successful rollout of the vaccine and expected economic recovery is likely to support international investor confidence, who are a significant driver of sales, particularly in London

Risks



- The Stamp Duty holiday will be phased out by 30 September 2021. When this ends, it is unclear how the housing market will react. There may be a period of more subdued activity if demand has been brought forward, but a serious correction in house prices is unlikely given strong underlying fundamentals
- The end of the Job Support Scheme at the end of September could lead to an increase in unemployment, which could reduce demand for housing
- There is a continued risk of new variants of the virus, leading to further restrictions. However, the resilience of the market during recent lockdowns suggests this may not be a material risk for the housing market
- There are some risks for the housing market if inflation takes hold in the UK, potentially resulting in the Bank of England increasing interest rates. Higher interest rates could affect mortgage affordability criteria, lending and weigh on house price growth. However, we expect the Bank of England to prioritise supporting the recovery over reducing inflation

⁴⁰ Office for Budget Responsibility (OBR), Coronavirus and the flow of funds, March 2021 – [link](#)

We have brought these factors together to develop two house price scenarios

We have used our econometric time-series models to make projections of house prices in two scenarios. Our econometric models link UK house prices to underlying drivers of the housing market and the economy more generally, such as earnings growth, housing supply and credit conditions. We then use these relationships to project how prices may evolve.

Where possible, we base our model assumptions of other variables (e.g. CPI inflation) on forecasts from official and reputable sources, such as the OBR. However, due to the constantly evolving nature of the current situation, we have updated some of these forecasts and use our own published analysis.

While there has been discussion in the media in recent weeks about higher inflation, we assume that CPI does not deviate significantly from expectations of 1.5%-2%.⁴¹ Existing spare capacity in the economy, with demand still below potential levels, makes sustained inflation and overheating of the economy unlikely. If this is not the case, the short and medium-term impact to UK house prices could be considerable, particularly if the Bank of England raises interest rates.

'Quick Recovery' Scenario

- The OBR estimate personal savings could reach £180bn by the middle of 2021 (equivalent to 12% of total consumer spending in 2019), which consumers may look to spend over the coming years, including on housing
- The Chancellor's recently announced budget measures, including the extension of the job support scheme until September and deferred tax increases, will likely support jobs and incomes, GDP growth, and ultimately the housing market in the short term
- The new mortgage guarantee scheme, aimed at boosting availability of 95% LTV mortgages, will help those with smaller deposits to purchase a home (particularly in the capital where prices are higher), as well as push down the cost of borrowing
- The Government announced a range of measures in the Queen's Speech to support the housing market including plans for a planning bill to improve the speed at which proposed developments go through the planning system. This will help to increase supply, address housing shortages and improve affordability, but could put downward pressure on prices
- The successful rollout of the vaccine and expected economic recovery is likely to support international investor confidence, who are a significant driver of sales, particularly in London

'Slow Recovery' Scenario

- The Stamp Duty holiday will be phased out by 30 September 2021. When this ends, it is unclear how the housing market will react. There may be a period of more subdued activity if demand has been brought forward, but a serious correction in house prices is unlikely given strong underlying fundamentals
- The end of the Job Support Scheme at the end of September could lead to an increase in unemployment, which could reduce demand for housing
- There is a continued risk of new variants of the virus, leading to further restrictions. However, the resilience of the market during recent lockdowns suggests this may not be a material risk for the housing market
- There are some risks for the housing market if inflation takes hold in the UK, potentially resulting in the Bank of England increasing interest rates. Higher interest rates could affect mortgage affordability criteria, lending and weigh on house price growth. However, we expect the Bank of England to prioritise supporting the recovery over reducing inflation

⁴¹ OBR, Economic and Fiscal Outlook, March 2021 – [link](#)

UK House Price Growth is likely to remain strong over the coming years

Table 1: UK House Price Scenario Based Projections, 2021-2025

Scenario		2021	2022	2023-25 (average)
'Quick Recovery'	Annual growth (%)	7%	4%	4%-5%
	Price	£254,000	£263,000	£301,000 (in 2025)
'Slow Recovery'	Annual growth (%)	5%	1%	4%
	Price	£251,000	£253,000	£283,000 (in 2025)

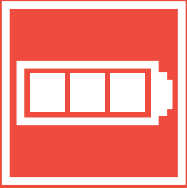
In the 'Quick Recovery' scenario:

UK house prices grow by around 7% in 2021, the highest rate in the last five years, as economic prospects and policy support drive demand for residential property and transactions throughout the remainder of the year. The end of the stamp duty holiday and easing of policy support means activity slows somewhat from the second half of 2021, but strong underlying fundamentals, accumulated savings and the structural under-supply of housing prevent the prices from falling. Price growth is slower in 2022 as prices are increasing from a higher base, but still exceeds inflation. In 2023-25, UK house prices begin to converge to their longer term average growth of 4%-5% per annum.

In the 'Slow Recovery' scenario:

UK house prices grow by around 5% in 2021, with a more marked slowdown in price growth in the second half of the year as a result of the stamp duty holiday bringing forward demand. Price growth returns to the longer term trend in 2023 as the global vaccine rollout nears completion and the risks subside.

These two scenarios show how the impact of the pandemic and the recovery on the housing market could vary. We believe based on current events these scenarios are reasonable. However, as mentioned earlier on in our analysis, there are a variety of factors which make the outlook particularly uncertain. Our analysis does not attempt to capture all potential outcomes and actual outturn could fall somewhere outside our scenario based projections.



Optimising energy efficiency in the housing market

To what extent can it lower energy bills and contribute towards net zero?



3

Optimising energy efficiency in the housing market

To what extent can it lower energy bills and contribute towards net zero?

The UK's net zero challenge

The global green agenda is evolving faster than ever. This year, some of the world's largest countries have announced new or more ambitious climate pledges, including the US, the EU and China. The UK was the first major developed country to toughen its greenhouse gas emissions targets this year. In April, the government announced new legislation requiring a 78% reduction in net greenhouse gas emissions by 2035 relative to 1990 levels, an increase from the previous target of a 68% reduction by 2030.

This new target would take the UK more than three quarters of the way to net zero, a milestone the UK has committed to meet by 2050.

2021 is set to be a critical year for the UK's efforts to tackle the climate crisis, as it hosts the postponed COP26 summit in November, with World Environment day preceding this on 5 June 2021. Table 2 below describes the key goal that COP26 aims to achieve.

Despite increased global ambition, policymakers face significant challenges in delivering against their emissions targets.

Of the major economies, the UK has made the most progress in cutting carbon dioxide (CO₂) emissions since 1990, as shown in Figure 4.

In 2019, UK (CO₂) emissions were 38% lower than they were in 1990.⁴² But this means that the UK is not even halfway to meeting its 2035 target. The UK has to achieve a further cut of 40% relative to 1990 levels to meet this.

38%

In 2019, UK CO₂ emissions were 38% lower than they were in 1990.⁸ But this means that the UK is not even halfway to meeting its 2035 target.

Table 2: COP26 goals

COP26 goal	Annual growth (%)
Secure global net zero by mid-century and keep 1.5 degrees within reach	<ul style="list-style-type: none"> Setting ambitious 2030 emissions reduction targets to enable net zero by the middle of the century Delivering low-carbon solutions (including coal phase-out, curbing deforestation, decarbonisation of transport and homes, renewable power generation)
Adapt to protect communities and natural habitats	<ul style="list-style-type: none"> Enabling countries affected by climate change to: <ul style="list-style-type: none"> Protect and restore ecosystems Build defences, warning systems and resilience infrastructure and agriculture
Mobilise finance	<ul style="list-style-type: none"> Developed countries to mobilise \$100bn in climate finance per year as pledged, with the support of international financial institutions
Work together to deliver	<ul style="list-style-type: none"> International cooperation to finalise the Paris Rulebook and accelerate climate action

⁴² IEA, CO₂ Emissions from Fuel Combustion Highlights – [link](#)

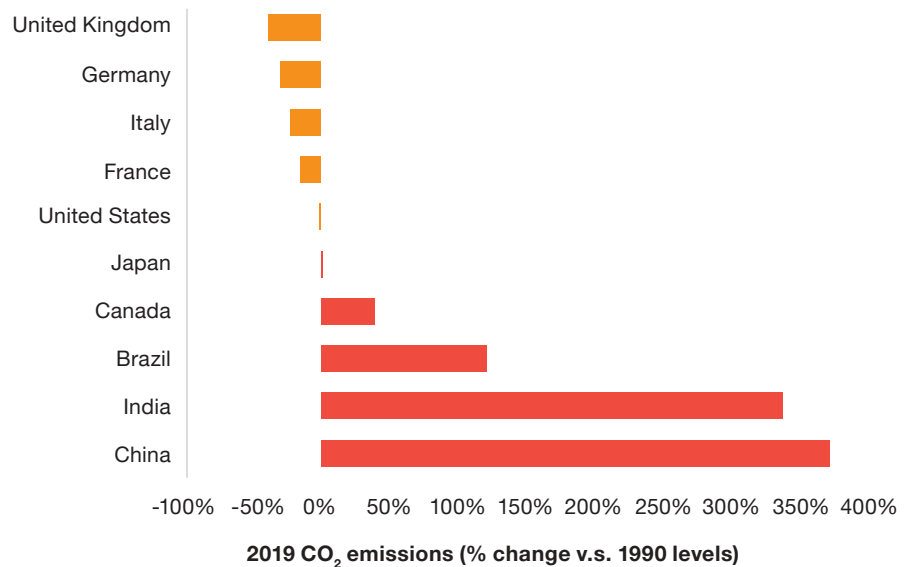


The experience over the COVID-19 pandemic highlights the scale of the challenge that lies ahead. While annual emissions fell 11% in 2020, this drop is set against the context of the biggest decline in UK GDP on record (annual GDP growth in 2020 is estimated at -9.8%).⁴³ This underlines how challenging it will be to deliver these reductions under normal economic conditions.

Policymakers must drive the UK’s green industrial revolution to deliver permanent cuts to emissions without compromising economic activity. One way to do this is to make the built environment more energy efficient. The residential sector accounts for around 20% of UK CO₂ emissions.⁴⁴ The sector’s emissions have only fallen by 13.5% since 1990 and actually rose by 1.8% during 2020,⁴⁵ due to lockdown restrictions and remote working.

To achieve the UK’s net zero target, it is therefore crucial that policymakers focus on improving the energy efficiency of UK housing. This principally involves working to reduce the energy required for heating homes, through installing more efficient heating appliances and improving household insulation, and installing energy efficient electrical appliances, including low energy lighting.

Figure 4: Percentage change in CO₂ emissions for the world’s largest economics, 1990 v.s. 2019



Source: International Energy Agency (IEA), PwC Analysis

⁴³ Department for Business, Energy, Climate & Industrial Strategy (BEIS), 2020 Provisional UK Greenhouse Gas Emissions – link

⁴⁴ BEIS, 2020 UK Greenhouse Gas emissions, Provisional Figures, March 2021 – link

⁴⁵ BEIS, 2020 Provisional UK Greenhouse Gas Emissions – link

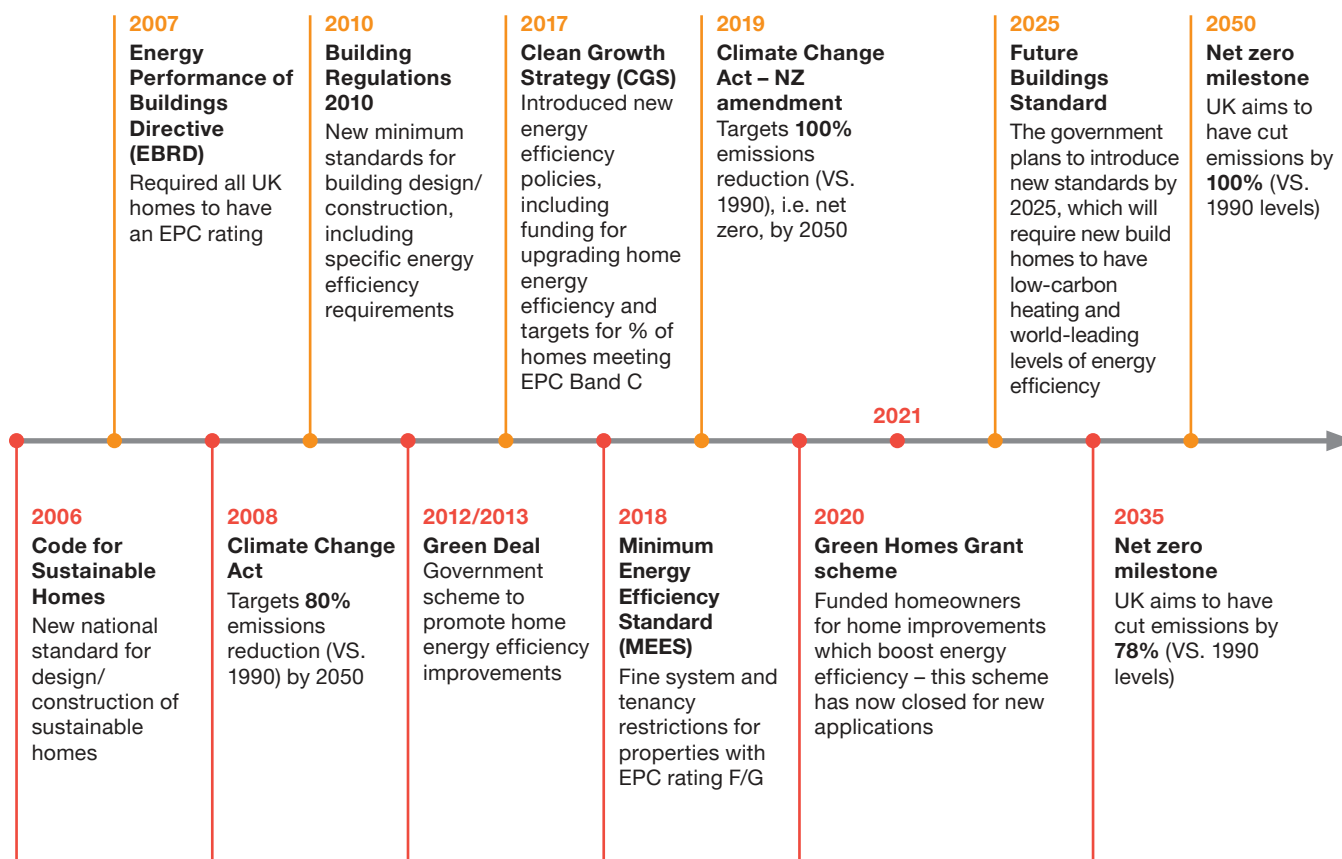
Home energy efficiency has moved up the government's policy agenda

The last 15 years have seen a range of new legislation and standards launched, with the aim of improving home energy efficiency.

Figure 5 shows how UK legislation and standards relating to energy efficiency have evolved since 2006 and key milestones for the years ahead.

A more detailed history of UK legislation and standards is presented in Appendix A.

Figure 5: UK energy efficiency legislation, standards and milestones



Source: Gov.uk, PwC Analysis

The introduction of mandatory Energy Performance Certificate (EPC) ratings in 2007 provided a consistent basis for assessing efficiency, allowing for standardised evaluation of home performance across key efficiency categories such as lighting, heating and hot water. This enabled the subsequent development of minimum building standards for new builds through the Building Regulations 2010,

Minimum Energy Efficiency Standard (MEES) and Future Buildings Standard. These legislations have been supported by government measures to incentivise home energy efficiency improvements, including the Clean Growth Strategy (CGS)⁴⁶ and Green Homes Grant scheme.⁴⁷ These measures have primarily targeted fuel poor and low income households.

⁴⁶ CGS was launched in 2017 by the UK government as a comprehensive set of policies that aim to accelerate the pace of clean economic growth. The CGS included several new policies aimed at improving home energy efficiency, with a commitment to upgrade the efficiency of around a million UK homes.

⁴⁷ The Green Homes Grant scheme was introduced by the UK government in September 2020, under which UK homeowners and landlords could apply for partial or full government subsidies to fund the costs of home energy efficiency improvements (up to £5,000 for all eligible households, and up to £10,000 for low income households). However, the scheme delivered less funding than anticipated and was closed to new applications on 31 March 2021.



The rest of this article will assess the financial and environmental benefits which could be achieved from improving home energy efficiency. There are a number of different channels through which these benefits could arise, including:

Energy bill savings: Improved home energy efficiency leads to reduced energy use and lower energy bills for households. These potential savings are important in the context of rising wholesale energy prices, which recently led energy regulator Ofgem to raise the price cap for standard variable and default tariffs by 9% from April 2021.

1

Contribution to net zero: Lower energy use reduces the production of CO₂ emissions from non-renewable energy sources, generating environmental benefits for society.

2

Property value: Evidence suggests that properties with better energy efficiency ratings tend to have a greater sale value. A UK government study found that, controlling for other factors, a dwelling's EPC rating has a statistically significant impact its price.^{48,49} Compared to dwellings with an EPC G rating, dwellings rated F/E sold for approximately 6% more, dwellings rated C sold for 10% more and dwellings rated B/A sold for 14% more. These findings are supported by a household survey we ran to support our analysis, which shows that 47% of property owning respondents considered energy efficiency an important or very important factor in their most recent property purchase. This implies that households could benefit financially in the long-run from upgrading the energy efficiency of their home.

3

Box A: Our PwC survey of UK households

We ran a nationally representative survey of 1,000 UK adults in the week commencing 7 May 2021.

To better understand the extent to which UK households prioritise energy efficiency, and gauge the typical actions which households take to upgrade the efficiency of their homes, we asked the survey respondents about the current energy efficiency rating of their home, steps they have taken (and intend to take) to improve their home's efficiency, the extent to which energy efficiency influences their property purchase decisions, and why they have not further invested in efficiency upgrades (where applicable). This enabled us to assess respondents' awareness of energy efficiency and evaluate respondents' overall receptiveness towards upgrading the efficiency of their homes.

Our analysis in the remainder of this article focuses on the potential **energy bill savings** and **carbon emissions reductions** (i.e. contribution to net zero) that could be achieved by improving the energy efficiency of UK housing.

⁴⁸ Department of Energy and Climate Change (DECC), An investigation of the effect of EPC ratings on house prices, June 2013 – [link](#)

⁴⁹ Enterprise Cambridge, The link between energy efficiency and property values, July 2013 – [link](#)

Improving home energy efficiency can reduce energy costs

With higher building standards and modern technology and materials, properties can now be built with much higher levels of energy efficiency. As of 31 March 2021, approximately 83% of new built properties (i.e. built within the last 3 years, after the MEES came into force in England and Wales on 1 April 2018) in England and Wales had an EPC rating of B or above, compared to only 3% of those built before 2018 (hereafter referred to as 'existing' properties).⁵⁰ Indeed, the majority of existing properties in England and Wales have an EPC rating below the recommended band C.

Greater energy efficiency in new build properties results in lower energy bills. On average, annual household energy bills (including water, lighting and heating costs) are around £374 lower for those living in new build properties in 2020 prices, compared to those built before 2018 in England and Wales, as estimated using property-level data from the Ministry of Housing, Communities & Local Government (MHCLG).⁵¹ This is equivalent to 48% of a typical existing property's annual energy consumption. This figure ranges from around £144 savings for new flats, to £481 savings for new houses.

Compared to house price premia (i.e. house price differences between a new build and an existing property in the same region⁵²), we find that in most cases it is not realistic to expect that energy bill savings alone could cover the price gap within one generation. However, due to the high house prices in the area, Londoners could clawback their initial purchase price gap using energy bills savings alone in less than 20 years. This has not taken into account other savings associated with newer properties, such as lower repair and maintenance costs.

The government aims to upgrade UK homes to EPC band C or above

As part of the 2017 CGS, the government aims to have as many UK homes as possible in EPC band C by 2035.⁵³ Currently, more than half of all dwellings in the UK are classified as band D or below.⁵⁴ To aid and encourage households to make

upgrades to their homes, all EPC certificates issued in the UK set out suggested improvements for each individual dwelling in the UK and the potential EPC rating improvement those could collectively achieve (see Figure 6 for an example).⁵⁵

These recommendations do not bring all properties to an EPC band C, as set out in the CGS. Rather, they are based on a number of factors, including the dwelling's type, location, age, size and current EPC rating.



⁵⁰ Ministry of Housing, Communities & Local Government (MHCLG), Live tables on Energy Performance of Buildings Certificates – [link](#). Please note that these datasets capture the number of new and existing dwellings lodged on the Energy Performance Certificate (EPC) register on a quarterly basis. The EPC register does not hold data for every domestic building in England and Wales: instead buildings only require an EPC when sold, let or constructed. Therefore these datasets can only provide an indication of EPC ratings across the total housing stock in England and Wales, rather than a comprehensive representation.

⁵¹ MHCLG, Open Communities Website: Domestic Energy Performance Certificates Lodged on Register – By Energy Efficiency Rating – [link](#)

⁵² HM Land Registry, UK House Price Index, March 2021 – [link](#). Please note, we use the average house price in 2019 as historical data shows an unusual movement during 2020 due to the pandemic.

⁵³ EPC rating ranges from very efficient (A+ or A for a building that is a dwelling) to the least efficient (G).

⁵⁴ (i) MHCLG, Live tables on Energy Performance of Buildings Certificates – [link](#); (ii) Scottish Government, Scottish Housing Condition Survey, 2019 – [link](#); and (iii) Housing Executive, Northern Ireland Housing Condition Survey, 2016 – [link](#).

⁵⁵ Energy Saving Trust, Guide to Energy Performance Certificates – [link](#)

Figure 6: Example Energy Performance Certificate⁵⁶



Source: MHCLG

Box B: Delivering upon the government’s Clean Growth Strategy

Using property-level data from MHCLG on energy costs, CO₂ emissions and EPC ratings, we estimated the savings from upgrading all dwellings to at least band C, as per the government’s Clean Growth Strategy.

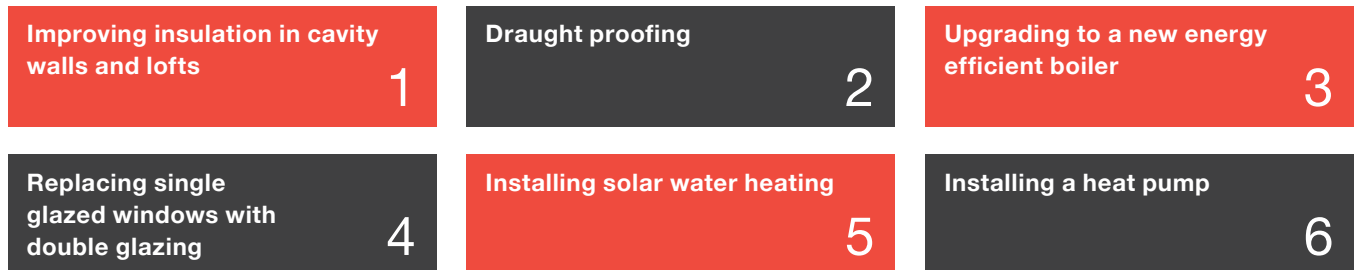
If all dwellings in the UK are upgraded to at least EPC band C:

- Aggregate energy bill savings for UK households could total £9.5 billion a year
- Total annual CO₂ emissions could be 52 million tonnes lower a year, equivalent to 77% of UK residential emissions and 16% of total UK emissions in 2020
- Over fifteen years (by 2035), total UK energy bills could be £174 billion lower than they would have been without upgrading to at least EPC band C
- By 2035, upgrading all UK residential properties to EPC band C could prevent 783 million tonnes of CO₂ emissions. This would contribute to over a quarter (27%) of the UK’s 2035 emissions target and 16% towards net zero in CO₂ emissions (not accounting for other greenhouse gases)⁵⁷
- These CO₂ emission savings by 2035 are equivalent to £70 billion based on projected carbon prices, taking the total UK savings over fifteen years to about £244 billion
- Recognising that it is not feasible for all UK properties to be upgraded to EPC band C, we focus our analysis in the remainder of this feature on the gains that could be realised from upgrading properties to their **potential** EPC rating, as determined by MHCLG
- Since the local authority data for potential energy costs and CO₂ emissions is only available for England and Wales, we occasionally discuss Scotland and Northern Ireland but do not seek to quantify the benefits for these regions

⁵⁶ An EPC will show both the Energy Efficiency Rating (EER), which measures the current energy efficiency of each property, and the Environmental Impact Rating (EIR), which measures the property’s impact on the environment in terms of carbon dioxide (CO₂) emissions. In the example, we show the energy efficiency rating only.

⁵⁷ Throughout this article, we only consider the impacts of improving home energy efficiency on CO₂ emissions, and we do not consider the impacts on emissions of other greenhouse gases. Our analysis of the potential contribution to net zero therefore only considers net zero in terms of CO₂ emissions, which make up the majority of the UK’s greenhouse gas emissions. By contrast, the UK’s official 2050 net zero target includes all forms of greenhouse gases. While improving home energy efficiency is likely to also reduce emissions of other greenhouse gases, our analysis has not sought to quantify this.

A number of cost effective upgrades and investments that can be made to existing dwellings to improve their energy efficiency include:⁵⁸

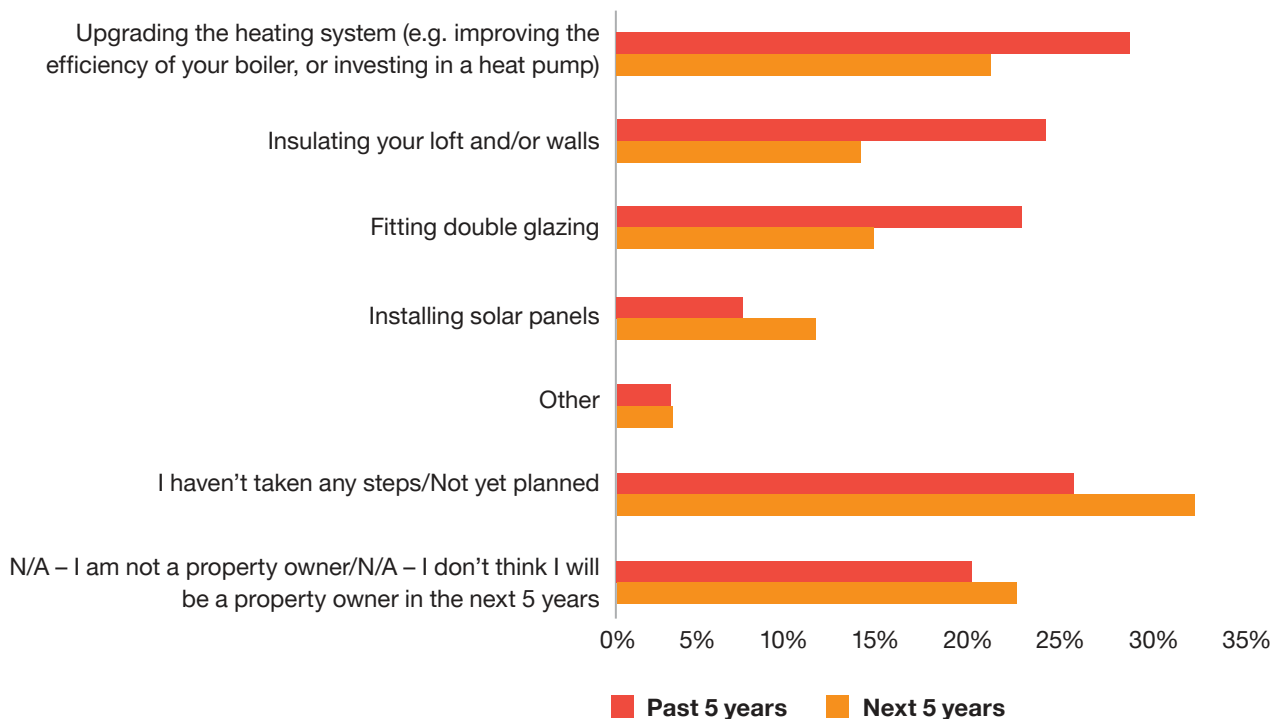


In our survey, we explored what steps respondents have taken over the past five years to improve the energy efficiency of their home, and what steps they are planning on taking over the next five years.⁵⁹

Figure 7 shows that 55% of respondents have taken one or more actions to improve their home’s energy efficiency in the past 5 years, with a similar proportion (46%) intending to take specific steps over the next 5 years, but a third stating they have not yet planned any upgrades. These findings may reflect the challenge of

specifying particular actions, rather than a general reluctance to improve home energy efficiency in the future. Preferences for different efficiency improvement actions appear fairly constant over time, with respondents opting primarily for heating system upgrades and loft/wall insulation.

Figure 7: Steps respondents have taken or intend to take to improve their home’s energy efficiency⁶⁰



Source: PwC survey

⁵⁸ BEIS, UK Energy in brief, 2020 – [link](#)

⁵⁹ PwC’s QuantiBus is a weekly consumer survey in which we talk to 1,000 participants aged 18+ and are nationally representative by gender, age and region. Survey conducted in the week commencing 7 May 2021.

⁶⁰ Please note that the percentages shown in Figure 7 sum to more than 100% for both ‘Past 5 years’ (Question 2) and ‘Next 5 years’ (Question 6). This is because respondents were able to select more than one home energy efficiency improvement action for each question (if relevant).

Why should households invest in energy efficiency upgrades?

We analysed MHCLG’s estimates of energy bill savings if households were to make the recommended upgrades and reach their property’s EPC potential.⁶¹ The savings per household vary by the type of dwelling (i.e. a house or a flat) and whether it is a new property (i.e. built within the last 3 years since the MEES was introduced in 2018). As expected, the savings are greater for houses and older properties.

For an average dwelling in England and Wales built before 2018:⁶²

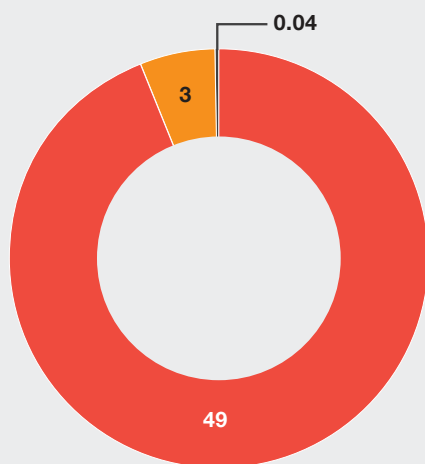
- Households can expect to save around one quarter of their energy bill each year, or £178, by upgrading to their potential EPC rating as determined by MHCLG. This is equivalent to about 0.3% of their annual household disposable income
- Viewed over 10 years, these total savings amount to around £2,150 per household

- Aggregate energy bill savings in England and Wales could amount to £6.7 billion per year, equivalent to 28% of England and Wales’ annual total energy consumption, or £80 billion over 10 years

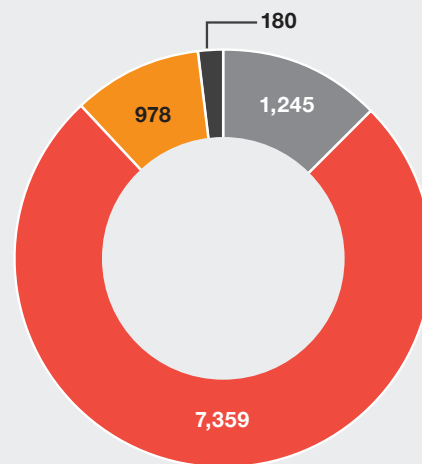
Viewed through energy bill savings at the individual level does not fully capture the benefits of improving residential energy efficiency. Figure 8 shows that the potential total savings (energy costs and CO₂ emissions) mostly come from upgrading houses, amounting to around £49 millions per year for new properties and £7.4 billions per year for existing properties.

Figure 8: Total energy bill and carbon emission savings per year from upgrading properties to their potential EPC rating as determined by MHCLG, England and Wales (£m)

First year total savings, new properties (£m)



First year total savings, existing properties (£m)



■ Flat ■ House ■ Bungalow ■ Other

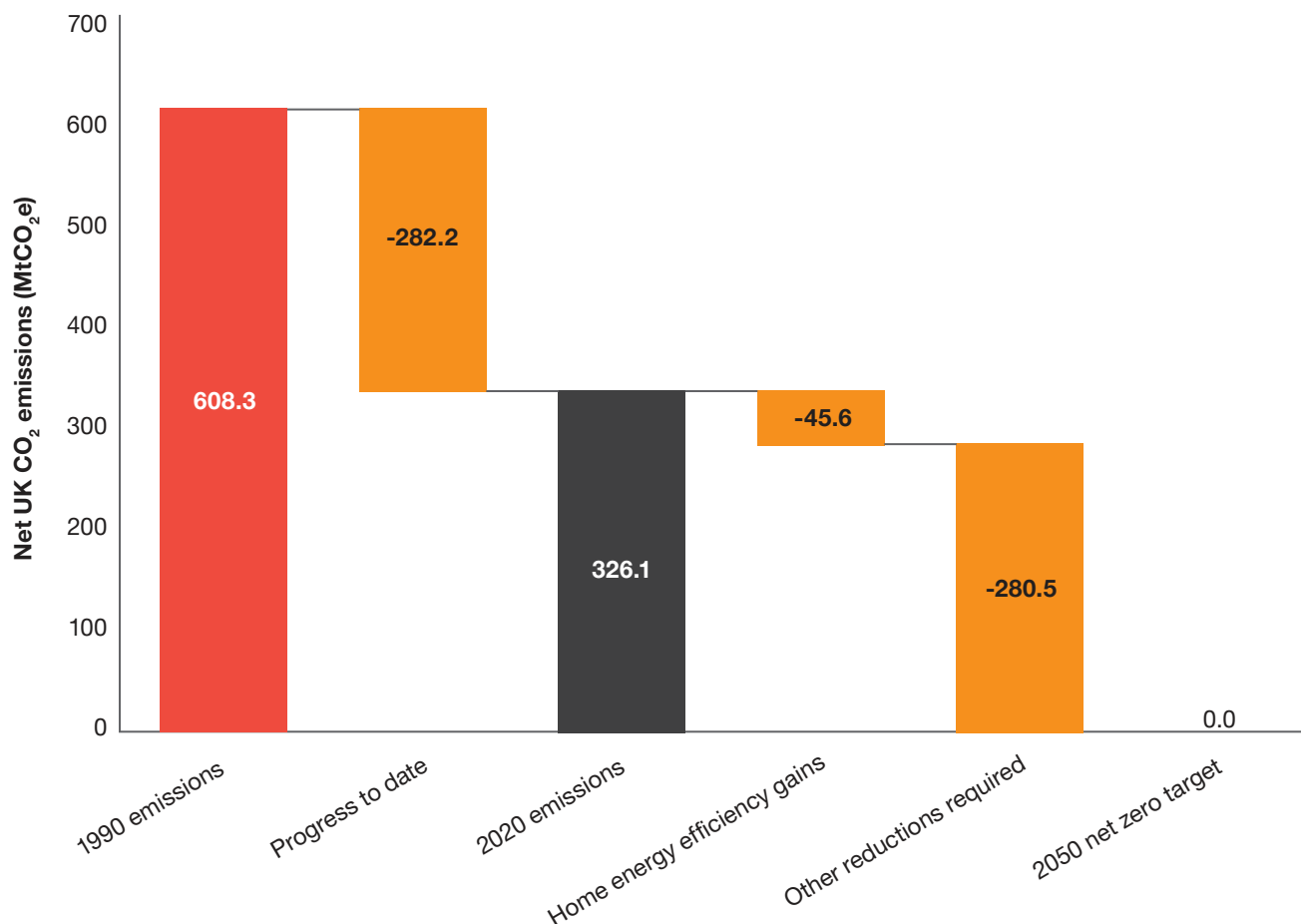
Source: PwC Analysis

Note: For presentation purposes, the sizes of the pie charts for New and Existing properties are not proportional to the actual magnitude of savings of the two groups.

⁶¹ Please note, property-level EPC certificates and their associated recommendations can be found on the government website [here](#).

⁶² Please note, for Scotland and Northern Ireland, the proportion of older buildings built before the 1980s were about 70% and 60%, respectively: (i) Scottish Government, Scottish Housing Condition Survey, 2019 – [link](#); and (ii) Housing Executive, Northern Ireland Housing Condition Survey, 2016 – [link](#).

Figure 9: How upgrading home energy efficiency could contribute to net zero CO₂ emissions by 2050



Source: BEIS, PwC Analysis

Our analysis also reveals that if all properties in England and Wales were to upgrade to their potential EPC band, it could deliver considerable environmental benefits and make a significant contribution to the UK's emission reduction targets.

- Total avoided CO₂ emissions in one year could amount to 46 million tonnes, equivalent to 67% of UK residential CO₂ emissions and 14% of total UK CO₂ emissions in 2020, playing a key role in the UK's journey towards net zero from now until 2050 (see Figure 9).
- By 2050, the avoided CO₂ emissions could total 1.4 billion tonnes.

Accounting for the projected increase in the price of carbon, the annual monetary equivalent of the prevented CO₂ emissions is estimated at around £3.2 billion, taking the total savings in England and Wales to over £9.8 billion.

These estimates underscore the attractiveness of improving residential energy efficiency as a way to get to net zero. In addition to the large reduction in emissions that it could deliver, residential upgrades compared to other green solutions have additional benefits:

- They are relatively low cost and easy to install

- The upgrades are long-lasting and deliver a permanent cut to emissions
- They create new jobs – the energy efficient products sector (which includes home retrofitting and upgrades) generated an estimated £13.2 billion turnover and accounted for 81,300 jobs in 2019⁶³
- It does not require behavioural change in the way people live or consume

⁶³ ONS, Low carbon and renewable energy economy, UK: 2019, March 2021, – [link](#)

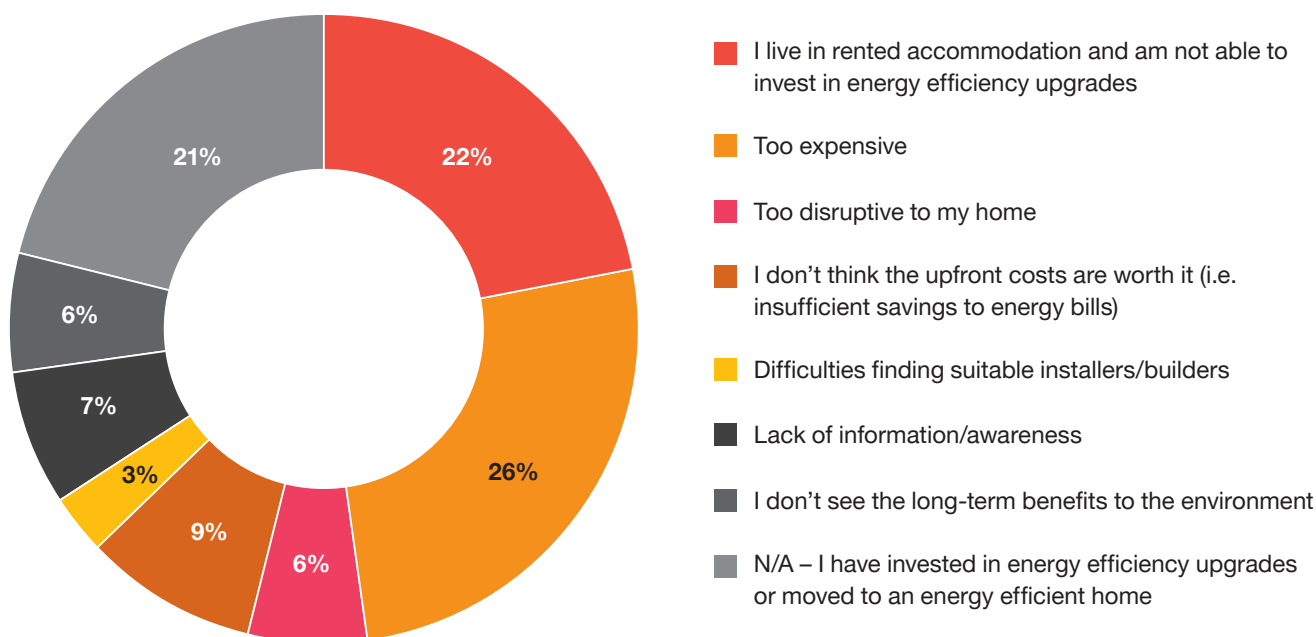
What barriers exist to households making upgrades to their homes?

In our survey, we asked respondents why they had not made improvements to their home's energy efficiency over the past five years. Figure 10 suggests

that the greatest barriers to improving energy efficiency appear to be financial considerations, with 26% answering 'Too expensive' and a further 9%

answering 'I don't think the upfront costs are worth it (i.e. insufficient savings to energy bills)'.

Figure 10: Most important reason given by respondents for not further improving their home's energy efficiency over the past 5 years



Source: PwC survey

Our analysis confirms that from energy bill savings alone it can take, on average, at least 10 years for the upfront costs to be fully clawed back. For house and bungalow owners, the initial investment may even need to be spread over multiple homeowners over a period of time (from four to seven times longer). This is mainly because houses and bungalows tend to be bigger, older and more likely to require major upgrades. For low income households in particular, this long clawback time could deter investments. This has not taken into account environmental benefits (i.e. avoided carbon emissions) or any potential increase in property value as a result of the upgrades.

We also found that home ownership status is another significant barrier, as 22% of respondents live in rented accommodation and are therefore unable to make changes to their property. Latest data shows that privately rented accommodation is less energy efficient than social rented and owner-occupied accommodation.⁶⁴ Therefore, policymakers should focus on encouraging private landlords to continue to upgrade their properties using the range of financial incentives available, such as Grants and Landlord's Energy Saving Allowance (LESA).

Only 9% of respondents in our survey cited practicality challenges, such as home disruption or difficulties finding suitable installers/builders. And just 7% of respondents cited a lack of information and few expressed scepticism about the long-term environmental benefits of upgrading. This suggests growing public awareness and willingness to invest towards energy efficient and sustainable homes, but more can be done to promote visibility of home energy efficiency status and practical actions households can take to improve their EPC rating.

⁶⁴ (i) ONS, Energy efficiency of housing in England and Wales, September 2020 – [link](#) (ii) Scottish Government, Scottish Housing Condition Survey, 2019 – [link](#); and (iii) Housing Executive, Northern Ireland Housing Condition Survey, 2016 – [link](#).

What regions in England and Wales have the most to gain from improvements to their potential EPC levels?

All regions in the UK need to play their part towards achieving net zero. However, some regions have further to go. Emissions per region vary considerably across England and Wales depending on factors including the prevalence of urban or rural areas, population size and density, and economic activity (i.e. manufacturing vs service based regions).

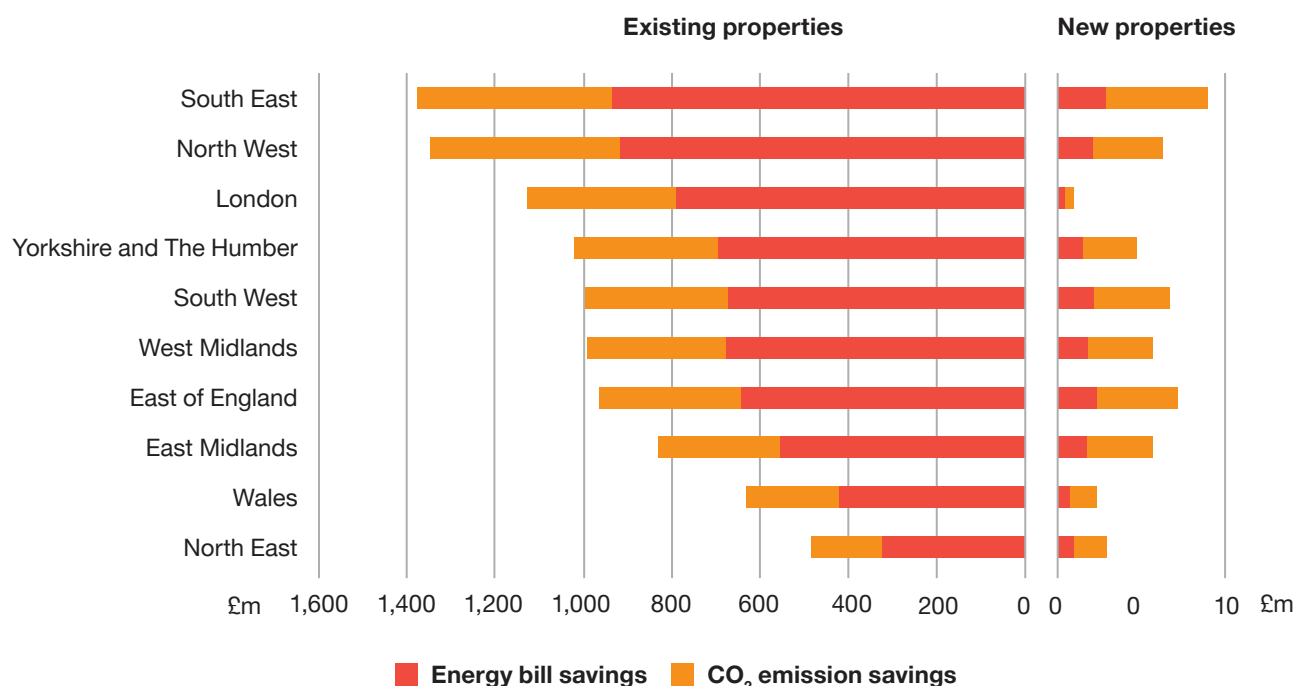
Domestic emissions⁶⁵ account for a greater share of total emissions in more urban and populated regions such as

London (37% of total emissions), compared to regions such as Yorkshire and the Humber (23%) and Wales (21%).⁶⁶ As can be seen from Figure 11, London is set to have the third highest potential savings⁶⁷ from upgrading to EPC potential levels, helping the city make strides towards cutting high domestic emissions. London could potentially avoid 5 million tonnes of carbon emissions a year, compared to just 3 million tonnes per year in Wales (equivalent to about £331 million and £208, respectively, in 2020 prices).

5 million

London could potentially avoid 5 million tonnes of carbon emission a year, compared to just 3 million tonnes per year in Wales.

Figure 11: Regional energy bill and carbon emission savings from upgrading properties to their potential EPC rating, England and Wales (£m)



Source: PwC survey

Note: The sizes of the bar charts for New and Existing properties are not proportional to the actual magnitude of savings between the two groups.

⁶⁵ Please note, this refers to emissions produced by residential customers, for non-commercial and non-industrial uses.

⁶⁶ ONS, UK local authority and regional carbon dioxide emissions: 2005 to 2018, June 2020 – [link](#)

⁶⁷ Please note, the South East and the North West are also leading in the levels of potential carbon emission savings, but this is mainly due to their large housing stock (each accounts for 16% and 14% of the total housing stock in England, respectively, one of the highest in the country).



compared to just 2.3 million tonnes in the North East (where 79% of the housing stock is either bungalows or houses) by upgrading all properties to their potential EPC levels.

Other factors, such as primary fuel sources, could also play an important role in determining which regions can achieve the greatest emissions savings. For example, Northern Ireland which has 68% of the total properties using oil as their predominant fuel source⁷⁴, would have a greater savings opportunity from cutting its fossil based fuel consumption.⁷⁵ However, we note that our analysis does not take into account the increasing share of renewable energy in the total energy mix over time, which would reduce carbon emissions for the same amount of electricity used.

Using **our Data explorer on the PwC UK Economic Outlook website**, households in England and Wales can find out the potential savings from different upgrade options for their specific properties. This includes options of upgrading to their EPC potential and upgrading to a new build standard by property type, age and location.⁷⁶ This will also reveal the estimated energy bill reduction as a percentage of their average household disposable income over different time periods.

Unsurprisingly, almost all of the emissions savings could be materialised from existing housing stock, as opposed to making relatively smaller improvements to new builds. This means greater emission gains can be realised in regions with a higher proportion of older properties. With more than 3.6 million dwellings – the highest in the UK, of which approximately 97% is existing homes⁶⁸ – London could potentially avoid more than 4.8 million tonnes of carbon emissions per year from upgrading existing properties alone (accounting for 11% of the total savings of the whole of England and Wales). Similarly, regions with older buildings, such as Scotland (with nearly 20% being built pre-1919)⁶⁹ could realise large savings among their existing housing stock.⁷⁰

We also found that regions with higher proportions of houses and bungalows could face more challenges in improving home energy efficiency, as these property types tend to release more emissions and have higher energy consumption.⁷¹ On average, a house built before 2018 releases twice the amount of carbon emissions than a flat of a similar age, or around 1.4 times if the house is a new build, according to our analysis, given the challenges of improving energy efficiency in larger properties.⁷²

For example, the East Midlands (where 83% of all dwellings are either bungalows or houses, the highest proportion of any region in England and Wales⁷³) could save 4.0 million tonnes of carbon emissions per year,

⁶⁸ MHCLG, Live tables on Energy Performance of Buildings Certificates – [link](#).

⁶⁹ Scottish Government, Scottish Housing Condition Survey Key Findings, 2019 – [link](#). Please note, the latest Scottish House Condition Survey shows that only 19% of the pre-1919 properties in Scotland have achieved EPC ratings of C or better.

⁷⁰ Scottish Government, Scottish Housing Condition Survey Key Findings, 2019 – [link](#)

⁷¹ Please note, the 2019 Scottish Housing Condition Survey shows that detached properties have the lowest Energy Efficiency Rating (EER) on average (mean EER of 61.2) while flats have the highest rating (EER of 67.2 – 68.4).

⁷² Please note, our analysis of existing dwellings finds that on average a flat releases 2.14 tonnes of carbon emissions per year, compared to 4.21 tonnes for a house and 3.81 tonnes for a bungalow. Among new dwellings the differences are smaller but still material: on average a new flat releases 1.09 tonnes of carbon emissions per year, compared to 1.50 tonnes for a new house and 1.51 tonnes for a new bungalow.

⁷³ MHCLG, Live tables on Energy Performance of Buildings Certificates – [link](#).

⁷⁴ Housing Executive, Northern Ireland Housing Condition Survey, 2016 – [link](#)

⁷⁵ HM Government, Powering our net zero future, Energy White Paper, December 2020 – [link](#)

⁷⁶ Please note, the Data explorer is only available for England, Wales. Data for Scotland and Northern Ireland is less granular and reported in a different way, so not available in the Data explorer.

Policy implications from our findings

Our analysis has some potential policy implications for consideration. They are discussed as follows.



Promote awareness of current and potential EPC status

While EPC shows both current and potential ratings (recommended by the MCLG), further work is needed to maximise the visibility and transparency around home energy efficiency status, as this is an important precursor to encouraging energy efficiency upgrades.



Provide targeted information and incentives to landlords

We found that privately rented accommodation has greatest savings potential but renters are facing barriers to upgrading the energy efficiency of existing rental properties. Government policy should recognise the increased complexity associated with rental accommodation, and ensure that landlords are incentivised to improve energy efficiency to the same extent as homeowners. This can be achieved through education and marketing on the benefits outside of energy bill savings (which accrue to tenants), most notably on house prices.



Provide financial support to households

Our survey results reveal that the upfront costs, or scepticism about the long-run financial benefits, are a barrier to upgrades. Our estimated clawback time also confirms this challenge. Therefore, to encourage more households to upgrade, government policy should focus on providing stronger and longer term financial incentives to help households overcome cost barriers. Given the possible disruption of home improvements and the government's long term targets, financial support should not be designed as short term stimulus measures, but long term incentives.



Offer financial/non-financial support and clear guidance to construction-related businesses

Policy and guidance with clear timelines and support would give businesses, such as builders, contractors and housing developers, sufficient time to plan, incorporate innovative technologies, and train employees (if required) to deliver energy efficient and sustainable homes. They would play an important role in supporting the low carbon economy and combating climate change.



Summary and conclusions



4

Summary and conclusions



10

Years for upfront costs of upgrades to potentially be clawed back.

Housing is one of the UK government's key priorities, and in the 2021 Queen's Speech the government announced major reforms to the planning system, which aim to boost the long-term supply of new homes and thereby reduce the price pressures currently seen in the market.

Another key aspect of the government's housing strategy involves improving the energy efficiency of UK homes, which will play an important role in the push towards net zero emissions by 2050. This article has examined the potential financial and environmental benefits from upgrading the energy efficiency of the UK's housing stock, both for individual households and for broader society.

Our analysis finds that there are key financial and environmental benefits to upgrading home energy efficiency, both in terms of gross bill savings and progress towards net zero. When combined with the key advantages of pursuing home efficiency upgrades (such as proven durable solutions, relatively low costs and support for the wider economy), our analysis underscores the attractiveness of improving residential energy efficiency as a way to get to net zero.

Realising these benefits, however, will not be without its challenges. In order to encourage households to make energy efficiency upgrades, some key barriers need to be overcome. First and foremost, the upfront costs of investing in home upgrades can be significant. Our analysis confirms that from energy bill savings alone it can take at least 10 years for the upfront costs to be fully clawed back. For house and bungalow owners, the initial investment may even need to be spread over multiple homeowners over a period of time. Although upgrading could eventually increase house prices, for low income households in particular, this long clawback time could deter investments.

Clear policy guidance and long-term support to homeowners, landlords and construction-related businesses could incentivise and potentially speed up the progress toward more energy efficient homes, as well as meeting the UK's ambition for net zero by 2050. This guidance should include emphasising the wider environmental and long-term financial benefits, which include an increase in property values. The return on investment will be higher for households living in regions with higher house prices.



Appendices



Appendix A: UK Sustainable Homes legislation

Year	Policy	Details
2006	Code for Sustainable Homes	The Labour government announced a new policy for all new homes to be zero carbon by 2016. The Code for Sustainable Homes was introduced alongside this, with the intention to provide a 'single national standard to guide industry in the design and construction of sustainable homes' (DCLG, 2006). The Code used a rating system from one (unsustainable) to six stars (zero carbon home) to indicate the overall sustainability performance of a home. An individual household could upgrade their home's rating through energy saving measures (e.g. using sustainably resourced building material, sound insulation).
2007	European Union's Energy Performance of Buildings Directive (EPBD)	The EPBD required all houses to be labelled with an Energy Performance Certificate (EPC) rating to represent the energy efficiency/carbon performance of the house.
2008	2008 Climate Change Act	The 2008 Climate Change Act was introduced by the UK government, setting a legal requirement to cut greenhouse gas emissions to 80% of 1990 levels by 2050. In the same year, a public/private partnership known as the Zero Carbon Hub was launched to support the development of zero carbon homes in the UK.
2010	Building Regulations 2010	<p>The Building Regulations 2010 is a total rewrite of the previous Building Regulations (issued in 2000). It is a collection of statutory regulations which set out the minimum standards for specific aspects of building design and construction.</p> <p>Part L of the Building Regulations imposes specific requirements for energy efficiency. It covers a wide range of matters ranging from the allowable area of windows, doors and other openings, to the set up of mechanical ventilation and air conditioning systems, and the heating efficiency of boilers, hot water storage and lighting. Overall, when a building is erected:</p> <ul style="list-style-type: none"> • It must meet the target CO₂ Emission Rate and the target Fabric Energy Efficiency rate set by the Secretary of State. • The person who carried out the construction work must analyse and document the technical, environmental and economic feasibility of using high-efficiency alternative systems (e.g. heat pumps, renewable resources) in the construction. • The person who carried out the construction work must provide the owner with sufficient information about the building and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances. <p>The Regulations (including part L) have been subject to further partial revisions since 2010, reflecting developments in technology and materials, but no fundamental technical changes have been made to part L.</p>
2012	The Green Deal	The Green Deal was a UK government policy initiative which was given a 'soft launch' in 2012 but officially launched in January 2013. This initiative aimed to promote energy efficiency improvements to existing homes, funded by household energy bills savings realised after the improvements were made.

Appendix A: UK Sustainable Homes legislation (continued...)

Year	Policy	Details
2015	Code for Sustainable Homes	In 2013, the UK government undertook a Housing Standards Review Consultation and proposed 'winding down' the Code for Sustainable Homes (introduced in 2006). The Consultation argued that the minimum level required to achieve energy performance targets had been set out in Part L of the Building Regulations 2010, which made the Code 'redundant'. The Code for Sustainable Homes and the 2016 zero-carbon homes target were then scrapped by the government in 2015.
2017	Clean Growth Strategy (CGS)	The Clean Growth Strategy (CGS) was launched in 2017 by the UK government as a comprehensive set of policies that aim to accelerate the pace of clean economic growth and meet the UK's carbon budgets. The CGS introduced 50 key domestic policies, including several new policies targeted specifically at improving home energy efficiency. These measures included £3.6 billion of funding through the Energy Company Obligation (ECO) for home upgrades; upgrading all fuel poor homes and as many privately rented homes as possible to EPC Band C by 2030 with an aspiration for as many homes as possible to be EPC Band C by 2035; and offering all households the opportunity to have a smart meter by the end of 2020.
2018	Minimum Energy Efficiency Standard (MEES)	The Minimum Energy Efficiency Standard (MEES) came into force in England and Wales on 1 April 2018. The policy promotes energy efficiency improvements in properties with the aim being to reduce overall carbon emissions. It imposed a fine system of up to £5,000 and restricted the granting and continuation of existing tenancies for properties with an EPC rating of F or G.
2019	Net zero emissions law (amendment to 2008 Climate Change Act)	In June 2019, the UK became the first major country to pass a net zero emissions law, with a new target to bring net greenhouse gas emissions to zero by 2050. The new target replaced the 80% reduction relative to 1990 levels target set out in the 2008 Climate Change Act.
2020	Green Homes Grant scheme	The Green Homes Grant scheme was introduced in 2020, and aimed to fund 600,000 homeowners and landlords in England up to £5,000 (or £10,000 for low income households) for efficiency-enhancing home improvements (e.g. loft/wall insulation, heat pumps, draft proofing) to help households cut their energy bills. The scheme ended on 31 March 2021, having awarded a much smaller number of vouchers than originally hoped.
2025	The Future Buildings Standard (upcoming)	From 2019 to 2021, the UK government ran a two-part public consultation on the uplift to standards of Part L (Conservation of fuel and power) and changes to Part F (ventilation) of the Building Regulations. In the consultation, the government set out its plans for a Future Homes Standard, which will require 'new build homes to be future-proofed with low carbon heating and world-leading levels of energy efficiency'. The new standards will be introduced by 2025.

Appendix B: Data description for energy efficiency and sustainability analysis

Variable	Description	Data Source
Energy Performance Certificate (EPC)	<p>EPC shows both the current and potential energy ratings and emissions of a property. Its rating ranges from very efficient (A+ or A for a building that is a dwelling) to the least efficient (G). It usually includes the following indicators:</p> <ul style="list-style-type: none"> • Energy Efficiency Rating (EER) measures the overall efficiency of a building, based on the performance of the building and its fixed services (e.g. heating and lighting) • Environmental Impact Rating (EIR) measures the environmental impact of a property in terms of carbon dioxide (CO₂) emissions 	MHCLG ⁷⁷
Total Useful Floor Area (m ²)	The total of all enclosed spaces measured to the internal face of the external walls, i.e. the gross floor area as measured in accordance with the guidance issued from time to time by the Royal Institute of Chartered Surveyors or by a body replacing that institution	MHCLG
Property Type	Type of property e.g. House, Flat, Maisonette etc.	MHCLG
Lodgement Date	Date lodged on the Energy Performance of Buildings Register	MHCLG
Current Energy Efficiency	In £/m ² /year. Based on current cost of energy, i.e. energy required for space heating, water heating and lighting (in kWh/year) multiplied by fuel costs	MHCLG
Potential Energy Efficiency	The potential energy efficiency rating of the property	MHCLG
Current energy consumption (kWh/m ²)	Current total energy consumption for the property in a 12 month period. Displayed on EPC as the current primary energy use per square metre of floor area	MHCLG
Potential energy consumption (kWh/m ²)	Estimated potential total energy consumption for the property in a 12 month period	MHCLG
Carbon Dioxide (CO ₂) Emissions (tonnes/year)	Current and potential CO ₂ emissions per year	MHCLG
Environmental Impact Rating	The Environmental Impact Rating is a measure of the property's current impact on the environment in terms of CO ₂ emissions per year. Its rating ranges from A to G. Each range has a set amount of points out of a maximum of 100. The higher the rating the lower the CO ₂ emissions	MHCLG
CO ₂ price (£/tCO ₂ e)	BEIS publishes traded and non-traded carbon values for UK public policy appraisal to ensure that the Government takes full account of climate change impacts in evaluating public policies. We use non-traded CO ₂ defined as Greenhouse Gas (GHG) emissions savings by policy for those parts of the economy that are not included in the EU Emissions Trading Scheme (ETS) such as power and heat generation; energy intensive industries	BEIS

⁷⁷ For more details on data description, please see MHCLG EPC glossary here – [link](#)

Appendix B: Data description for energy efficiency and sustainability analysis (continued...)

Variable	Description	Data Source
Lighting Cost (£)	Current estimated annual energy costs for lighting the property	MHCLG
Heating Cost (£)	Current estimated annual energy costs for heating the property	MHCLG
Hot Water cost (£)	Current estimated annual energy costs for hot water per property	MHCLG
Indicative upfront costs (£)	The Government estimated upfront costs associated with a specific energy efficient improvement measure (e.g. Cavity wall insulation, lighting etc.) recommended for an individual property in its EPC in order to raise its energy efficiency rating from 'Current' status to 'Potential' status	MHCLG
Housing stock	The number of dwellings in England and in each local authority district area as at a particular date	MHCLG
Household energy consumption (kWh)	Total amount of energy used by each household. The primary sources of energy are electricity, gas and residual fuel	BEIS
Energy Price projection	Projected residential electricity, gas and fuel prices	BEIS



Appendix C: Methodology for energy efficiency and sustainability analysis

Data



The Energy Performance of Building data published by the Ministry of Housing, Communities and Local Government (MHCLG) provides energy efficiency information for more than 2/3 of the properties in England and Wales. This dataset includes a wide range of energy efficiency indicators and property features (see Appendix B for more details) for each property constructed, sold or let since 2008, which enables a like-for-like analysis of properties' energy performance.

In addition to MHCLG, we also use other data sources in our analysis as described in Appendix B.

Assumptions



- New properties are defined as those whose EPC records are lodged as a 'new build' and the lodgement date is after 1 April 2018. These new properties will be compliant with the 2018 Minimum Energy Efficiency Standard (MEES).
- The analysis in this report, which is based on MHCLG data, does not cover all dwellings in England and Wales because only properties that are sold, rented or constructed are required to have an EPC. We apply a multiplier of 1.3 (i.e. the proportion of total properties in England and Wales against those with an EPC as of September 2020) to capture potential savings for all properties in England and Wales.

- We assume that the amount of carbon emissions to produce energy remains constant and does not account for an increasing share of renewable energy in the UK's total energy mix over time.
- All savings discussed in this article refer to gross savings and do not account for the upfront costs of upgrades, or the emissions associated with making the upgrades.

Methodology



This section sets out the steps taken to create the results.

- New properties are identified by selecting all EPC records which are lodged as a 'new build' and the lodgement date is after 1 April 2018 on which the MEES came into effect.
- For each property, we calculate total current/potential energy bills as the sum of current/potential lighting, heating and hot water costs.
- **Energy savings for households to upgrade to their potential EPC rating, as determined by the MHCLG:**
 - We define energy bill savings as a difference between total current energy bills minus total potential energy costs. Similarly, carbon emission savings are the difference between the current and the potential carbon emissions.
 - For each local authority and property type, the medians of energy bill savings and carbon emission savings for new and existing properties respectively is used to identify the energy savings of a representative household if it reaches its property's energy efficiency potential.

- The total savings per LAU per property type for England and Wales are the sum of all savings up across households in the LAU by property type. The multiplier of 1.3 is then applied to capture the full potential savings for England and Wales.
- **Energy savings for households to upgrade to EPC band C:** Similar to the previous estimations, for each type of property we take the median of their total energy costs of band C to get a typical total energy costs of band C. Energy bill savings for each property type is defined as their total current energy bills minus the typical energy costs of band C. The same multiplier is then applied to the total of these savings, resulting in estimated total savings for England and Wales. A similar approach is used to estimate the carbon emission savings.
- **Energy savings for households to upgrade to new property standards:** For each local authority and property type, we calculate the difference between the medians of total energy costs for new and existing properties. They represent the energy savings if a household living in an existing property upgrades the property to new property standards. The total savings per LAU per property type for England and Wales, and total England and Wales savings are computed using a similar approach described above.
- For projected savings, all annual savings are rolled forward using the energy price projections and carbon price projections published by BEIS.

Appendix D: Details on PwC's housing survey

To explore the themes discussed in this article we asked a series of questions to a nationally representative survey of 1,000 UK adults. The survey ran in the week commencing 7 May 2021.

The specific questions asked of respondents were:

To what extent is your home energy efficient based on the Energy Performance Certificate rating (EPC)?

1

Thinking about the past 5 years, what are the main steps you have taken to improve the energy efficiency of your home?

2

Thinking about the past 5 years, what is the main reason you have not upgraded your home's energy efficiency?

3

Thinking about your most recent property purchase, to what extent was the energy efficiency of the property an important factor in your choice?

4

When do you expect to upgrade your property's energy efficiency?

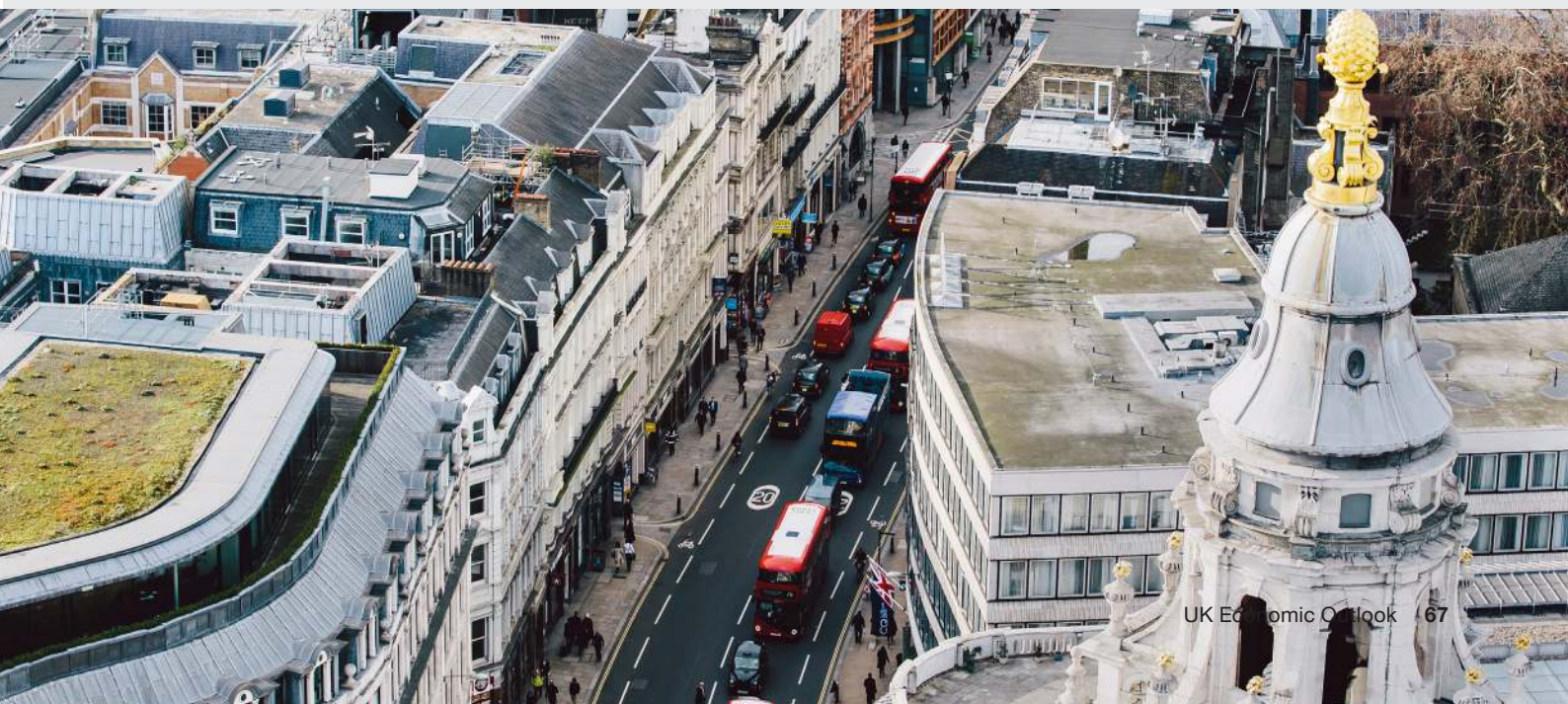
5

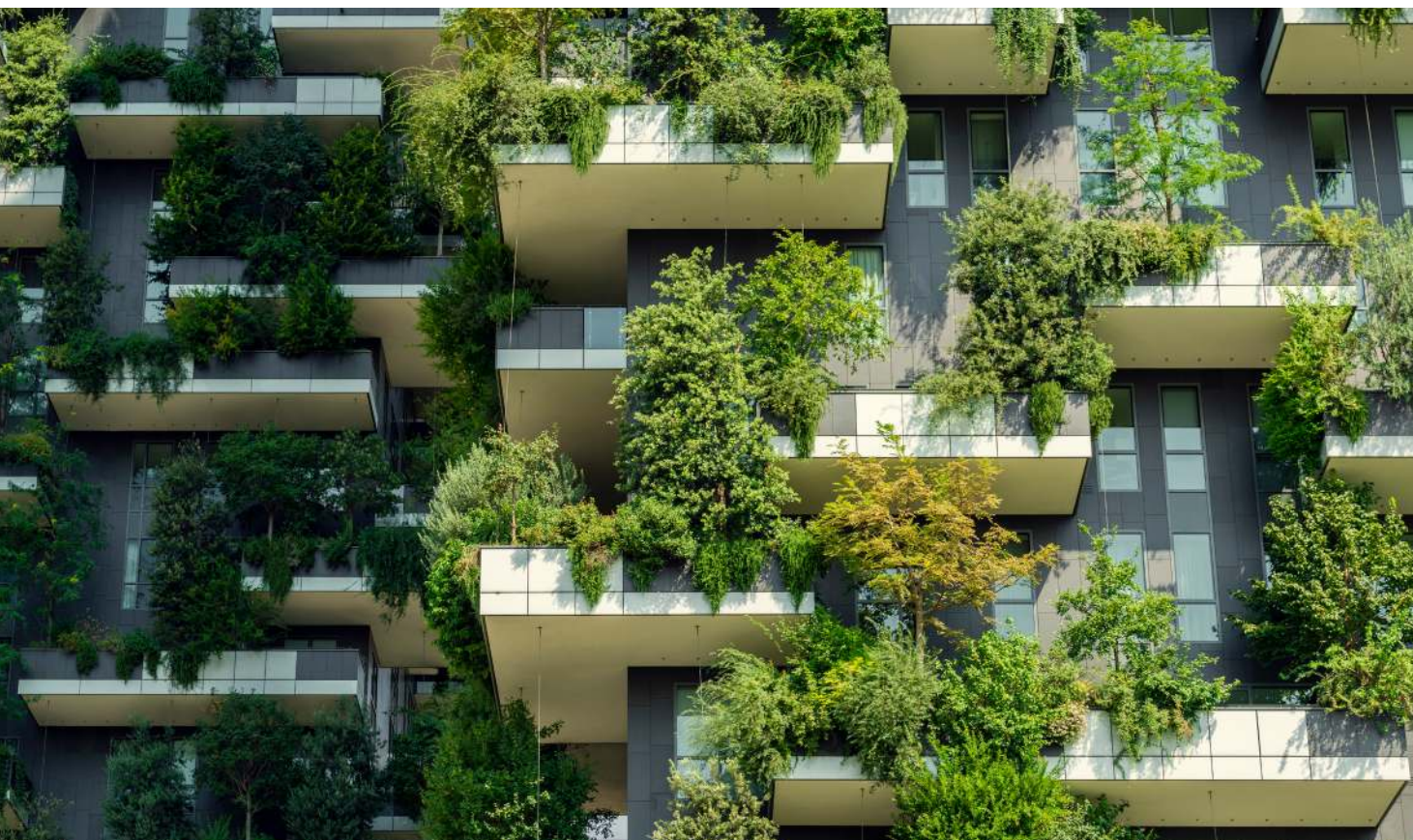
Thinking about the next 5 years, what are the main steps you intend to take to improve the energy efficiency of your property?

6

For your property purchase, to what extent is the energy efficiency of the property likely to be a priority?

7





Appendix E: UK house price projections

Our analysis focuses on the new ONS and Land Registry house price indices. Data from the ONS vary from those provided by Nationwide and Halifax, though broad trends tend to be similar over time. We focus on the ONS data as they cover a larger sample size, given that Nationwide and Halifax base their indices only on their own mortgage approvals.

The PwC house price model consists of two parts: a long-run equilibrium equation and a short-run error correction model that indicates how house prices adjust back towards this equilibrium level.

In the long run, we found that real house prices were driven by four key variables: real annual earnings, the ratio of the housing stock to the population ('supply'), a variable which reflects general credit conditions and

gross mortgage lending. Monetary values are deflated into real (inflation adjusted) terms using CPI.

In the short run, we found that changes in real house prices were driven by:

- deviations from the long-run equilibrium;
- changes in real annual earnings;
- changes in credit conditions; and
- the previous period's mortgage interest rate (cost of borrowing).

The coefficients for these model variables and other summary statistics for both models are shown in the tables below.

Long run model (Cointegrating equation)

R-squared = 0.99

Dependent variable: Real house prices

No. of observations=46

	Coefficient	t-statistics
Earnings	7.3	6.7
Credit	14612.9	3.8
Supply	(647.4)	(4.0)
Lending	0.2	7.8
Dummy: financial crisis	29229.3	5.9
Dummy: post-financial crisis	37842.3	11.5
Constant	173620.1	3.8

Short run model

R-squared = 0.75

Dependent variable: Change in Real house prices

No. of observations=45

	Coefficient	t-statistics
L. co-integrating equation residual	(0.3)	0.1
D.Earnings	7.0	4.7
L.Mortgage rate	(385.9)	(2.2)
D.Lending	0.1	4.4
D.Credit	11354.9	2.5
Constant	3597.4	2.2

Note: 'D' refers to the first difference of a variable (i.e. change on previous year). 'L' refers to the lagged value of a variable in the previous year.

The parameters of the model were estimated using the standard ordinary least squares (OLS) econometric technique based on annual data for 1975-2020.

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