UNITED KINGDOM

SELECTED ISSUES

July 2024

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INTERNATIONAL MONETARY FUND

UNITED KINGDOM

SELECTED ISSUES

Approved By
European Department

Prepared by a team led by S. Ali Abbas with individual chapters authored by Agnese Carella, Ruo Chen, Andrew Hodge, Pragyan Deb, Katherine Dai, and Gloria Li (all EUR); Nihal Haider (MCD); R. Lama, and R Meeks (both MCM).

CONTENTS

MONETARY POLICY ISSUES IN THE UK[1]

After hiking rates 14 consecutive times between December 2021 and August 2023 to arrest above-target inflation, the Bank of England (BoE) has held rates at 5.25 percent since then, as inflation fell sharpy from double digits in 2023Q1 to near-target in 2024Q2. As the BoE prepares for easing, this paper examines three concurrent monetary policy questions: (a) how have the macroeconomic and financial effects of BoE monetary tightening during the current cycle compared with experiences in other major advanced economies (AEs), and with previous UK tightening cycles; (b) what is the impact of US Fed decisions on UK monetary transmission, and the attendant implications thereof for BoE communications; and (c) how do model-based predictions of UK monetary policy paths (which seek to stabilize inflation and the output gap) compare with staff's recommended path in the 2024 Article IV consultation. Section A finds that monetary transmission has largely mirrored previous episodes (and experiences in other major AEs), with the most notable exception of the mortgage channel, which has been slower due to a higher share of fixed-rate mortgages. Section B reveals an outsized impact of Fed announcements on UK financial markets and argues that this will place a premium on BoE communications in a context where the BoE may diverge from the Fed. Section C shows that optimal rate path predictions are close to staff's recommended path, although if the BoE attached a high weight to concerns about a prolonged period of above-target inflation leading to de-anchoring of inflation expectations, a slower pace of cuts would be warranted.

A. Monetary Policy Transmission: Is the Current UK Cycle Different?

1. In this section, we examine key macro and financial indicators and assess the effects of the tightening thus far. In particular, we explore whether the transmission of current monetary tightening differs from previous tightening cycles or other major AEs in the current contemporary cycle. We look at major macroeconomic and financial aggregates as well as UK household survey and firm-level data to isolate the impact on household consumption and business investment, the two main components of domestic demand.

Comparison with Previous UK Tightening Cycles

2. The current episode marks, by far, the BoE's most aggressive tightening cycle since its independence in 1997. The BoE raised interest rates 14 times at successive meetings of the Monetary Policy Committee (MPC), starting in December 2021 and reaching a peak of 5.25 percent in August 2023. While still ongoing, the current cycle is already longer than all previous cycles and has seen the largest rate increases and the highest number of hikes (Table 1).[2] The scale of tightening was commensurate with the unprecedented size of the inflation shock (Figure 1). From a peak of around 10–11 percent in late 2022/early 2023, headline inflation had fallen to 2.3 percent in April 2024 and is expected to durably return to the 2 percent target in early 2025. Although the

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[1] by Agnese Carella, Ruo Chen, Katherine Dai, Gloria Li (all EUR), R. Lama, and R Meeks (both MCM).

[2] The length of a tightening cycle is measured as the number of months from the first rate hike to the last month before the first rate cut. The current cycle lasts 30 months as of May 2024 (starting from December 2021).

cumulative increase in Bank Rate has been large, record-high inflation meant that real rates only became comparable with previous cycles in Spring 2023. Nevertheless, market-implied 5-year ahead inflation expectations (adjusted for the wedge between the retail prices index (RPI) and CPI inflation) remain broadly anchored, although, at around 2.5 percent, they have settled at a slightly higher level than before. Long-run inflation expectations have been well-anchored throughout the current tightening cycle.

Table 1. United Kingdom: Monetary Tightening Cycles in the UK					
Cycle*	Duration (# of months)	Total Rate increases	# of Rate Hikes	Inflation (highest)	Inflation (lowest)
1999-Sep to 2001-Jan	17	1 ppt	4	1.3%	0.6%
2003-Nov to 2005-Jul	21	1.25 ppt	5	2.4%	1.1%
2006-Aug to 2007-Nov	16	1.25 ppt	5	3.2%	1.7%
2017-Nov to 2020-Feb**	28	0.5 ppt	2	3.2%	1.3%
2021-Dec to present***	30	5.15 ppt	14	11.1%	2.3%
* A tightening cycle (except the current one) is defined from the first rate hike to the last month before the first rate cut. ** This cycle is excluded from later comparisons due to relatively small rate hikes but a long holding period. *** As of May 2024.					

Figure 1. Policy Rates, Inflation, and Inflation Expectations

Policy Rate
(Percent, cumulative increases in Bank Rate, monthly)
Sources: Bank of England and IMF staff calculations.

Headline Inflation
(Percent, monthly)
Sources: ONS and IMF staff calculations.

Real Rate
(Percent, Bank Rate - 1y ahead realized inflation)
Sources: Bank of England, ONS, and IMF staff calculations.

Inflation Expectations
(Percent, market-implied 5y inflation expectation)
Sources: Bloomberg, ONS, and IMF staff calculations.

3. **The behavior of key macroeconomic variables has been largely intuitive (Figure 2), recognizing that other factors have also been at play.** Real GDP growth has been much weaker than in all previous cycles. This is partly due to supply constraints, such as pandemic-related global supply disruptions, the terms of trade shock due to the energy price surge witnessed in the context of Russia's war in Ukraine, and labor shortages. Looking into domestic demand, weak growth mainly reflects even weaker household consumption (given its large weight in GDP) due to the high cost of living and weak consumer confidence. Investment seems to have held up better in recent years, including public investment, although these follow an extended period of weak investment (see Annex I on micro underpinnings of the weaker consumption and stronger investment responses). The labor market has been notably tighter than in previous cycles, partly due to the less flexible labor market since Brexit, although it has eased gradually since the early 2022 peak. Finally, unlike previous cycles, the real effective exchange rate depreciated initially and has appreciated in recent quarters, mainly driven by interest rate differentials with the US.

4. **The initial impact on financial conditions—as measured by staff's preferred measure of the Financial Conditions Index (FCI)—was somewhat stronger than observed in previous cycles but has eased recently.** The impact on FCI, as well as other financial market indicators (see below), is adjusted for the size of total rate hikes (i.e., measured as the elasticity of FCI to the cumulative rate increases). As noted by Catherine L. Mann in her speech in February 2023, the first stage of monetary transmission is mainly through financial markets (see Text Figure). While the FCI summarizes overall transmission in this first stage, it has three components:

Monetary Transmission Mechanism

Note: the description of monetary transmission channels is non-exhaustive. The inflation expectations channel, for instance, is not shown.
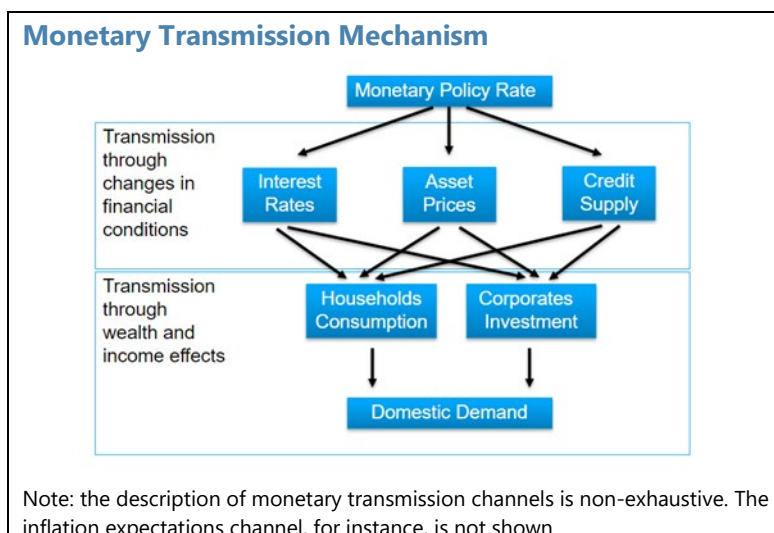
- **Interest rate channel,** where changes in market interest rates and banks' lending and deposit rates affect borrowing costs and saving returns. The response of "new" bank lending rates (including corporate and household loans) is similar to previous cycles (Figure 3). Similarly, the behavior of "effective" rates on corporate loans and household non-mortgage loans (such as consumer credit or personal loans) is consistent with that in previous cycles. However, the increase in "effective mortgage rates" (i.e., the average rate obtaining on the stock of outstanding mortgages) significantly undershot previous cycles due to a higher share of fixed-rate mortgages. With regard to "market rates", corporate bond yields over-responded during the early phase of the current cycle but have settled at a passthrough rate below one (around 0.7). "Gilt yields" have been more responsive to policy rate increases than previous cycles, which could reflect somewhat greater

Figure 2. Evolution of Broad Macroeconomic Variables

GDP growth has been anemic, ...

GDP
(Index, start of the tightening cycle = 100, monthly)

Legend: 1999Sep-2001Jan, 2003Nov-2005Jul, 2006Aug-2007Nov, 2021Dec-present

Sources: ONS and IMF staff calculations.

... while investment seems to be holding up better, albeit after a long stagnation

Investment
(Index, start of the tightening cycle = 100, quarterly)

Legend: 1999Q3-2000Q4, 2003Q4-2005Q2, 2006Q3-2007Q3, 2021Q4-present

Sources: ONS and IMF staff calculations.

The real exchange rate was low, but has appreciated in recent quarters (reflecting rate differential with the US).

Real Effective Exchange Rate
(Index, start of the tightening cycle = 100, quarterly)

Legend: 1999Q3-2000Q4, 2003Q4-2005Q2, 2006Q3-2007Q3, 2021Q4-present
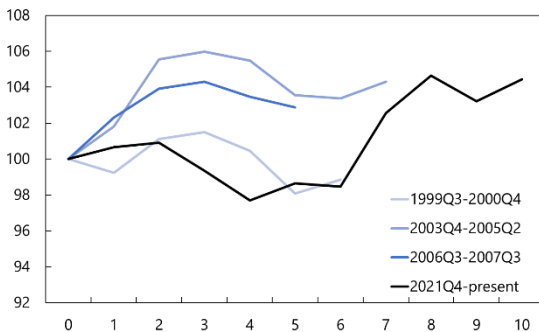
Sources: Haver Analytics, JPMorgan, and IMF staff calculations.

... with flattened private consumption, ...

Household Consumption
(Index, start of the tightening cycle = 100, quarterly)

Legend: 1999Q3-2000Q4, 2003Q4-2005Q2, 2006Q3-2007Q3, 2021Q4-present

Sources: ONS and IMF staff calculations.

Fiscal deficits have been larger than in previous cycles, but a clear correction since 2022Q4.

Budget Balance
(Percent of GDP, quarterly)

Legend: 1999Q3-2000Q4, 2003Q4-2005Q2, 2006Q3-2007Q3, 2021Q4-present

Sources: ONS and IMF staff calculations.

The labor market has been notably tighter than in previous cycles, although it has eased gradually since the early 2022 peak.

V/U Ratio
(Vacancy to unemployment ratio, monthly)

Legend: 2003Nov-2005Jul, 2006Aug-2007Nov, 2021Dec-present
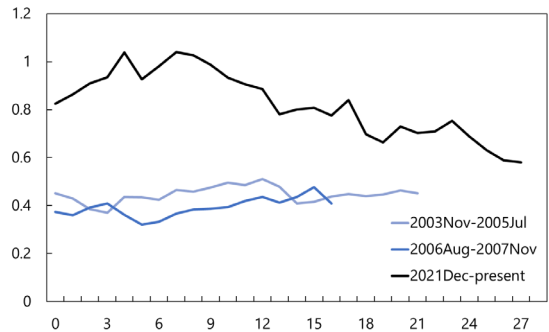
Sources: Bank of England, ONS, and IMF staff calculations.

concerns about public finances, given current elevated debt levels and in the aftermath of the "mini-budget" episode in September 2022.

Financial Conditions Indicator
(Elasticity to policy rate*, monthly)

* This is calculated as the ratio of cumulative changes in FCI since the start of the tightening cycle to the cumulative changes in the policy rate.
Sources: Bank of England, Bloomberg, and IMF staff calculations.

Outstanding Mortgage Rate
(Elasticity to policy rate*, monthly)

* This is calculated as the ratio of cumulative changes in mortgage rates since the start of the tightening cycle to the cumulative changes in the policy rate.
Sources: Bank of England and IMF staff calculations.

- **Asset price channel,** where changes in asset prices (including stock market prices and house prices) affect saving and investment decisions via wealth effects. While equity prices (FTSE100) have held up relatively well, house prices have been more subdued this time, which may also help to explain the weaker response of household consumption.

- **Credit channel,** where changes in the supply of credit due to changes in lenders' risk assessments of borrowers' credit worthiness reduce financing sources for consumption and investment. It is quite striking that bank lending has almost remained flat in the current cycle, a clear break from the past. In addition to monetary tightening, the weakness of bank lending could also reflect, among other factors, the structural break post-GFC and increased borrowing during COVID under the various government-backed schemes. On the other hand, corporate capital issuance through markets has been volatile but does not show significant deviations from previous cycles.

Comparison with Other Major Advanced Economies in the Current Cycle[3]

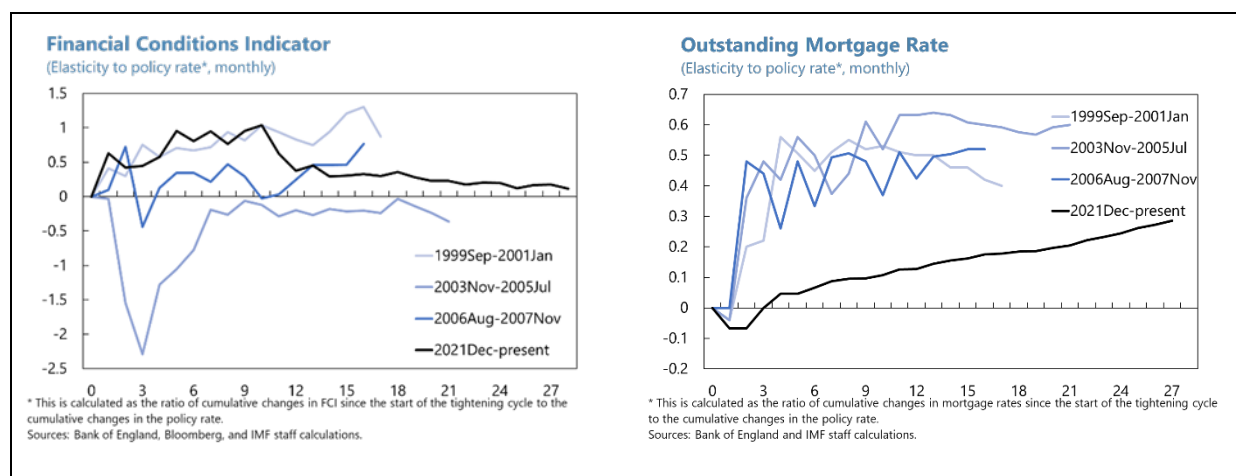5. **Other major central banks, notably the US Fed and the ECB, also raised rates significantly in response to the "shared" inflation shock.** Although the BoE was the first to raise its policy rate, it raised rates at a more gradual pace than the US Fed in the early part of the cycle. Controlling for the size of the monetary tightening, the UK's weak GDP and consumption response seem comparable to other countries, while investment was stronger, as explained before as well as in Annex I (Figure 4). Fiscal deficits have been relatively larger than in peer countries, reflecting somewhat stronger COVID support provided by the UK authorities. While wage growth has been similar to peers', it seems more persistent, likely due to a tighter labor market, as discussed before.

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[3] While central banks in advanced economies started increasing policy rates at different times, to simplify comparison, we assume the current cycle started in 2021Q4. Therefore, most macro-financial indicators are measured as changes since 2021Q3.

Figure 3. Evolution of Financial Indicators

There is no discernible difference in transmission through outstanding loan rates for corporates ...

Outstanding Corproate Loan Rate
(Elasticity to policy rate*, monthly)

1999Sep-2001Jan
2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
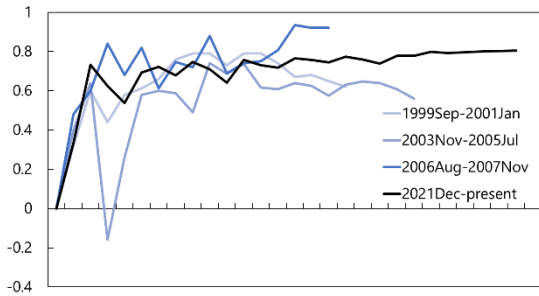
* This is calculated as the ratio of cumulative changes in corporate loan rates since the start of the tightening cycle to the cumulative changes in the policy rate.
Sources: Bank of England and IMF staff calculations.

... as well as other household loans.

Outstanding Other Household Loan Rate
(Elasticity to policy rate*, monthly)

1999Sep-2001Jan
2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
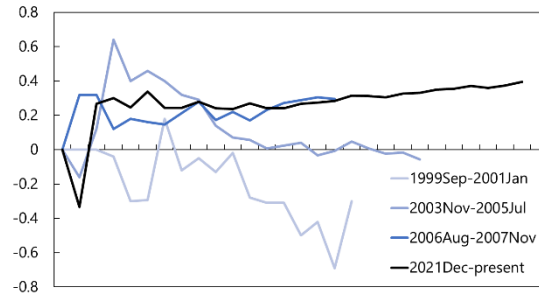
* This is calculated as the ratio of cumulative changes in other household loan rates since the start of the tightening cycle to the cumulative changes in the policy rate.
Sources: Bank of England and IMF staff calculations.

Bank lending has almost remained flat in the current cycle, ...

Bank Lending
(Index, start of the tightening cycle = 100, monthly)

1999Sep-2001Jan
2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
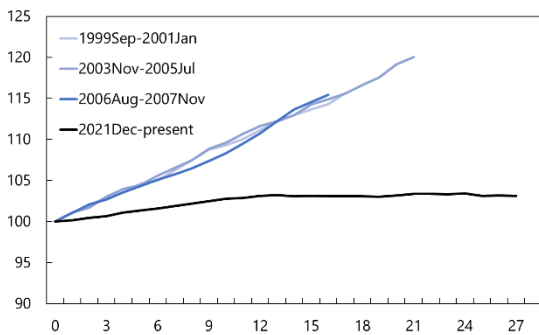
Sources: Bank of England and IMF staff calculations.

... while capital issuance has been volatile but not significantly different from other cycles.

Capital Issuance
(Index, start of the tightening cycle = 100, monthly)

2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
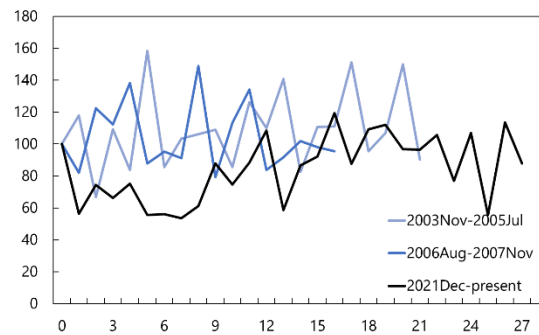
Sources: Bank of England and IMF staff calculations.

Equity prices have been holding up relatively well, ...

FTSE100
(Index, start of the tightening cycle = 100, monthly)

1999Sep-2001Jan
2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
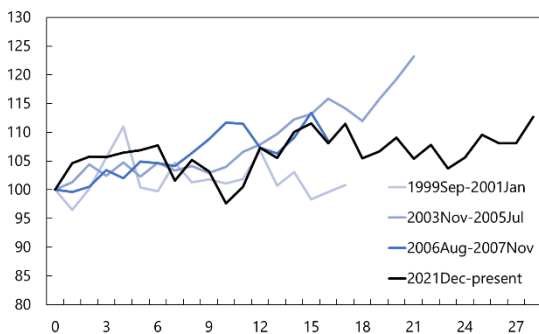
Sources: Haver Analytics, Financial Times, and IMF staff calculations.

... but – in a break from the past – house prices have been more subdued

House Prices
(Index, start of the tightening cycle = 100, monthly)

1999Sep-2001Jan
2003Nov-2005Jul
2006Aug-2007Nov
2021Dec-present
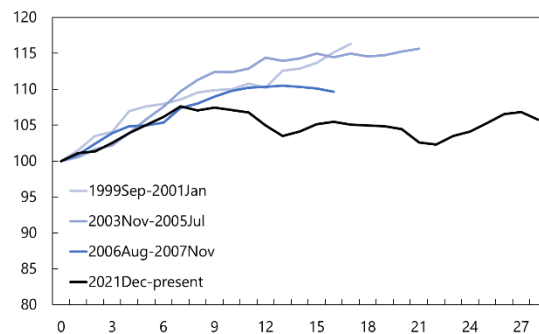
Sources: Haver Analytics, Halifax HPI, and IMF staff calculations.

Financial conditions seem to have been more "accommodative" than in peers, but the index measure used matters.[4] In addition, increases in new mortgage rates and bond yields have been among the highest, pointing to tighter financial conditions.

Policy Rate
(Percent, cumulative increases since 2021Q3)

Sources: Haver Analytics and IMF staff calculations.

Inflation
(Percent)

Sources: Haver Analytics and IMF staff calculations.
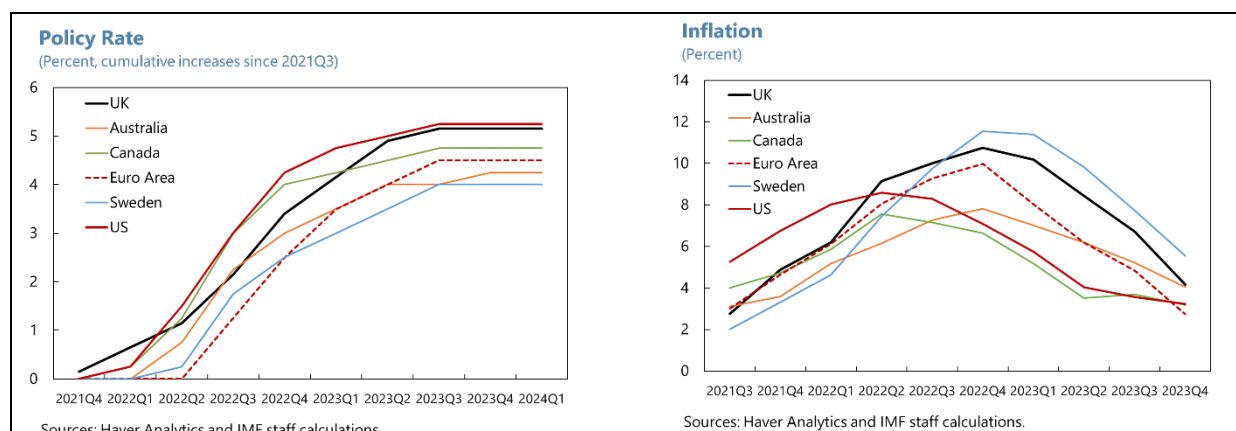
Key Takeaways

6.   Monetary transmission in the UK during the current cycle has mostly worked as expected and has been similar to the experiences in other AEs. GDP growth has been notably weak compared with previous tightening cycles, largely reflecting weak consumption, while investment has shown some resilience (supply constraints have also clearly played an outsized role during this cycle). This pattern obtains also when comparing with other transmission in other AEs. Most financial condition channels have responded in a similar manner as in previous cycles. The only exception is the increase in effective mortgage rates, which have been shallower, reflecting slower repricing due to a higher share of fixed-rate mortgages in the economy. Despite this slower transmission through mortgages, household consumption has been very weak, even though wage growth has picked up in 2023, mainly due to the high cost of living and weak confidence. The government's tax incentives have supported the resilience of business investment. However, not all firms have utilized such incentives. For example, profitability seems to be the main driver for manufacturing firms to step up investment.

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[4] The UK FCI has tightened much less based on the unified methodology developed for the Global Financial Stability Report (GFSR) than the staff's preferred measure.

Figure 4. Evolution of Macroeconomic Indicators Among Major AEs

Given the size of the monetary tightening, the weak GDP ...

GDP
(Index, 2021Q3=100, quarterly)
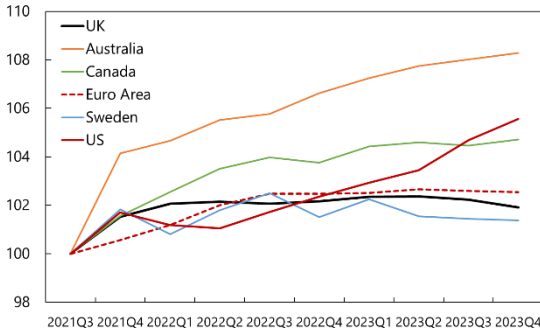
Sources: Haver Analytics and IMF staff calculations.

... and consumption seem comparable to other countries, ...

Private Consumption
(Index, 2021Q3=100, quarterly)
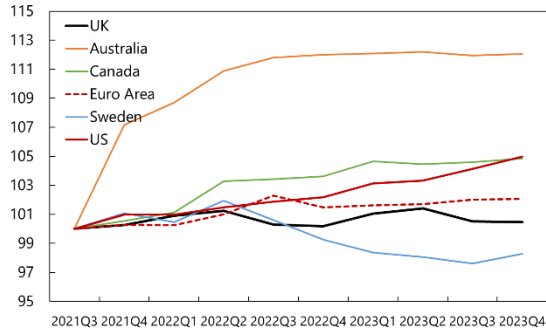
Sources: Haver Analytics and IMF staff calculations.

... while strong investment stands out.

Investment
(Index, 2021Q3=100, quarterly)
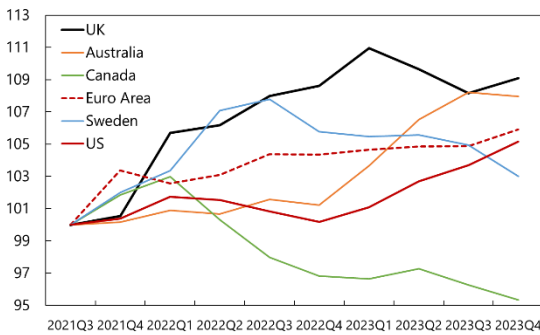
Sources: Haver Analytics and IMF staff calculations.

Fiscal deficits have been relatively larger.

Budget Balance
(Percent of GDP)
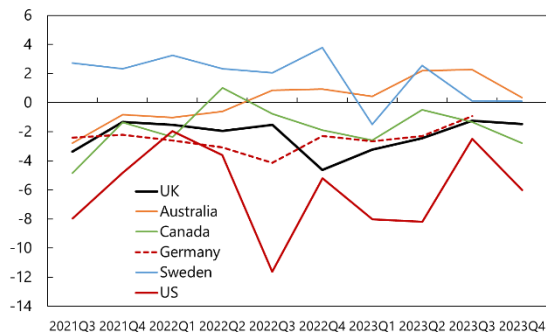
Sources: Haver Analytics and IMF staff calculations.

The real exchange rate has appreciated in recent quarters, broadly in line with the euro area.

Real Effective Exchange Rate
(Index, 2021Q3 = 100)
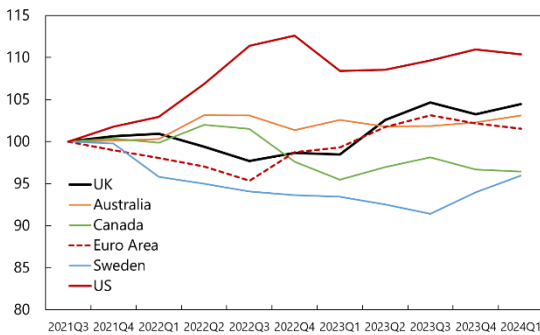
Sources: Haver Analytics and IMF staff calculations.

Financial conditions have been more "accommodative" compared with others, but the measure of index used matters.

Financial Conditions Indicator
(Index, cumulative changes since 2021Q3)
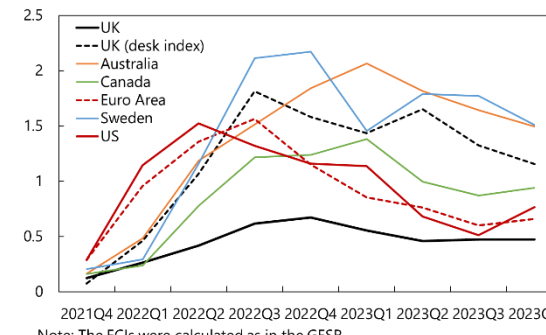
Note: The FCIs were calculated as in the GFSR.
Sources: Bloomberg and IMF staff calculations.

B.   UK MPC Decisions and Announcements: The Role of Fed Policy Spillovers

7.   This section examines (i) the impact of the Federal Open Market Committee's (FOMC's) monetary policy decisions on the UK MPC's monetary transmission; and (ii) the possible implications for MPC communications. As a global financial center, UK financial markets are sensitive to both domestic developments and international news. In particular, the FOMC's monetary policy decisions could affect UK domestic demand through their impact on the UK financial markets (the main channels of monetary transmission, see Section A). Thus, understanding the size and texture of these spillovers is important. Moreover, the sequencing (see below) of MPC and FOMC decisions/announcements can sometimes create the additional challenge of an MPC announcement being dominated by the just-preceding FOMC announcement. Therefore, we explore the scope of adjusting MPC decision and communication approach to avoid the market impact of its decisions being eroded by FOMC impacts.

8.   The FOMC's monetary policy decisions often have a nontrivial impact on the UK financial markets. For example, on December 13, 2023, the FOMC's announcement, including potential 75bps rate cuts in 2024, sent a dovish signal to markets. This happened after UK markets closed for the day. The next day, December 14, the 2-year gilt yield (closely linked to the policy rate) dropped 20 bps within 15 mins after the market opened. Later that day, the BoE's MPC announced a hawkish hold, with three out of nine MPC members voting for a further rate hike but no press conference following the announcement. After the MPC's decision, markets scaled back rate-cutting expectations slightly but still expect more than 100bps rate cuts in 2024, jumping from 75 bps the day before. The 2-year gilt yield increased 3 bps within 30 minutes around the MPC's announcement.

2-year Gilt Yield (Percent)

Sources: Bloomberg and IMF staff calculations.
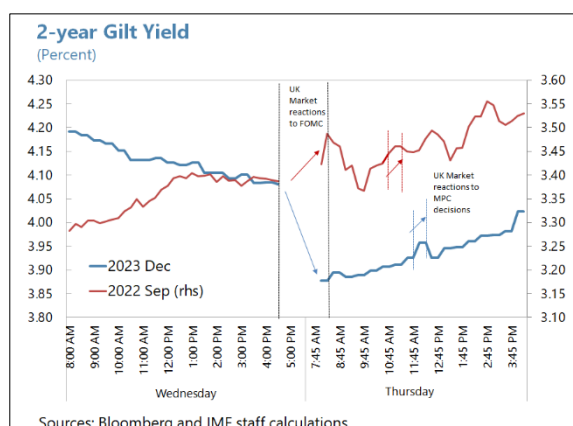
9.   Although the MPC's announcement came after the market had absorbed the FOMC's decision, the MPC's decision was made before the FOMC's announcement. According to the description of each MPC's policy decision procedure, the MPC generally meets several times before each announcement. In the final meeting, held on <u>Wednesday</u> of the announcement week, the Governor recommends the policy that he believes will be supported by most MPC members, followed by a vote by the MPC members. Then, the next day

Timeline of MPC and FOMC decisions
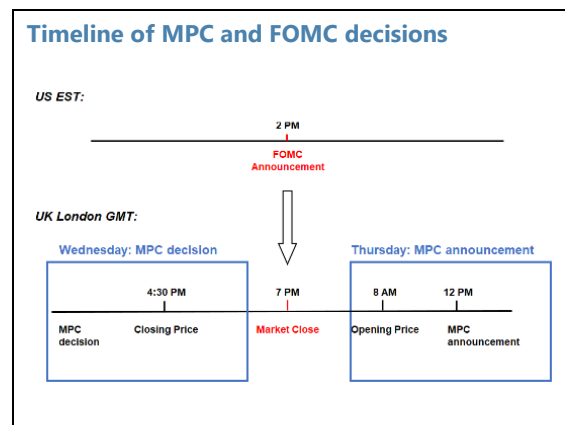
(Thursday) the MPC publishes its decision with the minutes of the meetings at noon. Every quarter, a monetary policy report (MPR) accompanies the announcement to provide more detailed reasons behind the monetary policy decision with an updated economic forecast. At present, the publication of the MPR is accompanied by a press conference led by the BoE Governor. In the example noted in the previous paragraph, the final meeting was on December 13, 2023. Due to the time difference, MPC members – at the time of their voting – did not have information regarding the FOMC's decision or reactions from the UK financial markets. Moreover, in this case, the market's reaction to the FOMC's decisions was inconsistent with the direction in which the MPC's policy decision would lead the market toward, but, as it was a non-MPR round, there was no press conference for the MPC to further articulate its views.

10.   Given that such back-to-back meetings are quite common in the MPC meeting schedule, it is helpful to understand how FOMC decisions generally affect monetary transmission in the UK. To this end, we have identified 41 FOMC's announcements that occurred one day before the MPC announcements from 1999 to mid-2023. A large number of these back-to-back meetings were held after 2016, when the MPC switched to eight decisions a year. For example, in 2023 and 2024, there are five MPC meetings each year, with decisions announced one day after the FOMC's decisions, and three of them did/do not have press conferences. In this context, we explore how UK financial markets reacted to FOMC decisions by utilizing high-frequency financial market data and then estimate how these reactions transmission into domestic demand. With a better understanding of such impact, it might be easier to see adjustments to MPC communications that increase the efficacy/transmission of MPC policy decisions.

Changes in 2-year Gilt Yields (Percent)

Sources: BoE, Bloomberg, and IMF staff calculations.
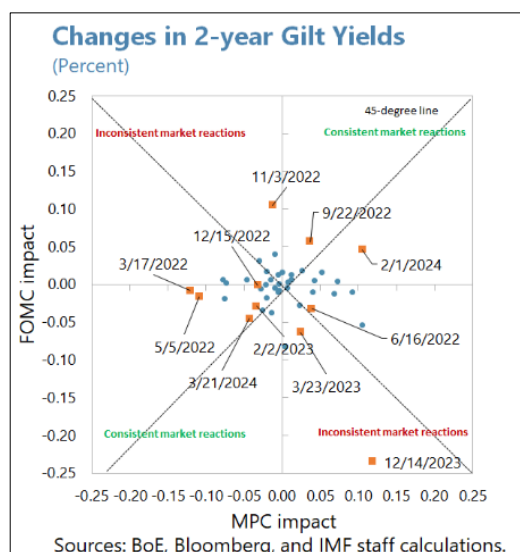
11.   We identify monetary policy surprises through changes in high-frequency market indicators within a narrow window around monetary policy announcements (Gurkaynak et al. 2005, Swanson 2021, and Braun et al. 2023). Using market movements around the time of policy announcements, we are able to separate the impact of the policy changes from the impact of other events. This isolation is important to "identify" monetary policy shocks. For market movements around the MPC announcements, we use the BoE's UK Monetary Policy Event-Study Database (UKMPD), a comprehensive dataset that provides intraday data on monetary policy surprises in the UK since 1997. The FOMC's decisions are usually announced at 2PM US Eastern Time, when the UK markets have closed for the day. Therefore, we use the differences between the opening prices on the next day and the closing prices on the day of the FOMC announcements to proxy UK market reactions to the FOMC's announcements.

12.   Then, we use factor analysis to identify underlying factors capturing policy decision shocks. Similar to Braun et al. (2023), we choose three factors that capture monetary policy news across price movements of seven indicators (the first four quarterly short sterling futures and the 2-, 5-, and 10-year gilt yields). The first factor, Target, has the highest correlation (factor loading) with short-term rates, representing news on the policy rate (Figure 5). The second factor, Path, has the highest correlation with the 4-quarter ahead sterling future rate, representing the MPC's forward guidance. The third factor, QE, has the highest correlation with the 10-year gilt yield, representing news on unconventional monetary policy (QE/QT). We take a similar approach to identify two factors (Spillover 1 and 2), capturing news in the UK markets *from* FOMC decisions. Spillover 1 represents the impact on short-term interest rates, and Spillover 2 represents the impact on medium- to long-term interest rates.[5]

Figure 5. Factor Loading
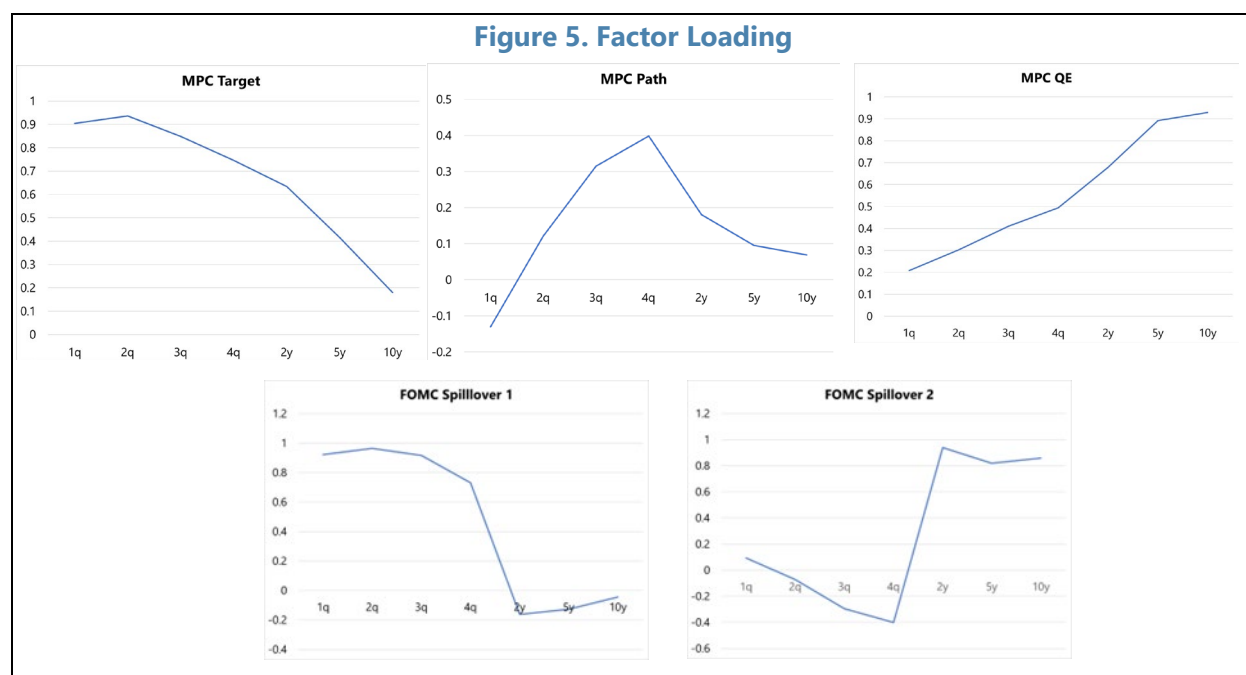
13.   The correlations between the MPC factors (Target, Path, and QE) and FOMC spillovers reveal that these two policy announcements can occasionally produce opposing shocks on the same day. Moreover, FOMC announcements can have sizable impacts on short-term rates (Spillover 1), while impacts on medium- to long-term rates are relatively smaller. This could be interpreted as markets expecting that the MPC's rate decisions somewhat follow the FOMC's just-announced policy.

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[5] Factors using the seven UK asset price changes corresponding to all FOMC announcements since 1999 show mixed correlations across the yield curves. This indicates that while other FOMC decisions also affect UK financial markets, they are less likely to be interpreted as direct monetary policy spillovers.

Comparison of MPC Target and FOMC Spillover1

Comparison of MPC Path and FOMC Spillover2

Sources: Bloomberg, BoE, and IMF staff calculations.

Sources: Bloomberg, BoE, and IMF staff calculations.
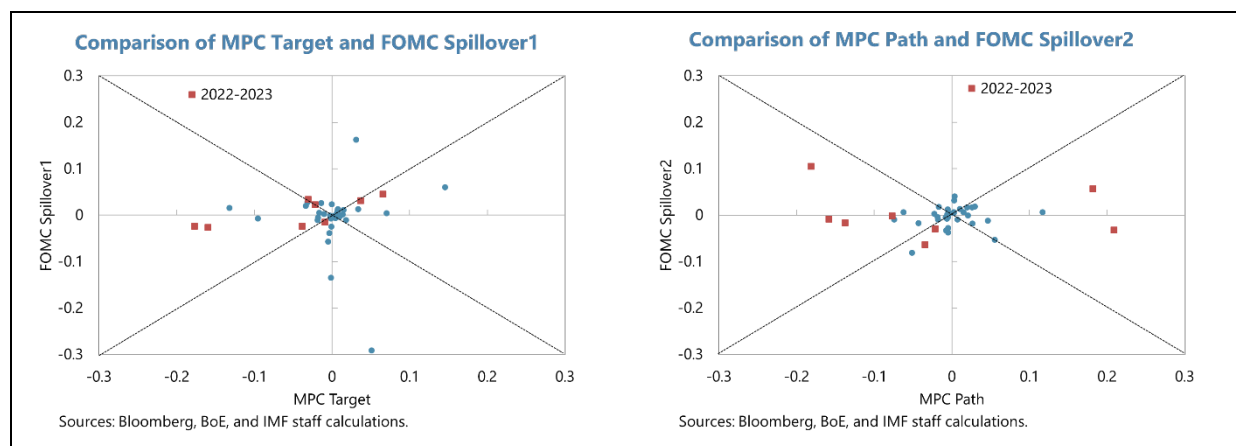
14.   Further examining the manifestation of FOMC spillovers in UK financial markets, we see some impact on foreign exchange (FX) markets but limited impact on stock markets. Specifically, we conduct the following regression analysis:

$$\Delta Y_t = \alpha + \beta Spillover1_t + \gamma Spillover2_t + \varepsilon_t$$

where ΔY_t denotes the change in the relevant asset price[6], and $Spillover1_t$ and $Spillover2_t$ are the FOMC monetary spillover shocks previously estimated. Table 2 presents the regression results. A positive Spillover 2 is associated with a slight depreciation of sterling against the dollar. This is likely due to the FOMC announcements (forward guidance) pushing up the long end of the US and the UK yield curves, with a stronger impact on the US curve. This widens the interest rate differences and leads to sterling depreciation. It is not surprising that the spillovers from the FOMC announcements have little impact on the UK stock markets or bilateral exchange rates with the euro.

	(1) FTSE100	(2) FTSE250	(3) FTSE_All	(4) GBP/EUR	(5) USD/GBP
Spillover 1	-0.493	-4.036	-0.105	0.002	0.009
	(0.54)	(4.15)	(0.32)	(0.01)	(0.02)
Spillover 2	0.535	4.065	0.142	-0.012	-0.082***
	(0.99)	(7.53)	(0.58)	(0.02)	(0.04)
Constant	0.0253	0.258	-0.0182	-0.001	0.003***
	(0.03)	(0.24)	(0.02)	(0.00)	(0.00)
R^2	0.024	0.027	0.004	0.015	0.124
N	41	41	41	41	41

Table 2. United Kingdom: Impact of the FOMC Spillovers

Notes: Standard errors are in parentheses. * $p<0.1$, ** $p<0.05$, *** $p<0.01$. GBP/EUR is the value of British pound per euro (an increase indicates sterling depreciation), and USD/GBP is the value of US dollar per British pound (an increase indicates sterling appreciation).

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[6] As FX markets operate 24 hours a day, the exchange rate delta for each FOMC announcement is computed as the difference between the closing price of the current day (9:59 p.m., after the FOMC decision was made) and the opening price of the current day (10:00 p.m. of the previous day, before the decision).

15.   **With the identified MPC monetary shocks and FOMC spillovers, we can estimate their effect on UK macroeconomic and financial aggregates.** First, we establish the baseline results with only MPC monetary shocks. Second, we add FOMC spillovers to the estimation model and examine the marginal impacts. To evaluate the effect of monetary policy on GDP, we use Stock and Watson's (2018) local projection using the external instruments (LP-IV) method. In particular, MPC monetary shocks and FOMC spillovers are used as instrumental variables. The impulse response functions from the LP-IV are as follows:

$$y_{t+h} - y_t = \alpha + \beta_{j,h} MP_{j,t} + \sum_{k=1}^{12} W_{t-k} + \epsilon_t$$

where y_t is the variable of interest (for example, real GDP), $MP_{j,t}$ is a monetary policy related indicator, and W_t is a set of control variables including 12 lags of all dependent variables and external instruments. The regressions include monthly data of Bank Rate, the 1-year and 10-year gilt yields, investment-grade corporate bond yield, the FTSE All Share index, the GDP volume index, and the consumer price index over the period of 1997 June to 2019 December. The FTSE All Share index, GDP volume index, and consumer price index are in log levels, and all other variables are in percentage points. Instrument variables include three MPC shocks (Target, Path, and QE) and two FOMC shocks (Spillover 1 and 2). In the baseline estimates, we adopt a methodology similar to the one used by Braun et al. (2023). We use the Target factor as an instrument for changes in Bank Rate and the Path factor for changes in 1-year gilt yield. The FOMC shocks are not included in these baseline estimates. In the subsequent estimates that incorporate the FOMC shocks, we introduce the Spillover 1 as an additional instrument variable for Bank Rate and the Spillover 2 for the 1-year yield. Additionally, both FOMC shocks are included in the control variables.

16.   **Our results indicate that FOMC spillovers do have a sizable effect on monetary transmission in the UK.** The left panel in Figure 6 present the evolution of (log) real GDP following a 100-bps increase in Bank Rate, representing the Target monetary policy shock. The horizontal axis denotes the months following the shock; the solid line displays the estimated mean response, and the shaded areas represent the 68 percent and 90 percent confidence intervals. The results suggest that a 100-bps monetary policy tightening shock through Bank Rate leads to about 1.2 percentage points decline in real GDP within 30 months, with the effect being persistent and remaining at about 1-1.2 percentage points 36 months after the shock.[7] The right panel show the results, including FOMC shocks. Compared with the baseline, we find that the FOMC spillovers strengthen the monetary transmission of Bank Rate by pushing forward the GDP impact, with the peak impact reaching about six months earlier. These results may not surprise us, as we already show that pre-2021 market reactions to FOMC and MPC announcements had been largely consistent. Very few observations since 2021 prevent us from limiting our analysis to the current cycle. In addition, the high volatility of macroeconomic and financial indicators during the COVID-19 percent added additional noise to the analysis. Still, within the limited observations, the current cycle presents some

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[7] The long lags of monetary transmission in Figure 6 are likely due to the 12 lags in the control variables to incorporate all possible impacts from the FOMC spillovers. Given the focus of this work on FOMC spillovers, we do not see major differences from Figure 7 in Section C.

abnormality, like what happened on December 14, 2023. When market reactions to FOMC and MPC decisions are inconsistent, the transmission through FOMC Spillover shocks could work against the MPC's objectives.

Figure 6. GDP Responses to MPC Target Shock

Source: IMF staff calculations.
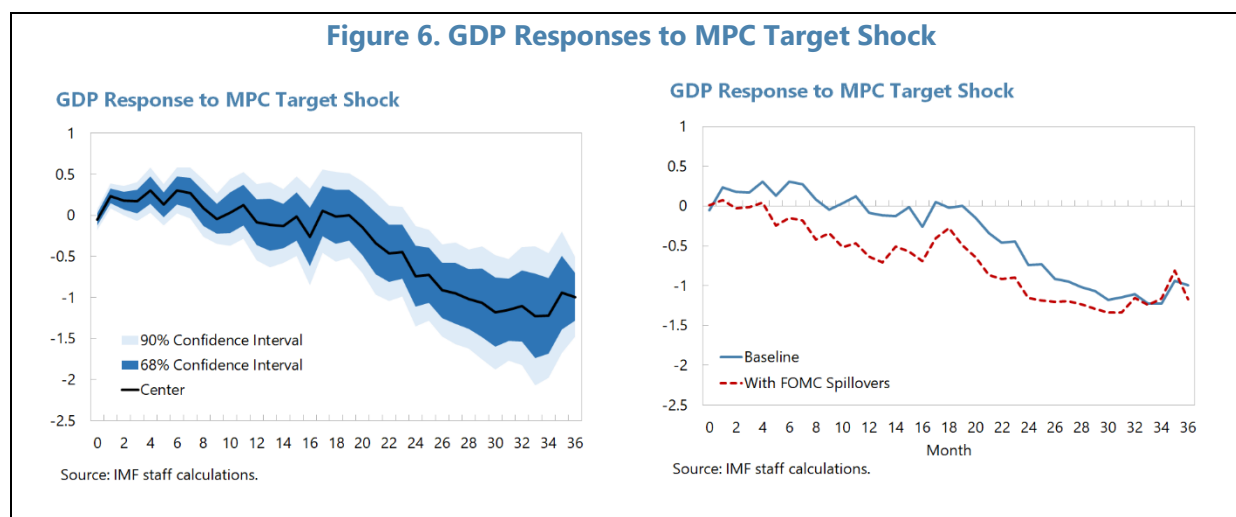
Key Takeaways

17.   The FOMC decisions do impact the UK financial markets and, therefore, affect the transmissions of the immediately following MPC decisions. Our empirical work, based on pre-COVID data, shows that FOMC announcements have been supportive of MPC's monetary transmission, given that market reactions were largely reinforcing. However, when market reactions to FOMC and MPC decisions go in opposite directions (as in December 2023), transmission through FOMC spillovers can work against MPC objectives. Therefore, the current approach—whereby the MPC makes its decision before the FOMC decision is announced but announces its decision after the market has absorbed the Fed decision—may be suboptimal in that the MPC decision and communication both do not consider the impact of the Fed's decision on domestic financial conditions. Moreover, not all MPC decisions are accompanied by a press conference. In this case, the MPC has no opportunity to elaborate or caveat its views when the market's reaction to Fed decisions is inconsistent with the direction the MPC's policy decision would lead the market toward.

18.   Given possible divergence from the FOMC rate path going forward, there is a scope to improve the effective MPC communications. The current communication modalities – under which the MPC minutes and, when applicable, the MPR are published alongside the MPC decision – were instituted following the 2015 Warsh review. However, this is quite onerous to deliver even allowing for an extra day after the decision, and would be virtually impossible to deliver on the day of the decision. In this context, consideration could be given to streamlining the amount of information published alongside the MPC decision, which could pave the way for the MPC decision to be announced on the same day. The publication of MPC minutes and the MPR could be delayed by a week or so (as in the case of the FOMC). At the same time, the MPC should consider holding a press conference after each of its decisions (as is done by other major central banks). This will

facilitate further explanation of the decision in a context of evolving market spillovers from FOMC deliberations, as well as avoid perceptions that the BoE decision has been overshadowed by the Fed.

C. Model-Based Alternative Monetary Policy Paths

19.   This section assesses the staff's baseline projection of the BoE policy path using the Constrained Optimal Policy Projection (COPP) toolkit. COPP is a toolkit developed by staff from the European Central Bank (ECB) and academics designed for generating optimal policy projections.[8] The tool allows users to assess whether a projected path is close to an optimal one and the role of credibility in shaping the future trajectory of policy instruments. Based on the baseline projection from the 2024 UK's Article IV staff report, we compare the current policy rate projection to a benchmark optimal control policy that seeks to stabilize inflation and the output gap within the policy forecast horizon. For generating the optimal policy projections, we employ the model proposed by Svensson (2000), which features a Philips curve, an IS curve, and an Uncovered Interest Rate Parity (UIP) condition. The model is calibrated to be consistent with estimates of the monetary transmission mechanism obtained using standard vector autoregressions (VAR) for advanced economies (Figure 7).

Figure 7. Monetary Transmission Mechanism in the Semi-Structural Open Economy Model

Note: Impulse-responses to a 100bps monetary policy shock in the Svensson (2000) model, estimated to match the results reported in Bernanke and Mihov (1998) and Gertler and Karadi (2015) for US consumer price inflation (CPI) and US GDP.
Source: IMF staff calculations.
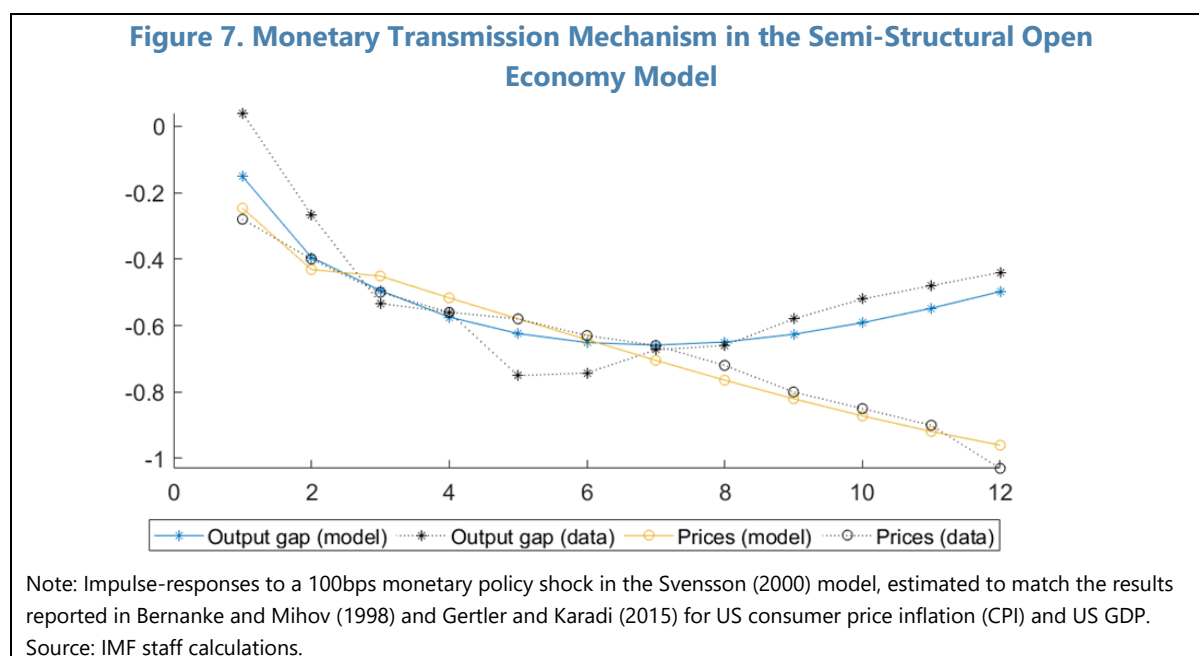
20.   Optimality is gauged by squared deviations of objective variables from their target values. As is conventional, the optimal policy exercise employs a quadratic loss function. Losses depend on deviations of inflation from its target, the output gap, and the first difference of the interest rate:

$$L = E_t \sum_{t=0}^{\infty} \beta^t \left\{ \lambda_\pi (\pi_t - \pi^*)^2 + \lambda_y (y_t - y^*)^2 + \lambda_i (i_t - i_{t-1})^2 \right\}$$

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[8] See De Groot et al. (2021).

Each argument of the loss function represents objectives of the central bank such as price, output, and financial stabilization. The weights in the loss function ($\lambda_\pi, \lambda_y, \lambda_i$), determine how the trade-offs for achieving those targets are managed by the central bank. Table 3 summarizes the coefficients used in the loss function. As a point of comparison for the optimal policy exercise, we also computed interest rate paths under two simple policy rules: one that embodies a high degree of interest rate smoothing, and balanced responses to inflation and the output gap; and another that features less smoothing and a stronger response to inflation (Figure 8).

Table 3. United Kingdom: The Coefficients in the Loss Function				
Weights	Baseline Loss Function	High Inflation Weight	High Output Weight	High Interest Rate Weight
λ_π	1	5	1	1
λ_y	1	1	5	1
λ_i	1	1	1	5
Loss Function (relative to staff projection)	0.53	0.66	0.54	0.56

Figure 8. Monetary Policy Under Simple Rules

Note: Actual = quarterly average Bank Rate/Baseline projection; Taylor Rule I = coefficient of 0.9 on lagged Bank Rate (i), 1.5 on annual CPI inflation (π), 1 on output gap (y); Taylor Rule II = coefficient of 0.75 on lagged Bank Rate, 2 on annual CPI inflation, 0.5 on output gap. Taylor rules take the form: $i_t = \rho i_{t-1} + (1 - \rho)(i^* + \phi_\pi \pi_t + \phi_y y_t)$.
Source: IMF staff calculations.

21.   We find that the staff's baseline policy projection is close to optimal, but with differences in the timing of rate cuts. Figure 9 shows that while the overall optimal interest path for different assumptions on the loss function is close to the baseline interest rate projection, there are some differences. The optimal interest rate policy suggests a much earlier reduction in the policy rate, followed by a period of rates at around 4 percent in 2025-6. The main reason for this faster normalization of the policy rate is to bring forward the date at which the projected output gap is closed, taking transmission lags into account. The broad pattern of policy moves is not particularly

sensitive to the weight placed on different objectives in the loss function. Furthermore, under all the different assumptions of the loss function, the inflation converges to the 2 percent target by 2025.

22.   With concerns about a prolonged period of above-target inflation leading to the de-anchoring of inflation expectations, the optimal path moves closer to the staff projected path, indicating a more gradual normalization of the policy rate. The previous simulation assumes both perfect foresight and always-anchored inflation expectations. This is a helpful benchmark, as it allows us to determine the best achievable outcomes. However, the possibility of a prolonged period of above-target inflation outcomes leading to a de-anchoring of inflation expectations cannot be ruled out (although, to be clear—long-run inflation expectations have remained well-anchored throughout this tightening cycle). In this case, we assume that only a fraction a=0.5 of agents have perfect foresight with inflation expectations staying at the target, and that fraction decays at the exponential rate for each quarter of the projection horizon then. Figure 10 shows that the de-anchoring risk generates an optimal policy path that is closer to the staff's baseline projection. Given the fact that there is still a negative output gap, there remains an incentive to normalize the interest rate paths quicker than in the baseline projection in order to stimulate output.

23.   The optimal path of policy rate normalization is similar if the BoE targets core inflation. One last sensitivity analysis we considered is the case where the BoE sets the policy rate path to stabilize core inflation, which may be closer to the rate of domestically-generated inflation of concern to policymakers. As shown in Figure 11, core inflation displays a higher degree of inertia relative to the headline inflation, leading to a more pronounced trade-off between inflation and output stabilization. However, the constrained optimal policy path remains similar to the baseline case of targeting headline inflation. We conclude that the "cut, hold, cut" prescription described above is robust to assuming a higher degree of inflation inertia.

Figure 9. Optimal Policy Projections Under Various Objectives
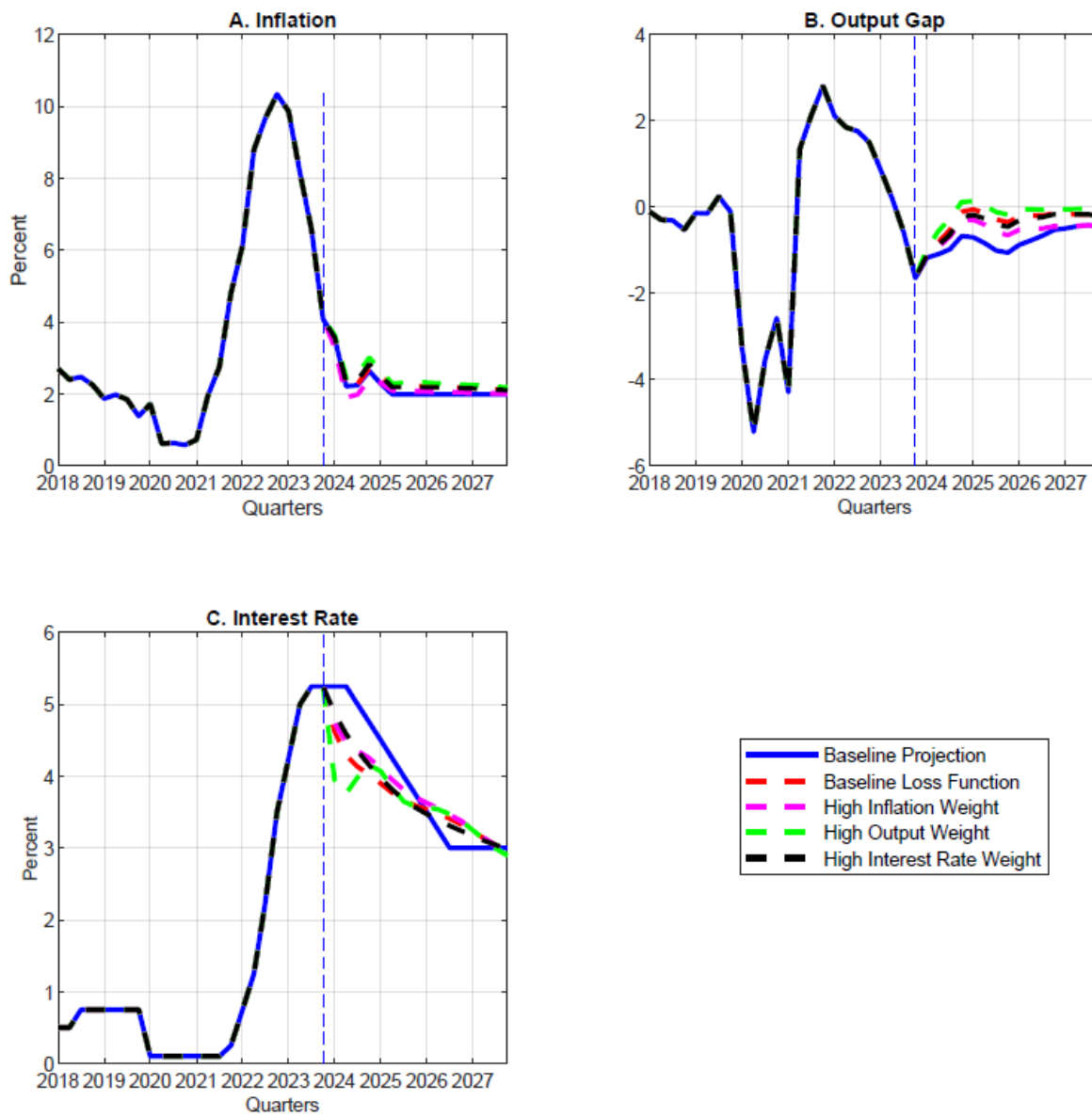
A. Inflation

B. Output Gap

C. Interest Rate

Legend:
- Baseline Projection
- Baseline Loss Function
- High Inflation Weight
- High Output Weight
- High Interest Rate Weight

Note: The baseline projection (blue solid line) is from the 2024 Article IV staff report.

Source: IMF staff calculations.

Figure 10. Constrained Optimal Policy Projections Under De-Anchoring Risk
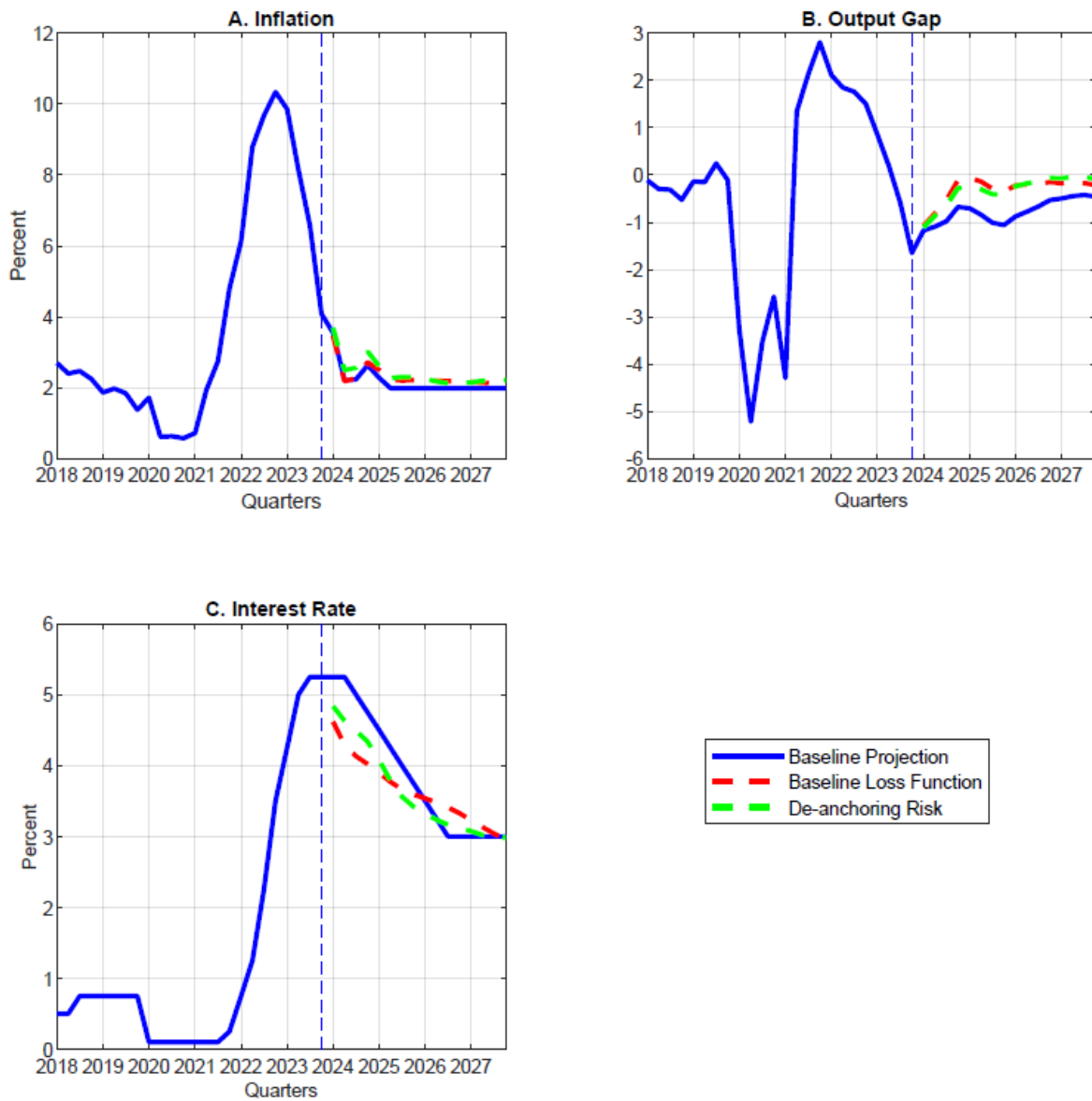
A. Inflation

B. Output Gap

C. Interest Rate

Baseline Projection
Baseline Loss Function
De-anchoring Risk

Note: The baseline projection (blue solid line) is from the 2024 Article IV staff report.

Source: IMF staff calculations.

Figure 11. Constrained Optimal Policy Projections of Core Inflation
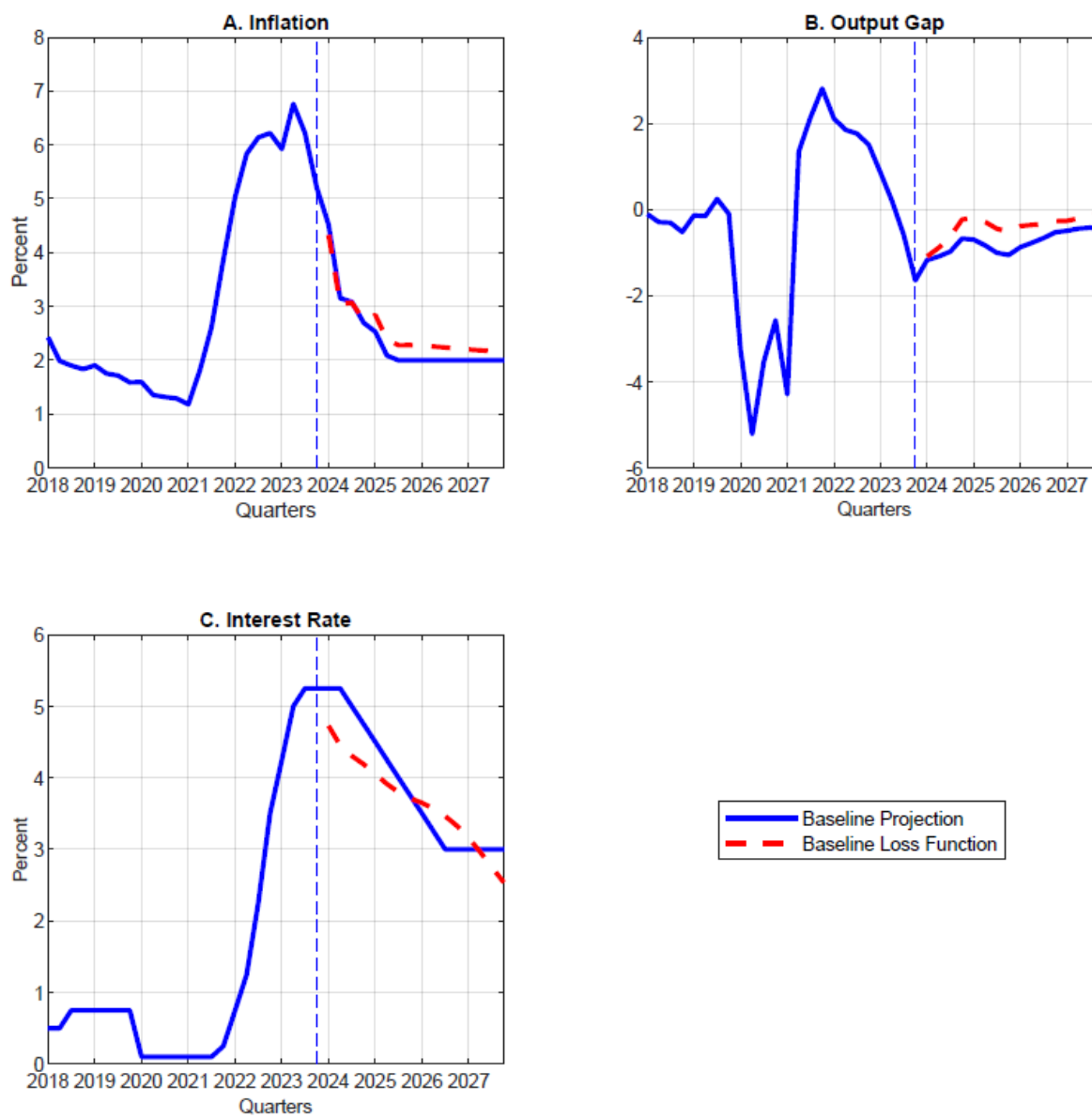
A. Inflation

B. Output Gap

C. Interest Rate

Baseline Projection
Baseline Loss Function

Note: The baseline projection (blue solid line) is from the 2024 Article IV staff report.

Source: IMF staff calculations.

Annex I. Micro Underpinnings of the Weaker Consumption and Stronger Investment Responses

1.   Weak household consumption seems driven by the high cost of living and weak consumer confidence. We calculate changes in household consumption from 2019 to 2022 and from 2022 to 2023 and see how these changes were financed: i.e., through changes in income or changes in saving/borrowing, after considering changes in debt service.[1] As expected, we see a general increase in median consumption across all income groups from 2019 to 2022, and, to a large part, this is due to higher costs of living. While there were some increases in mortgage payments, debt service on other household loans was actually smaller. Overall, we do not see strong income growth across all income groups (only in the top two income groups), so the higher consumption was largely financed by withdrawal of savings or by more borrowing (more likely for the lower income group). However, from 2022 to 2023, we see across-the-board increases in household income, but these were largely saved, likely due to weak consumer sentiment.

Changes in Household Consumption by Sources
(£, median per income group, 2019 vs. 2022)
Sources: BoE NMG household survey and IMF staff calculations.

Changes in Household Consumption by Sources
(£, median per income group, 2022 vs. 2023)
Sources: BoE NMG household survey and IMF staff calculations.
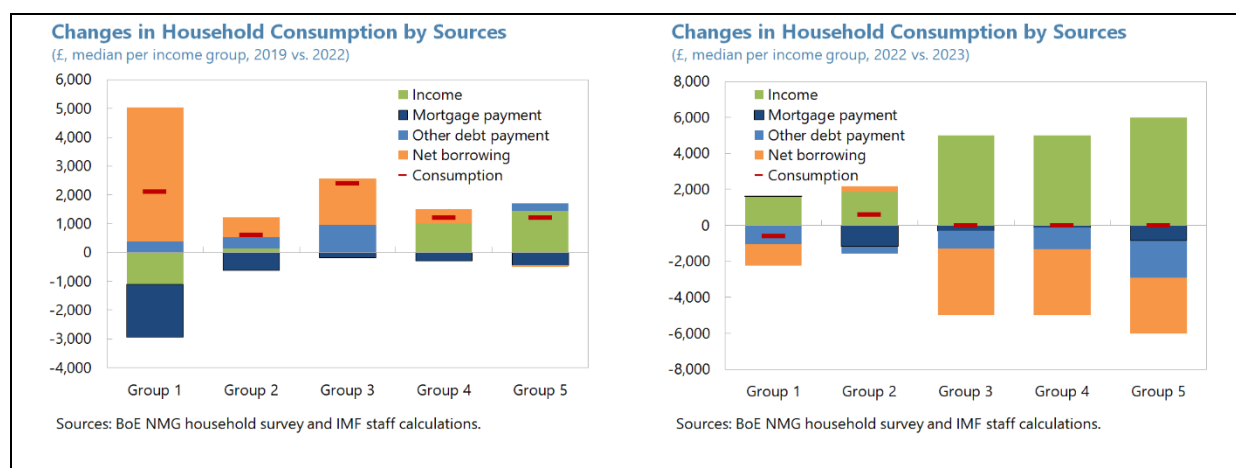
2.   Consistent with the macro result on slower monetary transmission via the mortgage channel, we see no major increases in mortgage payments across the income spectrum. Households with mortgages are more concentrated in higher-income groups. Overall, less than 30 percent of households in the survey have mortgages, with about 50 percent in the highest income group and less than 10 percent in the lowest income group. Moreover, the distribution of mortgages (including both floating-rate and fixed-rate) that are subjected to repricing each year also follows a similar pattern. Therefore, we see that the seemingly larger increases in mortgage payments in the lower income groups in 2022 (Group 1) and 2023 (Group 2) were likely due to other factors (such as new mortgages) rather than the repricing of existing mortgages (the latter would have bigger impact on higher income groups). In the near term, despite continued flows of fixed-rate mortgages being subject to higher rates, we do not expect this to be a major drag on

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[1] We use the Bank of England/NMG household survey data.

consumption. Instead, continued strong wage growth and improving consumer sentiment will likely support a consumption recovery going forward.
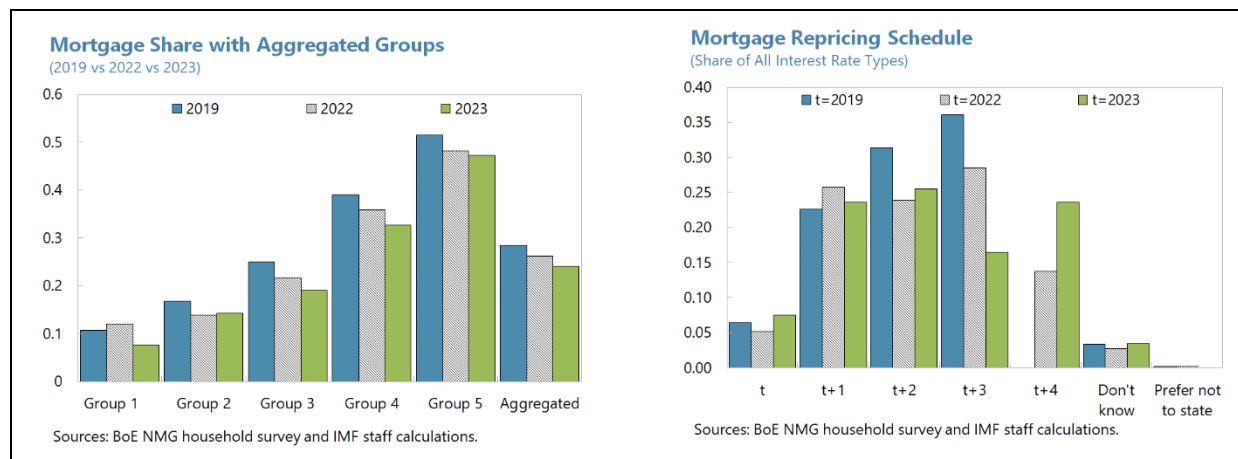
3. **On the investment side, business investment is finally picking up after a long period of stagnation.** Firm-level data from Worldscope shows that, on average (asset-weighted), the utilities and communications sectors had the highest increases in capital expenditures from 2019 to 2022, while capital expenditures in manufactures declined. From 2022 to 2023, strong investment in utilities and communications continued, and was accompanied by a rebound in the manufacturing sector. Several factors can explain this rebound: the Windsor Framework agreement (which has helped reduce Brexit-related uncertainty), pent-up investment demand that had built up during the early covid period; and, more importantly, the full tax-expensing of business investment in plant and machinery introduced in the 2023 Spring budget and made permanent in the 2023 Autumn statement.
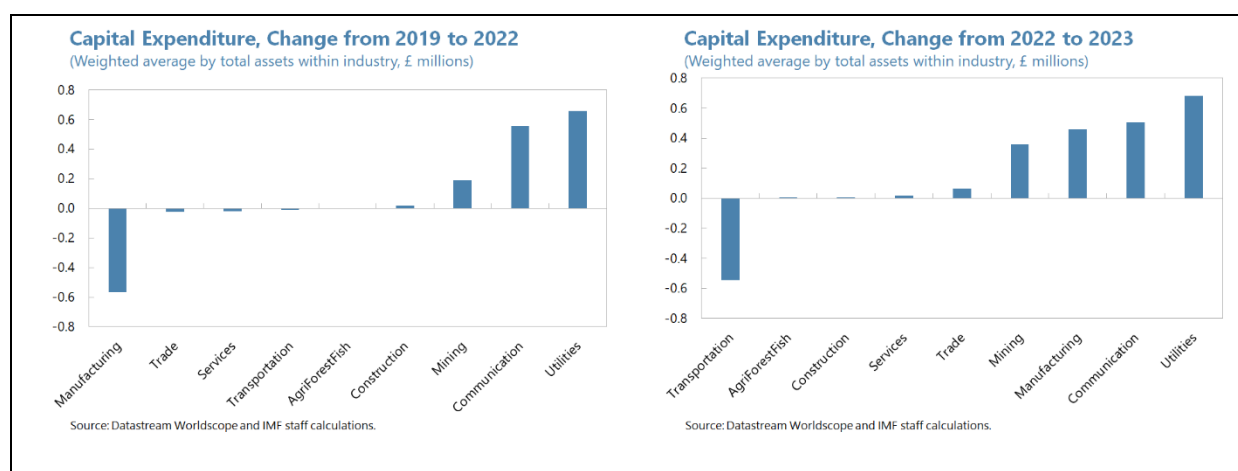
4. **However, not all sectors have utilized tax incentives and stepped-up investment.** The transport and communications sector, which has maintained relatively high capital expenditures in both 2022 and 2023, seems to have utilized the tax incentives (shown as other operational cash flows) to finance capital expenditures. However, looking at representative firms in manufacturing,

the recovery of profits (net income from operation) seems to be the main driver of the recovery of capital expenditures in 2023. In addition, sources of long-term financing (including equity financing) help further boost capital expenditures. Looking forward, while permanent tax incentives will support business investment, positive outlook (profitability) and access to long-term financing will also be crucial for sustained growth in business investment.

Decomposition of Capital Expenditure Transport and Communications (High Investment Sectors)
(Representative firms: thousands GBP)

Decomposition of Capital Expenditure Manufacturing (High Investment Sectors)
(Representative firms: thousands GBP)

Sources: Datastream Worldscope and IMF staff calculations.
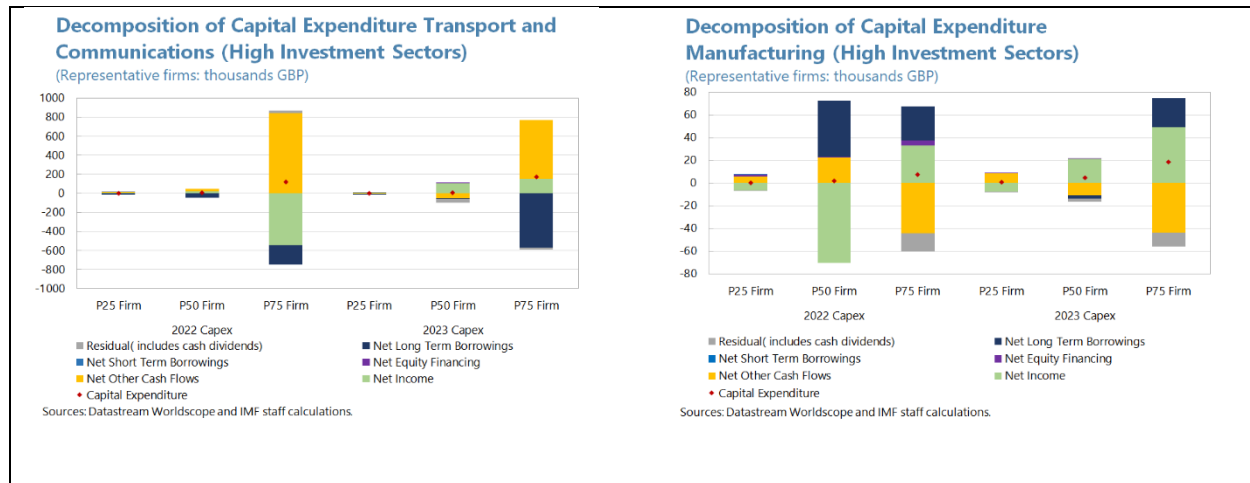
References

Bernanke, B. S., and Mihov, I. (1998). Measuring monetary policy. The quarterly journal of economics, 113(3), 869-902.

Braun, R., Miranda-Agrippino, S. and Saha T. (2023). Measuring monetary policy in the UK: the UK monetary policy event-study database (No. 1050). Bank of England Working Paper.

Cesa-Bianchi, Ambrogio & Thwaites, Gregory & Vicondoa, Alejandro, 2020. "Monetary policy transmission in the United Kingdom: A high frequency identification approach," European Economic Review, Elsevier, vol. 123(C).

de Groot, O., Mazelis, F., Motto, R., and Ristiniemi, A. (2021). A toolkit for computing Constrained Optimal Policy Projections (COPPs) (No. 2555). ECB Working Paper.

Gertler, M., and Karadi, P. (2015). Monetary policy surprises, credit costs, and economic activity. American Economic Journal: Macroeconomics, 7(1), 44-76.

Gurkaynak, R. S., Sack, B., and Swanson, E. T. (2005). Do actions speak louder than words? The response of asset prices to monetary policy actions and statements. International Journal of Central Banking, 1(1), 55-93.

Stock, J. H. and Watson, M. W. (2018). Identification and estimation of dynamic casual effects in macroeconomics using external instruments. The Economic Journal, 128(610), 917-948.

Svensson, L. E. (2000). Open-economy inflation targeting. Journal of international economics, 50(1), 155-183.

Swanson, E. T. (2021). Measuring the effects of federal reserve forward guidance and asset purchases on financial markets. Journal of Monetary Economics, 118(4), 32-53

PUBLIC SPENDING PRESSURES IN THE UK[1]

This paper characterizes UK public spending pressures over a ten-year horizon and their implications for public deficits and debt levels. The analysis is based on a 'bottom-up' scenario for total public expenditure, that includes, inter alia, implementation of the NHS Long-Term Workforce Plan, public investment to support the Balanced Pathway to Net Zero, and state pension spending under the Triple Lock policy. This scenario is approximately consistent with IMF staff's baseline projection for the medium term (to FY2029/30) shown in the 2024 Article IV consultation staff report, which assumes real growth in Departmental Expenditure Limits (DEL) of two percent per year after FY2024/25. Assuming revenue stabilizes in FY2028/29 at the level projected by IMF staff (40.8 percent of GDP), public debt does not stabilize over ten years, reaching 101.3 percent of GDP by FY2034/35. Stabilizing debt will require the primary balance to be 0.8–1.4 ppts of GDP higher per year (on average after FY2024/25), depending on the time horizon for stabilization (5 or 10 years) and the target probability of debt stabilization (50 or 75 percent).

A. Introduction

1.   The UK faces mounting pressures on public services as well as having critical public investment needs, including for the green transition. At the same time, the UK does not have detailed spending projections after FY2024/25, which is the end of the period covered by the 2021 spending review. The government currently assumes real spending growth of current spending (RDEL) of one percent per year during FY2025/26–FY2028/29, while the capital budget (CDEL) is flat in nominal terms.[2] These assumptions are facing increasing scrutiny, given that it is unclear how the mounting pressures can be accommodated within *these* parameters.

2.   In this project, the drivers of these spending pressures are identified and quantified, through a breakdown of spending into the various 'functions' of government (see Annex Tables I.1 & I.2 for further details). A functional breakdown of spending rather than a departmental breakdown keeps the analysis tractable because spending in particular areas (e.g., education) can be delivered by more than one central government department, devolved administration, or local government. A functional approach also makes it easier to incorporate estimates of future spending needs already in the literature (particularly for health and pensions). The focus is medium to long term, encompassing the decade to FY2034/35. This window is chosen to be long enough to capture some of the longer-term spending trends, but short enough to be relevant for current policy discussions.

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[1] by Andrew Hodge (EUR).

[2] Departmental Expenditure Limits (DEL) account for around two-fifths of public sector Total Managed Expenditure (TME). DEL were set at the 2021 Spending Review until FY2024/25 but grow at the assumed rate thereafter. The remainder of public expenditure is Actively Managed Expenditure (AME), which included interest payments, pension, and other welfare spending, that cannot be as easily pre-planned. The sum of DEL and AME is Total Managed Expenditure (TME).

3.   The analysis is based on a scenario for total public spending generated using bottom-up projections that is approximately consistent with IMF staff's medium-term baseline (to FY2029/30, presented in the 2024 Article IV Consultation Staff Report) and assessment of which spending needs are most critical and likely to be accommodated.

4.   The main drivers of spending are found in health (including social care), education, and social protection (state pension and welfare), reflecting pressures on public services, including because of ageing, while pressures also appear in housing and transport due to investment needs, including for the green transition. Although these are the main drivers, the project encompasses all of the main functions of government, including defense and public safety.

5.   While estimates of spending needs in selected areas (notably health, pensions) already exist in the literature, a key contribution of this project is to illustrate how pressures across the full spectrum of functional spending combine within an aggregate spending envelope, showing the difficult decisions of spending prioritization that would be needed to stabilize public debt, unless additional revenue raising measures are implemented.

B.   Historical Spending Trends

6.   The UK has experienced several distinct trends in public spending over the past two decades (see Appendix table A3 for historical data on Total Managed Expenditure (TME) by functional classification to FY2022/23):

- First, there is the **upscaling of public spending on services** in the **early 2000's**. After declining in the early to mid-1990's, public spending (TME) rose by approximately 5 ppts of GDP between FY1999/00 and FY2007/08. In part, this reflected deliberate government policy to invest in public services. Most notably, this included health, which increased by around 2 ppts of GDP, to 6½ percent of GDP by FY2007/08, accompanied by a one percentage point of GDP increase in education spending and a ½ percent of GDP increase on transport, while spending on housing doubled in percent of GDP from 0.4 to 0.8 percent.

- Second, there was a sharp surge of public spending in the period following the **Global Financial Crisis (GFC)**, including due to automatic stabilizers as the economy contracted. TME rose by 6 percent of GDP between FY2007/08 and FY2010/11, reaching a level that was approximately 11 ppts higher than it was a decade earlier.

- Third, the election of the Coalition Government in 2010 began a period widely characterized as **'austerity'**, during which TME declined by around 5 ppts of GDP to its pre-GFC level of 40 percent by FY2019/20. While spending on health declined over the decade by less than ½ percent of GDP and transport spending even slightly increased, education spending declined by 1½ ppts of GDP to end the decade 1 full percentage point of GDP below its FY2007/08 level. Defence spending also declined to be roughly 1¾ percent of GDP in FY2018/19, about ½ percent of GDP below its pre-GFC level. Welfare spending (excluding the state pension) declined steeply back to its late 1990's level over the decade to FY2019/20 (chart below), with

annual increases in benefit levels capped at 1 percent from 2014 and then frozen from 2016. Pension spending also declined but less dramatically. After being relatively stable throughout the late 1980's and 1990's at around 4½ percent of GDP, state pension spending rose during the 2000's to be 5½ percent of GDP in the early 2010's, which the OBR attributes to the ageing population, generous 'uprating' (likely including the introduction of the 'triple lock' policy in 2011) and the decline in nominal GDP and sluggish recovery associated with the 2009 recession. Increases in the state pension eligibility age in the late 2010's caused pension spending to decline to around 5 percent of GDP in FY2019/20.

- Finally, the **pandemic and energy price crisis** caused another spike in TME, of over 13 ppts. to 53 percent of GDP in FY2020/21, with large amounts of discretionary relief given to consumers and firms (around 6 ppts of GDP), appearing in the functional category of 'economic affairs'. Spending on health increased by around 3 ppts of GDP the same year and spending on non-pension benefits also rose sharply. Given the higher borrowing and rise in interest rates, interest payments have risen by 2½ percent of GDP more recently to approximately 5 percent of GDP in FY2022/23, while spending on 'public and common services' has increased, which includes external affairs.
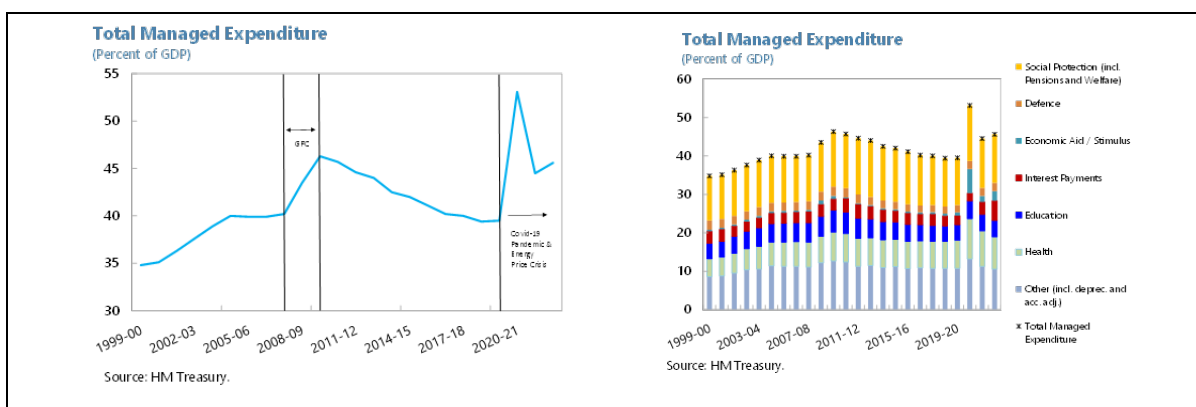
C. The Spending Scenario in Detail

7.   **While the scenario is constructed from bottom-up projections across spending functions, it is approximately consistent with IMF staff' medium-term baseline (shown in the 2024 Article IV Staff Report),** which assumes that spending will rise by 2 percent per year in real terms (both current (RDEL) and capital spending (CDEL)) until FY2028/29, while non-interest AME will rise with population growth and inflation on average. Spending growth would then continue at a similar pace until FY2034/35. The detailed functional breakdown of spending in the scenario illustrates that it encapsulates high priority spending on the state pension, health, social care, housing, and education, at least in the medium term, which defence spending is assumed to reach 2½ percent of GDP per year. The scenario is also consistent with increased investment in the green transition, although it may need to be prioritized over other capital expenditure. Beyond these main drivers, the projections assume that most other drivers of spending remain constant in percent of

GDP. Each of the major drivers are explained in detail below. Assumptions for every functional spending area are presented in *Text Table 1, with the implied spending levels in Text Tables 2–3.*

Health

8.   **There are acute pressures on health spending in the UK. NHS staff vacancy rates are elevated,** while (albeit imperfect) metrics of resource adequacy are below that of peer countries, including the number of hospital beds, doctors and nurses per capita (see chart below). Simultaneously, the percentage of the population reporting that they are disabled (including with mental illness) is higher than in many peer countries, suggesting additional strain on the health system. It should be noted, however, that health outcomes (such as child mortality, stroke and cancer survival rates etc) in the UK remain close to the OECD average.

9.   **In order to address the strains on the health system,** the NHS has presented a Long-Term Workforce Plan that aims to address staffing shortages, by (i) a 27 percent expansion of training places by FY2028–29 for medical personnel, including doctors and nurses; and (ii) attempts to reduce attrition by allowing retirees to return to work while still accessing their pensions. This would reduce reliance on migrant workers and the NHS workforce would grow by around 2½–3 percent per year, increasing total NHS staff numbers from 1.4 million in FY2021–22 to 2.2–2.3 million in FY2036–27.

10.   **In its 2023 Green Budget, the Institute of Fiscal Studies (IFS) estimates that annual NHS budget increases of around 3.6 percent per year in real terms** (or 70 percent in total by FY2036–37), in line with the long-run average real-terms growth rate in UK health spending (3.6 percent per year from FY1949–50 to FY2022–23, although only 2.4 percent since 2009), would be sufficient to fund the Long-Term Workforce Plan, under the ambitious assumption that annual labor force productivity in the health system would grow by 1½–2 percent. This would imply that health spending rises by 1¾ ppts points of GDP between FY2025/26 and FY2034/35. This is assumed in the spending scenario.

Measures of Resource Adequacy
(Per 1000 unless otherwise indicated)

Hospital beds: OECD 4.3, UK 2.4
Nurses: OECD 9.2, UK 8.7
Doctors: OECD 3.7, UK 3.2
Health Spending(Thousands USD): OECD 4.986, UK 5.493

Sources: OECD(2023).

Disability Prevalence
(People with disability as a share of the population aged 15-69, average over 2016-2019)

Source: OECD calculations based on the European Union Statistics on Income and Living Conditions (EU-SILC) for European countries.

Social Care

11.   In contrast to the universal NHS, social care (including care in the home for the elderly, disabled etc) is provided by local governments and is means tested. In September 2023, the UK Health Foundation estimated that growth of 3½ percent per year in real terms over the next decade is needed simply to keep up with demand, which rises to 4.3 percent per year in real terms to expand access, as is assumed in the spending scenario.

Social Care Funding Needs
(Billions of constant FY 2022/23 pounds)

Sources: Health Foundation.
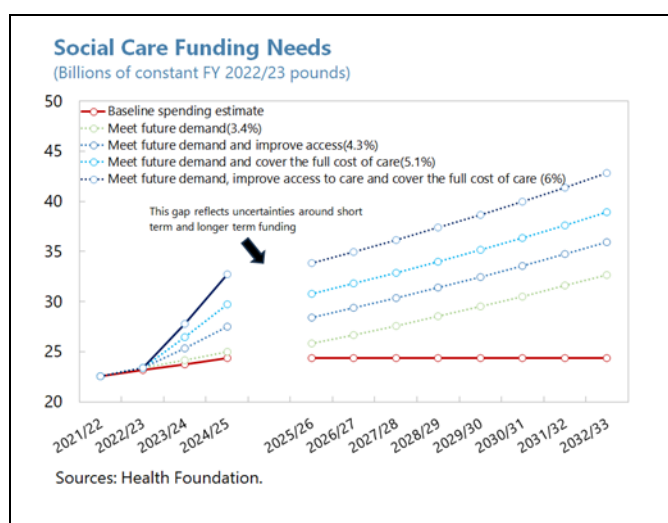
Housing

12.   Funding for affordable (public) housing was reduced after 2010, with spending on housing and communities[3] cut by 32 percent in real terms between FY2010/11 and FY2015/16, followed by some recovery such that spending in FY2022/23 was 1.7 percent above the FY2010/11 level in real terms. Research commissioned by the National Housing Federation (2019) estimated that an additional 145,000 social / affordable homes are needed per year, which will require public housing construction, to contribute to an estimated 380,000 new homes required per year to alleviate the housing need of 3.9 million households over 15 years. The spending scenario assumes annual real growth of 5 percent (2018–23 average) to meet demand, although the precise amount of funding needed is uncertain. Spending on housing grew by an average annual amount of 11 percent in real terms during 2000-2010.

Education

13.   There have been recent increases in schools funding that are set to boost overall education spending to around 4½ percent of GDP in FY2024/25, from 4 percent of GDP in FY2019/20. This increase seems warranted, given that there was a gradual decline in funding per pupil in secondary and further/ vocational education between FY2010/11 and FY2019/20, as well as

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[3] Most public spending on Housing and Communities occurs via the Department for Leveling Up, Housing and Communities.

a sharper decline in higher education funding per pupil, all in real terms (chart below). There are also well-reported capital spending needs for schools. The scenario assumes that education spending remains at 4½ percent of GDP per year until FY2029/30 but declines thereafter as the ageing of the population implies declining pupil numbers (a 9 percent decline in total primary school student numbers is expected in England by 2028, while absolute numbers of secondary school students are expected to begin to decline after 2025, according to the UK Department for Education's 2023 projections). Primary and secondary schooling account for around 80 percent of education spending.

Education Spending Per Pupil
(By level of education; real terms, mean expenditure per pupil, 2023-24 prices)

Sources: Institute for Fiscal Studies.

Uprating of State Pension and Other Welfare Benefits (e.g. Universal Credit)

State Pension
(FY2010-11=100)

Sources: UK Department for Work and Pensions.

Universal Credit
(FY2013-14=100)

Sources: UK Department for Work and Pensions.

State Pension (Within the Functional Category of Social Projection)

14.   Given the importance of pension obligations and the bipartisan commitment to the 'Triple Lock', pensions are assumed to rise in the spending scenario in line with the OBR's January 2024 projection for state pension spending, implying that it will rise to around 150 billion pounds by

FY2027/28, taking into account (i) the ageing of the population, with the ratio of the working age to retired population to decline from four-to -one to three-to one by 2050, despite higher migration (245,000 net migration in steady state is assumed), which affects the growth in the number of pension recipients; (ii) the increase in the State Pension age to 67 during 2026–28, which will have a partly offsetting impact on growth of pension beneficiaries; and (iii) the Triple Lock, by which pension spending is set to grow by the rate of average wage growth, which is assumed to exceed both the inflation rate and the floor of 2.5 percent, under the policy. The net impact of these factors is that spending on the state pension rises from 4.8 percent of GDP in FY2022/23 to 5.6 percent of GDP by FY2034/35.

Ageing and the State Pension

With a State Pension Age of 66, the UK already has among the highest retirement ages of other advanced economies. The Basic State Pension (as share of median full-time earnings) has risen since the Triple Lock's introduction in 2010 by over two ppts. The 'new state pension' is available to those reaching State Pension Age (SPA) after 2016. Others receive the Basic State Pension.

Share of Population Above State Pension Age
(Percentage of adult population (age 20+))

— % of population aged 65+
--- % of population above state pension age
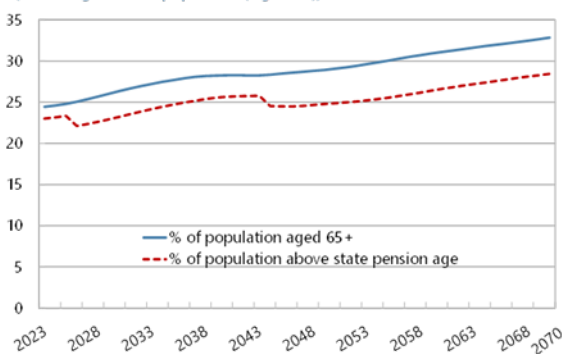
Sources: Institute of Fiscal Studies; and ONS.

Normal Retirement Age
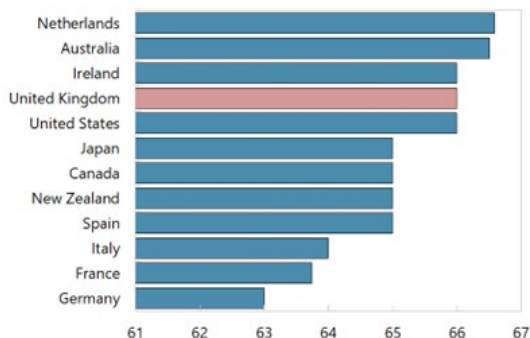
Sources: Institute of Fiscal Studies; and OECD.

UK State Pension

--- As percentage of mean earnings
— As percentage of median earnings

New state pension

Basic state pension
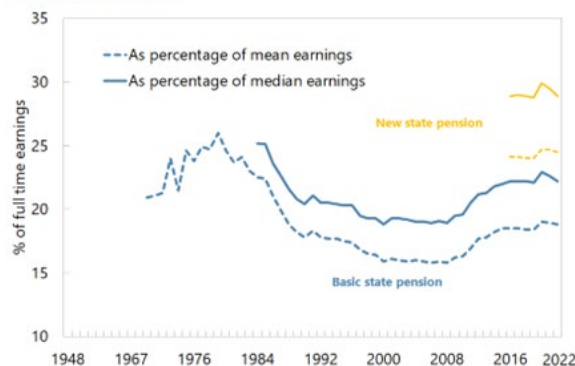
Sources: Institute of Fiscal Studies and Department for Work and Pensions.

Public Investment and the Green Transition

15.   The spending scenario is consistent with capital spending (CDEL) rising by 2 percent per year in real terms from FY2025/26-FY2028/29, as in staff's baseline and then to grow by 1½–2 percent per year in real terms from FY2029/30–FY2034/35. This implies CDEL rising from around 3½ percent of GDP in FY2024/25 to around 3¾ percent of GDP by FY2034/35. There are well reported capital spending needs in health, education, transport, but also for the green transition. Distributing projected CDEL spending across functional areas is challenging because it can be spread across many departments. Nonetheless, the scenario implicitly accommodates capital spending in several key areas:

- **Climate.** The Climate Change Committee's (CCC) Balanced Pathway to Net Zero implies that annual public investment in the green transition will need to increase by £5–10 billion by 2030.[4] This could be accommodated within the projected path of CDEL, which rises from £99 billion in FY2024/25 to £122 billion by FY2029/30. This spending will be spread across several departments, including the Departments of Energy Security and Net Zero and the Departments of Environment, Food and Rural Affairs.

- **Transport (road, rail, and public transport)** The recent increase in transport spending to 2 percent of GDP in FY2024/25 is assumed to be maintained to FY2029/30, before a gradual decline. This incorporates both RDEL and CDEL and thus could accommodate an increase in capital spending.

16.   The rise of CDEL spending could also accommodate increased capital spending on health and education facilities, as is widely reported to be necessary, although the precise amount of necessary spending is highly uncertain. Outside of these key areas, prioritization would be necessary in the spending scenario.

Other Drivers

17.   Defence spending will be 2–2½ percent of GDP in FY2024/25, according to budget data, so it is assumed to rise to 2½ percent of GDP, in line with government commitments. General Public Services spending (public and common services), which includes external affairs, is currently around 2¼ percent of GDP, higher than at any point in the past two decades. Assuming the Ukraine emergency is resolved, spending in this area is assumed to decline gradually after FY2029/30 back to the FY2010–19 average of 0.6 percent of GDP.

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[4] In its report accompanying the Sixth Carbon Budget, the CCC recommend whole-of-economy investment in the green transition of £50 billion by 2030. Staff assess that a public contribution of around one third would be reasonable.

Table 1. United Kingdom: Assumptions: Scenario for TME FY2025/26–FY2034/35	
Aggregate spending (consistent with functional assumptions below)	RDEL real growth of 2 percent p/a to FY2029/30 then 1½–2 percent p/a; CDEL 2 percent p/a real growth to FY2029/30 then 1½–2 percent p/a; AME rises with population growth and inflation on average over time;
Functional exp. assumptions	
Main Drivers:	
Health	Real growth of 3½ percent p/a all years to fund NHS workforce plan;
Education	Following recent increases, maintain at 4½ percent GDP until FY2029/30, then decline to 4 percent GDP as student numbers fall
Social Protection *Of which:*	
State Pension	Increase in line with OBR 2023 MT estimates, adjusted for 1yr rise of retirement age FY2026/27
Social Care	Real growth of 4.3 percent p/a all years to meet demand & improve access (Health Foundation est.)
Other Social Protection (incl. benefits)	Rise with population growth and inflation in all years
Housing and Community Amenities	5 percent real growth (2028–23 avge) p/a to meet demand for social homes. Constant in percent of GDP after FY2029/30
Transport	After recent increases, maintain at 2 percent GDP until FY2029/30, then at FY2028–23 average of 1.8 percent GDP
Environmental Protection	Maintain current poercent GDP (0.4-0.5)
Other Drivers:	
Defence	2½ percent GDP per year
Public Order & Safety	Maintain 2010–19 avge (percent GDP)
General Public Services (including ODA and Ukraine aid)	Maintain percent GDP until FY2028/29 then gradually return to 2010–19 average
Economic Affairs (including Sc. & Tech; Economic Aid (energy crisis); agriculture & fisheries;	Return economic aid to 2010–19 avge by FY2029/30; maintain others in percent GDP
Recreation, culture and religion	Maintain in percent GDP.
NB: **Interest Payments**	Projected interest payments are consistent with the evolution of primary spending and debt in each scenario, computed using the IMF's Debt Sustainability Analysis Tools.

Table 2. United Kingdom: Scenario—Detailed Spending Projections by Function

Central Spending Scenario (% GDP)	2018-19 outturn	2019-20 outturn	2020-21 outturn	2021-22 outturn	2022-23 outturn	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
1. General public services	3.7	3.6	3.4	4.7	6.5	6.7	6.2	5.7	5.8	5.9	6.0	5.8	5.3	5.2	5.1	5.1	5.0
of which: public and common services	0.6	0.6	0.9	1.2	1.1	1.8	2.0	1.8	1.8	1.8	1.8	1.6	0.9	0.8	0.7	0.6	0.5
of which: international services	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
of which: public sector debt interest	2.6	2.4	2.0	3.2	5.1	4.5	3.9	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.1	4.2	4.2
2. Defence	1.8	1.9	2.1	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
3. Public order and safety	1.5	1.5	1.9	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
4. Economic affairs	2.8	3.0	9.4	4.2	4.9	3.7	3.5	3.4	3.3	3.3	3.2	3.1	2.9	2.9	2.9	2.9	2.9
of which: enterprise and economic development	0.6	0.8	6.3	1.6	2.5	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
of which: science and technology	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
of which: employment policies	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
of which: agriculture, fisheries and forestry	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
of which: transport	1.5	1.5	2.4	1.9	1.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.8	1.8
5. Environment protection	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
6. Housing and community amenities	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
7. Health	7.0	7.3	10.5	9.2	8.4	8.4	8.4	8.6	8.7	8.9	9.0	9.2	9.4	9.6	9.8	10.0	10.2
8. Recreation, culture and religion	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
9. Education	4.0	4.0	4.6	4.3	4.2	4.5	4.4	4.5	4.5	4.5	4.5	4.6	4.6	4.4	4.3	4.2	4.0
10. Social protection	12.6	12.3	14.4	12.8	12.6	12.5	12.4	12.4	11.9	11.9	11.9	12.0	12.0	12.1	12.1	12.2	12.3
Of which pensions (incl. winter fuel payment & other benefits)					4.8	5.3	5.3	5.3	4.9	5.0	5.0	5.1	5.2	5.3	5.4	5.5	5.6
Of which: Social Care					0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2
Of which: other (incl. welfare benefits)					6.7	6.3	6.2	6.1	6.0	6.0	5.9	5.8	5.8	5.7	5.7	5.6	5.5
EU transactions	0.4	0.3	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Public sector expenditure on services	35.5	35.5	48.5	40.8	42.2	41.6	40.8	40.7	40.3	40.5	40.7	40.7	40.2	40.3	40.3	40.4	40.5
Accounting adjustments	3.9	4.0	4.6	3.7	3.5	3.2	3.1	3.1	3.3	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.4
Total Managed Expenditure	39.4	39.5	53.1	44.5	45.6	44.8	44.0	43.7	43.6	43.5	43.5	43.5	42.9	42.9	42.8	42.8	42.8

Table 3. United Kingdom: Scenario—Implications for Fiscal Aggregates

Implications for Fiscal Aggregates (% GDP)	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Revenue				39.0	40.3	40.6	40.4	40.7	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8
Interest Revenue				1.1	1.2	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Primary Revenue				37.9	39.1	39.1	38.9	39.3	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5
Primary Expenditure				40.9	40.2	40.3	40.0	40.1	39.9	39.7	39.7	39.6	38.9	38.8	38.7	38.6	38.6
Interest Payments				3.2	5.0	4.5	3.9	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.1	4.2	4.2
Total Expenditure				44.1	45.2	44.8	44.0	43.7	43.6	43.5	43.5	43.5	42.9	42.9	42.8	42.8	42.8
Primary Balance					-1.1	-1.2	-1.2	-0.8	-0.4	-0.2	-0.2	-0.1	0.6	0.7	0.8	0.9	0.9
PSNB				5.1	4.9	4.2	3.5	3.1	2.9	2.7	2.7	2.7	2.1	2.1	2.0	2.0	2.0
SFA				0.0	2.9	3.0	2.1	1.6	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7
PSND (Excl. BoE)				0.0	84.7	89.4	92.1	93.5	94.9	96.1	97.5	98.6	99.2	99.8	100.3	100.8	101.3
Nominal GDP (£bns)	2,174	2,245	2,085	2,362	2,553	2,715	2,777	2,873	2,978	3,087	3,202	3,311	3,420	3,533	3,650	3,770	3,895
Nominal GDP (% Ch)	3.6	3.3	-7.1	13.3	8.1	6.3	2.3	3.5	3.6	3.7	3.7	3.4	3.3	3.3	3.3	3.3	3.3
Real GDP (% Ch.)	1.2	0.9	-11.6	13.6	1.7	0.1	0.9	1.6	1.7	1.6	1.6	1.2	1.3	1.3	1.3	1.3	1.3
GDP Deflator (% Ch)	2.1	2.4	5.4	-0.8	6.8	6.1	1.3	1.8	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0

D. Macro-Fiscal Implications

18. **In order to study the macro-fiscal implications of the spending scenario,** the projections for primary expenditure and interest payments are combined with the IMF staff's baseline revenue projection (shown in the 2024 Article IV Staff Report), which implies that revenue rises to 40.8 percent of GDP by FY2028/29, on account of fiscal drag associated with frozen personal income tax thresholds (although uprating of fuel duty is not assumed). Revenue is projected to remain unchanged at this level (in percent of GDP) between FY2028/29 and FY2034/35, for the purpose of the scenario.

19. **The projected primary balance and Public Sector Net Borrowing** (PSNB) implied by the above calculations are translated into a projection for Public Sector Net Debt (PSND) (excl. BoE), using the stock flow adjustments implied by the OBR's 2024 Spring Budget projections until FY2028/29 and then assuming that annual stock flow adjustments remain unchanged as a share of GDP each year thereafter until FY2034/35. See Text Table 3 above for these projections.

Implication of Spending Scenario for Fiscal Aggregates
(NB: Revenue Rises to 40.8 Percent GDP by FY2028/29 and then Stabilizes)

Expenditure
(percent of GDP; public sector)

—Primary Expenditure
—Total Expenditure

Source: IMF staff calculations.

Fiscal Balances
(percent of GDP; public sector)

—Primary Balance
—Public Sector Net Borrowing

Source: IMF staff calculations.

Public Sector Net Debt (ex. BoE)
(percent of GDP)

Source: IMF staff calculations.

20.   Primary expenditure declines over the ten-year projection horizon, consistent with AME spending declining as a share of GDP, as assumed in staff's baseline projections. Although this scenario is consistent with real growth of 2 percent per year in current and capital planned spending (RDEL and CDEL) over the medium-term and similar growth from FY2029/30, other spending (i.e. AME, which is 60 percent of total spending, including non-pension welfare) rises at a slower pace, growing approximately in line with the rate of population growth and projected inflation over the ten-year horizon on average.[5] These assumptions imply that AME grows more slowly than nominal GDP, given that the rate of population growth is slower than staff's medium-to-long term assumed rate of potential growth (1.3 percent), which is projected to prevail after FY2029/30 until FY2034/25.

21.   Given declining primary expenditure, partly offset by interest payments that rise gradually to 4¼ percent, Public Sector Net Borrowing (PSNB) declines to approximately 2 percent of GDP by FY2031/32, but falls no further, so that Public Sector Net Debt (PSND) (ex BoE) does not stabilize over the ten-year horizon and increases to 101.3 percent of GDP by FY2034/35.

Fiscal Adjustment to Stabilize Debt

22.   Additional fiscal effort will be required to stabilize debt and could involve a combination of revenue-raising measures and spending reform, including indexation of pensions to the cost of living, in place of the Triple Lock (see Annex IV, 2023 IMF Article IV Staff Report for suggested measures). Credible efficiency increasing measures could also be considered, by harnessing AI and digitalization in service delivery and administration.

23.   Text Table 4 (below) shows the average annual amount by which the primary balance must be higher (i.e., the additional fiscal effort) in order to stabilize debt under several adjustment paths which differ according to: (i) the horizon over which debt is stabilized; and (ii) the desired probability with which debt is projected to stabilize given uncertainty about growth, inflation, exchange rates and interest rates.

24.   In each case, the additional fiscal effort is assumed to take the form of higher revenue, modeled as a uniform increase in the elasticity of nominal revenue to GDP growth over the time horizon for debt stabilization, which would be generated by some combination of revenue measures (not specified). The calculation takes into account the impact of stabilizing debt on interest payments, but is otherwise a partial equilibrium exercise, in the sense that the impact of additional fiscal effort on growth, inflation, interest rates and exchange rates is assumed to be zero.

25.   Stabilizing debt over five years requires the annual primary balance to be 0.8 ppts. of GDP per year higher on average (Adj. Path 1) (see Text Table 4). Increasing the probability with which debt is projected to stabilize over five years, to 75 percent, raises the amount by which the annual primary balance must be higher from 0.8 to 1.2 ppts. per year on average, but reduces risks

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[5] Population growth is assumed to follow the ONS January 2023 projections until FY2028/29. Inflation is projected to evolve according to staff's baseline projections until FY2025/26, when it returns to the two percent inflation target, where it is assumed to remain thereafter.

to fiscal sustainability (Adj. Path 2). Stabilizing debt over a longer horizon and with a high probability (75 percent) requires the primary balance to be 1.4 ppts. of GDP per year higher on average (Adj. Path 3).

26.   As a final step, the exercise is extended to allow the additional fiscal effort to have feedback effects on economic growth and fiscal aggregates. Fiscal adjustment is estimated to reduce the level of real GDP by 1¾–2 ppts per year by FY2029/30, depending on the probability with which debt is projected to stabilize. Incorporating the effect of lower output on revenues, and on the GDP denominator for the debt ratio, would raise the required fiscal effort by an additional 0.35–0.4 ppts. of GDP per year approximately, in order to stabilize debt within five years.

Concluding Note

27.   The amount of fiscal effort required to stabilize debt is significant, on all the adjustment paths shown. While the additional fiscal effort was modeled as deriving from higher revenue in this paper, reducing spending (in percent of GDP) is also an option. This will require difficult choices about the level of taxation and spending priorities. Savings may also be achieved via improvements in the productivity of the public sector, although these are difficult to quantify ex ante.

28.   Stabilizing public debt would be more challenging if spending pressures were more acute than presented in this paper. In order to illustrate this, a higher spending scenario is considered which aims to approximate an upper bound for spending needs. For further details, see Annex Two.

Figure 1. Public Debt (excl. BoE) Under Fiscal Adjustment Paths

Path 1
(50% prob. over 5-yrs)
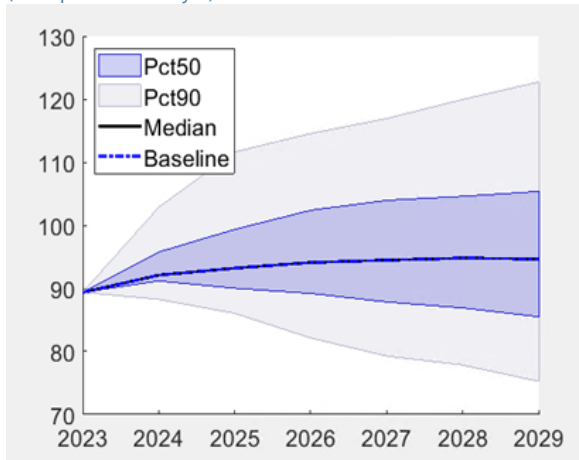
Path 2
(75% prob. over 5-yrs)
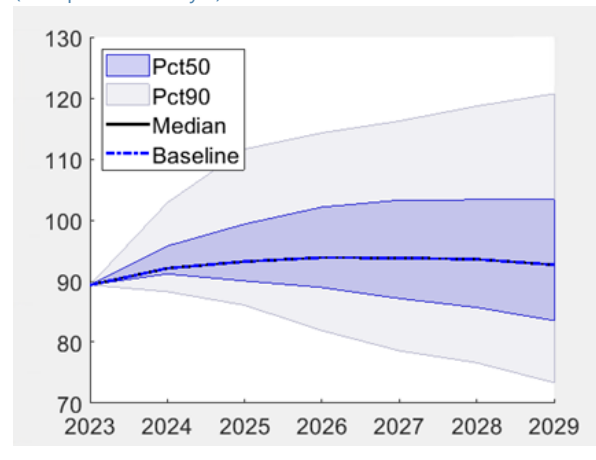
Path 3
(75% prob. over 10-yrs)
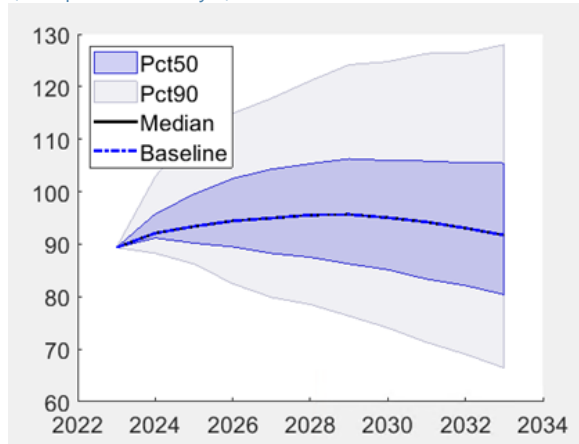
Table 4. United Kingdom: Fiscal Effort to achieve Debt Stabilization: Adjustment Paths (ppts. of GDP)

	Path 1 (50% prob. over 5-yrs)	Path 2 (75% prob. over 5-yrs)	Path 3 (75% prob. over 10-yrs)
Average annual excess public sector primary balance *relative to staff's baseline*	0.8	1.2	1.4
Debt level at end of horizon *relative to staff's baseline*	-3.9	-5.9	-11.1
Impact of adj. on level of real GDP by end of horizon [1]	-1.7	-2	-2.1
Additional annual fiscal adj. needed because of impact on real GDP	0.35	0.4	0.23

[1] Based on an impact fiscal multiplier of 0.4 for revenue measures, similar to those assumed by the Office for Budget Responsibility, which decays to 0.3 in t+1 and 0.2 in t+2.

Annex I. Methodology

1.   The project draws on the functional breakdown of historical Total Managed Expenditure (TME) in the Public Expenditure Statistical Analyses (PESA), an annual publication of HMT released in July 2023 (see Appendix Tables A1 and A2). The functional areas are based on the OECD's Classifications of the Functions of Government (CoFOG). Spending in each area sums to Public Sector Expenditure on Services (PSES), which differs from TME by an accounting adjustment, that includes depreciation.

Table I.1. United Kingdom: The Functional Break of Public Spending

1. General public services
1.1 Executive and legislative organs, financial and fiscal affairs, external affairs
1.2 Foreign economic aid
1.3 General services
1.4 Basic research
1.5 R&D general public services
1.6 General public services n.e.c.
1.7 Public debt transactions
   of which: central government debt interest
   of which: local government debt interest
   of which: public corporation debt interest
   of which: Bank of England
   of which: public sector pensions

2. Defence
2.1 Military defence
2.2 Civil defence
2.3 Foreign military aid
2.4 R&D defence
2.5 Defence n.e.c.

3. Public order and safety
3.1 Police services
   of which: immigration and citizenship
   of which: other police services
3.2 Fire-protection services
3.3 Law courts
3.4 Prisons
3.5 R&D public order and safety
3.6 Public order and safety n.e.c.

4. Economic affairs
4.1 General economic, commercial and labour affairs
4.2 Agriculture, forestry, fishing and hunting
   of which: market support under CAP
   of which: other agriculture, food and fisheries policy
   of which: forestry
4.3 Fuel and energy
4.4 Mining, manufacturing and construction
4.5 Transport
   of which: national roads
   of which: local roads
   of which: local public transport
   of which: railway
   of which: other transport
4.6 Communication
4.7 Other industries
4.8 R&D economic affairs
4.9 Economic affairs n.e.c.

5. Environment protection
5.1 Waste management
5.2 Waste water management
5.3 Pollution abatement
5.4 Protection of biodiversity and landscape
5.5 R&D environment protection
5.6 Environment protection n.e.c.

6. Housing and community amenities
6.1 Housing development
   of which: local authority housing
   of which: other social housing
6.2 Community development
6.3 Water supply
6.4 Street lighting
6.5 R&D housing and community amenities
6.6 Housing and community amenities n.e.c.

7. Health
Medical services
Medical research
Central and other health services

8. Recreation, culture and religion
8.1 Recreational and sporting services
8.2 Cultural services
8.3 Broadcasting and publishing services
8.4 Religious and other community services
8.5 R&D recreation, culture and religion
8.6 Recreation, culture and religion n.e.c.

9. Education
9.1 Pre-primary and primary education
   of which: under fives
   of which: primary education
9.2 Secondary education
9.3 Post-secondary non-tertiary education
9.4 Tertiary education
9.5 Education not definable by level
9.6 Subsidiary services to education
9.7 R&D education
9.8 Education n.e.c.

10. Social protection
   of which: personal social services
10.1 Sickness and disability
   of which: personal social services
   of which: incapacity, disability and injury benefits
10.2 Old age
   of which: personal social services
   of which: pensions
10.3 Survivors
10.4 Family and children
   of which: personal social services
   of which: family benefits, income support and tax credits
10.5 Unemployment
   of which: personal social services
   of which: other unemployment benefits
10.6 Housing
10.7 Social exclusion n.e.c.
   of which: personal social services
   of which: family benefits, income support, Universal Credit and tax credits
10.8 R&D social protection
10.9 Social protection n.e.c.

2.   Among the noteworthy features of the functional classification is that health spending is almost entirely (80–90 percent) comprised of funding for the NHS via the Department of Health and Social Care (DHSC), as well as spending by local governments on public health initiatives. Social protection includes the state pension and other cash benefits, but also benefits in kind such as social care for the elderly and disabled. The education budget includes early childhood, primary, secondary and tertiary education spending. Transport spending includes road, rail and public transport. Environmental protection captures some spending by the Department for Energy Security and Net Zero (ESNZ), which has also spent significant recent sums on economic assistance to consumers and firms during the Energy Price Crisis.

Table I.2. United Kingdom: Mapping From Functional to Departmental Classification of Public Expenditures (FY2022/23)
(illustrates how spending on each 'functional area' maps to spending across various departments, devolved administrations and local government)

Public sector expenditure on services by departmental group and function, 2022-23, £ millions

Departmental Grouping	1. General public services	of which: public and common services	of which: international services	of which: public sector debt interest	2. Defence	3. Public order and safety	4. Economic affairs	of which: enterprise and economic development	of which: science and technology	of which: employment policies	of which: agriculture, fisheries and forestry	of which: transport	5. Environment protection	6. Housing and community amenities	7. Health	8. Recreation, culture and religion	9. Education	10. Social protection	EU transactions	Total
Health and Social Care	-	-	-	-	-	-	-	-	-	-	-	-	-	-	174,979	-	-	-4,434	-	170,545
Education	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45,585	1,956	-	-	47,541
Home Office	-	-	-	-	-	7,098	-	-	-	-	-	-	-	-	-	-	-	-	-	7,098
Justice	5	5	-	-	-	11,784	-	-	-	-	-	-	-	-	-	-	-	-121	-	11,667
Law Officers' Departments	-	-	-	-	-	811	-	-	-	-	-	-	-	-	-	-	-	-	-	811
Defence	-	-	-	-	51,647	-	-	-	-	-	-	-	-	-	-	24	-	1,955	-	53,626
Single Intelligence Account	-	-	-	-	3,796	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,796
Foreign, Commonwealth and Development Office	8,742	309	8,433	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	8,782
Leveling Up, Housing and Communities	353	353	-	-	-	-	16	16	0	-	-	-	-	6,432	-	5	-	13	-	6,819
Culture, Media and Sport	-	-	-	-	-	-	65	65	-	-	-	-	41	123	1	8,505	-	652	-	9,388
Science, Innovation and Technology	155	155	-	-	-	-	6,897	169	6,727	1	-	-	-	160	145	95	2,972	269	-	10,692
Transport	-1	-1	-	-	-	352	29,194	8	-4	-	-	29,190	1	-	-	-	-	9	-	29,556
Energy Security and Net Zero	38	-	38	-	-	124	43,068	43,068	-	-	-	-	-	3,687	-	-	-	0	-	46,917
Environment, Food and Rural Affairs	-	-	-	-	-	-	4,277	-	-	-	4,277	-	1,533	8	-	-	-	-	-	5,817
Business and Trade	39	38	0	-	-	-	4,092	3,736	296	61	-	0	-	-	-	-	-	374	-	4,504
Work and Pensions	16	16	-	-	-	-	3,635	2	-2	3,030	-	-	-	-	-	-	-	222,080	-	225,731
HM Revenue and Customs	4,471	4,471	-	-	-	-	13,286	13,286	-	-	-	-	-	45	173	-	-	22,264	-	40,238
HM Treasury	137,358	9,703	-	127,655	-	-	157	157	-	-	-	-	-	-	-	-	-	5	-2,274	135,245
Cabinet Office	1,780	1,780	-	-	-	-	18	-	-	18	-	-	-	-	-	-	-	2,339	-	4,136
Scotland	1,237	1,236	1	-	-	3,490	3,296	678	3	-	774	1,841	335	2,363	16,677	298	2,957	4,662	-	35,315
Wales	268	268	-	-	-	2	968	244	25	-	436	262	98	967	9,987	89	1,050	161	-	13,591
Northern Ireland	447	447	-	-	-	1,415	1,895	269	110	105	616	795	71	870	6,061	184	3,427	9,699	-	24,068
Small and Independent Bodies	2,158	2,158	-	-	-	6	454	297	7	-	112	38	-	-	-	-	-	187	-	2,805
Local Government	6,637	5,894	-	743	65	18,854	13,732	1,832	-	-	449	11,451	7,913	6,855	3,720	4,810	49,362	56,850	-	168,796
Public sector expenditure on services for each function	163,702	26,832	8,472	128,398	55,507	43,935	125,050	63,826	7,162	3,821	6,664	43,578	13,884	17,790	211,570	14,010	105,539	318,772	-2,274	1,067,484

Table I.3. United Kingdom: Functional Classification of UK Public Spending
(Historical Data; Percent of GDP)

Functional Classification of Public Expenditure Percent of GDP	Actual Data																							
	1999-00 outturn	2000-01 outturn	2001-02 outturn	2002-03 outturn	2003-04 outturn	2004-05 outturn	2005-06 outturn	2006-07 outturn	2007-08 outturn	2008-09 outturn	2009-10 outturn	2010-11 outturn	2011-12 outturn	2012-13 outturn	2013-14 outturn	2014-15 outturn	2015-16 outturn	2016-17 outturn	2017-18 outturn	2018-19 outturn	2019-20 outturn	2020-21 outturn	2021-22 outturn	2022-23 outturn
1. General public services	4.3	4.2	3.9	3.7	3.8	4.0	4.1	4.1	4.1	4.4	4.2	4.8	4.8	4.4	4.3	4.1	4.0	4.0	4.0	3.7	3.6	3.4	4.7	6.5
of which: public and common services	0.8	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.9	1.2	1.1
of which: international services	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.6	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.3
of which: public sector debt interest	3.1	3.1	2.7	2.5	2.6	2.7	2.7	2.8	2.9	3.1	2.9	3.5	3.6	3.3	3.1	2.9	2.9	2.8	3.0	2.6	2.4	2.0	3.2	5.1
2. Defence	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.1	2.0	2.0	1.9	1.8	1.8	1.8	1.9	2.1	2.1	2.2
3. Public order and safety	1.7	1.8	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.2	2.0	1.9	1.8	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.9	1.7	1.7
4. Economic affairs	2.0	2.1	2.4	2.5	2.6	2.5	2.5	2.5	2.4	3.1	3.1	2.5	2.3	2.1	2.3	2.2	2.4	2.4	2.5	2.8	3.0	9.4	4.2	4.9
of which: enterprise and economic development	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.5	1.0	0.8	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.8	6.3	1.6	2.5
of which: science and technology	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
of which: employment policies	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
of which: agriculture, fisheries and forestry	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
of which: transport	0.7	0.8	1.0	1.2	1.3	1.2	1.2	1.3	1.3	1.3	1.5	1.3	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.5	1.5	2.4	1.9	1.7
5. Environment protection	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.5
6. Housing and community amenities	0.4	0.5	0.5	0.4	0.5	0.6	0.8	0.8	0.8	1.0	1.0	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7
7. Health	4.7	4.9	5.2	5.5	5.9	6.2	6.3	6.4	6.5	6.9	7.5	7.4	7.3	7.2	7.2	7.1	7.1	7.0	7.0	7.0	7.3	10.5	9.2	8.4
8. Recreation, culture and religion	0.7	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.7	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6
9. Education	4.0	4.1	4.4	4.5	4.8	4.8	4.9	4.9	5.0	5.2	5.7	5.6	5.2	4.9	4.7	4.5	4.4	4.2	4.1	4.0	4.0	4.6	4.3	4.2
10. Social protection	11.6	11.5	11.9	12.0	12.2	12.2	12.0	11.9	12.0	12.8	14.3	14.1	14.6	14.7	14.1	13.9	13.7	13.1	12.8	12.6	12.3	14.4	12.8	12.6
Of which pensions (incl. winter fuel payment & other benefits)																								4.8
Of which: Social Care																								0.9
Of which: other (incl. welfare benefits)																								6.7
EU transactions	-0.3	-0.2	-0.4	-0.2	-0.2	-0.1	0.0	-0.1	-0.1	-0.2	0.1	0.4	0.3	0.4	0.4	0.3	0.4	0.2	0.3	0.4	0.3	0.3	-0.1	-0.1
Public sector expenditure on services	32.0	32.4	33.4	34.1	35.2	35.9	36.1	36.0	36.3	39.0	42.0	41.4	40.6	39.5	38.3	37.6	37.1	36.0	35.7	35.5	35.5	48.5	40.8	42.2
Accounting adjustments	2.7	2.7	2.9	3.5	3.6	4.1	3.8	3.9	3.9	4.4	4.4	4.2	4.0	4.6	4.1	4.4	4.0	4.2	4.3	3.9	4.0	4.6	3.7	3.5
Total Managed Expenditure	34.8	35.1	36.3	37.6	38.9	40.0	39.9	39.9	40.2	43.5	46.3	45.7	44.6	44.0	42.5	42.0	41.1	40.2	40.0	39.4	39.5	53.1	44.5	45.6

Annex II. A High Spending Scenario

1.   This alternative scenario is designed to identify an approximate upper bound on required spending across functional areas. Overall, the scenario is consistent with DEL (both RDEL and CDEL) rising by 3½ percent per year in real terms on average over the ten-year forecast horizon from FY2025/26 to FY2034/35, with AME growing by the rate of population growth and inflation on average.

2.   As in the central scenario presented in the paper, health spending grows in line with the IFS cost estimates for the NHS Long-Term Workforce Plan, while the Triple Lock is maintained throughout the ten-year forecast horizon. However, relative to the central scenario, key drivers of *additional* spending in the high spending scenario include:

- **Education.** The recent increase in funding to 4½ percent of GDP is assumed to be maintained and then increased gradually to reach the pre-GFC funding level of around 5¼ percent of GDP by FY2029/30.

- **Social Care.** Funding is assumed to increase by 6 percent per year in real terms, the amount identified by the Health Foundation as necessary in order to *both* keep up with increased demand and cover all out-of-pocket costs of beneficiaries.

- **Public Order and Safety.** Given reported spending needs on prisons, spending is assumed to grow by the 2000-2010 real growth rate of 3.8 percent, increasing spending from 1.6 percent of GDP currently to 2 percent of GDP by FY2034/35.

- **Housing.** Spending on affordable housing is assumed to rise by the 2000–10 average growth rate of 11 percent per year in real terms until FY2029/30, to address the housing crisis and increase the supply of public housing.

- **Environmental Protection.** In order to accommodate higher spending on the green transition than envisaged in the CCC Balanced Pathway to Net Zero, spending in this area increases to 0.6 percent of GDP per year (the 2000–10 average).

3.   In this high spending scenario, primary spending rises throughout the ten-year horizon, reaching 42.4 percent of GDP by FY2034/35, so that Public Sector Net Borrowing (PSNB) increases to 6½ percent of GDP by FY2034/35. As a consequence, Public Sector Net Debt (PSND) (ex. BoE) rises steeply to 124.7 percent of GDP by FY2034/35. In order to stabilize public debt over a ten-year horizon, the primary balance would need to be higher by around 2.3 ppts. of GDP per year on average (see Annex Tables A4-A6 for further details).

Table II.1. United Kingdom: Assumptions: Scenarios for TME FY2025/26 – FY2034/35		
	Central Scenario	**High Spending Scenario**
Aggregate spending (consistent with functional assumptions below)	RDEL real growth of 2 percent p/a to FY2029/30 then 1½–2 percent p/a; CDEL 2 percent p/a real growth to FY2029/30 then 1½–2 percent p/a; AME rises with population growth and inflation on average over time;	RDEL real growth of approx. 3.5 percent p/a in all years; CDEL real growth of approx. 3.5 percent p/a in all years; AME rises with population growth and inflation on average over time;
Functional exp. assumptions		
Main Drivers:		
Health	Real growth of 3½ percent p/a all years to fund NHS workforce plan;	Real growth of 3½ percent p/a all years to fund NHS workforce plan;
Education	Following recent increases, maintain at 4½ percent GDP until FY2029/30, then decline to 4 percent GDP as student numbers fall	Increase gradually over horizon to 5 ½–5¾ percent GDP (pre-GFC level)
Social Protection *Of which:*		
State Pension	Increase in line with OBR 2023 MT estimates, adjusted for 1yr rise of retirement age FY2026/27	Increase in line with OBR 2023 MT estimates, adjusted for 1yr rise of retirement age FY2026/27
Social Care	Real growth of 4.3 percent p/a all years to meet demand & improve access (Health Foundation est.)	Real growth of 6 percent p/a to meet demand and fully cover user costs
Other Social Protection (incl. benefits)	Rise with population growth and inflation in all years	Rise with population growth and inflation in all years
Housing and Community Amenities	5 percent real growth (2028–23 avge) p/a to meet demand for social homes. Constant in percent of GDP after FY2029/30	11 percent real growth p/a (pre-GFC average) to meet demand for social homes, until FY2029/30, then average real growth of 3 percent p/a
Transport	After recent increases, maintain at 2 percent GDP until FY2029/30, then at FY2028–23 average of 1.8 percent GDP	After recent increases, maintain at 2 percent GDP in all years
Environmental Protection	Maintain current percent GDP (0.4–0.5)	Increase to 0.6 percent GDP (2000–10 avge)
Other Drivers:		
Defence	2½ percent GDP per year	2½ percent GDP per year
Public Order & Safety	Maintain 2010–19 avge (percent GDP)	'Increase real growth to 3.8 percent p/a, average of past 5 years and 2000–10 average, including capital spending
General Public Services (including ODA and Ukraine aid)	Maintain percent GDP until FY2028/29 then gradually return to 2010–19 average	Maintain percent GDP until FY2028/29 then gradually return to 2010–19 average
Economic Affairs (including Sc. & Tech; Economic Aid (energy crisis); agriculture & fisheries;	Return economic aid to 2010–19 avge by FY2029/30; maintain others in percent GDP	Return economic aid to 2010–19 avge by FY2029/30; increase ag. & fisheries spending to 2000–10 avge; maintain others in percent GDP
Recreation, culture and religion	Maintain in percent GDP.	Increase to 2000–10 avge.
NB: **Interest Payments**	Projected interest payments are consistent with the evolution of primary spending and debt in each scenario, computed using the IMF's Debt Sustainability Analysis Tools.	

Table II.2. United Kingdom: High-Spending Scenario—Detailed Spending Projections by Function

High Spending Scenario (% GDP)	Actual Data					Budget Data		Projections									
	2018-19 outturn	2019-20 outturn	2020-21 outturn	2021-22 outturn	2022-23 outturn	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
1. General public services	3.7	3.6	3.4	4.7	6.5	6.7	6.2	5.8	5.9	6.1	6.2	6.4	6.4	5.9	5.9	5.9	5.9
of which: public and common services	0.6	0.6	0.9	1.2	1.1	1.8	2.0	1.8	1.8	1.8	1.8	1.8	1.6	0.9	0.8	0.7	0.6
of which: international services	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
of which: public sector debt interest	2.6	2.4	2.0	3.2	5.1	4.5	3.9	3.6	3.8	3.9	4.0	4.1	4.3	4.5	4.6	4.7	4.8
2. Defence	1.8	1.9	2.1	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
3. Public order and safety	1.5	1.5	1.9	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0
4. Economic affairs	2.8	3.0	9.4	4.2	4.9	3.7	3.5	3.4	3.4	3.3	3.3	3.2	3.2	3.3	3.3	3.3	3.3
of which: enterprise and economic development	0.6	0.8	6.3	1.6	2.5	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
of which: science and technology	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
of which: employment policies	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
of which: agriculture, fisheries and forestry	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
of which: transport	1.5	1.5	2.4	1.9	1.7	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
5. Environment protection	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
6. Housing and community amenities	0.6	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.5	1.5
7. Health	7.0	7.3	10.5	9.2	8.4	8.4	8.4	8.6	8.7	8.9	9.0	9.2	9.4	9.6	9.8	10.0	10.2
8. Recreation, culture and religion	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
9. Education	4.0	4.0	4.6	4.3	4.2	4.5	4.4	4.8	5.2	5.6	5.6	5.6	5.6	5.7	5.7	5.7	5.7
10. Social protection	12.6	12.3	14.4	12.8	12.6	12.5	12.4	12.4	11.9	11.9	12.0	12.0	12.1	12.2	12.3	12.4	12.5
Of which pensions (incl. winter fuel payment & other benefits)					4.8	5.3	5.3	5.3	4.9	5.0	5.0	5.1	5.2	5.3	5.4	5.5	5.6
Of which: Social Care					0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4
Of which: other (incl. welfare benefits)					6.7	6.3	6.2	6.1	6.0	6.0	5.9	5.8	5.8	5.7	5.7	5.6	5.5
EU transactions	0.4	0.3	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Public sector expenditure on services	35.5	35.5	48.5	40.8	42.2	41.6	40.8	41.0	41.2	42.1	42.5	43.2	43.6	43.6	44.0	44.4	44.9
Accounting adjustments	3.9	4.0	4.6	3.7	3.5	3.2	3.1	3.1	3.3	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.4
Total Managed Expenditure	39.4	39.5	53.1	44.5	45.6	44.8	43.9	44.0	44.5	45.1	45.4	45.9	46.3	46.2	46.6	46.9	47.2

Table II.3. United Kingdom: High-Spending Scenario—Implications for Fiscal Aggregates

Implications for Fiscal Aggregates (% GDP)	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
											Projections						
Revenue				39.0	40.3	40.6	40.4	40.7	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8
Interest Revenue				1.1	1.2	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Primary Revenue				37.9	39.1	39.1	38.9	39.3	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5
Primary Expenditure				40.9	40.2	40.3	40.0	40.4	40.8	41.2	41.4	41.8	42.0	41.7	42.0	42.1	42.4
Interest Payments				3.2	5.0	4.5	3.9	3.6	3.8	3.9	4.0	4.1	4.3	4.5	4.6	4.7	4.8
Total Expenditure				44.1	45.2	44.8	43.9	44.0	44.5	45.1	45.4	45.9	46.3	46.2	46.6	46.9	47.2
Primary Balance				-3.1	-1.1	-1.2	-1.2	-1.1	-1.3	-1.7	-1.9	-2.3	-2.5	-2.2	-2.5	-2.6	-2.9
PSNB				5.1	4.9	4.2	3.5	3.4	3.7	4.3	4.6	5.1	5.5	5.4	5.7	6.0	6.4
SFA				0.0	2.9	3.0	2.1	1.6	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7
PSND (Excl. BoE)				0.0	84.8	89.4	92.1	93.8	96.1	98.8	102.0	105.4	109.1	112.7	116.5	120.5	124.7
Nominal GDP (£bns)	2,174	2,245	2,085	2,362	2,553	2,715	2,777	2,873	2,978	3,087	3,202	3,311	3,420	3,533	3,650	3,770	3,895
Nominal GDP (% Ch)	3.6	3.3	-7.1	13.3	8.1	6.3	2.3	3.5	3.6	3.7	3.7	3.4	3.3	3.3	3.3	3.3	3.3
Real GDP (% Ch.)	1.2	0.9	-11.6	13.6	1.7	0.1	0.9	1.6	1.7	1.6	1.6	1.2	1.3	1.3	1.3	1.3	1.3
GDP Deflator (% Ch)	2.1	2.4	5.4	-0.8	6.8	6.1	1.3	1.8	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0

CONSTRUCTION PLANNING REFORMS FOR GROWTH AND INVESTMENT[1]

The UK construction planning system is overly stringent and the localized and discretionary system of decision-making makes it highly unpredictable. It hinders new construction (both residential and commercial) and infrastructure projects, restricting labor mobility (as workers stay trapped in suboptimal jobs due to unaffordable housing in areas with better prospects). It also raises investment costs for businesses, who often endure long and uncertain wait times or are forced to relocate to suboptimal locations. International and domestic experience suggests that a concerted overhaul of the system is needed, focusing on systemic reforms that reduce discretionary decision-making in granting permissions. While this is politically difficult, tangible progress is possible around a few key areas: (i) broader geographic and rules-based decision-making for business and large residential developments to reduce uncertainty for investors; (ii) digitalized and standardized plans at the local level which are, additionally, binding for designated growth areas; (iii) careful review of scope to release Green Belt land of little environmental or amenity value near stations with easy access to major cities; and (iv) targeted incentives (to overcome new builds resistance) and resources to local authorities (including skilled staff to facilitate compliance with new environmental requirements).

A. Locating the UK's Construction Planning Regime in an International Context

1.   Construction planning systems worldwide have been analyzed along two dimensions: rule-based versus discretionary, and local versus national formulation and control. In the UK, Canada, US, and Ireland, the approach is markedly discretionary, and predominantly administered at the local level with significant freedom and autonomy at the lowest tier of government.[2] While national policies offer overarching guidance, decisions on development permissions are made locally, fostering an arguably more democratic outcome,[3] but resulting in a fragmented system where proposals are scrutinized individually, and are susceptible to vested local interests, lobbying, and "not in my backyard" (NIMBY) problems. Local decision making often fails to consider wider regional and national growth benefits and externalities and focuses instead on short term issues such as overcrowding and concerns about increased demands on local services. In contrast, European peers such as Germany, France, and the Netherlands adhere to a more rule-based approach: regulations dictate land use down to parcel level, and/or there is a structured framework within which development permissions are often granted automatically upon adherence to

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[1] Prepared by Agnese Carella, Pragyan Deb, and Nihal Haider. The paper benefited from discussions and comments received from the UK authorities and field experts during the 2024 Article IV consultation.

[2] Although planning is devolved across the four administrations of the UK, with the UK-government having responsibility for English local planning only, the issues are similar in other jurisdictions including Scotland. Throughout this note, UK is used in the general sense covering all jurisdictions, but with a focus on England.

[3] That said, actual public participation in planning is very low, with estimates suggesting only about one percent of the population engaging with local planning process.

prescribed plans and regulations. Decision-making authority in these countries tends to be centralized at the national or regional level, ensuring consistency but potentially sacrificing the granularity of local input and democratic oversight, and also resulting in more bureaucratic (and less flexible) structures that are difficult to change and adapt to local conditions.

2.   The existing literature also underscores the importance of land use policies in shaping housing affordability, socio-economic outcomes, regional inequality, and labor mobility.

Flexible planning systems and policy reforms, as suggested by Hilber and Vermeulen (2016), can help mitigate housing price volatility, especially in regions with supply constraints and limited developable land. By reducing regulatory barriers, these measures help supply better adjust to demand and create a more balanced housing market. However, management of development permissions at the local level can render them susceptible to lobbying, manipulation, and obstructionism by vested interests, leading to uncertainty, delays, housing

Real House Price
(% Increase in real house prices: 1970 - 2021)

Source: OECD

shortages, and regional disparities. Erdmann et al. (2019) note that local land use regulations may exacerbate housing affordability challenges by restricting housing supply and inflating prices, particularly for low-income groups that spend a higher percentage of income on housing and rent without enjoying an increase in home equity. In the UK (as well as in Australia, Canada, New Zealand), stringent land use regulations have constrained urban housing supplies, driving up costs and impeding geographical mobility, particularly to urban centers with better job prospects. This is evidenced by relatively high (and less affordable) housing in these countries compared to France, Germany, and Italy, where land use regulations are more flexible. A rule-based approach, with targeted local flexibility offers the potential to enhance efficiency and reduce risk, increasing housing supply elasticity and lowering prices (Shepherd, 1988; Shepherd and Mayo, 2001). Studies suggest it might also reduce segregation within metropolitan areas, improve neighborhood quality, and alleviate spatial inequality (Stutts, 2021; Rothwell and Massey, 2015).
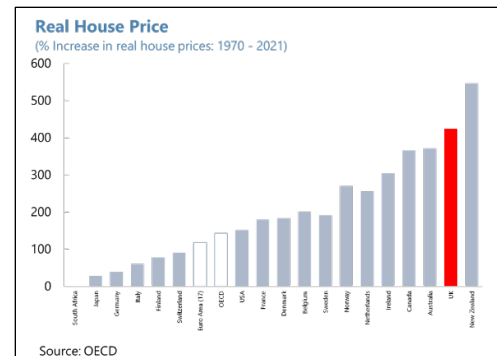
House-Price-to-Income Ratio Relative to Long-Run Average

Source: OECD and IMF calculations.
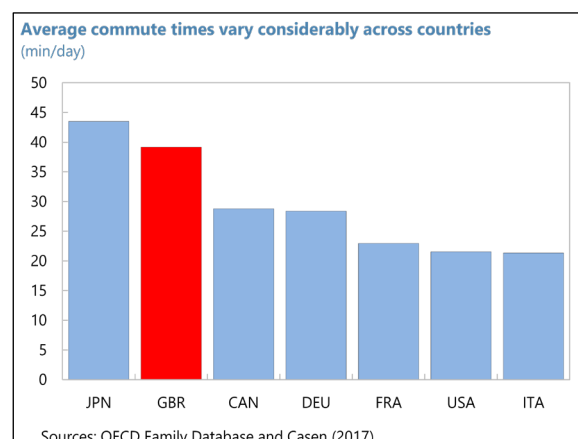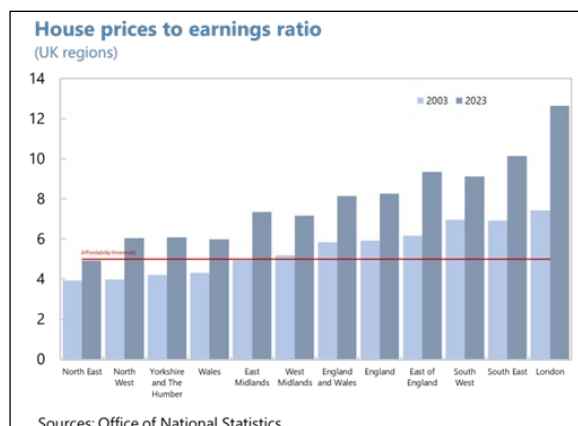The long-run average is calculated over the period 1990Q1-2019Q4.
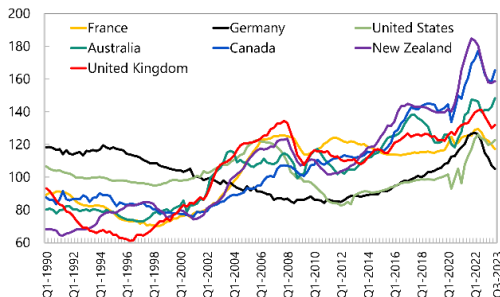
Affordability Challenges for Lower Income Households
(Share of population in the bottom quintile of the income distribution spending more than 40 percent of disposable income on mortgage and rent, 2019 or latest)

Source: OECD
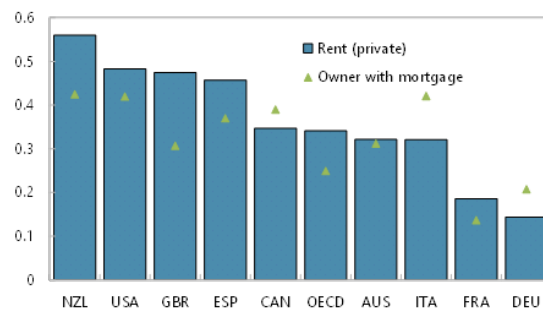
3.   Overall, when comparing with peer countries, the UK's construction planning system is excessively stringent, inhibiting new construction (housing and infrastructure) and labor

mobility,[4] in the UK, planning permissions can increase development costs by up to 10 percent, while also adding delays and uncertainty to the process. Watling & Breach (2023) find that since 1945, almost 4.3 million fewer houses (close to a fifth of the housing stock) were built due to planning restrictions. Hilber & Vermeulen (2016) estimate that in the absence of regulatory constraints (i.e., refusal of proposed development by Local Planning Authorities), prices would have been 35 percent lower in the 2000s than they actually were. The discretionary approach to planning has worsened housing shortages and affordability, creating persistent and often growing disparities between high-growth and low-growth regions. People want to relocate to cities with more/better[5] their hometowns. Those who do move to cities may face overcrowded accommodation, such as house shares, which can make it harder to understand and manage demand on local infrastructure. Strict land use regulation has made housing supply less elastic, particularly in job centers and cities, resulting in higher costs, hindering geographical mobility, and increasing

House prices to earnings ratio (UK regions)

Sources: Office of National Statistics

Average commute times vary considerably across countries (min/day)

Sources: OECD Family Database and Casen (2017)

worker commute times (see Sutherland 2020; Hsieh & Moretti, 2019; Erdmann, Furth, Hamilton 2019; Cheshire, Hilber and Koster, 2018; Rothwell & Massey, 2015). This issue disproportionately affects younger people, who often have to delay independent living: in the 1950s, 70 percent of UK residents owned house by age 34, but that figure has fallen to less than 34 percent today. This trend obviously raises intergenerational equity concerns, as rising house prices shift wealth to older generations, who typically own homes, from younger generations, who need to buy them.

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[4] LSE (2023), "The economic costs of British Planning", LSE Event

https://www.youtube.com/watch?v=NB3YrC3tt0k&list=PLK4elntcUEy0ptu7NwzFVXLwl6OrPQl4U&index=39

[5] Less stringent planning restrictions would likely see more people move closer to London, increasing spatial inequality. However, this will also result in more people moving from rural and suburban areas in other major cities (second cities), which would add to their dynamism. This is urgently needed given accumulating evidence that UKs second cities have productivity levels below the national average (see https://www.resolutionfoundation.org/press-releases/britain-needs-a-new-economic-strategy-to-end-its-stagnation-and-close-its-8300-living-standards-gap-with-its-peers/). Thus, as is often argued, it's not clear that the current planning regime supports spatial equality.

4.   This has contributed to a depressed rate of UK business investment (as a share of GDP), relative to the 2000s, but a loss of investment to peers with less stringent planning regimes. This is especially evident in high-growth sectors like data centers and life sciences. The UK lags behind several other countries in data center development. In addition, life sciences firms that would prefer to establish operations in the UK, particularly in Oxford or Cambridge (which are internationally renowned centers of innovation), are instead choosing locations such as Boston in the United States. Commercial development in the UK faces the same challenges as housing, especially in construction, which accounts for about half of business investment. High costs are driven by a stringent and unpredictable

Built-up Land per Capita in Square Meters, by Country, Various Years
(12-month futures, euros)

Source: OECD

planning system, with significant discretion given to decision-makers (see Cheshire and Hilber, 2018; Cheshire, Hilber and Kaplanis, 2015). Developments can be refused even if investors meet the specification of a local plan[6] or be move to a suboptimal location. As a result, the UK has seen no increase in the amount of built-up land per capita since 1990, which is in stark contrast to other G7 economies. Cheshire, Hilber and Kaplanis (2015) estimated that the "Town Centre First" policy caused a 32 percent loss of output to new supermarkets. The National Infrastructure Commission (NIC) estimates that easing planning and delivery constraints in the high growth "Milton Keynes-Cambridge arc"—an outlier in terms of productivity and innovation in the UK, with spillovers to other areas—could double its contribution to UK growth by 2050 and triple the creation of new local jobs.[7] Planning restrictions also create barriers for net zero infrastructure investment, including new onshore wind farms,[8] solar farms and grid connections.[9]
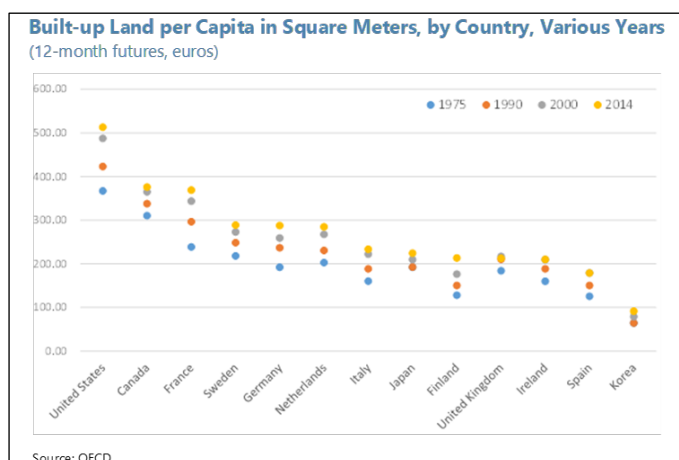
B.   International and UK Experience with Reforms

5.   There are good international examples of community-driven urban renewal policies. The quest for affordable housing presents a central challenge for cities worldwide with strategies differing widely. Community involvement emerges as a cornerstone of effective urban planning, fostering collaboration between residents, developers, and local authorities. Back in 2017, the Housing White Paper[10] by the British Government acknowledged the importance of community

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[6] Around 60 percent of local authorities in England do not even have an up to date plan.

[7] The area is fragmented into 23 local planning authorities and 8 transport authorities, which limits strategic planning at the arc level, particularly in terms of connectivity, as assessments are based on very local considerations only, instead of more ambitious coordination at the regional level

[8] Powering Up Britain: The Net Zero Growth Plan, March 2023

[9] National Grid, Investing in the future, May 2023

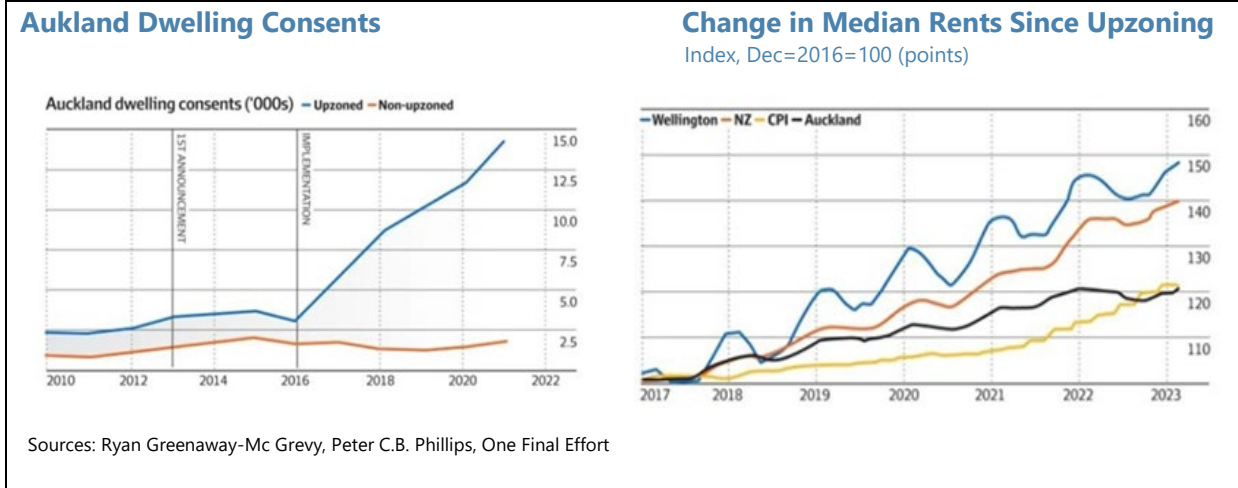[10] Fixing our broken housing market (publishing.service.gov.uk)

involvement in urban planning, with proposals to increase housing supply and market efficiency by encouraging community involvement, local leadership, and collaboration.[11]

- In **Israel**, residents and developers collectively work in shaping the future of their neighborhoods, with both benefitting from incentives such as new or larger apartments in renovated buildings for residents and increased density allowances for developers. This contributes to a sense of ownership and empowerment, potentially avoiding NIMBY resistance. Local authorities oversee and regulate urban renewal projects, ensuring alignment with zoning laws and planning policies, potentially expediting the approval process for smoother implementation. For example, under the Tama 38 program, developers work with apartment block residents to improve the safety of existing residential buildings through seismic retrofitting and upgrades. In exchange, developers can add new floors or extend existing ones, increasing housing density and creating potential new residential units. Another program, the Pinui-Binui (Evacuation-Reconstruction), demolishes old apartment blocks and constructs new buildings in their place. This requires majority consent from residents, who may receive new or upgraded apartments in the new building, while developers gain the chance to add additional units for sale. Community engagement is a key aspect of these policies, addressing residents' concerns and ensuring projects fit the neighborhood's character and needs.

- In the **United States**, Houston, Texas, stands in stark contrast with San Francisco and New York, providing an example of another successful approach. In Texas, a paradigm shift in urban development led to a surge in housing construction, with regulations designed to empower landowners to densify their properties. The outcome was house prices significantly lower than in cities with restrictive planning systems, where costs are driven upwards due to constrained supply. At the heart of successful strategies lay the concept of "gentle density"[12]— an approach that emphasizes modest densification while preserving local character.

- In 2016, Auckland, **New Zealand** upzoned approximately three quarters of its residential land to facilitate construction of more higher density housing. The plan created three types of residential zones: the most intensive zones, with the best transport connections, were allowed for 5 to 7 story dwellings; the next most intensive zoning allowed for three-story dwellings while the least intensive were allowed two stories with greater site coverage than previously possible. This led to a construction boom in the region, which prevented the significant rise in housing prices and rents experienced in other parts of New Zealand during this time. Greenaway-McGrevy and Phillips (2023) found that upzoning prompted additional construction in Auckland, resulting in more than a four-fold increase in the trend rate of construction compared to areas without upzoning.

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[11] The paper also aimed to streamline planning processes, expedite home construction, and address long-term challenges like leasehold reforms and homelessness prevention. This included ensuring transparent assessments, offering infrastructure support, establishing a stable investment framework for private developers, and providing dedicated funding initiatives to enhance affordable housing options and assist homebuyers and renters.

[12] Create Streets; QUB.UK Report; Brookings Institute Report

Aukland Dwelling Consents

Change in Median Rents Since Upzoning
Index, Dec=2016=100 (points)

Sources: Ryan Greenaway-Mc Grevy, Peter C.B. Phillips, One Final Effort

6.   Success stories are also available from within the UK, such as Croydon, London. The
planning guidance introduced by the borough in 2018 allowed homeowners to convert single-family
homes into apartments, significantly boosted supply and affordability when compared with the rest
of London (see Figures). But while the efforts to promote small-scale densification bore fruit, swift
repeal in the wake of a contentious election underscored the challenges and the need for flexibility
to ensure long-term viability of regulations and highlighted the challenges of urban development
amidst a shifting political landscape.[13] At the same time, the lesson from this episode and other
initiatives that faced political opposition (see Box 1) must not be that ambitious reforms should be
eschewed but that better ex-ante communication is needed to explain the benefits of the reforms to
local communities.

New Dwellings Built in Small Developments
(Annual totals)

Relative Change in Real House Prices
(September 2020=100)

Sources: GLA Planning London Datahub

Sources: Land Registry Price Paid Dataset

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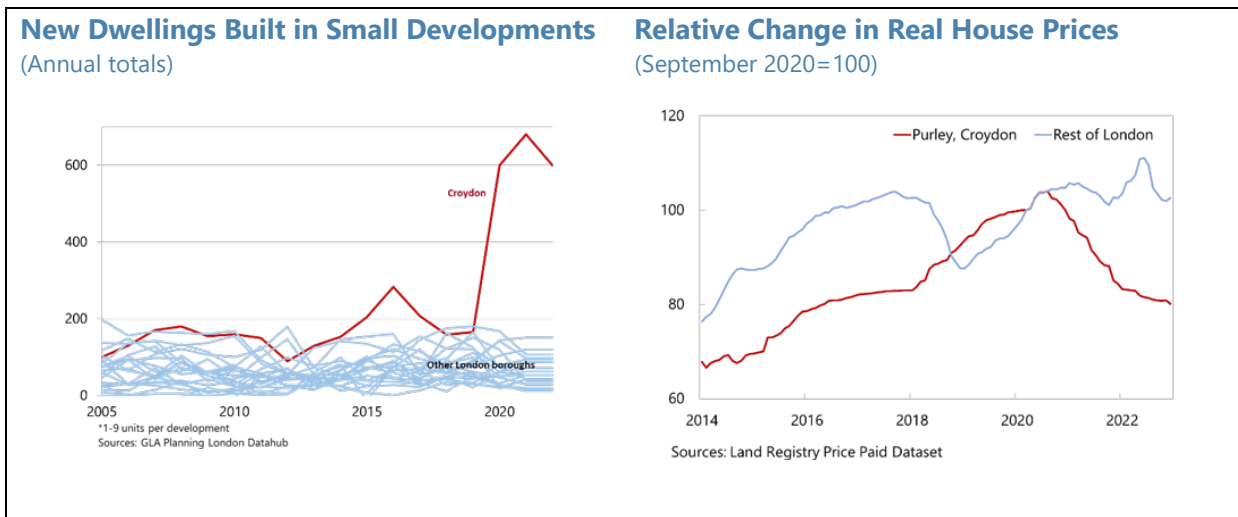
[13] The Croydon suburban design guide supplementary planning document (SPD2), adopted in April 2019, was
revoked in June 2022. See Executive and Informal Cabinet Report Template (inc. guidance) (croydon.gov.uk)

C. Potential Reforms to the UK Construction Planning System

7.   The UK national planning policy has seen intermitted reforms in recent years, but a fresh and ambitious impetus is needed. Despite the Government's attempts to streamline planning processes, the momentum of reform initiatives has been disrupted by shifts in priorities, political hurdles, and community opposition. This stop-start dynamic has become a recurring obstacle to progress on local plans, widening the gap between policy intent and practical outcomes. In addition, needed compliance with new environmental and safety requirements, while necessary, adds to the burden of local authorities, who often lack the skilled staff—both due to lack of funds required to hire experts, but also availability of professional experts (such as egologists) with the required skills in the UK labor market—they need to facilitate compliance. Given anemic investment and declining labor productivity, particularly total factor productivity, a new impetus is needed to implement bold planning reforms. This is particularly important at the current conjecture, given it is less costly in fiscal terms—given spending pressures, a large public infrastructure push at this juncture, while also needed, will be difficult to achieve.

8.   A comprehensive overhaul of the planning system is needed, focusing on systemic reforms that reduce discretion in granting permissions, ensure certainty, and align housing supply with demand. Addressing the system's complexity, delays, high costs, and unpredictability is essential. Action is needed on multiple fronts and reforms should focus on attracting investment, expanding the stock of better-quality affordable housing, and facilitating the green transition. Streamlining planning processes via regulatory simplification can alleviate the housing deficit (by expediting developments and reducing costs), promote greater work mobility and foster the investment necessary for economic growth. But these are politically challenging.

9.   Tangible and politically feasible progress is possible in broadening geographical coverage, digitization, and use of select greenbelt land.

- Recognizing the influence of political dynamics, notably local resistance and bureaucratic inertia, is key to devise effective strategies. This should include broader geographic and rules-based decision-making for business and large residential developments to reduce uncertainty for investors. A stricter framework for proposal evaluation, backed by up-to-date and binding local plans, has the potential to reinforce adherence to established guidelines, making it more difficult for local councils to reject compliant proposals and mitigating NIMBY concerns within designated growth areas.

- Digitalization comes as easy remedy to long-lasting challenges like delays and opaque decision-making processes. Digital tools can streamline processes, standardizing the process and facilitating data-driven decisions that optimizing resource allocation. Public engagement through online platforms could foster transparency and inclusivity by integrating diverse perspectives into planning processes, thereby building trust between planners and communities and lending legitimacy to decisions. Digitalization could also support real-time monitoring and evaluation of planning initiatives, enabling timely strategy assessments and adjustments.

Box 1. United Kingdom: Political Opposition to Recent Planning Reforms in the UK

In 2020, the Government took a bold step in the area of planning reforms with the release of the Planning for the Future White Paper.[1] The document signaled a shift toward a more "rules-based" approach to restructuring the planning system, aiming to streamline processes, increase public accessibility, and facilitate the construction of much-needed homes.

Central to the new system was the classification of land into growth, renewal, and protected areas. Growth areas would prioritize development, allowing for faster construction of homes, schools, and businesses, provided they meet local design standards. Renewal areas would permit development meeting quality requirements, while protected areas would maintain restrictions to preserve heritage sites. Crucially, community involvement would guide the design of local codes, ensuring that the needs and preferences of residents are taken into account. Additional initiatives included plans for digitizing the planning system and replace Section 106[2] with a new infrastructure levy, granting councils more control over levies.

The anticipated reforms would have collectively expedited home construction by shortening the planning process to 30 months, ensuring updated local plans for all areas, utilizing technology for accessibility, preserving green spaces, enhancing clarity in the planning process, implementing a simpler national levy, establishing a fast-track system for attractive buildings, and mandating new homes to be 'zero carbon ready'.
Unfortunately, the reforms faced delays due to heavy criticism during initial consultations. Opposition parties expressed concerns that the reforms could worsen the housing crisis, questioning the effectiveness of the zonal system in expediting planning and opposing the Section 106 overhaul over fears of reduced affordable housing availability.

As a result, not all proposals were fully legislated, and the final legislation took a more cautious approach than originally proposed. Provisions such as simplifying local plans and increasing digitalization were adopted, alongside the introduction of design codes to enhance development quality. However, the zoning reforms were notably revised and scaled back, favoring incremental changes to existing practices over the ambitious initial proposals that could have offered long-term benefits to planning processes. The consolidated Infrastructure Levy, intended to replace Section 106 agreements and the Community Infrastructure Levy, was weakened and reevaluated, reflecting hesitance to implement major changes to funding mechanisms for infrastructure development.[3] Housing targets faced backlash and were compromised to accommodate concerns about being overly prescriptive, potentially limiting the reforms' ability to address broader issues such as housing affordability and availability.

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[1] Planning for the future (publishing.service.gov.uk)

[2] Section 106 (S.106) Agreements, also known as planning obligations, are legal agreements between Local Authorities and developers linked to planning permissions. They are drafted when a development is expected to have a significant impact on the local area that cannot be mitigated through planning conditions alone. These agreements aim to balance the pressure created by new developments by securing improvements to the surrounding area and ensuring a positive contribution to the local community.

[3] Launch of Planning for the future consultation to reform the planning system - GOV.UK (www.gov.uk)

- Releasing Green Belt land with minimal environmental or amenity value for developments near transit stations with convenient access to major cities could address the critical shortage of housing in high-demand areas, without negative social or environmental impacts. It could also generate substantial funds for rail services, social housing, infrastructure, and local community services, for example, through the introduction of charges on the development of this land. To further expedite the development of the newly released land, and coordinate development efforts across regions for a cohesive urban plan, Green Development Corporations (GDCs) could be established for each city region, with planning authority and revenue allocation control from proposed development charges. Finally, innovative measures, such as objection thresholds, incentives for compliant projects and penalties for delays, can further strengthen these efforts by minimizing unnecessary opposition, promoting community support, and expediting decision-making while reducing bureaucratic bottlenecks.

10.   **Investing in local authorities through incentives and resource allocation, and tax reforms can drive efficiency and overcome NIMBYism.** Incentives can take various forms, including financial grants, technical assistance, and capacity-building programs. Linking funding to planning performance and the achievement of sustainable development goals can encourage accountability and innovation at the local level. Local authorities could be allowed to retain more of the revenues that new developments generate, and use these revenues for local benefit, which would increase support for development at the local level. In addition, implementing strategic tax policies, such as lowering the Stamp Duty for both residential and non-residential properties and reforming the council tax (to ensure at least revenue neutrality) can reduce barriers to high-growth firm, spur investment and workforce mobility. Specifically, Stamp Duty is associated generally associated with lower residential transactions, so reducing or removing it could improve property allocation and limit moving costs. Reforms to the council tax would impact owner-occupied residential properties potentially altering homeowners' disposable income and spending behavior, thus affecting local businesses. Additionally, these reforms can influence businesses, particularly those in the property sector, and labor mobility by changing the cost of living across different regions.

11.   **In sum, while a comprehensive overhaul of the planning system is ideal, given political realities, a more focused approach seems more feasible.** This involves progress around a few key areas, namely: (i) broader geographic and rules-based decision-making; (ii) digitalization and standardization, ideally with local plans that are binding for designated growth areas; (iii) careful release of Green Belt land near commuter stations that is not of significant environmental or amenity value; and (iv) targeted incentives and resources to local authorities.

References

Adam Smith Institute. (2020, October). Written evidence submitted to the 2020 UK Parliamentary Report. UK Parliament. URL

Brough-Williams, I. (2023). The UK housing crisis and its links to town planning.

Burn-Murdoch, J. (Year). What Texas can teach San Francisco and London about building houses. Financial Times.

Callais, J., & Geloso, V. (2014, March). How to boost income mobility in the UK. Institute of Economic Affairs.

Cheshire, P. (2023). An International Perspective on the US Zoning System. Cityscape, 25(3), 169-184.

Cheshire, P. C., Hilber, C. A., & Kaplanis, I. (2015). Land use regulation and productivity—land matters: evidence from a UK supermarket chain. Journal of Economic Geography, 15(1), 43-73.

Cheshire, P., Hilber, C. A., & Koster, H. R. (2018). Empty homes, longer commutes: the unintended consequences of more restrictive local planning. Journal of Public Economics, 158, 126-151.

Corlett, A., & Judge, L. (2024). The Resolution Foundation Housing Outlook Q1 2024. The Resolution Foundation.

Dataset on Housing Affordability, working paper

Erdmann, K., Furth, S., & Hamilton, E. (2019). The link between local zoning policy and housing affordability in America's cities.

Geis, A. (2023). Housing Supply in the Netherlands: The Road to More Affordable Living. Strategic Issue Paper.

Greenaway-McGrevy, R., & Phillips, P. C. (2023). The impact of upzoning on housing construction in Auckland. Journal of Urban Economics, 136, 103555.

Hsieh, C. T., & Moretti, E. (2019). Housing constraints and spatial misallocation. American economic journal: macroeconomics, 11(2), 1-39.

Hilber, C. A. L. (2014). The impact of supply constraints on house prices in England. Spatial Economics Research Centre.

Hilber, C. A. L., & Vermeulen, W. (2014). The Impact of Supply Constraints on House Prices in England. The Economic Journal, pp. 358-406.

IMF Canada Team. (2017). How advanced economies tackle housing market imbalances: Lessons for Canada. In Selected Issue Paper (pp. 36-38). International Monetary Fund.

Mayo, Stephen & Sheppard, Stephen, 2001. "Housing Supply and the Effects of Stochastic Development Control," Journal of Housing Economics, Elsevier, vol. 10(2), pages 109-128, June

Myers, J., Bowman, S., & Southwood, B. (2021). The housing theory of everything.

OECD. (2017). Land-use planning systems in the OECD: Country Fact Sheet.

OECD. (2017). The governance of land use in OECD countries: Policy analysis and recommendations.

Rothwell, Jonathan T. and Massey, Douglas S., Geographic Effects on Intergenerational Income Mobility (June 20, 2014).

Sheppard, Stephen, 1988. "The qualitative economics of development control," Journal of Urban Economics, Elsevier, vol. 24(3), pages 310-330, November.

Stutts, B. (2021). Essays in urban economics [Unpublished doctoral dissertation]. Southern Methodist University.

Sutherland, D. (2020). Modernising state-level regulation and policies to boost mobility in the United States.

The Economy 2030 Inquiry. (2023). Ending stagnation: A new economic strategy for Britain – The final report of the Economy 2030 Inquiry.

Watling, S., & Breach, A. (2023). The housebuilding crisis: The UK's 4 million missing homes. Centre for Cities, 22.

UPSKILLING THE UK WORKFORCE[1]

The UK workforce has larger and more chronic skills gaps than in most peer countries, with surveys reporting widespread recruitment difficulties, with implications for output, in high-skill sectors like digital and software, manufacturing, medicine and life sciences, teaching, and construction. This partly reflects declines in primary and post-secondary education outcomes (particularly science scores, over the past two decades) and in workplace training and apprenticeships, particularly for the young. Moreover, the recent increase in non-EU migrants has not fully offset the adverse impact from Brexit on the availability of needed skills, including because smaller firms face more recruitment hurdles with regard to non-EU hires. Against this backdrop, there is an urgent need to upskill the UK workforce, both by building on ongoing efforts, as well as additional concrete measures to: (i) encourage students and young workers to join and excel in STEM; (ii) ensure adequate vocational and on the job training, particularly for the young; (iii) retain the talent produced by UKs world leading universities; (iv) upskill the existing labor force; and (v) facilitate attraction and retention of in-demand skills through adjustments to the visa regime.

A. Skills Shortages in the UK

Recruitment Difficulties and Skills Shortages

UK Recruitment Difficulties, Manufacturing Companies
(Percent of companies surveyed reporting difficulties, 4Q moving average)

UK Recruitment Difficulties, Service Sector
(Percent of companies surveyed reporting difficulties, 4Q moving average)

Sources: The British Chamber of Commerce; and Haver analytics.

1.   UK employers report widespread and chronic recruitment difficulties. Survey data show that recruitment difficulties have plagued UK employers from well before the pandemic or even Brexit, which have only served to exacerbate pre-existing problems. A rising percentage of surveyed firms faced increasing hiring challenges for skilled manual and technician roles since 2012, with almost 70 percent of firms reporting difficulties hiring skilled workers in 2023. Services companies have also experienced a shortage of professional, managerial and skilled technician roles, particularly since 2018. Employers reported difficulties filling roles for reasons such as low numbers of applicants with the required skills, a lack of interest in the job advertised, competition from other employers, and poor terms and conditions offered for the post. According to the 2022 Employer

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[1] Prepared by Pragyan Deb and Gloria Li. The paper benefited from discussions and comments received from the UK authorities during the 2024 Article IV consultation.

Skills Survey, the occurrence of skill-shortage vacancies—a subset of hard-to-fill vacancies that employers struggle to fill due to lack of skills qualifications or experience among applicants—has increased to 36 percent in 2022, a significant jump from the 22 percent reported in 2017.

2.   Adding to the concern is that the largest increase in skills shortages has been in future growth sectors. Sectors such as information and communications (which includes digital, IT and AI), advanced manufacturing, health and social work, education, business services and wholesale and retail sectors have seen the highest increase in skills gaps. Construction and manufacturing were also among the sectors with the highest proportion of skill-shortage vacancies in 2022. Sector specific surveys point in the same direction: a recent PWC report highlighted a shortfall of 200,000 employees with green skills; and a Gallup and Amazon study found that 72 percent of businesses have digital skills vacancies, but only 11 percent of UK workers have advanced digital skills. These survey results are complemented by hard data, such as the OECDs measure of skill shortages. A measure of hard-to-find skills (or skills in shortage) in an OECD study shows that skills in demand in the UK are concentrated in key areas such as training and education, medical and scientific skills, and digital skills.[2]

Skills Shortages and Gaps in Key Sectors

Proportion of Skill-Shortage Vacancies by Sector
(Percent)

UK Skills in Shortage or Surplus
(Index, +ive values indicate shortage)

Note: Data refers to 2019. Skills are defined as hard-to-find (or in shortage) when employers are unable to recruit staff with the required skills in the accessible labor market and at the going rate of pay and working conditions. Indicator constructed by the OECD using data on wage growth, employment growth, hours worked growth, unemployment rate, and under-qualification growth. Each series is compared against the economy-wide trend to derive sector specific differences; and then aggregated into an overall index. Sources: OECD Skills for Jobs Database 2022.

Sources: Employer Skills Survey, 2022.

3.   Skills gaps have also increased in the *existing* workforce (i.e., already-hired workers), and labor shortages are constraining output. In addition to skills shortages and difficulties in recruitment, 15 percent of employers also report that at least one member of staff is not fully proficient in their role (up from around 13 percent in 2017). The 2022 Employer Skills Survey also shows an increasing density of the skills gap in their existing workforce—the number of employees that are judged not fully proficient for their current roles as a proportion of all employees. This measure showed a steady decline since 2011, but picked up for the first time in 2022, increasing from 4.4 percent in 2017 to 5.2 percent in 2022. This was equivalent to 1.72 million employees

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[2] OECD (2022) calculates an indicator of skill shortage or surplus using data on wage growth, employment growth, hours worked growth, unemployment rate, and under-qualification growth. Each series is compared against the economy-wide trend to derive sector specific differences; and then aggregated into an overall index. Skills are defined as hard-to-find (or in shortage) when employers are unable to recruit staff with the required skills in the accessible labor market and at the going rate of pay and working conditions.

lacking full proficiency, compared with 1.27 million in 2017. In addition, while the most common consequence of skills gaps was increased workloads for other workers, nearly a third of the companies reported that the lack of availability of skilled labor limited firm output. Smaller firms, with 2 to 4 employees, were more likely to note that skills gaps had a major impact.

Skills Gaps in Existing Workforce and Labor Shortages Constraining Output

Proportion of Skills Gaps by Sector
(Percent)

Sources: Employer Skills Survey, 2022.

Skilled Labor as One Limiting Factor to Production
(Percent of companies, expectations for next 3 months, 12MMA)

Sources: CBI; and Haver Analytics.
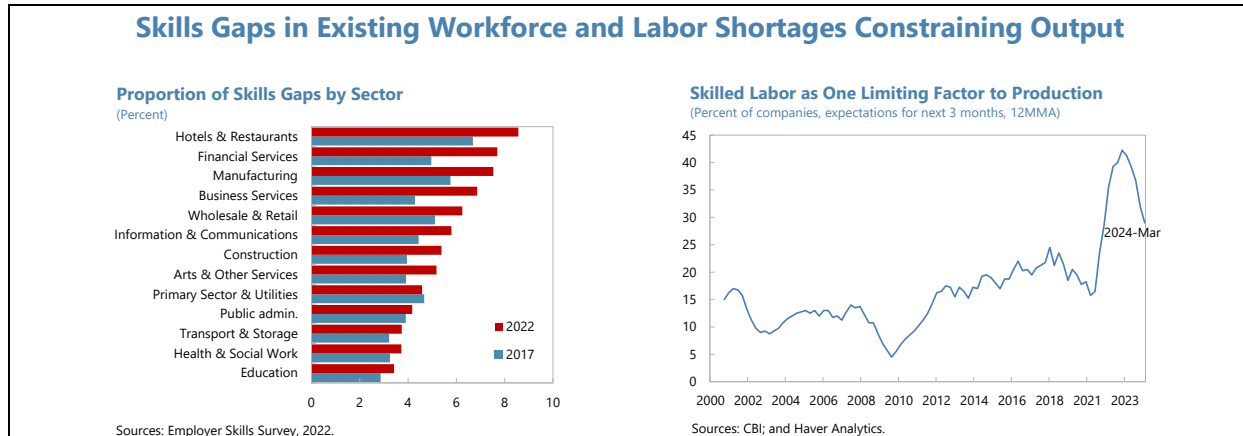
4. **The UK has larger field- and qualification-mismatches than peers.** The OECD Skills for Jobs Database reports two measures of mismatch. Field-of-Study mismatch measures the average percentage of workers that have a field-of-study that does not match their job requirements, and qualification mismatch measures the average percentage of workers that have a qualification that is either below or above the job requirements. The UK ranks poorly in both measures of mismatch, as almost 40 percent of UK workers are calculated to have a field-of-study mismatch compared to an OECD average of 31.7 in 2019. In terms of qualifications mismatch, once again the UK compares unfavorably, particularly with the incidence of underqualification—a worker having a qualification that is below their job's requirements—which is one of the highest amongst other OECD economies at 40.5 percent, compared with an average of 34.4 percent. OECD estimates that such mismatches can lower productivity, increase unemployment, and limit the potential for UK businesses to compete globally. The Learning and Work Institute estimates that the UK skills shortage will cost £120 billion by 2030, with a shortfall of 2.5 million highly skilled workers and an oversupply of more than 8 million people with low skills.

Cross-Country Labor Market Mismatches

Field-of -Study Mismatch, 2019
(Average percentage of workers that have a field-of-study that does not match their job requirements)

Note: Field-of-study mismatch occurs when a worker trained in one particular field works in another field, even when the worker might be matched in terms of skills or qualifications.Data refer to 2019 with the database last updated in 2022.
Sources: OECD Skills for Jobs Database.

Qualification Mismatch, 2019
(Average percentage of workers that have a qualification that does not match their job requirements)

Note: Qualification mismatch is defined by the discrepancy between the highest qualification held by a worker and the qualification required by their job. Over (under) qualification is defined as the average percentage of workers that have a qualification that is above (below) their job's requirements. Data refer to 2019 with the database last updated in 2022.
Sources: OECD Skills for Jobs Database.

B. Factors Driving Skill Shortages

5.   Although it is difficult to isolate the precise drivers of the observed increase in skills shortages, the evidence points to weakening educational outcomes, including adult education, alongside the Brexit and COVID shocks, and population aging. Despite an increase in public funding for primary and post-secondary education since 2019 (reversing earlier cuts), outcomes, particularly science scores, have declined over the past two decades, accompanied by a decline in workplace training and apprenticeship, particularly for the young. Alongside cuts to state spending on adult education since the GFC, total employer investment in skills declined 19 percent per employee, in real terms, between 2011 and 2022, with sharper declines in larger businesses (-35 percent), primary (-44 percent), and public (-38 percent) service sectors. Since Brexit, there has been an increase in non-EU migrants, but they have not directly offset the loss of EU-workers given different skillsets and hurdles in hiring non-EU workers, especially for small firms. We discuss each element in turn.

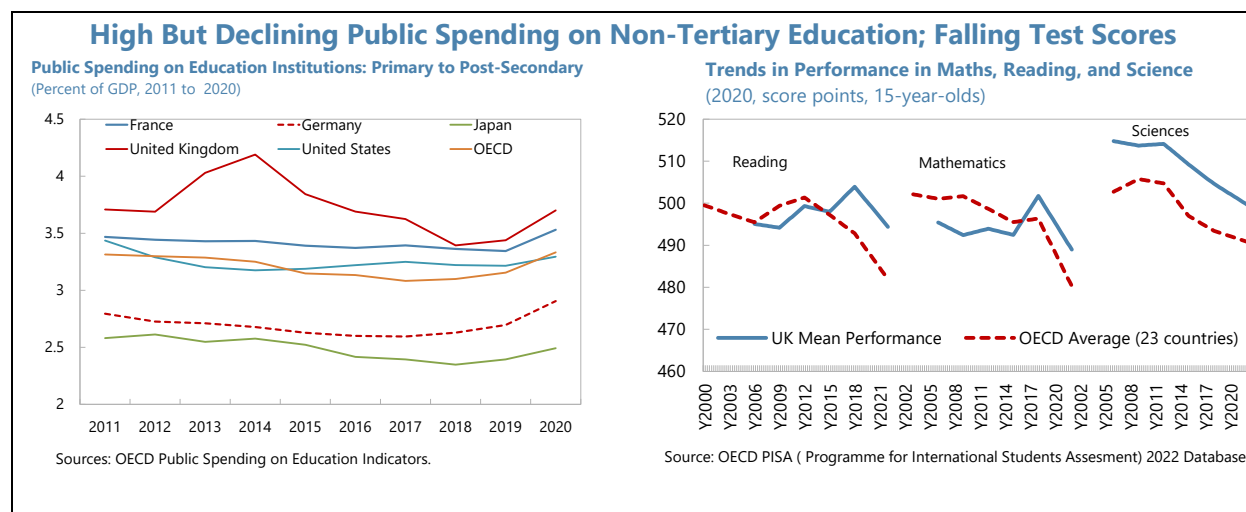**Primary and Secondary Education**

6.   Public spending on primary and secondary education in the UK is relatively high compared with G7 countries but has declined over the past decade. On average, UK spending on primary to post-secondary education institutions, which includes expenditure on educational institutions and educational-related public subsidies given to households, was 3.7 percent in 2020 and above the OECD average of 3.3 percent. However, spending as percent of GDP has continuously declined from 2013 to 2018 with a small increase in 2020. On per capita terms, the IFS's 2023 annual report estimates 9 percent real terms fall in spending per student from 2010 to 2020, which is the result of a small (1–2 percent) increase in total spending on schools combined with a 11 percent increase of student numbers. In addition, while primary schools have experienced real-term growth in spending per student, secondary schools have experienced real-term cuts.[3] However, spending per student is projected to increase over the medium term due to schools receiving extra funding in the upcoming horizon and a decline in student population.

7.   Reflecting this, although UK mean performances in students' education outcomes are above the OECD average, there has been a drop in performance outcomes from 2018 to 2022. OECD PISA, a comprehensive international assessment of student learning outcomes, measures the performance of 15-year-old students near the end of their compulsory education in reading, mathematics, and science. Overall, mean performance in these subjects have declined the past two decades across OECD countries and particularly over the last two years surveyed, i.e., from 2018 to 2022, which is partially explained by disruptions of COVID-19. Advanced economies that participate in the assessment often saw significant declines in two out of three subjects at once in the 10 years from 2012 to 2022 according to OECD's analysis. The UK experienced a non-significant declining

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[3] According to the report, this is possibly because primary schools are likely to benefit from the transfer of funds and responsibilities from local authorities to induvial schools when secondary schools had reductions to sixth-form funding.
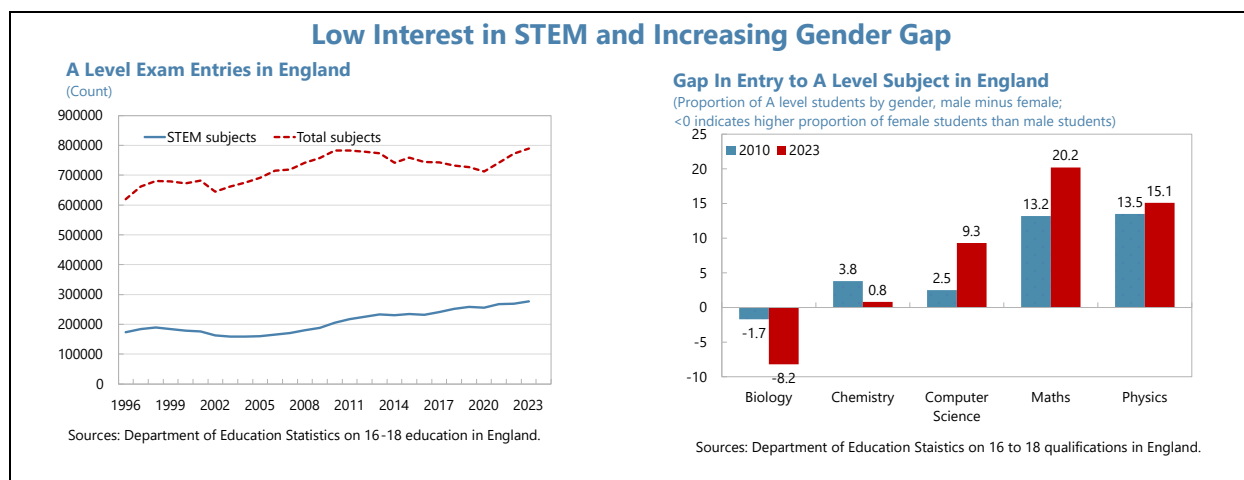
trend in both mathematics and science. In addition, since the first year of survey in the UK (2006), the lowest achieving 10th percentile of students has performed worse over time in mathematics, while the top 10th percentile did not experience significant change in performance, suggesting widening disparities.

High But Declining Public Spending on Non-Tertiary Education; Falling Test Scores

Public Spending on Education Institutions: Primary to Post-Secondary
(Percent of GDP, 2011 to 2020)

Trends in Performance in Maths, Reading, and Science
(2020, score points, 15-year-olds)

Sources: OECD Public Spending on Education Indicators.

Source: OECD PISA (Programme for International Students Assesment) 2022 Database.

8.   Several areas need attention to foster STEM education: student interest, gender gap, and more teachers with relevant STEM qualifications. By design, students in the UK take fewer core subjects with a higher degree of depth and specialization early on, while most other countries have established a wider core (OECD 2023). Demanding subjects such as A-Level mathematics are available to fewer students with implications for the limited number of entrants to tertiary education.[4] As a result, only 26 percent of UK graduates are from STEM courses, though this is better than 25 percent in France, 23 percent in Spain and 20 percent in the U.S; and the overall number of student participation in A-level STEM subjects has increased from 258,790 in 2019 to 276,641 in 2023.[5] In addition, there is a significant and increasing gender gap in subjects like Mathematics, Physics and Computer Sciences. In addition, STEM education is further impacted by shortages in qualified instructors. Reports such as the 2023 Teacher Labour Market in England Annual Report highlight the real term falls in teachers' pay that has been a key driver of challenges to recruitment and retention. This is particularly the case in subjects like physics, design and technology and computer sciences, which recruited less than a third of their respective targets in initial teacher trainees required to meet future staffing needs given better opportunities for such students in the rest of the economy (see McLean, Worth, and Faulkner-Ellis 2023).

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[4] Not surprisingly, using the HESA and the National Pupil Database, Vidal Rodeiro, C.L. (2019) found that among those students whose main area of study is engineering and technology, uptake of A-level physics and mathematics was most prevalent. Similarly, most students whose principal subject area is medicine and dentistry in higher education also participated in A-levels Chemistry and Biology.

[5] A-level is a principal measure of education attainment for 16-18-year-olds before university, and uptake in certain A-level subjects are related to STEM degree choices in higher education. STEM subjects cover Biology, Chemistry, Physics, Total Mathematics, Further Mathematics, and Computer Science.

Low Interest in STEM and Increasing Gender Gap

Sources: Department of Education Statistics on 16-18 education in England.

Sources: Department of Education Staistics on 16 to 18 qualifications in England.

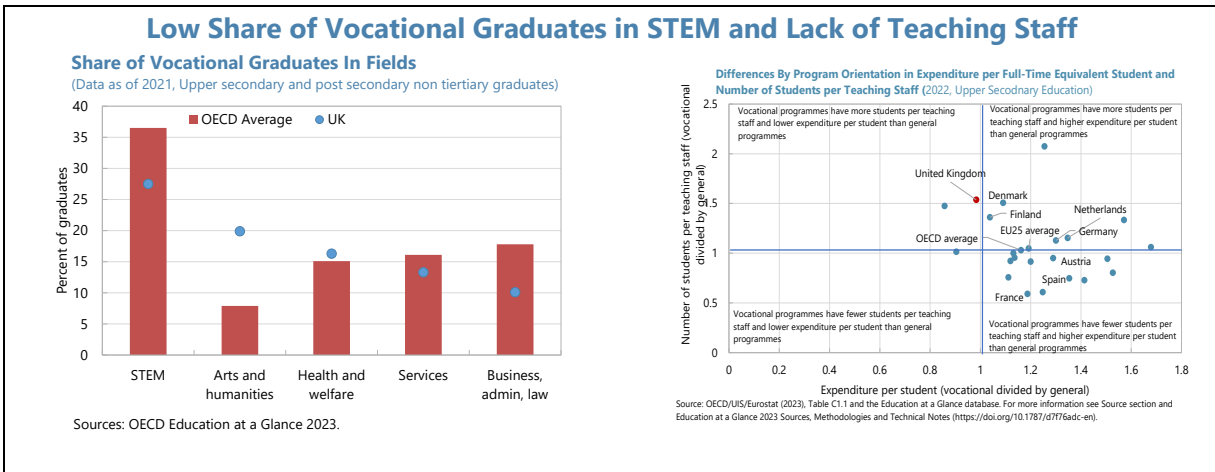## Vocational Training and Apprenticeship

9.   Improving T-level[6] and vocational training is essential for sectors experiencing skills-shortage vacancies such as construction, information and communication, manufacturing, and health. Some sectors that employ higher percentages of engineers and skilled trade professionals have traditionally reported that they struggle to attract younger workers (ONS 2006–2019 through ECITB 2018). In addition, half of the employers surveyed by a census of the engineering and construction industries in 2021 indicated that they faced difficulties hiring, and about 65 percent of those employers stated that those candidates not having the necessary qualifications and experiences contributed to hiring difficulties. A recent Institute of Physics research found that more than majority of physics-powered businesses faced slowdown or halted R&D investment due to a lack of skills of employees.

10.   The UK has a low share of vocational graduates in key areas such as STEM, and vocational education needs more teaching staff. Vocational programs are designed to help students acquire specific knowledge and skills for occupations and trades and have combined school-and-work components.[7] Among OECD countries, the UK has a lower share of vocational graduates, especially female, in STEM, business, administration, law, and services. In addition, for the upper secondary vocational learners who consist mainly of younger students, only 7.9 percent of graduates are in in-demand sectors such as engineering, manufacturing and construction programs compared to an average of 31.8 (OECD 2021). Although the authorities introduced the T levels to address this, survey evidence suggests that understanding of these programs is relatively low for

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[6] T levels are two-year post GCESEs technical courses (Level 3) that offer practical learning at a school accompanied by on-the-job experience through an industrial placement of approximately 45 days.

[7] In the UK, these programs are offered for upper secondary levels (Level 2/3 or 12th and 13th year with average learner age of 20.2) and "vocational education" (post-secondary no-tertiary, Level 4+). T-levels, a new set of technical qualifications, were introduced in 2020 and aims to provide specialist knowledge and skills with direct access to tertiary education and streamline the existing system of qualifications.

both learners and employers, constraining uptake.[8] The student to teacher ratio is also higher—24.7 to 1 compared to the OECD average of 15 to 1 in 2021.

Low Share of Vocational Graduates in STEM and Lack of Teaching Staff

Share of Vocational Graduates In Fields
(Data as of 2021, Upper secondary and post secondary non tiertiary graduates)

Differences By Program Orientation in Expenditure per Full-Time Equivalent Student and Number of Students per Teaching Staff (2022, Upper Secodnary Education)

Sources: OECD Education at a Glance 2023.

Source: OECD/UIS/Eurostat (2023), Table C1.1 and the Education at a Glance database. For more information see Source section and Education at a Glance 2023 Sources, Methodologies and Technical Notes (https://doi.org/10.1787/d7f76adc-en).

11.   Apprenticeships, which are a type of work-based vocational training designed to provide direct entry to the labor force, have declined, and disproportionately for the young.
Apprenticeship starts peaked in 2011 and decreased throughout the 2010s, with younger workers (under 24) apprenticeship starts almost halving after the pandemic, while apprenticeship starts for ages 25+ remained stable. Apprenticeship participation by levels also exhibited a divergence on opposite ends. High level apprenticeships, which include higher and degree-level (equivalent to at least a NQF Level 4 qualification) has tripled since 2017, in part due to policy initiatives to improve the quality of apprenticeship programs, while intermediate level apprenticeships (equivalent to NQF Level 2) have fallen sharply, bringing down overall participation.[9]

Declining Apprenticeships, Especially Amongst Young

Number of Apprenticeship Starts
(Thousands)

Number of Apprenticeship Starts in England, by Age
(Thousands)

Sources: Further Education Statistics.

Sources: Further Education Statistics.

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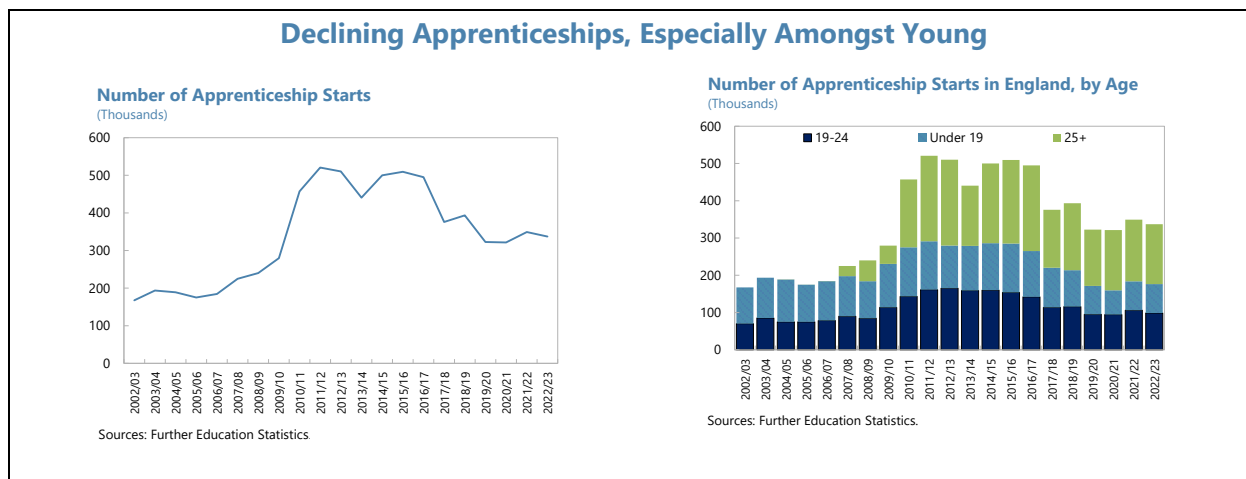
[8] Annual Perceptions of Vocational and Technical Qualifications survey conducted by the Office of Qualifications and Examinations Regulation (Ofqual) in 2022.

[9] NQF: National Qualifications Framework. Level 4 is equivalent to a Certificate of Higher Education. For reference, Level 3 is equivalent to a Diploma of Higher Education. Both A-Level, T-Level and advanced apprenticeships are Level 3 while intermediate apprenticeships are equivalent to Level 2, or GCSE.
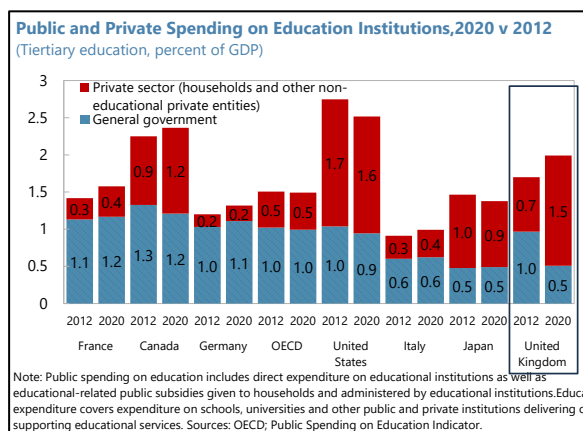
Tertiary Education

12.   Public spending on tertiary education has plummeted in the last decade while private sector spending, fueled by international students, has increased. Overall spending on tertiary education has increased in the UK and is higher than other G7 countries except for the US and

Canada in 2020, but this mask a remarkable shift between public and private spending. UK public spending on tertiary education institutions is well below OECD average in 2020, halving from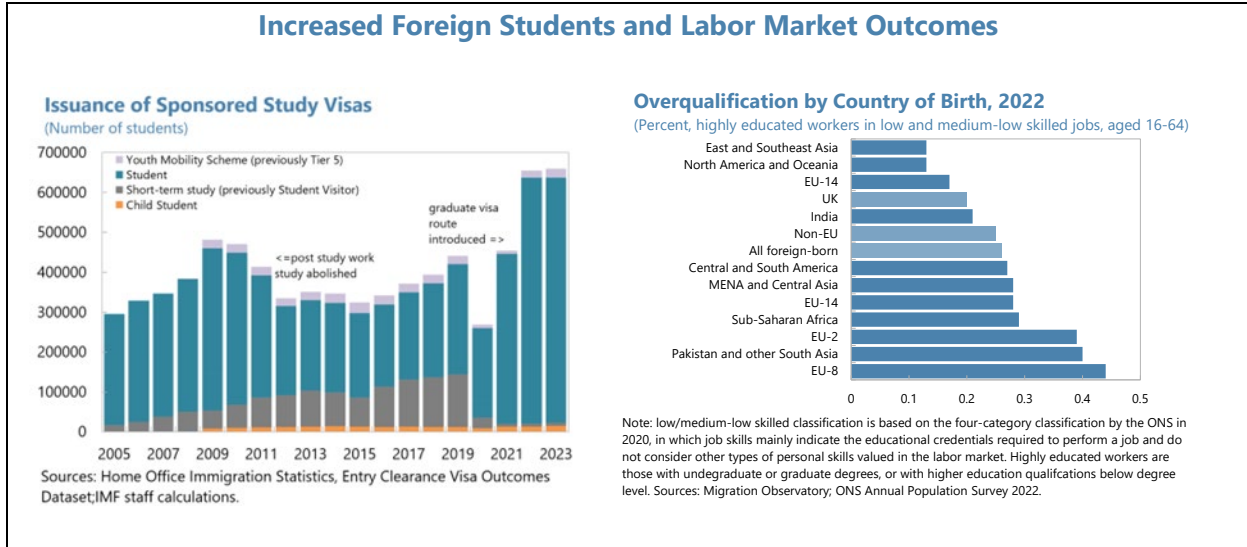 1 percent of GDP in 2012 to 0.5 percent in 2020. But this has been offset by private spending increasing from 0.7 to 1.5 percent of GDP. While as a general policy, it is desirable for public finances to focus on primary and secondary education, this shift has made UK universities more reliant on international students as domestic university tuition fees have been capped in the

Public and Private Spending on Education Institutions,2020 v 2012
(Tiertiary education, percent of GDP)

Note: Public spending on education includes direct expenditure on educational institutions as well as educational-related public subsidies given to households and administered by educational institutions.Education expenditure covers expenditure on schools, universities and other public and private institutions delivering or supporting educational services. Sources: OECD; Public Spending on Education Indicator.

last decade. Tuition fees from non-UK students now accounted for 42 percent of higher education course fees and 21 percent of all income for universities in England in the 2021–22 financial year; and some universities in London received more than three-quarters higher education fees from non-UK students. This has made tertiary education finances more volatile and exposed to changes in immigration policy that has resulted in fluctuations in issued visas and enrollment, with potential impacts on research, performance, and skills attainment.
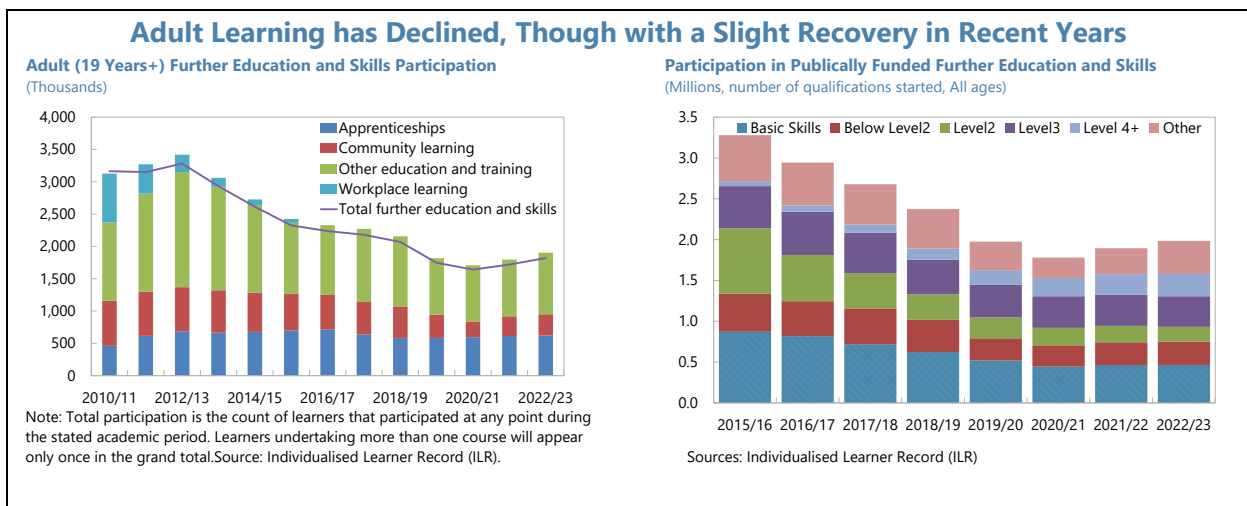
13.   The impact of higher spending on tertiary education by foreign students on UK skills shortages depends on retention of these foreign students. The introduction of the Graduate Visa Scheme, which allows students to stay in the UK for 2 years and conduct job searches post-graduation, resulted in a more recent influx of visa holders and a large increase in yearly sponsored study. But insofar as foreign students return to their home countries after education, their impact on UK skill shortages will not be significant (other than indirect effects of subsidizing UK students). And even those who stay need to be properly integrated in the UK workforce – the Migration Conservatory's analysis of ONS population survey in 2022 shows that highly educated migrants are often overqualified, as the percent of highly educated foreign-born (including some EU born) workers employed in low and medium skilled jobs were above that of UK born workers. Finally, while the Graduate Visa Route was initially attractive to students, enrollment and retention is now an issue due to new restrictions changes and thresholds. Postgraduates are now restricted from bringing their families to the UK, and data from Enroly, a platform used by international students for registration, points to a decline in enrollment from several countries since 2023. Furthermore, management consultant companies such as KPMG, Deloitte, and HSBC that traditionally sponsor overseas recruits have cancelled job offers to non-UK recruits after the threshold for skilled visa workers was raised from £26,200 to £38,700 in 2024.
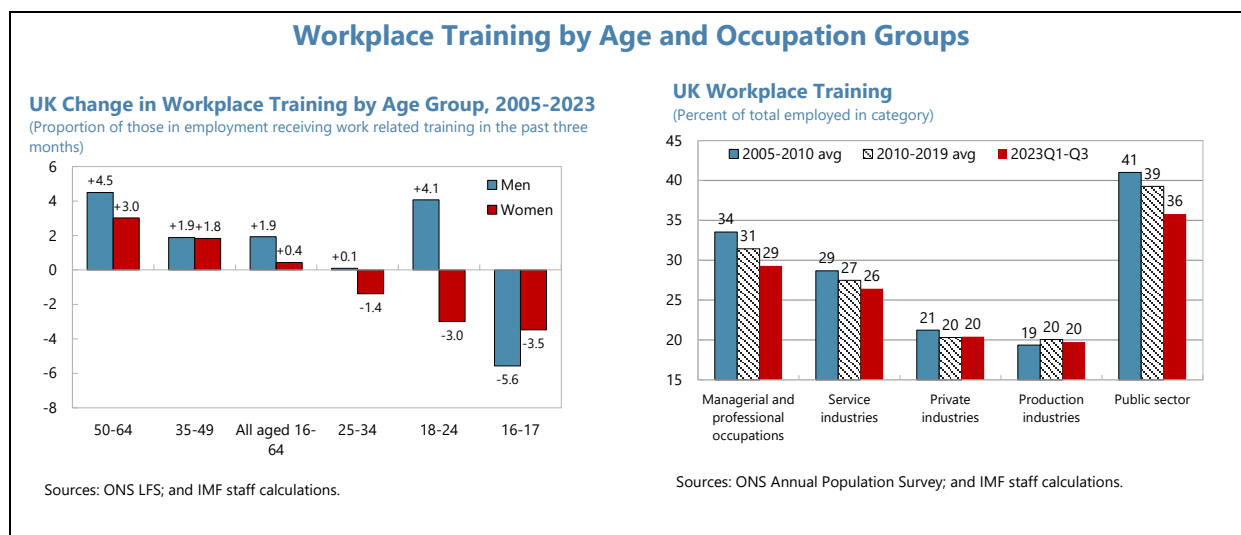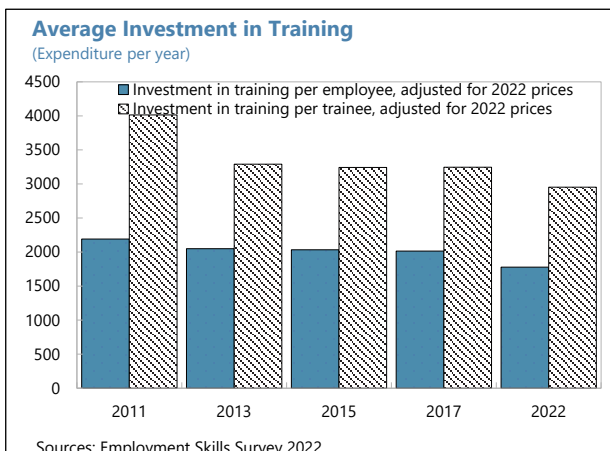
Increased Foreign Students and Labor Market Outcomes

Issuance of Sponsored Study Visas
(Number of students)

Sources: Home Office Immigration Statistics, Entry Clearance Visa Outcomes Dataset;IMF staff calculations.

Overqualification by Country of Birth, 2022
(Percent, highly educated workers in low and medium-low skilled jobs, aged 16-64)

Note: low/medium-low skilled classification is based on the four-category classification by the ONS in 2020, in which job skills mainly indicate the educational credentials required to perform a job and do not consider other types of personal skills valued in the labor market. Highly educated workers are those with undergraduate or graduate degrees, or with higher education qualifcations below degree level. Sources: Migration Observatory; ONS Annual Population Survey 2022.

Adult and Workspace Learning

14.   Participation in adult learning and skills development has also declined in the past decade and across most qualification levels, with a slight recovery over 2021-2023. These programs include community-based learning and workplace learning. In addition to the decline in participation, funding to adult learning has also decreased with consequences for the distribution of skills gap. Total public spending on adult skills have dropped 30 percent from its peak in the early 2000s. The Learning and Work Institute estimate that per capita funding for adult skills decreased in real terms by 28 percent and companies reduced the amount of investment by 20 per cent per employee between 2010/11 and 2022/23. Furthermore, in England, the decline in the number of adult learners in the most disadvantaged areas of the country was almost 10 times above the decline in the most advantaged.

Adult Learning has Declined, Though with a Slight Recovery in Recent Years

Adult (19 Years+) Further Education and Skills Participation
(Thousands)

Note: Total participation is the count of learners that participated at any point during the stated academic period. Learners undertaking more than one course will appear only once in the grand total.Source: Individualised Learner Record (ILR).

Participation in Publically Funded Further Education and Skills
(Millions, number of qualifications started, All ages)

Sources: Individualised Learner Record (ILR)

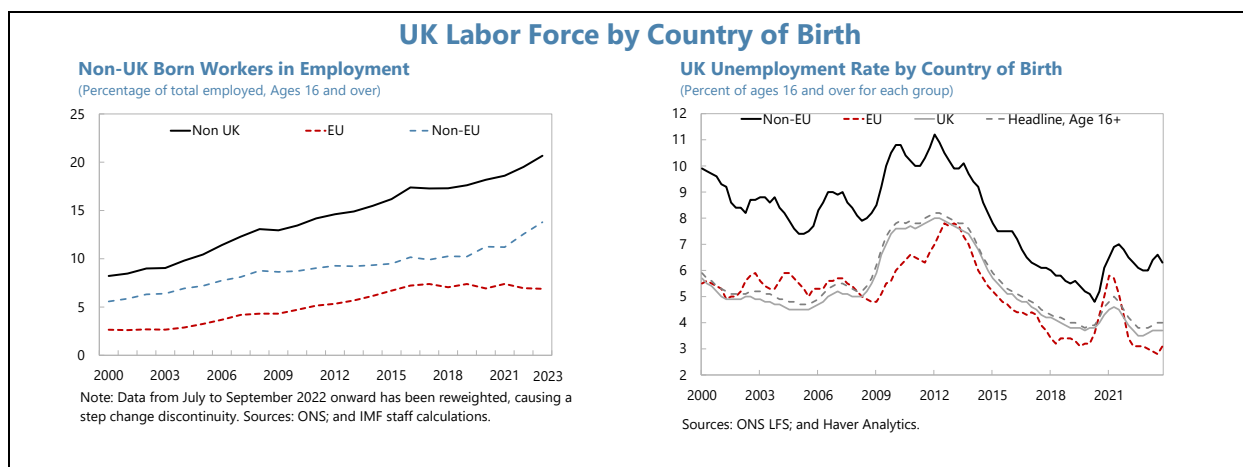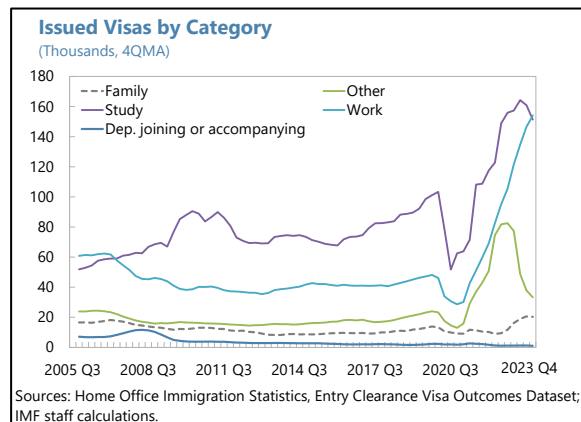**15.   While job-related training by employers has increased from 2005 to 2023, it has fallen for the young and women.**[10] Overtime, the proportion of older workers who received workplace training increased 4.5 percent on average for men and 3.0 percent on average for women, even though in the aggregate younger workers (aged 16 to 24) still have the highest rates of in-working training participation. In the net, young people's participation has slightly decreased overtime, with women receiving less training. By occupation groups, the fall in workplace training during this period was the largest for those in managerial and professional occupation, public sector, and services. ONS

Average Investment in Training
(Expenditure per year)

Sources: Employment Skills Survey 2022.

(2017) found that women were more likely to participate in workplace training then men due to a having higher employment shares in occupation groups with higher rates of workplace training: professional, and caring/leisure and other services occupations. However, due to a higher share of women in part-time jobs, the training women undertook was typically shorter than training undertaken by men.

Workplace Training by Age and Occupation Groups

UK Change in Workplace Training by Age Group, 2005-2023
(Proportion of those in employment receiving work related training in the past three months)

Sources: ONS LFS; and IMF staff calculations.

UK Workplace Training
(Percent of total employed in category)

Sources: ONS Annual Population Survey; and IMF staff calculations.

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[10] Workplace training is defined by receiving job related training in the last four weeks, three months, or 12 months prior to being interviewed; and the training can take place at work or outside of work.

Brexit Challenges

16. **Brexit has added to the skills challenge.** Over the past two decades, migrants, including

from the EU, have helped fill the skills gap in the short term. Data from the Home Office's Immigration Statistics suggest that studying and work are the main reasons for visa issuance. Although over the past two decades, the UK has had more non-EU born than EU-born workers, this gap has been widening significantly since Brexit. And while the surge in non-EU migration in recent years suggests that there is some substitution between EU and non-EU labor, there are significant differences in their labor market outcomes, matching, and employment share in industries. For

Issued Visas by Category
(Thousands, 4QMA)

example, on average, non-EU migrants also experience higher unemployment rate than EU-born and UK-born workers. In any case, hardening political views around high levels of migration suggest that large scale non-EU migration is not a long-term solution to skills gaps.

UK Labor Force by Country of Birth

Non-UK Born Workers in Employment
(Percentage of total employed, Ages 16 and over)

Note: Data from July to September 2022 onward has been reweighted, causing a step change discontinuity. Sources: ONS; and IMF staff calculations.

UK Unemployment Rate by Country of Birth
(Percent of ages 16 and over for each group)

Sources: ONS LFS; and Haver Analytics.

17. **Certain occupations and companies face visa and sponsorship hurdles in obtaining non-UK workers to fill the void left by former EU workers.** An often-cited criticism of the current immigration system is that it fails to help sectors, such as transport and skilled trades, that are experiencing significant worker shortfalls but cannot access labor through the current system. Analysis of the Home Office's Immigration System Statistics illustrate that pre-Brexit, many occupation groups in need for skilled workers, such as managers, professionals, skilled trades, and sales and customer services roles, filled their requirements by hiring EU workers. Such workers consisted of a significant share of the workforce in these occupations in 2016. However, post Brexit, many of these occupation groups have extremely low rates of sponsorship in 2023 when compared with the share of EU worker that they relied on, leaving a void and a substantial skills gap. Only in the case of caring, leisure and other services occupation group the share of non-EU workers in who

received visa sponsorship is relatively close to the share of EU worker in these occupation groups in 2016. A related issue is the size of companies – small and medium sized firms that often relied on EU labor, find it difficult to navigate the complexities and expenses of hiring non-EU workers, making it difficult for them to get the skilled workers they require. This is evidenced by the dominance of large firms in sponsor foreign workers, with small and medium employers largely staying out of the system.

Non-EU Workers in the UK Labor Market
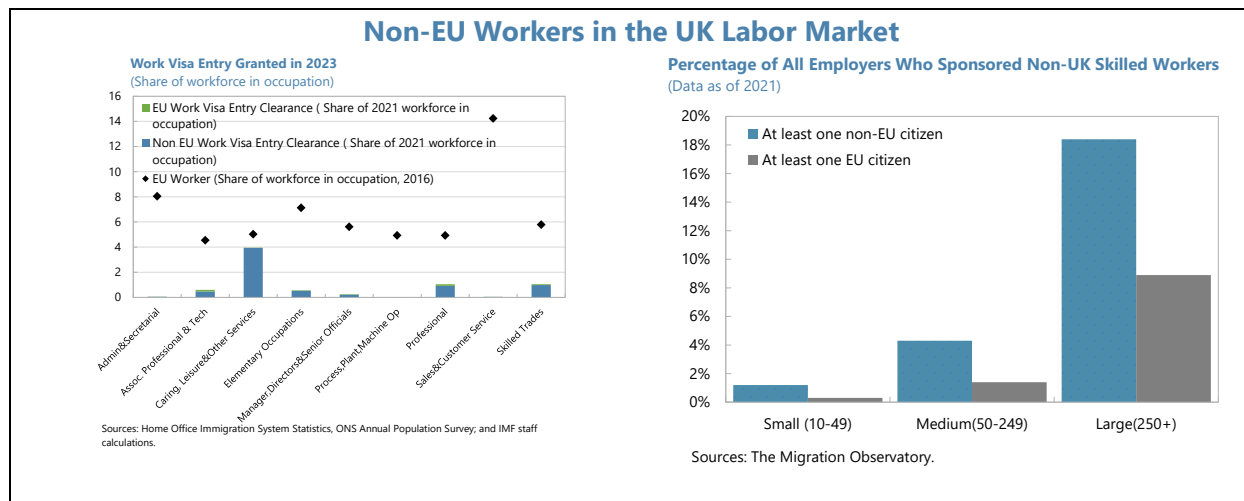
C.   Policy Recommendations

18.   Addressing skills gaps is a crucial challenge for the UK government, employers, and education providers to maintain economic growth and develop workforce and skills for the future. This involves starting from primary and secondary education levels, improving education outcomes, particularly in STEM, as well as promoting younger workers interests in digital, engineering, and creative subjects, and in technical education programs. Furthermore, there is a need to upskill the current workforce, with better quality training and apprenticeships programs, both by the employer and externally, particularly in high demand skills. And while it is critical to improve the domestic pool of skilled workers, this is likely to take time, and in the interim skilled migration can fill the gap.

19.   Further ambitious reforms are needed, building on current polices. The authorities consider addressing skills gaps a priority, with an emphasis on future growth areas such as digital and AI, STEM, life sciences and the creative arts, particularly for the young, but also for older workers through lifelong learning. Various initiatives have been launched (see Table 1), but more is needed.

- *Reforms to primary and secondary education with an emphasis on STEM.* Ambitious targets consistent with a reversal of the recent decline in STEM outcomes is needed, along with schemes to further encourage students and younger workers, particularly women, to enter future growth sectors and improve retention.

- **More and better-quality vocational training and apprenticeships to develop skills in high demand, including via higher government support.** Efforts are needed to increase vocational graduates in key areas such as STEM, including by encouraging and increasing awareness of students and employers about the new T-levels and other vocational programs. It is important to also increase the quality of vocational programs and improve the below average (relative to OECD) student to teacher ratio. The decline in apprenticeships, particularly for the young, must be reversed while improving their quality, including via reforms to the apprenticeship levy.

- **Keep stable student visa regime and encourage high skilled students with in-demand skills to remain in the UK.** Given the increased importance of international student tuition fee (as an offset to declining public investment in tertiary education), a stable and attractive UK student visa regime is critical to protect the financing of word class UK universities. At the same time, efforts must be made to retain and fully integrate high skilled graduates in the UK labor market.

- **Continued focus on lifelong Learning and on-the-job learning, particularly for younger workers.** Building on the lifelong learning entitlement from 2025 that allows adult learners to access loans equivalent to four years' worth of higher education to spend flexibly on degree or technical-level qualifications, efforts are also needed to encourage on the job training, including through further public support, and with a focus on distribution. In particular, since younger workers utilize training to start and prepare for future careers, there is a need for employers to improve their access and incentives training.

- **A simplified worker visa regime** is needed to facilitate smaller employers (who were large employers of skilled EU-labor pre-Brexit) to hire non-EU workers.

20.   Summing up, labor supply is a critical ingredient of economic growth, and the UK needs ambitious reforms to ensure that it has quality labor trained in the skills of the future. Growth going forward will be concentrated more in higher and professional occupations, which is likely to mean an increased demand for higher level skills. According to analysis by the Earning and Work Institute, between 2020 and 2035, the greatest number of jobs to be filled due to sectoral change and people retiring will be science, research, engineering, and technology professionals (1.9 million); business, media, and public service professionals (1.8 million); caring personal service occupations (1.7 million); administrative occupations (1.6 million); and health and social care associate professionals (1.2 million). Projections suggest there will be 3.5 million fewer jobs needing qualifications below A-level or equivalent and 6 million more jobs needing higher education qualifications. The UK needs to prepare for this by undertaking the ambitious reforms outlined above to ensure its workforce is fit and ready for the future.

Table 1. United Kingdom: Ongoing Initiatives in the Skills Space

Name	Description
Adult Skills Fund (ASF): Adult Education Budget (AEB), Direct Funding of Qualifications and Skills	ASF is made up of two component - the Adult Education Budget (AEB) which is a long running fund focused on basic skills (up to L2) and Free Courses for Jobs (FCFJs) which was introduced in April 2021, which includes fully advanced level (level 3); funding is paid to further education colleges. However, overall funding and participation have fallen.
Technical Education Reforms (T levels)	Launched in 2020, T levels are two-year post GCESEs technical courses (Level 3) that offer practical learning at a school accompanied by on-the-job experience through an industrial placement of approximately 45 days. Currently launched for full-time students aged 16-18 with remaining levels to be introduced.
Skills Bootcamps and Local Skills Improvement Plans (LSIPs)	Skills Bootcamps, launched in 2020, are designed to train, retrain, and upskill adult learners through short, sharp dynamic courses in high growth sectors. LSIPs, rolled out in 2022, provide an agreed set of actionable priorities that employers, providers, and stakeholders in a local area can get behind to drive change.
Digital Skills Training Package	Launched in 2023, training will be delivered through universities and government schemes to target digital and green skills for each region; and 200 million has been announced.
Institutes of Technology	Investing up to £300m to establish a network of 21 (19 already open, with remaining planned for 2024) Institutes of Technology that specialize in delivering higher technical education from level 3 (T-levels) to level 7 (Master's degrees).
Lifelong Learning Entitlement	From 2025, the post-18 student loan system will be reformed through merging separate loan systems for further and higher education
Apprenticeship Levy	Starting in 2017, a levy is charted on large employers to fund subsidies for apprenticeship training. High-level apprenticeship numbers have grown despite overall starts falling back. The authorities have put in measures to improve the quality of apprenticeships, which in part explains the decline in total numbers. Authorities are making efforts to grow apprenticeship numbers in key sectors, including incentivizing SMEs to create opportunities for young people. This includes a £50m apprenticeship growth sector pilot, which gives £3,000 per-apprentice funding boost for 13 standards to grow starts in key sectors such as manufacturing, life sciences, and green. A further £60m would create an additional 20,000 new apprenticeships and additionally removing the 5% SME co-payment for apprentices under 22 and raising the transfer limit for unspent levy funds to 50% from 25%.
Package for engineering and physical science doctoral skills	Announced in May 2024, over £1 billion from government, business, charities and academia will be used to train students in 65 Centers for Doctoral Training and with most opportunities outside of the Southeast of England.

References

Britton, J., & Farquharson,C., and L, Sibieta., (2019). 2019 Annual report on education spending in England. London: The IFS. Available at: https://ifs.org.uk/publications/2019-annual-report-education-spending-england

Drayton, E et al. (2023). Annual report on education spending in England: 2023. London: Institute for Fiscal Studies. Available at: https://ifs.org.uk/publications/annual-report-education-spending-england-2023

Mann, C. L. (2023). "Expectations, lags, and the transmission of monetary policy", speech given at the Resolution Foundation.

Melville, D., & Bivand, P. (2019). Local skills deficits and spare capacity. Learning and Work Institute.

Stronati, C. (2023), "The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation", OECD Education Working Papers, No. 288, OECD Publishing, Paris, https://doi.org/10.1787/158101f0-en.

OECD. (2023). Education at a glance 2023: OECD Indicators, OECD Publishing, Paris, https://doi.org/10.1787/e13bef63-en.
OECD. (2023). Education at a Glance Database, https://stats.oecd.org/.

OECD (2023). PISA 2022 Results (Volume I): The State of Learning and Equity in Education. PISA, OECD Publishing, Paris, https://doi.org/10.1787/53f23881-en.

OECD. (2023). PISA 2022 Results (Volume II): Learning During – and From – Disruption. PISA, OECD Publishing, Paris, https://doi.org/10.1787/a97db61c-en.

OECD. (2023). Skills for Jobs Indicators.

Office of Qualifications and Examinations (Ofqual) (2023). Perceptions of vocational and technical qualifications in England-wave 6.

Vidal Rodeiro, C.L. (2019). Popularity of A Level subjects among university students. Cambridge Assessment Research Report. Cambridge, UK: Cambridge Assessment.

Blumenthal, von F,, & Fantini, B. A. (2021). ECITB workforce census 2021: overview of the engineering construction industry. Engineering Construction Industry Training Board.

Vassilev, G., et al. (2019). Characteristics and benefits of training at work, UK: 2017. Office for National Statistics.