

The background features a dark, abstract graphic with glowing blue and red dots and lines, creating a sense of depth and movement, resembling a stylized wave or a data visualization.

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# Foreword: Orthodoxy Lost and Found

Against a backdrop of escalating inflation and a gradual unwinding of unconventional monetary policy, global interest rates are gradually returning to more familiar levels. Ultimately this is a good thing, as it will support the more productive use of capital. But this process was always going to be tricky as the draining of liquidity would expose a number of financial markets to risks they had not had to manage for half a generation. This observation is as true in the US as it is in many emerging economies. And so the ill-fated and short-lived government of Prime Minister Liz Truss provided both the initial concern that the UK would move decisively into the realm of heterodox policy and the ultimate realisation that it was an example that the rest of the world will not now follow. I argue that we can now put behind us the concern that we will raise the inflation target or pursue an unsustainable set of fiscal policies.

The commitment to an unfunded energy price guarantee and a slug of tax cuts announced by Chancellor Kwarteng at his Mini-Budget on 23 September promised to inject demand into an inflationary economy. We calculated this was something in the region of some 3 per cent of GDP in the first year. This boost to demand served to trigger a rapid upwards revision in the path of Bank rate from a peak in the range of 3-4 per cent to over 6 per cent. Such a large and rapid change in short interest rate expectations, triggered a large fall in gilt prices and other financial asset prices. The fall in gilt prices was amplified by margin calls on collateral offered by pension schemes using liability-driven investment strategies. And ultimately triggered a run in that market with 30-year and index-linked gilts exposed to extraordinarily large price changes. The Bank of England was forced to step in as market maker of last resort from 28 September to 14 October to stabilise the ensuing fire sale and offer an ongoing repo facility, which will remain in place until 11 November. These operations did not re-ignite Quantitative Easing but the timetable for Quantitative Tightening was pushed back somewhat, quite understandably given the market turmoil. The revision in gilt prices and the direct action of the Bank of England does in no way represent, as opposed to much market commentary at the time, fiscal dominance. Rather it simply outlines that the market believed that it was observing a non-cooperative game between the central bank and the Treasury; if the sequence of debts were going to be higher than so would the sequence of interest rates.

With the defenestration of both Chancellor and PM, we have returned to a clear commitment to fiscal probity under Chancellor Hunt and PM Sunak. And one that the Labour Party, which is now somewhat more likely but by no means certain to form the next Government, will not question. The reversal of the greater part of the Mini-Budget measures and the reduction in long term interest rates means that the fiscal hole can be filled with relatively small changes in taxes, for example, by reinstating the NI increase or redesigning the energy price guarantee. The bigger danger now is that we decide collectively to demonstrate fiscal credibility by adopting an excessively restrictive fiscal policy and limit support for poor households or rein in critically important elements of public investment. The next fiscal event will now take place on 17 November.

The good news is, at the end of this cycle, the commitment to sound money, and price stability is firmly at the centre of the policy nexus for another generation. It is hard to see either political hue moving away from the aim to stabilise public debt relative to GDP and maintain the imperative for price stability. The problem with that approach is that it will not by itself nurture faster economic growth and prosperity across the country. But that is perhaps a question for another day.

**Jagjit S. Chadha, Director, NIESR**  
November 2022

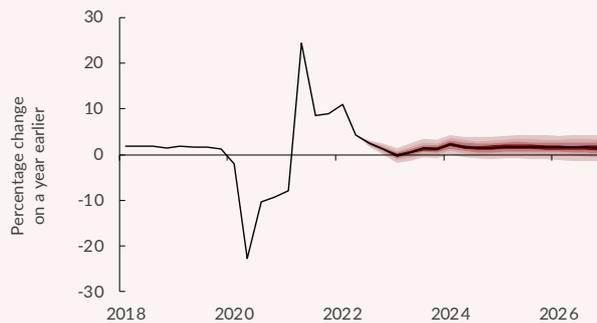
# National Institute UK Economic Outlook – Autumn 2022

- Since our previous Outlook, we are into our second Prime Minister and our third Chancellor of the Exchequer; we have experienced a mini-budget and its near complete reversal, neither of which involved the analysis and scrutiny of the independent Office for Budget Responsibility (OBR); and we await an Autumn Statement that will be accompanied by an OBR Forecast. This political turmoil has damaged the UK economy by generating higher interest rates and greater economic uncertainty at a time when it was already in a fragile position with low growth and high inflation.
- We expect GDP to fall in the third quarter of this year but to grow from the fourth quarter of this year and beyond. We expect year-on-year growth of 4.6 per cent in 2022, 0.7 per cent in 2023 and 1.7 per cent in 2024. All that said, the risk of a recession remains high with a roughly 55 per cent probability of negative annual growth in the first quarter of 2023.
- The Energy Price Guarantee (EPG) has lowered the peak in CPI inflation, which we now expect to be 11 per cent in January 2023. Nonetheless, we think inflation is likely to be more persistent than previously forecasted, only falling to 5.7 per cent by the end of 2023 and not reaching the Bank of England's target of 2 per cent until the third quarter of 2025.
- Given the greater persistence in inflation, there is a greater risk of high inflation becoming embedded in expectations. The Monetary Policy Committee (MPC) will need to monitor the situation closely and be prepared to raise interest rates by more and more quickly if necessary to stop this from happening. At the same time, the Bank of England needs to start normalising its balance sheet, so we support the MPC's decision to start quantitative tightening on 1 November.
- In terms of the Autumn Statement, we would advise against tightening fiscal policy further. At hard economic times such as we are currently experiencing, the government should increase borrowing to support the hardest-hit households, explain what it is doing, and put in place a plan for reducing public-sector debt at a point in the future once the shock has dissipated. Furthermore, if the government really is serious about growth, it should not be reducing the capital investment that can help spur growth.
- In fact, our forecast suggests that the government debt and deficit would be on-track to fall as a percentage of GDP over the next few years, though this is predicated on the assumption that the EPG is stopped in April 2023. We would hope that the government consider replacing the existing EPG in April with our suggestion of a 'variable cap' where households that use more energy (typically richer households) pay more per unit of energy use than households that use less energy (typically poorer households).
- Finally, the recent political and economic turmoil has demonstrated again the need for new fiscal framework, something NIESR has been advocating for a while. We need to make sure that: 1) fiscal events happen to a regular timetable and are properly scrutinised by the OBR; 2) the aims of fiscal policy are made clear and that policy is assessed against these aims by the OBR; 3) the government makes clear how it would respond to certain risks transpiring and the OBR publishes its analysis of these risks; 4) the government has access to independent economic experts from a multitude of backgrounds, not just the financial sector, for ex ante advice and ex post evaluation of fiscal choices; 5) and fiscal policy is 'joined up' across the UK and all its constituent parts.

**Table 1.1** Summary of the forecast (percentage change unless otherwise stated)

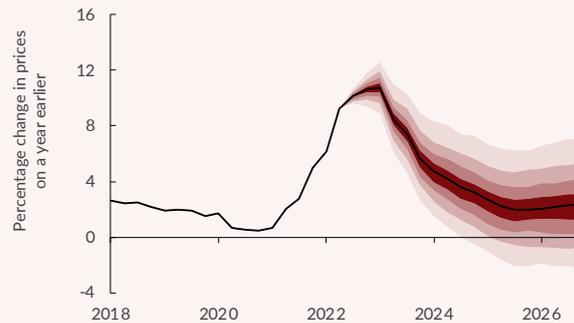
	2019	2020	2021	2022	2023	2024	2025	2026	2027
GDP	1.6	-11.0	7.5	4.6	0.7	1.7	1.6	1.6	1.6
Per capita GDP	1.1	-11.5	6.9	4.4	0.4	1.3	1.3	1.3	1.3
CPI Inflation	1.8	0.8	2.6	9.0	8.0	3.9	2.2	2.2	2.3
RPIX Inflation	2.5	1.7	4.2	11.0	8.4	4.4	2.8	2.9	3.1
RPDI	2.1	-1.3	1.1	-2.3	0.5	1.9	1.3	1.0	1.0
Unemployment, %	3.8	4.6	4.5	3.7	4.1	3.9	3.7	3.5	3.5
Bank Rate, %	0.8	0.2	0.1	1.6	4.5	4.5	4.1	3.8	3.6
Long Rates, %	0.9	0.3	0.8	2.5	4.1	3.8	3.6	3.5	3.4
Effective exchange rate	-0.3	0.5	4.8	-2.0	-2.5	-1.2	-1.0	-0.7	-0.4
Current account as % of GDP	-2.9	-3.1	-2.0	-7.3	-8.5	-6.2	-4.5	-3.0	-2.0
Net borrowing as % of GDP	2.7	15.1	6.1	3.7	1.1	0.9	0.9	1.0	1.3
Net debt as % of GDP	86.1	98.5	97.3	92.1	88.5	85.1	80.5	77.6	75.0

Note: Numbers reported are yearly averages except for net borrowing, which is reported for the full fiscal year, and net debt, which is reported for the end of the fiscal year.

**Annual GDP**

Note: The shades within the fan chart represent a 10 per cent chance that GDP growth will lie within the boundary of that shade. There is a 20 per cent chance that GDP growth will lie outside the shaded area of the fan.

Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

**CPI inflation**

Note: The shades within the fan chart represent a 10 per cent chance that inflation will lie within the boundary of that shade. There is a 20 per cent chance that inflation will lie outside the shaded area of the fan. The Bank of England's CPI inflation target is 2 per cent per annum.

Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

# 1. UK economic Outlook: The Macroeconomic outlook for the United Kingdom

By Paula Bejarano Carbo, Hailey Low, Leaza McSorley, Stephen Millard, Urvish Patel and Kemar Whyte<sup>1</sup>

## Economic background and forecast summary

The United Kingdom continues to suffer a ‘terms of trade’ shock where the cost of our imports – food and energy in particular – has risen relative to the value of our exports. Such a shock requires a fall in real income for the economy, which means a period of high inflation and below trend growth. The job of policymakers is to engineer this adjustment to a lower real income level without bringing about a recession and the job losses, household and corporate defaults, house price falls and financial market turmoil that comes with it. Unfortunately, in the three months between our Summer and Autumn Outlooks, rather than policy aimed at achieving this smooth transition, we have experienced a period of political and economic turmoil. At the time of our Summer Outlook, we found ourselves in an interregnum between Prime Minister Boris Johnson, who resigned on 7 July and Liz Truss, who was formally appointed as Prime Minister on 6 September. After 44 days in office – the shortest tenure of any Prime Minister in history – Liz Truss resigned, to be replaced within a week by Rishi Sunak. Over this period, we have also had three different Chancellors of the Exchequer: Nadhim Zahawi, Kwasi Kwarteng and Jeremy Hunt.

With the UK economy facing high inflation and a potential recession, Chancellor Kwarteng held a ‘mini-budget’ on 23 September, during which he announced several tax cuts, together with a significant support package for households – the Energy Price Guarantee (EPG) scheme – and firms to help them cope with rising energy bills. Such a fiscal boost to the economy at a time of already high inflation highlighted the tension between fiscal and monetary policy discussed in Chadha (2022 a and b). Given the absence of an accompanying Office for Budget Responsibility (OBR) analysis of this major fiscal event and the ‘unfunded’ nature of the tax cuts, both sterling and bond prices fell significantly. The associated rise in gilt yields reflected both a fundamental response of interest rates to an increase in government borrowing and an additional increase in risk premia resulting from the uncertainty created by this event. The fall in bond prices was large enough that, a few days later, the Bank of England was forced to intervene in the gilt market to prevent gilt fire sales leading to a crisis for pension funds.

On 14 October Kwasi Kwarteng was replaced as Chancellor by Jeremy Hunt, who announced on 17 October the reversal of almost all the tax cuts. He also announced a six-month limit to the EPG, promising an HMT-led review of the price cap that would lead to a better-targeted scheme from April onwards. At the same time, he announced that he would produce an Autumn Statement on 31 October that would fill the remaining gaps in the public finances and, most importantly, be accompanied by analysis and a forecast from the OBR. These changes helped to steady the financial markets and bond yields fell back.

A week later, on 20 October, Liz Truss resigned as Prime Minister, triggering a new leadership contest within the Conservative Party. Rishi Sunak took over as leader of the party and as Prime Minister on 25 October. He almost immediately announced that Jeremy Hunt would continue as the Chancellor of the Exchequer, helping keep bond yields steady, but, on 26 October, announced that the Autumn Statement was to be postponed from 31 October to 17 November. At the same time, he reaffirmed that the OBR would produce an analysis of the Autumn Statement and a forecast for the evolution of the public accounts and, importantly, the deficit and debt to GDP ratios moving forward. By 27 October, when we closed our forecast, bond yields were back to where they had been on 22 September, suggesting that the risk premium had come off, at least until the content of the Autumn Statement becomes known.

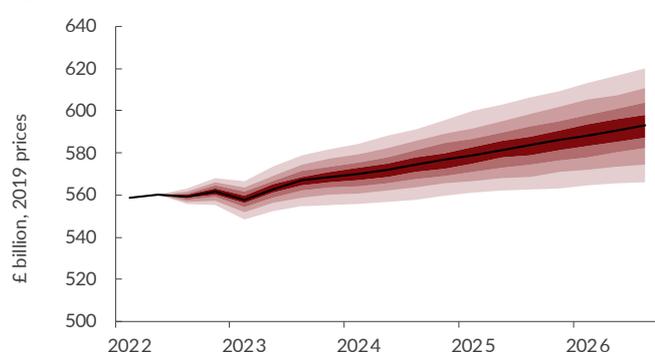
Against this background of political turmoil and an ongoing cost-of-living squeeze, the big question facing us was whether the increase in interest rates and uncertainty around fiscal policy would lead to falls in consumption and investment that, in turn, would result in a UK recession. In particular, would the United Kingdom experience a

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1 The authors are grateful to Bart van Ark, Barry Naisbitt and Jagjit Chadha for helpful comments, and to Joanna Nowinska for preparing the charts and the database underlying the forecast. The forecast was completed on 28 October 2022 and is based on financial markets data up to and including 27 October; more recent data is incorporated in the text. Unless otherwise specified, the source of all data reported in tables and figures is the NiGEM database and NIESR forecast baseline. All questions and comments related to the forecast and its underlying assumptions should be addressed to Kemar Whyte (enquiries@niesr.ac.uk).

recession starting in the third quarter of 2022 and, if so, how long the recession would last? Our central forecast suggests not, though the risk of a recession remains strong. As discussed in our October GDP Tracker, GDP growth in the second quarter of 2022 has been revised up to 0.2 per cent, in line with the forecast in our Summer Outlook and we currently expect output to fall in the third quarter of 2022 by 0.3 per cent. When we released the GDP Tracker, on 12 October, we expected GDP to recover strongly in the fourth quarter, growing by 0.9 per cent, on account of the measures announced by the former Chancellor, Kwasi Kwarteng, in his mini-budget on 23 September. Since then, we have revised down our forecast for GDP growth in the fourth quarter to 0.5 per cent given the reversal of almost all of the tax cuts announced in the mini-budget, together with the increased uncertainty caused by the ongoing political turmoil. Despite this, we do not expect a recession in 2022 on account of the observed strong economic performance in the first half of this year and, in fact, we expect GDP in 2022 to be 4.6 per cent higher than in 2021. Looking further out, we expect GDP growth of 0.7 per cent year-on-year in 2023, followed by growth of 1.7 per cent in 2024 (Figures 1.1 and 1.2). That said, there remains some possibility of a recession in 2023. Specifically, our stochastic simulation suggests a roughly 55 per cent probability of a year-on-year fall in GDP in the first quarter of 2023.

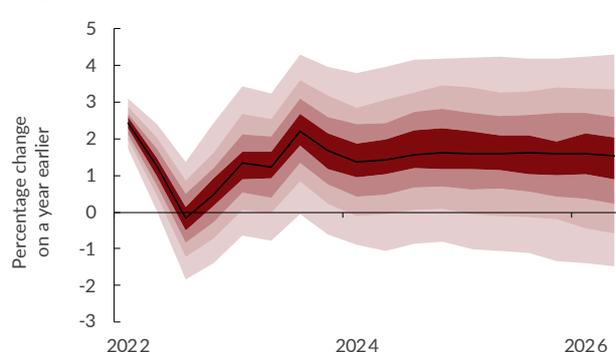
**Figure 1.1 GDP**



Note: The shades within the fan chart represent a 10 per cent chance that GDP will lie within the boundary of that shade. There is a 20 per cent chance that GDP will lie outside the shaded area of the fan.

Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

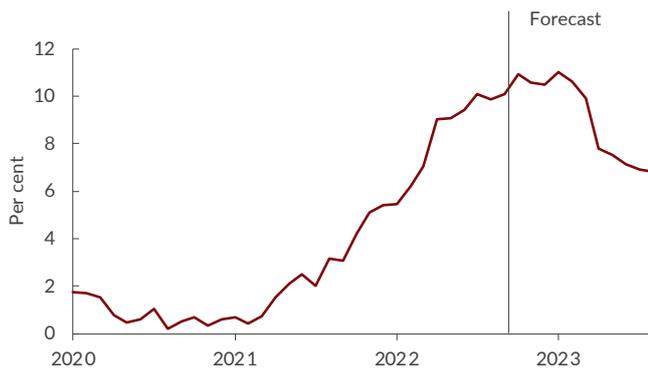
**Figure 1.2 GDP growth**



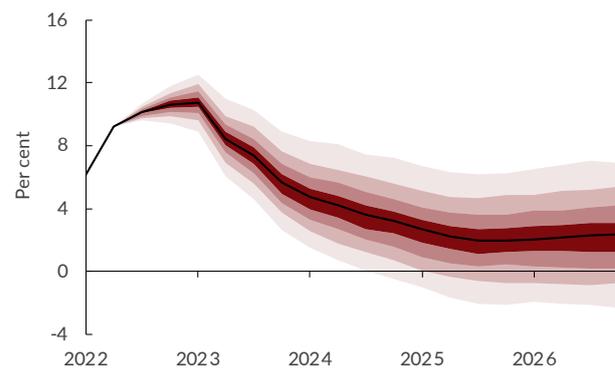
Note: The shades within the fan chart represent a 10 per cent chance that GDP growth will lie within the boundary of that shade. There is a 20 per cent chance that GDP growth will lie outside the shaded area of the fan.

Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

The ongoing war in Ukraine – while being a fundamentally human tragedy, which we all hope can be ended – has led to ongoing pressure on food and energy prices. Given the announcement by Ofgem of a rise in the energy price cap in October – as well as a move to adjust the energy price cap every three months as opposed to every six months – we raised our forecast for the peak in CPI inflation to 14.2 per cent in January of next year. The announcement of the EPG, given the ONS announcement of how they will treat this, and the falls in petrol prices over the past couple of months have led us to reduce the peak in inflation to 11.0 per cent in January. However, as discussed in our October CPI Tracker, our measure of underlying inflation has continued to rise to a record high of 8.3 per cent, suggesting that inflation is now much more ‘broad based’ and so likely to fall much more slowly over 2023 than we were expecting in our Summer Outlook. We now expect CPI inflation to fall only to 5.6 per cent by the end of 2023 (as opposed to the 3.3 per cent we were expecting at the end of 2023 in our Summer Outlook) and not reach the Bank of England’s target of 2 per cent until the third quarter of 2025 (Figures 1.3 and 1.4).

**Figure 1.3 CPI inflation**

Source: ONS, NIESR calculations.

**Figure 1.4 CPI inflation fan chart**

Note: The shades within the fan chart represent a 10 per cent chance that inflation will lie within the boundary of that shade. There is a 20 per cent chance that inflation will lie outside the shaded area of the fan. The Bank of England's CPI inflation target is 2 per cent per annum.

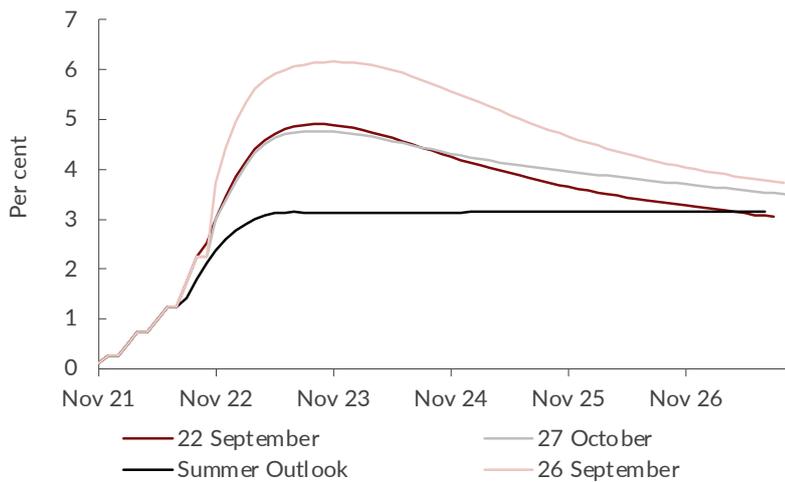
Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

## Policy

### *Monetary policy*

The Monetary Policy Committee (MPC) of the Bank of England raised interest rates for an eighth consecutive time in November (by 75 basis points bringing interest rates to 3.00 per cent) to reduce inflationary pressure and, in time, return inflation to the 2 per cent target. As the headline inflation figure remains stubbornly above target, we can expect further rate hikes in the coming months; indeed, markets are currently expecting short-term rates to be 1.75 percentage points higher by this time next year. That said, the MPC have suggested that the markets are expecting interest rates to be raised by more than is necessary to achieve the inflation target and that interest rates will be raised by a smaller amount in practice.

But, given the risk that inflation has become more embedded, we are forecasting that the MPC will raise interest rates in line with the market curve on 27 October, ie, by more and more quickly than in our Summer Outlook. The highly inflationary mini-budget on 23 September led to a marked rise in market expectations of the peak in the Bank Rate, as shown in Figure 1.5. The subsequent reversals of the tax increases have since brought the market curve down and we now expect the Bank Rate to peak at around 4.75 per cent in the third quarter of next year (Figure 1.5). However, the MPC will need to continue to be cautious as it walks a fine line between tightening policy too quickly, making a recession more likely, and too slowly, increasing the risk of high inflation becoming embedded in expectations. These considerations led Deputy Governor Ben Broadbent to suggest in a speech on 20 October that the markets might have over-estimated the increase in interest rates necessary to get inflation back to the 2 per cent target and this suggestion was reinforced in the Monetary Policy Report released on 3 November. Our central case scenario assumes that the MPC sets a path for the Bank Rate in line with market expectations as of 27 October. This path delivers a fall in inflation back to target in three years without causing a recession. Given that, we would strongly advise against tightening more rapidly than is currently expected by the market as doing so could only increase the risk of a recession or tightening less rapidly than is currently expected by the market as doing so would increase the risk of high inflation expectations becoming embedded.

**Figure 1.5** Market expectations of Bank Rate

Source: Bank of England.

In the wake of the financial disturbances caused by the previous Chancellor's fiscal event, the Bank of England was called upon to provide stability in the gilt market via a special asset purchase operation. To avoid further confusion in bond markets, the Bank elected to postpone its quantitative tightening (QT) programme – previously set to begin on 3 October – to 1 November. Despite calls from apprehensive market participants for the Bank to extend its 'special operation' and further delay its balance sheet reduction programme, in the interest of maintaining credibility and independence, it has not conceded to these calls and the first tranche of QT went ahead on 1 November without any problem. While it is undoubtedly fiscal policymakers' mistakes that have caused this disruption to QT, it should nonetheless be noted that a firmer and clearer implementation of the QT programme could contribute to quelling uncertainty in the bond market that is causing the very volatility the Bank is looking to calm. Box A discusses the tensions between monetary and fiscal policy brought about by QE and QT.

### **Fiscal policy**

Public sector finances in the first half of the 2022-2023 financial year were almost perfectly in line with the Office for Budget Responsibility's (OBR) March forecast, with public sector net borrowing totalling £72 billion. Early September saw the first surprise to the fiscal outlook, as former Chancellor of the Exchequer Kwasi Kwarteng's 'mini-budget' announced a fiscal expansion comprised of tax cuts and the EPG that would increase borrowing this year by somewhere between £100 and £150 billion. Our response to September's fiscal event, written in the absence of OBR scrutiny of the mini-budget, noted that these measures placed the UK on a path characterised by debt rising as a share of GDP in the medium-term. Furthermore, it generated significant tension between fiscal and monetary policy by aggravating inflation in the medium-term and causing disarray in the gilt market, leading to higher interest rates, which had almost immediate effects for households seeking, or renegotiating, mortgages and firms borrowing from banks. This result was in line with previous NIESR analysis (Hantzsche, 2019), which had suggested that fiscal give-aways would have little effect on the level of economic output given the increased interest rates that would result from the response of an independent monetary policy maker. As it was, the new Chancellor, Jeremy Hunt, reversed most of these policies in his announcement on 17 October, reducing fiscal risks substantially, but not entirely. We will have to wait and see to what extent, and through what means, the Chancellor acts to rebalance the fiscal outlook in the Autumn Statement on 17 November.

Returning to the recent fiscal problems, a particular worry had been that the turmoil created by the mini-budget would result in a permanent increase in the risk premium on gilts, which would have meant much higher interest payments for the government than otherwise. As discussed in our September Term Premium Tracker the uncertainty generated by the mini-budget led to a rise in the term premium on 10-year gilts. However, as discussed below, the yield curve is now back to where it was before the former Chancellor, Kwasi Kwarteng, delivered his mini-budget and, so, it appears that the damage created by the mini-budget and the subsequent uncertainty was only temporary. Of course, for this to remain the case, we will need to hear an Autumn Statement on 17 November that makes clear that the government has a long-term plan for spending and taxation that ensures a falling debt-to-GDP ratio in the medium term and see that the OBR's analysis of it makes clear that this is the case.

## Box A: Quantitative easing, government debt management and debt interest

By William A. Allen

For nine years after the global financial crisis, central government debt interest payments fell steadily relative to GDP, from 2.5 per cent in 2011-12 to 1.1 per cent in 2020-21, despite continuing budget deficits. This was partly the result of low short-term interest rates, and generally falling longer-term rates, but it was also a consequence of quantitative easing (QE). The purpose of this box is to explain the connection between quantitative easing, which is generally regarded as an instrument of monetary policy, and government debt management and interest payments.

### How quantitative easing works.

Quantitative easing began in March 2009 and, in a period when short-term interest rates could not be reduced further, became the main instrument of monetary policy. The Bank of England purchased fixed-interest gilt-edged securities in increasingly large amounts, spread over all maturities, including the longest. The last phase of QE, initiated in March 2020, was the largest by far, comprising the purchase of £450 billion of gilts over a period of 21 months. The Bank of England paid for the gilts it bought by crediting the reserve balances of the commercial banks where the sellers held their accounts, for the credit of the sellers. It did not absorb the surplus funds on the commercial banks' reserve balances. Thus reserve balances increased as the amount of QE increased. Reserve balances bear interest at the Bank rate; therefore, to implement a Bank rate change, the Bank of England need only announce it and alter the rate at which reserve balances are remunerated. Because the coupon interest rates of the gilts that the Bank of England bought in its QE operations were generally higher than Bank rate at the time, the QE programme reduced the government's interest costs while it was in progress.

The gilts bought in QE are held by a subsidiary of the Bank of England called the Bank of England Asset Purchase Facility Fund Ltd (APF), which is financed by a loan from the Bank of England itself. The loan bears interest at Bank rate. The APF is fully indemnified by the Treasury, that is, any financial losses as a result of the asset purchases are borne by the Treasury, and any gains are owed to the Treasury. QE operations were subject to the prior approval of the Treasury, which in practice appears to have been given readily.

Each quarter there is a transfer of cash between the APF and the Treasury: the APF transfers to the Treasury the coupons received on the gilts in its portfolio, minus the interest on its loan from the Bank of England, minus administrative expenses. If the amount is positive, the transfer is from the APF to the Treasury; if the amount is negative, then the transfer is from the Treasury to the APF.<sup>1</sup> The existence of the indemnity means that the Treasury is not at liberty to cease paying interest on the loan from the Bank of England to the APF. When gilt yields increase sharply and gilt prices fall, as they have done this year, the net worth of the APF becomes negative, and the solvency of the APF depends entirely on the Treasury indemnity. Moreover, since the Bank of England's loan to the APF is a very large multiple of its capital and reserves, the solvency of the Bank of England also depends on the Treasury indemnity.

QE in effect converts fixed-interest liabilities of the Treasury into floating rate liabilities. Before QE, the government had had very little short-term debt, but between the inception of the programme in 2009 and its termination in December 2021, the APF had invested £875 billion in gilts, equivalent to 38% of the GDP of 2021.

### Profits and losses.

Up to 28th February 2022, the APF had transferred £120 billion to the Treasury under the arrangements described above, but the Treasury's liability under the indemnity as at 28th February 2022 was valued at £23 billion in the APF's accounts.<sup>2</sup> Thus the APF had made a net profit of £97 billion over its life until then. Since then, short-term interest

1 McLaren and Smith (2013).

2 Bank of England Asset Purchase Facility Fund Ltd (2022, note 8, p 30). It is assumed that the APF's profits and losses on assets other than gilts are negligible relative to its profits and losses on gilts.

rates and gilt yields have risen sharply, and since 28th February, the APF has incurred a loss of about £164 billion (up to 20th October, author's calculation), so that over its life to date, it has made a net loss of roughly £67 billion.

The APF therefore has an unrealised loss of about £187 billion (the lifetime loss in value of £67 billion plus the £120 billion remitted to the Treasury). It will not be realised immediately in full, and it would become smaller if gilt yields were to fall sufficiently. For the immediate future, the quarterly flows of cash will be from the Treasury to the APF, because with Bank rate at 2.25 per cent, the annual interest cost of the Bank of England loan (£19 billion) exceeds the annual coupon income of the APF (£16 billion). The break-even level of Bank rate, at which the interest cost of the loan is equal to the APF's coupon income, is currently 1.94 per cent. The size of the flow is highly sensitive to Bank rate: if Bank rate were to rise by 1 per cent, the interest cost of the loan, and of the outstanding stock of Treasury bills, which are also short-term debt, would increase by £9 billion a year.

### **Quantitative tightening, or the reversal of quantitative easing.**

In August 2022, the Bank of England announced plans to conduct active sales of gilts from the APF amounting to £40 billion net in the year beginning September 2022; the plans were slightly amended in October.<sup>3</sup> It also announced a standing facility for providing funds to the banking system, so as to ensure that it has access to adequate funds at all times as quantitative tightening – the reversal of quantitative easing – progresses.<sup>4</sup> As quantitative tightening reaches the point at which banks need additional funds, banks will increasingly use the facility, some money market interest rates may begin to increase a little, and the Bank of England will have received a signal that the commercial banks' reserve balances are somewhere in the vicinity of equilibrium.

When the commercial banks' reserve balances reach equilibrium, quantitative tightening can cease. The APF can be wound up, and its loan from the Bank of England repaid. The Bank will need to alter its technique for managing market short-term interest rates, because it will need to provide funds to the market at times when the demand exceeds the available supply. It will need to decide, among other things, whether to continue paying interest on commercial banks' reserve balances, and would be free not to do so, if it so chose.

If gilt yields remain at or anywhere near current levels, the APF is likely to be in deficit when it is wound up. The redemption proceeds of the gilts that it holds to maturity, the sales proceeds of those that the Bank sells through active sales, and the market value of those that it holds when it is wound up, plus the coupon interest that the APF receives, will not be enough to repay the Bank of England's loan to the APF, plus interest. The Bank of England will have to rely on the indemnity for full repayment from the Treasury.

### **The economic significance of QE, and of the APF's profits and losses.**

The £120 billion that the APF has remitted to the Treasury since 2009 has been incorporated into the government accounts, and has enabled government spending, other than on debt interest, to be higher, and taxation lower, than they might otherwise have been. For the future, while the APF is still in existence, and while Bank rate is higher than the average coupon rate of the gilts held in the APF, there will be remittances from the Treasury to the APF which will add to government spending on debt interest. When the APF is wound up, then if there is a deficit, the Treasury will have to enable the APF to repay its debt to the Bank of England. It could finance the deficit in the APF by borrowing in the market, in which case at some point in the future taxation would have to be higher than otherwise, or non-interest government spending lower. If there were to be a surplus in the APF, then it would simply be remitted to the Treasury.

The sensitivity of the budget deficit to variations in Bank rate means that there is a latent tension between monetary policy and fiscal policy. The degree of tension has increased with the scale of QE. When the Bank of England Monetary Policy Committee (MPC) was established, there was very little short-term government debt in issue, and the Committee's decisions on short-term interest rates had no significant effect on the budget. However, this kind of tension is not unprecedented, and before the MPC was set up, governments were at times (though not always) willing to increase short-term interest rates in the interests of reducing inflation, even though doing so added substantially to their interest expenses.

<sup>3</sup> Bank of England (2022a and c). The Bank of England has said that its temporary purchases of long-dated gilts in September and October 2022 do not affect its net sales objective.

<sup>4</sup> Bank of England (2022b).

More generally, the QE programme was essentially an act of government debt management.<sup>5</sup> But, it was specifically introduced as an act of monetary policy, directed at achieving the inflation target. The Bank of England made a radical change to UK debt management policy, which has traditionally aimed to maintain a longer average maturity of debt than most other countries.

The Treasury acquiesced in this subordination of debt management to monetary policy, but the changes that the Bank of England made currently seem likely to be very costly. The losses incurred by the APF, unless they are reversed by future falls in gilt yields, will be real losses, to be borne by members of the public. The Bank of England has argued that any evaluation of QE should take account not only of the profits or losses that it produces, but also its macro-economic benefits.<sup>6</sup> Of course it is very hard to evaluate the macro-economic benefits, but the Bank's argument is justified in principle. It would also, however, be reasonable to consider whether other forms of QE, e.g. involving the purchase of shorter-term government securities (as in the United States and Australia), or shorter-term privately-issued assets, might have delivered a better balance between costs and benefits. The House of Lords Economic Affairs Committee's inquiry into QE did not address this issue; the Bank of England's Independent Evaluation Office also conducted a review of QE, but its terms of reference were too narrow to enable it to examine these issues..

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<sup>5</sup> Tobin (1963)

<sup>6</sup> See e.g. Ramsden (2021).

As usual, we based our forecast on the assumption that all announced government policy remained in place and assumed that there would be no further cuts in government spending and/or increases in taxation in the Autumn Statement on 17 November. Of course, this is unlikely to be the case, given the Chancellor and Prime Minister have both hinted at the possibility of further spending cuts. We aim to respond to any changes in spending and taxation in our Autumn Economic Forum on 18 November but, for now, note that it is not clear that the Chancellor should make sweeping spending cuts or tax increases. The economy is still facing a terms of trade shock resulting from the war in Ukraine and this is leading to real hardship for particular segments of the population. (See Chapter 2 for more on this.) In such times, it makes sense for the government to increase borrowing to support the hardest hit households, to explain that this is what it is doing, and to put in place a plan for reducing public-sector debt at a point in the future once the shock has dissipated.

That said, if the Chancellor is intent on carrying out a fiscal consolidation on 17 November, previous NIESR analysis (Lenoel and Whyte, 2021) suggests that a prudent approach to fiscal consolidation would favour tax rises to spending cuts because of their relatively smaller impact on GDP initially. Among the possible tax rises, income tax should be preferred because of its lower multiplier. The emphasis on tax rises is also justified given October's Institute for Government/Chartered Institute of Public Finance and Accountancy review of public services, which revealed that most public services do not have sufficient funding to return to pre-pandemic performance, and that structural failures in our healthcare, schools and criminal courts systems presently look insurmountable; against this backdrop, slashing departmental budgets would only aggravate present failures. Moreover, spending cuts – particularly if aimed at public-sector investment – will deteriorate already underwhelming economic growth, despite it being a high priority on the current government's agenda.

In fact, given our forecast, it's not actually clear that the government needs to find any more savings to hit its own fiscal targets. The increases in corporation tax, together with 'fiscal drag' resulting from the combination of higher inflation and frozen tax thresholds, mean that the budget deficit will start to fall in 2023-24. As argued in Box B, high inflation can also benefit the public finances by devaluing public-sector debt. Headline annual inflation was a soaring 10.1 per cent in September and it is no coincidence that tax receipts in this month were £4.5 billion more than those recorded in September 2021. Conversely, high inflation poses a twofold problem for public finances: firstly, given the Bank of England's mandate of price stability, it leads to higher interest rates which effectively raise the cost of government borrowing; secondly, it directly raises the interest payments the government needs to make on its indexed gilts and can raise spending in other areas, eg, spending on state pensions resulting from the 'triple lock'. It is estimated that in September, £4.7 billion of the total £7.7 billion of interest payable on central government debt was a product of high inflation. Further, early estimates indicate that maintaining a commitment to the triple lock would raise public spending next year by £5 billion. Overall, it seems that inflation may be causing more duress than relief to public finances. Fiscal policymakers may reduce their own workload by refraining from exacerbating inflationary impetus in future fiscal events.

Our forecast is for a deficit of 3.7 per cent of GDP in 2022-23, falling to 1.1 per cent of GDP in 2023-24 and 0.9 per cent in 2024-25 (Figure 1.6). However, these figures are predicated on the assumption that the energy price support for households and firms comes to an end after six months. Given that the EPG has now been set to be reviewed (and possibly changed) from April 2023 onwards, it is hard to pinpoint the path of government debt, hence our working assumption in the forecast. The extent to which Chancellor Hunt's policy change will reduce the cost of the previously estimated £100-£200 billion expenditure – and so close the remaining gap in the government's finances – will depend on the cost of whatever new scheme is implemented in 6 months' time. We have argued for a while for this 'variable cap' scheme. If implemented, this scheme would provide targeted support for those households that need it most in a cost-efficient way for the government that would improve public finances. Chapter 2 discusses further the distributional effects of the ongoing energy price shock and how well-targeted fiscal policy can mitigate them.

Our forecast for a falling budget deficit as a percentage of GDP also implies a fall in the debt-to-GDP ratio over our forecast period from around 98 per cent of GDP at the end of the third quarter of 2022 to around 80 per cent of GDP by the end of 2025 (Figure 1.6).

## Box B: Inflation and public finances.

By Huw Dixon, Urvish Patel & Hailey Low

Economists focus on ‘real’ magnitudes, or those that are measured in a way that removes the effects of inflation. Standard national accounting procedures are designed to capture both real volume measures and ‘current price’ measures by deflating nominal values by an appropriate price index. However, in the realm of public finances, there has been something of a blind spot when it comes to inflation adjustment and standard statistics do not account for the effect of inflation. At the same time, the impact of inflation can be considerable since the bulk of government liabilities are denominated in nominal terms. There is thus an ‘inflation tax’ reflected in the reduction in government liabilities in real terms (and corresponding reduction in the real value of the assets of the bond holders). The first attempt to develop a systematic framework to measure this effect was undertaken by two economists at the Bank of England in the late 1970s, Christopher Taylor and Andrew Richard Threadgold. This was at a period of high inflation when the effect of ‘inflation adjustment’ was considerable: the high inflation that took off in the mid-70s had a major impact on the government finances. In particular, the large government deficits were shown to be much smaller when accounting for the inflation tax effect.

In 2022 we find ourselves again in a situation where not only is inflation elevated but outstanding government debt is also high relative to previous decades. The most recent ONS data for public-sector net debt excluding public sector banks (PSND ex) suggested that the debt-to-GDP ratio stood at around 98 per cent at the end of September 2022. The combination of high debt and high inflation together imply that there will be a large inflation effect affecting the government deficit. There is a flow dimension to this (essentially the difference between real and nominal interest rates) and a stock dimension (the total value of assets and liabilities), which are of course linked over time. To understand exactly how this works, it is perhaps best to imagine what would happen in a fully ‘inflation adjusted’ world where inflation has no effect on real incomes and assets. If inflation was 10 per cent, then the government would pay interest on its bonds (also known as gilts) at the real rate, say 2 per cent, plus the inflation rate to make a total of 12 per cent. The flow of interest payments would then provide the same real return of 2 per cent and provide 10 per cent compensation for the fall in the real value of the bonds due to inflation. For the government to keep its real asset position unchanged, the government would also issue new bonds exactly equivalent to the 10 per cent interest payments compensating for inflation. The asset holders (firms or households) would keep their real asset position unchanged by buying newly issued bonds with the 10 per cent and keep the 2 per cent. The rate of inflation has no real effect in this framework: whether it is 0 per cent or 100 per cent, if the government and private sector behave in this way then there would be no change in the value of real assets and liabilities.

Now, there is a financial asset that behaves exactly like this and ensures that there is no inflation effect: inflation-indexed bonds. In fact, the government issues considerable quantities of index-linked gilts, whose value (both in terms of interest paid and final value) automatically adjust with inflation. Even better for the holders of these indexed gilts, they are linked to the historic RPI measure of inflation, which tends to be higher than the current standard measures of CPI and CPIH inflation. To get an idea of the importance of these indexed gilts for public finances, according to the OBR (2022), in August 2022 out of a total debt of £2,069 billion, over 25 per cent or £544 billion are indexed gilts. For these indexed gilts, the inflation adjustment is already done for us, and we can focus on the remaining government debt of around £1,500 billion.

This then raises the issue of how we treat the bonds held by the Bank of England (or more correctly the Asset Purchase Facility) resulting from quantitative easing. In fact, there may be no need to treat assets held by the Bank of England any differently to assets held by any financial intermediary or commercial bank. The Bank of England holds government bonds as assets and has corresponding liabilities which are in the most part the reserves held by commercial banks. The effect of inflation is to reduce the real value of the assets and liabilities on both sides of the balance sheet in an offsetting manner. A similar argument can be made for commercial banks: inflation will reduce the value of their nominal assets (including reserves at the Bank of England and government bonds) but also their liabilities (deposits held by firms and households). For commercial banks the two effects may not exactly offset, since the assets of banks will include items that will be affected by inflation (for example stocks and shares). However, as an approximation we can assume that inflation affects the assets and liabilities of the banking sector as a whole in a neutral manner. Thus, if

we want to ask the question ‘who pays the inflation tax’, the answer is households and firms who either own government bonds directly or hold deposits in commercial banks. Part of the deposits held in commercial banks corresponds to the gilts held by the commercial banks or Bank of England.

Now, of course, the government is not the only borrower and to tell the full story of inflation, we would need to look at how inflation affects borrowers and lenders in the private sector. For example, banks issue mortgages that are set in nominal terms and sit as assets on their balance sheet. Mortgage holders see the real value of their debt decline with inflation as savers see the real value of their savings held in the bank decline. However, the story of redistribution within the corporate and household sectors is outside the scope of this analysis; instead, we look at how inflation affects how we interpret the real value of government debt and deficits.

The magnitude of the inflation tax  $IT_t$ , is easily calculated at either the monthly or the annual frequency. The fall in the real value of the existing stock of debt is given by the inflation rate times the total stock:

$$IT_t = \frac{B_t}{P_t} - \frac{B_t}{P_{t+1}} = \frac{B_t}{P_t} - \frac{B_t}{P_t(1+\pi_t)} = \frac{\pi_t B_t}{P_t}$$

If we use the annual frequency, we have the current inflation rate of 10.1 per cent, which measures the increase in prices over the last 12 months. As a lower bound on  $IT_t$ , we could apply the simple formula to the stock of bonds as it stood 12 months ago. This is a lower bound, because of course (net) new debt is issued all the time and this will be subject to inflation once it has been issued. An upper bound would be to apply the retrospective inflation rate to the end of period total.

What we have done instead is to use the monthly frequency of inflation data and apply it to the quarterly data on debt. This allows us to get a monthly figure for the inflation tax which we can accumulate to get the quarterly value which we can link back to the public finance data on the government deficit.

**Figure B1** Monthly inflation tax



Source: NIESR calculations.

**Table B1** The Impact of the Inflation Tax on the Budget Deficit (£ bn)

Time	Inflation Tax (£bn)	Government Deficit (£ bn)	Inflation Tax Adjusted Deficit (£bn)
3Q 2020	6.8	-74.1	-67.3
4Q 2020	1.7	-63.4	-61.7
1Q 2021	3.6	-42.2	-38.6
2Q 2021	28.8	-60.1	-31.3
3Q 2021	17.0	-37.3	-20.3
4Q 2021	40.7	-29.2	11.5
1Q 2022	31.6	-6.8	24.8
2Q 2022	70.4	-41.8	28.6
3Q 2022	24.9	-30.6	-5.7

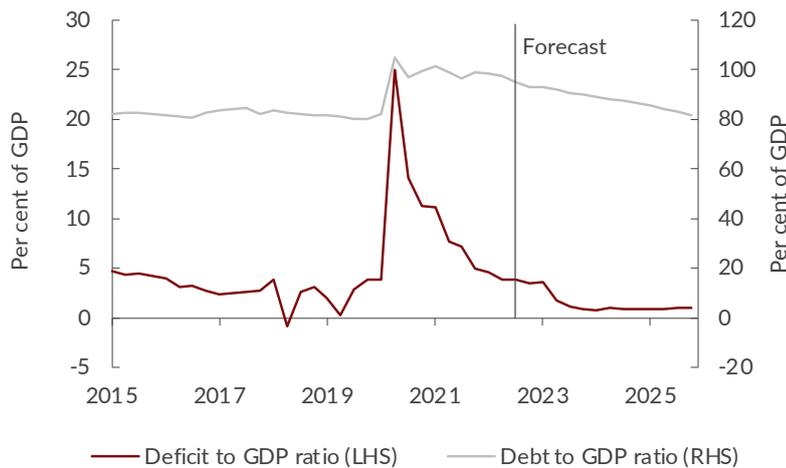
Source: ONS, OBR.

This analysis suggests that accelerating inflation can be relatively positive for the government fiscal position. The government's current fiscal budget deficit for the third quarter of 2022 is £30.6 billion, however a £24.9 billion inflation tax somewhat offsets the severity of the deficit and reduces it by a factor of 5 to £5.7 billion. Additionally, all the published deficits since the fourth quarter of 2021 have actually been turned into a surplus because of this inflation tax. Subsequently, the government has a lot more fiscal space for spending than appears from the published data which omits the inflation tax. In effect, inflation is rapidly reducing the real value of government debt. Since we now have low nominal interest rates and resultant negative real rates, this effect is enhanced even more.

This inflation effect is perhaps more apparent if we think in terms of the debt/GDP ratio. 10 per cent inflation increases nominal GDP much more rapidly than real growth of 0-2 per cent and has the effect of 'inflating away' the government debt to make it more sustainable than it would have been without the inflation. Since both the numerator and denominator of the debt-to-GDP ratio are nominal values, the ratio does not in itself require inflation adjusting. With 10 per cent inflation, the UK budget deficit would need to be very large to keep the debt-to-GDP ratio from falling. This means that a larger unadjusted budget deficit is sustainable compared to the case when inflation is low, as it was around the pandemic.

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**Figure 1.6** Public-sector debt and deficit to GDP ratios

Source: NiGEM Database; NIESR Forecast.

Given recent political developments, the government may have stumbled upon a second chance to correct recent fiscal mistakes born of near-sightedness. One such correction may be to revisit fiscal priorities; perhaps it is neither feasible nor desirable for the next Chancellor to focus exclusively on debt falling as a fraction of GDP by five years' time given the extraordinary circumstances we find ourselves in. A fiscal plan, coordinated under OBR scrutiny to ensure credibility and economic soundness, that could help fuel economic growth and limit further reductions in UK households' standard of living may well require a Chancellor to balance multiple fiscal priorities. NIESR have long argued for a new fiscal framework that seeks to provide certainty in a world where policy makers need to strike the right balance between flexibly responding to economic shocks, such as Covid-19 and the war in Ukraine, and maintaining credibility so as not to face high risk premia on their debt.

In our Occasional Paper on designing a new fiscal framework (Chadha et al. (2021)) we laid out five main proposals, which sought to address deficiencies in the current framework:

1. The Chancellor should set out a structured timetable for fiscal events and deliver a Budget speech focused on the state of the economy and the government's socio-economic objectives that is more extensively debated and scrutinised by Parliament and a Fiscal Council. Recent events have shown exactly what damage can be done by holding ad hoc fiscal events and not subjecting major policy changes to adequate scrutiny by Parliament or an independent Fiscal Council.
2. The OBR should publish pre-fiscal event reports with key issues to which the Budget and the Autumn Statement should respond. Again, a large part of the problems resulting from the mini-budget in September can be put down to the decision to ask the OBR not to produce a report on it.
3. The Chancellor should provide more guidance as to how fiscal policy would respond if certain risks materialise and the OBR should produce economic forecasts and scenarios to inform government on fiscal choices.
4. HM Treasury should create a new body of independent experts for ex ante advice and ex post evaluation of the key fiscal choices. In this light, we welcome the setting up of the new Economic Advisory Council but note that it has been entirely filled with financial markets participants, with the danger that the advice given to the Chancellor is biased towards what the markets want rather than what the economy needs.
5. Fiscal strategy must be joined-up across the UK and all its constituent parts, with particular attention paid to distributional effects, productivity, well-being, and ecological sustainability.

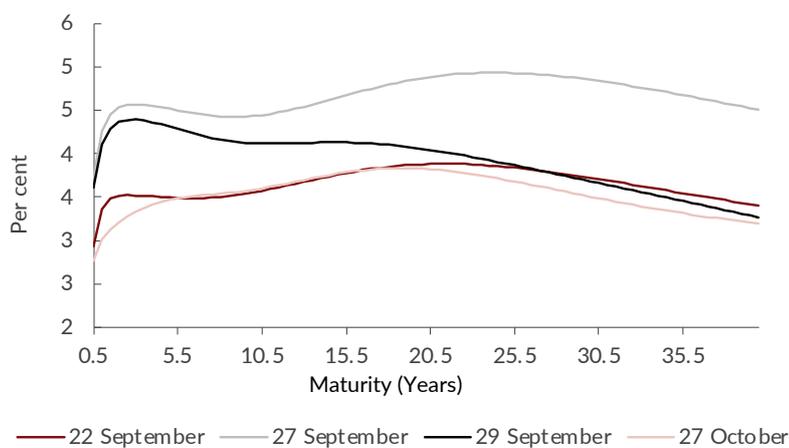
We hope that the Chancellor takes seriously our suggestions for a new fiscal framework.

## The forecast in detail

### Financial markets

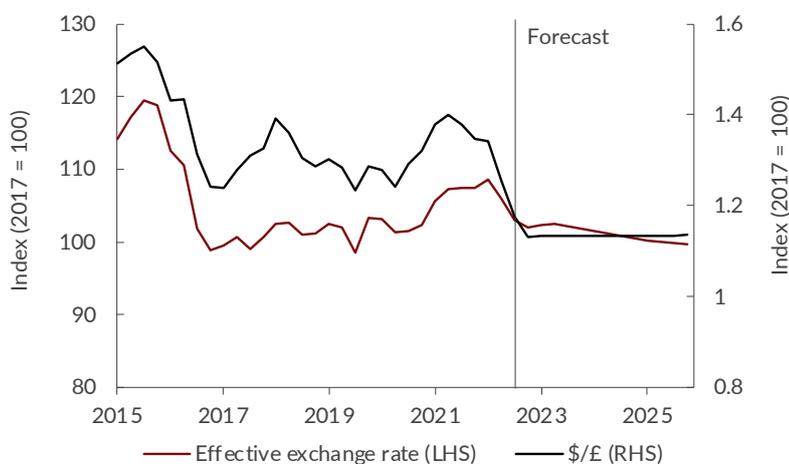
The past two months have been turbulent for the financial markets. In particular, the mini-budget on 23 September led to a marked fall in sterling and bond prices and, hence, a rise in bond yields (Figure 1.7). In turn, this led to fire sales of gilts by pension funds that threatened their solvency. This meant that the Bank of England had to step in on 28 September and act as ‘market maker of last resort’ in the gilt market. This action steadied the markets somewhat with yields falling at the long end of the curve while remaining somewhat higher (c. 50 basis points) at the ten-year maturity (Figure 1.7). The appointment of Jeremy Hunt as the new Chancellor of the Exchequer and his announcements on 17 October, together with the appointment of Rishi Sunak as the new leader of the Conservative Party and Prime Minister on 25 October, led to bond yields falling along the rest of the curve. Figure 1.7 shows that by 27 October, bond yields were back to where they had been on 22 September, prior to the mini budget. Looking ahead, we expect long rates to remain roughly flat over the forecast period, at around 3.5-4.0 per cent.

**Figure 1.7** Nominal spot curve for gilts



Source: Bank of England.

**Figure 1.8** Sterling effective exchange rate and US dollar/sterling exchange rate



Source: NiGEM Database; NIESR Forecast.

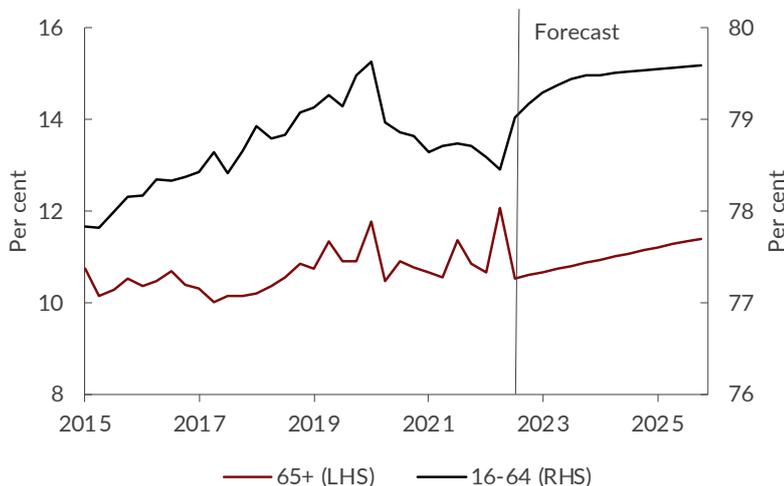
Although sterling had been depreciating throughout 2022, both in effective terms and against the dollar, the mini-budget aggravated this, with sterling falling by around 5 per cent against the dollar between 22 and 26 September. The announcements made by the new Chancellor, Jeremy Hunt, again seem to have helped steady the foreign exchange markets and sterling stood at \$1.16 to the pound on 27 October. Our forecast – based on interest rate differentials – has sterling falling by roughly 3 per cent in effective terms between now and 2025 and by a similar amount against the dollar, levelling off at around \$1.13 to the pound (Figure 1.8).

### The labour market

Recent UK labour market data has been characterised by two features: a marked increase in economic inactivity since the Covid-19 pandemic, and a rise in the vacancy to unemployment ratio, the measure of labour market tightness most clearly associated with wage pressure in many ‘search and matching’ models of the labour market (Mortensen and Pissarides (1994); Trigari (2009)).

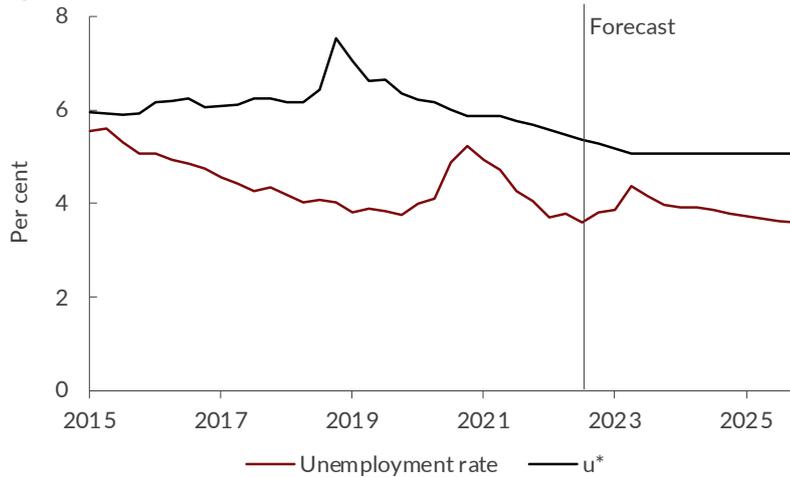
Looking at the participation rate for the working-age population, our view is that it will return to its pre-Covid level over the course of the next year or so but will not return to its previous upwards trend (Figure 1.9). In addition, we do not expect any marked change in the number of workers aged 65 and over either leaving or re-joining the labour force. Overall, we expect the participation rate among the whole population aged above 16 to remain at a little over 63 per cent throughout the forecast period.

**Figure 1.9** Disaggregated participation rates



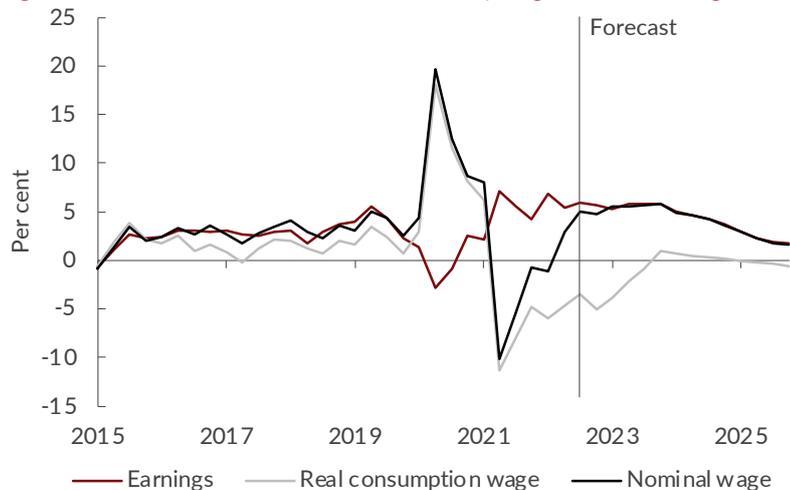
Source: NiGEM database and NIESR forecast.

Turning to labour market tightness, we do not forecast vacancy rates. Rather, we take a stand on the natural rate of unemployment,  $u^*$ , and then define labour market tightness as the difference between the actual unemployment rate and  $u^*$ . It is this gap between the unemployment rate and  $u^*$  that drives wage inflation in our forecast. Our view is that  $u^*$  is currently around 5.5 per cent, though we expect that to fall gradually to around 5.1 per cent by the middle of 2023. With the unemployment rate at 3.5 per cent, that suggests an extremely tight labour market. Despite a small rise in the unemployment rate over the coming year to 4.4 per cent, we expect this high degree of labour market tightness to continue over the forecast period (Figure 1.10).

**Figure 1.10** Unemployment rate and  $u^*$ 

Source: NiGEM database and NIESR forecast.

Given the tight labour market, and persistent inflation, we expect nominal wage growth to remain high over the duration of our forecast. We expect average earnings to grow at 5.6 per cent in 2023, 4.4 per cent in 2024 and 2.2 per cent in 2025 (Figure 1.11). However, this still implies that nominal wage growth does not keep up with inflation through 2023; in other words, real wages continue to fall until late 2023 (Figure 1.11).

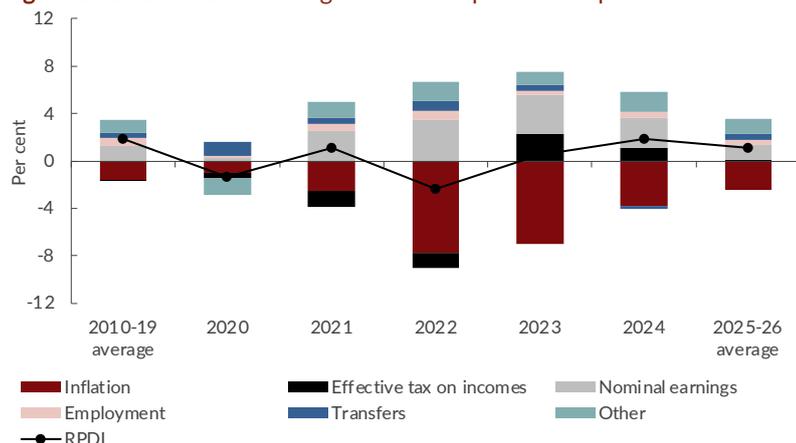
**Figure 1.11** Growth in real and nominal hourly wages and in earnings

Notes: Nominal and real wages are 'per hour'; earnings are 'per head'.

Source: NiGEM database and NIESR forecast.

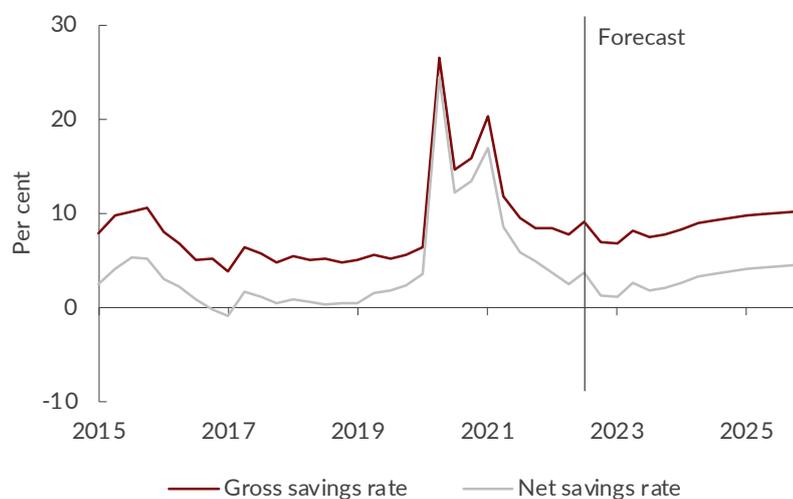
### **The household sector**

The fall in real wages has led to a cost-of-living squeeze and falling real disposable income. However, we now expect real personal disposable incomes to start rising in 2023. As a result, we expect real disposable income to fall by 2.3 per cent in 2022 before rising by 0.5 per cent in 2023 (Figure 1.12). The increases in gilt rates brought about by the mini-budget, discussed above, have also led to large increases in mortgage interest rates, reducing real disposable income. This shows up in the 'other' bars getting smaller in Figure 1.12. Over the medium term, as price inflation comes down below nominal wage growth, real incomes grow by around 1 per cent (Figure 1.12).

**Figure 1.12** Contributions to growth in real personal disposable income

Source: NiGEM database and NIESR forecast.

As we have stated in previous Outlooks, the Covid-19 lockdowns led households to build up their savings, to the tune of around £200 billion in aggregate. Since the pandemic, households have been drawing down their savings to maintain their consumption in the face of the cost-of-living crisis. We forecast the net savings rate to continue falling to a low of 1.1 per cent in the first quarter of 2023 before returning gradually towards its pre-referendum level of 6 per cent (Figure 1.13). This fall in the savings rate enables aggregate consumption to grow by 1.4 per cent between 2022 and 2023 and at an annual rate of around 0.4 per cent, in 2024 and 2025 (Figure 1.14). It is important to remember that although the household sector can draw down on its savings in aggregate, a large and growing number of households have no savings and so will struggle in the absence of further government support, as discussed in Chapter 2.

**Figure 1.13** Gross and net savings rates

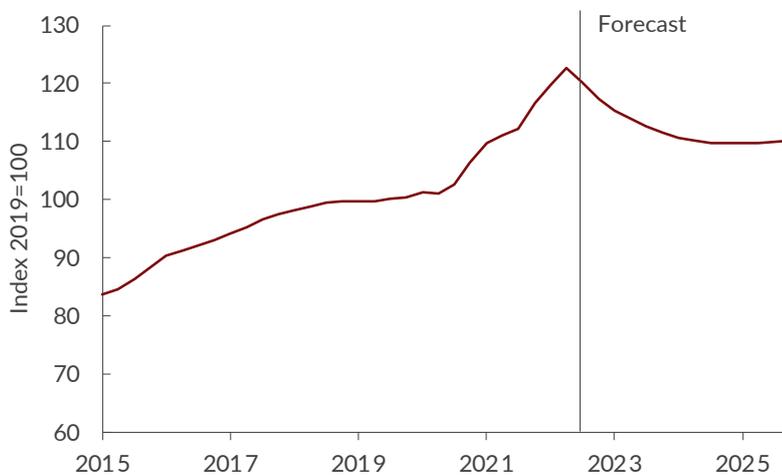
Notes: The net savings rate is defined simply as  $1 - \text{real consumption}/\text{real personal disposable income}$ . The gross savings rate accounts for revaluation effects in household financial wealth (ie, the change in the value of net equity in pension funds held by the household sector).

Source: NiGEM database and NIESR forecast.

**Figure 1.14** Annual consumption growth

Source: NiGEM database and NIESR forecast.

Another detrimental effect of the recent political turmoil has been its driving of the rise in mortgage interest rates resulting from the rise in gilt yields. With many households fixed-rate mortgages coming up for renewal in the coming months, households could see devastatingly large rises in their mortgage rates. Although recent data from the Land Registry shows that house prices continue to rise, increasing in August by 0.9 per cent on the previous month and by 13.6 per cent on the previous year, we now expect house prices to fall in 2023 and 2024, reaching a trough of around 90 per cent of their current peak (Figure 1.15). This will likely have damaging effects on homeowners, particularly those in the middle of the income distribution that have most of their wealth tied to housing.

**Figure 1.15** UK residential house prices

Source: NiGEM database and NIESR forecast.

### *The corporate sector*

Given the uncertainty and higher borrowing rates that have resulted from the political instability, as well as that around what will happen once the initial energy price support for firms is withdrawn in six months' time, we expect business investment to have fallen by 3.4 per cent in the third quarter of 2022 and for the fourth quarter to see investment growth of only 0.3 per cent. Given the weakness of business investment in 2022, we expect some recovery in 2023, with business investment growing by 3.4 per cent over the year (Figure 1.16). This raises the business investment to GDP ratio from 9.0 per cent to 9.4 per cent, where it remains over the forecast period (Figure 1.17). NIESR has consistently said that to increase productivity growth in the United Kingdom, we need to raise business investment as a proportion of GDP. This view was also voiced in much of the evidence presented to our Productivity Commission and written up in its Evidence Review (Productivity Commission 2022).

## Box C: Increasing mortgage rates, a cost-of-living crisis and stamp duty cut: What's next for the UK housing market?

By Urvish Patel

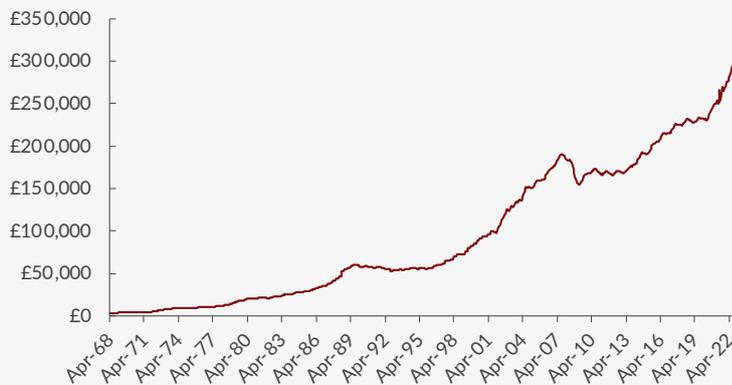
### Introduction

Activity in the UK housing market and house prices have remained robust in 2022. Several factors both on the demand and supply sides have kept house prices buoyant (Patel, 2022a), although the growth in house prices has eased this year in part due to the economic turmoil created by the cost-of-living crisis. This Box will evaluate the main data and themes in the UK housing market and explain why we don't think the housing market will collapse, as has been suggested might happen by some.

### Recent performance of the housing market

In the United Kingdom, average house prices have surged over the last 50 years (Figure C1). In particular, the growth in house prices has outpaced the growth in household incomes, with the average house price reaching a record of 7 times average income in the third quarter of 2022 (Figure C2). Over time, the substantial growth in house prices can be attributed to multiple factors including, higher household incomes, an increase in joint-income applicants and mortgage availability although, particularly since the global financial crisis (GFC), negative real interest rates have been a key driver. Miles and Monro (2019) find that, since 1985, the decline in index-linked gilt yields and other changes in the cost of home ownership are associated with an increase in house prices of around 90%; income rises account for about a further 80% - between them these factors account for all the observed rise.

**Figure C1** Average house price in the United Kingdom



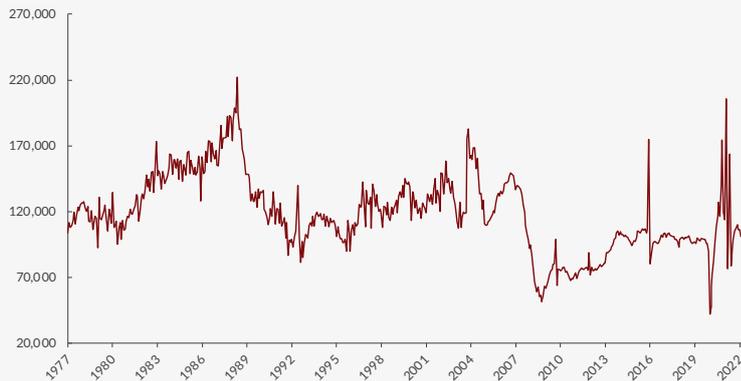
Source: Land Registry.

**Figure C2** UK house price to earnings ratio



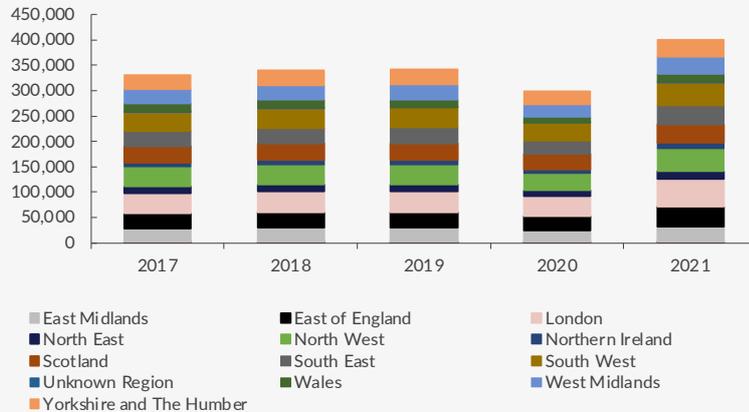
Source: Nationwide.

**Figure C3** Housing transactions in the United Kingdom



Source: Bank of England.

House price inflation started to accelerate at the end of 2020. In 2020, the average UK house price increased by 2.9 per cent compared with the previous year, and this accelerated to 9.3 per cent in 2021. This resulted from a mixture of lower nominal interest rates, a lack of discretionary spending opportunities during the periods of lockdown helping to boost household savings by around £200 billion, greater demand for larger homes to accommodate remote working, and the Stamp Duty holiday introduced in July 2020 (Patel, 2022b).

**Figure C4** Number of new first-time buyers, by region

Source: FCA.

The total amount of first-time buyers joining the property ladder fell in 2020, most likely due to higher risk aversion from the economic impact of the pandemic; however, in 2021 the number of first-time buyers surged by 34 per cent. This increase occurred across all regions of the UK and can be explained by the Stamp Duty holiday provided by then Chancellor of the Exchequer, Rishi Sunak, as well as the underlying change in demand towards larger properties to accommodate remote working.

More recently however, the cost-of-living crisis has cooled activity in the housing market. The continued rise in energy and food bills is reducing demand in the housing market in 2022, with housing transactions in the first eight months of 2022 falling by 12 per cent compared with the same period in 2021 (Figure C3). Meanwhile, according to the latest Halifax (2022) House Price Index for September 2022, UK house prices have remained flat since June 2022. The latest S&P Global/CIPS UK Construction PMI suggested that, in September, survey respondents' confidence about the business outlook for the next year fell to its lowest level for over two years, alongside lower purchasing activity because of subdued client demand.

### What does the cost-of-living crisis mean for the housing market?

In response to soaring inflation, the Monetary Policy Committee (MPC) of the Bank of England (BoE) continues to tighten the Bank rate, which is now 3.00 per cent. Many interest rates on loans provided by financial institutions, including residential mortgages, follow the Bank rate; subsequently, an increase in Bank rate will be translated into higher mortgage rates, although not necessarily by the same magnitude. The increase in mortgage costs will directly impact variable or tracker rate mortgage holders rather than fixed rate mortgage holders, although buyers applying for a new fixed rate mortgage or existing fixed rate mortgage owners who will be refinancing will also be impacted. That said, as of March 2022, around 60 per cent of current fixed-rate mortgages were on five-year contracts and so would not necessarily be refinancing their mortgage any time soon. Moreover, as of 2020/2021, roughly one third of households are outright owners who will not be affected by higher mortgage rates at all (Department for Levelling Up, Housing & Communities, 2022).

But will higher rates put off first-time buyers? Probably not. 62 per cent of first-time buyers were in the upper two income quintiles in 2020-2021 (Department for Levelling Up, Housing & Communities, 2022). Moreover, 72 per cent of first-time buyers paid a deposit of less than 20 per cent of their property value, while 5 per cent bought their properties outright. Monthly mortgage payments as a percentage of take-home pay for first-time buyers were typically falling after the GFC, though the negative impact of Covid-19 on income levels and economic activity caused this proportion to surge through 2021 to an average of 30.3 per cent from 27.5 per cent in 2020 (Figure C5). Despite this mortgage payments as a percentage of take-home pay remain some 13 percentage points below the peak levels seen during the GFC.

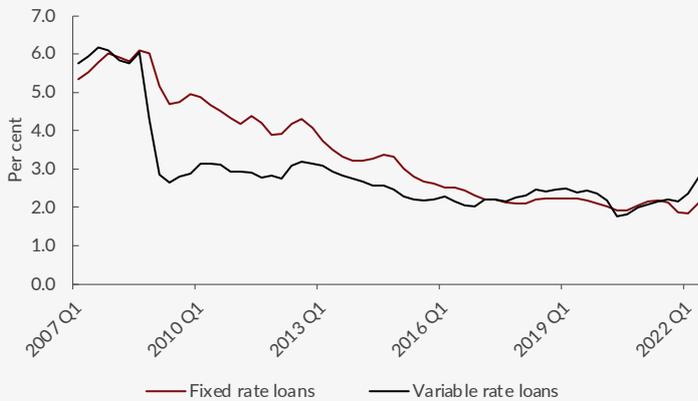
**Figure C5** Monthly payments as a percentage of take-home pay, first-time buyers



Source: Nationwide.

Even before the latest policy developments, mortgage rates were already rising for new mortgage holders although at time of writing, they remain lower than historical mortgage rates (Figure C6). In August, the BoE (2022) reported that lending rates for new fixed-rate mortgages rose across all loan-to-value (LTV) ratios by between 8 and 25 basis points, with high LTV mortgage rates returning to peak levels seen during the height of the pandemic.

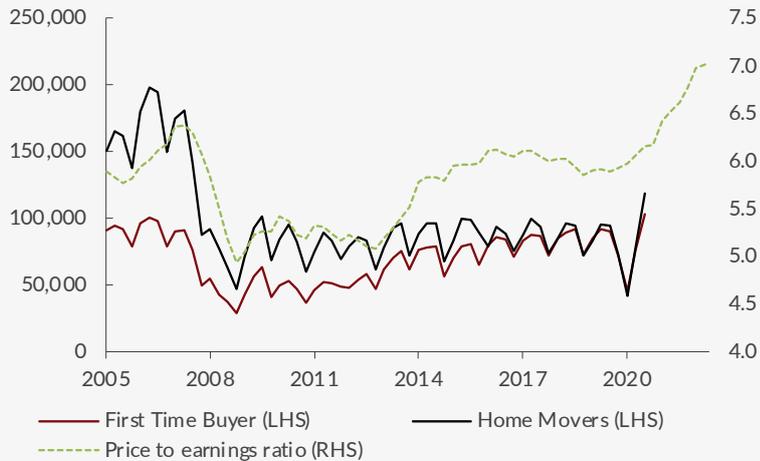
**Figure C6** Overall weighted average interest rate on mortgages



Source: FCA.

A weaker pound will likely add to domestic inflation in the short term and encourage the MPC to raise interest rates higher than was previously expected to bring inflation back to target. Market-implied policy rate expectations have risen since August, now peaking at 4.75 per cent in the summer and autumn of 2023, compared with the August expected peak of 3 per cent.

Consequently, irrespective of the Stamp Duty cut announced in the September mini-budget and confirmed more recently, prospective buyers will be less likely to apply for a mortgage because of rising debt servicing costs, while inflation is eroding real disposable incomes, dampening confidence, and there is greater job insecurity. And this will reduce demand for housing and the growth in house prices. During the GFC, when income levels and house prices declined sharply, new mortgage sales to first-time buyers (as well as existing buyers) plummeted by over 50 per cent (Figure C7). During the height of the pandemic the initial Stamp Duty cut encouraged house purchases because of the change in consumer trends, bolstered savings and, most significantly, the absence of a cost-of-living crisis in the UK.

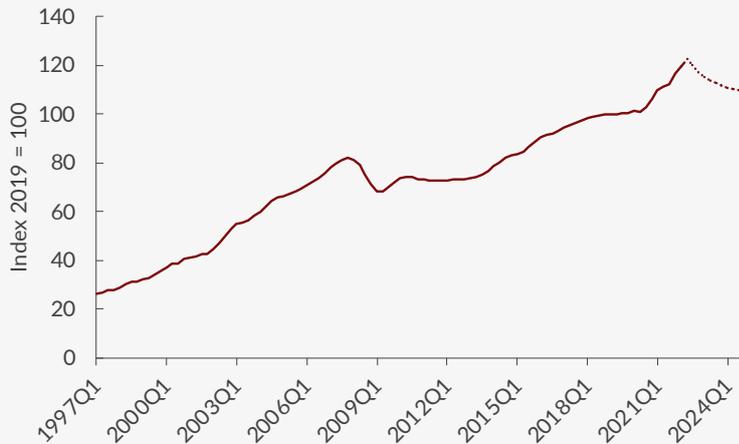
**Figure C7** Mortgage product sales and price-earnings ratio

Source: FCA, Nationwide.

Additionally, during periods of economic uncertainty lenders are likely to reduce loan-to-value ratios which would reduce the availability of loans for prospective first-time buyers to get onto the property ladder. Lower loan-to-value ratios would mean buyers may need to increase their deposits which may be difficult with squeezed budgets, thereby constraining housing market activity. In 2020-2021, around 90 per cent of first-time buyers used their savings to fund their deposit but the ongoing cost-of-living crisis is eating into savings; we forecast that, by 2024, the number of people with no savings will double to slightly above 5 million or 20 per cent of households (see NIESR UK Economic Outlook, Summer 2022).

Existing homeowners, who may wish to sell their property and move, may be discouraged from selling their home as they may not want to purchase a property at a higher price when prices are expected to fall. Subsequently, lower property sales may mitigate the fall in demand. This is similar to the experience during the GFC, where the price-to-earnings ratio fell and, in line with this, new mortgages taken out by existing owners plummeted by almost 60 per cent (Figure C7). Lower property sales may also exacerbate supply tightness, further providing underlying support to house prices.

Overall, though we expect house prices to fall over the next couple of years, it is unlikely we will see anywhere near as significant a decline in house prices as we saw in the GFC where, between October 2007 and February 2009, house prices fell by 21 per cent. **We expect UK house prices to fall by a little over 10 per cent between the second quarter of 2022 and the fourth quarter of 2024. But this is only half of the fall experienced in the GFC and would still leave house prices roughly where they were in 2021 (Figure C8).**

**Figure C8** Average house price in the UK (including NIESR forecast)

Source: Nationwide, NIESR Calculations.

## Conclusion

The cost-of-living crisis is cooling activity in the housing market. The continued rises in energy and food bills are eroding real incomes and consumer confidence, as well as creating economic uncertainty. The likelihood of unemployment rising, and intensifying job insecurity may dent housing market activity further.

The Stamp Duty cut announced in the September mini-budget and confirmed more recently may help encourage some activity in the housing market, particularly in the first-time buyer's category, and therefore support house prices amid higher mortgage rates. That said, first-time buyers may be discouraged from applying for a mortgage irrespective of the Stamp Duty incentive because of the cost-of-living crisis and the risk of banks reducing LTV ratios. Moreover, lower house prices may reduce perceived wealth, particularly in the middle-class, which may even discourage property sales.

Overall, the ongoing fears of a house price and housing market collapse because of higher mortgage rates are unlikely to be proved correct. Not everyone will be affected by rising mortgage rates and a mixture of tight supply of new homes and some support to housing demand provided by the cut in the stamp duty will provide some underlying support to house prices.

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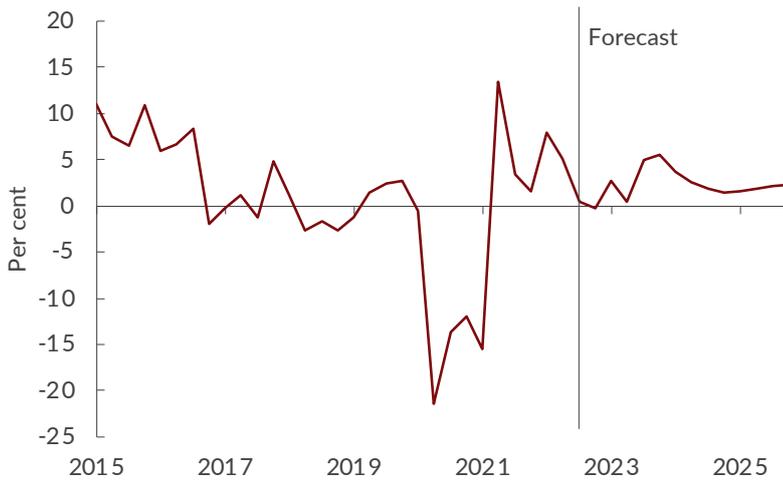
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**Figure 1.16** Annual business investment growth



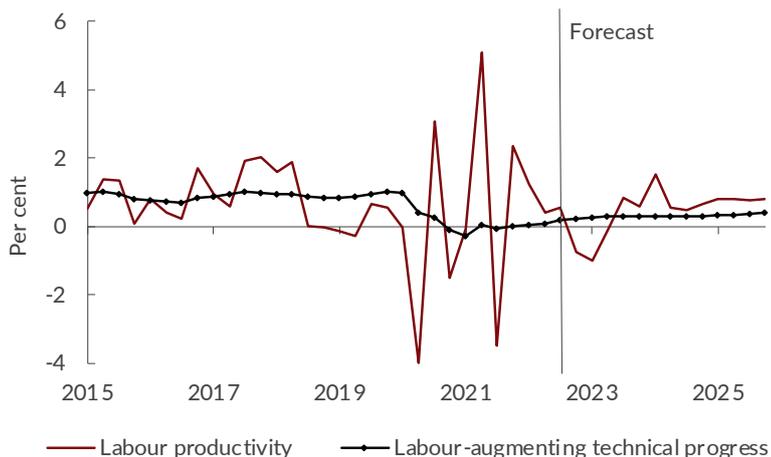
Source: NiGEM database and NIESR forecast.

**Figure 1.17** Business investment to GDP ratio



Source: NiGEM database and NIESR forecast.

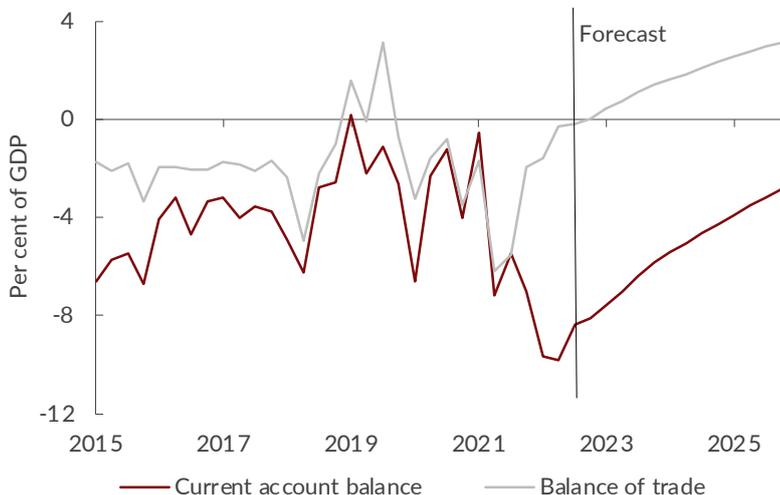
Productivity growth itself has fallen over 2022 and we expect that to continue into the first half of 2023 as output falls. As GDP and, importantly, investment growth recover, so does productivity growth. We forecast the rise in investment growth to lead to annual labour productivity growth of just under 1 per cent by 2025, higher than our assumed rate of growth of labour-augmenting technical progress of around 0.4 per cent.

**Figure 1.18** Annual growth rates of labour productivity and labour-augmenting technical progress

Source: NiGEM database and NIESR forecast.

## Trade

As discussed earlier, sterling has been depreciating throughout 2022, both in effective terms and against the dollar, and we expect the depreciation to continue over the forecast period. We expect this to lead to an improvement in the balance of trade, which we expect to move into surplus in 2024 (Figure 1.19). However, the political uncertainty and the higher UK interest rates that have resulted from it are likely to significantly worsen our current account balance as interest, profit, and dividend (IPD) flows out of the United Kingdom are likely to rise relative to IPD inflows. Our forecast is for a large current account deficit throughout the forecast period (Figure 1.19).

**Figure 1.19** Balance of trade and current account balance

Source: NiGEM database and NIESR forecast.

## Risks to the forecast

In this Outlook, we are publishing our forecast for the UK economy against a background of high inflation and potential recession. Since our previous forecast, we have had a change in Prime Minister and three changes of Chancellor of the Exchequer. On September 23, the then Chancellor announced several tax changes, almost all of which have since been reversed, together with a significant support package for households and firms to help them cope with rising energy bills. Given the absence of an accompanying OBR analysis, and the ‘unfunded’ nature of the tax cuts, both sterling and bond prices fell significantly and, a few days later, the Bank of England was forced to intervene in the gilt market to prevent gilt fire sales leading to a crisis for pension funds. Although the appointment of Jeremy Hunt as Chancellor of the Exchequer and his announcement of the reversal of most of the previously announced tax cuts seems to have steadied the markets for now, there still remains the risk that the upcoming Autumn Statement leads to a further spike in bond yields, which would then reduce consumption, as households face even higher mortgage interest rates, and investment, as firms face a higher cost-of-capital as well as greater uncertainty.

It is always particularly challenging to forecast in uncertain times and there are many reasons why our central case forecast may prove to be optimistic. Leaving aside the risk of higher bond yields and greater uncertainty there are other downside risks to output growth over the medium run. Consumer confidence is currently fragile, and we could see an increase in precautionary savings leading to lower consumption. This could particularly be the case were the unemployment rate to start rising a little faster than we have in our forecast and/or house prices to start falling faster than we have in our forecast. In addition, as discussed in Chapter 2, although the aggregate household sector has the savings to absorb the continuing fall in real incomes, there are many households which are struggling and which have already exhausted, or will soon exhaust, their savings. To the extent that these households are likely to have higher marginal propensities to consume on average, falls in their consumption may not be matched by rises in the consumption of wealthier households, leading us to over-predict consumption. On the corporate side, the uncertainty around the withdrawal of the energy price support could lead to lower investment growth and, so, lower productivity growth than is currently the case in our forecast. In addition, our forecast for trade could also turn out to be over-optimistic, particularly given ongoing uncertainties and ‘red tape’ around trading with the European Union, resulting from Brexit, compounded by the possibility of a trade war with the European Union should the government seek to overturn the Northern Ireland Protocol. Putting all this together, the risks to GDP growth are clearly on the downside.

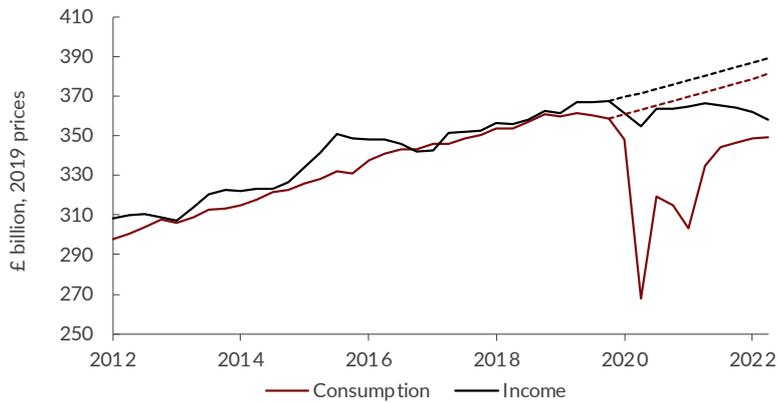
We think the risks to inflation are more balanced. If GDP turned out to be lower than we forecast for any of the reasons given above, then it is quite possible that inflation could come down towards target more quickly than we currently predict. But, if the war in Ukraine were to continue well into next year and/or escalate, we could well see greater rises in food and energy prices, which would quickly translate into higher CPI inflation. In addition, all the while inflation remains high, the risk of higher inflation becoming embedded in the inflation expectations of households and firms, leading to higher wage rises and higher price rises, becomes greater. And, finally, the risk remains that the Monetary Policy Committee does not act in an aggressive enough way to bring inflation back to target at the speed suggested by our forecast, particularly as pressure from the government to keep interest rates low to support their borrowing becomes ever more intense.

## Current economic conditions

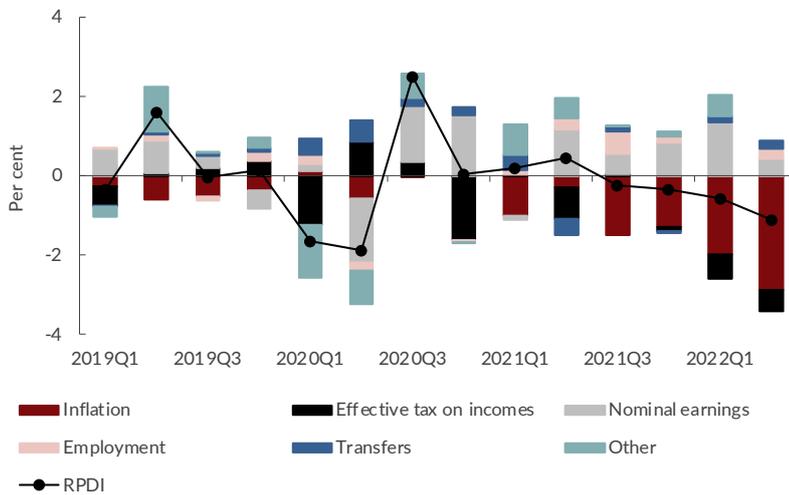
### *Demand and output*

#### **Consumption growth tapering as incomes fall**

Real personal disposable income fell by 1.1 per cent in the second quarter of 2022, falling for the fourth consecutive quarter (Figure 1.20). This decrease was driven by the impact of inflation, which overshadowed improvements in employment and an increase in taxes (Figure 1.21). Further, the contribution of nominal earnings growth fell back sharply compared to the first quarter of 2022. Improvements in employment and an increase in transfers did not offset the negative impact of inflation on real disposable personal income. Consequently, though household consumption continues to increase, this is at a decreasing rate. Given the tremendous strain that the ongoing cost-of-living crisis has placed upon UK households, it is no wonder that we are witnessing sluggish growth in household demand. Both household consumption and income remain below their pre-Covid-19 trend by 9.1 per cent and 8.6 per cent, respectively. The low-growth high-inflation outlook for the UK economy in the short-term suggests it is unlikely we will see these variables return to their pre-pandemic trends anytime soon.

**Figure 1.20** Quarterly household consumption and income 2012-2022

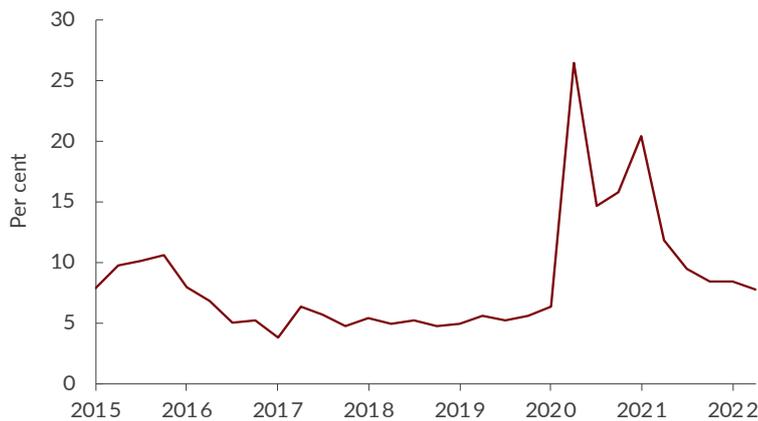
Source: NiGEM database, NIESR calculations.

**Figure 1.21** Components of quarterly growth in real disposable personal income

Source: NiGEM database, NIESR forecast.

### Savings rate slowly diminishes

Despite the increasing squeeze on real incomes the savings rate only fell slightly from its value in the first quarter of 2022 and remains above pre-pandemic level. Figure 1.22 shows a savings rate of 7.8 per cent in the second quarter of 2022, down from 8.5 per cent in the first quarter but still higher than the 6.4 per cent rate in the first quarter of 2020. This indicates that households are retaining higher savings than before the pandemic.

**Figure 1.22** Quarterly savings rate

Source: NiGEM database, NIESR forecast.

However, as consumption growth is tapering (Figure 1.20) and real disposable incomes are falling (Figure 1.21) we should expect a combination of households both drawing on savings and cutting back on consumption in subsequent quarters. If combined with increased precautionary savings, this will potentially have consequences for consumption and demand at an aggregate level going forward.

### Consumer confidence falls

The savings rate reducing relatively slowly may reflect increased caution among consumers, consistent with decreased confidence. The GfK Consumer Confidence Survey reached a low of -49 in September 2022, the lowest consumer confidence since the survey began in 1974. Two forward-looking indicators from the survey – personal financial situation over the next twelve months and general economic conditions over the next twelve months – have deteriorated significantly over the last 3 months, falling in September to -40 and -68, respectively. This compares to +5 and -16 in September 2021.

The YouGov/CEBR consumer confidence survey shows a similar decline in consumer confidence, with house value metrics in particular reflecting concerns. While the personal finance outlook did rise (+1.3) following the Government announcement of its energy support package, this subsequently fell back.

### Business Conditions

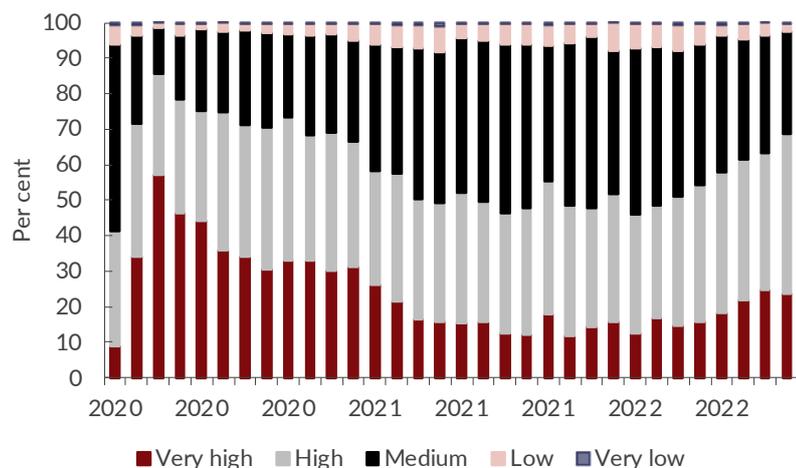
The ONS Business Insights and Conditions Survey shows prices still increasing on goods bought by the businesses surveyed: 44 per cent reported an increase in the prices of goods or services bought in August 2022 compared with July 2022. However, this was down slightly from the 46 per cent who reported an increase between June and July 2022. The percentage of businesses who reported an increase in the prices of goods or services sold was 20 per cent, a slight fall from 23 per cent in July 2022.

In terms of price expectations, more than a quarter (29 per cent) expect the prices of the goods or services they sell to increase in the coming month, broadly stable compared with the previous month. Energy prices (46 per cent) are the most commonly reported reason for businesses considering increasing their prices.

In terms of business turnover, 12 per cent more firms reported this to be lower in September compared to the previous month than reported it to be higher. Notably, sectoral variation is large with survey respondents in the accommodation and food service activities industry reporting the largest percentage of businesses whose turnover was lower, 52 per cent. Turnover in the arts, entertainment and recreation sector increased, which indicates that any contraction in consumption going forward may have differentiated impacts between sectors.

The Bank of England's Decision Maker Panel shows that uncertainty has increased among survey respondents to levels last seen during the peak of the pandemic (Figure 1.23). In response to the question "How would you rate the overall level of uncertainty facing your business at the moment?" 23.7 per cent of respondents said 'very high' and 45 per cent 'high'. This is a notable jump in uncertainty sentiment among business from last month and may have implications for business investment.

**Figure 1.23 Overall Uncertainty: Percentage of respondents that would rate the overall level of uncertainty facing them at the moment as very high, high, medium, low or very low**

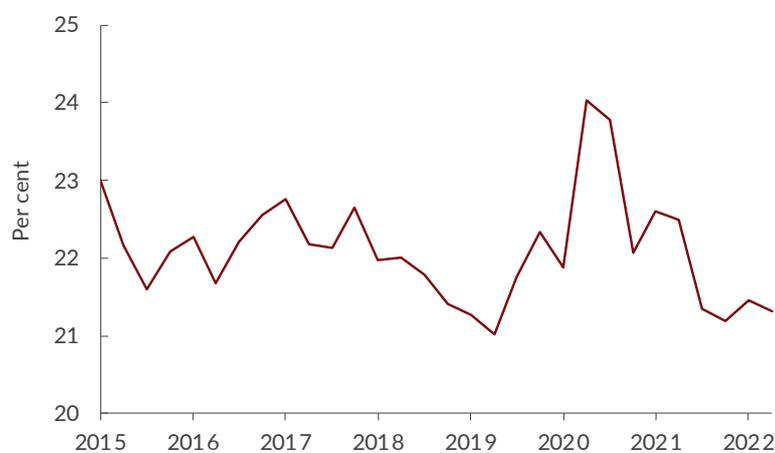


Source: Decision Maker Panel.

### Business Investment: Confidence falls and uncertainty rises

Corporate profits as a share of GDP fell back slightly in the second quarter of 2022 (Figure 1.24). This reflects increased input costs for business due to inflation and supply chain constraints.

**Figure 1.24 Profit share in GDP**



Source: ONS, NIESR calculations.

The level of business investment in the UK is 8 per cent lower than it was before the coronavirus pandemic (based on data from the fourth quarter of 2019). However, business investment grew by 3.7 per cent in the second quarter of 2022, and business investment has grown by 5.2 per cent compared with the same quarter a year ago.

Gross fixed capital formation (GFCF) fell by 1.4 per cent in the second quarter of 2022 and has risen by 3.9 per cent compared to the same quarter a year ago.

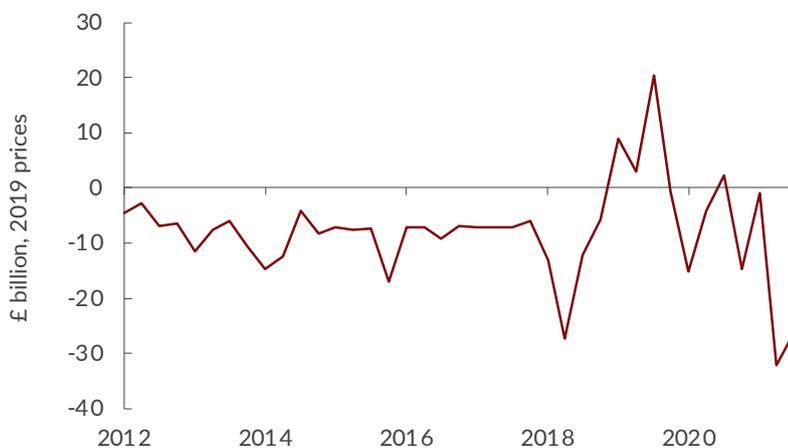
The British Chambers of Commerce Quarterly Economic Survey reports that in the third quarter of 2022 22 per cent of surveyed businesses reported an increase to plant/equipment investment in the past three months, while 57 per cent reported no change, and 22 per cent reported a decrease. This is the lowest level of reported increase in investment since the first quarter of 2021. The CBI Industrial Trends Survey reports that factors likely to influence fixed investment plans in the coming twelve months are uncertainty about demand and inadequate net return.

## Trade

The trade deficit widened by £0.2 billion to £25.6 billion in the three months to August 2022 relative to the three months to May (Figure 1.25). But, removing the effect of inflation, the trade deficit narrowed by £6.5 billion to £11.9 billion in the three months to August 2022. Latest HMRC figures show that the UK trade deficit in goods increased, largely driven by an increase in imports of fuels, machinery, and transport equipment from non-EU countries, whereas the UK trade surplus in services strengthened, through a £3 billion increase in UK services exports over the past 3 months (compared to an increase of £4.7 billion in goods imports over the past 3 months). Overall, the UK trade balance saw a slight uptick in the second quarter of 2022 to 4.2 per cent of GDP from 5.4 per cent of GDP in the first quarter. Box D argues that the recent depreciation of sterling is likely to be passed through into import and consumer prices and, so, unlikely to improve UK competitiveness or alter the UK trade position substantially.

Supply chain disruptions were a major contributory factor to inflationary pressures. However, data from the Federal Reserve Bank of New York's global supply chain index (SCI) indicates that supply constraints are stabilising, with shipping costs falling, and US goods consumption falling. That said, supply chain constraints remain, emanating from energy prices, food prices and the war in Ukraine.

**Figure 1.25** UK balance of trade



Source: HMRC/ONS/NIESR calculations.

## Supply and costs

### Unemployment rate at 48-year low but employment rate still below its pre-pandemic level

The unemployment rate in the UK fell to 3.5 per cent in the three months to August 2022, the lowest since 1974. Meanwhile, the employment rate decreased by 0.3 percentage points to 75.5 per cent, marginally below its pre-pandemic level. The fall in the unemployment rate was largely driven by a sharp rise in economic inactivity, which rose by 0.6 percentage points to 21.7 per cent in the three months to August, higher than the preceding three-month period and remains 1.4 percentage points above its pre-pandemic level. Total weekly hours worked in the UK decreased by 0.4 million in the three months to August and remained 6.3 million below their pre-pandemic level.

### Labour market was substantially affected by Covid-19 and now appears tighter than before

The pandemic triggered large changes in the labour market. Demand for labour fell sharply, with vacancies falling by 60 per cent just four months into 2020. The number of employees who were furloughed peaked at 9 million in May 2020 while the unemployment rate rose to a peak of 5.2 per cent in the three months to December 2020. The situation has since been reversed with the unemployment rate at its lowest in 48 years and vacancies well above their level during the pandemic. During Covid-19, students and those with long-term illness comprised a small proportion of the economic inactive group. However, since we have emerged from the pandemic, these two groups have been the main drivers of the sharp rise in economic inactivity rate (Figure 1.26).

## Box D: Exchange rate changes and the economy

By Paul Mortimer-Lee

Sterling's recent weakness raises important questions about the impact on inflation and UK competitiveness. A crucial part of the answer is the extent of Exchange Rate Pass-Through (ERPT), the extent to which domestic prices respond to exchange rate shifts. A high ERPT would mean a substantial inflation impact and a low competitiveness effect. After the 1990s, ERPT decreased in most countries, including the UK. However, ERPT varies across episodes. Currently, higher and more variable inflation, foreign exchange weakness skewed towards the dollar, and damaged Bank of England credibility, implies a high ERPT. This higher ERPT argues for a firm monetary policy response.

### ERPT and its evolution

Exchange rate pass-through can refer to the extent of pass-through to import prices or to consumer prices. Most published studies concentrate on the first of these. Ihrig et al. (2006), examine the pass-through of exchange rate changes to import prices for the G7, looking at the period 1975 to 2004 and splitting the sample in 1990. They find that the average G7 long-run pass-through coefficient from the exchange rate to import prices had fallen from 0.715 to 0.475 (Table D1), with the UK declining less than average, from 0.76 to 0.59.

Ihrig et al. (2006) also look at exchange rate pass-through to consumer prices, again finding a decline in ERPT between the two periods, though the decline in ERPT was not statistically significant except for Italy and France (Table D2). One of the issues with the study is choosing a common break point for the two sub-samples whereas Clarida et al. (1998) suggest policy regimes changed at different times in different countries.

**Table D1** Long-run exchange rate pass-through into import prices

	1975-1989 (1)	1990-2004 (2)	Change (3) = (2) - (1)
United States	0.657 (0.109)	0.320 (0.104)	-0.337*
United Kingdom	0.763 (0.080)	0.590 (0.090)	-0.173
Japan	1.137 (0.133)	0.609 (0.109)	-0.528**
Italy	0.626 (0.155)	0.465 (0.179)	-0.161
Germany	0.384 (0.050)	0.291 (0.047)	-0.093
France	0.487 (0.065)	0.163 (0.048)	-0.324**
Canada	0.951 (0.197)	0.890 (0.101)	-0.061
Average	0.715	0.475	-0.239
Average (ex Canada)	0.676	0.406	-0.269

† Standard errors in parentheses.

\*, \*\* Indicate that the decline in pass-through is statistically different from zero at the 10 per cent level and the 5 per cent level, respectively.

Source: Ihrig et al. (2006).

**Table D2** Long-run estimates of exchange rate pass-through into consumer prices

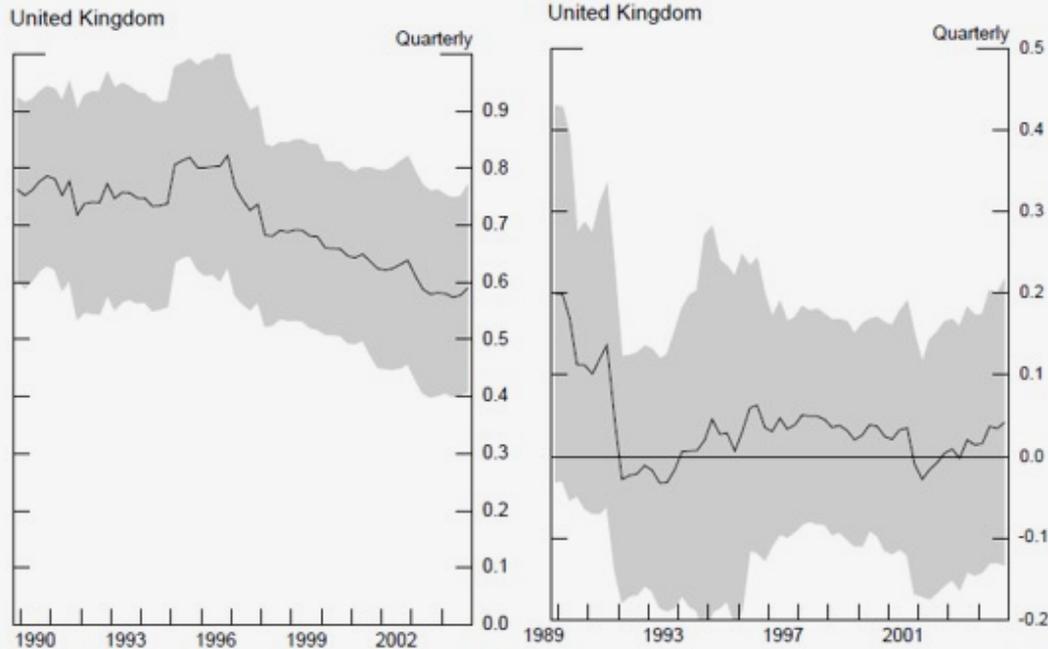
	1975-1989 (1)	1990-2004 (2)	Change (3) = (2) - (1)
United States	0.014 (0.123)	-0.019 (0.031)	-0.033
United Kingdom	0.200 (0.115)	0.042 (0.087)	-0.157
Japan	0.031 (0.034)	0.005 (0.021)	-0.026
Italy	0.359 (0.083)	-0.018 (0.033)	-0.377**
Germany	0.010 (0.035)	0.023 (0.042)	0.013
France	0.275 (0.150)	-0.002 (0.063)	-0.277*
Canada	0.050 (0.042)	-0.083 (0.064)	-0.133
Average	0.134	-0.007	-0.142

† Standard errors in parentheses.

\*, \*\* Indicate that the decline in pass-through is statistically different from zero at the 10 per cent level and the 5 per cent level, respectively.

Source: Ihrig et al. (2006).

For the UK, Charts D1 and D2 show Ihrig et al.'s estimates of ERPT for import and consumer prices using rolling regressions with a fifteen-year fixed window. The import price coefficient is consistent with other evidence, but the pass-through to consumer prices in later years is surprisingly low.

**Figure D1** ERPT into core import prices**Figure D2** ERPT into consumer prices

Source: Ihrig et al. (2006).

## Why did ERPT decline?

Gagnon and Ihrig (2004) develop a model stressing a leading role in lowering ERPT for the adoption of inflation-stabilisation objectives by central banks. Supporting this, they find a statistically significant role for inflation variability in explaining the lower ERPTs in later periods. At least at the second stage (import price transmission into consumer prices), changes in monetary policy regimes appear to have been important.

Table D3 shows Gagnon and Ihrig's estimates of ERPT into consumer prices over the entire sample period, 1971Q1 to 2003Q4, and over two sub-samples, the break being at 1980 or 1981 for the US, UK, Germany, and Japan; 1984 for Canada, Austria, Finland, Ireland, Netherlands and Switzerland; 1987 for France, Belgium, Italy, Portugal and Spain; the early 1990s for Australia, New Zealand, and Sweden; and 1993 for Greece. Table 3 shows a pronounced downward shift in ERPT between the earlier and later sub-samples. The ERPT coefficient for consumer prices in the UK is broadly consistent with an ERPT into import prices in the range of 0.6 to 0.75 and a pass-through from import prices to consumer prices of around 20 per cent (import volumes being equivalent to 24 per cent of GDP from 1975 to 2004). However, relying on such rules of thumb may lead to errors if circumstances change.

**Table D3** Long-run rates of ERPT to consumer prices

	Entire Sample	First Sample	Second Sample
Australia	0.14 (0.07)	0.09 (0.08)	0.01 (0.04)
Austria	0.11 (0.07)	0.06 (0.10)	0.04 (0.02)
Belgium	0.20 (0.08)	0.21 (0.09)	0.02 (0.02)
Canada	0.37 (0.11)	0.30 (0.14)	0.04 (0.06)
Finland	0.01 (0.14)	-0.11 (0.21)	0.00 (0.03)
France	0.23 (0.12)	0.17 (0.07)	0.01 (0.03)
Germany	0.11 (0.04)	-0.13 (0.11)	0.12 (0.03)
Greece	0.52 (0.11)	0.28 (0.12)	0.27 (0.21)
Ireland	0.29 (0.09)	0.18 (0.11)	0.06 (0.04)
Italy	0.37 (0.12)	0.33 (0.09)	0.08 (0.06)
Japan	0.21 (0.09)	0.26 (0.12)	0.02 (0.02)
Netherlands	0.16 (0.07)	0.08 (0.11)	0.06 (0.03)
New Zealand	0.42 (0.10)	0.29 (0.09)	0.01 (0.05)
Norway	0.28 (0.15)	0.11 (0.17)	-0.05 (0.06)
Portugal	0.43 (0.08)	0.37 (0.08)	0.17 (0.16)
Spain	0.18 (0.09)	0.14 (0.07)	0.03 (0.03)
Sweden	0.02 (0.07)	0.05 (0.05)	0.02 (0.02)
Switzerland	0.15 (0.09)	0.18 (0.14)	0.07 (0.08)
United Kingdom	0.15 (0.05)	0.18 (0.08)	0.08 (0.05)
United States	0.27 (0.12)	0.19 (0.36)	0.03 (0.06)
Average	0.23	0.16	0.05
Inflation targeters	0.22	0.18	0.03
Non-targeters	0.23	0.15	0.06

Standard errors in parenthesis

Source: Gagnon and Ihrig (2004).

Sekine (2006, p.23) sums up the general view by saying, “the timing of a decline in second-stage pass-through in the United States broadly coincides with a change in the Fed’s monetary policy towards interest rate setting that is more reactive to expected inflation (Clarida et al., 2000). Second-stage pass-through shifted down at the time of adoption of a de facto fixed exchange rate regime (United Kingdom) and participation in the ERM (Italy).”

The nature of the exchange rate shock has an important bearing on ERPT. For example, small and transient exchange rate fluctuations will have trivial effects on prices, while a large persistent shock will have a substantial effect. Bonadio et al. (2018) analyse the 11 per cent appreciation of the Swiss franc on January 15, 2018, when the Swiss National Bank abandoned its policy of resisting a currency appreciation against the euro. For imports invoiced in euros, the import price response was complete beginning the day after the appreciation. For imports invoiced in Swiss francs, the adjustment began on the second day and was complete after two weeks.

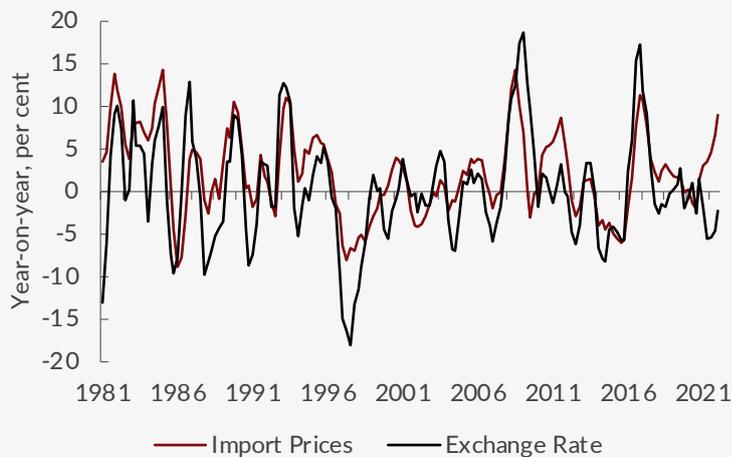
Forbes et al. (2018) examine for the UK how ERPT varies according to what drives the exchange rate change. They argue for a low ERPT if the exchange rate move follows from a domestic demand shock, but a high pass-through if the driving force is a domestic monetary shock. Considering an appreciation, they propose that a positive demand shock leading to an exchange rate appreciation will also see increased firm price mark-ups in response to stronger demand, limiting the effect of the appreciation on domestic prices. In contrast, if the appreciation resulted from tighter domestic monetary policy, that would reduce domestic demand and therefore firm mark-ups. Thus, pass-through (in this case, a negative effect on the CPI) would be greater in the second case than in the first for the same appreciation. They also explore the effects of persistent and transitory global shocks and shifts in the exchange rate driven by risk attitude. Their finding of significantly different effects on UK import prices according to the source of the exchange rate shift explains different ERPTs across different appreciation episodes.

The literature suggests that pass-through varies according to the history of inflation in various economies, the inflation-targeting framework and the credibility of the authorities (eg, Karagoz et al., 2016). Takhtamanova (2008, p.23) suggests four influences on the degree of ERPT, “these are the degree of real exchange rate pass-through to the prices of individual firms (which in turn depends on the elasticities of the demand and cost functions faced by individual firms), the fraction of imports in the CPI basket, the fraction of flexible-price firms in the economy, and the credibility of the monetary authority.” On this set of explanations, low inflation reduces the share of flex-price firms, while increased central bank credibility also reduces ERPT. As Gagnon and Ihrig (2004) argue, economic agents expect monetary tightening to be the response to an exchange rate depreciation by an inflation-targeting central bank.

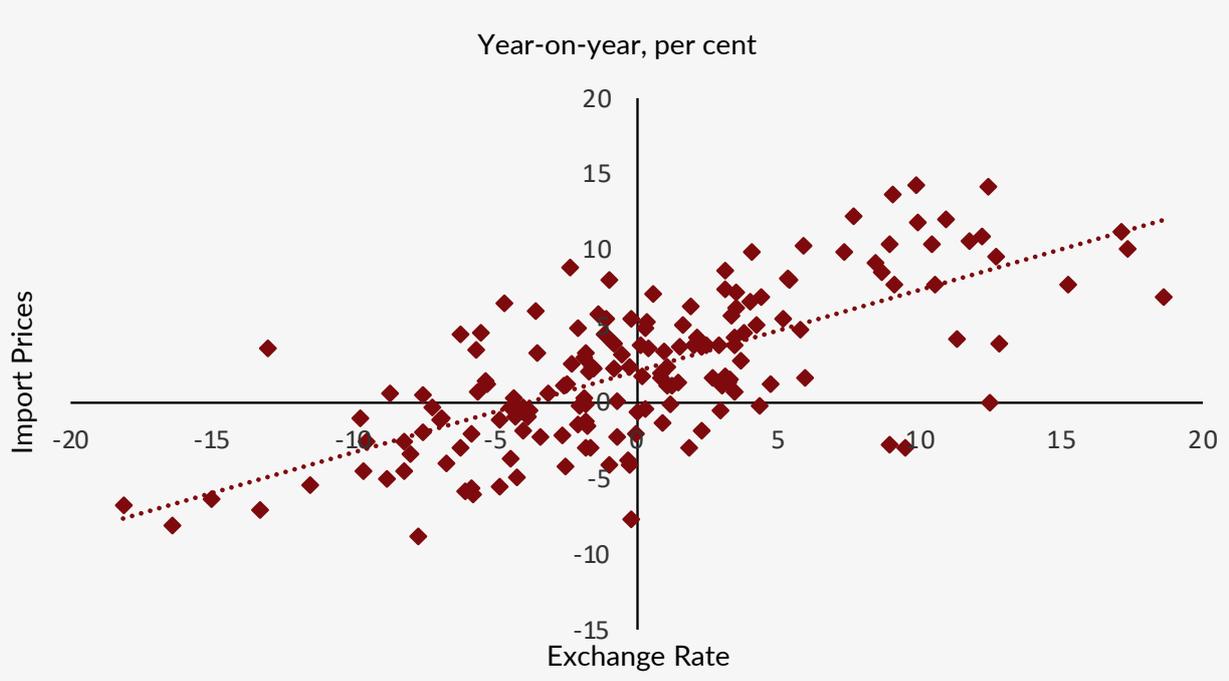
The degree of competition in different industries affects their pass-through (Auer and Schoenle, 2016; Feenstra et al., 1996). Importers face different degrees of competition from domestic suppliers across the cycle, helping to explain low pass-through in the UK following sterling’s exit from the ERM in 1992.

### **Pass-through in the United Kingdom**

Figure D3 shows a strong relationship between annual import price inflation and the annual change in the effective exchange rate (with a depreciation being plotted as a positive number – that is, a rise in the price of foreign currency in terms of sterling). However, as a scatter plot of the same data in Figure D4 shows, pass-through varies.

**Figure D3** Import price growth and sterling exchange rate changes

Source: ONS, Bank of England.

**Figure D4** Import price growth and sterling exchange rate changes

Source: Bank of England, ONS.

Forbes et al. (2018) show different UK ERPT responses for different forms of domestic and global shocks. The pass-through is large when the impetus for an exchange rate shift is domestic monetary policy – 85 per cent after six quarters. Pass-through is smallest when the exchange rate change is the result of a domestic demand shock – only around 40 per cent after five quarters.

Another striking feature is a large pass-through to domestic import prices from global shocks. This is important when global shocks are a significant cause of exchange rate movements, as was the case in 2007-2009 and 2013-2015, and is currently the case because of the strong US dollar. A given amount of weakness in a

country's effective exchange rate has a larger impact on pass-through if the weakness is against the dollar rather than against all currencies equally, reflecting widespread dollar invoicing. When the dollar appreciates or depreciates, dollar prices do not change equally in the opposite direction, meaning that prices change when expressed in a basket of all global currencies. Countries with higher shares of dollar invoicing in imports experience higher ERPT (Boz et al., 2017).

Forbes et al. (2018) decompose movements in the UK exchange rate according to the shocks that caused them and use this decomposition to calculate how pass-through to import prices varied by episode for large exchange-rate movements (Table D4).

**Table D4** UK pass-through coefficients to import prices by episode

Shocks	1996-7 appreciation	2007-9 depreciation	2013-2015q1 appreciation	Full sample FEVD(b)
Supply	10%	21%	14%	10%
Demand	33%	20%	22%	25%
Monetary policy	19%	11%	17%	17%
Exchange rate	24%	13%	0%	21%
Persistent global shock	6%	18%	25%	14%
Transitory global shock	8%	17%	23%	13%
Unadjusted pass-through to import prices (not controlling for foreign export prices)	-0.67	-0.86	-0.99	-0.79

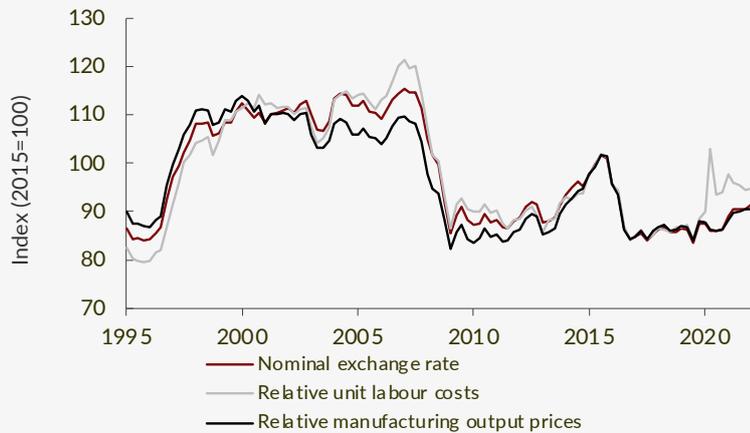
Source: Forbes et al. (2018).

Forbes et al. (2018) also look at the pass-through of exchange rate shocks to consumer prices, where the effect is much smaller, reflecting the share of imports in GDP, and the lags are longer -- four quarters for the full effect to be felt with import prices but eight quarters with consumer prices. They estimate that pass-through to consumer prices varied widely according to different episodes, from 8 per cent in the 1996/97 appreciation to 18 per cent in the 2013-2015 appreciation.

The Bank of England's credibility has diminished because it dragged its feet on rate hikes and inflation is so high. Also, the proportion of prices changing month by month has increased significantly, to 28 per cent in September 2022 (Bejarano Carbo and Patel, 2022). These factors strongly suggest that ERPT in the UK has risen. To offset this, the Bank should show that it has limited tolerance for deviations from its inflation target and make it clear that it will respond to a softer exchange rate, because this increases inflation.

### Implications for UK competitiveness of a higher ERPT

Figure D5 shows that since 1995, UK competitiveness changed significantly when there have been large moves in the exchange rate, as in 2008, from 2014 to 2016, and after the Brexit referendum vote in 2016. The main change unrelated to exchange rate moves was the rise in relative UK manufacturing unit labour costs during the pandemic. Changes in competitiveness since 1995 brought about by exchange rate movements were persistent and were not unwound by offsetting moves in domestic costs and prices. However, in these earlier periods, the economy had considerable slack, so exchange rate changes resulted mostly in shifts in relative prices. With limited slack at present, the effect of a weak exchange rate may be felt more on the aggregate price level with a more limited effect on relative prices and therefore a reduced benefit to competitiveness.

**Figure D5 Sterling and competitiveness**

Source: FRED.

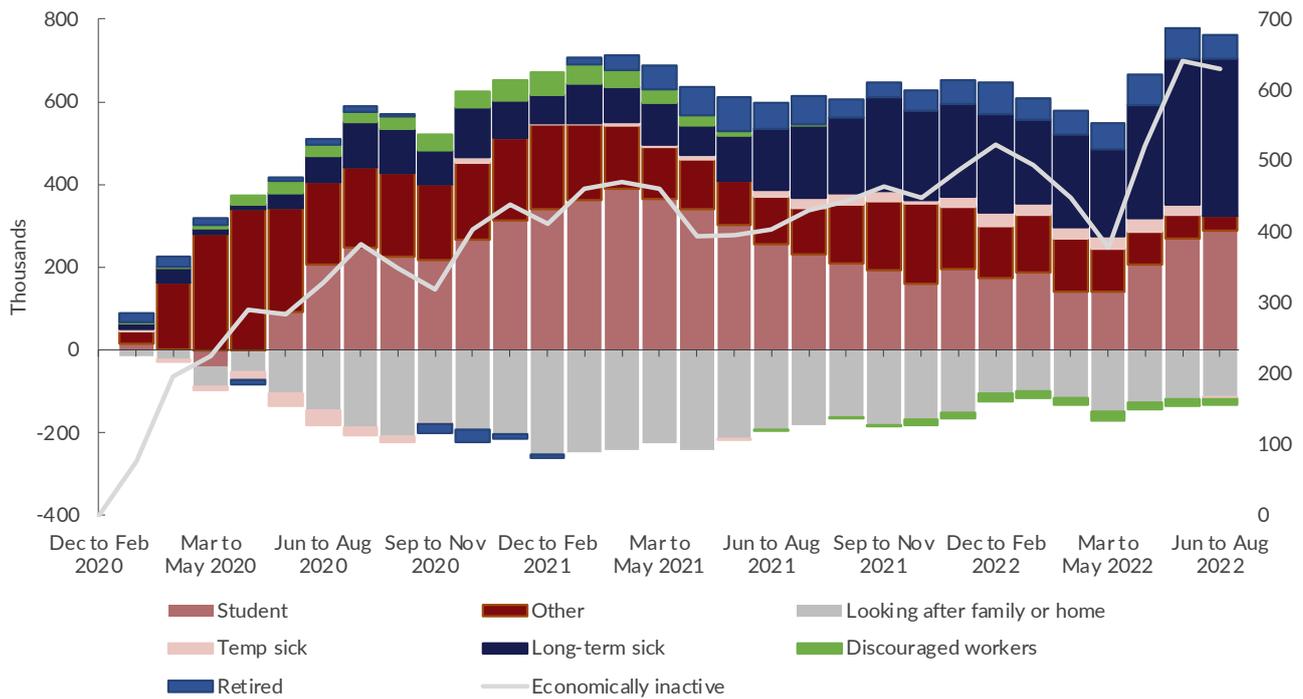
## Conclusions

- The extent of ERPT to import prices varies from country to country, across episodes, and according to what prompts the exchange rate move.
- ERPT to consumer prices moves in the same direction as for import prices, but is smaller and takes longer than for import prices. Again, it varies according to time and place.
- Rules of thumb suggest that on average UK import prices move by 60 per cent to 80 per cent of the exchange shift and that consumer prices move by 20 per cent of the change in import prices. But this varies across episodes. It is probably higher now than in earlier years.
- Exchange rate depreciation brought through by slack domestic monetary policy will have a large ERPT, as will shifts caused by global factors, as at present.
- UK policymakers should set policy on the assumption that ERPT in the UK is higher than in previous years because recent movements in sterling reflect a global shock, the frequency of price changes has increased, there is little slack in the economy and the credibility of monetary policy has decreased. This argues for more substantial Bank of England rate hikes than otherwise.

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**Figure 1.26** Change in economic inactivity by category since December 2019 – February 2020

Source: ONS.

**Elevated economic inactivity**

The low unemployment rate belies an unhealthy labour market. The increase in the economic inactivity rate from the previous quarter was largely driven by people in the 'long-term sick' and 'students' categories, with the number of long-term sick hitting a record high of almost 2.5 million. Rising long-term illnesses that are preventing workers from entering the labour force can be attributed to many reasons including, for example, delays in treatments, inaccessibility of medical help, long Covid, or NHS worker shortages, all of which will continue to intensify the pressure on the NHS. This accelerating long-term sickness rate will pose serious challenges to the government's economic growth plan – it would be difficult to achieve without an increase in the UK working population. Given the re-appointment of Suella Braverman as Home Secretary (despite her resignation six days prior for breaching the Ministerial Code), it is unlikely that this needed increase in the participation rate will come from an influx of migration. The government may wish to consider how its stances on economic growth and immigration collide.

**Vacancies fell but the labour market remains tight**

Between the second and third quarters of 2022, the number of job vacancies decreased by 46,000 to 1,246,000, the lowest number of vacancies since the fourth quarter of 2021. However, labour market tightness – as measured by the ratio of vacancies to unemployed workers – rose to a record high. October's job market report by KPMG and REC indicated that private sector temporary work recorded the steepest increase in demand whilst permanent roles saw the most gradual expansion. It is also notable that demand growth across all categories in the public sector was mild except for that of temporary workers. Further, recruitment activity fell to a 19-month low in September due to a weak economic climate and candidate shortages. Despite this demand-side slowdown, recruitment difficulties still appear elevated – labour supply continued to fall sharply overall, skill shortages and Brexit also weighed on workers availability.

**Tight labour market feeds through into strong nominal wage growth ...**

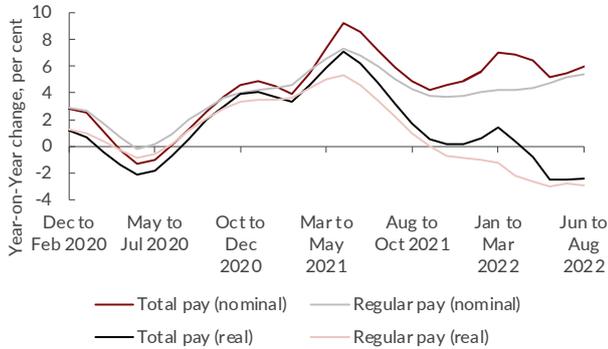
The tight labour market is reflected in the rapid growth in nominal pay – total pay (including bonuses) grew by 6.0 per cent and regular pay (excluding bonuses) by 5.4 per cent, the highest growth outside the pandemic (Figure 1.27). This trend in increasing nominal wage growth undoubtedly fuels inflationary concerns.

**... while real pay growth continues to be outstripped by inflation**

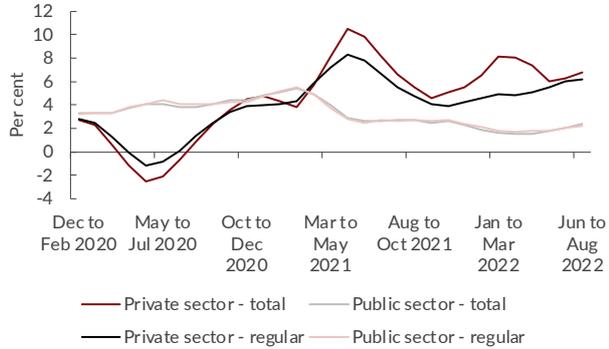
Despite the tight labour market keeping nominal pay growth high, high inflation continues to push real pay growth into negative territory. In the three months to August 2022, real total pay fell by 2.4 per cent and declined by 2.9 per

cent for real regular pay (Figure 1.27). While this is slightly lower than the record fall of 3.0 per cent for real regular pay we saw in the three months to June 2022, it remains amongst the largest declines on record.

**Figure 1.27** Average Weekly Earnings Total Pay and Real Pay



**Figure 1.28** Average weekly earnings by sector, seasonally adjusted

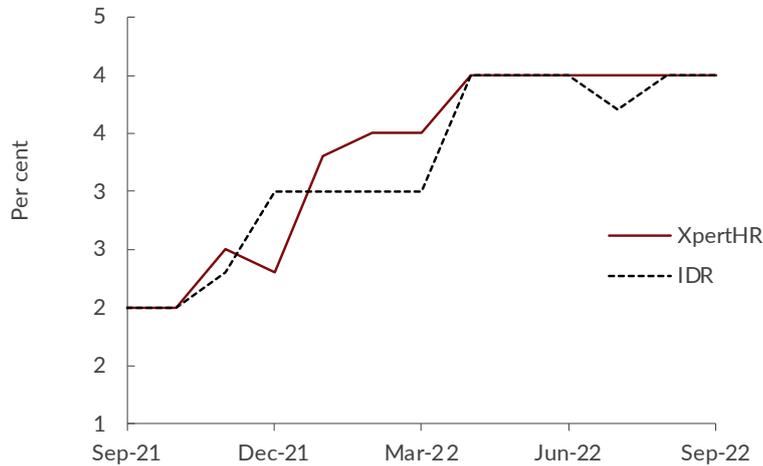


Source: ONS.

**Pay dichotomy in private and public sector**

Growth in public sector earnings is anaemic at just 2.2 per cent while private sector earnings grew by 6.2 per cent (Figure 1.28). This is the highest growth observed for the private sector outside of the pandemic period and the largest difference between the private and public sectors. The industrial disputes we have seen spilling over from the summer are largely attributable to these huge and growing differences in pay, which will continue to drive staff shortages and high vacancies across the public sector. Income Data Research found that the median pay award for the UK was 4.0 per cent in the three months to September 2022. Pay awards at the upper quartile grew at an annual rate of 5.5 per cent, compared to 3.0 per cent at the lower quartile. The median pay award for the private sector was 4.0 per cent as reported by IDR and XpertHR (Figure 1.29).

**Figure 1.29** Median pay settlements (three-month average)



Source: XpertHR, IDR.

**Productivity growth remains on a stagnated path**

UK productivity, measured by GDP per hour, grew by 0.3 per cent in the second quarter of 2022 compared to the previous quarter. This left the level of productivity 1.5 per cent above its pre-pandemic level (ie, its level in the first quarter of 2022) and roughly in line with its pre-pandemic trend. Presently, productivity growth remains essentially pro-cyclical and any recovery effects gained from the pandemic would have passed through the system. In the short-term, benefits from the increased digital transformation brought about in response to the pandemic (eg,

greater home delivery and greater use of virtual meetings) will continue to come through albeit as a slow process with macroeconomic volatility increasing alongside weak economic growth.

### Energy support for businesses provides transient relief with no certainty.

The energy support announced in the mini budget puts a cap on wholesale energy prices for six months to support businesses with their energy bills, but this will only provide temporary relief. As argued in NIESR's Independent Assessment of the Mini Budget, the uncertainty around energy prices after these six months still looms over businesses, although the scheme will be reviewed after three months with an option to extend the support for 'vulnerable businesses'. According to the ONS Business Insights and Conditions Survey, in early October around 23 per cent of businesses cited energy prices as their main concern, as opposed to only 15 per cent of businesses in late February.

### UK inflation high and rising...

Twelve-month CPI inflation rose to 10.1 per cent in September from 9.9 per cent in August, markedly above the Bank of England's inflation target of 2 per cent for the fourteenth consecutive month (Figure 1.30). Price increases in the food and non-alcoholic beverages, and restaurants and hotels sectors drove the rising headline figure in September, outweighing the effects of a reduction in fuel costs. Moreover, our measure of underlying inflation - which excludes 5 per cent of the highest and lowest price changes - increased to a new record high of 8.3 per cent in September from 7.8 per cent in August. It is safe to say that inflationary pressures are proving to be more intense, persistent, and widespread than previously thought.

**Figure 1.30** Consumer price index inflation (annual per cent)



Source: ONS.

### ...and we expect inflation to remain high throughout 2023

Despite the government's EPG - which was initially meant to fix the price of electricity and gas for two years, since reviewed to six months - the Ofgem price cap is still set to rise by 27 per cent in October. This will undoubtedly contribute to further increases in inflation at the end of this year, alongside likely price increases in other major sectors including food and services. Though Chancellor Jeremy Hunt's decision to overturn many of the measures in the 'mini-budget' will curb the medium-term inflationary consequences of the previous Chancellor's fiscal plan, it simultaneously generates uncertainty regarding the short-term path of inflation from the second quarter of 2023. Our early estimates suggest that inflation will peak around 11 to 12 per cent in the first quarter of 2023, though this is dependent on domestic and international political developments, namely the reviewing of the EPG from April 2023 onwards and the Russo-Ukrainian war.

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## 2 Outlook for UK Households, the Devolved Nations and the English Regions

By Arnab Bhattacharjee, Max Mosley, Adrian Pabst, and Tibor Szendrei

- **We project that nearly 1 in 5 households will have little or no savings by April 2024:** faced with the triple shock of soaring energy, food and mortgage rates/rental costs, nearly six million households will see their savings fall to negligible levels despite the Energy Price Guarantee (EPG) and other support measures.
- **Our policy proposal for a variable price cap** (where the price per unit of energy used rises with usage) **provides targeted assistance to vulnerable households:** whereas the EPG represents a general price subsidy that is expensive, subsidises top earners and does not incentivise energy saving, a variable price cap is fiscally more efficient, socially more just and ecologically more responsible.
- **Mortgage repayments on a variable rate will increase by at least 50 per cent on average when interest rates hit their projected peak of 4.75 per cent:** together with projected rent increases, this may push an additional 250,000 households into extreme poverty. We propose a £2bn Housing Support Fund administered at local authority level to help with fast-rising housing costs.
- **More than 2.5 million people will turn to food banks over the winter months:** spiralling food prices hit the poorest hardest; government needs to raise benefits in line with inflation to prevent a further increase in destitution, which already affects about 1.2 million people; government should also introduce a Universal Credit uplift of £25 per week for twelve months at a total cost of £2.7bn.
- **Anticipated cuts to capital investment will worsen the prospects for levelling up:** government should use the Autumn Statement on 17 November to maintain capital spending outside London and the South East and work with business to unlock private investment (Chadha, 2022).
- **Devolving decision-making and spending powers is key to a sustained regional regeneration strategy,** particularly in policy areas such as skills, housing and R&D; the three devolved nations and the English regions require stability and greater resource and power to address some of the root causes of regional inequalities (Pabst, 2021; McCann, 2022).
- **In summary, our policy proposals include:**

Variable price cap, combined with targeted assistance on energy bills

A £2bn Housing Support Fund

A Universal Credit uplift of £25 per week for twelve months

Maintaining capital expenditure

Devolving funds for regional regeneration

## The distributional consequences of political turmoil and economic shocks

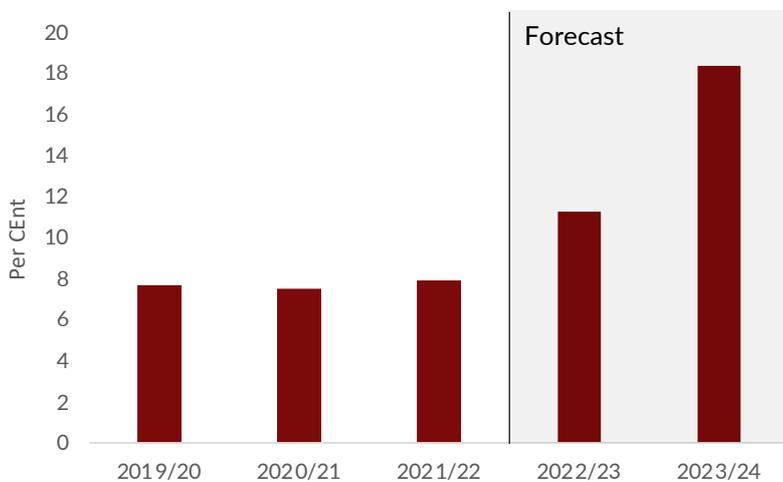
The storm that has engulfed the UK is hitting the most vulnerable households and the deprived parts of the country hardest. Fast-rising mortgage rates – resulting first from the financial turmoil in the wake of the ‘fiscal event’ on 23 September and now from higher interest rates in response to inflation – add to the energy and food price hikes that have plunged households into the worst cost-of-living crisis in a generation. We find that 1.2 million households need to spend more on food and energy bills than they have currently in disposable income.

The fall-out from the failed budget has radically reduced the fiscal room for manoeuvre which the government could and should have used to support those households that need it most – the five million in receipt of Universal Credit and the 11 million households that lack sufficient incomes and savings to cope with the triple shock of soaring energy, food and housing costs (Bhattacharjee et al., 2022a,b,c). The risk now is that government will overtighten, thereby lowering growth and worsening the overall fiscal position.

Government policy has cushioned the impact of higher energy prices, but support takes the form of a general subsidy rather than more targeted assistance – including £400 for all households and the Energy Price Guarantee (EPG) that subsidises the unit price with a cap of energy bills for typical households at about £2,500 (HMT, 2022b). Lower-income households also get a cash payment of £650 (HMT, 2022a) but they still face energy bills that are almost 40 per cent higher year on year, which will force them to go into arrears or draw down out their savings.

We project that, despite the various support measures, nearly 1 in 5 households will be without savings by April 2024 (Figure 2.1).<sup>1</sup> Moreover, 1 in 4 households will be without sufficient savings (total savings worth less than two months’ income), leaving them exposed to further price shocks (Figure 2.2). If households change their behaviour by reducing their expenditure and by building up some savings, this will hold back aggregate consumption in the recovery.

**Figure 2.1** Percentage of households with no savings

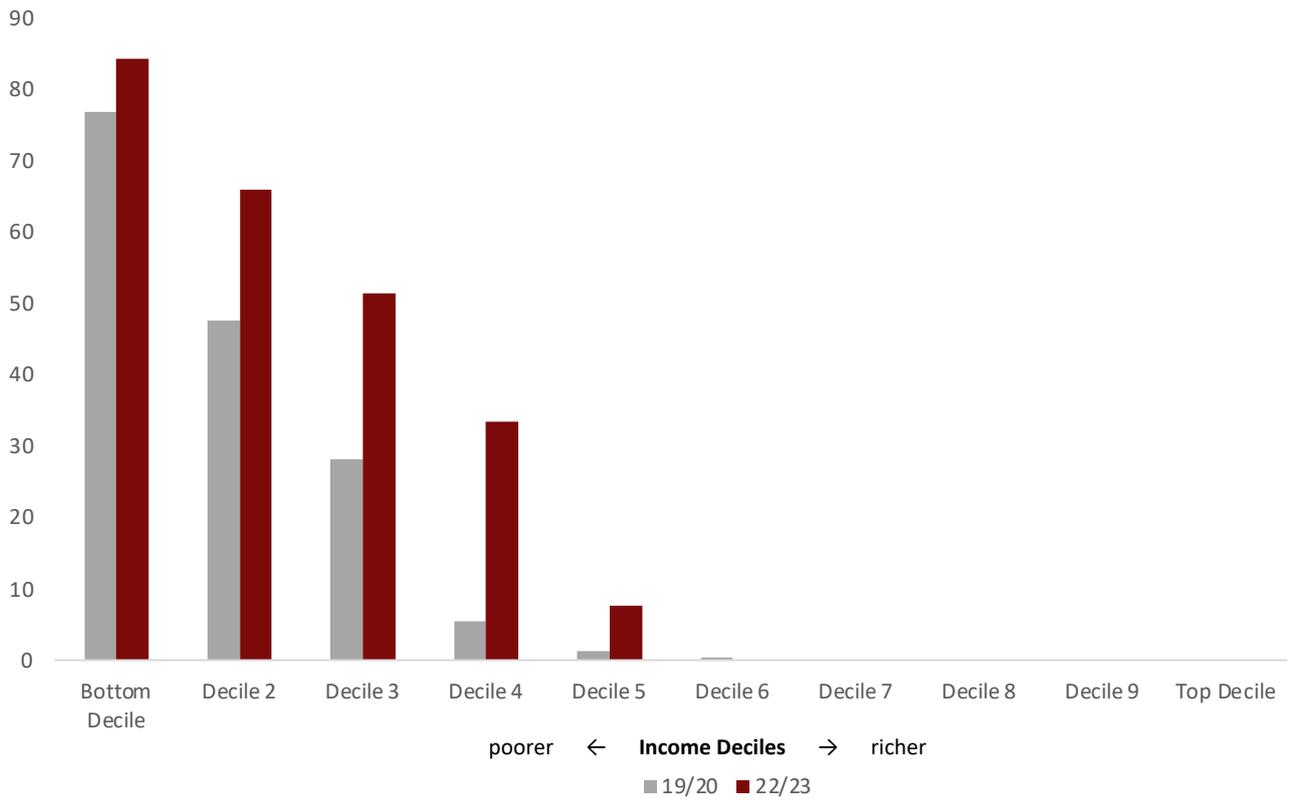


Source: NIESR Analysis of the ONS Wealth and Assets Survey (2022), NiGEM, LINDA.

There is a strong regional dimension to this problem, with a disproportionately high number of households with no or insufficient savings concentrated in some of the most disadvantaged areas in the country, especially the North East but also parts of Yorkshire and the Midlands (Figure 2.3).

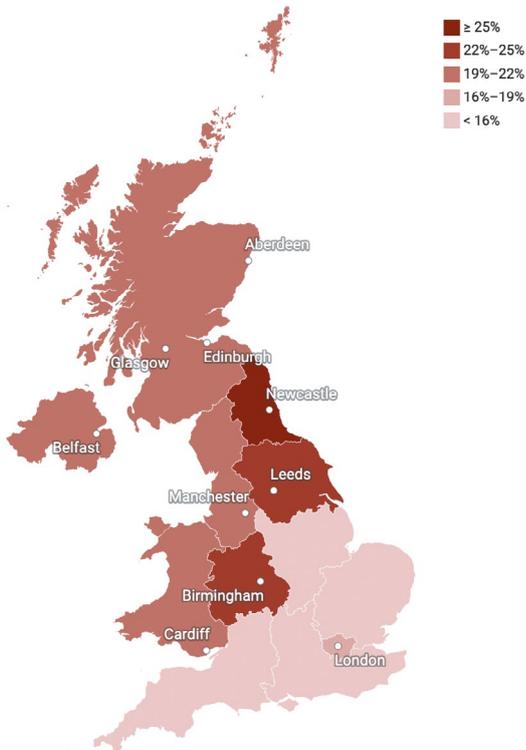
<sup>1</sup> Since the last publication (Mosley, 2022), a number of methodological enhancements have been made, including allowing for market earnings and benefit income to develop at differential rates, changes to how we predict energy consumption and the inclusion of new policy measures. Therefore, inferences between this set of figures and the previous iteration should not be attributed wholly to the effect of policy interventions.

**Figure 2.2** Proportion of Households with insufficient savings



Source: NIESR Analysis of the ONS Wealth and Assets Survey (2022), NiGEM, LINDA.

**Figure 2.3** Proportion of households with no savings by April 2024, by region



Source: NIESR Analysis of the ONS Wealth and Assets Survey (2022), NiGEM, LINDA.

The decision by the Bank of England’s Monetary Policy Committee on 3 November to raise the base rate to 3 per cent will raise the monthly repayments of those on a variable rate mortgage. We forecast the number of households that will be affected by rising interest rates, specifically what will happen once the bank rate hits its predicted peak of around 4.75 per cent (see Chapter 1).

- **Variable rate mortgage repayments will increase by at least 50 per cent on average**, potentially affecting almost three million households either on a variable rate mortgage, or with mortgages up for re-mortgaging within one year;
- **On average, the monthly repayment on a typical variable rate will go up by about £400**, but for a significant number of households it will rise from around £500 to over £1,000;

Many households on variable rate mortgages live in parts of the country where neither growth nor wages will rise fast enough to compensate for the increase in monthly mortgage repayments, including Wales, the West and the South (Box E).

Interest rate increases to regain price stability have further implications beyond variable rate mortgages. Private rents are also rising and expected to be higher by 20 per cent in many places by 2024. While the poorest in society can be somewhat shielded from rent hikes through social housing, higher mortgages and rents will fall disproportionately upon households in the middle 50 per cent of the population. The combined effect is housing costs rising to between 25 per cent and 35 per cent of disposable income for the entire bottom half of the distribution. This will lead to tremendous stress upon household finances.

Moreover, the food price shock is disproportionately hurting about 5 million people whose disposable income is less than their bills, requiring either less consumption or more debt. Half of them are already missing meals and more than half of them use food banks (Richardson, 2022). As savings are also depleted by the cost of living and borrowing costs rise sharply with higher interest rates, this has a significant impact upon household finances particularly for the bottom 11 million households. It is urgent that the government considers measures to shield households from rising housing and borrowing costs. We find that in the absence of further targeted assistance, about 250,000 more people will need to rely on food banks over the winter months and about 1.5 million will have to choose between heating and eating. Together, as spending power declines, we project sharp declines of consumption for the bottom half of the distribution.

## Overall outlook for the devolved nations and English regions

Household finances and business conditions have remained weak as a result of high inflation and economic uncertainty (see, for example, Bhattacharjee et al., 2022c; NatWest, 2022). This is compounded by political and policy turmoil in Westminster and Whitehall, which have exacerbated market volatility and raised both mortgage rates and government borrowing costs. This recent economic turmoil following the ‘mini-budget’ on 23 September is cited by the Westminster government as the main reason to raise taxes and cut public spending in the forthcoming Autumn Statement on 17 November. But vital public services are already under significant strain (IFS, 2022, ch. 3 and 4) and cuts to local government budgets will worsen poverty and destitution. Reducing capital investment will deepen the divide between the affluent areas of London, the South East and other wealthy pockets, on the one hand, and the rest of the country, on the other hand – including the poorest parts of three devolved nations and the English regions.

Our overall outlook for the devolved nations is dominated by two central themes – (a) rising poverty and inequality; and (b) devolution. The first is driven by the adverse impacts of successive shocks – the pandemic, Brexit and the war/cost of living. Devolution is a recurrent theme, underlined by experiments with Universal Basic Income in Wales (Lucas, 2021), a move towards potential independence in Scotland (Roy and McIntyre, 2022), and struggles with getting the devolved government to function in Northern Ireland (Box F).

For economic output, employment and inactivity, we find that

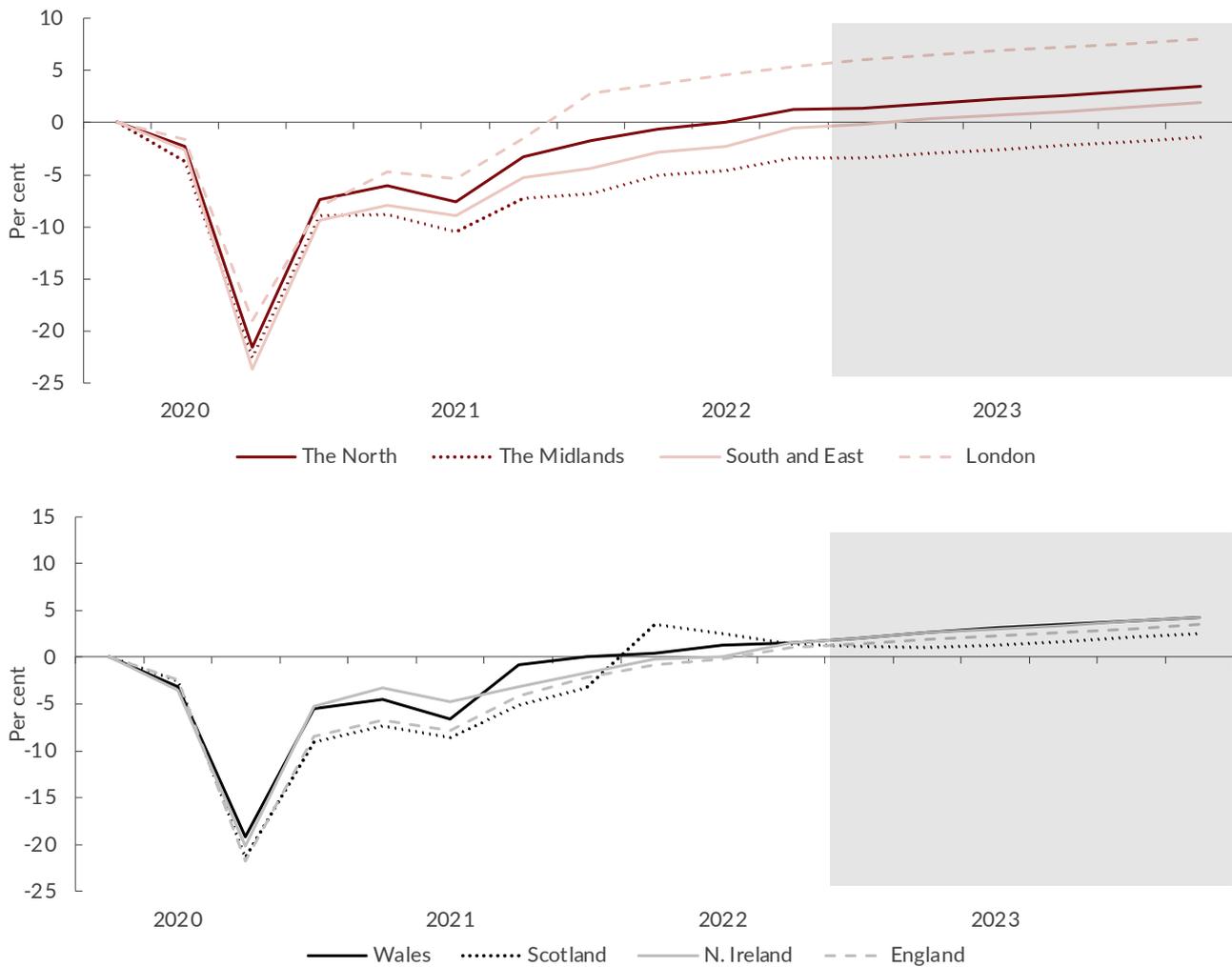
- all three devolved nations have attained pre-Covid levels of economic output as measured by Gross Value Added (GVA); of the English regions, only the Midlands is below pre-Covid GVA, where Brexit is adversely affecting the manufacturing and trading sectors that rely on exports to the European Union (Vaitilingam, 2022).
- the latest Labour Force Survey (LFS) paints a different picture (ONS, 2022a). Scotland’s COP-26 employment boom turned more permanent and Scottish employment numbers have improved. Wales, on the other hand, sees lower than expected employment figures which pushes it below pre-Covid levels – partly due to Brexit and other disruptions to trade.
- all the English regions are expected to return to pre-Covid levels by the end of 2022, except the North which is projected to reach pre-Covid levels of employment only at the end of 2023.
- while inactivity rates have increased across the country (except in London), we project this to change in 2023: all regions are projected to have a drop in inactivity rates (except London, which has higher participation rates and is expected to stay at 2022 levels).

### Gross Value Added (GVA)

As reflected in new ONS data (ONS, 2022b), lower than expected growth in August and high inflation have reduced economic growth, leading us to revise some of our growth projections downwards. Compared with forecasts in the previous Outlook published in August 2022 (Bhattacharjee et al., 2022c), the recovery from the coronavirus shock has taken longer outside London, especially in the Midlands where the adverse impact of Brexit is compounding lower economic growth (Figure 2.4). While London and parts of the South East are powering ahead, the rest of England is trailing. We anticipate that the economic slowdown that results from the terms of trade shock will be sharper but shorter in London and the South East and more shallow but longer elsewhere in the country.

All the devolved nations and England have now returned to pre-pandemic levels (except for the Midlands), but with trend growth being low we forecast greater divergence between the prosperous parts of the UK and the poorest parts. Since previous levels of prosperity are the dominant marker of current and future prosperity (McCann and Yuan, 2022), the UK’s core-periphery pattern is likely to persist in the absence of targeted policy interventions. This underscores the urgency of a levelling up policy that is designed and delivered at regional and local levels, with central government coordinating policy and devolving both decision-making powers and resources (Pabst, 2021; McCann, 2022; Overman and Xu, 2021).

**Figure 2.4** Regional GVA relative to the fourth quarter of 2019

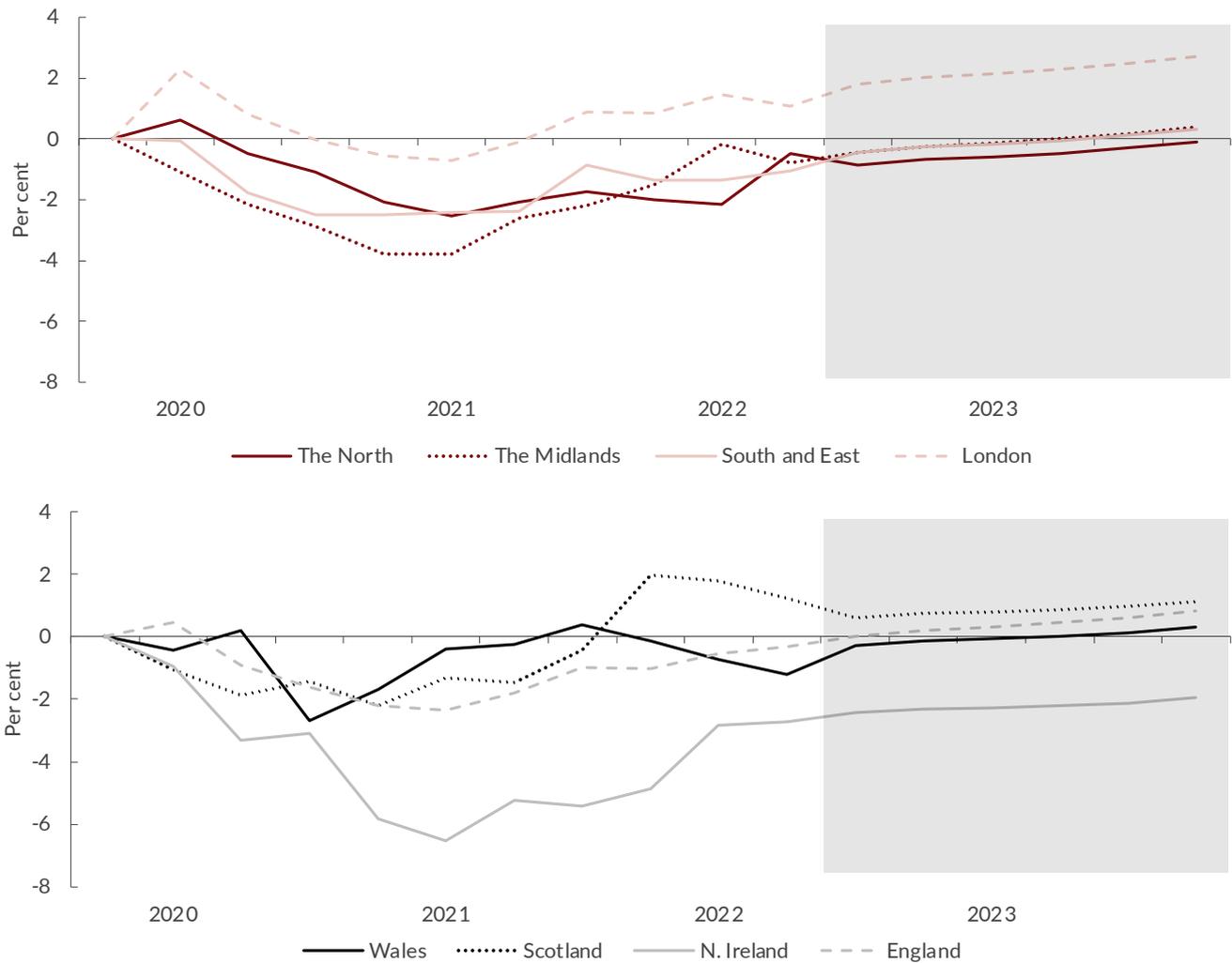


Source: NiReMS.

## Employment

Across the English regions and devolved nations, there is some recovery in employment levels, though at an uneven pace. We now project a slower recovery to pre-pandemic levels, especially in the North where this process will take until early 2024. By contrast, we forecast that the South and parts of the Midlands will surpass pre-Covid levels by mid-2023 (Figure 2.5).

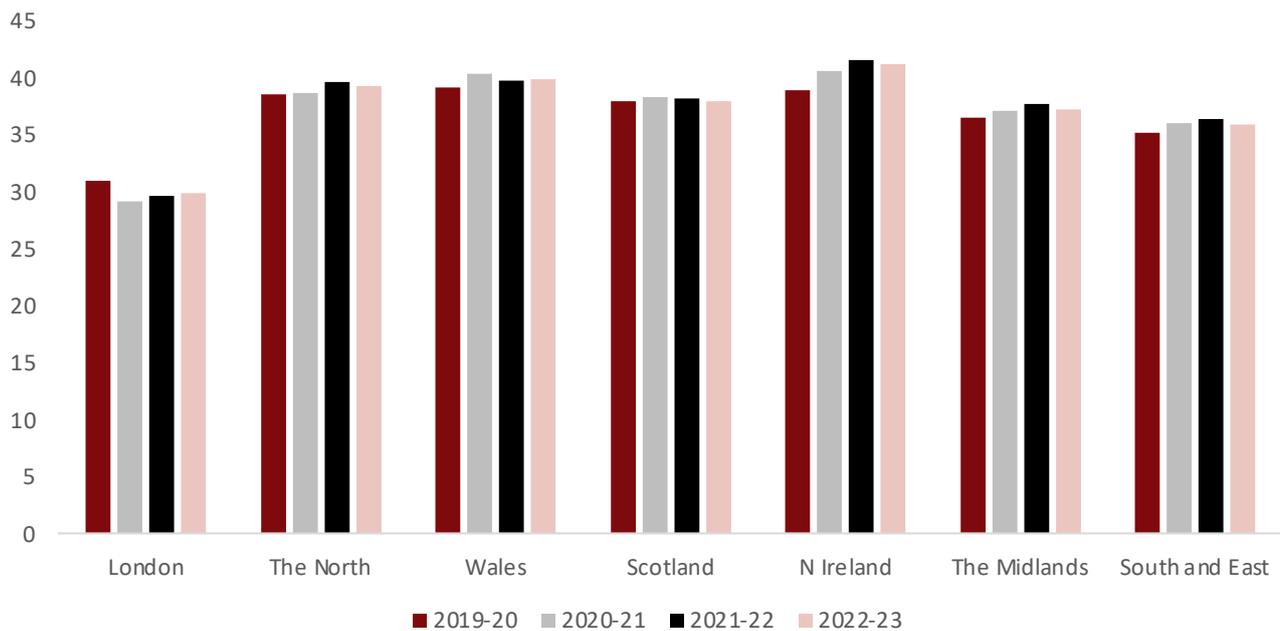
London and the affluent areas of the South East are the only regions in England to have exceeded pre-Covid employment numbers. This not only reflects our latest GVA projections but also reinforces the persistence in the pattern of regional divergence between the prosperous core regions and the poor peripheral parts of the UK. This also highlights why regions outside the south may struggle to recover from any slowdown at the aggregate UK level.

**Figure 2.5** Employment levels relative to the fourth quarter of 2019

Source: NiReMS.

## Inactivity

We project inactivity rates to fall slightly in 2022-23 compared with 2021-22, except in Scotland where inactivity will remain unchanged and London where we forecast a small rise (Figure 2.6). This is particularly given that the recovery of the labour market to pre-pandemic levels has been held back by declining participation (Meyrick, 2022). This sluggish inactivity is critical against the context of rising poverty and inequality. Research by NIESR has highlighted that workers in Scotland aged over 50 face significant barriers in the workplace, especially older women (Stockland et al., 2022).

**Figure 2.6** Regional inactivity rates

Source: NiReMS.

## Scotland Economic Outlook

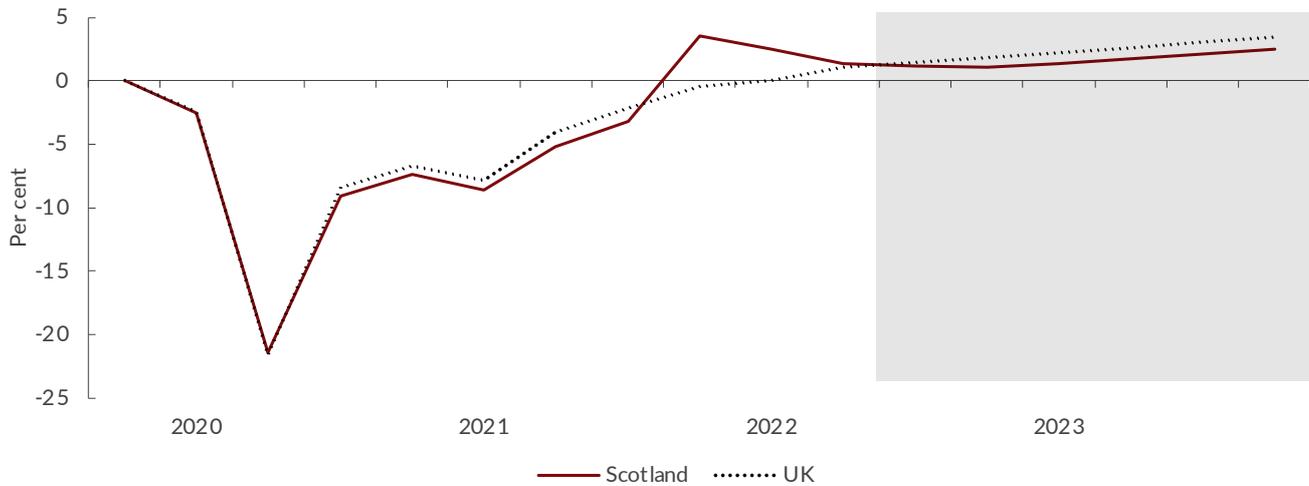
- Scottish output returned to pre-Covid levels in late 2021 thanks to the COP-26 boost. However, the uptick in output was temporary and Scottish GVA growth remains slightly weaker than that of the UK in aggregate.
- Employment levels in Scotland show relatively stronger performance. The Scottish economy was able to retain its COP-26 uptick in employment much better than in output.
- Latest Labour Force Survey (LFS) figures show that Scotland's inactivity rate has decreased this year; we project it to decrease further next year.
- The above developments are important in the context of the push by the Scottish Government towards a potential independence referendum in 2023. This move is leading to the publication of a number of reports on the economics of independence.

It is exactly a year since Glasgow hosted the COP-26 Summit and now COP-27 is underway. Beyond any potential gains from COP-26 towards a just transition to Net Zero (Fraser, 2021), it is fair to recognise that the event itself offered a boost to local business and economic activity in Scotland (Bhattacharjee et al., 2022a). This boost has been temporary, not least because the Scottish population also faces a more severe impact of the energy crisis, being located in the colder and more remote parts of the UK.

As a result, Scotland is likely facing a slowdown (Figure 2.7, cf. Spowage et al., 2022). Despite this, the labour market has remained relatively robust, in terms of both employment and inactivity rates. These economic developments are important given the move of the Scottish Government towards a potential independence referendum in late 2023. This has been generating substantial public debate, supported by a series of publications from the Economics Observatory and the Scottish Government on various policy options for a potential independent Scotland (Roy and McIntyre, 2022; Kilfoyle, 2022).

## GVA

Figure 2.7 GVA in Scotland relative to the fourth quarter of 2019

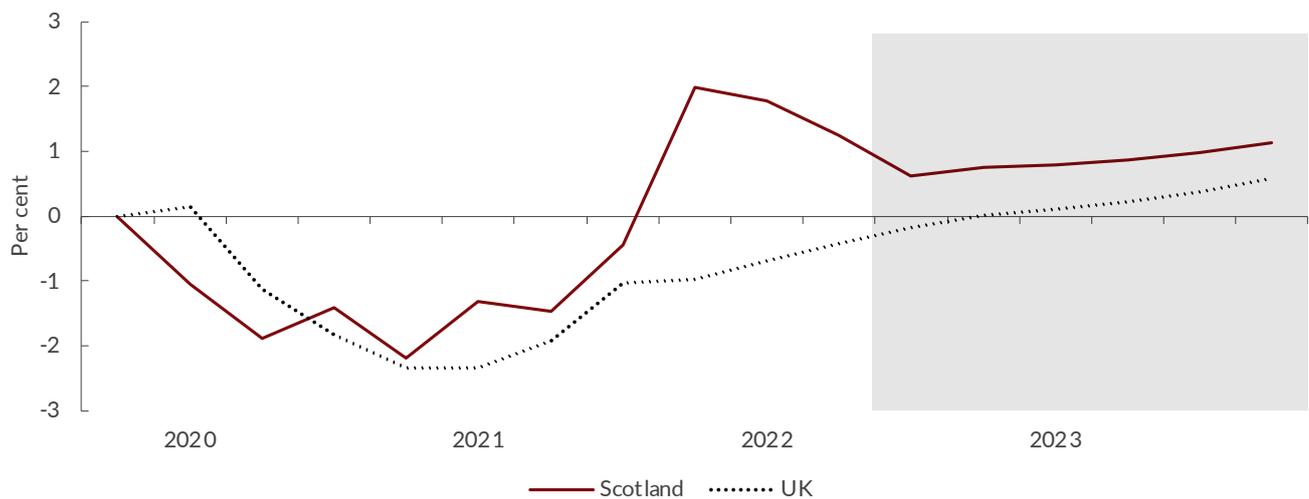


Source: NiReMS.

*Employment and inactivity*

Scottish employment growth is currently the strongest of all the devolved nations (Figure 2.8). Employment benefitted from COP-26, which has meant that Scotland has attained a higher level of employment than prior to the Covid-19 shock. Nevertheless, employment growth fell with the conclusion of COP-26 while still remaining above its pre-pandemic rate. Scottish employment figures were adjusted downwards by the LFS revisions, but we project that Scotland will continue to be among the strongest performers for employment growth and stay ahead of Wales, Northern Ireland and most English regions.

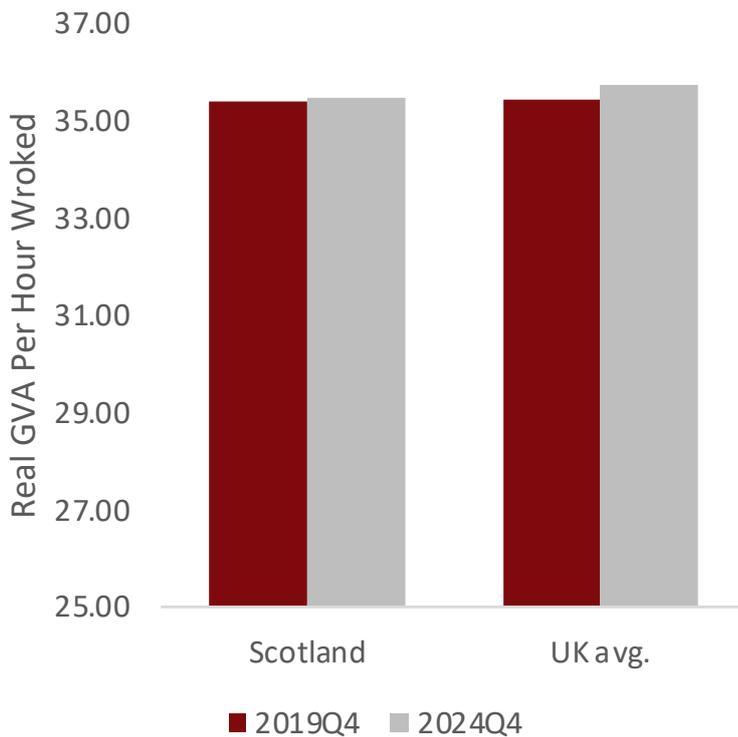
Figure 2.8 Employment growth in Scotland relative to the fourth quarter of 2019



Source: NiReMS.

## Productivity

Figure 2.9 Productivity in Scotland



Source: NiReMS.

## Wales Economic Outlook

- Welsh output has attained its pre-Covid level and is expected to grow at the national rate.
- Employment growth in Wales is revised downwards with the latest Labour Force Survey data. Nonetheless we project Welsh employment to reach pre-Covid levels in early 2023.
- Labour force participation is projected to increase which is why we project strong employment growth in early 2023.
- Output and employment outlooks imply Welsh productivity as remaining relatively robust.

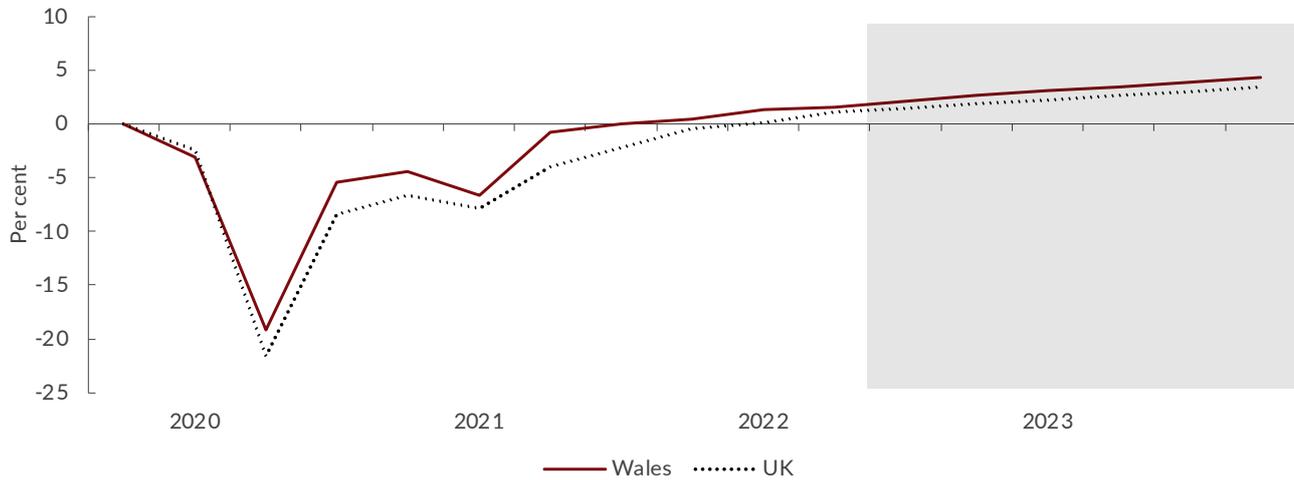
Underlying structural weaknesses as well as a severe hit to manufacturing following Brexit continue to restrict Wales' recovery from the pandemic shock. This includes very high and rising poverty (Auditor General of Wales, 2022), low productivity and labour market participation (Henley, 2021) as well as a lack of trust and engagement – particularly in former mining towns (Jones, 2022). More than a third of children in Wales are now classed as living in poverty, more than anywhere else in the UK. While the latest census figures report deprivation as having fallen over a decade, 54 per cent of households were still deprived according to one of four indicators: jobs, education, health or housing (Duffy and Browne, 2022) – one of the highest levels in the UK.

It is not surprising, then, that the Welsh population is suffering severely from the current cost of living crisis. On the other hand, there are some positives. Following the launch of an apprenticeship scheme during the pandemic, new high technology jobs are being created, for example through the Welsh Government's engagement with Airbus and Siemens. The Welsh Government also plans to pilot a Universal Basic Income (UBI) scheme to alleviate poverty in the country (Lucas, 2021). Against this backdrop, our outlook for Wales remains relatively robust in the medium run.

## GVA

Welsh economic output as measured by GVA continues to recover at a similar trajectory to the UK average (Figure 2.10). Yet structural weaknesses remain which can hinder Wales' future economic growth. Brexit continues to be a key challenge for Wales due to a large concentration of agricultural and manufacturing firms that have been hit by the negative consequences of the UK's changing trade relations with the EU.

**Figure 2.10** GVA in Wales relative to the fourth quarter of 2019

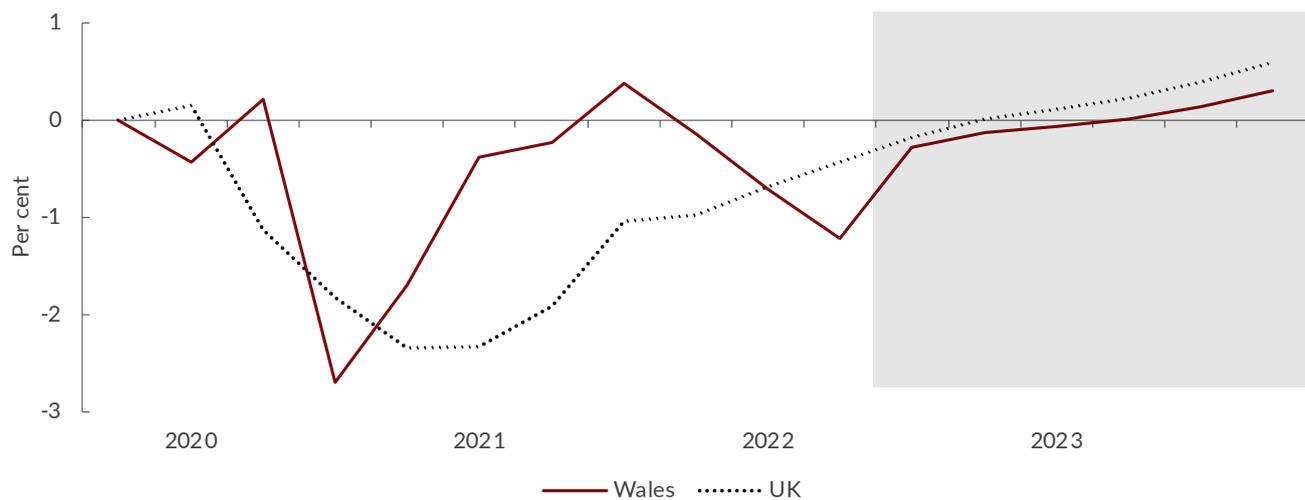


Source: NiReMS.

## Employment and inactivity

Welsh employment has rebounded quicker than the UK average but has stagnated at around pre-Covid levels over the past year (Figure 2.11). The stagnating employment profile is linked to increasing inactivity rates.

**Figure 2.11** Employment growth in Wales relative to the fourth quarter of 2019

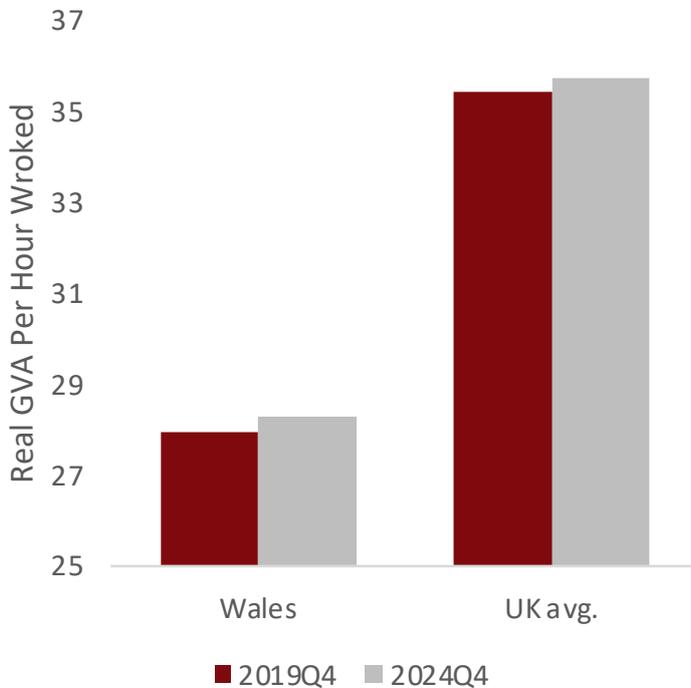


Source: NiReMS.

## Productivity

Productivity levels in Wales lag far behind the UK average and are further exacerbated by lower projected productivity growth in Wales than the UK average (Figure 2.12). Nevertheless, the promise of the new UK Shared Prosperity Fund (UKSPF) to protect the favourable funding from the European Structural and Investment (ESI) fund offers a prospect for investment to reduce the divergence in the productivity paths.

**Figure 2.12** Productivity in Wales



Source: NiReMS.

## Northern Ireland Economic Outlook

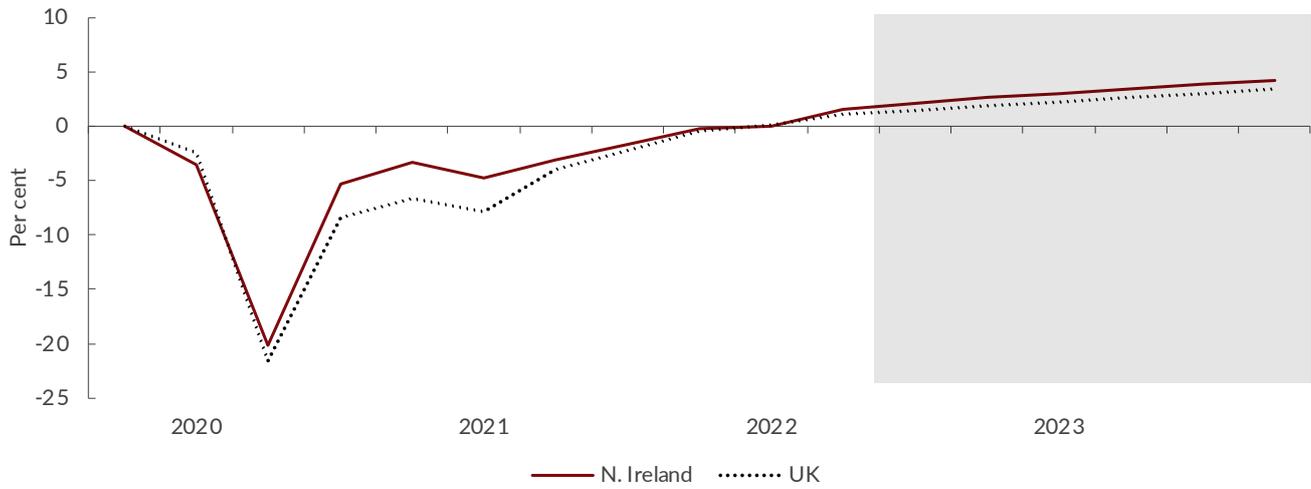
- Northern Irish output has reached pre-Covid levels in the first quarter of 2022 and is projected to grow at the rate of the UK average (Figure 2.13).
- Employment in Northern Ireland is less reassuring (Figure 2.14). The latest Labour Force Survey numbers show that employment growth have stalled in the second quarter of 2022 (ONS, 2022a). Further, our projections show that employment growth is likely to remain sluggish in Northern Ireland.
- Gains in GVA together despite sluggish employment trends imply relatively robust gains in productivity, even though productivity levels remain weak relative to the UK average, and way behind London and metropolitan areas of the South East (Figure 2.15).
- Increased political uncertainty mitigates against any opportunities that Northern Ireland may have of drawing upon advantages potentially created by the NI Protocol (Box F).

Despite somewhat robust recovery from the pandemic shock relative to other regions, politics and society in Northern Ireland has been in turmoil. This is underlined, not least, by the fact that Stormont has failed to sit in session for almost a year now. A new election in December 2022 would have been an additional burden on Northern Irish society – on top of the pandemic, Brexit and the cost of living crisis – but this has been ruled out by Westminster. However, substantial uncertainties persist, underlined not least by the ongoing Brexit processes (Birnie, 2022), which is discussed in further detail in Box F.

The combination of the above factors implies that the overall prospects for Northern Ireland remain weak. Continual uncertainty restricts opportunities for investment in capital, skills and jobs, as well as welfare measures curated to the specific needs and aspirations of the Northern Irish population.

**GVA**

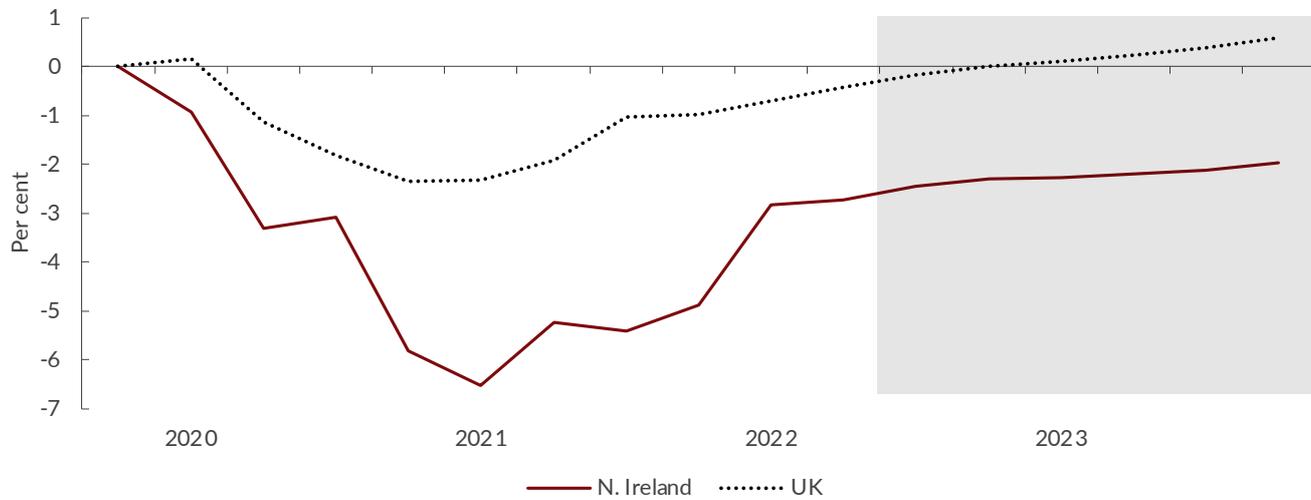
**Figure 2.13** GVA in Northern Ireland relative to the fourth quarter of 2019



Source: NiReMS.

**Employment and inactivity**

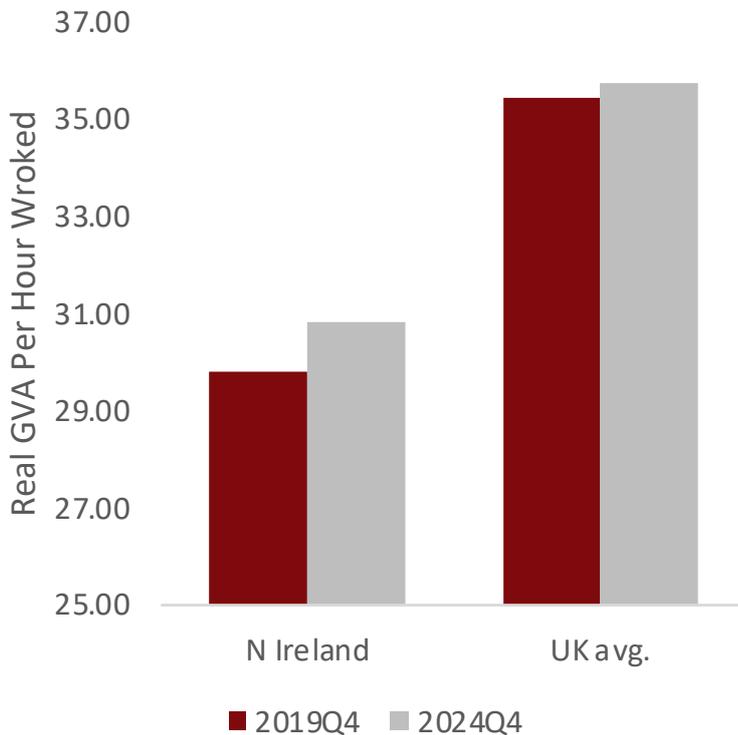
**Figure 2.14** Employment growth in Northern Ireland relative to the fourth quarter of 2019



Source: NiReMS.

## Productivity

Figure 2.15 Productivity in Northern Ireland



Source: NiReMS.

## England's regions

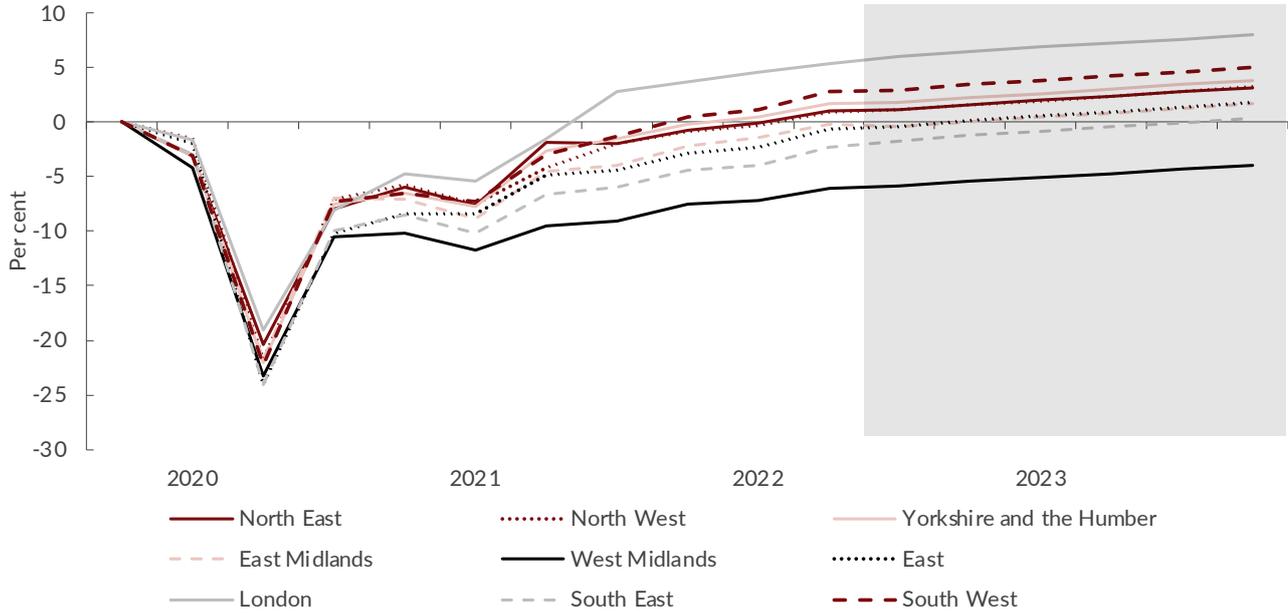
- Looking at economic growth, as measured by GVA, we find that most English regions have already attained pre-Covid levels or are projected to do so by 2023 (Figure 2.16). The only regions for which this is not true are the West Midlands and parts of the South East. This reflects the severe impact of Brexit upon manufacturing and trading sectors in particular.
- Employment trends show a two-paced recovery (Figure 2.17). While employment growth remains robust in London and the South East, employment in the East Midlands, the North West and the South West is struggling to return to pre-Covid levels. Urgent regional policy is needed to redress this regional divergence, including the devolution of skills policy to regional and local levels.
- London has the lowest inactivity rates in the entire country, but other English regions are showing relative recovery in the current year (Figure 2.18).
- Productivity is the highest in London and is also projected to increase by 2024 relative to pre-pandemic levels. By contrast, productivity is projected to remain considerably lower in English regions outside London and the South East (Figure 2.19).

Whereas devolution dominates the scene in the devolved nations, English regions are reeling from successive shocks. There is significant divergence in both output and employment across the regions. While London and metropolitan regions of the South and East of England power on, recovery in parts of the North and Midlands continue to stutter.

Against this backdrop, there is an urgent need for policy to support weaker segments of society in pockets of deprivation and address structural weakness in specific places and sectors. Regional regeneration is urgent, yet policy moves towards 'Levelling Up' have been stopped and started rather than being consistently pushed forward. This presents both opportunities and threats for the new government in Westminster.

GVA

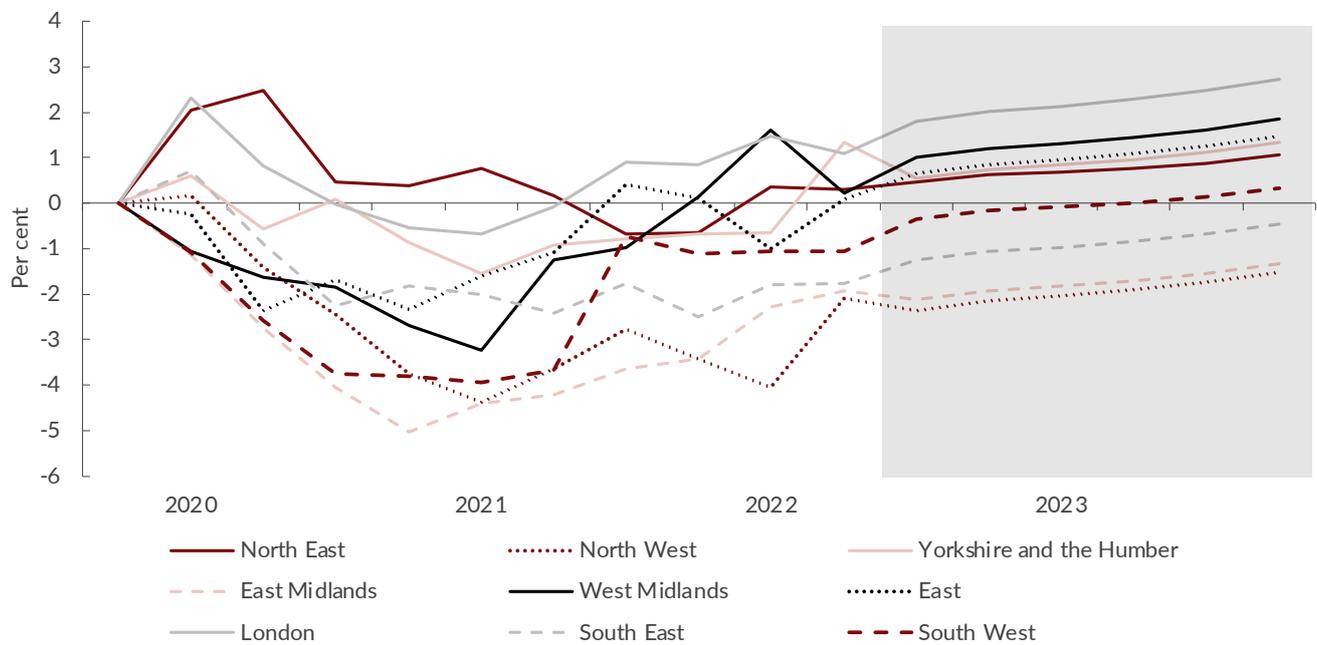
Figure 2.16 GVA in the English regions relative to the fourth quarter of 2019



Source: NiReMS.

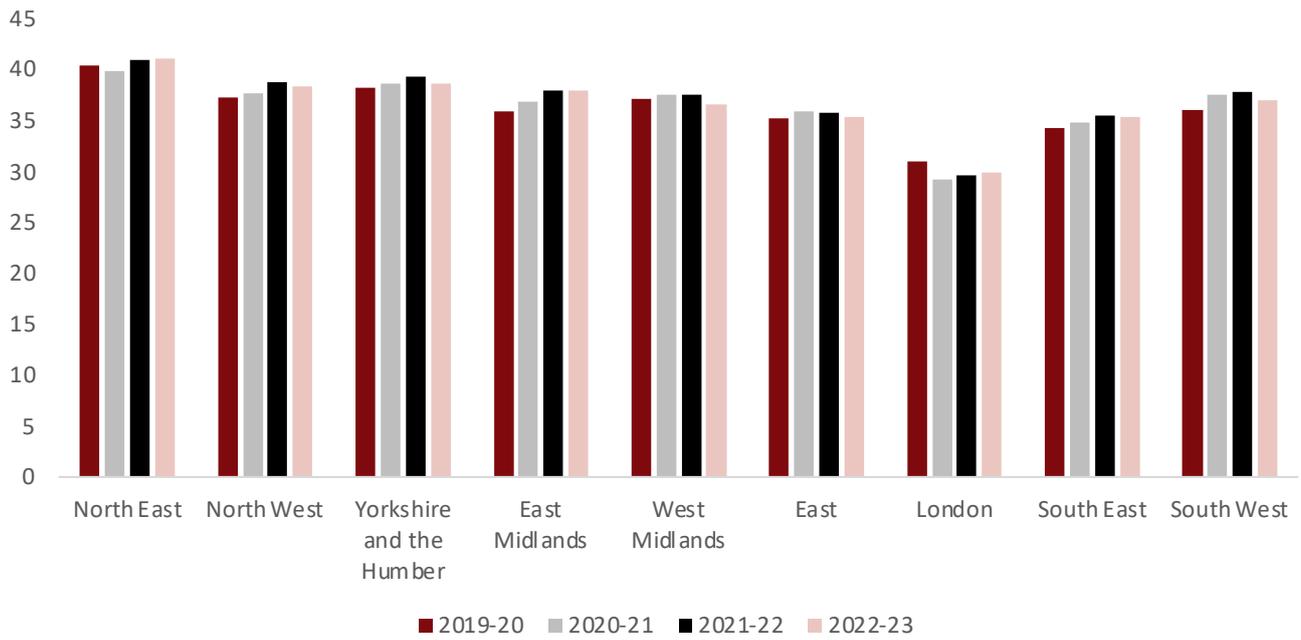
Employment and inactivity

Figure 2.17 Employment growth in the English regions relative to the fourth quarter of 2019



Source: NiReMS.

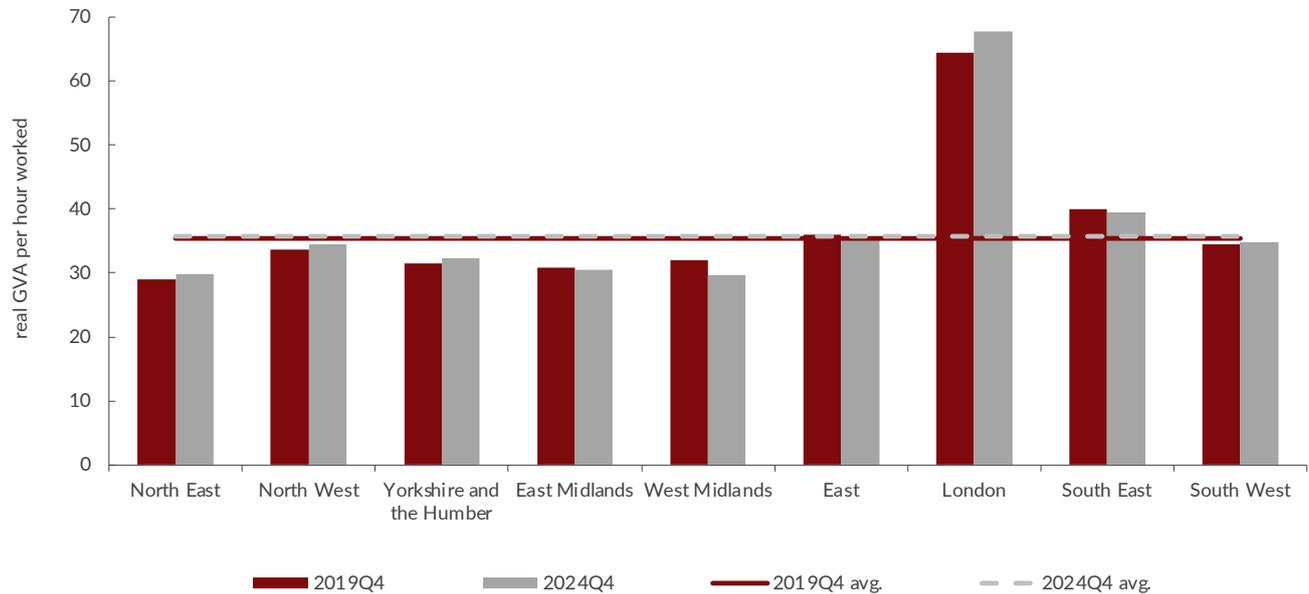
**Figure 2.18** Inactivity rates in the English regions



Source: NiReMS.

## Productivity

**Figure 2.19** Productivity in the English regions



Source: NiReMS.

## Policy options

### *The purpose of fiscal policy*

To improve the UK's economic performance, we need to deploy fiscal policy in ways that boost growth, improve the country's poor productivity performance (NIESR, 2022) and reduce regional inequalities. The aim of fiscal policy is not merely to have stable public finances. Rather, the objective should be to combine medium-term fiscal sustainability with economic shock absorption by cushioning the blow for the most vulnerable households and deprived regions across the country (Chadha et al., 2021).

But political paralysis over the summer and the 'mini-budget' on 23 September have done just the opposite. Fiscal policy has not only exacerbated the radical uncertainty (King and Kay, 2020) that characterises the global and the national economy; it has also amplified the impact of the two shocks that affect households: first, the inflationary shock of soaring energy and food prices, which hits lower-income households hardest; second, the mortgage rate shock that hits households with a variable rate mortgage and first-time buyers trying to secure a mortgage.

### *Targeted policy interventions*

We have argued that policy aimed at alleviating this once-in-a-generation income shock should take the form of targeted assistance for the most vulnerable households rather than a general subsidy for all households (Bhattacharjee et al., 2022a,b,c). This applies to energy, food and mortgage rate hikes. We propose a mix of policy measures, in part as modifications of existing government programmes to keep administrative costs to a minimum:

- i. a variable energy price cap, combined with targeted help for household energy bills;**
- ii. a £2bn Housing Support Fund administered at local authority level to help with fast-rising housing costs;**
- iii. a Universal Credit uplift of £25 per week for twelve months, costing £2.7bn;**
- iv. maintaining capital expenditure (particularly on infrastructure projects);**
- v. devolving the disbursement of funds for regional regeneration.**

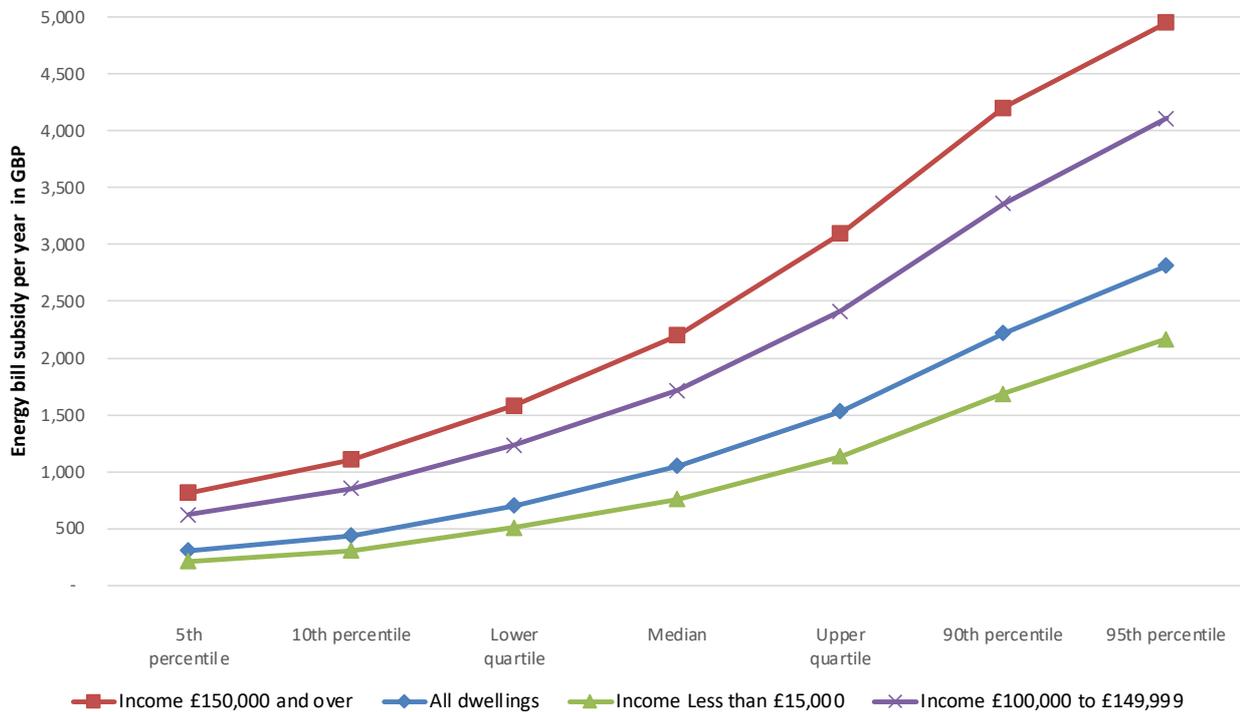
The aggregate outlay of these measures would not exceed £25 billion over the current and next financial year, which is well within a five-year fiscal framework of sustainable public finances (Chadha et al., 2021).

### *Replacing the Energy Price Guarantee with a Variable Price Cap*

On energy prices, the government's Energy Price Guarantee (EPG) provides some relief by capping the unit price of energy for all consumers, which will limit energy bills for a typical household at about £2,500 per year, but there are three problems with this policy: (1) the large fiscal costs; (2) insufficient support for the most vulnerable households; (3) a lack of incentive to save energy.

First, the EPG provides a general subsidy for all households rather than targeted assistance for the most vulnerable households, which raises the overall cost and adds to the budget deficit and public debt. Had the policy been applied for two years, the total fiscal cost could have been between £100bn and £200bn. Now that the new Chancellor Jeremy Hunt has confirmed that the EPG will be in place for six months, the total cost to the Exchequer will still be at least £25bn.

Second, the EPG subsidises higher-income households while energy bills for lower-income households who spend a larger proportion of their income on energy will still be higher by between 30 and 40 per cent compared with levels prior to Russia's invasion of Ukraine. As Fetzer (2022) has shown, the benefits of the EPG are skewed in favour of the highest earners: among households with incomes of £150,000 or more, 50 per cent benefit half as much from the EPG as the top 5 per cent in that group (Figure 2.20).

**Figure 2.20** Energy subsidy implemented through the EPG relative to October 2022 Ofgem Market prices by energy consumption and household income

Source: Fetzer (2022), p. 7.

Third, the general subsidy afforded by the EPG fails to provide significant incentives to save energy. On the contrary, “the EPG, by lowering consumer prices relative to market prices is weakening the incentives both to temporarily save energy as well as to permanently lower energy consumption through energy efficiency upgrades” (Fetzer, 2022, p. 8). This comes at a time when the UK has a very large and as yet unrealised energy savings potential mainly due to the poor energy efficient standards of its building stock, which has been estimated at about 30 per cent of total energy use for England and Wales – using data on almost 14 million properties representing 50 per cent of the English and Welsh building stock (Fetzer, 2022, pp. 7-8).

In turn, this requires targeted intervention to save energy – including an energy efficiency investment tax incentive scheme and government grants to help insulate homes: “with an interest rate of 3% and projected savings of £10 billion and an investment volume of £60 billion, we estimate that the energy efficiency upgrades would pay for themselves within six to seven years” (Fetzer, 2022, p. 11).

In short, the EPG – while offering some help to households – is fiscally costly, socially iniquitous and ecologically wasteful. Now that the Chancellor has set up a Treasury-led review to explore options to support household and business energy bills after next April, the government should consider a variable price cap where the price per unit of energy used rises with usage (Bhattacharjee, Mosley and Pabst, 2022). At the heart of this alternative policy idea is the recognition that energy consumption and income are highly correlated. A variable price cap means that marginal user costs increase, with the effect of cutting energy bills for lower-income households while higher earners, who consume more energy, would bear a commensurate share of the higher costs.

Our analysis finds that such a variable price cap:

- could reduce the bills of the poorest households from around £2,500 to around £1,000 per year - a 60 per cent reduction.
- could be financed in part by raising the cost of energy for those who use it most, which are richer households that can afford this rise in energy bills in terms of their income and their savings, taking their energy bills from about 2 per cent to just 3 per cent of their income.

- could also be combined with more fiscal spending to help reduce the energy bills of both lower- and middle-income households.
- would incentivise energy saving, especially by higher-income households, and thereby incorporate a green element into the cost structure.

We do not propose eliminating other forms of support for lower-income families who may live in poorly insulated housing or in colder, wetter parts of the UK, or for those who have larger families. We see this as a complementary policy intervention to those already suggested by NIESR (Bhattacharjee et al., 2022a,b,c).

A variable price cap could be implemented via energy bills and by amending supplier licence conditions. Over time such a scheme would need to be developed to reflect the extremely variable marginal cost of energy, which depends on the time of the day and the night when energy is consumed. In other words, adjusting the timing of demand is a key factor in energy saving – both the distributional impact and the ecological impact.

### ***Policy interventions to help with increased housing costs and food bills***

To help households deal with rising rents and higher mortgage repayments on a variable rate that will increase by at least 50 per cent on average when interest rates hit their projected peak of 4.75 per cent, we propose a £2bn Housing Support Fund administered at local authority level to help with fast-rising housing costs.

The need for targeted policy intervention also applies to help with food prices. The withdrawal of the Universal Credit uplift of £20 per week in October 2021 led to an increase in extreme hardship. As Emma Revie, the Chief Executive of Trussell Trust, has said, “the £20 uplift in Universal Credit[,] our research shows[,] provided a protective factor, its loss led to an increase in the number of people coming to food banks again” (Haq, 2022).

To avoid a further increase in poverty and destitution, our suggestion is for targeted assistance for the poorest households, as almost 90 per cent of food bank users rely on social security as their primary source of income. Government should adopt two policies: one is to raise benefits in line with inflation and the other is to introduce an uplift of Universal Credit of £25 per week for twelve months at a cost of around £2.7bn.

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## Box E: Projecting the Impact of Peak Interest Rates on Variable Rate Mortgages

By Max Mosley

In deciding at what level interest rates are set, monetary policymakers assess their decisions in terms of maintaining price stability. Concerns about the distributional consequences are not within the remit of monetary policy authorities, and nor should they be. That is the task for political decision-makers. In the current context where the monetary response comes after successive shocks to household finances, the distributional impact of interest rate changes must be understood in order to allow fiscal policymakers to design the appropriate response aimed at alleviating adverse effects.

The need to undertake such research for the UK has grown following the recent ‘mini-budget’ on 23 September, when markets lost confidence in the country’s debt sustainability and economic prospects following the proposed injection of a sizable stimulus in an already highly inflationary economy. Markets and forecasts from independent researchers such as NIESR expected a monetary response to peak at around 5 to 6 per cent within a short period of time. This expected response was up from expectations of a 3 per cent peak, which highlights the scale of the impact of certain fiscal policy decisions on monetary policy with substantial consequences at the aggregate level and at the household level too.

Specifically, mortgage holders on variable rates face significantly higher monthly mortgage repayments as a result of this response. We have therefore applied recent research methods developed for analysing household savings (Mosley, 2022) to project the impact of peak interest rates on households with variable rate mortgages.

To do so, we use the representative sample of UK households (excluding Northern Ireland<sup>1</sup>) and their financial profile based on the latest round of the Wealth and Assets Survey (2022). As the latest data only goes up to 2019, we project forward using a combination of NIESR’s economic models. The National Institute Global Econometric Model (NIGEM) is used to project forward income growth, and our dynamic microsimulation Lifetime Income Distributional Analysis (LINDA) model is used to attribute spending profiles to each household in order to enable each household to add, or draw on, financial reserves given economic conditions (NIESR, 2016 and 2018). Lastly, households move across the income distribution to account for social mobility in both directions and to account for the fact households are often on Universal Credit for a limited period of time.

To change components of each household mortgage, we convert stated monthly mortgage repayments into a computed version to make the figure endogenous to a given bank rate. To do this, we use the standard Robert Kohn equation in determining monthly mortgage costs, which lies behind most standard mortgage calculators (Kohn, 1990).

$$\hat{M} = V \left[ \frac{i(1+i)^N}{(1+i)^N - 1} \right]$$

Here, the monthly mortgage repayment  $\hat{M}$  is dependent on the value of the mortgage ( $V$ ), its given interest rate  $i$  and the duration of the mortgage  $N$ . The Wealth and Assets Survey holds most of these variables, including the size of the monthly repayments. However, we would like to create a predicted version of  $\hat{M}$  that is endogenous to  $i$ . The WAS does not hold a variable on the total value of the mortgage, only the value of the remaining mortgage.<sup>2</sup> To work around this problem, we use the known figure of  $\hat{M}$  (denoted  $M$ ) which we will use to estimate the imputed size of the mortgage. To do so we simply rearrange the first formula to solve for  $V$  by using the known monthly repayment  $M$ .

1 We will create a pseudo sample for Northern Ireland at a later stage.

2 It is important to note that we are trying to estimate typical monthly repayments, which do not reduce over time as the mortgage is paid off. That scenario mostly happens when the mortgage holder refinances, which is not modelled here. Therefore, we need the total value of the mortgage as this yields a more plausible prediction of what that household is likely to face in terms of monthly repayments in the short run.

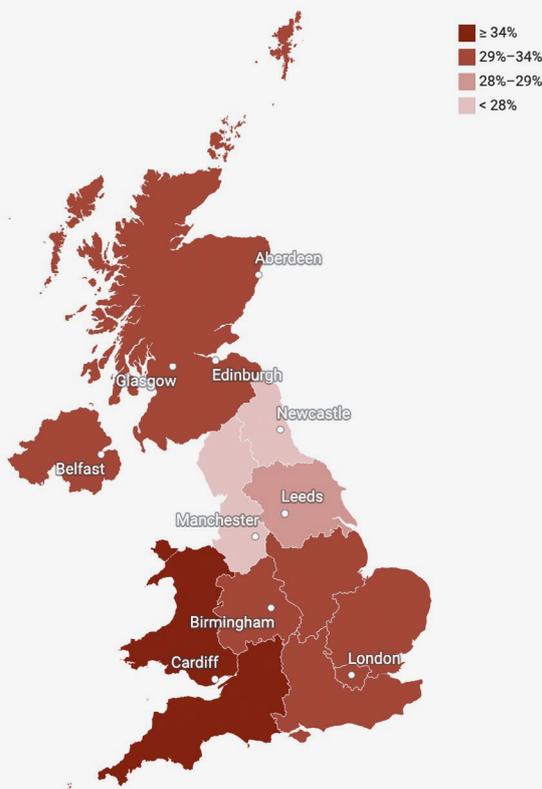
$$\hat{V} = M \left[ \frac{(1+i)^N - 1}{i(1+i)^N} \right]$$

This gives us a value of the mortgage, which we can then put back into the first formula to complete it. From here, we can now increase  $i$  in line with what the bank rate is assumed to rise to and see what effect it has on our estimated  $M$ .

This can only be attributed to those on a variable rate mortgage. In this exercise those on a fixed rate are considered immune to this change. In reality it is not quite this simple as households with a fixed rate will at some point either switch to a variable rate mortgage or renegotiate a new fixed rate. Due to a lack of variables on the length of the fixed element of a mortgage, it has not been possible to predict the effect nor the effect of refinancing a mortgage.

We are, however, able to present the geographic distribution of the proportion of mortgage holders on a variable rate, which is shown in Figure E1. This shows a higher concentration in Wales and parts of the south of England.

**Figure E1** Proportion of mortgage holders with a variable rate mortgage, by region



Source: NIESR Analysis of the ONS Wealth and Assets Survey (2022), NiGEM, LINDA.

As we have allowed household incomes (both earnings and benefits) to vary over time, we are able not just to assess the new average cost of variable rate mortgage repayments but also to compare them to their monthly incomes. We find that about 30,000 households in the UK could see mortgage repayments greater than their monthly incomes. This is likely an underestimation of the problem because we lack a sufficiently large sample size for the section of the population that is affected in this way. But it is still a concerning number of households who will be placed in an unsustainable financial condition.

The pass-through of interest rate rises to households is not exclusive to only those with variable rate mortgages. Firstly, those on fixed rate mortgages only have the interest rate fixed for a limited period of

time, often between two and five years. It has not been possible to estimate at this stage the implications of bank rate rises on those with fixed rates when they fall onto a variable rate mortgage or when they choose to refinance. This will form the basis of further investigation. Given that 5 million households are on fixed rate mortgages (ONS, 2022), we can assume that a considerable number of those households will be similarly affected by higher interest rates between 2024 and 2027.

Even for those without mortgages, private renters for example will also face implications from rate hikes, as own-to-rent landlords pass on the additional costs onto their tenants. There are existing estimates that rents could increase by up to 20 per cent in many places by 2024. While the poorest in society can be somewhat shielded from rent hikes through social housing, the combined effects of higher mortgages and rents will fall disproportionately on lower-income households, with housing costs rising by about 30 per cent for the lowest decile and as much as 50 per cent up to the middle of the income distribution. This would amount to housing costs rising to between 25 per cent to 35 per cent of disposable income for the entire lower half of the distribution.

This will lead compound on existing financial stress the poorest households are already facing. NIESR has already identified that savings are being continuously decimated by rising cost of energy and food bills. The rising cost of borrowing will further raise the cost of living, mostly through inflating the cost of accommodation via either mortgages or rents. It is urgent that the government considers measures to shield households from rising housing and borrowing costs.

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## Box F: The Northern Ireland Protocol – Lost Opportunities for Northern Ireland?

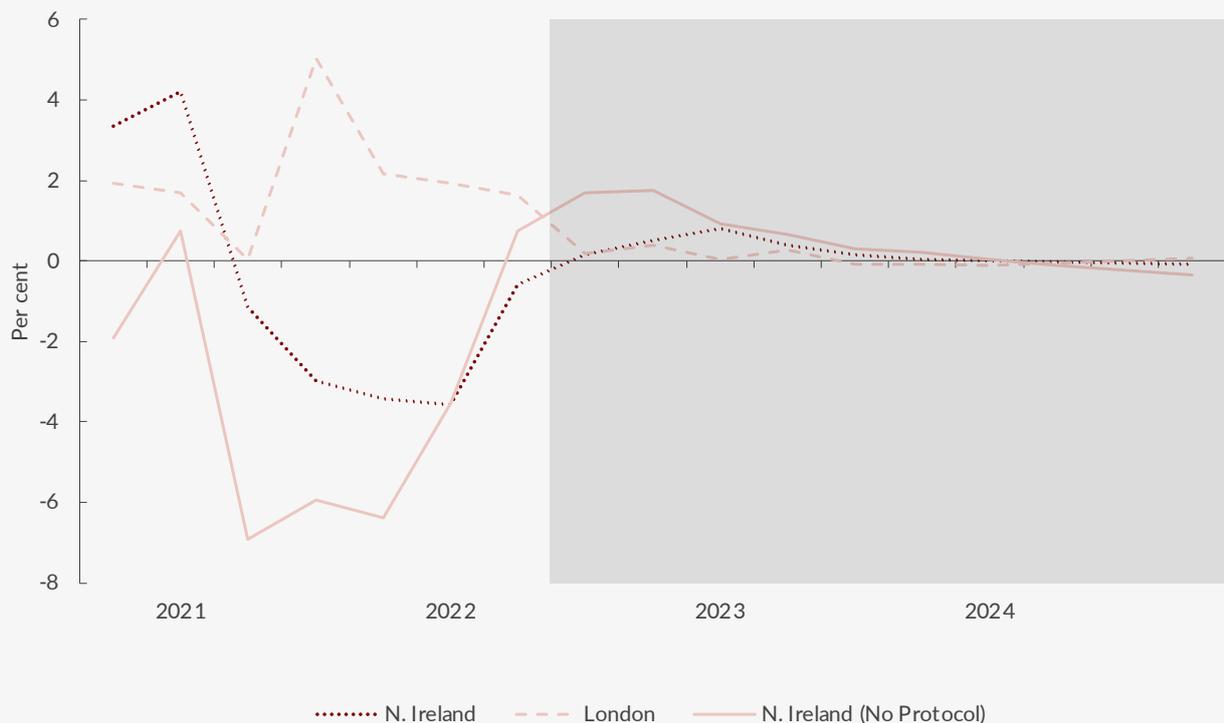
By Arnab Bhattacharjee, Adrian Pabst, and Tibor Szendrei

Despite inherent structural, political and policy weaknesses (Brownlow, 2020; Jordan, 2022), post-Brexit output growth in Northern Ireland (NI) presents an enigma. Specifically, output in Northern Ireland has evidenced one of the strongest recoveries from the pandemic post-Brexit (ONS, 2021; Bhattacharjee et al., 2022).

Against this backdrop, while the Northern Irish economy has regained its pre-pandemic level, there is a question as to how much of NI's economic performance can be attributed to the NI Protocol. Bhattacharjee et al. (2022) presented counterfactual GVA trends for NI, relative to the UK as a whole, as projected before the Brexit deal and under the NI Protocol. This presented a robust outlook post-Brexit relative to the UK as a whole, but much weaker than London.

Here, we present the evidence in a slightly different way, comparing the growth rates in GVA for NI from the latest round of projections, with what was projected for NI in early 2019. To showcase the performance of the Northern Irish economy we calculate the year-on-year growth for the region under our current view and the “No protocol” counterfactual. From this growth rate we deduct the growth rate of the UK average to better highlight over- and under-performance trends over time. Figure F1 shows the results of this exercise for the two NI cases (with and without the NI Protocol), as well as London.

**Figure F1** GVA growth rate relative to UK average



The figure reveals that the Northern Irish economy would have fared worse without the protocol in the short term. In particular, the “no Protocol” counterfactual starts with a lower growth rate and drops more in 2021.

Why did NI experience this robust recovery from the pandemic? One explanation lies in sectoral variation. First, the public sector has a larger employment and output share in NI, and it remained robust over the pandemic, even expanding as the process of Brexit gained force. Another important sector is trading/logistics (Keane, 2022). Between January and May 2022, exports from NI to the Republic of Ireland increased by 23 per cent, while trade in other direction grew by 42 per cent, relative to the previous year (O'Carroll, 2022). It would then appear that being in the EU single market and customs union (via the NI Protocol) helped NI achieve relatively robust recovery from the Covid-19 shock.

Can this growth trend be sustained and even amplified? Trading activity is relatively low value added and need not provide impetus in the medium run unless the robust trends are replicated in other sectors. This depends partly on NI's capacity to attract investment (Jordan, 2022), particularly Foreign Direct Investment (FDI). There are some opportunities here, particularly in high technology and knowledge intensive sectors where the share of employment has increased very rapidly over the period 1999 to 2019 (Brady, 2022), at a rate second only to London, and very close also to growth in the Republic of Ireland. It is therefore plausible that NI can attract FDI and other investment in some sectors with higher-paid and green jobs and importantly globally-tradable, high value-added activities.

However, success depends on the policy and political environment (Brownlow, 2020) as well as inherent capital. Here is where the good news is more limited. Not only is productivity in the nation low and employment growth sluggish, but the population is also poorer than elsewhere in the UK and has been severely affected by the Covid-19 shock and cost of living crisis (Bhattacharjee et al., 2022; Murphy, 2022).

Most importantly, the NI Protocol has been very divisive to the extent that political turmoil resulting from it has got Stormont to a standstill with no reasonable end in sight (BBC News, 2022). Pre-Christmas elections in the middle of a cost of living crisis (which the nation is struggling with not least because of its location in the colder and wetter part of the country) would have been a major distraction. However, it seems that resolution to the Brexit impasse and devolved administration in Northern Ireland is equally urgent. Thus, the Brexit process itself has been a double-edged sword, particularly in the face of policy and politics that have exacerbated uncertainty rather than reducing it (Pabst, 2022).

In the face of policy paralysis and political uncertainty, gains for Northern Ireland seem to be only temporary (Figure F1), with the “no Protocol” growth rate rebounding much more and leading to above UK average growth rates, before converging with UK growth rates in the long run. This paints a picture of NI being only a temporary beneficiary of the EU's single market and customs union. But also, one must not lose sight of its performance compared to other booming regions of the UK, such as London. For this reason, the Protocol should be viewed as a temporary boost, but to convert this into long term success, policymakers must focus on getting Stormont to function again, improve devolved decision making, find better skills-jobs matches, and increase productivity and employment in the region.

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# Forecast tables:

**Table A1** Exchange rates and interest rates

	UK exchange rates			FTSE All-share index	10-year gilts	World <sup>a</sup>	Bank Rate <sup>b</sup>
	Effective 2017=100	Dollar	Euro				
2017	100.0	1.29	1.14	2930	1.20	1.20	0.41
2018	101.9	1.34	1.13	2937	1.40	1.90	0.75
2019	101.6	1.28	1.14	2898	0.90	2.10	0.75
2020	102.1	1.28	1.13	2537	0.30	0.90	0.10
2021	106.9	1.38	1.16	2900	0.80	1.10	0.13
2022	104.9	1.23	1.17	2918	2.50	2.30	3.20
2023	102.2	1.13	1.15	2822	4.10	4.20	4.76
2024	101.0	1.13	1.13	3065	3.80	4.00	4.31
2025	99.9	1.13	1.11	3281	3.60	3.80	3.96
2026	99.3	1.14	1.10	3436	3.50	3.70	3.70
2027	98.9	1.14	1.09	3565	3.40	3.60	3.50
2022Q1	108.6	1.34	1.20	3025	1.40	1.20	0.45
2022Q2	105.9	1.25	1.18	2986	2.00	1.70	0.95
2022Q3	103.0	1.18	1.17	2914	2.60	2.50	1.62
2022Q4	102.0	1.13	1.16	2747	4.20	3.60	3.20
2023Q1	102.3	1.13	1.16	2755	4.20	4.10	4.06
2023Q2	102.5	1.13	1.16	2802	4.10	4.20	4.61
2023Q3	102.2	1.13	1.15	2834	4.00	4.20	4.76
2023Q4	101.8	1.13	1.15	2895	4.00	4.20	4.76
2024Q1	101.5	1.13	1.14	2958	3.90	4.10	4.68
2024Q2	101.1	1.13	1.13	3044	3.80	4.00	4.57
2024Q3	100.8	1.13	1.13	3092	3.80	4.00	4.44
2024Q4	100.5	1.13	1.12	3167	3.70	3.90	4.31
Percentage changes							
2017/2016	-5.6	-4.9	-6.7	14.2			
2018/2017	1.9	3.6	-1.0	0.3			
2019/2018	-0.3	-4.4	0.9	-1.3			
2020/2019	0.5	0.5	-1.3	-12.5			
2021/2020	4.8	7.2	3.3	14.3			
2022/2021	-2.0	-10.9	1.0	0.6			
2023/2022	-2.5	-7.6	-1.7	-3.3			
2024/2023	-1.2	0.0	-1.9	8.6			
2025/2024	-1.0	0.1	-1.7	7.0			
2026/2025	-0.7	0.3	-1.3	4.7			
2027/2026	-0.4	0.4	-0.9	3.8			
2022Q4/2021Q1	-5.1	-16.1	-1.8	-8.3			
2023Q4/2022Q1	-0.1	0.2	-0.9	5.4			
2024Q4/2023Q1	-1.3	0.0	-2.0	9.4			

Notes: <sup>a</sup> Weighted average of central bank intervention rates in OECD economies. <sup>b</sup> End of period.

**Table A2** Price indices (2019=100)

	Unit labour costs	Imports deflator	Exports deflator	World Oil Price (\$) <sup>a</sup>	Consumption deflator	GDP deflator (market prices)	Consumer prices		
							RPI <sup>b</sup>	CPI <sup>c</sup>	CPIH <sup>d</sup>
2017	94.5	96.7	94.6	54.0	96.7	96.3	94.3	95.9	96.1
2018	97.1	98.5	96.5	70.4	98.4	97.9	97.5	98.2	98.3
2019	100.0	100.0	100.0	63.7	100.0	100.0	100.0	100.0	100.0
2020	113.6	99.9	99.3	43.0	101.0	106.2	101.5	100.8	101.0
2021	111.1	105.3	102.0	69.9	103.6	106.3	105.6	103.5	103.5
2022	113.9	116.0	110.6	98.6	111.9	113.0	119.7	112.8	112.1
2023	120.2	123.0	119.4	94.2	120.0	121.5	137.6	121.8	120.2
2024	124.4	128.3	124.8	96.5	124.7	126.3	144.8	126.6	124.9
2025	126.1	132.2	128.2	97.5	127.7	129.3	148.6	129.4	127.9
2026	127.5	135.7	131.3	99.0	130.8	132.4	152.5	132.3	131.0
2027	129.1	139.3	134.4	100.4	134.2	135.7	156.9	135.4	134.4
Percentage changes									
2017/2016	1.4	5.6	3.7	25.8	1.7	1.8	3.6	2.7	2.6
2018/2017	2.7	1.9	2.0	30.5	1.7	1.7	3.3	2.4	2.3
2019/2018	3.0	1.5	3.6	-9.6	1.7	2.1	2.6	1.8	1.7
2020/2019	13.6	-0.1	-0.7	-32.5	1.0	6.2	1.5	0.8	1.0
2021/2020	-2.2	5.4	2.8	62.6	2.5	0.2	4.1	2.6	2.5
2022/2021	2.6	10.2	8.4	41.0	8.1	6.3	13.4	9.0	8.2
2023/2022	5.5	6.0	8.0	-4.4	7.2	7.5	14.9	8.0	7.3
2024/2023	3.5	4.4	4.5	2.5	3.9	4.0	5.2	3.9	3.9
2025/2024	1.3	3.0	2.7	1.1	2.4	2.4	2.6	2.2	2.4
2026/2025	1.1	2.7	2.4	1.4	2.4	2.4	2.7	2.2	2.4
2027/2026	1.2	2.6	2.4	1.4	2.6	2.5	2.9	2.3	2.6
2022Q4/2021Q1	5.3	9.4	12.1	17.0	10.3	9.7	18.6	10.6	10.2
2023Q4/2022Q1	5.1	5.1	5.8	4.8	4.8	4.9	9.1	5.6	4.8
2024Q4/2023Q1	2.9	3.9	3.6	0.4	3.5	3.4	3.8	3.2	3.4

Notes: <sup>a</sup> Per barrel, average of Dubai and Brent spot prices. <sup>b</sup> Retail price index. <sup>c</sup> Consumer price index. <sup>d</sup> Consumer prices index, including owner occupiers' housing costs.

**Table A3** Gross domestic product and components of expenditure (£ billion, 2019 prices)

	Final consumption expenditure		Gross capital formation		Domestic demand	Total exports <sup>c</sup>	Total final expenditure	Total imports <sup>c</sup>	Net trade	GDP at market prices <sup>d</sup>
	H-Holds & NPISH <sup>a</sup>	General govt.	Gross fixed investment	Changes in inventories <sup>b</sup>						
2017	1391	407	397	13	2193	667	2860	694	-27	2166
2018	1425	409	396	4	2232	688	2920	717	-29	2203
2019	1440	426	403	6	2275	700	2974	736	-36	2238
2020	1250	395	361	-12	1994	615	2609	618	-3	1991
2021	1328	444	381	13	2166	613	2779	635	-22	2141
2022	1386	437	404	67	2294	642	2936	694	-52	2240
2023	1406	414	421	0	2240	632	2872	614	19	2256
2024	1412	413	426	0	2251	643	2893	597	45	2294
2025	1416	417	429	0	2262	666	2927	595	71	2330
2026	1423	422	432	0	2276	692	2968	599	93	2367
2027	1432	429	436	0	2297	718	3016	608	110	2405
Percentage changes										
2017/2016	1.9	0.4	3.5		1.5	6.8	2.7	3.3		2.4
2018/2017	2.5	0.3	-0.2		1.8	3.1	2.1	3.3		1.7
2019/2018	1.1	4.1	1.9		1.9	1.7	1.9	2.6		1.6
2020/2019	-13.2	-7.3	-10.5		-12.3	-12.1	-12.3	-16.0		-11.0
2021/2020	6.2	12.6	5.6		8.6	-0.3	6.5	2.8		7.5
2022/2021	4.4	-1.8	6.0		5.9	4.7	5.6	9.3		4.6
2023/2022	1.4	-5.2	4.0		-2.4	-1.6	-2.2	-11.6		0.7
2024/2023	0.4	-0.1	1.2		0.5	1.7	0.7	-2.6		1.7
2025/2024	0.3	1.0	0.7		0.5	3.6	1.2	-0.4		1.6
2026/2025	0.5	1.1	0.8		0.7	3.9	1.4	0.7		1.6
2027/2026	0.7	1.7	0.9		0.9	3.8	1.6	1.5		1.6
Decomposition of growth in GDP (percentage points)										
2016	2.3	0.2	0.9	-0.1	2.4	0.9	3.4	-1.2	-0.3	2.2
2017	1.2	0.1	0.6	0.2	1.5	2.0	3.5	-1.1	1.0	2.4
2018	1.6	0.1	0.0	-0.4	1.8	0.9	2.8	-1.0	-0.1	1.7
2019	0.7	0.8	0.3	0.0	1.9	0.5	2.5	-0.8	-0.3	1.6
2020	-8.5	-1.4	-1.9	-0.8	-12.5	-4.0	-16.3	5.5	1.5	-11.0
2021	3.9	2.5	1.0	1.2	8.6	0.5	8.5	-1.5	-1.0	7.5
2022	2.7	-0.4	1.1	2.6	6.0	2.0	7.3	-3.4	-1.4	4.6
2023	0.9	-1.0	0.7	-3.0	-2.4	-0.5	-2.9	3.6	3.1	0.7
2024	0.3	0.0	0.2	0.0	0.5	0.5	1.0	0.7	1.2	1.7
2025	0.2	0.2	0.1	0.0	0.5	1.0	1.5	0.1	1.1	1.6
2026	0.3	0.2	0.1	0.0	0.6	1.1	1.8	-0.2	0.9	1.6

Notes: <sup>a</sup> Non-profit institutions serving households. <sup>b</sup> Including acquisitions less disposals of valuables and quarterly alignment adjustment. <sup>c</sup> Includes Missing Trader Intra-Community Fraud. <sup>d</sup> Components may not add up to total GDP growth due to rounding and the statistical discrepancy included in GDP.

**Table A4** External sector

	Exports of goods <sup>a</sup>	Imports of goods <sup>a</sup>	Net trade in goods <sup>a</sup>	Exports of services	Imports of services	Net trade in services	Export price competitiveness <sup>c</sup>	World trade <sup>d</sup>	Terms of trade <sup>e</sup>	Current balance
	£ billion, 2019 prices <sup>b</sup>						2019=100			% of GDP
2017	356	497	-141	311	197	114	96.3	91.8	97.8	-3.6
2018	357	499	-142	331	218	113	99.7	95.1	97.9	-4.1
2019	364	512	-148	336	224	112	100.0	100.0	100.0	-2.9
2020	316	449	-133	299	169	130	98.7	92.4	99.4	-3.1
2021	317	457	-141	297	178	119	103.4	99.1	97.0	-2.0
2022	321	504	-183	321	190	131	100.9	103.5	95.3	-7.3
2023	319	444	-125	313	170	144	100.1	103.0	97.1	-8.5
2024	328	436	-108	315	162	153	100.1	105.8	97.3	-6.2
2025	343	437	-95	323	158	165	99.2	109.6	97.0	-4.5
2026	358	442	-84	334	157	177	98.8	113.8	96.7	-3.0
2027	373	451	-78	346	157	188	98.7	118.0	96.5	-2.0
Percentage changes										
2017/2016	7.0	2.4		6.7	5.8		-3.4	5.0	-1.8	
2018/2017	0.2	0.3		6.4	10.8		3.6	3.6	0.1	
2019/2018	1.9	2.6		1.5	2.7		0.3	5.1	2.1	
2020/2019	-13.0	-12.3		-11.1	-24.7		-1.3	-7.6	-0.6	
2021/2020	0.1	1.9		-0.7	5.2		4.8	7.3	-2.4	
2022/2021	1.3	10.3		8.3	6.9		-2.5	4.4	-1.7	
2023/2022	-0.5	-11.9		-2.6	-10.8		-0.7	-0.5	1.9	
2024/2023	2.7	-1.9		0.6	-4.7		-0.1	2.8	0.2	
2025/2024	4.5	0.3		2.7	-2.3		-0.8	3.6	-0.3	
2026/2025	4.5	1.2		3.3	-0.8		-0.4	3.8	-0.3	
2027/2026	4.1	1.9		3.4	0.4		-0.1	3.6	-0.3	

Notes: <sup>a</sup> Includes Missing Trader Intra-Community Fraud. <sup>b</sup> Balance of payments basis. <sup>c</sup> A rise denotes a loss in UK competitiveness.

<sup>d</sup> Weighted by import shares in UK export markets. <sup>e</sup> Ratio of average value of exports to imports.

**Table A5** Household sector

	Average <sup>a</sup> earnings	Employee compensation	Total personal income	Gross disposable income	Real disposable income <sup>b</sup>	Final consumption expenditure	Saving ratio <sup>c</sup>	House prices <sup>d</sup>	Net worth to income ratio <sup>e</sup>
	£ billion, current prices				£ billion, 2019 prices		% of GDP	2019=100	
2017	93.5	997	1742	1353	1399	1391	5.1	95.9	7.2
2018	96.1	1042	1814	1409	1432	1425	5.1	99.1	6.8
2019	100.0	1090	1889	1462	1462	1440	5.3	100.0	6.9
2020	100.1	1095	1892	1458	1443	1250	15.8	102.8	7.5
2021	104.8	1158	1989	1512	1460	1328	12.5	112.3	7.6
2022	111.0	1243	2126	1596	1426	1386	8.1	120.0	6.8
2023	117.3	1321	2240	1720	1433	1406	7.5	113.4	6.2
2024	122.4	1390	2345	1820	1460	1412	9.0	110.1	6.0
2025	125.1	1431	2430	1888	1478	1416	10.0	109.9	6.0
2026	127.7	1470	2510	1953	1493	1423	10.5	111.2	5.9
2027	130.8	1512	2596	2025	1508	1432	10.9	113.8	5.9
Percentage changes									
2017/2016	2.8	3.9	3.3	2.8	1.0	1.9		4.5	
2018/2017	2.9	4.5	4.1	4.2	2.4	2.5		3.3	
2019/2018	4.0	4.6	4.1	3.8	2.1	1.1		0.9	
2020/2019	0.1	0.4	0.1	-0.3	-1.3	-13.2		2.8	
2021/2020	4.7	5.8	5.1	3.7	1.1	6.2		9.2	
2022/2021	5.9	7.4	6.9	5.5	-2.3	4.4		6.8	
2023/2022	5.6	6.2	5.3	7.8	0.5	1.4		-5.5	
2024/2023	4.4	5.2	4.7	5.8	1.9	0.4		-2.9	
2025/2024	2.2	3.0	3.6	3.7	1.3	0.3		-0.2	
2026/2025	2.1	2.7	3.3	3.5	1.0	0.5		1.3	
2027/2026	2.4	2.9	3.4	3.6	1.0	0.7		2.3	

Notes: <sup>a</sup> Average earnings equals total labour compensation divided by the number of employees. <sup>b</sup> Deflated by consumers' expenditure deflator. <sup>c</sup> Includes adjustment for change in net equity of households in pension funds. <sup>d</sup> Office for National Statistics, mix-adjusted. <sup>e</sup> Net worth is defined as housing wealth plus net financial assets.

**Table A6** Fixed investment and capital (£ billion, 2019 prices)

	Gross Capital Formation				User cost of capital (%)	Corporate profit share of GDP (%)	Capital stock	
	Business investment	Private housing <sup>a</sup>	General government	Total			Private	Public <sup>b</sup>
2017	226	104	67	397	12.8	25.5	3664	740
2018	222	110	64	396	12.7	24.8	3721	756
2019	225	112	66	403	12.8	24.5	3772	774
2020	198	94	69	361	12.9	24.4	3779	794
2021	198	109	74	381	10.3	24.1	3798	819
2022	205	116	84	404	9.8	24.2	3842	850
2023	211	114	95	421	12.0	24.6	3889	891
2024	216	111	98	426	12.2	25.7	3936	932
2025	221	109	99	429	12.1	26.9	3982	970
2026	225	107	100	432	11.8	28.1	4029	1008
2027	229	106	101	436	11.6	29.4	4076	1044
Percentage changes								
2017/2016	1.1	10.3	3.0	3.5			3.6	-6.2
2018/2017	-1.5	6.1	-5.4	-0.2			1.6	2.2
2019/2018	1.3	1.8	3.7	1.9			1.4	2.4
2020/2019	-11.9	-16.0	3.6	-10.5			0.2	2.6
2021/2020	-0.1	15.7	8.1	5.6			0.5	3.1
2022/2021	3.2	6.3	13.2	6.0			1.2	3.8
2023/2022	3.4	-1.8	13.7	4.0			1.2	4.8
2024/2023	2.4	-2.1	2.6	1.2			1.2	4.5
2025/2024	2.0	-1.9	0.9	0.7			1.2	4.2
2026/2025	1.9	-1.6	1.0	0.8			1.2	3.9
2027/2026	1.8	-1.2	1.1	0.9			1.2	3.6

Notes: <sup>a</sup> Includes private sector transfer costs of non-produced assets. <sup>b</sup> Including public sector non-financial corporations.

**Table A7** Productivity and the labour market (thousands unless otherwise stated)

	Employment		ILO unemployment	Labour force <sup>b</sup>	Population of working age <sup>c</sup>	Productivity (2019=100) per hour	ILO unemployment rate
	Employees	Total <sup>a</sup>					
2017	27065	32057	1476	33533	41169	98.9	4.4
2018	27494	32439	1380	33819	41260	99.7	4.1
2019	27652	32799	1306	34105	41344	100.0	3.8
2020	27752	32509	1551	34060	41362	99.9	4.6
2021	28023	32407	1525	33931	41392	101.0	4.5
2022	28409	32827	1271	34099	41535	101.1	3.7
2023	28571	33033	1406	34439	41660	100.9	4.1
2024	28809	33296	1339	34635	41774	101.8	3.9
2025	29020	33529	1274	34802	41877	102.7	3.7
2026	29195	33723	1231	34955	41958	103.7	3.5
2027	29328	33875	1223	35098	42023	104.9	3.5
Percentage changes							
2017/2016	1.1	1.0	-9.6	0.5	0.3	1.4	
2018/2017	1.6	1.2	-6.5	0.9	0.2	0.8	
2019/2018	0.6	1.1	-5.4	0.8	0.2	0.3	
2020/2019	0.4	-0.9	18.8	-0.1	0.0	-0.1	
2021/2020	1.0	-0.3	-1.7	-0.4	0.1	1.1	
2022/2021	1.4	1.3	-16.6	0.5	0.3	0.1	
2023/2022	0.6	0.6	10.6	1.0	0.3	-0.3	
2024/2023	0.8	0.8	-4.8	0.6	0.3	0.9	
2025/2024	0.7	0.7	-4.9	0.5	0.2	0.9	
2026/2025	0.6	0.6	-3.3	0.4	0.2	1.0	
2027/2026	0.5	0.4	-0.6	0.4	0.2	1.1	

Notes: <sup>a</sup> Includes self-employed, government-supported trainees and unpaid family members. <sup>b</sup> Employment plus ILO unemployment.

<sup>c</sup> Population projections are based on annual rates of growth from 2018-based population projections by the ONS.

**Table A8** Public sector financial balance and borrowing requirement (£ billion, fiscal years)

		2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Current receipts:	Taxes on income	483.9	495.8	559.7	618.4	625.1	656.2	685.7	713.7
	Taxes on expenditure	279.6	144.9	260.1	376.9	406.2	421.1	432.2	445.5
	Other current receipts	64.2	152.2	93.7	15.3	16.4	17.3	17.9	18.7
	Total	827.6	792.9	913.6	1010.6	1047.7	1094.6	1135.9	1177.8
	(as a % of GDP)	36.8	37.9	38.9	39.1	37.6	37.4	37.3	37.2
Current expenditure:	Goods and services	431.5	495.5	513.9	504.7	521.1	545.6	568.3	593.6
	Net social benefits paid	241.9	262.9	261.5	287.7	280.8	288.0	299.2	308.7
	Debt interest	52.9	42.0	75.2	124.4	72.5	73.4	74.3	75.8
	Other current expenditure	64.0	179.5	89.0	84.7	83.2	87.4	90.6	93.9
	Total	790.3	979.9	939.6	1001.6	957.6	994.4	1032.4	1072.0
	(as a % of GDP)	35.2	46.9	40.0	38.7	34.4	33.9	33.9	33.9
Depreciation		52.4	53.4	55.1	60.8	65.5	68.8	71.5	74.4
Surplus on public sector current budget <sup>a</sup>		-15.1	-240.3	-81.1	-51.8	24.6	31.3	32.0	31.4
(as a % of GDP)		-0.7	-11.7	-3.5	-2.0	0.9	1.1	1.1	1.0
Gross investment		98.0	127.9	117.0	104.3	121.6	127.2	132.2	137.4
Net investment		45.6	74.5	61.9	43.5	56.1	58.3	60.7	63.0
(as a % of GDP)		2.0	3.6	2.6	1.7	2.0	2.0	2.0	2.0
Total managed expenditure		888.3	1107.7	1056.6	1105.9	1079.2	1121.6	1164.6	1209.4
(as a % of GDP)		39.5	53.0	45.0	42.7	38.7	38.3	38.3	38.2
Public sector net borrowing		60.6	314.8	143.0	95.3	31.5	27.0	28.7	31.5
(as a % of GDP)		2.7	15.1	6.1	3.7	1.1	0.9	0.9	1.0
Public sector net debt (% of GDP)		86.1	98.5	97.3	92.1	88.5	85.1	80.5	77.6
GDP deflator at market prices (2019=100)		100.9	107.4	106.9	115.6	122.8	127.2	130.0	133.2
Money GDP (£ billion)		2247	2090	2347	2587	2787	2930	3043	3166

Notes: These data are constructed from seasonally adjusted national accounts data. This results in differences between the figures here and unadjusted fiscal year data. Data exclude the impact of financial sector interventions, but include flows from the Asset Purchase Facility of the Bank of England. <sup>a</sup> Public sector current budget surplus is total current receipts less total current expenditure and depreciation.

**Table A9** Accumulation (percentage of GDP)

	Households		Companies		General government		Whole economy		Finance from abroad <sup>a</sup>		Net national saving
	Saving	Investment	Saving	Investment	Saving	Investment	Saving	Investment	Total	Net factor income	
2017	3.5	4.8	10.2	11.0	1.0	2.5	14.8	18.4	3.6	1.0	-0.1
2018	3.5	4.8	9.3	10.8	1.3	2.6	14.0	18.1	4.1	1.3	-1.0
2019	3.6	4.6	10.7	11.0	1.1	2.7	15.4	18.3	2.9	0.0	0.4
2020	11.5	4.3	10.8	9.8	-8.3	3.1	14.0	17.2	3.1	2.2	-2.4
2021	8.7	4.2	11.5	10.8	-4.1	3.0	16.1	18.1	2.0	0.5	0.5
2022	5.4	4.5	9.3	13.4	-0.7	3.3	13.9	21.2	7.3	3.1	-1.2
2023	5.0	4.4	2.7	10.1	2.0	3.7	9.8	18.2	8.5	7.4	-5.3
2024	6.0	4.2	2.9	10.2	3.0	3.7	11.9	18.1	6.2	6.3	-3.2
2025	6.6	4.1	4.0	10.2	3.0	3.7	13.6	18.0	4.5	5.6	-1.5
2026	7.0	4.0	5.1	10.3	2.9	3.7	15.0	18.0	3.0	4.9	-0.1
2027	7.2	3.9	6.0	10.4	2.7	3.6	15.9	17.9	2.0	4.5	0.8

Notes: Saving and investment data are gross of depreciation unless otherwise stated. <sup>a</sup> Negative sign indicates a surplus for the UK.

**Table A10** Medium- and long-term projections (percentage change unless otherwise stated)

	2021	2022	2023	2024	2025	2026	2027	2028-2032
GDP (market prices)	7.5	4.6	0.7	1.7	1.6	1.6	1.6	1.5
Average earnings	4.7	5.9	5.6	4.4	2.2	2.1	2.4	2.3
GDP deflator (market prices)	0.2	6.3	7.5	4.0	2.4	2.4	2.5	2.1
Consumer Prices Index	2.6	9.0	8.0	3.9	2.2	2.2	2.3	1.9
Per capita GDP	6.9	4.4	0.4	1.3	1.3	1.3	1.3	1.2
Whole economy productivity <sup>a</sup>	1.1	0.1	-0.3	0.9	0.9	1.0	1.1	1.3
Labour input <sup>b</sup>	6.6	4.2	0.6	0.9	0.8	0.7	0.5	0.2
ILO Unemployment rate (%)	4.5	3.7	4.1	3.9	3.7	3.5	3.5	3.9
Current account (% of GDP)	-2.0	-7.3	-8.5	-6.2	-4.5	-3.0	-2.0	-0.3
Total managed expenditure (% of GDP)	45.0	42.7	38.7	38.3	38.3	38.2	38.3	39.0
Public sector net borrowing (% of GDP)	6.1	3.7	1.1	0.9	0.9	1.0	1.3	1.7
Public sector net debt (% GDP)	97.3	92.1	88.5	85.1	80.5	77.6	75.0	71.0
Effective exchange rate (2011=100)	106.9	104.9	102.2	101.0	99.9	99.3	98.9	98.6
Bank Rate (%)	0.1	1.6	4.5	4.5	4.1	3.8	3.6	3.4
10 year interest rates (%)	0.8	2.5	4.1	3.8	3.6	3.5	3.4	3.3

Notes: <sup>a</sup> Per hour. <sup>b</sup> Total hours worked.

**Table A11** Gross Value Added by sector percentage change

	2018	2019	2020	2021	2022	2023	2024	2025	2026
Utilities and agriculture	-3.5	8.9	5.0	6.4	2.8	3.7	2.9	2.7	2.5
Mining and quarrying	6.3	2.2	-3.2	-11.1	2.1	-7.8	-5.6	-5.8	-5.9
Manufacturing	4.3	1.2	0.1	9.7	-4.2	1.0	2.3	1.1	0.9
Construction	-1.7	1.5	-13.5	13.2	5.1	1.6	0.6	0.3	0.4
Public sector	1.3	2.7	-19.8	12.5	7.1	0.7	0.6	0.8	1.0
Private non-traded services	0.8	1.2	-18.4	5.1	6.2	2.6	2.0	1.2	1.3
Financial services	-0.9	-2.5	0.3	5.3	0.7	0.6	0.9	0.8	0.7
Imputed rent	2.0	1.2	0.1	1.0	1.0	0.5	0.4	0.8	1.0
Private traded services	3.9	2.5	-10.5	8.8	10.0	2.0	2.3	2.3	1.3

Notes: NiSEM database and forecast. Public sector is composed of Public administration and defence, compulsory social security (O), Education (P) and Human Health and Social Work activities (Q). Private non-traded services sector is composed of Wholesale and Retail Trade, Repair of Motor vehicles and Motorcycles (G), Accommodation and Food services (I), Arts, Entertainment and Recreation (S), Real Estate Activities excluding imputed rent (L-68.2IMP) and Activities of Households as Employers (T). Private traded sector is composed of Professional, Scientific and Technical Activities (M), Transport and Storage (H), Information and Communication (J) and Administrative and Support Services Activities (N).



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