Office for
Budget Responsibility

Fiscal risks and sustainability

July 2026

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Foreword

The Office for Budget Responsibility (OBR) was established in 2010 to examine and report on the sustainability of the public finances. A central feature of our efforts to meet that remit has been finding better ways to capture and communicate economic and fiscal risks. Ever since our first *Economic and fiscal outlook* (*EFO*) in 2010, we have emphasised the degree of uncertainty around our central forecasts by using probabilistic ranges ('fan charts'), alternative scenarios, and sensitivity analysis. Since 2011, our *Fiscal sustainability reports* (*FSR*s) presented not only long-term projections of the public finances but also sensitivity analysis to changes in key demographic, macroeconomic, and other assumptions. Between 2017 and 2021, we also produced a biennial *Fiscal risks report* (*FRR*), setting out the main risks to the public finances, including macroeconomic and specific fiscal risks.

In the January 2022 update to the *Charter for Budget Responsibility*, Parliament amended the OBR's remit to, in effect, give us greater discretion to determine the content of our annual sustainability report, which had previously alternated between the long-term projections in the *FSR* and the focus on risks in the *FRR*. Since July 2022, we have published our combined analysis in an annual *Fiscal risks and sustainability report* (*FRS*), which incorporates both our biennial long-term projections and updated analysis of major potential macroeconomic and fiscal risks. As required under the *Charter*, the Treasury responded to our most recent July 2025 report in November 2025.

This *FRS* is fully dedicated to examining long-term sustainability through a set of scenarios which explore the major sources of pressure on the economy and public finances over the next 50 years. We do this via in-depth analysis of underpinning economic and demographic assumptions and possible trajectories for public spending and tax receipts, and use these to construct a range of scenarios for the trajectory of deficits and debt over the coming half-century. Almost all of these scenarios suggest that the public finances will at some point move onto an unsustainable path, and so we also explore the degree of fiscal tightening that would be required to prevent such outcomes from occurring.

The analysis and projections in this report represent the collective view of the independent members of the OBR's Budget Responsibility Committee. We take full responsibility for the judgements that underpin the analysis and projections, and for the conclusions we have reached. We have been supported in this by the full-time staff of the OBR, to whom we are, as usual, enormously grateful.

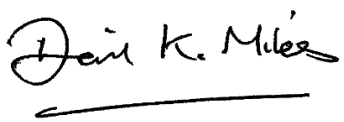
We have also drawn on the help and expertise of officials across numerous government departments and agencies, including HM Treasury, HM Revenue and Customs, the Department for Work and Pensions, the Department of Health and Social Care, the Department for Education, the Ministry of Defence, the National Audit Office, the Government Actuary's Department, the Migration Advisory Committee, the Welsh Government, the Northern Ireland Fiscal Council, and the Scottish Fiscal Commission. We are very grateful for their insight.

In addition, we have benefited from discussions with experts from outside government. In particular, we would like to thank analysts from the Institute for Fiscal Studies, the Institute for Government, the Resolution Foundation, the National Institute of Economic and Social Research, the Care Policy and Evaluation Centre, The Health Foundation, The King's Fund, the Nuffield Trust, the Royal United Services Institute, the Organisation for Economic Co-operation and Development, the International Monetary Fund, the Centre for the Analysis of Taxation, the Fraser of Allander Institute, Tax Policy Associates; and Professor Ricardo Reis, Professor Andrew Scott, Dr. Madeleine Sumption, and members of the OBR's advisory panel. We would also emphasise that despite the valuable assistance received, all judgements and interpretation underpinning the analysis and conclusions in this report are ours alone.

Given the importance of the report to the Treasury in managing fiscal sustainability and risks, we have engaged with Treasury officials throughout the process. We provided the Treasury with a summary of our main conclusions on 1 July and a final version of this report on 3 July.

At no point in the process did we come under any pressure from Ministers, special advisers or officials to alter any of our analysis or conclusions.

We would be pleased to receive feedback on any aspect of the content or presentation of our analysis. This can be sent to feedback@obr.uk.



Professor David Miles CBE Tom Josephs

The Budget Responsibility Committee

Executive summary

1 This report assesses fiscal sustainability through scenarios which illustrate the likely major sources of pressure on the public finances over the next 50 years. The UK's public finances are currently in a challenging position relative to history and to other similar countries, with government debt having increased by one of the largest shares of GDP of any advanced economy over the past two decades. And there are many sources of risk to the short- and medium-term outlook for the public finances, most obviously at present from the impact of the conflict in the Middle East. It is important that these medium-term risks and challenges are also seen in the light of an assessment of longer-term fiscal sustainability. This is because, while the analysis in this report focuses on difficult fiscal outcomes that could emerge some years down the road, a key finding is that early action to head these off is much less costly than late action.

2 Long-term projections such as these are highly uncertain and very sensitive to the underpinning assumptions, which is why we present multiple scenarios. In almost all cases, these scenarios show the public finances eventually moving onto an unsustainable path. It is not plausible that the public finances could actually follow such trajectories indefinitely – it is almost certain that future governments would at some point have to take action to prevent this happening. The scenarios should, therefore, not be seen as forecasts, but as illustrations of the likely future pressures on the public finances and the scale of changes that would be needed at some point to maintain fiscal sustainability.

3 The scenarios illustrate the sensitivity of the long-term public finances to economic and demographic trends, wider pressures on public spending and revenue, and policy settings. The projections take as their starting point our most recent medium-term forecast out to 2030-31, and thereafter the baseline scenario uses assumptions on:

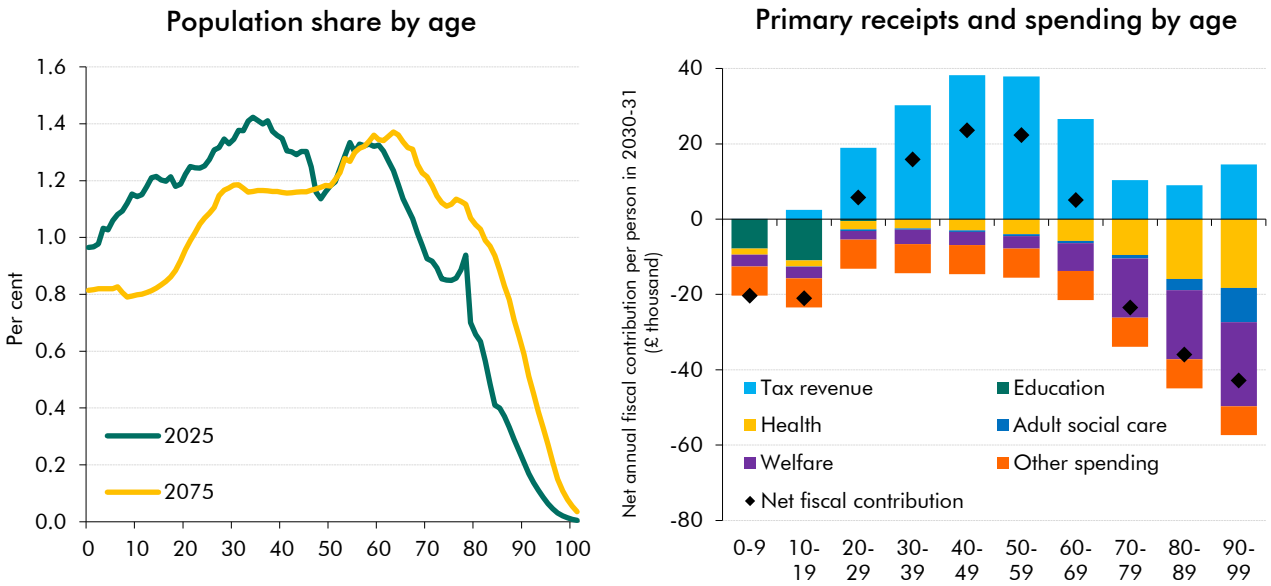
- The **long-term performance of the economy**, in particular how labour productivity and the size of the workforce evolve, which together help determine the future size of the economy. Our baseline scenario assumes long-term average productivity growth of 1.4 per cent over the next 50 years which, combined with changes in the workforce, means growth in both real GDP and real GDP per person are assumed to average around 1½ per cent a year across the long term.

- **Demographic trends and their implications for tax and spending**, for which our starting point is the latest ONS principal population projection. Using this projection, we assume that the total population peaks at just under 73 million in the mid-2050s before falling to around 71½ million by 2075. The age structure of the population becomes older, with the median age rising from 40 to 49 between 2025 and 2075 (left panel in Chart 1). This projection helps determine the size of the labour force,

which feeds into our GDP projections. It also underpins our projections for tax and spending given that the demand for many public services varies significantly with age, while tax revenues peak during working ages. We run the population projection through a series of updated age profiles based on the current level of spending and tax received or paid by individuals at each age (right panel in Chart 1) to estimate the fiscal implications of the evolving population structure.

- Settings which are designed to represent **unchanged government policy**. This is important because the goal of this report is to identify whether current policy settings are sustainable in the face of the long-term pressures we identify. In some areas – such as legislated net zero commitments – there is a clear policy commitment over the long term, but in many others there is not. In these instances, we generally assume that the structure of tax and spending policy in the final year of the medium-term forecast is unchanged thereafter. This means that, absent the impact of demographic pressures, each element of tax and spending would remain broadly constant as a share of GDP. In some cases, this approach could be viewed as inconsistent with stated medium-term policy – most obviously, the uprating of personal tax thresholds and non-state pension welfare payments, which are largely legislated to rise with inflation. We therefore produce scenarios using different uprating assumptions and discuss the implications of these for the structure of the tax and welfare systems and the economy.

Chart 1: Population demographic structure and receipts and spending age profiles



Source: ONS, OBR

Long-term pressures on spending

4 Pressures on government spending linked to future demographic changes are a central feature of all the long-term scenarios we produce in this report. The upward path of health and state pension spending results partly from population ageing but is amplified by other pressures, while education is the only major area to experience downward pressure due to

the projected relative decline in the young-age population in the next couple of decades. In more detail, spending areas wholly or partly driven by demographic pressures are:

- **Health spending**, which, in our baseline scenario, is projected to rise from 8 per cent of GDP in 2030-31 to 13 per cent of GDP in 2075-76. This is driven by demographic change but also by an assumption of continued wider cost pressures which largely capture slower productivity growth in the health sector than across the whole economy. These wider cost pressures mean that health spending is one of the few areas of our projections that is assumed to rise faster than GDP in the absence of demographic change. We also produce a scenario in which the absence of these pressures – for example, due to technologically induced rises in health-sector productivity or governments persistently constraining costs – means health spending would rise only modestly to around 9 per cent of GDP by the end of the projection period.

- **Adult social care spending**, which is projected to rise in the baseline scenario from 1.2 per cent of GDP in 2030-31 to 1.8 per cent of GDP by 2075-76, a similar rate of growth to that in health spending. Within this, social care spending is more affected by population ageing than health spending given its concentration at the end of lives. But cost pressures are assumed to play a lesser role in adult social care due to an expectation that other factors, such as means-testing and eligibility restrictions, continue to constrain costs.

- **State pension spending**, which is projected to rise from 5 per cent of GDP to around 9 per cent of GDP over the projection period in the baseline. This is driven by population ageing and the cost of triple-lock uprating (calculated based on historical inflation and earnings volatility). In a scenario where the state pension is instead uprated in line with average earnings, state pension spending reaches around 7 per cent of GDP.

- **Education spending**, which is projected to fall modestly in the baseline scenario from 4.3 per cent to 3.4 per cent of GDP over the long term, reflecting a falling young-age dependency ratio due to a below-replacement birth rate in the ONS projection. Historical evidence suggests risks around the assumption that falling pupil numbers proportionately affect spending, for example, due to fixed costs in the system.

- **Other welfare spending**, which is projected to remain relatively stable in our baseline scenario, at around 6 per cent of GDP. This reflects broadly offsetting impacts of demographic changes, with a projected increase in welfare spending on older adults offset by a fall in welfare spending on children and young adults. A scenario in which non-state pension welfare payments are consistently uprated in line with inflation, rather than earnings, would result in this spending more than halving to around 3 per cent of GDP. This would have labour supply effects and also affect levels of relative poverty, with social and fiscal consequences beyond the scope of this analysis.

- **Public service pensions net expenditure**, which is projected to fall slightly from 1.2 per cent to 0.9 per cent of GDP, driven by growth in the public sector workforce over the projection period, reducing net expenditure.

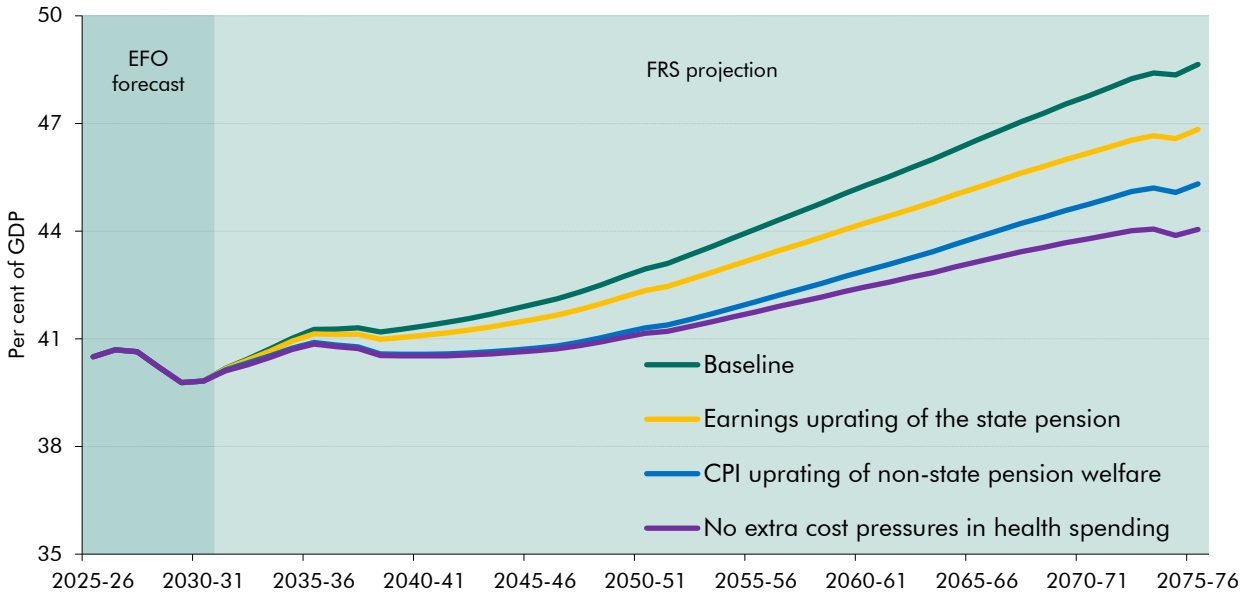
5 We also incorporate other long-term pressures on areas of public spending that are not affected by demographic changes. Spending on other public services which are assumed not to be materially affected by demographics or other long-term trends – such as public order and transport – is held flat at 11 per cent of GDP in our baseline scenario, consistent with our unchanged policy assumptions. The key non-demographic spending pressures are:

- **Defence spending** rising to reach 3.5 per cent of GDP by 2035, in line with the Government's stated policy commitment. We also present scenarios which illustrate the risks around this commitment related to geopolitical developments.

- **Public investment to support the legislated commitment to achieve net zero emissions** by 2050, which increases public investment by around ½ a per cent of GDP initially, falling to zero after 2050.

6 Based on these assumptions, primary (non-interest) spending is projected to rise from 40 per cent of GDP in 2030-31 to 49 per cent by 2075-76 in our baseline scenario (Chart 2). The alternative long-term policy assumptions set out above suggest that this projected increase would be reduced by: a fifth if the state pension were uprated by average earnings rather than the triple lock; two-fifths if non-state pension welfare were uprated by inflation rather than average earnings; or by around three-fifths if additional cost pressures in health spending were constrained throughout the projection period.

Chart 2: Primary spending under alternative long-term policy assumptions



Source: OBR

Long-term pressures on receipts

7 The most material long-term pressure on receipts in our scenarios is the loss of emissions-related receipts due to the transition to net zero. This is projected to reduce net zero-affected receipts from 1.6 per cent of GDP in 2030-31 to 0.5 per cent of GDP in 2075-76. Around

three-quarters of this decline comes from fuel duty receipts falling to zero, with the new electric vehicle excise duty (eVED) offsetting around a quarter of fuel duty revenue losses. The ban on the purchase of tobacco products for anyone born from 2009 reduces receipts marginally by a further 0.2 per cent of GDP.

8 Demographic changes are likely to have a less material direct long-term impact on receipts compared to public spending. This is because tax liabilities are concentrated in working age and therefore much less exposed to the larger relative changes in the young- and old-age population shares over the coming 50 years shown in the left panel of Chart 1. The main taxes where demographics may have some impact are:

- Income tax receipts and National Insurance contributions (NICs), which are projected to stay broadly flat at 18½ per cent of GDP in the baseline. This reflects income tax rising very slightly towards the end of the projection due to a larger share of workers being at the peak-earning ages of 35 to 60, offset by NICs falling slightly as more of the population is above the state pension age and therefore largely not paying NICs.

- VAT receipts, which are projected to rise very slightly from 7 per cent of GDP in 2030-31 to 7½ per cent in 2075-76, reflecting the increase in the relative population share at peak-earning ages and around the state pension age, when consumption peaks.

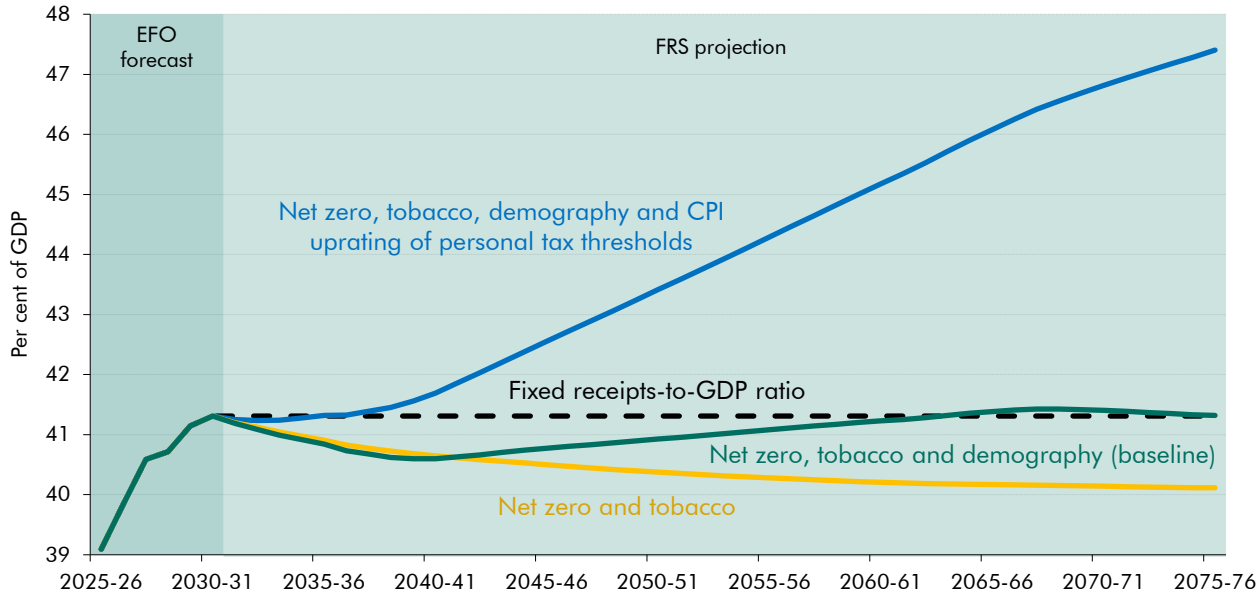
- Inheritance tax (IHT) and capital gains tax (CGT) receipts, which are projected to rise from 1.4 per cent of GDP in 2030-31 to 2.2 per cent of GDP by 2075-76 in our baseline scenario. This reflects a growing share of the population aged 80 and above pushing up IHT receipts. This scenario also includes an assumption that the large historical wealth gains of those currently of retirement age drive a 'cohort effect' in IHT receipts that grows to around 0.2 per cent of GDP by the 2040s. We also present an alternative scenario in which rather than just a cohort effect, wealth growth outpaces growth in GDP over the whole projection period. In this case, receipts from IHT and CGT could rise to 2.7 per cent of GDP by 2075-76.

9 Combining these modest demographic increases to receipts with the net zero-related declines leaves primary receipts at around 41 per cent of GDP by 2075-76 (green line in Chart 3). This is the same as the current medium-term level. Even if we exclude these demographic effects and just assess the impact of net zero and tobacco commitments (yellow line in Chart 3), the decline in receipts is relatively modest. This suggests that long-term pressures on receipts from these sources are much more muted than on spending. So it is spending pressures that largely drive the unsustainable fiscal paths we discuss below.

10 These scenarios are based on an interpretation of unchanged policy which includes an assumption that personal tax thresholds are uprated in line with earnings. This is consistent with our general approach to defining unchanged policy – holding revenues constant relative to GDP absent demographic pressures. However, the legislated default assumption is for personal tax threshold uprating with CPI. And, in practice, recent governments have chosen to freeze most of these thresholds in cash terms in the decade from 2021-22. Uprating with inflation for 50 years would represent a significant change in the structure of

tax policy, equivalent to a roughly 50 per cent increase in the effective tax rate on incomes. For this reason, we do not use this as the unchanged policy assumption in our main scenarios. However, recognising the sensitivity of the projections to this assumption, we produce an alternative scenario in which personal tax thresholds are uprated with inflation over the long term. This would have the direct effect of raising the primary-receipts-to-GDP ratio by 6 percentage points relative to the baseline scenario to 47 per cent of GDP in 2075-76 (blue line in Chart 3), before considering any economic or wider consequences.

Chart 3: Primary receipts under alternative assumptions



Source: OBR

11 The very significant increases in personal tax rates that indefinite CPI uprating of personal tax thresholds implies would have a large impact on work incentives. It would imply that by the end of the 50-year projection period, around two-thirds of the income distribution might expect to pay income tax at the higher rate of 40 per cent or above. Indeed, in this scenario, a full-time worker on the National Living Wage would become a higher-rate taxpayer at some point in the late 2060s. We would expect this sustained and substantial rise in average and marginal tax rates to induce a large negative labour supply effect, which would significantly dent the static estimates of revenue increases set out above.

12 The long-term increases to average and marginal tax rates implied by this assumption would be additional to the significant increases in taxation in the period since the pandemic. The UK's overall tax-to-GDP ratio is forecast to rise to 43 per cent of GDP in 2030-31, from 37 per cent of GDP in 2019-20. This would take it from around 4 per cent of GDP below the average of advanced economies to slightly above, though still below the G7 average. OECD comparisons suggest that UK average and marginal labour tax rates across a range of household types are currently broadly in line with the advanced-economy and G7 averages, so additional long-term increases in labour taxation would likely take the UK above them. Moreover, there are many points in the UK income distribution where marginal tax rates are much higher than presented in these stylised comparisons, where further

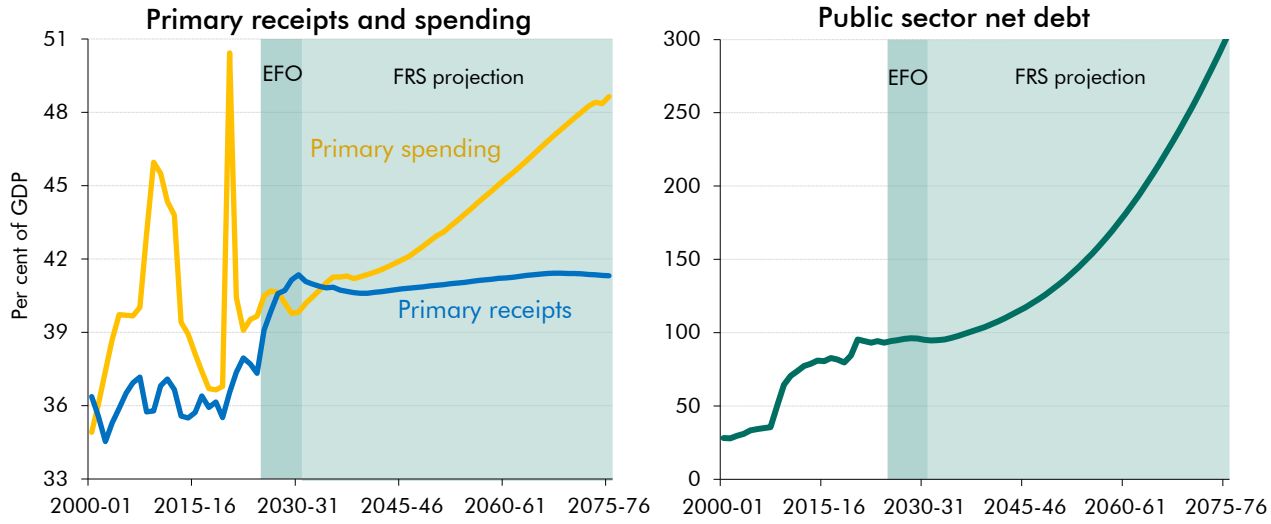
increases in tax rates could have particularly sharp impacts on labour supply. The message is not that there is no scope to raise taxes, but that raising revenues consistently over the long term as a means of putting the public finances on a more sustainable path would entail increasing risks and worsening trade-offs.

Long-term scenarios for public sector net debt

13 Using these tax and spending results, we produce scenarios for the evolution over 50 years of the primary deficit, debt interest spending, and public sector net debt. The starting point for these projections is the fiscal position in 2030-31 in our March 2026 medium-term forecast. The action the Government is currently planning to take to consolidate the public finances over the next five years means we forecast that the primary deficit will fall from 1.4 per cent of GDP in 2025-26 to a primary *surplus* of 1.5 per cent of GDP in 2030-31. This would be consistent with debt remaining broadly stable as a share of GDP, given expectations for economic growth and the cost of debt over the next five years.

14 In the baseline scenario, demographic and other pressures increase spending to generate a widening gap between spending and receipts (left panel in Chart 4). This results in a primary deficit returning in the 2030s. It then grows rapidly to reach around 7 per cent of GDP in 2075-76. Adding in the effects of rising net interest spending, which reaches 12 per cent of GDP in the long term, public sector net debt begins rising from 2032-33 and reaches a clearly unsustainable upward trajectory by the late 2040s (right panel of Chart 4).

Chart 4: Primary receipts, spending and debt in the baseline scenario



Source: ONS, OBR

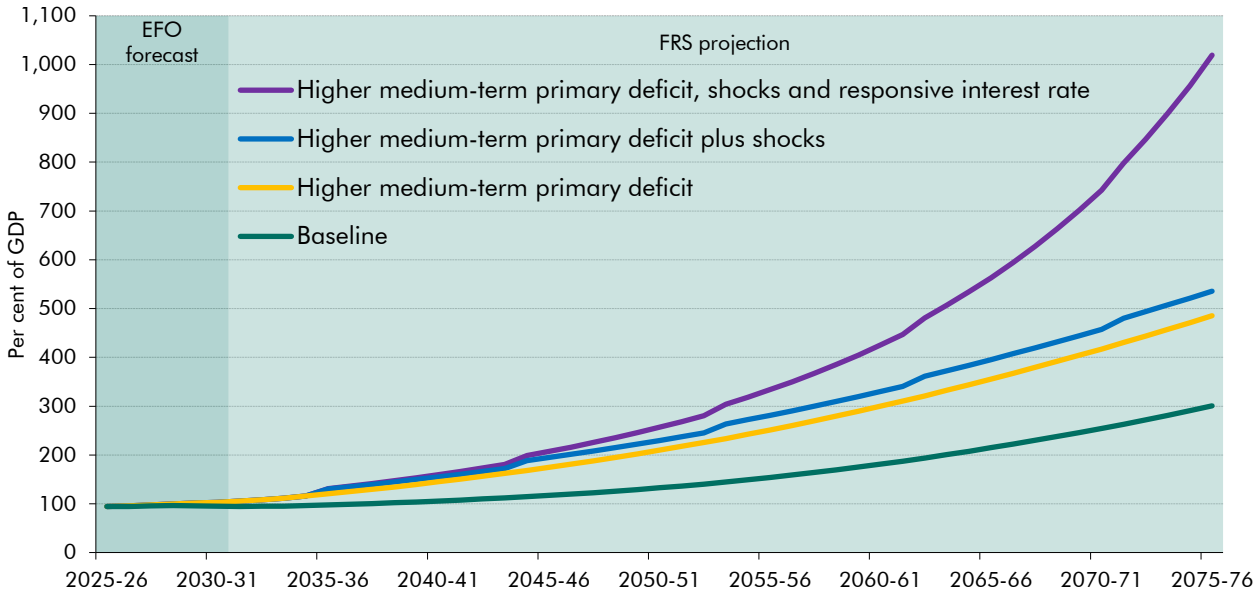
15 Debt would move onto an unsustainable path much sooner in a scenario where there is a less favourable primary deficit in 2030-31. And its upward trajectory would be steeper still if we also assume that the economy is hit by regular shocks, as has been the case over recent decades, and that there is feedback from rising debt levels to higher interest rates (Chart 5). These scenarios illustrate the importance of using periods where the economy is not experiencing shocks to reduce debt and build a more resilient fiscal position:

- The 2.9 per cent of GDP **improvement in the primary balance in our latest medium-term forecast** would deliver the largest primary surplus since 2000-01. Similar recent plans under successive governments have been pushed back over time by the impact of subsequent economic shocks and policy decisions. If the primary deficit in 2030-31 instead remained at its 2025-26 level of 1.4 per cent of GDP, then the growing primary deficit described above would lead to debt rising onto an unsustainable upward path almost immediately in the early 2030s (yellow line in Chart 5).

- The baseline scenario assumes stable, positive economic growth throughout the 50-year period. Instead, assuming that, in addition to the less favourable starting position, a **major shock** occurs once every nine years – in line with recent historical patterns – would result in a steeper upward trajectory for debt. This would add around 50 per cent of GDP to debt by 2075-76 relative to the previous scenario (blue line in Chart 5).

- The baseline scenario also assumes that the interest rate on government debt is unaffected by the level of debt throughout the projection period. In practice, the rapidly increasing debt levels in these scenarios would likely result in higher interest rates. Adding a **debt interest feedback effect** to the factors above moves debt onto an extremely steep upward trajectory that would clearly very quickly become unsustainable (purple line in Chart 5).

Chart 5: Public sector net debt: debt dynamics scenarios



Source: OBR

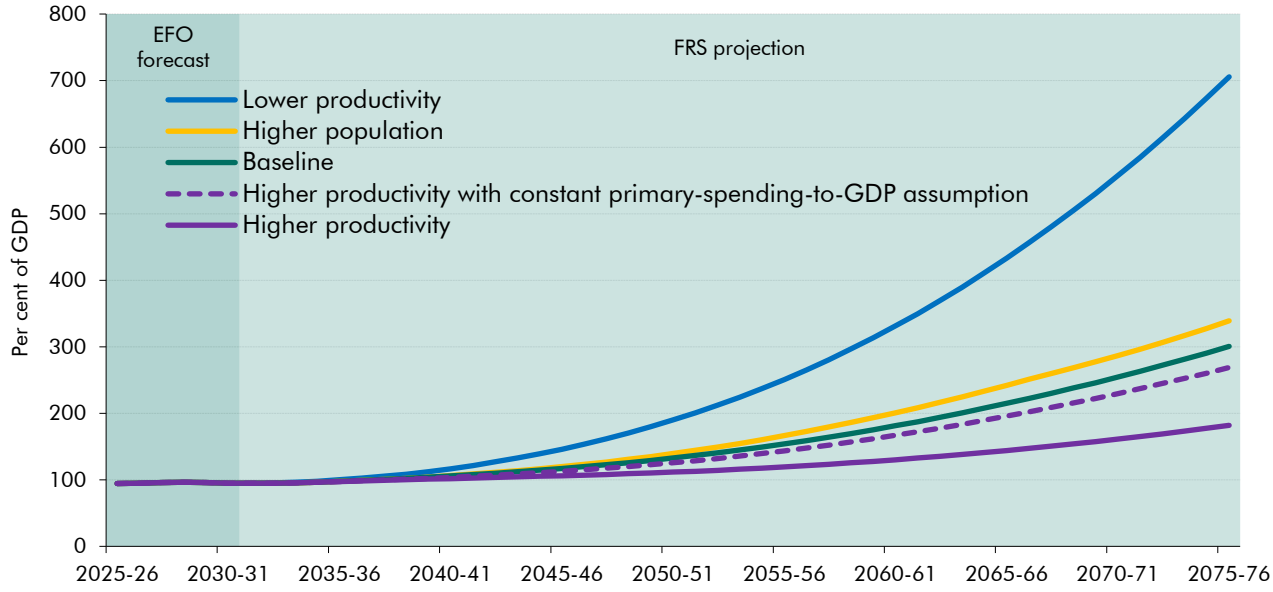
16 We also present scenarios that explore some of the key areas of uncertainty in the underlying economic and demographic assumptions. In a **higher productivity** scenario (purple line in Chart 6), total factor productivity (TFP) grows at 1.3 per cent a year. This is in line with the three decades preceding the financial crisis and 0.3 percentage points higher than in the baseline scenario. This significantly dampens the upward trajectory of debt, which moves onto an unsustainable upward path nearly 20 years later and is around 120

per cent of GDP lower by 2075-76 than in the baseline. This is largely driven by the assumption that future governments do not use the receipts benefits of higher GDP growth to increase public spending, which allows spending to fall as a share of GDP.[1] In a variant of this scenario where we assume that total primary spending instead stays constant as a share of GDP (dotted purple line in Chart 6) – consistent with broad trends seen over the past 50 years – there is only a small reduction in debt compared to the baseline. Another risk to the fiscal benefits of higher productivity growth, if they resulted partly from increased AI use, is that they could be accompanied by an AI-driven shift in the composition of GDP from (more highly taxed) labour to (lower-taxed) profits.

17 In the **lower productivity** scenario (blue line in Chart 6), TFP growth averages 0.2 per cent – in line with the post-global financial crisis average and 0.8 percentage points lower than in the baseline scenario. Debt rises almost 2½ times as fast as in the baseline and moves onto a steep upward trajectory that would very quickly become unsustainable.

18 Our **higher population** scenario (yellow line in Chart 6) assumes a higher birth rate and lower death rate, so that population change is only driven by net migration, leaving the population around 9 million higher than in the baseline by 2075-76. In this scenario, debt is projected to rise to around 40 per cent of GDP higher than in the baseline. This reflects higher spending on education initially, due to the higher birth rate, and then higher health and state pension spending from the 2050s as larger numbers of people move into older age groups compared to the baseline. GDP per person is also lower than in the baseline. This alternative scenario illustrates that maintaining a larger population through increased birth rates and lower death rates does not relieve pressure on the public finances.

Chart 6: Public sector net debt: economic and demographic scenarios

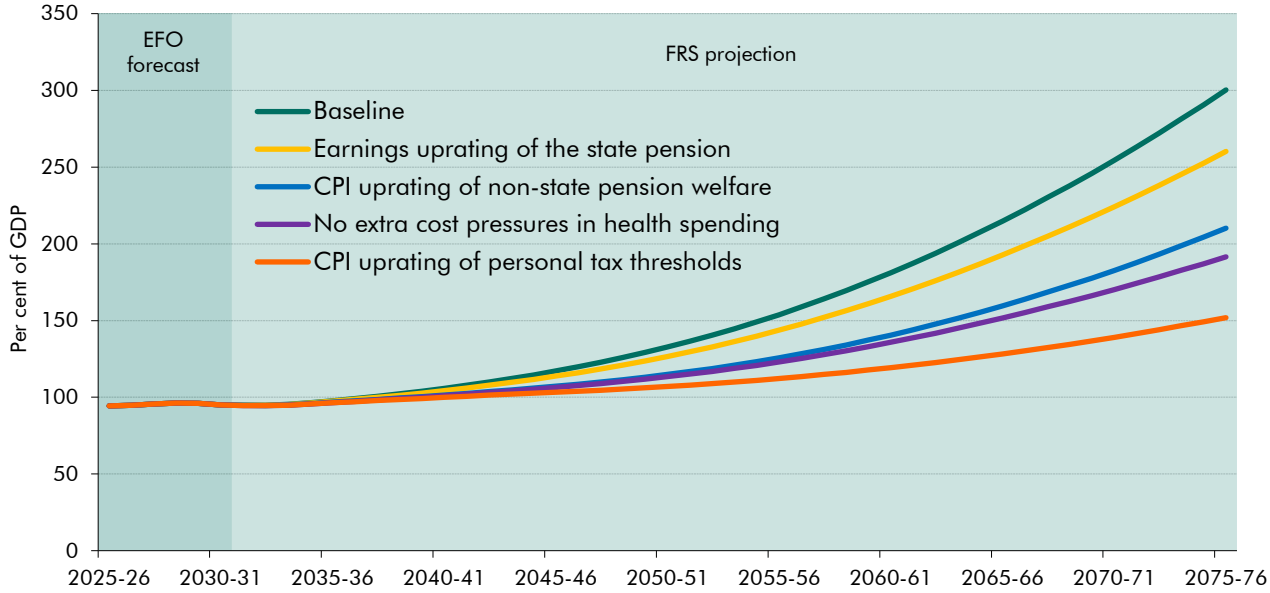


Source: OBR

[1] Specifically, we assume that public sector staff costs, government investment and welfare spending rise in line with higher GDP growth, but all other areas of public spending are held constant in real terms.

19 The final set of scenarios considers the impact of making alternative assumptions about what constitutes unchanged government policy over the long term (Chart 7). These all result in a delayed and less steep eventual upward trajectory for debt compared to the baseline scenario, with the difference in the debt-to-GDP ratio at the end of the projection ranging from around a tenth lower if the state pension rises with earnings rather than the triple lock, to 50 per cent lower if personal tax thresholds are uprated with inflation rather than earnings. These scenarios only capture the direct effects of such policy assumptions on receipts and spending, and not any wider economic or other consequences which, as set out above, would be very significant. Nonetheless, setting out these alternative long-term policy assumptions helps to demonstrate some of the choices and trade-offs that governments will need to confront in addressing the unsustainable path of debt presented consistently across the scenarios in this report, which we explore further below.

Chart 7: Public sector net debt: alternative long-term policy assumption scenarios



Source: OBR

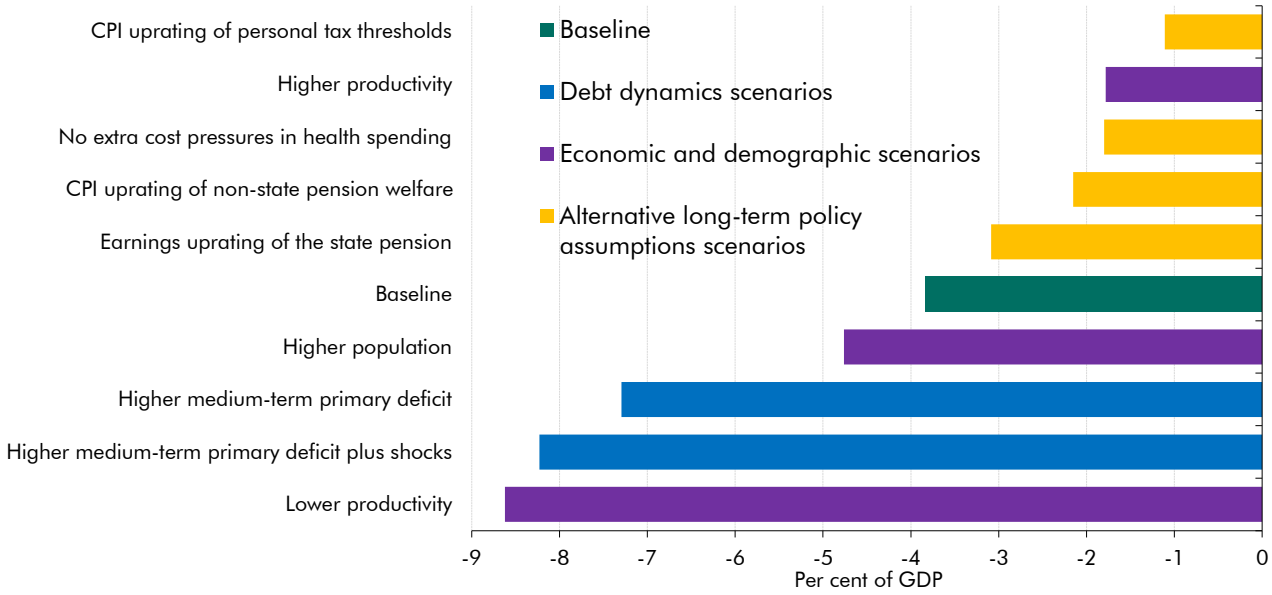
Achieving fiscal sustainability

20 In nearly all of the scenarios we explore, debt eventually moves onto an unsustainable and ever-rising path. As explained above, these should not be seen as forecasts for where debt could plausibly be in the 2070s. This is because of the uncertainty around all of the underpinning assumptions, but also because, if these paths did start to materialise, then it is almost certain that governments would have to take action to tighten fiscal policy to restore sustainability at some point. We assess the degree of tightening required in these scenarios using 'fiscal gaps', which reflect the change in the primary balance required to keep the debt-to-GDP ratio at or below a chosen level at the end of the projection period.

21 We first consider the immediate and permanent adjustment that would prevent debt from exceeding forecast 2030-31 levels of 95 per cent of GDP at the end of the projection (Chart 8). In the baseline scenario, this would require the primary deficit to be 3.8 per cent of GDP lower

from 2031-32 onwards. This represents a one-year adjustment that would be around a third larger than the tightening the Government plans to deliver over the coming five years, and roughly equivalent to total onshore corporation tax receipts or current departmental spending on education in 2030-31. The equivalent required primary deficit adjustment ranges from 1.1 per cent of GDP in the CPI uprating of personal tax thresholds scenario, to above 8 per cent of GDP in both the lower productivity scenario and the higher medium-term primary deficit plus shocks scenario.

Chart 8: Primary deficit adjustment needed to keep debt at 95 per cent of GDP

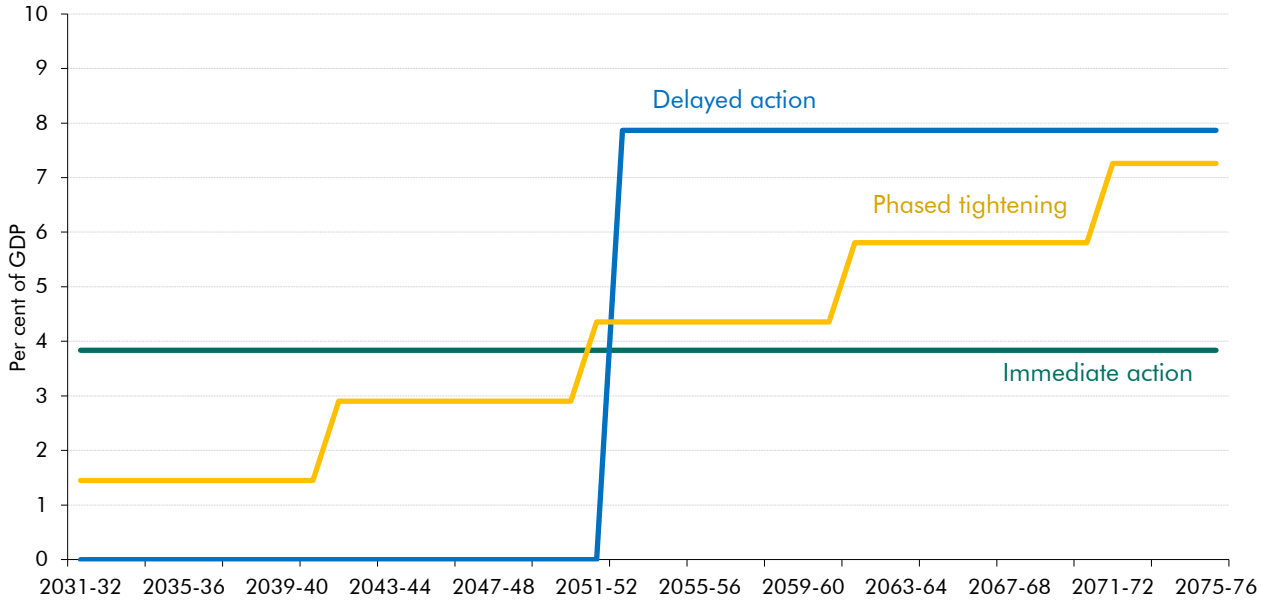


Source: OBR

22 Debt at 95 per cent of GDP is high by historical standards and so we also show the required tightening to return debt to a pre-financial crisis level of around 40 per cent of GDP. On this basis, the primary deficit would need to be 4.9 per cent of GDP lower in the baseline scenario from 2031-32 onwards, and more than 9 per cent of GDP lower in the most extreme lower productivity and higher medium-term primary deficit plus shocks scenarios.

23 The degree of tightening required to prevent debt from following an unsustainable path increases if it is delayed to future years. This would make it more costly and place more of a burden on future generations. This is shown by the difference between fiscal gaps to keep debt at 95 per cent of GDP in the baseline scenario when the required adjustment is immediate and permanent, as discussed above, compared to illustrative scenarios in which the fiscal tightening is either phased or delayed (yellow and blue lines in Chart 9, respectively). The required primary balance adjustment rises to 7 per cent of GDP in the final decade of the projection if implemented progressively, and reaches 8 per cent of GDP if implemented in the early 2050s rather than in 2031-32. These three potential adjustment paths deliver the same level of debt in the mid-2070s, but differ significantly in the degree of tightening required and which generations bear the burden.

Chart 9: Primary balance adjustment needed to keep debt at 95 per cent of GDP in the baseline: illustrative timing scenarios



Source: OBR

24 In reality, the benefits of swifter action would likely be greater than these metrics suggest. In large part this is because scenarios that reduce debt earlier would likely lead to lower interest costs for this debt. Our measures of fiscal adjustment do not include any such positive debt interest feedback effects – the inverse of the negative feedback effects presented in Chart 5. Further, the longer debt is allowed to rise, the greater the risk of a sudden adverse investor reaction, such as those explored in the 'lost investor confidence' scenario in our 2021 *Fiscal risks report*. This all underscores our conclusion that unsustainable fiscal outcomes that may not occur for some years are today's challenge not tomorrow's. It is highly likely, based on these scenarios, that future governments would have to adjust fiscal policy beyond the consolidation planned over the next five years to keep debt at levels that are sustainable. The scenarios presented in this report are designed to illustrate the trade-offs – the costs and benefits – of possible alternative choices they face.

1 Introduction

Background

1.1 The 2011 *Budget Responsibility and National Audit Act* sets out that the main duty of the OBR is *"to examine and report on the sustainability of the public finances"*. We do this both through our biannual *Economic and fiscal outlooks* (*EFO*s), which provide medium-term forecasts of the economy and public finances, and in our annual *Fiscal risks and sustainability reports* (*FRS*s), which set out our long-term projections and analysis of major potential macroeconomic and fiscal risks.

1.2 For the first time since our 2018 *Fiscal sustainability report* (*FSR*), this *FRS* is fully dedicated to exploring long-term sustainability through a set of scenarios which explore the major sources of pressure on the economy and public finances over the next 50 years. There are many sources of risks to the short- and medium-term outlook for the public finances, including most obviously at the current time from the impact of the conflict in the Middle East. Assessing this will be a key focus of our next medium-term forecast. However, the challenge that this and other medium-term issues create for the public finances only underscores the importance of also focusing on longer-term risks and pressures. But we show that the longer-term fiscal pressures that are the focus of this report also have nearer-term implications because dealing with those that come further down the road is made much easier by policy action in the nearer term.

1.3 We therefore think it is important to provide a detailed assessment of the risks to long-term fiscal sustainability in this *FRS*. We hope this focus also responds to the recommendation of the recent House of Lords Economic Affairs Committee inquiry into the fiscal framework that the OBR should *"continue its ongoing efforts to generate greater interest in the [FRS]"* in relation to the long-term prospects of the public finances.[1] It also reflects the recommendation of the 2025 *External Review of the Office for Budget Responsibility* that *"the OBR should move towards a broader assessment of fiscal sustainability"* both within its medium-term forecasts and by enhancing the impact of the *FRS*.[2]

1.4 To provide the context for the rest of the report, this chapter first sets out what we mean by fiscal sustainability and the framework we use for analysing it. It then summarises our approach to developing long-term scenarios for the economy and public finances. Finally, this chapter emphasises the great uncertainty surrounding our analysis and explains how we illustrate the implications of this uncertainty using scenarios.

[1] House of Lords Economic Affairs Committee, *Fortifying the fiscal framework*, April 2026.
[2] van Geest, L., *External Review of the Office for Budget Responsibility*, February 2025.

1.5 This uncertainty should not be used as a reason for ignoring the challenges that lie ahead. Nor should it be assumed that very difficult fiscal outcomes which might not emerge for 20 or more years are ones that can be best handled much nearer the time when the chances of those risks crystallising are much clearer. One of the central messages of this report is that early actions to head off bad outcomes are far less costly than late action.

A framework for fiscal sustainability

1.6 Our concept of fiscal sustainability rests on the idea that the fiscal position is unsustainable if the public sector is on course to absorb an ever-growing share of national income to pay the interest on its accumulated debt. This would be the case if public sector net debt were on an ever-rising trajectory as a share of national income. This accords with the IMF's conceptual framework for public debt sustainability, which also describes the likely consequences of ever-growing debt in terms of lower growth and higher interest rates:

> *"In general terms, public debt can be regarded as sustainable when the primary balance [(non-interest revenues minus non-interest spending)] needed to at least stabilize debt under both the baseline and realistic shock scenarios is economically and politically feasible, such that the level of debt is consistent with an acceptably low rollover risk and with preserving potential growth at a satisfactory level. … The higher the level of public debt, the more likely it is that fiscal policy and public debt are unsustainable. This is because—other things equal—a higher debt requires a higher primary surplus to sustain it. Moreover, higher debt is usually associated with lower growth and higher interest rates, thus requiring an even higher primary balance to service it."*[3]

1.7 We should worry about fiscal sustainability because the consequences of an unsustainable path are severe. First, it means that governments will need to devote an ever-rising share of resources to paying the interest on debt. Second, higher debt and deficits reduce the fiscal space for governments to respond to unforeseen major economic shocks, which seem to have become more common in the 21st century.[4] Third, rising debt interest costs and reduced fiscal space could lead to crowding out of other economic activity and eventually end in a fiscal crisis. The UK is not at that stage, but it would get there at some point in future if debt were to follow an ever-upward trajectory. There is significant uncertainty over where the tipping point lies, which will depend on many wider economic, political and financial market factors.[5] But getting anywhere near that point would be running a substantial risk.

1.8 The framework we use for assessing the long-term sustainability of the public finances examines the fiscal consequences of:[6]

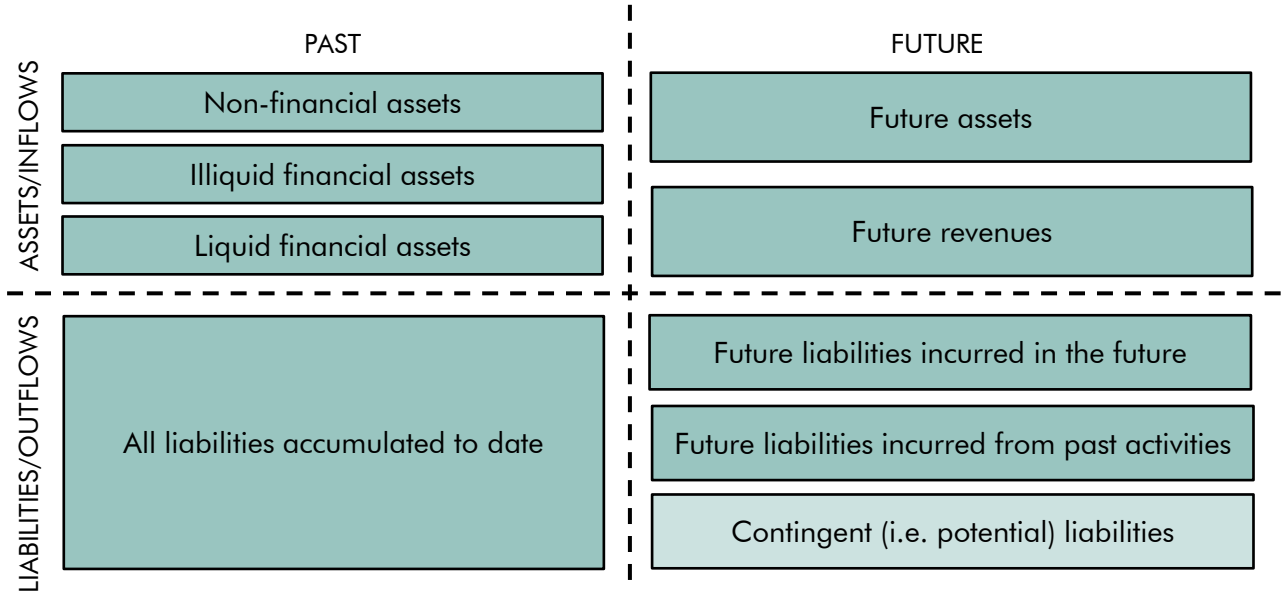
[3] IMF, *Staff guidance note for public debt sustainability analysis in market-access countries*, May 2013.
[4] For a discussion of what fiscal space is and how it has previously been assessed for the UK, see Box 1.1 in our 2021 *Fiscal risks report*.
[5] For example, recent debt crises occurred with levels of debt at around 150 per cent of GDP in Greece, and 90 per cent of GDP in Ireland, while Japan has not had a debt crisis despite debt of over 200 per cent of GDP.
[6] For a fuller discussion of this framework, see Chapter 1 of our 2018 *Fiscal sustainability report*.

- **Past government activity**, which results in the public sector having accumulated assets (financial and non-financial) and liabilities. Past activity also creates some reasonably certain future financial flows, such as contractually agreed public service pension payments. These can be assessed through measures of the public sector balance sheet which mainly focus on the past accumulation of assets and liabilities (shown in the left column of Figure 1.1). Public sector net debt, for example, nets off liquid financial assets from all liabilities accumulated to date, while public sector net financial liabilities also nets off illiquid financial assets.[7]

- **Future government activity**, which will involve future expenditures, some for investment in assets, but mostly to pay for public services and transfer payments. It will also involve receipt of future revenues, mostly from taxation. Governments may also purchase, sell or rent assets.

1.9 Our long-term fiscal scenarios involve summarising the fiscal consequences of both past and future activity. As shown in the darker-shaded boxes in Figure 1.1, this captures past activity, anticipated future revenues, and future spending relating to both past commitments and anticipated future decisions.

Figure 1.1: The fiscal consequences of past and future government activity



Note: Darker-shaded boxes show the coverage of our long-term scenarios

[7] Other measures of the public sector balance sheet include a broader range of assets and liabilities. Within the National Accounts framework, public sector net worth (PSNW) also includes all non-financial assets (such as public sector-owned land and buildings), as well as the liabilities of unfunded public sector pension schemes and private finance initiatives. The Whole of Government Accounts framework is broader still, recording provisions and contingent liabilities (although these remain off-balance sheet), in addition to the assets and liabilities measured in PSNW.

Past government activity: the public sector balance sheet

1.10 The 2025 *FRS* included an in-depth assessment of the public sector balance sheet, with a particular focus on the composition of public sector net financial liabilities (PSNFL), the balance sheet measure targeted in the Government's fiscal rules. As such, this report does not repeat last year's content and instead focuses on our latest long-term projections.

1.11 However it is worth repeating one of the key messages of last year's report, and all our recent *EFO*s, which is that past activity, not least in response to major shocks, means the UK public finances are currently in a challenging position by both historical and international standards. While borrowing in the UK has followed a similar overall trend to both the G7 and advanced-economy averages since 2005, it has consistently been at a higher level, and the spikes in borrowing driven by the financial crisis and Covid were higher in the UK than the G7 and advanced-economy averages (Chart 1.1).

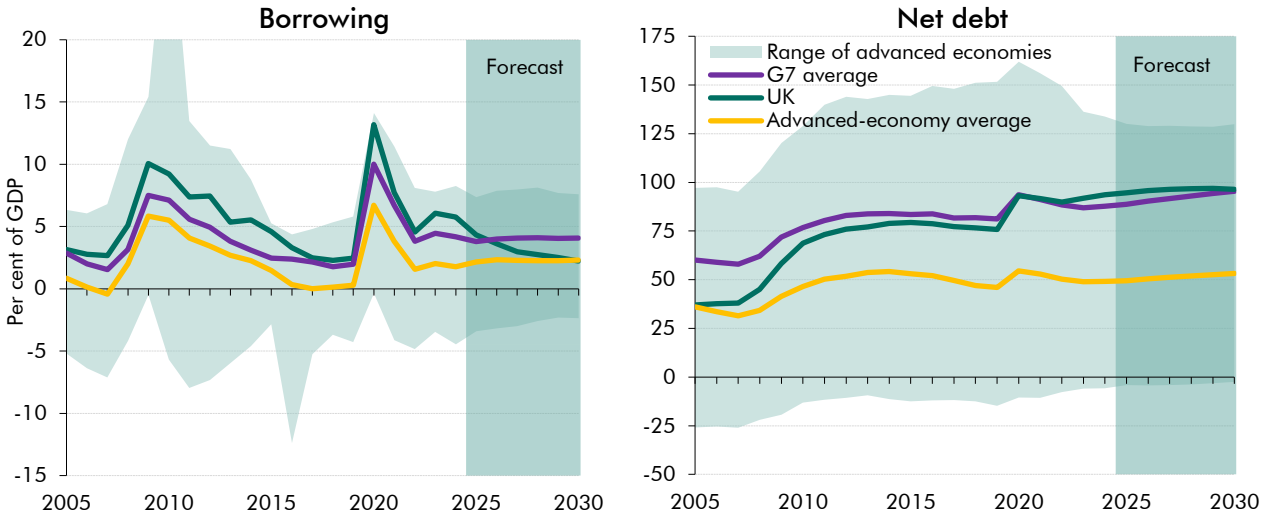
1.12 Due to this elevated borrowing, the UK has experienced one of the largest increases in government debt of any advanced economy over the past two decades. UK net debt on an internationally comparable basis has nearly tripled as a share of GDP since 2005, and the UK debt-to-GDP ratio has gone from being close to the advanced-economy average in 2005 to 45 percentage points higher than that average in 2025. Compared with the G7 average, the UK debt-to-GDP ratio has gone from being 23 percentage points lower in 2005 to 6 percentage points higher in 2025.

1.13 The UK government's borrowing costs have also risen sharply over the past five years, with the 10-year bond yield differential between the UK and the advanced-economy average increasing by 1.1 percentage points and UK government 10-year bond yields reaching the highest in the G7. As a result of these developments, one of the fiscal risks set out in paragraph 1.7 is already materialising: debt interest spending has more than doubled as a share of GDP since just before the pandemic and, at £110 billion in 2025-26, is now the third-largest area of public spending after only health and welfare.

1.14 The Government's current consolidation plan – halving borrowing to around 2 per cent of GDP by 2030-31 – would, on the basis of our central medium-term forecast from March, stabilise debt over the remainder of the decade at a level similar to the projected G7 average. But, as shown in Chart 1.1, this would still leave UK debt levels well above the advanced-economy average. Moreover, successive medium-term forecasts since the end of the pandemic have projected that debt would be falling or stabilising in the medium term, which has yet to happen. The outlook for the level of debt has instead increased at subsequent forecasts, reflecting delays to the planned reductions in borrowing.[8]

[8] See paragraph 6.4 and Chart 6.1 in our March 2026 *Economic and fiscal outlook*, and Box 3.2 in our 2025 *Fiscal risks and sustainability report*.

Chart 1.1: General government borrowing and net debt in advanced economies



Note: For internationally comparable metrics, we use general government net borrowing and general government net debt. These differ from public sector net borrowing and public sector net debt respectively in sector coverage and other definitional details, including the treatment of public corporations and central bank balance sheets. The advanced economies are: Andorra, Australia, Austria, Belgium, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, the Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the UK, and the USA. Andorra, Greece and Singapore are included in the borrowing chart but excluded from the net debt chart due to lack of available time-series data.

Source: IMF, OBR

Future government activity: long-term spending and revenue scenarios

1.15 To consider fiscal sustainability in this report we start from the current fiscal position and analyse how future government activity might affect the future path of the balance sheet. To do this, we produce long-term spending and revenue scenarios and consider the effect these flows could have on the evolution of the balance sheet. Our analysis concentrates on public sector net debt. With relatively little future borrowing expected to be used to purchase financial assets, the path for other balance sheet metrics, such as PSNFL, is likely to look very similar. Therefore, the implications of the scenarios for the need for fiscal tightening would not change if PSNFL, or almost any other balance sheet measure, were used.

1.16 The starting point for our long-term projections is the detailed five-year forecasts up to 2030-31 for government revenue, spending, borrowing, and debt, as well as for government policy as set out in our March 2026 forecast. The central estimate of these forecasts is for an improvement in the primary balance from a deficit of 1.4 per cent of GDP in 2025-26 to a surplus of 1.5 per cent of GDP in 2030-31, and for debt to stabilise at just under 100 per cent of GDP. Beyond 2030-31, our projections are underpinned by assumptions on the **economy**, **demographics**, **tax and spending age profiles** and **long-term government policy**, which are explored in more detail below.

Economy and demographics

1.17 The long-term performance of the economy and changes to the size and age structure of the population will be key drivers of the long-term fiscal outlook. Our main scenarios are based on the latest 2024-based ONS principal population projection which makes

assumptions on births, deaths and net migration.[9] Changes to the population size and age structure help determine growth in the size of the labour force. We also need to make assumptions about other long-run economic parameters, in particular labour productivity, which in combination with changes to the workforce determine both the size of the economy and real GDP per person in future years. These economic assumptions are explained in detail in Chapter 2.

Tax and spending age profiles

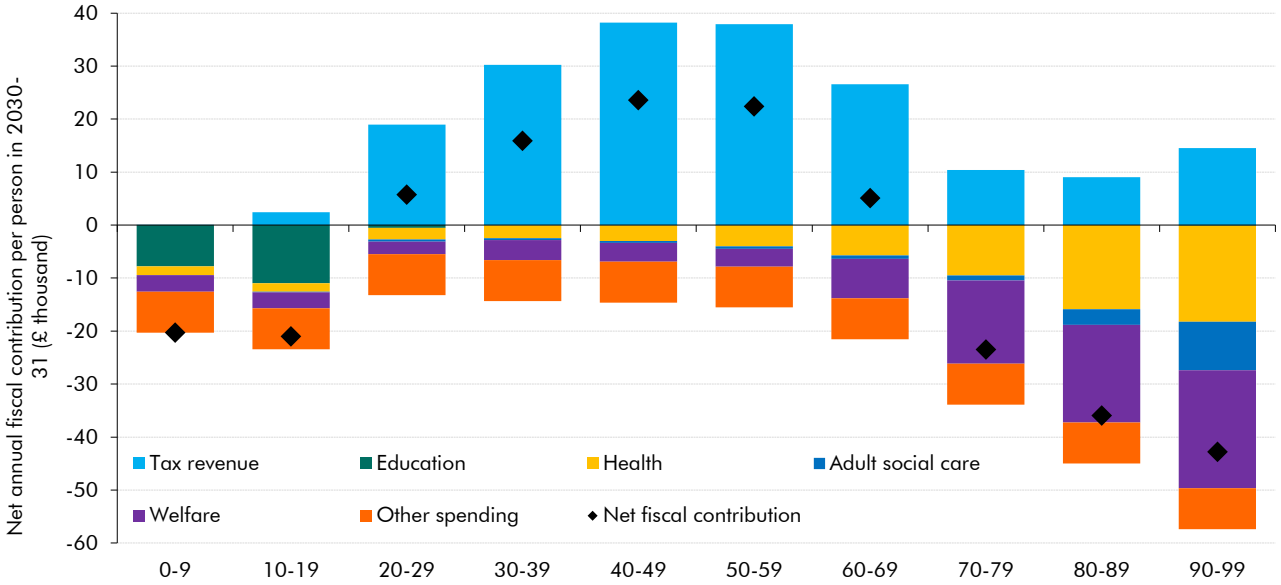
1.18 Demographic developments are key to our projections of tax and spending. The demand for many public services varies significantly by age, while taxes paid peak during working ages. To explore the implications of demographic developments for tax and spending we use a series of age profiles. These estimate the current level of public spending or tax receipts received or paid by individuals at every age. Multiplying these age profiles by the projected future number of people at each age gives an estimate of the trajectory of total tax or spending as the population structure evolves. For this publication, and for the first time since we began producing long-term projections in 2011, we have updated almost all the major tax and spending age profiles that we use.[10] These profiles are explained in more detail in Annex C.

1.19 Chart 1.2 shows the sum of these age profiles for an average person at different ages. Children are net recipients of government spending particularly due to spending on welfare and their education. Working-age people consume fewer public services while paying more taxes – workers are therefore on average net contributors to the public finances. As people age their incomes ultimately typically decline and so taxes paid fall, while welfare and health consumption increase. Older people are therefore typically net recipients of government spending.

1.20 In practice there is not an automatic link between demographics and the demand for, and provision of, public services. To a significant extent this relationship is determined by government policy and this is explored further below. But it is also determined by a wide range of other factors related to individual circumstances. For example, demand for health services is not directly linked to an individual's age but to how healthy people are at different ages. In our scenarios we explore the fiscal implications of some these factors. For example, we consider scenarios in which healthy life expectancy is higher or lower than in our baseline assumptions. We also incorporate other non-demographic pressures on public services where there is reasonable evidence to suggest they could be sustained over the long term. An important example of this is evidence of substantial wider cost pressures in public health provision across most developed economies over many decades.

[9] ONS, *National population projections: 2024-based*, April 2026.
[10] The health spending profile was updated in 2024 and so has not been updated for this publication.

Chart 1.2: Age profile for total primary spending and primary receipts



Note: These profiles are constructed on the basis that aggregate primary spending and receipts are broadly in balance, as is the case on average over the medium term in our March 2026 forecast. Therefore, they do not capture the fiscal impact of major economic shocks on public spending and receipts, nor the implications of net debt interest spending.
Source: OBR

Long-term government policy

1.21 The scenarios in this report are produced based on a set of assumptions that represent unchanged government policy. This is because the goal of this report is to identify whether current government policies are likely to be fiscally sustainable in the face of the potential long-term pressures that we identify.

1.22 Over the five-year horizon of our *EFO*s, the Government's tax and spending policies are usually publicly announced and reasonably well defined. In some areas there are also clear policy commitments in place that extend beyond the medium-term and where this is the case we include these in the projections. These include the legislated commitment to reduce the UK's emissions to net zero by 2050, stated government policy on future increases to the state pension age, and commitments to increase defence spending to reach 3.5 per cent of GDP by 2035. We also take the Government's commitment to maintain triple lock uprating of the state pension for the rest of this Parliament, and assume it remains in place beyond this point in the absence of a firm policy alternative beyond this.

1.23 But in most cases there is not a well-defined, long-term policy and so we have to make an appropriate assumption about how policy will evolve. The *Charter for Budget Responsibility* requires that *"where a long term policy has not yet been set by the Government, the OBR will set out the assumptions it makes in its projections regarding policy transparently"*. Given the importance of these assumptions, we aim to be transparent about them and our reasons for choosing them.

1.24 The primary approach that we take in the absence of a clear long-term policy is to assume that the structure of tax and spending policy as it is applied in the final year of the medium-

term forecast is unchanged over the 50-year period. This means that, absent the impact of the demographic and other long-term pressures that we identify, the level of each individual tax and spending area as a share of GDP would remain little changed over the projection period. For spending, this is equivalent to assuming that the public provision of goods and services broadly rises in line with the wider economy.

1.25 In some cases, this means that the long-term policy assumption could be viewed as inconsistent with stated medium-term policy parameters. In particular, this approach implies that most tax thresholds and non-pension welfare payments are uprated each year in line with average earnings.[11] This means the tax and welfare systems would remain broadly similar – in terms of welfare generosity relative to average earnings and of how tax rates vary with relative levels of incomes – to those we have today. However, personal tax thresholds and non-state pension welfare payments are largely legislated to rise in line with inflation (and in practice personal tax thresholds have been frozen for many years). Applying such policies over the long run would result in significant changes to the overall structure of the tax and welfare systems. It would significantly increase average tax rates by dragging ever more people into higher tax brackets and significantly erode the value of benefit payments relative to earnings. Such action could form part of the policy that future governments can choose to address the fiscal pressures we highlight in this report. But we do not think it would be consistent with our wider assumption on unchanged policy, nor in many cases be realistic over a 50-year period, to assume inflation uprating in our baseline scenarios. However, recognising that there are different ways to interpret unchanged policy, and the significant effect this has on the projections, we produce scenarios which illustrate the impact of alternative assumptions.

1.26 A full list of policy assumptions we use in our baseline scenario is provided in Annex B.

Long-term scenarios for the public finances

1.27 Our scenarios for tax and spending are combined with assumptions on the cost of servicing government debt to show the potential trajectory of public sector borrowing and debt. This allows us to assess the long-term outlook for fiscal sustainability using the interpretation of unchanged policy set out above. One way in which we assess this is through fiscal gaps, which quantify the change in primary balance that is sufficient to achieve a chosen debt-to-GDP ratio in a given year.

1.28 Of course, a wide range of plausible future scenarios can be constructed by varying the assumptions underpinning the demographics, wider long-term pressures, economic trends or policy settings. Throughout this report we examine many alternatives. In almost all cases these alternative scenarios yield the same conclusion as in our baseline: over the long term, the public finances would move onto an unsustainable path. This is in large part due to the pressures of an ageing population faced by the UK and most other advanced economies in

[11] In our long-term economic determinants, average earnings are projected to grow at a similar rate to the nominal economy. As a result, uprating tax thresholds and welfare payments with average earnings is, all else equal, consistent with maintaining them broadly constant as a share of GDP.

the coming decades (see Box 2.1 in Chapter 2). But they differ greatly in how much fiscal tightening is needed to restore sustainability.

1.29 We stress that it is not plausible that the UK, or any other country, could remain on any of the unsustainable paths set out in these scenarios, because they imply that debt will ultimately grow explosively. It is almost certain that future governments would have to take action before this happens to adjust the fiscal stance to keep debt at sustainable levels. The scenarios should not be seen as forecasts of the evolution of debt far into the future, but rather as an illustration of the long-term pressures on the public finances and of the scale of changes in tax or spending policy that would need to be made at some point to maintain fiscal sustainability.

Structure of this report

1.30 The rest of this report is structured as follows:

- **Chapter 2** explores **long-term economic trends**, setting out the key economic and demographic assumptions that underpin our scenarios.
- **Chapter 3** presents **long-term spending projections** to explore the wide range of possible pressures on public spending over the next 50 years.
- **Chapter 4** presents **long-term receipts projections** to assess the pressures on tax revenues over the next 50 years.
- **Chapter 5** explores **long-term fiscal sustainability** via a set of scenarios for the evolution of the public finances over the next 50 years, using assumptions and associated projections presented in the preceding three chapters.

1.31 We have also included four annexes in this report:

- **Annex A** provides more detail on the **structure of the economic projections**.
- **Annex B** summarises the **policy assumptions** underpinning our baseline scenario.
- **Annex C** provides details on the updated **age profiles** that underpin our tax and spending projections.
- **Annex D** presents a **comparison of the baseline scenario in this *FRS* to our 2024 *FRS* baseline projection.**

2 Long-term economic trends

Introduction

2.1 This chapter sets out the assumptions we use for the key economic and demographic trends over the next 50 years which underpin our long-term fiscal projections (Table 2.1). To explain these assumptions, this chapter:

- details the **demographic assumptions** used in our long-term projections, the effects on the projected size and structure of the population and on the labour supply;
- discusses the prospects for **long-term productivity growth** and its drivers, and for growth in real GDP, real GDP per person and nominal GDP over the next 50 years;
- sets out our baseline assumptions about **interest rates** over the long term; and
- explores **alternative scenarios** to our baseline scenario, using different assumptions around demographic trends and productivity growth.

Table 2.1: Summary of baseline long-term demographic and economic assumptions

	Annual average (per cent)			
	Mar 2026 *EFO* avg.	2024 *FRS*	2026 *FRS*	Methodology in long-term projection
Employment and real economy				
Population growth	0.3	0.3	0.0	ONS 2024-based principal projection
Workforce growth	0.6	0.3	0.0	Running population growth through OBR cohort model
Labour productivity growth	0.9	1.5	1.4	OBR assumption
Real GDP growth	1.5	1.8	1.5	Sum of workforce growth and labour productivity growth
Real GDP per person growth	1.2	1.5	1.4	Real GDP growth minus population growth
Earnings and nominal economy				
GDP deflator growth	1.9	2.3	2.2	Long-term averages of components
Average earnings growth	2.4	3.8	3.7	Sum of labour productivity and GDP deflator growth
Average nominal GDP growth	3.5	4.2	3.7	Sum of real GDP growth and GDP deflator growth
Interest rates				
Gilt rate	5.0	4.4	4.3	Sum of long-maturity real yields and GDP deflator growth

Source: ONS, OBR

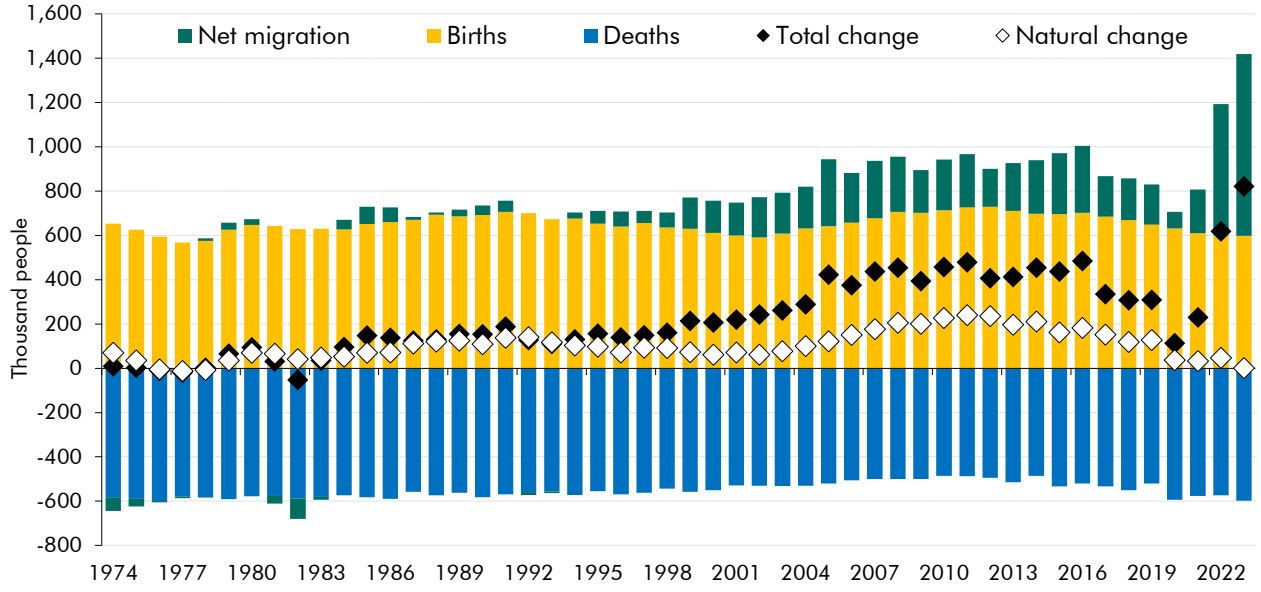
2.2 In this *Fiscal risks and sustainability report* (*FRS*), for the first time, we have incorporated a projection for the capital stock, which allows us to project productivity growth based on capital deepening and total factor productivity. We have also built alternative demographic scenarios in the same ONS model used in the national population projections. For more technical detail on the structure of the economic projections, see Annex A.

Demographic trends and labour supply

2.3 Total UK population growth has averaged just over ½ a per cent a year since 1871, when annual records began. The pace has fluctuated significantly in different periods. The post-War 'baby boom' saw the UK population rise from 49 million in 1945 to nearly 56 million by 1970. A sharp deceleration followed, with the population barely growing over the following 15 years, and only a moderate pickup to just under 59 million by 2000. An increasingly sharp rise in net migration then saw the population rise to over 65 million in 2015, before reaching nearly 70 million today. The average population growth rate in the 2010s was the highest for any 10-year period since 1934. Growth in 2023 of over 1¼ per cent was the highest in a single year on record outside wartime anomalies.

2.4 Over the same period, the structure of the UK population has changed considerably, driven by changes in birth rates, death rates, and net migration (Chart 2.1). Births have generally exceeded deaths over the past fifty years, meaning natural change (births minus deaths) has supported underlying population growth. The UK experienced near-zero net migration, or even modest net *outward* migration, from at least the 1960s to the early 1980s. It has since experienced rising net *inward* migration. Since 1999, net inward migration has been a bigger driver of total population growth than natural change. Together, these changes saw the median age of the UK population decline until the mid-1970s, when it troughed at 33, before rising over the past fifty years to reach over 40 today (see Box 2.1).

Chart 2.1: UK population change over the past 50 years



Source: ONS, OBR

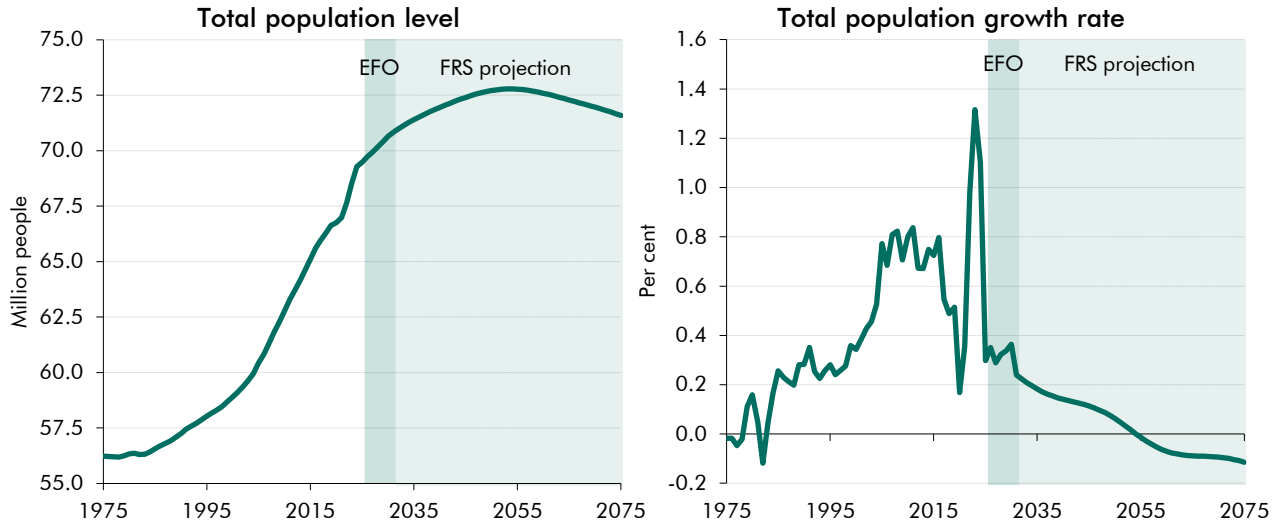
2.5 Developments in both the size and age structure of the population will be pivotal to the UK's long-term economic and fiscal position. Demographic changes feed into labour supply, employment, aggregate GDP, and GDP per person. And the population's age structure also influences tax receipts and the demand for public services. These factors are important over long horizons, as their impacts accumulate gradually, but persistently. In this section we set out the key demographic assumptions that underpin our long-term projections.

Total population projections

2.6 Our demographic projections draw from the latest ONS population projections released on 28 April 2026, based on the 2024 mid-year population estimate for the UK. Our baseline scenario uses the ONS's principal projection, which is based on historical trends in births, deaths, and migration, as well as input from expert advisors. To ensure consistency with our March 2026 forecast, we start from its final forecast population level in 2030 and then set population growth in line with the ONS projections.

2.7 On this basis, in our baseline scenario the total population peaks at just under 73 million in the mid-2050s, before falling to around 71½ million by 2075. Before its peak in 2055, population growth averages under ¼ per cent a year. This is significantly below the roughly ¾ per cent a year average since 2010 but is close to the 1980 to 1990 average.

Chart 2.2: Projections of total population level and growth rate



Source: ONS, OBR

2.8 The ONS population projection assumes deaths will exceed births this year for the first time since the mid-1970s (other than in 2020), and that they will do so for the next 50 years (Chart 2.3). This assumption means natural change in the UK population is projected to be negative throughout our baseline scenario. The rise in the population is therefore driven by net migration. Breaking down the total projected population growth into its components:

- Using ONS assumptions, total **births** contribute over 30 million people across the projection. The **birth rate** is projected to remain close to 1.4 children for each woman throughout, similar to the rate today.[1] Births therefore hover at just under 9 for every 1,000 people from 2030 until the late-2040s, before declining below 8 by 2075.

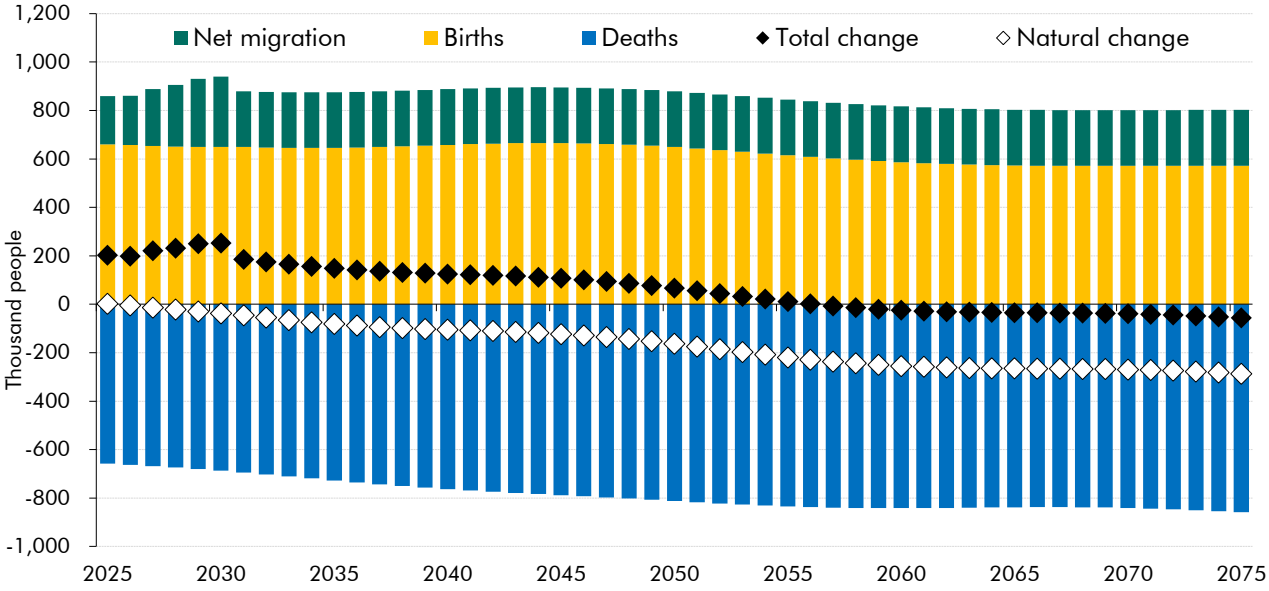
- **Deaths** total over 40 million across the projection, with the **death rate** projected to increase steadily from around 9½ deaths in every 1,000 people in 2025 to just over 12 in 2075.[2] The increase in the death rate mechanically reflects an older population,

[1] This is consistent with the ONS's total fertility rate, measuring the number of children an average woman would have over her lifetime.
[2] This is consistent with the ONS's crude mortality rate, measuring total deaths divided by total population.

partly offset by a decline in the age-standardised mortality rate from over 9 deaths for every 1,000 people in 2025 to under 6 by 2075.

- **Net migration** contributes nearly 12 million additional people across the projection. Taking the ONS projection from 2031 onward, this assumes 230,000 people arrive on net each year. In practice, net migration has been very volatile, especially in recent years, and often largely driven by policy decisions, making this long-term average a highly uncertain assumption.

Chart 2.3: Projected births, deaths, and net migration



Note: Data up to 2030 is consistent with the March 2026 forecast.
Source: ONS, OBR

2.9 Compared to the projections in the 2024 *FRS*, which used the 2022-based ONS population projections, the new figures result in a UK population that is around 10 million lower by 2074. This is largely driven by lower assumed net inward migration, which is 110,000 a year below the level assumed in the 2024 projections,[3] as well as by a lower assumed birth rate. The death rate is higher than in our previous projection, but total deaths are lower, reflecting the smaller population. We explore the economic implications of an alternative scenario that maintains zero natural change in the population from paragraph 2.38.

Age structure of the population

2.10 In the baseline scenario, the average age of the UK population is set to increase further over the next 50 years. Between 2025 and 2075, the population projections incorporate a steady rise in the median age from 40 to 49, while the modal age jumps from 34 to 63.

2.11 Based on ONS assumptions, life expectancy rises from around 81½ years in 2025 to over 86½ by 2075 in the baseline scenario. This would represent a slower increase in life expectancy than over the past 50 years, when it rose by around 9 years.[4]

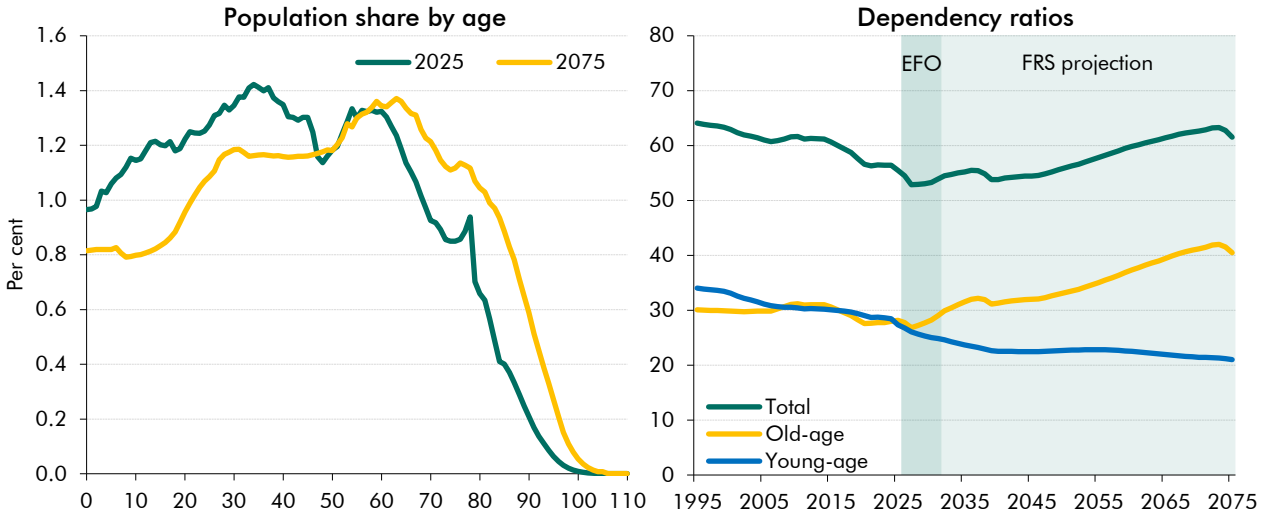
[3] This reflects both the sharp decline in net migration since its 2023 peak and advice from the ONS's Migration Expert Advisory Panel.
[4] The ONS assumes a slower increase in life expectancy than over the past 50 years due to consistently slower mortality improvements for over 10 years, alongside input from expert advisory panels.

2.12 In this report, unless otherwise stated, we define the old-age dependency ratio as the population at or above state pension age (SPA), divided by the number of adults (sixteen and older) below the SPA. We also define the total dependency ratio in relation to the SPA, adding children aged 15 and under to the numerator (Chart 2.4, right panel). While these are somewhat crude metrics, for example because many people work beyond the SPA or retire earlier, looking at these shares in the population is still informative for fiscal policy analysis, particularly given several age-related benefits are tied to the SPA.

2.13 In the baseline scenario, the old-age dependency ratio rises more than 10 percentage points over the next 50 years, reaching over 40 per cent by 2075. This is a stark contrast from the past 50 years, when the ratio has held steady at around 30 per cent since the 1970s. Higher birth and death rates initially supported this stability, which was then supported by the rise in net migration over the past 30 years, alongside a series of SPA increases.[5] The total dependency ratio is projected to rise by around half the increase in the old-age dependency ratio, going from 56½ per cent in 2025 to 61½ per cent in 2075 in the baseline scenario. This is a smaller increase because the ONS assume a falling rate of births for every 1,000 people, reducing the young-age dependency ratio.

2.14 Compared to the projections in the 2024 *FRS*, the population ages more quickly, as lower birth rates and net migration add fewer children and working-age adults to the total. This effect is strong enough that, despite a lower share of children in the population, the total dependency ratio is also consistently higher.

Chart 2.4: Projected population share by age and dependency ratios



Note: medium-term forecast is consistent with ONS 2022-based projections. Historical changes in state pension age and the increase to 68 are based on government communications. The timing of the increase to 69 assumes 32 per cent of adult life is spent in retirement.
Source: ONS, United Nations, OBR

[5] Historical state pension ages and the increase to 68 are drawn from government communications; the 2075 increase to 69 is based on the assumption that individuals spend 32 per cent of their adult life in retirement.

Labour supply and employment

2.15 Both the size of the population and its age structure influence labour market participation. We estimate these effects using a cohort model that projects participation rates separately by age. It draws on both structural differences in labour participation across age groups, and recent trends in how people enter and exit the labour market as they age. The model does not incorporate an explicit response of labour supply to shifting incentives to work from changes in wages, the economic cycle, or wider policy. We consider these effects in Box 2.1.

2.16 In the baseline scenario, the total participation rate is broadly stable for the next 30 years, before it dips from around 64 per cent in 2055 to around 61 per cent by 2075. This reflects the interplay of by-age trends and dynamic cohort effects:

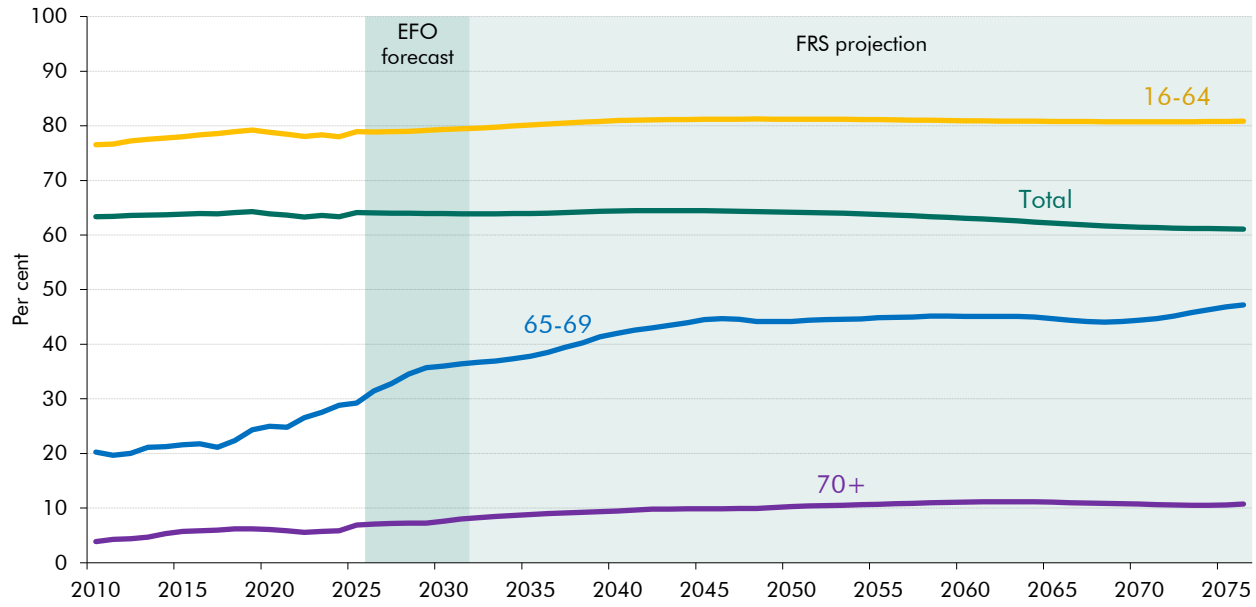
- Older adults are in general less likely to participate in the labour market, so an ageing population tends to put downward pressure on overall participation. There is a sharp increase in over 75s towards the end of the projection, increasing from under 14½ per cent of the population in 2055 to nearly 18 per cent in 2075. As a result, the participation rate declines much more sharply towards the end of the projection.

- However, over the next 30 years our assumed cohort exit and entry rates imply increases in older-age participation rates, particularly for cohorts around retirement age. Among 65- to 69-year-olds, we project the participation rate to increase from under 30 per cent in 2025 to nearly 45 per cent by the mid-2040s. Among those aged 70 and over, we project participation to rise from nearly 7 per cent to nearly 10 per cent across the same period. These shifts reflect long-running trends, largely driven by increases in healthy life expectancy, as well as the expected state pension age increases in the three years to 2028 (to 67) and 2039 (to 68).[6]

2.17 There are many uncertainties around this projection. For example, caring responsibilities may dampen participation, particularly among adults aged 50 to 65 who are likely to have the oldest immediate relations. The extent to which state social care provision offsets this is uncertain. Meanwhile, the reduction in births could lower care demands on younger adults at peak child-raising ages and potentially increase their labour participation.

[6] As the SPA continues to rise, we expect a growing share of people to retire before receiving the state pension. As a result, we slightly dampen our model's positive participation effect on adults who lose pension eligibility during SPA increases.

Chart 2.5: Labour market participation by age

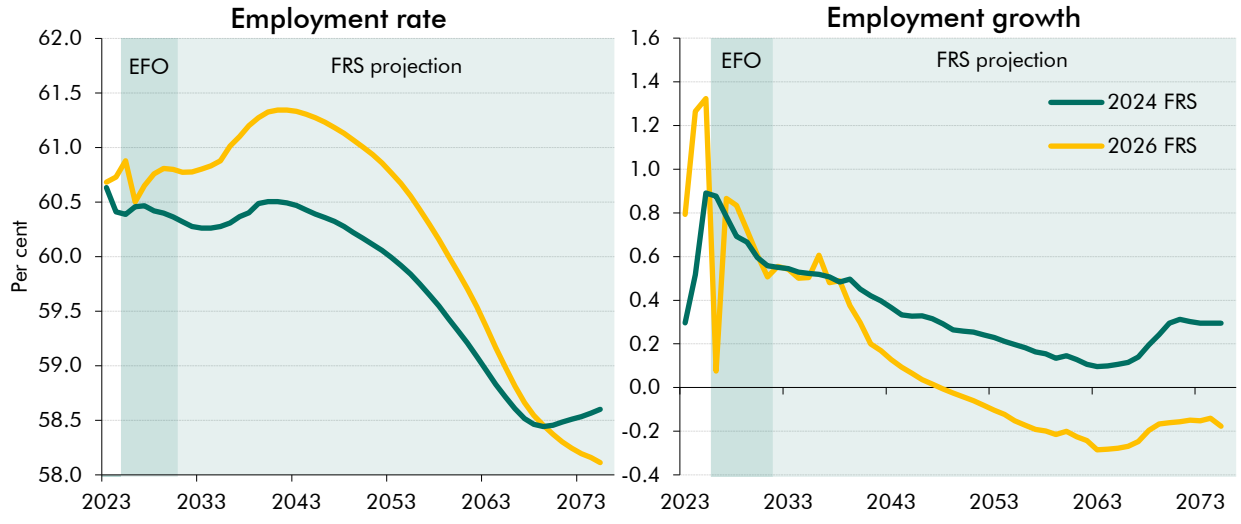


Source: ONS, OBR

2.18 We project a steady unemployment rate at just over 4 per cent and we assume average hours worked are stable at around 32 hours a week. So the total share of the population in employment – and total hours worked – follows trends in participation. Our projected 16+ employment rate is roughly stable at around 61 per cent for the next 30 years, before falling to just over 58 per cent by 2075.

2.19 Like our 2024 *FRS* projection, the employment rate peaks in the early-2040s in our baseline scenario, though over ¾ percentage points higher than in the 2024 profile. However, by 2075, our baseline scenario projects an employment rate ½ a percentage point lower than the 2024 projection due to persistently lower employment growth from the late 2040s.

Chart 2.6: Employment rate and employment growth



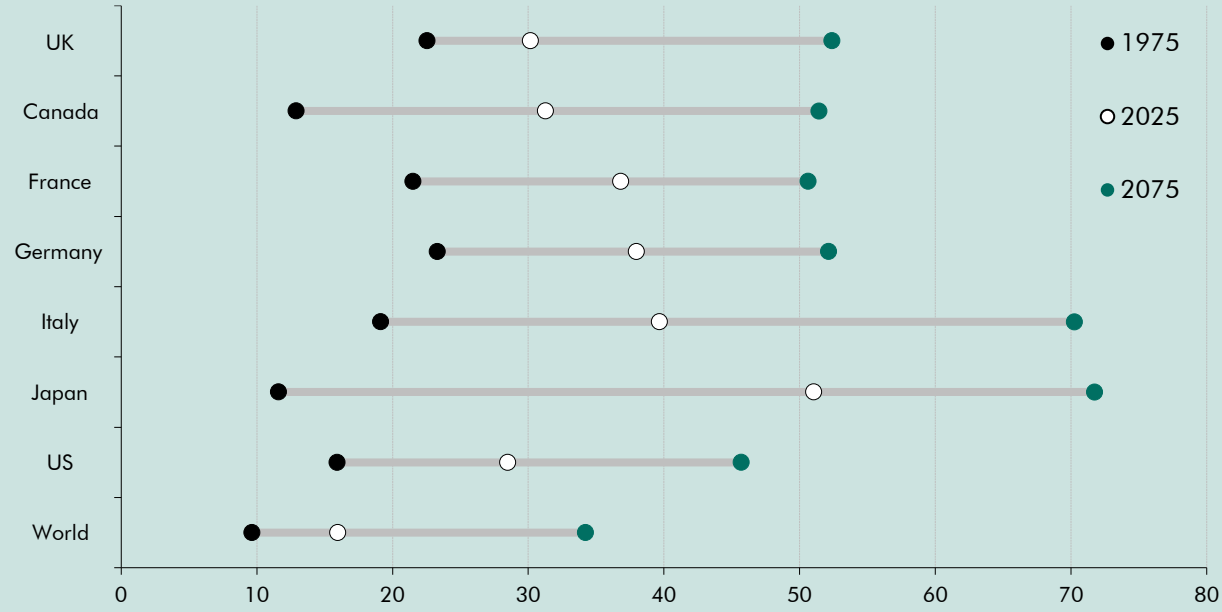
Source: ONS, OBR

Box 2.1: Economic implications of an ageing population

We project that the average age of the UK population will rise over the next 50 years. This box explores the implications that may have both for the structure of economic activity and the performance of the UK economy.

A common metric used to assess the degree to which a population is ageing is the old-age dependency ratio, which is defined as the population above a typical retirement age divided by the rest of the adult population. For the purposes of international comparison, we use 65 as the retirement age benchmark and 15 as the start of working age. Over the past 50 years, the old-age dependency ratio has increased relatively little in the UK, despite rising life expectancy (Chart A). This reflects substantial net inward migration by working-age people. This contrasts with most other G7 nations, which have experienced larger increases in the old-age dependency ratio over the same period. Over the next 50 years, in line with ONS projections for the UK, the UN projects the old-age dependency ratio to increase substantially across other G7 nations and for the global population.

Chart A: UN projections for old-age dependency ratios across G7 countries



Note: UK data is taken from ONS outturn and the 2024-based principal population projection. World and other countries use United Nations data and projections.
Source: ONS, United Nations, OBR

Measures such as the old-age dependency ratio give a broad indication of the degree of population ageing. But the economic implications of population change depend on a much wider set of factors, particularly around individuals' participation and employment choices. An ageing population could influence several key labour market drivers:

- Older individuals have a lower average **labour participation rate**, reflecting health and retirement choices. All else equal, this means an older population could be associated with lower aggregate GDP, as proportionally fewer people are in work. But participation has been trending upward among older cohorts, in part due to policy decisions, such as a rising state pension age. And this effect could continue to provide a significant offset to the cohort effect of an older population. How far future increases in life expectancy are

matched by longer *healthy* life expectancy will also be pivotal. In Chapter 3 we assume that half of all gains in life expectancy will translate to higher healthy life expectancy.

- Changes in demand for goods and services in an ageing population, in tandem with technological change, may also influence the **composition of the workforce**. There may be significant growth in demand for some occupations, like caring roles, while employers may face increasing constraints on hiring for physically intensive work from a smaller pool of younger workers. These changes will influence employers' choices on substituting labour for capital, and the development of new labour-saving technologies.[a] Whether older workers face frictions in switching occupations and sectors will also be important.
- As discussed in *Briefing Paper No.9: Forecasting productivity,* the impact of population ageing on **labour productivity** is highly uncertain. On average, older workers tend to be better-paid, which could be associated with higher productivity, but this varies significantly across individuals and occupations. Compositional changes in the workforce could both increase and decrease productivity. For example, individuals who exit the labour force early could be above or below average productivity, and future labour-saving technologies may affect roles with above- or below-average productivity levels.

OLG simulation of the economic impact of an ageing population

In our long-term projections, we account for the impact of an ageing population on labour participation using our cohort model. We do not make an explicit judgement about the impact of population ageing on productivity growth since, as described above, the evidence for the sign and size of the effect is not clear. However, we can produce a stylised scenario using the UK Overlapping Generations Model (UK OLG).[b] OLG models are useful for analysing long-term demographic trends because they explicitly model households of different ages that make forward-looking decisions about their labour supply and consumption in light of wages, taxes, welfare transfers and their probability of survival. These household decisions feed back into economy-wide outcomes, with wages, real interest rates, and the supply of labour and capital determined by the responses of households, firms and government in general equilibrium. This allows the model to capture the wider macroeconomic implications of demographic change.

The left panel of Chart B sets out the results of a UK OLG simulation that takes a baseline steady state equilibrium in 2025 and layers on the projected demographic structure for the UK in 2075. To isolate only the impact of demographic changes, the simulation leaves total factor productivity (TFP), the state pension age, and the size of the state pension unchanged from 2025 values. But all these factors would also materially affect the economic incentives faced by an ageing population.

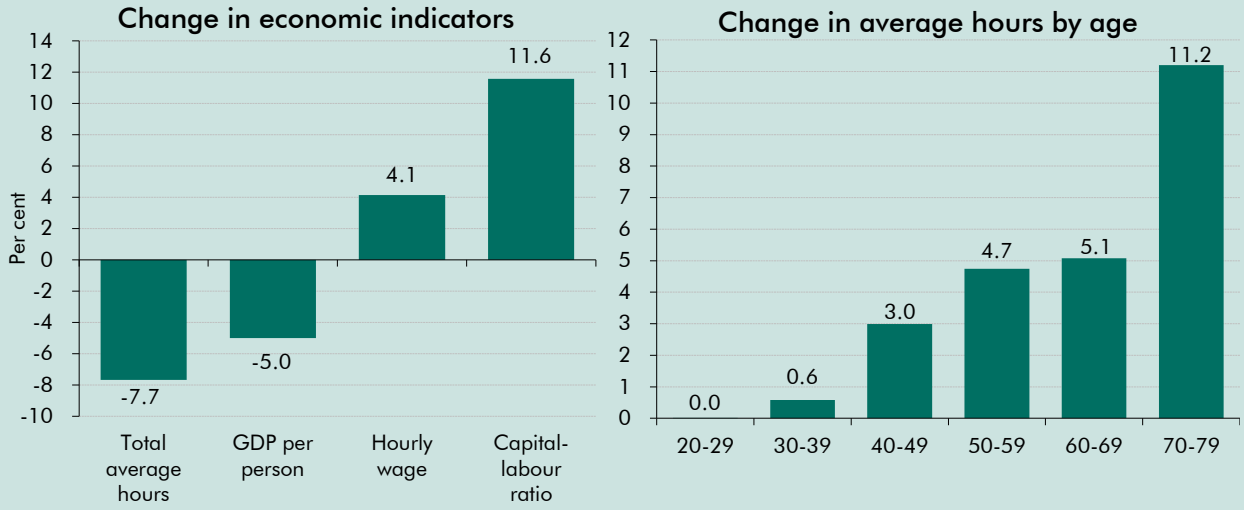
The key findings are that with the 2075 demographic structure, **total average hours worked** fall by nearly 8 per cent, primarily because on average older workers tend to work fewer hours. A higher proportion of older, more asset-rich households also increases the **capital-to-labour ratio** by over a tenth, pushing up productivity. This also raises the marginal product of labour, increasing equilibrium **real hourly wages** by just over 4 per cent.

Average hours worked conditional on age rise in this simulation (Chart B, right panel), with a pronounced increase among older households. This means the total fall in **labour supply** is entirely due to an older population structure. The rise in average hours worked by age is largely

driven by a higher life expectancy, which increases the years spent in retirement that households must finance out of their savings. This effect is strongest for the oldest households, as their lower starting hours mean they face a lower utility cost of additional work.

In these model results, the impact of higher productivity and households working longer hours conditional on age, particularly at older ages, is still not sufficient to offset the compositional effect of an older population on total hours worked. As a result, real GDP per person with the 2075 demographic structure is 5 per cent lower. This does not mean that faster population growth is guaranteed to generate higher GDP per person. When the population rises, the capital stock takes time to adjust, which can temporarily lower the capital-to-labour ratio and drag on productivity growth. This happens in our higher population scenario discussed later in this chapter, in which higher births, lower deaths, and a slightly younger age structure still produce lower GDP per person than in the baseline scenario.

Chart B: Simulated impact of 2075 demographics relative to 2025 demographics



Note: This simulation holds TFP, the state pension age and the state pension level constant to estimate the marginal impact of the projected demographic change in our baseline scenario.
Source: OBR

Observational evidence on the economic impacts of an ageing population is limited, given this is largely expected in the future across advanced economies. Japan has already experienced substantial population ageing, and this trend is projected to continue in future decades (see Chart A). But despite a shrinking working-age population in Japan since the 1990s and relatively weak growth in aggregate GDP and GDP per person, growth in GDP per working-age adult and GDP per hour have been relatively resilient.[c] In the UK, as in Chart A, the old-age dependency ratio has increased by around 8 percentage points since 1975, but there is not yet clear evidence that this has slowed economic growth.

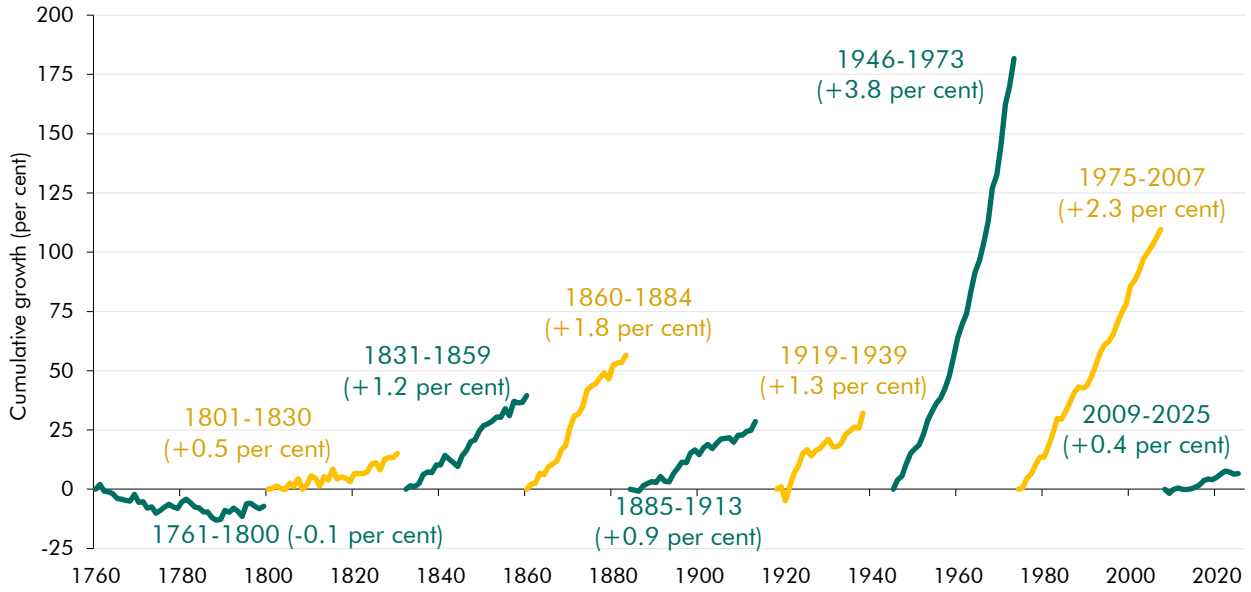
[a] For example, see Acemoglu, D., and P. Restrepo, *Secular Stagnation? The Effect of Aging on Economic Growth in the Age of Automation*, NBER Working Paper 23077, January 2017.
[b] See Brzezinski, A., A. Hantzsche, and J. Watson, *OBR Working paper No.22: A new UK overlapping generations model*, April 2025. The model is calibrated to match recent UK economic data from the ONS as well as key current policy settings. It has been jointly developed by the OBR and HM Treasury.
[c] See Fernández-Villaverde, J., G. Ventura, and W. Yao, *The wealth of working nations*, European Economic Review, Volume 173, April 2025. GDP for Japan is calculated on a constant national prices basis. Accounting for purchasing power parity, growth in GDP per working-age adult is weaker compared to other G7 economies, but still stronger than aggregate GDP growth.

Productivity and GDP growth

2.20 Productivity growth is the single most important determinant of living standards in the long term. In this section, we set out our baseline long-term assumption for trend productivity growth and its components, and what this entails for real GDP and GDP per person. There is clearly great uncertainty about how productivity will evolve over half a century. The assumptions made in this report should be seen in this light, and it is why we also present a set of alternative scenarios for future productivity growth.

2.21 Three pieces of evidence help to guide our assumptions on productivity for these scenarios.[7] First, productivity is volatile year on year, but the prevailing experience of the last two centuries is of a trend of positive growth rates in the long run. Within this period, average annual growth in output per hour worked has varied widely from almost as low as -¼ per cent between 1761 and 1800, and 3¾ per cent between 1946 and 1973 (Chart 2.7). But productivity has consistently increased since the start of the 1800s. Eras of low average productivity growth may include periods of above-trend growth, while periods of high average productivity growth may include temporary slowdowns.

Chart 2.7: Cumulative growth in output per hour worked across eras



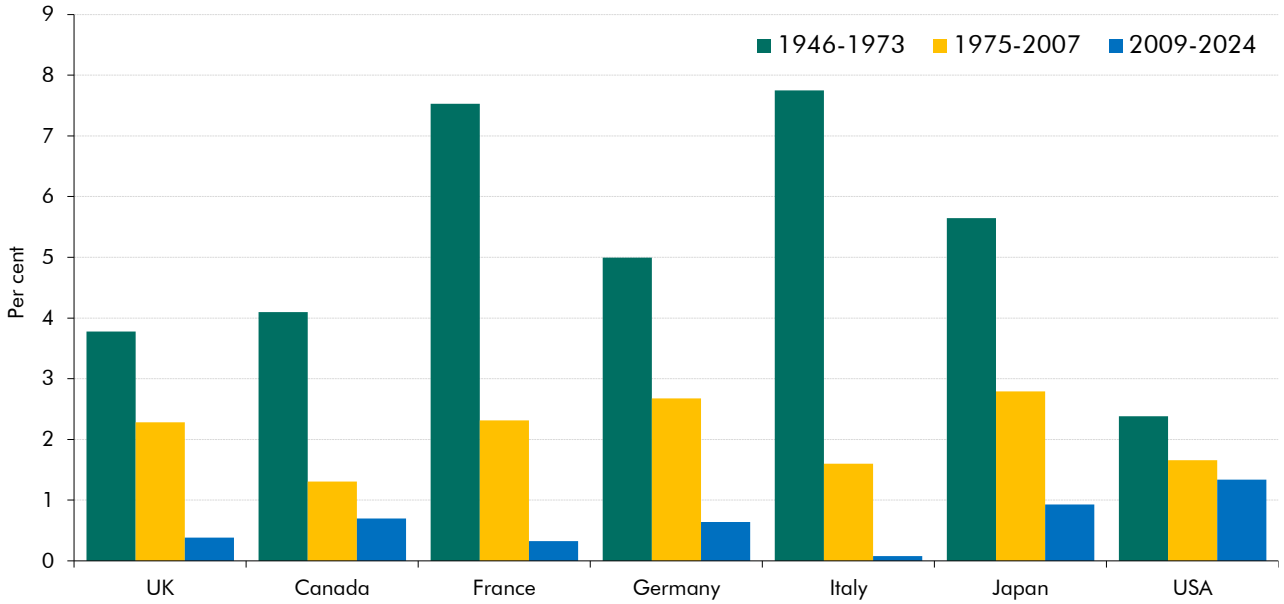
Note: 'Eras' for output per hour worked are based on analysis in *Briefing paper No.9: Forecasting productivity*. Numbers in brackets indicate the average annual trend growth over the era.
Source: Bank of England, ONS, OBR

2.22 Second, productivity grew at an unprecedented pace in the post-War decades, but this has slowed considerably since the global financial crisis. The rapid post-War growth in output per hour worked was followed by strong, but slower, average growth of around 2½ per cent from 1975 to 2007. Productivity growth in these decades was underpinned by rising global trade intensity, the spread of mass production, and major technological advances including in information and communication technology. Since the financial crisis, growth has slowed

[7] We previously explored historical trends in productivity growth in OBR, *Briefing paper No.9: Forecasting productivity*, November 2025.

to around ½ per cent a year, with repeated and persistent macroeconomic shocks, stalling globalisation and subdued capital deepening. Across rich countries, productivity growth has slowed over the past fifty years (Chart 2.8). The UK's productivity growth since 2009 has been below the G7 average, and its post-2008 deceleration was particularly sharp.[8]

Chart 2.8: Average annual output per hour growth across G7 countries



Source: Non-UK data from Bergeaud, A., G. Cette, and R. Lecat, *Productivity Trends in Advanced Countries between 1890 and 2012*, Review of Income and Wealth, 62(3); UK data from ONS, OBR

2.23 Third, a diverse, and changing, range of factors contribute to productivity growth. Over the next 50 years it is likely to be influenced by the development and diffusion of AI as a general-purpose technology, the impact of climate change and the transition to net zero on UK and global economic output, future trends in global trade policy and intensity, and the impacts of an ageing population on average labour productivity, among numerous other factors. The uncertainty attached to each of these many drivers of productivity growth mean that the distribution of potential outcomes over a 50-year horizon is wide. We set out alternative scenarios for trend productivity growth from paragraph 2.43.

Trend growth in productivity

2.24 For the first time, in this report we explicitly decompose our baseline scenario for trend productivity growth into:

- **Capital deepening**: the change in the services provided by the capital stock, which we proxy with growth in the capital stock available per hour worked. It is a function of past levels of investment in tangible and intangible productive assets, the rate at which investment depreciates or is retired, the flow of new investment that adds to the stock, plus changes in labour supply. We separate this into capital deepening from the businesses and government capital stocks.

[8] There is uncertainty around the precise rate of productivity growth since the pandemic. We explored this in Box 3.1 of *Briefing paper No.9: Forecasting productivity*. See also Heys, R., *How the ONS measures productivity*, ONS, June 2026.

- **Total factor productivity (TFP)**: a measure of the efficiency with which labour and capital can be combined in the production process. It is a function of the state of global technology and knowledge, and the degree to which that technology and knowledge is effectively utilised domestically. This depends, to a significant extent, on the skill levels of the working population.

2.25 Decomposing trend productivity growth into capital deepening and TFP provides a framework for distinguishing between two related but separate drivers of long-term growth. This distinction allows our long-term growth framework to capture how the capital stock adjusts to changes in population and TFP. It also enables the analysis to separate the direct effects of technology shocks from the additional capital accumulation they induce, and to assess the effects of changes in government investment in the long term.[9]

2.26 In our baseline scenario, we assume average productivity growth of 1.4 per cent over the next 50 years. Productivity growth is assumed to rise gradually from 1.0 per cent at the end of our medium-term forecast over a 10-year transition period to a long-term trend rate of 1.5 per cent. This is driven by:

- **Total factor productivity** grows an assumed pace of 1 per cent a year in the long term, rising from our medium-term forecast of 0.8 per cent over a period of 10 years. This is consistent with the assumed impact of Brexit fading and a growing effect from AI.

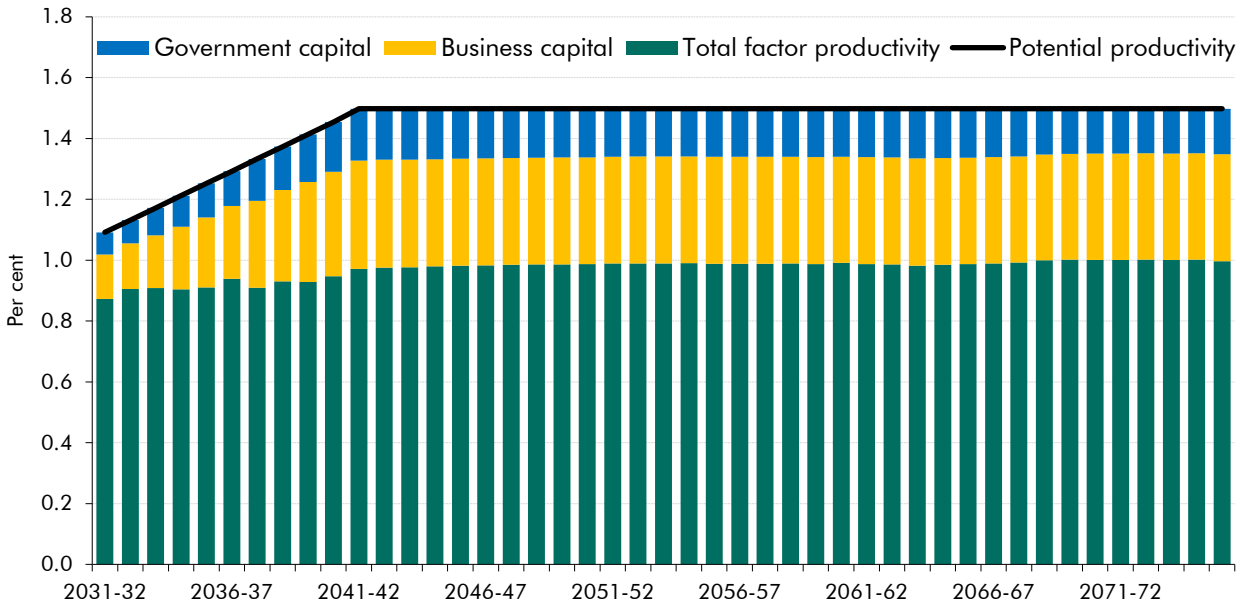
- **Business capital deepening** rises from 0.2 percentage points at the end of our medium-term forecast to 0.4 percentage points in the early 2040s based on our long-term growth model (see Annex A). It remains around this level until 2076.

- **Government capital deepening** rises more slowly over the first 10 years and contributes between 0.1 and 0.2 percentage points to productivity growth across the projection. Its smaller proportion of productivity growth reflects its smaller share in production. These impacts include the projected effects of new public investment spending in the October 2024 *Economic and fiscal outlook* (*EFO*). The profile and details of government capital spending are explored in Chapter 3.

2.27 The average productivity growth rate is a small reduction compared to the assumption in our 2024 *FRS* projection. This reflects our downward revision to medium-term productivity growth out to 2030-31 that we made in the November 2025 forecast, along with a slower transition path to the long-term rate of 1.5 per cent. It is consistent with our conclusion from *Briefing Paper No.9: Forecasting productivity* that the factors that have been weighing on productivity growth will be more persistent than we previously assumed, but not permanent.

[9] We abstract from the detailed lag structure set out in Suresh, N., R. Ghaw, R. Obeng-Osei, and T. Wickstead, *OBR Discussion paper No.5: Public investment and potential output*, August 2024.

Chart 2.9: Baseline scenario for long-term productivity growth and its components



Source: OBR

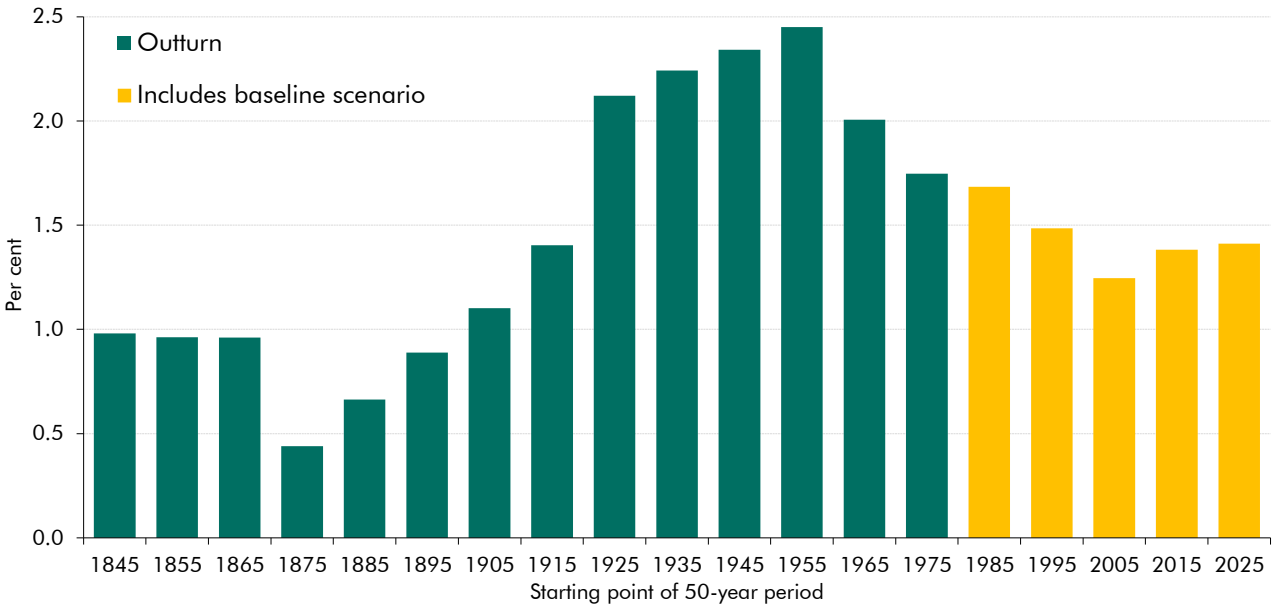
GDP and GDP per person

2.28 Our projection for real GDP growth in the long term is derived from our demographic and productivity assumptions (described above and in Annex A in more detail). We project real GDP growth to average around 1½ per cent a year across the long term, a similar rate as at the end of our latest medium-term forecast. Initially, a rise in productivity growth means that GDP growth increases to average 1¾ per cent a year in the 2030s. But as the projected population begins to fall in the 2050s, GDP growth decreases to 1¼ per cent a year.

2.29 Real GDP per person, an indicator of living standards, is also projected to grow by an average of around 1½ per cent a year across the projection, as population growth averages close to zero.[10] While changes to the population projection mean that aggregate GDP growth is weaker than in the 2024 projection, GDP per person growth is largely unchanged with only small changes to productivity and participation growth. Chart 2.10 shows GDP per person growth over 50-year periods for each decade since 1845. GDP per person growth over the baseline scenario, from 2025 to 2075, is lower than the historical growth after the Second World War but remains higher than the pre-War period.

[10] Conversely, in our 2024 *FRS* projection, which assumed sustained population growth, aggregate GDP growth outpaced growth in GDP per person.

Chart 2.10: Average annual real GDP per person growth over 50-year periods



Source: Bank of England, ONS, OBR

2.30 In the baseline scenario, nominal GDP grows by an average of around 3¾ per cent a year across the projection. With a constant assumption for GDP deflator growth of around 2¼ per cent a year, trends in nominal GDP follow trends in real GDP. More information on how we estimate nominal variables in our projections is in Annex A.

2.31 Compared to our 2024 projection, we consistently project lower aggregate GDP growth in the baseline scenario of this *FRS*. This reflects both the lower initial productivity growth and then lower long-term population growth. Both these growth projections share a similar profile, peaking in the mid-2030s before a trough in the mid-2060s, though the trough is ½ a percentage point lower in the new projection. Growth in GDP per person is even closer to the 2024 projection, driven by the same long-term productivity anchor. As a result, despite a projected population around 10 million lower than previously, the level of GDP per person is very similar in both projections by 2073-74.[11]

Interest rates

2.32 A key driver of the long-term fiscal position is the effective yield on the stock of government debt, and how it compares to the nominal growth rate of the economy. This relationship, often called the 'growth-corrected interest rate' or simply 'r-g', is a fundamental determinant of fiscal sustainability. When r-g is negative, GDP growth is outpacing the financing costs of debt, so the debt-to-GDP ratio tends to decline even if the government runs modest primary deficits. When r-g is strongly positive, the opposite is true, requiring a primary surplus to stabilise debt as a share of GDP.

[11] The published level of real GDP per person in our 2024 projection was measured in 2019 prices, so we rebase to the latest base year (2023) for a valid comparison. On this basis, our latest projection is ½ a per cent lower in 2073-74 than in the 2024 projection.

2.33 The level of r-g has varied sharply throughout history, as explained in detail in our 2019 *Fiscal risks report*. During peacetime, the effective yield on government debt has ranged from as high as 10 percentage points above nominal GDP growth in the early 1930s to more than 10 percentage points below it in the mid-1970s. However, the long-term average for r-g (excluding world wars) has tended to be a small, positive value between zero and ½ a percentage point.

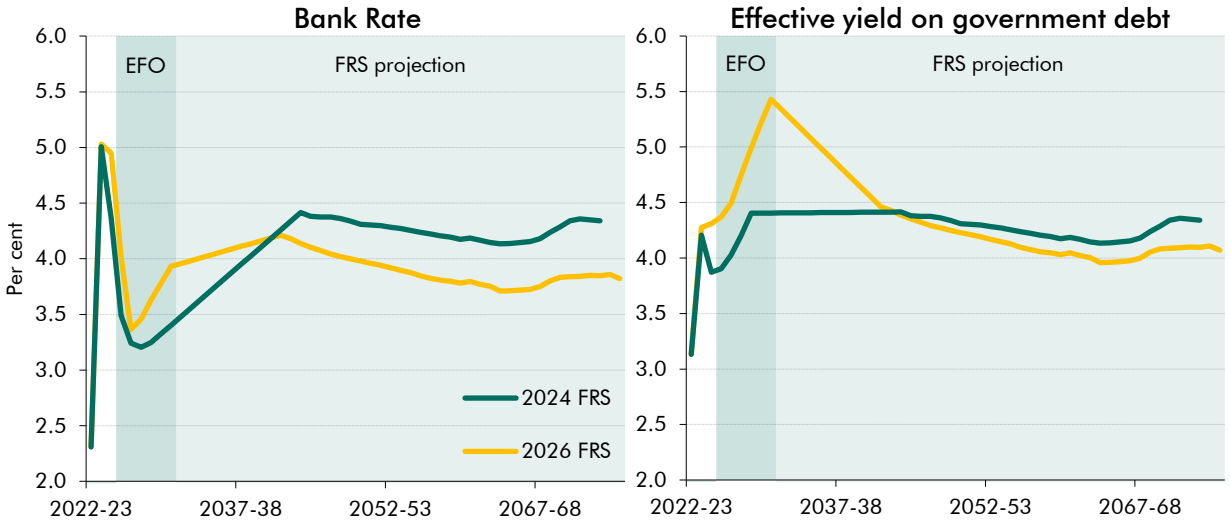
2.34 We assume r-g converges to around ½ a percentage point, based on comparing market long-dated real bond yields with our projections for real GDP growth. This is slightly higher than assumed in previous long-term projections. Taking an average for the shape of the yield curve across the first three months of 2026, real yields for UK government bonds rise steadily with maturity. Yields go from less than ¼ per cent for bonds maturing in the second half of 2028, to around 1¾ per cent for those maturing in 2040. For bonds maturing between 2040 and 2065, the real yield stabilises around an average of roughly 2 per cent. Over the same period, we expect real GDP growth to average just under 1½ per cent a year. Because of this increase in gilt yields at longer maturities, in this *FRS*, we also introduce a term premium. This results in a Bank Rate projection ¼ percentage point below the effective yield on government debt (Chart 2.11, left panel).

2.35 We then layer on inflation, based on the GDP deflator,[12] to get to the effective nominal yield on the stock of government debt. Starting at the endpoint of our March 2026 forecast of around 5½ per cent, the effective yield converges to around 4 per cent from the late 2050s, ending at a similar level to the 2024 projections (Chart 2.11, right panel). This is ½ a percentage point above the nominal GDP growth endpoint of just over 3½ per cent.

2.36 There are significant risks around our baseline assumption for effective yields, and we quantify how some of these risks could affect our projected debt profile in paragraph 5.13. The average cost of government debt can vary significantly across different periods, as reinforced by recent experience. From 2012 to 2019, the nominal effective yield on government debt averaged around 1¾ per cent, before dropping to around ½ a per cent during the pandemic, then climbing to 4½ per cent in 2025. The yield is affected by structural macroeconomic factors that affect the global and domestic demand and supply of savings, as well as sudden shifts in the attractiveness of holding UK government debt. One factor that could affect investor appetite for bonds is the size of the stock of debt. For the first time, in this report we model how our aggregate debt profile might affect interest rates in general equilibrium, using our UK Overlapping Generations model. See Box 5.1 in Chapter 5 for a full discussion.

[12] See Annex A for details on our long-term GDP deflator assumption.

Chart 2.11: Baseline scenario for Bank Rate and gilt yields



Source: Bank of England, OBR

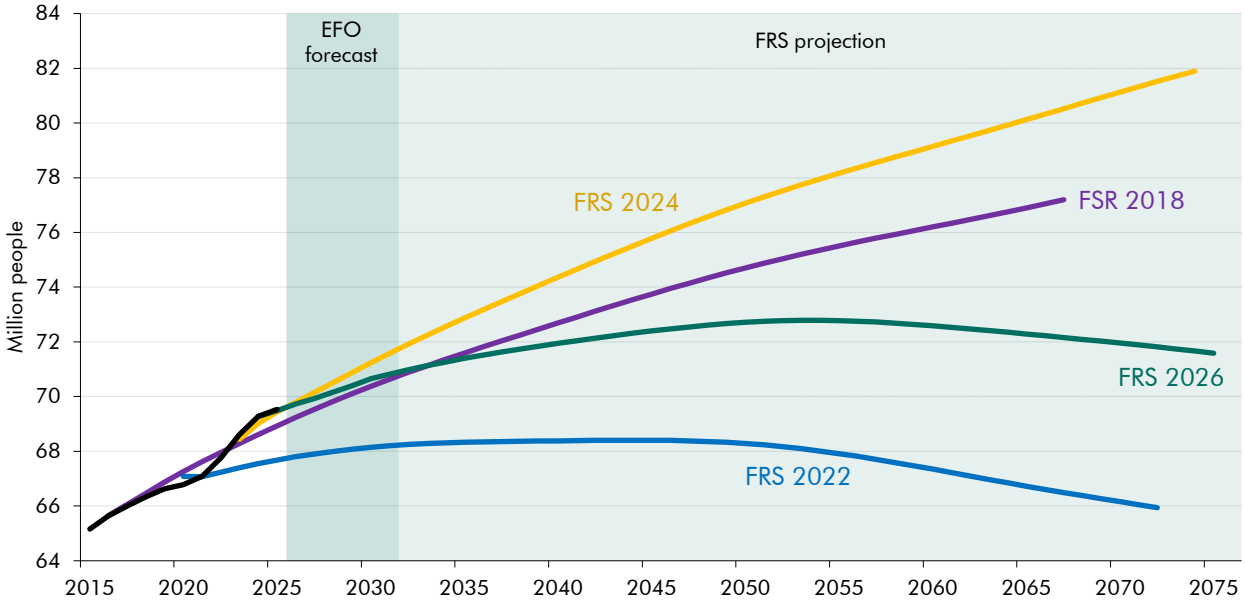
Alternative long-term scenarios

2.37 Our baseline scenario represents a single potential path within a wide range of possible outcomes over a 50-year period. Relatively small changes in assumptions can have a major impact on economic and fiscal outcomes over several decades. In this section, we consider the implications of a set of alternative scenarios for key assumptions.

Demographic scenario

2.38 In the ONS principal projection we draw on for our baseline scenario, net migration and the birth rate are lower relative to the previous projection, with significant implications for the size of the population. The projections in the 2018 *Fiscal sustainability report* (*FSR*) and 2024 *FRS*, based on the ONS population projections available at the time, had a growing population over the 50-year projection period. Meanwhile, the 2022 *FRS* and our latest projection see the population first peak and then decline over the next 50 years (Chart 2.12). The latest ONS projection also suggests the population is ageing more quickly than previously assumed, and that deaths will exceed births from 2026 onwards.

Chart 2.12: Past population projections



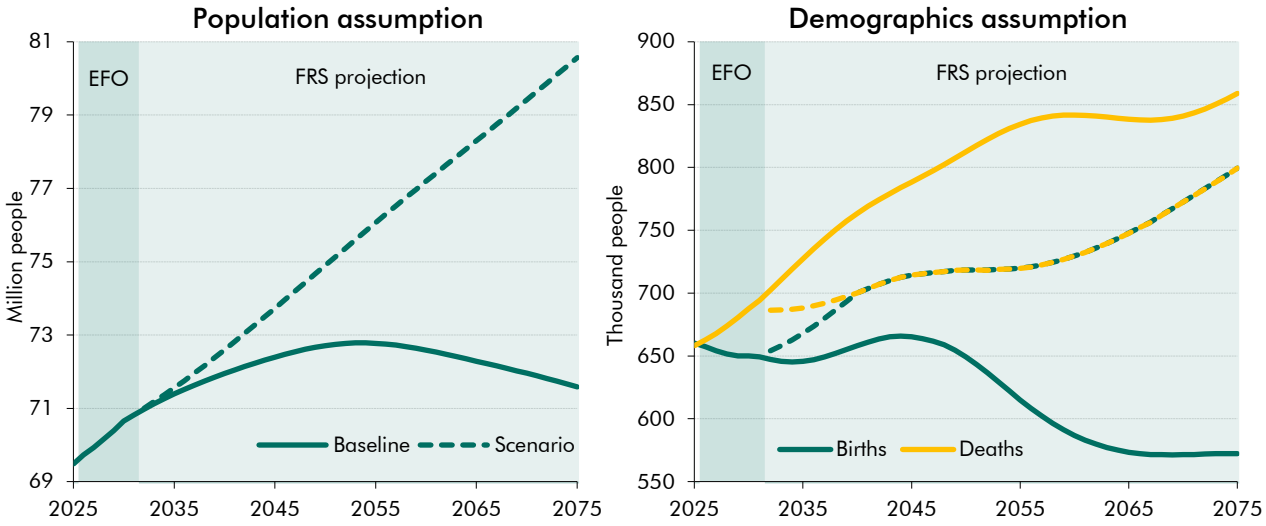
Source: ONS, OBR

2.39 To illustrate some of the economic and fiscal implications of population growth we produce a 'higher population' demographic scenario. In this, the birth rate rises and the death rate falls by enough to close the gap between total births and deaths, resulting in a consistent profile of no natural change in the population. In this scenario, natural change linearly approaches zero from the end of our latest medium-term forecast to 2040, where it remains until the end of the scenario. We calibrate life expectancy to mirror its increase over the past 50 years, reaching around 90½ years by 2075. This increase results in an earlier state pension age rise to 69 years by 2069.[13] And to ensure no natural change, the total birth rate also increases throughout the scenario, reaching just over 1.8 births per woman in 2075, still below the replacement rate. This scenario assumes no change to net migration relative to the baseline projection. While migration is a highly significant demographic driver, we previously examined its effects in detail in the 2022 *FRS*, where we considered a scenario where the level of net migration is higher, and in the 2024 *FRS*, where we analysed scenarios that varied migrant ages at arrival, earnings, and lengths of stay.

2.40 With unchanged net migration based on the same ONS projection, the overall population reaches 81 million by 2075, around 9 million more than in our baseline scenario (Chart 2.13, left panel). There are 4 million fewer deaths and around 5 million more births over the 50-year period (Chart 2.13, right panel). The median age in the higher population scenario is slightly lower than in the baseline, but there are more people at both the older and younger end of the age distribution. Therefore, despite a larger and (slightly) younger population, a rising share of children and of people over retirement age mean the scenario also entails a higher total dependency ratio than in the baseline scenario.

[13] The timing of the increase to 69 is based on the assumption that individuals spend 32 per cent of their adult life in retirement.

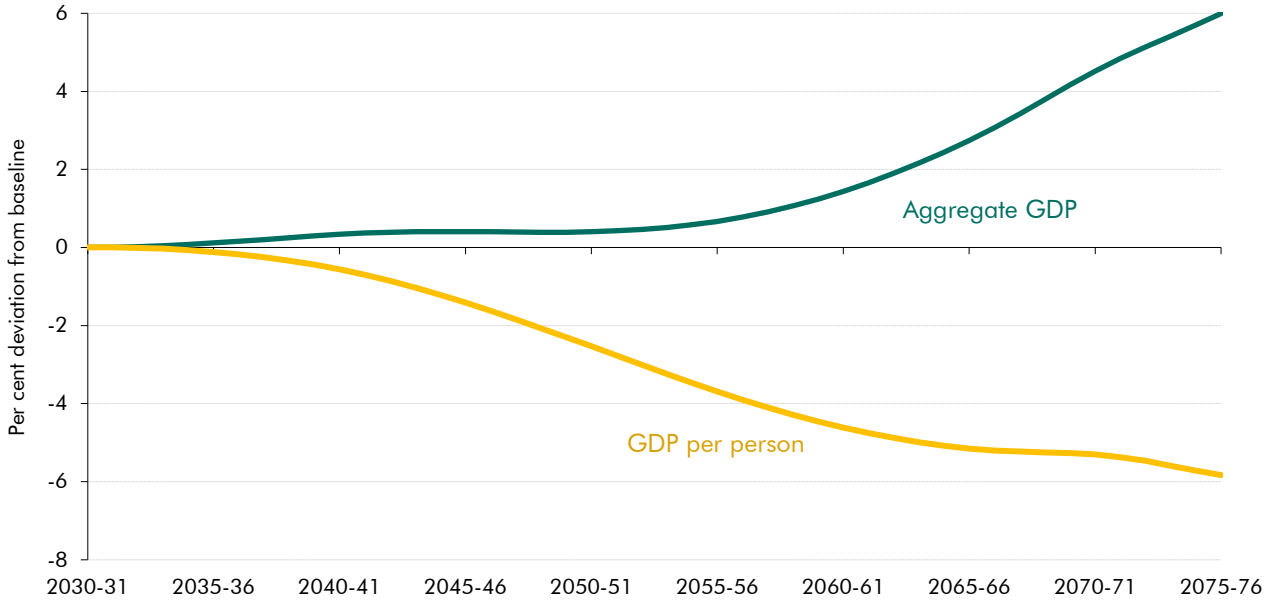
Chart 2.13: Population, births, and deaths in the higher population scenario



Note: Scaling for baseline comparability may lead to a small discrepancy between births, deaths and the population difference.
Source: ONS, OBR

2.41 The higher population scenario raises aggregate GDP by around 6 per cent over the long term but reduces GDP per person by around 6 per cent relative to the baseline by 2075-76 (Chart 2.14). Higher births increase the population, but the additional people do not start to enter the workforce until at least 16 years later. Lower mortality increases the number of older people, which has a limited effect on labour supply as only a minority of individuals work beyond retirement age. This means that in the earlier part of the projection the population rises, but there is only a modest increase in aggregate hours worked. As a result, aggregate GDP rises only modestly and GDP per person falls. As the larger birth cohorts begin to enter the workforce, labour supply and aggregate GDP rise more materially, moderating the decline in GDP per person.

Chart 2.14: GDP and GDP per person relative to the baseline scenario



Source: OBR

2.42 Paragraphs 3.37 and 3.38 explores the implications of our higher population scenario for government spending, and paragraph 5.16 assesses the overall fiscal implications.

Productivity growth scenarios

2.43 Over the next 50 years, a very wide range of factors could result in more optimistic or pessimistic productivity growth compared to our baseline scenario:

- **AI** has the potential to provide a significant boost to TFP as a general-purpose technology. However, the scale of this effect is highly uncertain. More optimistic estimates suggest AI could boost productivity growth by up to 0.8 percentage points a year. Other estimates are more cautious about the share of tasks AI might affect, boosting productivity growth by under 0.2 percentage points a year.[14] Box 4.1 also explores how AI might affect the tax base if it substitutes labour input.

- As discussed in previous *FRS* reports, **climate change** is likely to have significant economic impacts. While there is great uncertainty around the size, timing and persistence of these effects, physical risks, such as higher temperatures, more frequent extreme weather, and damage to infrastructure, are likely to make producing output harder, posing a persistent downside risk to TFP. The near-term transition to net zero may also weigh on productivity if it involves significant capital reallocation, disruption to carbon-intensive sectors, higher energy costs, and higher investment requirements. However, over the longer term, the net zero transition could lower costs, improve resource efficiency, and boost capital deepening.

- Previous gains in **trade intensity** have halted since 2008, removing an earlier boost to TFP growth, as gains from specialisation, competitive pressure, economies of scale, and cross-border technology diffusion have slowed. Brexit has also put downward pressure on the UK's trade intensity. If these trends continue, they would drag further on TFP growth, while a return to rising global trade intensity would act as a tailwind.

- **Demographic change**, particularly from an ageing population, could have positive or negative effects on productivity, as set out in Box 2.1. Our baseline scenario does not include an explicit adjustment to productivity growth for demographic change.

- **Future shocks** are a further source of uncertainty. Recent experience has highlighted the downside potential from shocks, with the global financial crisis, Brexit disruption, the pandemic, energy price shocks, and broader geopolitical disruption all creating frictions that have weighed on investment and trade and disrupted resource allocation. If disruptive shocks continue at this frequency over the long term, it would likely reduce TFP growth, while a less frequent pace of shocks could provide an upside.

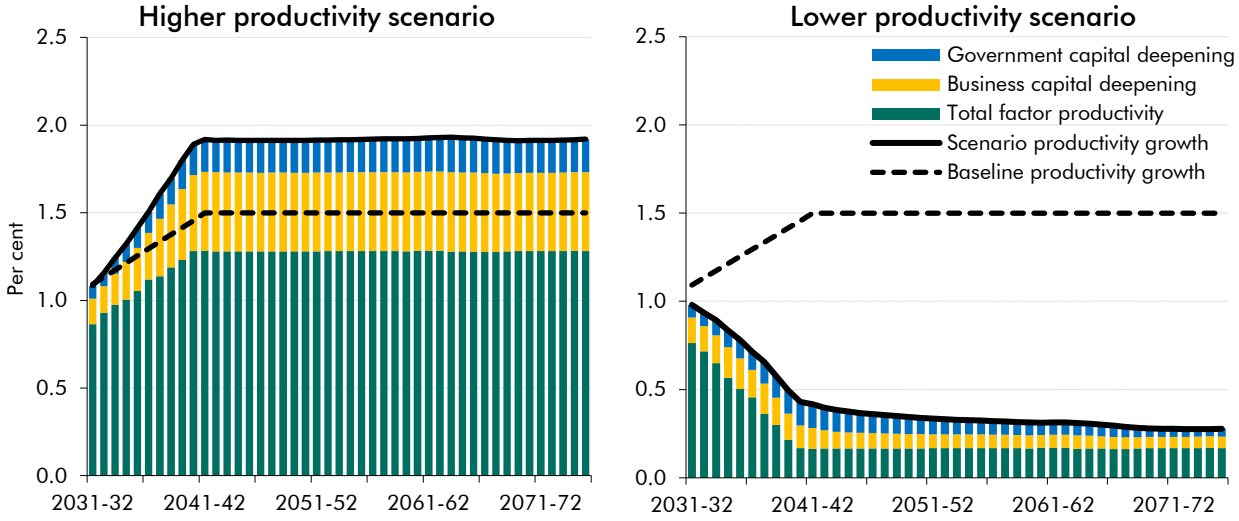
[14] See Aghion, P., and S. Bunel, *AI and Growth: Where Do We Stand?,* June 2024; D. Acemoglu, *The Simple Macroeconomics of AI*, Economic Policy, Volume 40, Issue 121, January 2025; Filippucci, F., et al., Macroeconomic productivity gains from artificial intelligence in G7 economies, OECD artificial intelligence working paper, 2025. We explored the potential impact of AI on the economy in OBR, *Briefing paper No.9: Forecasting productivity*, November 2025.

2.44 Given this uncertainty, we condition our scenarios for future TFP growth on historical eras.

- In our **higher productivity scenario**, we assume that TFP growth increases to around 1.3 per cent a year, similar to the UK average in the decades leading up to the global financial crisis.[15] This is 0.3 percentage points higher than in our baseline scenario. Stronger TFP growth increases capital deepening by 0.1 percentage points a year on average over the projections, with business capital contributing most of this (Chart 2.15, left panel). Average productivity growth over the projections is therefore around 0.4 percentage points higher a year than in our baseline scenario. As a result, GDP is almost 17 per cent above baseline by 2075-76.

- For our **lower productivity scenario**, we assume that TFP growth falls to 0.2 per cent, consistent with outturn since 2009 to reflect the possibility that the slowdown of the past 17 years persists.[16] This is 0.8 percentage points below our baseline scenario. Weaker TFP growth decreases capital deepening by 0.3 percentage points a year on average over the projections, again primarily driven by lower business capital deepening (Chart 2.15, right panel). Average productivity growth over the projections is therefore around 1.2 percentage points lower a year than in our baseline leaving GDP around 35 per cent lower by 2075-76.

Chart 2.15: Long-term productivity growth scenarios and their components



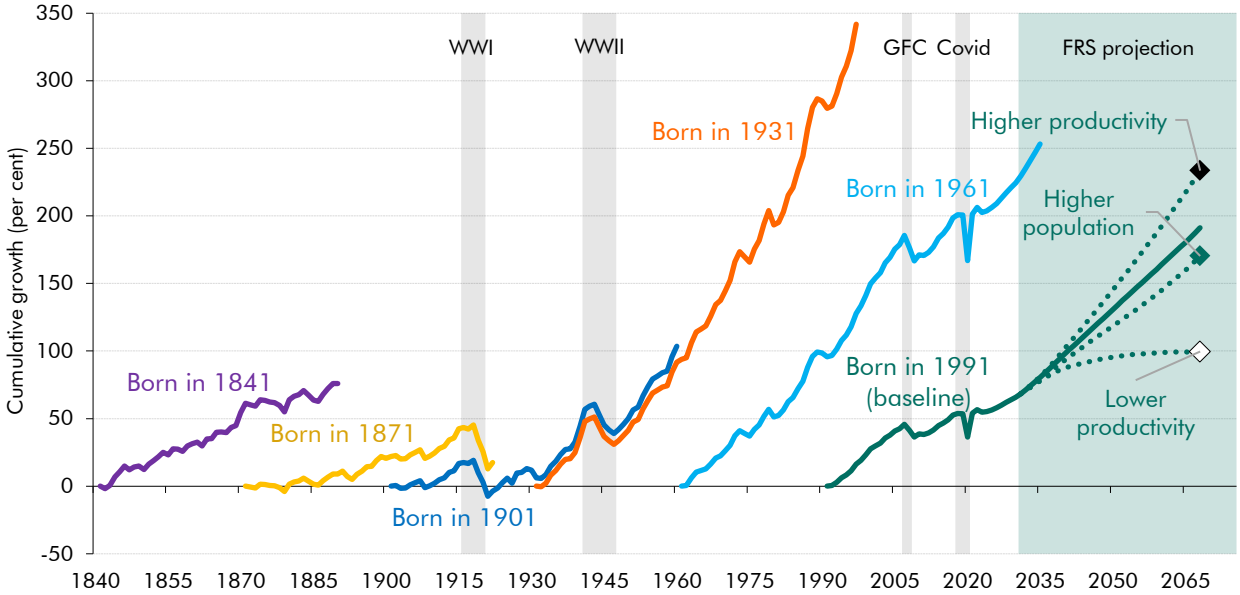
Source: OBR

2.45 We can illustrate the implications of these alternative scenarios for average growth in GDP per person in terms of what someone born in 1991 would experience over their expected lifetime (Chart 2.16). This measure accounts for both changes in growth and in life expectancy. In our baseline scenario, GDP per person almost triples. This figure is

[15] This period offers an example of sustained productivity growth driven by efficiency gains, structural change, technology adoption and sectoral reallocation. A more optimistic scenario still could consider the output per hour growth experienced between 1946 and 1974. But the conditions in this period were historically specific: the economy was rebuilding from wartime disruption, had greater scope for catch-up and technology diffusion, and benefited from a post-War international environment that was unusually supportive of rapid growth.
[16] This is based on the Labour Force Survey estimate of total hours worked. Estimates of productivity growth since the pandemic are uncertain due to difficulties with labour market data, but a range of factors could push down on future growth notwithstanding this.

significantly weaker than for generations born in the second half of the twentieth century, though still much stronger than for generations born in the 19th and early 20th centuries. Under the higher population scenario, the picture is weaker still, though closer to the baseline than any of the other historical profiles. The productivity scenarios make a much larger difference. In the productivity upside, GDP per person growth across the expected lifetime of someone born in 1991 would be almost as strong as for a person born in 1961. However, if the productivity trends of the last 15 years persist, the expected lifetime GDP per person growth for someone born in 1991 would be as low as for someone born in 1901.

Chart 2.16: Expected lifetime GDP per person growth by year of birth



Source: Bank of England, ONS, OBR

2.46 The fiscal implications of the sources of uncertainty discussed in this chapter are set out in Chapters 3 and 5:

- The spending implications of our higher population scenario are discussed in paragraphs 3.37 and 3.38 in Chapter 3, while the debt implications are set out in paragraph 5.16 in Chapter 5.
- The debt implications of our productivity scenarios are similarly set out in paragraphs 5.17 to 5.20 in Chapter 5.
- And the scenario that explores how our baseline debt profile might affect interest rates, and the further feedback effects this might have into the level of debt, is set out in box 5.1 and paragraph 5.13 in Chapter 5.

2.47 This uncertainty sits alongside, and will interact with, government policy settings (set out in Chapters 3, 4 and 5); underlying pressures on primary spending and the tax system (in Chapters 3 and 4); government debt dynamics (Chapter 5); and future governments' responses to changes in the fiscal position (Chapter 5).

3 Long-term spending projections

Introduction

3.1 This chapter explores the wide range of possible long-term pressures on public spending over the next 50 years.[1] We do this by constructing a baseline scenario that models the impact of possible future demographic, economic and technological change, alongside other factors, on the level and composition of public expenditure. This scenario is constructed based on an interpretation of unchanged government policy over the 50-year period, which is discussed in Chapter 1 of this report. This includes incorporating specific long-term government spending policy commitments where they exist, for example, the pensions triple lock and increases to the state pension age, as well as commitments in areas such as net zero spending and defence.

3.2 We use this baseline scenario to explore the key pressures facing public spending over the next 50 years. In Chapter 5, we then use this scenario as the basis for our assessment of the long-term outlook for fiscal sustainability. There is clearly significant uncertainty around all the assumptions that underpin this scenario. We address this by setting out a range of alternative sensitivities and scenarios, looking at how different aspects of public service demand, costs and policy may evolve, and the impact this would have on the projections of public spending.

3.3 This chapter sets out:

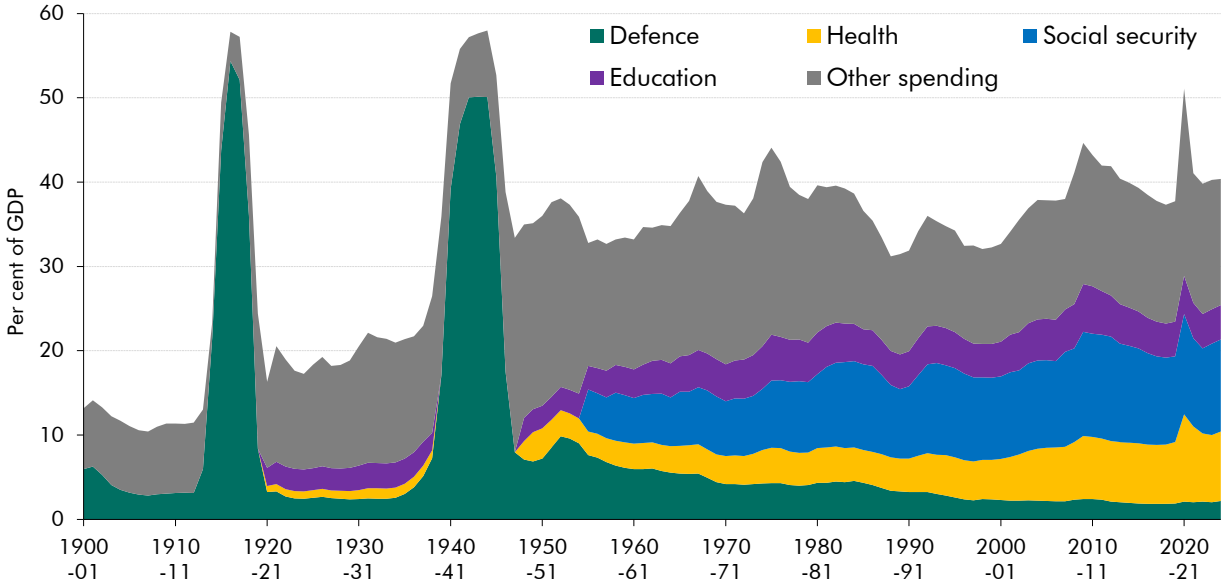
- the evolution of **public spending over the past century**;
- a **baseline scenario** for the path of total primary spending (excluding debt interest) over the next 50 years;
- the main **long-term pressures** that are driving spending in this scenario – related to demographic change, the transition to net zero, and defence; and
- **alternative scenarios** that demonstrate the impact of making different assumptions on the drivers of these pressures and on the nature of unchanged government policy over this period.

[1] In this chapter, the term public spending is referring to primary spending, which excludes net interest payments. The long-term outlook for net interest spending is covered in Chapter 5.

Public spending since the start of the 20th century

3.4 Since the start of the 20th century, public spending in the UK has increased significantly as a share of national income (Chart 3.1). At the beginning of the century, public spending was around 10 per cent of GDP. It rose sharply during the two world wars, to a peak of around 60 per cent of GDP in 1916-17 and 1944-45, before falling back in the interwar and immediate post-war periods. In the post-war era, spending then rose over time as the role of the state expanded, as described below. This upward trend has been punctuated recently by temporary sharp increases associated with major shocks, including the financial crisis and the Covid pandemic. Spending is currently close to its highest ever levels in peacetime and outside periods of major shocks at around 40 per cent of GDP.

Chart 3.1: Primary spending as a share of GDP



Note: This chart uses the UN COFOG definition of defence spending. Government commitments on NATO qualifying defence spending are evaluated using NATO definitions. The two are different and not comparable. NATO defence figures, for example, include pensions whereas in COFOG these are included in Social Protection.
Source: HM Treasury, IFS, OBR

3.5 Alongside the increase in the overall level of spending, there has been a marked shift in its composition. In the first half of the 20th century a large proportion of total spending was defence related. Even after the end of the Second World War, defence spending initially remained elevated at around 8 per cent of GDP. Over subsequent decades defence spending declined steadily, as the UK scaled back its overseas military presence and Cold War tensions eased, falling to around 2.4 per cent of GDP by the end of the century.

3.6 This decline was matched by increases in spending on health and social security. Following the establishment of the modern welfare state in the late 1940s, spending on health, pensions and other welfare rose steadily over the second half of the century. Social security and health spending increased from around 6 per cent of GDP in the 1950s to around 19 per cent today. Taken together, these trends reflect a reallocation of public spending away

from defence towards health and welfare over the second half of the 20th century, sometimes described as the 'peace dividend'.

Assumptions underpinning the baseline 50-year scenario

3.7 In order to consider future pressures on spending, we construct a baseline scenario for public spending which is underpinned by the economic and demographic projections set out in Chapter 2. This is based on projecting forward demand for public services by using a representative profile of spending by age ('age profiles') to estimate the consequences of demographic changes over the 45 years beyond the medium-term forecast period covered by our March 2026 *Economic and fiscal outlook* (*EFO*). More detail on these age profiles is set out in Annex C.

3.8 As set out in Chapter 1, our baseline scenario incorporates specific assumptions for some of the largest areas of spending where the Government has made explicit policy commitments, or where historical and international evidence suggests that spending tends to rise as a share of GDP even after controlling for demographic change. These include health spending, the state pension, defence and net zero. For other areas of spending, our assumption of unchanged government policy means that spending by age is held constant as a share of GDP beyond our medium-term forecast, so that changes in spending reflect shifts in the population's age structure. This is equivalent to assuming that the public provision of goods and services broadly rises in line with the wider economy. Consistent with this approach, we assume average earnings uprating for most elements of spending where this is relevant, including for student loans and non-state pension welfare payments. We present alternative scenarios based on inflation uprating to illustrate the sensitivity of the projections to this assumption later in this chapter.

3.9 The baseline scenario for total spending presented in this chapter starts from our March 2026 *EFO*, which provides our latest five-year forecast for public spending conditional on stated government policy.[2] There are risks to this medium-term forecast as it is based on detailed spending allocations, set out in Spending Review 2025, which only extend to 2028–29 for resource spending and 2029–30 for capital spending. For the years beyond these points the medium-term forecast is based on overall assumptions for total spending provided by the Government. Past analysis suggests that governments have tended at subsequent Spending Reviews to increase spending compared to these assumptions.[3]

Baseline 50-year scenario for public spending

3.10 In our baseline scenario, based on the assumption of unchanged policy, total primary spending is projected to rise by around 9 per cent of GDP, from 40 per cent of GDP in 2030-31, the end of our medium-term forecast, to 49 per cent of GDP by 2075-76 (Table

[2] In our long-term modelling we present and project spending on a functional basis as this better aligns with our analysis of the likely demands on different types of public services over the next 50 years. For much of departmental spending, to construct this over the medium term we use the latest Public Expenditure Statistical Analyses (PESA) data from July 2025, as set out Annex B, which is then projected forward where necessary in line with overall departmental expenditure limit (DEL) totals set by the Treasury.
[3] Atkins, G., and L. Lanskey, *OBR Working paper No.19, The OBR's forecast performance*, August 2023.

3.1). This increase mainly reflects **demographic** pressures but some **non-demographic** pressures also make a material contribution.

3.11 **Demographic pressures** arise primarily from changes in the age structure of the population in the latest 2024-based ONS principal population projections, as set out in Chapter 2. As the population ages, in our baseline scenario age-related spending is projected to rise from around 26 per cent of GDP in 2030-31 to 35 per cent of GDP in 2075-76. The spending areas which are particularly affected by demographic pressures are:

- **Health spending**, which is projected to rise from 8 per cent of GDP to 13 per cent of GDP over the projection period. This is driven by a combination of population ageing but also importantly by an assumption on wider cost pressures, which are discussed below.

- **Adult social care spending**, which is projected to rise from 1.2 per cent of GDP to 1.8 per cent of GDP by 2075-76, reflecting a growing old-age population.

- **Education spending**, which is projected to fall by 0.9 per cent of GDP to 3.4 per cent of GDP by 2075-76. This mainly reflects a falling young-age dependency ratio, due to a below-replacement birth rate.

- **State pension spending**, which is projected to rise from 5 per cent to 9 per cent of GDP over the projection period. This is driven by population ageing and the cost of the triple lock. The triple lock is estimated to account for around a third of this rise by the end of the projection period.

- **Other welfare spending,** which is projected to remain relatively stable in our baseline scenario. This is the result of offsetting demographic changes, where a projected increase in welfare spending on older working-age and pensioner adults is somewhat offset by a fall in welfare spending on children and younger working-age adults.

- **Public service pensions net expenditure**, which is projected to fall slightly by 0.3 per cent of GDP over the long term.[4] In our baseline scenario, growth in the public sector workforce increases contributions over the projection period, reducing net expenditure. In time these workers will retire and will receive payments, creating a liability for the government that continues to grow beyond our projection period.

3.12 **Non-demographic pressures** primarily reflect long-term government policy commitments, most notably on **defence** and the **net zero transition**. The spending areas mainly affected by these non-demographic pressures are:

- **Defence spending**, reflecting the Government's commitment for defence spending to reach 3.5 per cent of GDP by 2035, and stay constant as a share of GDP thereafter,

[4] These figures exclude armed forces personnel pensions which are instead included as part of defence spending.

compared to an assumed 2.7 per cent of GDP in 2030-31 at the end of the medium-term forecast period.

- **Net zero transition spending**, reflecting the estimated further increase in public investment required to support the transition to net zero emissions up to 2050.

3.13 **Spending on other public services**, which are not expected to be materially affected by these demographic or other pressures, are therefore projected to be broadly flat at the medium-term level of around 8 per cent of GDP for current spending and 2.6 per cent of GDP for other departmental capital spending. For current spending this includes items of spending such as public order, transport and executive functions. It also accounts for the majority of capital spending, the largest components of which are capital depreciation,[5] transport and housing.

3.14 In the remainder of this chapter, we explore these long-term demographic and non-demographic pressures in more detail and consider the impact of alternative assumptions around the nature of unchanged government policy. We then use this analysis as the basis for producing alternative scenarios for the long-term path of spending.

Table 3.1: Baseline primary spending scenario

	Per cent of GDP						
	Estimate[1]		FRS projection				
	2025-26	2030-31	2035-36	2045-46	2055-56	2065-66	2075-76
Health	8.3	8.4	9.0	10.1	11.2	12.2	13.5
Adult social care	1.2	1.2	1.2	1.3	1.5	1.6	1.8
Education[2]	4.5	4.3	4.0	3.6	3.6	3.6	3.4
State pension	4.8	5.0	5.4	5.8	6.7	7.9	8.6
Other welfare benefits	6.1	6.2	6.1	6.1	6.2	6.3	6.4
Public service pensions[3]	1.4	1.2	1.1	0.9	0.8	0.9	0.9
Total age-related spending	**26.3**	**26.2**	**26.7**	**27.7**	**30.0**	**32.4**	**34.5**
Defence	2.4	2.7	3.5	3.5	3.5	3.5	3.5
Net zero transition spending[4]	0.2	0.3	0.5	0.2	0.0	0.0	0.0
Other current	8.4	8.0	8.0	8.0	8.0	8.0	8.0
Other capital	3.2	2.6	2.6	2.6	2.6	2.6	2.6
Total primary spending[5]	**40.5**	**39.8**	**41.3**	**42.0**	**44.1**	**46.5**	**48.6**

[1] Spending consistent with the March 2026 *Economic and fiscal outlook*.

[2] Includes student loan capital outlays.

[3] Net expenditure, excluding armed forces personnel pensions which is included in the defence spending line below.

[4] Excludes spending on nuclear projects.

[5] Excludes interest and dividends.

Source: OBR

[5] The imputed spending estimated to maintain the quality of existing public assets.

Spending pressures over the next 50 years

Spending areas affected by demographic change

Health

3.15 In the baseline scenario, health spending is projected to increase from 8 per cent of GDP in 2030–31 to 13 per cent of GDP by 2075–76, corresponding to real growth of 2.5 per cent a year. In the 2024 *Fiscal risks and sustainability report* (*FRS*) we analysed the long-term outlook for health spending in detail. We have kept the assumptions underpinning our baseline scenario consistent with this analysis, as we do not think recent evidence, which we discuss below in relation to other cost pressures and healthy life expectancy, clearly points to a need to change these assumptions. Three main factors are assumed to drive long-term growth in health spending:

- **Demographic factors**, which capture how health spending is affected by changes in the age structure of the population, life expectancy and morbidity. These factors explain 0.4 percentage points of the overall annual real growth in projected health spending, with these pressures strongest in the early 2030s as the 'baby boom' cohort reaches their 80s.

- **Income effects**, which capture the relationship between growth in real GDP and demand for health care, drive 1.2 percentage points of the overall annual real growth in health spending. This is based on an income elasticity of 0.8, in line with international evidence. [6] Assuming an elasticity of less than 1 means absent demographic changes and other cost pressures, health spending over time would fall as a share of GDP.[7]

- **Other cost pressures**, which capture factors not directly related to demographics or income, explain 1 percentage points of the annual growth in real health spending. This is based on evidence that non-demographic and non-income effects have historically added to health spending. We attribute this to relatively lower productivity growth in the healthcare sector than the average for the whole economy (the 'Baumol effect'), changes in population health unrelated to ageing (a gently rising prevalence of chronic conditions), and a residual which literature suggests could capture aspects of technological advancements not captured elsewhere.

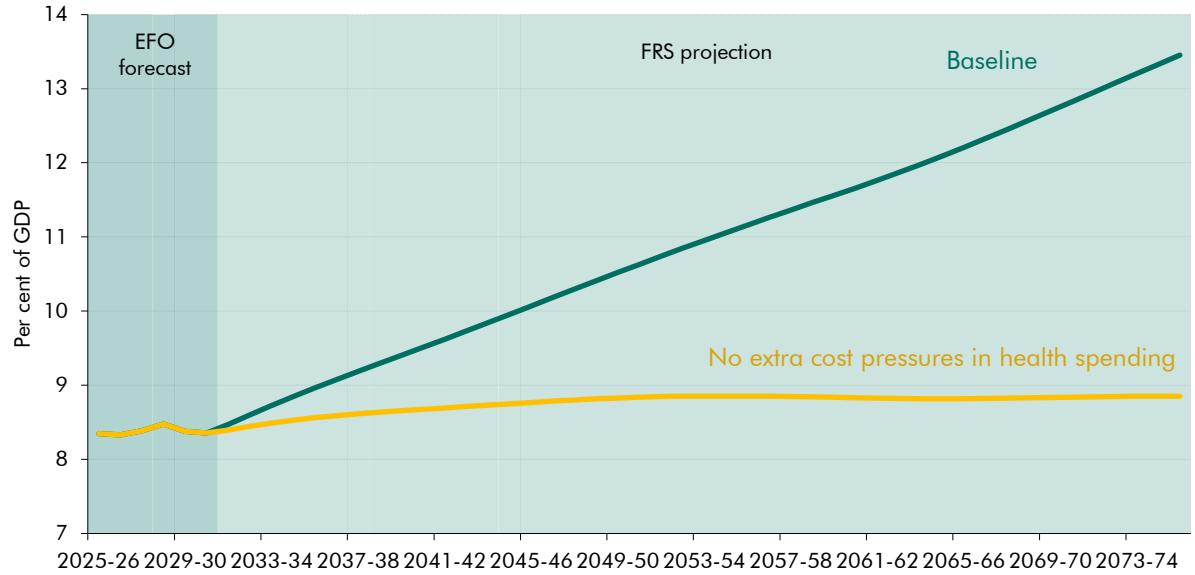
3.16 In combination with income effects, these 'other cost pressures' mean that health is one of the few areas of our projections that is assumed to rise faster than GDP in the absence of demographic change. However, their contribution is a key source of uncertainty in the projections. Our approach draws on evidence across advanced economies suggesting that

[6] See Lorenzoni, L., et al., 'Long-term projections: Different paths to fiscal sustainability of health systems', in OECD, *Fiscal Sustainability of Health Systems*, January 2024.
[7] This below-GDP income effect is in contrast to our standard assumption for many other areas of spending and tax, set out in Chapter 1, where we assume that, absent demographic effects, tax and spending streams stay broadly constant as a share of GDP. A different approach is appropriate in the case of health spending because the econometric analysis that underpins our modelling separately specifies an additional 'other cost pressures' component alongside the income effect. For other areas of spending and tax, cost pressure effects such as these are implicitly captured within the overall constant-relative-to-GDP assumption.

non-demographic, non-income-related factors have historically added around 1 per cent a year to real growth in health spending.[8] In the 2024 *FRS* we attributed around three-quarters of this to the Baumol effect. However, the future relative productivity growth of the health sector is very uncertain. Technological developments, including the costs of new treatments, partly captured here are assumed in our baseline to put modest upward pressure on costs.[9] However, it is possible that artificial intelligence could significantly increase health sector productivity in future and so reduce cost growth.[10] Alternatively, other cost pressures could be reduced by concerted and ongoing efforts by future governments to constrain growth in public health costs.

3.17 To illustrate this uncertainty, we consider an alternative scenario in which these additional cost pressures are absent. In this case, health spending growth is driven solely by demographic and income effects, resulting in a substantially lower path for spending over the long term. As shown in Chart 3.2, the path for health spending would be much flatter, rising modestly to 9 per cent of GDP by the end of the projection period.

Chart 3.2: Health spending with 'no extra cost pressures' assumption



Source: OBR

3.18 Another key uncertainty in these projections is the future health of the population, which affects both the demand for health services and the intensity of the care required. We incorporate changes in population health into the projections through two mechanisms:

- We capture changes in health **concentrated more among the working-age and younger pension-age population** through the 'chronic conditions' component of other

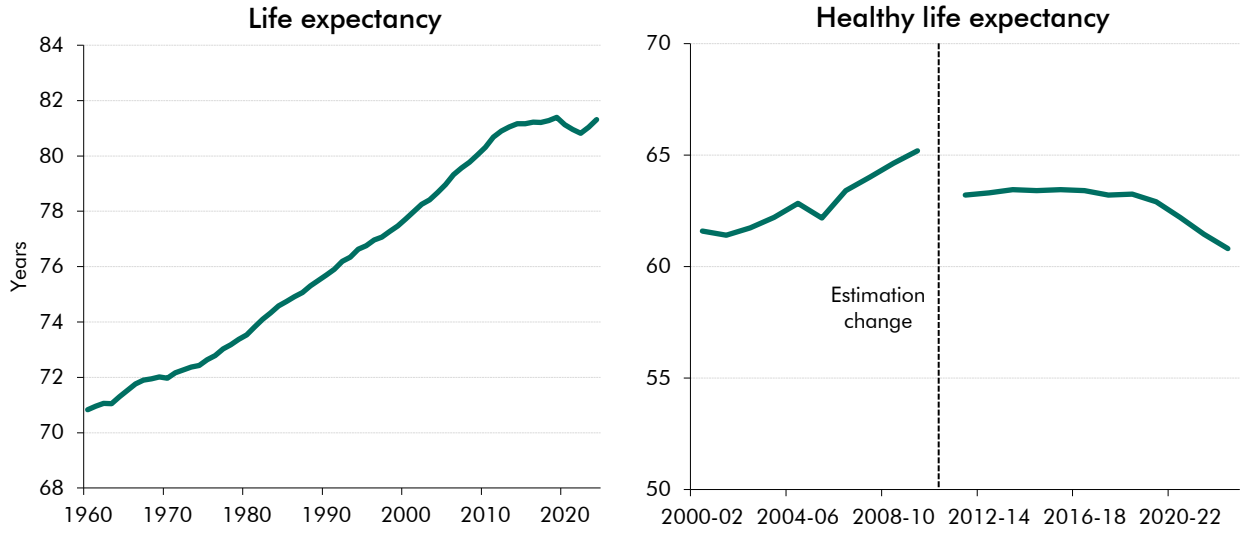
[8] See Lorenzoni, L., et al., 'Long-term projections: Different paths to fiscal sustainability of health systems', in OECD, *Fiscal Sustainability of Health Systems*, January 2024. In addition, Wyatt, S. et al., *Decomposing the effects of population, demographic structure and other factors on hospital activity in England*, December 2025 shows recent hospital activity to be primarily driven by non-demographic factors.
[9] One risk to this assumption relates to the potential increase in NHS medicines spending arising from the UK-US arrangement on pharmaceutical pricing. See Department for Science, Innovation and Technology, *Arrangement between the United States of America and the United Kingdom on pharmaceutical pricing*, April 2026.
[10] Examples of how AI is being applied in health and social care are discussed in Mistry, P., *More than just hype: how emerging AI use is assisting health and social care*, May 2025.

cost pressures. This reflects evidence that worsening health at these ages has increased demand for healthcare independently of population ageing. In our baseline scenario, we attribute 0.15 percentage points to the other cost pressures component of annual growth in spending to a rising prevalence of chronic conditions.

- We reflect changes in health **towards the end of life** through the way in which gains in life expectancy are attributed between years spent in good and poor health, which determines how quickly age-specific cost profiles shift over time. In our baseline scenario, we assume half of the gains in life expectancy are spent in good health.[11]

3.19 Healthy life expectancy is a key indicator of the general health of the population. It is estimated by combining self-reported health status with current mortality rates. Chart 3.3 shows that healthy life expectancy increased during the 2000s (under a previous methodology), but that since 2012-14 it has been flat and then falling under a consistent new methodology.[12] The recent decline is driven primarily by worsening self-reported health among the working-age population, which is consistent with wider indicators of this group's worsening mental and physical health.[13] Meanwhile, while overall life expectancy rose through much of the late 20th century and early 21st century, it has remained broadly flat since 2010.[14]

Chart 3.3: Life expectancy and healthy life expectancy at birth



Note: This chart uses period life expectancy values which cover England and Wales and are presented as three-year rolling averages up to the reference year. The ONS's healthy life expectancy (HLE) values for the UK cover rolling three-year intervals. Estimates for HLE from 2011-13 onwards are based on the Annual Population Survey, so are not comparable with previous estimates.
Source: ONS, OBR

[11] The latest ONS 2024-based population projections imply an increase of around one year in life expectancy every 10 years, meaning we assume the age-cost curve shifts by one year to the right every 20 years.
[12] Healthy life expectancy values from 2011-13 onwards are based on the Annual Population Survey, so are not comparable with previous estimates.
[13] Mooney, A., *Healthy life expectancy: interpreting an imperfect but important measure*, May 2026.
[14] An explanation of the drivers of changes in life expectancy is given in Raleigh, V., *What is happening to life expectancy in England*, April 2024.

3.20 There is considerable uncertainty around the relationship between life expectancy and health. This is often framed in terms of three broad theories: the expansion of morbidity, where gains in life expectancy are largely spent in worse health; the compression of morbidity, where gains are concentrated in additional years of better health; and dynamic equilibrium, where years spent in worse health rise but the severity of morbidity declines.

3.21 The latest ONS data are more supportive of an expansion of morbidity, with healthy life expectancy declining, while life expectancy has remained flat. However, other evidence suggests that longevity and health may be positively correlated. For example, some cross-country evidence suggests a positive relationship between the two measures.[15] There is also uncertainty around the measurement of healthy life expectancy, which is based on self-reported health so can be sensitive to changes in reporting behaviour as well as underlying health outcomes. Census-based indicators of self-reported health, for example, have pointed to improvements.[16]

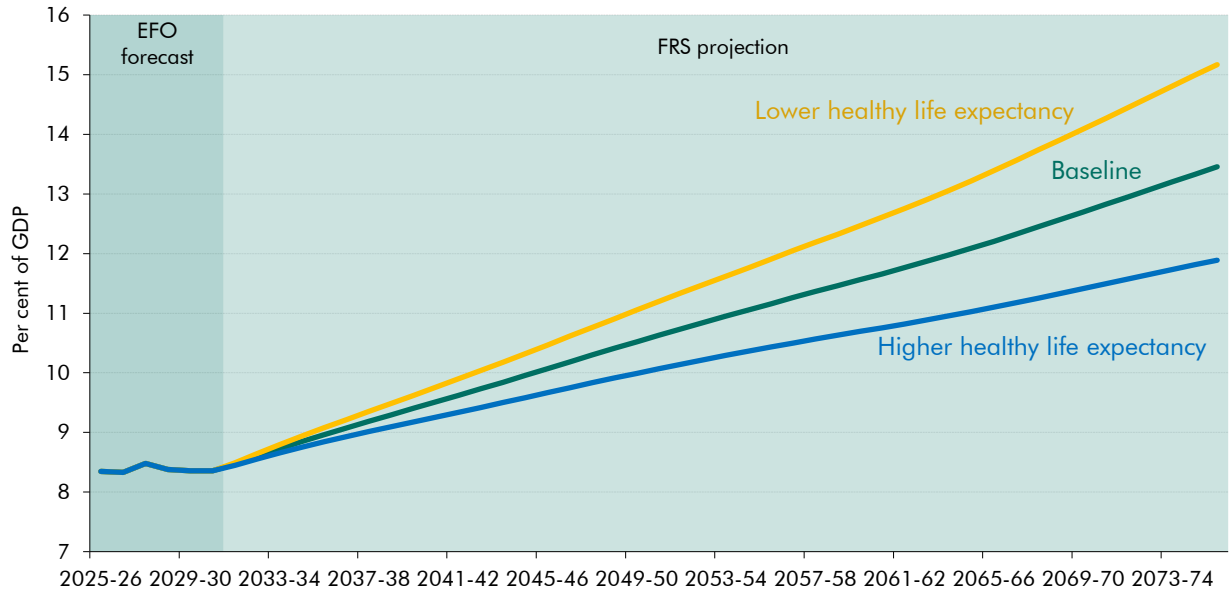
3.22 Given uncertainty around the evolution of healthy life expectancy and broader measures of population health, we assess the sensitivity of our projections to changes in population health through two illustrative scenarios as shown in Chart 3.4:[17]

- A **lower healthy life expectancy** scenario, in which growth in chronic conditions is higher than in the baseline (at 0.3 percentage points a year, so double the baseline scenario), and all gains in life expectancy are assumed to be spent in poor health. In this scenario, health spending rises to 15 per cent of GDP, around 2 per cent of GDP higher than the baseline scenario.

- A **higher healthy life expectancy** scenario, in which there is no additional growth in chronic conditions beyond that implied by demographics, and all gains in life expectancy are assumed to be spent in good health. Health spending rises more slowly to 12 per cent of GDP, 2 per cent of GDP lower than the baseline scenario.

[15] See World Health Organization, *Global Health Estimates: Life expectancy and healthy life expectancy*, May 2024. It should be noted however that international comparisons, particularly in relation to self-reported health which forms a component of the calculation of healthy life expectancy, can be complicated by socio-cultural differences and the formulation of survey questions.
[16] Burn-Murdoch, J., *The problem with healthy life expectancy*, Financial Times, May 2026.
[17] The assumptions for changes in chronic conditions and gains in healthy life expectancy presented in these scenarios are consistent with the broader health scenarios presented in Chapter 3 of the 2024 *FRS*.

Chart 3.4: Health spending under alternative population health assumptions



Source: OBR

3.23 These illustrations of the implications of changes in healthy life expectancy for health spending are consistent with one aspect of the broader 'better health' and 'worse health' scenarios we explored in our detailed investigation of health in the 2024 *FRS*. Alongside changes in the health of the baseline population, those fuller scenarios also explored the impact of health improvements, or deteriorations, via changes to *overall* life expectancy and so the size of the population, and on workforce participation and earnings.

3.24 One of the key findings of this analysis was that, beyond the direct impact on health spending, in the better health scenario there was a material improvement in the fiscal projections relative to the baseline due to higher tax receipts and lower working-age welfare spending, as a consequence of rises in workforce participation and earnings. The converse was the case in the worse health scenario. Overall, these more comprehensive health scenarios in the 2024 *FRS* suggested that – due to the combined impact on health spending, tax receipts, and welfare spending – public sector net debt could be around 45 per cent of GDP lower (better health) or higher (worse health) compared to the 2024 *FRS* baseline projection by the end of the projection period.

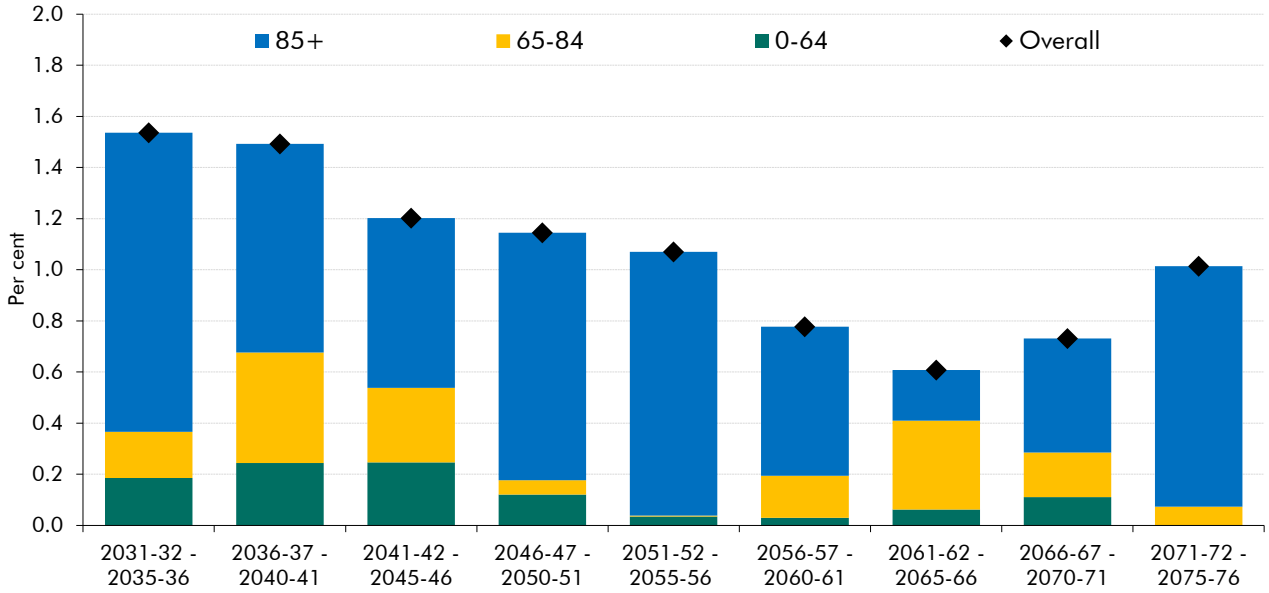
Adult social care

3.25 Adult social care spending in our baseline scenario is projected to rise from 1.2 per cent of GDP in 2030-31 to 1.8 per cent of GDP by the end of the projection period,[18] a similar proportional rise to that for health spending. As with most other areas of public spending, we assume that in the absence of demographic change, adult social care spending would remain broadly flat as a share of GDP. Therefore the projected rise in adult social care spending reflects the growing old-age population, particularly those over the age of 85

[18] To align to our medium-term forecasts, which cover the period until 2030-31, we grow adult social care spending by our March 2026 forecast for local authority current expenditure. This leaves spending broadly unchanged as a share of GDP over the medium term. This assumes that adult social care remains constant as a share of current expenditure, in contrast to increases in the share over recent years.

(Chart 3.5), which has a relatively larger effect in adult social care than health.[19] Similar to health spending, growth in spending due to demographic factors is highest in the 2030s, driven by the 'baby boom' cohort.

Chart 3.5: Projected real growth in adult social care spending from demographic change by age group



Note: This shows the real average annual growth rate over each five-year period due to demographic change and the percentage point contribution by age group. This includes the upwards adjustment to growth in working-age demand discussed below. Demographic factors explain 1.1 percentage points of the annual real growth in spending, which is one component of our projections for adult social care. Spending by age is also assumed to rise in line with average earnings, consistent with our wider assumption across areas of spending that in the absence of demographic change, spending would remain broadly constant as a share of GDP.
Source: OBR

3.26 These projections do not incorporate previous proposed adult social care charging reforms in England, reflecting the current Government's decision not to take these forward.[20] The Government has since established an independent commission into adult social care. This is due to publish its final report by 2028, with its remit including providing recommendations on long-term reform of adult social care in England, including its funding.[21] The future evolution of policy is therefore a key uncertainty in these projections.

3.27 While our baseline scenario assumes that public spending on adult social care as a share of GDP is only driven by demographic change, there are upside and downside risks to this. One upside risk is the extent to which the costs of delivering care rise relative to the wider economy. For example, in England (which accounts for around 80 per cent of adult social care spending),[22] the costs of delivering care have increased sharply since 2015. This has

[19] Demographic factors contribute to real growth in spending of 1.1 percentage points a year. The demographic component is higher than the 0.4 percentage point figure for health spending, reflecting the fact that adult social care costs are more heavily skewed towards older age groups in our age profiles.
[20] HM Treasury, *Chancellor statement on public spending inheritance*, July 2024.
[21] Department of Health and Social Care, *Independent commission into adult social care: terms of reference*, May 2025.
[22] Adult social care is devolved to Scotland, Wales and Northern Ireland. For an explanation of the differences in public provision and trends in adult social care across the four countries of the UK, see Dodsworth, E., and C. Oung, *Adult social care in the four countries of the UK*, February 2023.

been driven by above-average-earnings increases to the National Living Wage (NLW).[23] With the NLW now close to the Government's target level relative to median hourly earnings, our projections implicitly assume this pressure is not maintained in future. Other upside risks include the impact of fair pay agreements on earnings growth in the sector in England,[24] and also the implications of evidence that part of the recent increase in the costs of providing care has reflected the growing complexity of need among those requiring publicly funded care.[25]

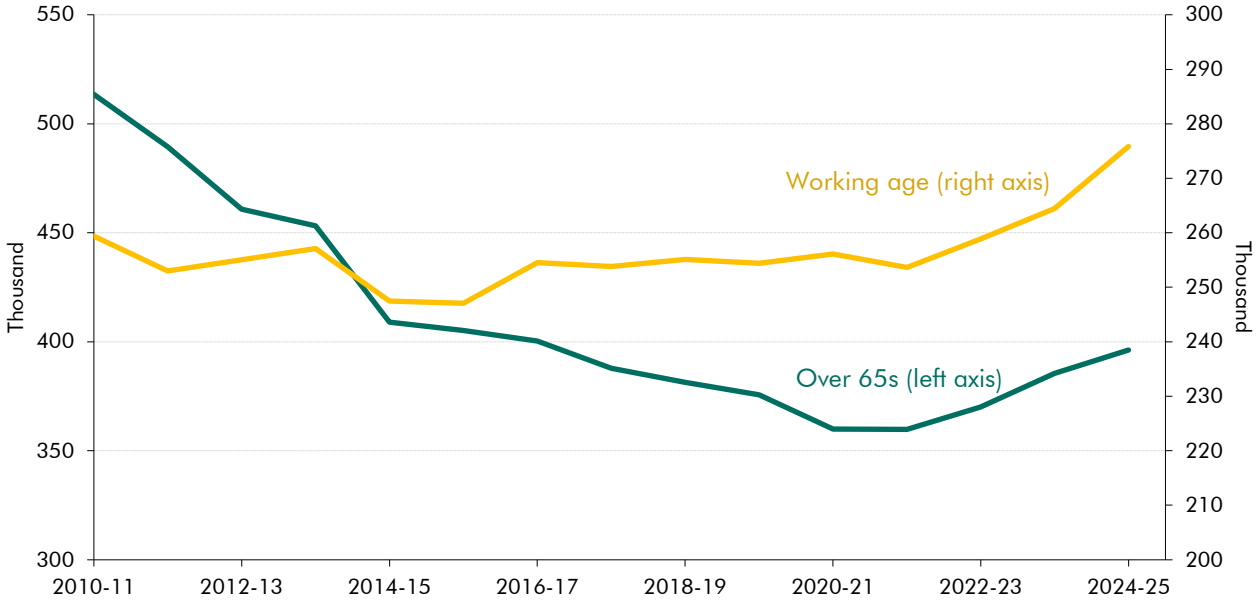
3.28 In contrast, a downside risk relates to the extent to which the provision of public funding for adult social care responds to demand in the future. Since 2010, local authority spending power in England has fallen in real terms, despite growth in the overall population in England particularly among those aged 65 and over. This is thought to have contributed to local authorities increasing the stringency of eligibility requirements for publicly funded care.[26] In addition, the upper capital limit (the level of wealth above which an individual cannot claim local authority support) has remained frozen in cash terms since 2010, and so has fallen in real terms.[27]

3.29 These factors have contributed to the number of people receiving publicly funded long-term care in England falling since 2010. This is more than explained by the fall in the number of over-65s (green line in Chart 3.6). The freeze to the upper capital limit is thought to have had a larger effect on older age groups, who are more likely to have accumulated assets and therefore be ineligible for support.[28]

3.30 By contrast, the number of working-age recipients of long-term publicly funded care in England, having fallen initially, has since risen to above 2010 levels (yellow line in Chart 3.6). Rising disability prevalence and greater demand for mental health support are cited as contributing factors.[29] In our baseline scenario for adult social care spending, we have therefore made a small upwards adjustment to reflect growth in working-age recipients in excess of population growth, based on recent evidence.[30]

[23] Institute for Government, Performance Tracker 2025: Adult social care, October 2025.
[24] Department of Health and Social Care, *£500 million for first ever fair pay agreement for care workers*, September 2025.
[25] The King's Fund, *Social care 360: expenditure*, April 2026.
[26] Institute for Government, *Local government funding in England*, January 2026.
[27] Institute for Government, *Performance Tracker 2025: Adult social care*, October 2025.
[28] Bancalari, A., and B. Zaranko, *Adult social care in England: what next?*, October 2024.
[29] Ibid.
[30] This is based on comparing the implied growth in demand for adult social care among working-age adults from our age profiles with the actual number of recipients of long-term care in England. This adjustment increases growth in adult social care spending on working-age adults by 0.4 percentage points on average a year. We do not make an adjustment to the over-65 population, despite growth in long-term recipients of care being lower than implied by our age profiles, as we judge this to reflect policy change related to the real-terms fall in the upper capital limit.

Chart 3.6: Number of adults in England receiving long-term care by age group



Note: This chart presents the number of adults receiving long-term adult social care support at the end of the financial year, that is arranged and known by local authorities. This is a subset of the number of recipients of long-term support during the year, but is presented in this way to enable consistent historical comparison. It should be noted that there have been methodological changes over time. For more details, see Appendix 6 of Department of Health and Social Care, *Adult social care activity report, England: 2024 to 2025: methodology*, October 2025s.
Source: DHSC

Education

3.31 Education spending is projected in the baseline scenario to decline from 4.3 per cent of GDP in 2030-31 to 3.4 per cent of GDP by the end of the projection period.[31] From 2030-31 onwards, spending per pupil (and student) at each age is kept broadly fixed as a share of GDP over the projection period, and then multiplied by the projected number of pupils and students at each age. The fall in spending can therefore be attributed to the falling birth rate in the 2024-based ONS population projections, which results in lower spending on younger age groups as a share of GDP over the projection period. As shown in Chart 2.3 and discussed in paragraph 2.9, the most recent ONS long-term birth rate assumptions have been reduced compared to the previous assumptions. This change reflects the downward trend in observed birth rates seen since the early 2010s. The ONS assumes that this trend will continue in the future, rather than a reversion to the birth rates seen in previous decades.

3.32 We plan to examine the long-term fiscal risks related to education spending in more detail in our 2027 *FRS*. This is likely to consider issues such as:

- **Spending response to declining numbers of children**: some historical evidence suggests falling pupil numbers may not translate proportionately into lower spending

[31] Education spending includes spending on state-provided early years provision, primary and secondary schools, further education and higher education. Higher education spending includes grants and the portion of student loan lending expected not to be repaid.

on schools.[32,33] This may reflect some fixed costs within the system such that, for example, a fall in pupil numbers may not be enough to reduce the number of classes needed.[34]

- **Whether to include a Baumol effect**: which captures the cost pressures that could arise if productivity in the education sector grows more slowly than in the wider economy.[35, 36] We have included a Baumol cost effect in our health spending projections in part based on a clear historical trend of a rising share of GDP spent on health, which has not been the case for education.[37]

- **Special educational needs and disabilities spending**: rising numbers of children and young people with an education, health and care plan since 2016 has created significant pressure on local authority finances (see Box 5.1 of our November 2025 *EFO*). The Government has recently increased funding for these pressures and set out reforms aimed at addressing the rising costs. However, there is uncertainty over the degree to which these costs will continue to rise or stabilise, as the underlying drivers of the recent increase are complex.[38]

- **Higher education spending, student loans and university finances**: this will include the risks to university sector finances, for example from the reliance on international students. It will also consider risks to the projections of the fiscal costs of student loans (see Box 3.1 for further details), for example from the outlook for graduate earnings.

- **The link between education and the labour market** and the potential fiscal implications of this over the long term through the impact of educational outcomes on the income and employment of pupils and students once they reach working age (see Box 3.3 for further discussion).

3.33 In our projections, education spending includes spending on higher education through both grants to the sector and the cost of student loans.[39] Box 3.1 below outlines how we project the long-term cost of student loans and how these projections affect the wider public finances.

[32] Sibieta, L., *Demographic change and schools across the UK: lessons from history*, December 2025.
[33] Institute for Government, *Performance Tracker 2025: Schools*, October 2025.
[34] NAO, *Responding to changing demand for school places,* April 2026.
[35] Baumol, W., and W. Bowen, *The Economic Dilemma. A study of Problems common to Theater, Opera, Music and Dance*, 1966.
[36] Productivity growth may be slower in sectors such as education as they are less able to benefit from technological advancements because they are labour intensive relative to other parts of the economy. However, to recruit and retain staff, wages must keep pace with those in sectors experiencing faster productivity growth, which results in costs rising. The impact of rises in the minimum wage on the early-years labour force could also contribute to wages in the education sector rising more quickly than average earnings.
[37] This could potentially be attributed to the larger numbers of policy levers the Government has used to control education spending (including increasing class sizes) compared to health.
[38] Latimer, E., L. Sibieta, and D. Snape, *Support for children with disabilities and special educational needs*, October 2025.
[39] Previously student loan capital transfers (that is the share that is expected to not be repaid in full) appeared as part of 'other capital' spending but we have now included them within education.

Box 3.1: Long-term projections of the fiscal impacts of student loans

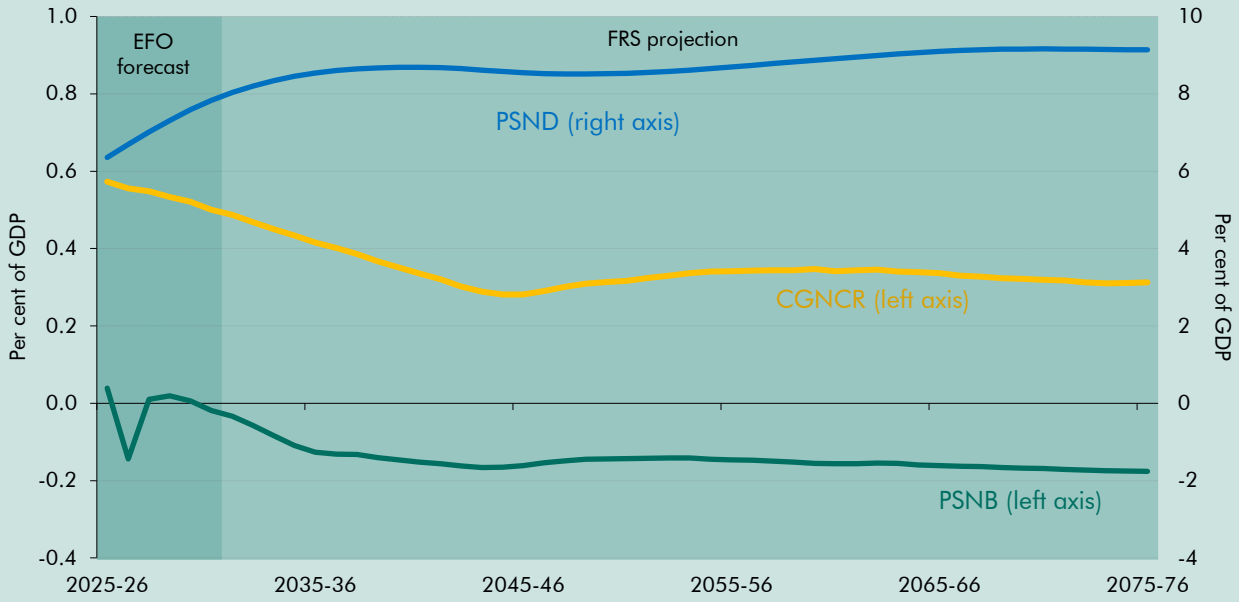
The current English student loans system is largely the result of reforms first introduced for students starting higher education in 2012. Since then, policy on student loans has frequently changed, with reforms generally reducing the long-term cost to the government, such as freezes to the tuition fee cap, changes to repayment thresholds, and the introduction of Plan 5 loans.

There are two channels through which student loans affect the long-term public finances. The first is through cash flows, reflecting the difference between total loan outlays and total repayments in any period, which affects the central government net cash requirement (CGNCR) and public sector net debt (PSND). The second is through the treatment in the accruals accounting framework, where public sector net borrowing (PSNB) and public sector net financial liabilities (PSNFL) are affected by the difference between the estimated capital transfer at outlay (an estimate of the portion of the loans that will eventually be written off), and modified interest (an estimate of the interest payments that will be received on the portion of the loan that will be repaid).[a]

In our baseline scenario, government cash borrowing (measured by the CGNCR), used to finance student loans, declines as a share of GDP until the mid-2040s (Chart C). This reflects: a projected decline in loan outlays due to a fall in the number of young adults as a proportion of the population; increasing repayments from the cohort of students since 2012 moving up the earnings distribution; increasing numbers of borrowers in repayment until Plan 2 loans reach their write-off; and, the impact of the introduction of Plan 5 student loans. As Plan 2 student loans begin to be written off after their 30-year term, there is a brief period from around 2045 when cash borrowing is projected to increase again as repayments from these loans decline. Thereafter, cash borrowing is projected to be broadly stable through the rest of the projection period. These cash flows drive the net impact of student loans on PSND, which is pushed up as a percentage of GDP over the next 10 years due to the initially relatively high cash borrowing, before stabilising as cash borrowing falls.

Turning to the projected net impact of student loans on PSNB, initially, from the end of the medium-term forecast period, the interest receivable on the stock of student loans is projected to exceed the estimated capital transfers. Over the next decade or so, there is a further decline in PSNB as a share of GDP as modified interest is projected to grow as the stock of loans grows, while capital transfers are projected to remain relatively consistent as a share of GDP. From the mid-2040s, modified interest stabilises as the stock of loans stabilises, and thereafter changes in PSNB are relatively small and largely driven by projected demographic changes. The impact on PSNB shown here does not include the cost to government of the borrowing it uses to finance student loans. Based on our projections of the government's long-run borrowing costs, the long-term annual cost to the government of financing the stock of PSND accumulated since 2012-13 will average 0.4 per cent of GDP, meaning that the system as a whole increases borrowing in most years.

Chart C: Baseline scenario for the impact of student loans on the public finances



Note: These reflect the impact on CGNCR, PSNB and PSND from student loans only, including from the devolved administrations. PSND reflects the estimated impact from student loans since 2012-13.
Source: Student Loans Company, OBR

These projections are very sensitive to uncertain assumptions on the number of students going to university, the path of graduate earnings, and long-term government policy. In the baseline scenario shown here, we assume that the tuition fee cap, maintenance loans and repayment thresholds are uprated by average earnings. This is consistent with our wider set of assumptions for unchanged long-term government policy (see Chapter 1 for details). If we were to instead assume that over the long term the tuition fee cap, maintenance loans and repayment thresholds were to rise with inflation, then the impact on PSNB and the CGNCR would converge towards zero, due to the decreasing value of loans and repayment thresholds relative to earnings and GDP. If this were to happen, it would create significant financial pressure for the higher education sector by reducing the value of income from tuition fees relative to average earnings.[b] Conversely, any future increases to the generosity of the student loans system, such as above-earnings increases to repayment thresholds or the tuition fee cap, would be likely to increase the CGNCR, PSND and PSNB relative to the baseline scenario.

[a] This accounting treatment is set out by the ONS. For a complete discussion of the accounting treatment of student loans, see Annex B of our March 2019 *EFO*.
[b] Staff costs, which account for over half of university expenditure, may be expected to rise broadly in line with average earnings in the wider economy over the long term, depending on productivity increases in the sector.

State pension, other welfare, and public service pensions

3.34 Spending on the **state pension** is projected in the baseline scenario to increase from 5 per cent of GDP in 2030-31 to 9 per cent of GDP by the end of the projection period, with three-quarters of this increase explained by demographic factors. The assumption that the state pension triple lock is maintained over the long term is also a significant driver of the increase, and this is examined in more detail below from paragraph 3.51. We examined the long-term drivers of state pension spending in detail in Chapter 2 of the 2025 *FRS*.

3.35 **Other welfare spending**, which includes spending on benefits for children, working-age adults and pensioner adults (excluding the state pension), is projected to stay relatively flat beyond the medium term at around 6 per cent of GDP. This is the result of offsetting demographic changes, with a projected increase in welfare spending on older working-age and pensioner adults that is somewhat offset by a fall in welfare spending on children and younger working-age adults. This projection is based on the assumption that, beyond the medium term, non-state pension welfare payments are uprated in line with average earnings, consistent with our wider interpretation of unchanged policy. We explore the implications of this assumption from paragraph 3.46 onwards.

3.36 **Net spending from public sector pension schemes** is projected to fall from 1.2 per cent of GDP in 2024-25 to 0.9 per cent of GDP at the projection horizon.[40] This decline reflects: the assumed increase in the working-age population, with the number of public sector employees contributing to pensions growing faster than the retired population; and the assumption that earnings grow faster than CPI inflation, so boosting pension contributions relative to benefit payments.[41] This trend is somewhat reversed in the mid-2050s, when net expenditure increases slightly because demographic pressures increase expenditure relative to contributions, leaving net expenditure at 0.9 per cent of GDP at the projection horizon. This projection suggests that, based on the assumptions we use, these schemes do not create significant upward pressure on the public finances over the 50-year projection period. However, public sector pensions represent a significant liability for future governments and so are an area of risk, for example if the public sector workforce does not grow as assumed then contribution income would be lower than projected, or if the demographic balance shifts less favourably than assumed.[42]

Sensitivity of spending projections to an alternative demographic scenario

3.37 Our baseline scenario is conditioned on the 2024-based ONS principal population projections. However, the future age structure of the UK population — including in its constituent nations, as explained in Box 3.2 – is very uncertain. To illustrate this, we use the higher population scenario presented in Chapter 2, in which births are assumed to be equal to deaths from 2040 onwards, rather than births being lower than deaths as in the 2024-based ONS principal population projections. This comes through both an assumed increase in birth rates and an assumed decrease in death rates and so higher life expectancy.

[40] Armed forces personnel pension schemes are excluded here and instead included as part of defence spending.
[41] The CPI uprating of benefit payments was introduced in 2011, which has reduced the future costs of these schemes. Prior to this payments were uprated with RPI.
[42] For further detail on the fiscal implications of public service pensions, see Box 3.1 of our 2025 *FRS*.

3.38 Overall, this would result in a significantly larger population, around 9 million more than in the baseline scenario in 2075-76, and higher old- and young-age dependency ratios throughout the projection. The net result of this would be to increase age-related spending by 3.1 per cent of GDP relative to the baseline, with total age-related spending rising to around 38 per cent of GDP by the end of the projection period. Chart 3.7 shows that relative to the baseline scenario, by the end of the projection period this is driven by:

- **Higher health spending**, which is projected to be around 1.2 per cent of GDP higher than in the baseline. This is driven by a larger old-age population due to higher life expectancy. Consistent with our approach to projecting health spending in the baseline, we assume half of these extra gains in life expectancy in the scenario are spent in good health. This means that the associated increase in health spending grows more slowly than would be implied by the larger old-age population alone.

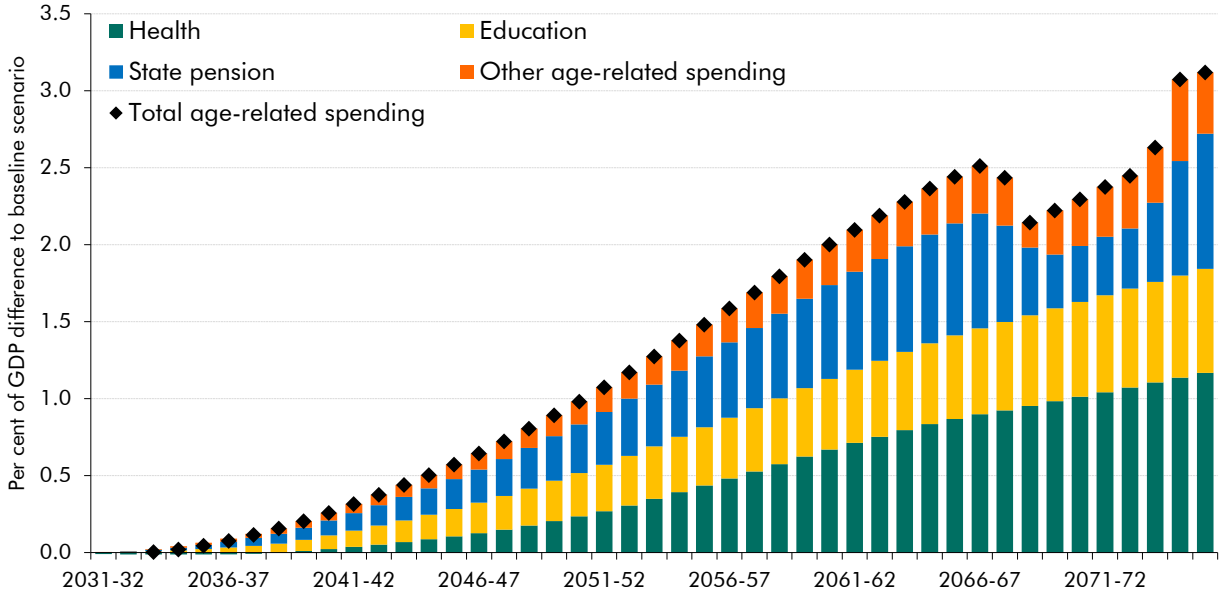
- **Higher education spending**, which is still projected to fall, but at a much slower rate than in the baseline, such that education spending ends around 0.7 per cent of GDP higher than in the baseline. This is due to the higher birth rate throughout the scenario leading to a larger young-age population.

- **Higher state pension spending**, which is projected to rise faster than in the baseline scenario so that it is around 0.9 per cent of GDP higher than the baseline by 2075-76, driven by a higher proportion of pensioners. This increase is slightly offset towards the end of the projection period by an earlier rise in the state pension age to 69 starting in 2067-68 (six years earlier than in the baseline), reflecting the faster growth in life expectancy.

- **Other age-related spending**, which is largely unchanged, ending up only 0.4 per cent of GDP higher than the baseline by 2075-76. This is a combination of public services pensions and adult social care spending, which increases relative to the baseline in line with the larger old-age population.

3.39 A key result from this analysis is that stronger population growth increases the long-term pressures on public spending, because of the additional spending on both old and young people. In Chapter 5, we assess the overall implications of this alternative scenario for public sector net debt.

Chart 3.7: Change in age-related spending in the higher population scenario compared to the baseline scenario



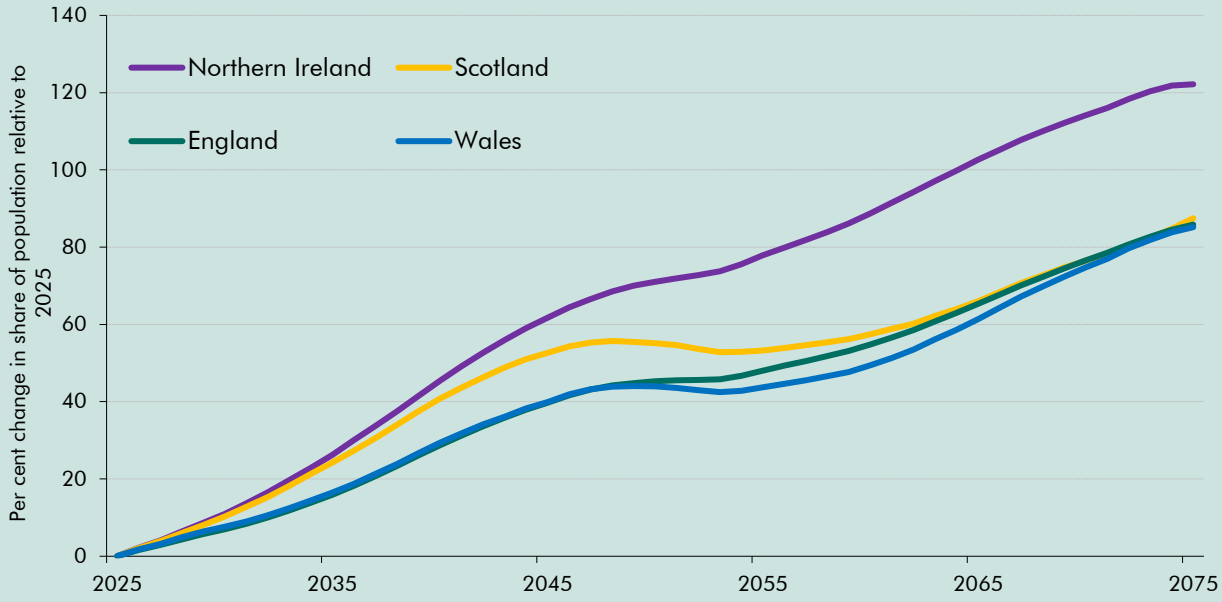
Source: OBR

Box 3.2: Demographic pressures on devolved government services

Our projections for long-term spending and tax are based on changes in the UK population as a whole. However, many areas of spending, such as health, education and adult social care, and some taxes, are devolved to the administrations in Scotland, Wales and Northern Ireland. Pressures associated with population ageing in these areas will, to differing extents, fall on their devolved administrations.

While we do not formally split out how these tax and spending pressures vary across the UK in our modelling, the latest ONS 2024-based population projections for the UK constituent countries provide an indication of how age-related fiscal pressures may evolve. As in the UK as a whole, the increasing share of older people in the population will impact demand for public services, particularly in health, where spending per person rises at older ages. Northern Ireland is projected to see relatively faster growth in its old-age population, as is Scotland over the first half of the projection period (Chart D). Northern Ireland and Wales are also both expected to experience slightly faster declines than the rest of the UK in their younger population, which would tend to reduce demand for education services. The extent to which each administration is exposed to demographic change, however, will also depend on the extent of its devolved responsibilities. For example, the state pension is reserved to the UK government so additional cost pressures due to ageing from this source do not fall to the devolved administrations. On taxation, Northern Ireland is less exposed to the impact on revenues of changes in the working-age population than Scotland or Wales, where a significant part of income tax is devolved.[a]

Chart D: Projected change in the proportion of the population aged 75 and over in England, Scotland, Wales and Northern Ireland



Source: ONS

The relationship between demographic change and the determination of the allocation of devolved funding is also important. Most devolved government funding comes from the UK government through the block grant, which is determined by the Barnett formula.[b] While the Barnett formula accounts for population shares on the margin, it does not account for changes to the demographic composition of the population.[c] So, for example, all else equal, the relatively faster ageing of the population in Scotland and Northern Ireland than in England over the next 20 years may increase health spending pressures more quickly than the associated funding, which is linked to changes in spending in England.[d]

Overall, however, in the long term the path of devolved funding will depend on a range of factors that we do not model, which may be equally important considerations for devolved government finances, and partly offsetting. These include changes to block grant adjustments, changes in rest-of-UK spending on devolved areas, differences in population growth, the 'Barnett squeeze',[e] and the existing composition and size of devolved spending. We do not therefore in this analysis draw firm conclusions about the impact of demographic trends on fiscal pressures in each devolved administration. Other institutions, such as the Northern Ireland Fiscal Council (NIFC) and the Scottish Fiscal Commission (SFC) have done work modelling fiscal pressures for Northern Ireland and Scotland specifically, which include many of these other factors that affect long-term devolved spending.[f]

[a] The extent of this exposure will also depend on the specific way in which a tax is devolved. For further discussion of block grant adjustment methods, see Box 5.1 in our November 2025 *Devolved tax and spending forecasts*.
[b] The Barnett formula adds a population-based share of changes in UK government spending on devolved areas to existing block grants (with a needs-based factor for Northern Ireland and Wales). This provides broadly the same cash change in spending per head across the whole UK when new funding is allocated to a devolved area (with an extra allocation for Northern Ireland and Wales due to their needs-based factor). For more information on the Barnett formula and the long-term implications of its use, see Phillips, D., *The Barnett formula*, February 2026.

[c] The needs-based factors for Wales and Northern Ireland do reflect some current demographic information for Wales and Northern Ireland. However, these are not set to be revisited as demographics evolve.
[d] Northern Ireland has a needs-based factor applied to its Barnett formula that means changes to spending in England will result in a larger per-person change in spending in Northern Ireland, partly mitigating this effect.
[e] This refers to the gradual convergence of per-person block grant funding in devolved nations to the level of per-person spending in the rest of the UK (with needs-based factors meaning that this will be 124 per cent and 115 per cent of the rest-of-UK level for Northern Ireland and Wales, respectively). This is because the Barnett formula only allocates the same cash change in spending per person (plus needs based factors for Northern Ireland and Wales) to the block grant. As this does not account for pre-existing higher funding for the devolved nations, over time as these cumulative increases make up a larger part of the block grant, block grant funding per person will converge.
[f] SFC, *Fiscal Sustainability Report,* April 2025 and NIFC, *Sustainability Report*, June 2026.

Spending areas affected by non-demographic pressures

Climate change and the net zero transition

3.40 The potential fiscal implications of climate change and the transition to net zero were examined in detail in our 2021 *Fiscal risks report* and 2025 *FRS*. In the 2025 *FRS*, we based this analysis on the balanced pathway to net zero in the Climate Change Committee's (CCC's) Seventh Carbon Budget. We used this to estimate a central scenario for the government's share of the whole-economy investment costs of meeting the commitment to reaching net zero emissions by 2050. In this scenario, public sector investment to support the transition totals £257 billion over the 26 years to 2050 (2025 prices), a 36 per cent share of the CCC's £720 billion estimated whole-economy capital investment costs.[43]

3.41 In this year's report, we have incorporated this 2025 *FRS* central scenario in our baseline long-term spending scenario. As such, between 2031-32 and 2050-51, public sector net zero investment averages 0.3 per cent of GDP a year, equivalent to around £10 billion a year in 2024-25 prices.[44] In this scenario, investment peaks in 2034-35 at 0.5 per cent of GDP, driven by investment in residential buildings, carbon removals and surface transport. This spending is then projected to decline to zero by 2050-51 when the transition is assumed to complete.

3.42 The transition to net zero affects the public finances not only through the government's share of the whole-economy investment costs, discussed here, but also due to the loss of emission-related tax receipts, discussed in Chapter 4. Overall, the 2025 *FRS* estimated that lost tax receipts explain around two-thirds of the total cost of the transition to net zero under current government policy, with additional spending explaining the remaining one-third of the cost.

3.43 In the 2025 *FRS* we also assessed the potential economic and fiscal costs of climate-related damage. This analysis suggested these costs – while highly uncertain – could be much more significant than the costs of the transition to net zero. In a scenario where global

[43] As set out in the 2025 *FRS*, future governments could choose to use a different mix of policy levers to deliver the net zero transition, across public spending, taxation and regulation. Figures are expressed in 2025 prices by adjusting for expected inflation.
[44] Net zero investment averages 0.3 per cent of GDP a year in our medium-term forecast, 0.1 per cent of GDP below the central scenario for public investment from the 2025 *FRS*. Relative to last year's central scenario, net zero investment between 2030-31 and 2050-51 is adjusted upwards by £1 billion a year (2024-25 prices), so total investment over the 26 years to 2050 in this year's baseline scenario equals the 2025 *FRS* central scenario total. In line with the CCC's definition, net zero investment in this report excludes capital spending on nuclear projects.

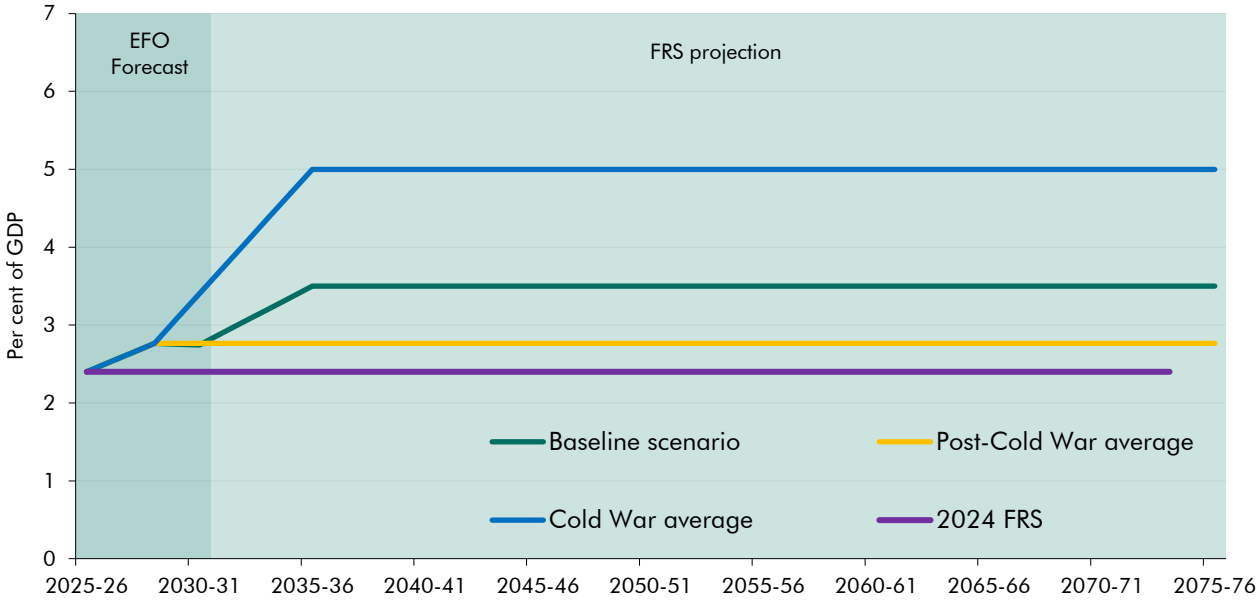
temperatures rise to just under 3°C above pre-industrial levels, we estimated that the fiscal cost of the net zero transition contributed only one-tenth of the total cost, with the indirect and direct fiscal costs of climate damage contributing around three-fifths.[45] In Chapter 2, we explain that climate damage is one reason why long-term productivity growth could be lower than in our central scenario, and Chapter 5 sets out the implications of a lower productivity scenario for the long-term public finances. [46]

Defence spending

3.44 In our baseline scenario, we assume defence spending rises to 3.5 per cent of GDP by 2035-36 (Chart 3.8), consistent with the Government's stated policy commitment for core defence spending.[47,48] To reach this point, we assume defence spending increases to 2.8 per cent at the end of the Spending Review period. The Government has not yet set spending plans beyond the Spending Review period. We therefore assume defence spending falls back slightly to 2.7 per cent of GDP at the end of the medium-term forecast period in 2030-31, following the Government's overall assumed path for departmental spending in this period.[49] We then simply assume it rises on a linear path to reach the 3.5 per cent of GDP commitment in 2035, and stays constant as a share of GDP thereafter. Defence spending in this scenario is 1.1 per cent of GDP higher from 2035 than in our previous implicit projection in the 2024 *FRS*.

[45] See the 2025 *FRS* for more detail. The 'total cost' is defined as the increase in public sector net debt in 2073-74 beyond our 2024 *FRS* baseline projection due to the combined estimated fiscal costs of climate damage and net zero transition. The remaining costs come from the interest costs of servicing the additional debt issued to finance higher primary borrowing.
[46] We have not included the 2025 *FRS* estimates of the direct fiscal costs of the government responding to more frequent and severe weather events in this analysis, as those costs were found to be relatively small and well within the range of uncertainty of our long-term projections.
[47] The Government's current commitment is for defence spending to reach 5 per cent of GDP by 2035, of which 3.5 percentage points is 'core defence' spending, which we have shown explicitly, and 1.5 percentage points is 'security and resilience' spending which we include in the projections as part of 'other spending'. Core defence mainly relates to Ministry of Defence funding, and armed forces pensions (and has therefore been removed from the public sector pensions projections discussed earlier). Security and resilience includes spending such as industrial capacity, stockpiling, infrastructure, and financial assistance to NATO partners.
[48] At the point of finalising this report, the outcome of the Government's Defence Investment Plan had not been published.
[49] In the absence of a forecast of NATO-qualifying expenditure, the path to 2028-29 is in line with defence spending rising linearly to 3.5 per cent in 2035, consistent with an assessment we made at the time of our March 2026 *EFO*. Beyond the Spending Review period, there is a fall in departmental spending, and so we have assumed that NATO-qualifying expenditure also falls.

Chart 3.8: Long-term scenarios for defence spending



Source: OBR

3.45 We analysed the significant fiscal risks from rising geopolitical tensions in the 2022 *FRS*. The continuing war in Ukraine, the escalation of conflict in the Middle East, and the changing nature of geopolitical relations mean the risks to defence spending have increased since that analysis was produced. Relative to the 3.5 per cent of GDP spending on defence assumed in our baseline scenario, the illustrative fiscal costs or savings from plausible upside and downside risk scenarios around this would be:

- If **defence spending rose to 5 per cent of GDP**, which would broadly be consistent with Cold War levels of spending, this would cost an additional £47 billion by 2035 in today's terms than in the baseline scenario.[50] This could occur, for example, if there was an increased threat of conflict with Russia in Europe and a further retreat from NATO by the US.

- If **defence spending remained at levels at the end of the Spending Review period,** which would broadly be consistent with the initial post-Cold War period average at 2.8 per cent of GDP, it would be around £23 billion lower by 2035 in today's terms than in the baseline scenario. This could potentially occur, for example, if there was a rapid diminishing of the threat from Russia. In the 2022 *FRS*, we included a scenario where defence spending continued on the downward trend seen over the post-WWII period to reach 1 per cent of GDP by the middle of the 2030s, but we no longer consider this a plausible scenario.

[50] This is expressed in today's terms by taking the value of spending as a share of GDP and multiplying by nominal GDP in the current financial year (2026-27). This implicitly accounts for real growth and inflation between today and 2035.

Sensitivity of spending projections to policy assumptions

3.46 As set out in Chapter 1 of this report, our projections are constructed based on a set of assumptions intended to represent an interpretation of unchanged government policy over the next 50 years. In some areas, for example the state pension age and more recently defence spending, governments have made commitments to a specific long-term policy setting. However, in most areas there is no clear long-term policy set by government. In these areas, we maintain government policy settings as they are at the end of the medium-term forecast period, by from that point generally holding spending constant as a share of GDP absent the effect of demographic changes. The choice of policy assumptions can have a substantial impact on the profile of spending in the projections. In this section, we therefore consider the impact on the projections of using alternative policy assumptions, focusing on welfare policy.

Non-state pension welfare uprating policy

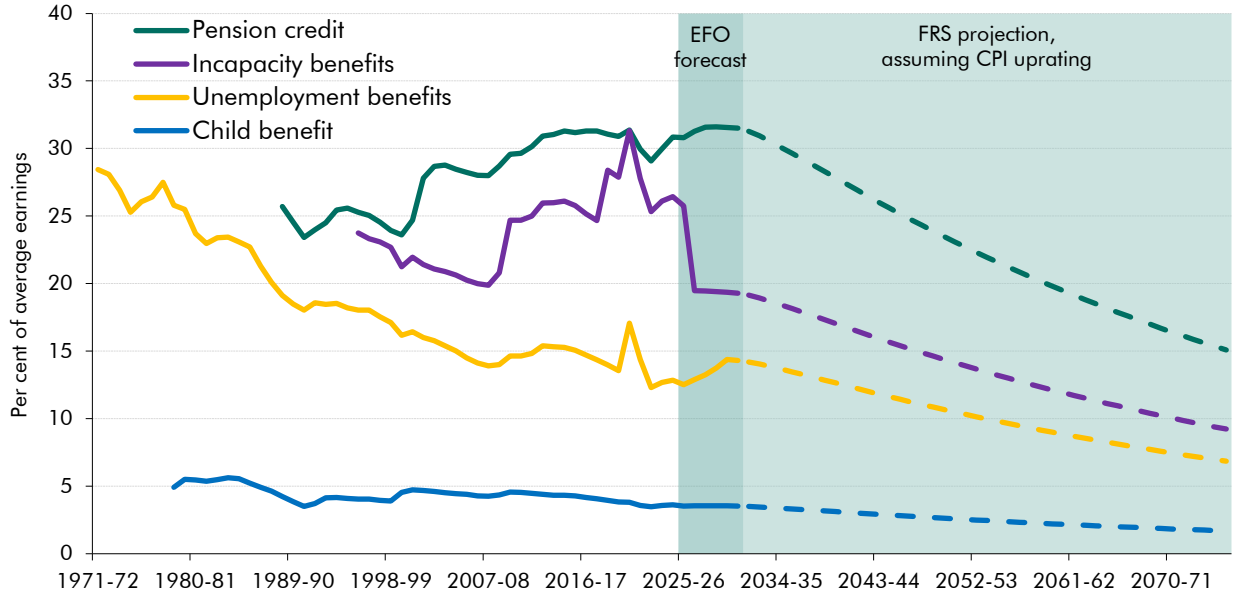
3.47 The assumption that we use to represent unchanged government policy in the baseline scenario is that non-state pension welfare payments are uprated each year in line with average earnings. This is equivalent to the value of these welfare payments relative to the size of the economy being maintained at the level set by government policy at the end of the medium-term projection period. This is consistent with the assumption for unchanged policy used for many departmental spending areas and for much of taxation.

3.48 In legislation, the default policy position is that most non-state pension benefits will be uprated in line with CPI inflation, and this is therefore the starting assumption we use in our medium-term forecasts. However, in practice, governments in the past have made a range of different decisions on the annual uprating of welfare payments. Chart 3.9 shows that the value of unemployment benefits relative to average earnings decreased until the early 2000s but has remained at a more stable level since then, pension credit has increased steadily relative to average earnings since the 2000s, and child benefit has remained broadly stable overall since the 1980s. The relative value of incapacity benefits increased in the late 2000s, but recent policy changes will reduce their relative value for new claimants.

3.49 Chart 3.9 also illustrates the impact that assuming these benefits are uprated with CPI inflation would have over the long term, which would result in the value of these payments more than halving relative to earnings by the end of the projection period.[51] This would be likely to increase rates of relative poverty, and substantially affect work incentives, health and educational outcomes, which would have wider economic and fiscal implications that are not considered in these projections.

[51] As set out in Chapter 2, in our baseline scenario earnings growth is assumed to average 3.7 per cent a year while CPI inflation averages 2.0 per cent a year over the 45-year period.

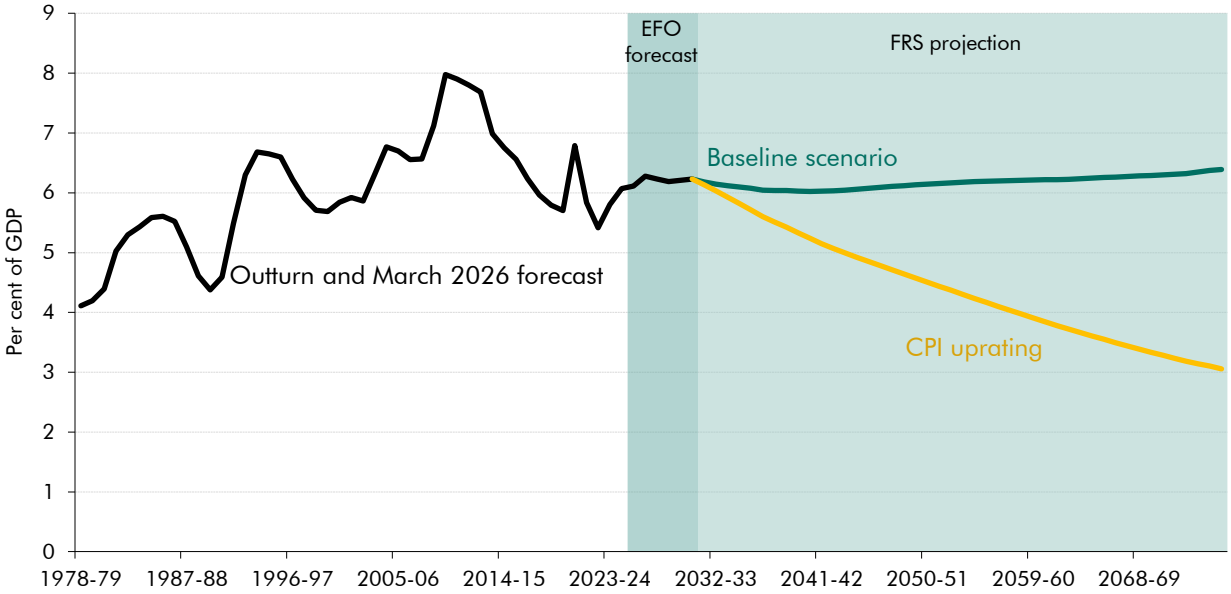
Chart 3.9: Benefit payment rates relative to average earnings



Note: 'Average earnings' uses ONS average weekly earnings data. 'Pension credit' is defined as the standard minimum guarantee rate for a single person aged 60-74; unlike other benefits presented it is an income guarantee rather than a benefit award, with most claimants receiving less than the guarantee in their award. 'Unemployment benefits' are defined as the rate for a single person on unemployment benefit until 1996-97, jobseeker's allowance from 1997-98 to 2017-18, and the universal credit standard allowance rate for a single person aged 25 or over from 2018-19 onwards, including the £20 a week uplift during the pandemic. 'Incapacity benefits' are defined as the long-term incapacity benefit rate (with no age additions) from 1995-96 to 2008-09, the single, over-25 rate of employment and support allowance in the support group receiving the enhanced disability premium (but not the severe disability premium) from 2009-10 to 2017-18, and the single, over-25 rate of universal credit in the limited capability for work and work-related activity group from 2018-19 onwards, including the £20 a week uplift during the pandemic. 'Child benefit' is defined as the rate for a one-child family. Rates are those for new claims, hence the incapacity benefits rate falls in 2026-27, when the 2025 Spring Statement decision to halve the health element for new claimants comes into effect.
Source: DWP, ONS, OBR

3.50 The fiscal impact of uprating all non-state pension welfare benefits in line with CPI inflation would be to halve projected non-state pension welfare spending by 2075-76 relative to the baseline scenario, from 6.4 to 3.1 per cent of GDP (Chart 3.10). This compares to the trend over the past four decades, as shown in Chart 3.10, where non-state pension welfare spending has remained relatively flat as a share of GDP, averaging 6.0 per cent of GDP between 1978-79 and 2018-19. See Chapter 5 for a discussion on the implications of these alternative uprating assumptions on our long-term scenarios for borrowing and debt.

Chart 3.10: Non-state pension welfare spending under CPI uprating assumption



Note: Data on Northern Ireland social security is available for 1996-97 onwards. Before this, we assume expenditure remains a constant proportion of total UK welfare spending, as measured between 1996-97 and 2024-25.
Source: DWP, OBR

State pension

3.51 In the baseline scenario, state pension spending is projected to increase from 5 per cent to 9 per cent of GDP in the 50 years to 2075-76. We explored the outlook for state pension spending in the 2025 *FRS*, examining in detail the long-term impact of both demographic changes, planned changes to the state pension age, and the triple lock policy, which uprates the state pension each year by the greater of average earnings, CPI inflation or 2.5 per cent.

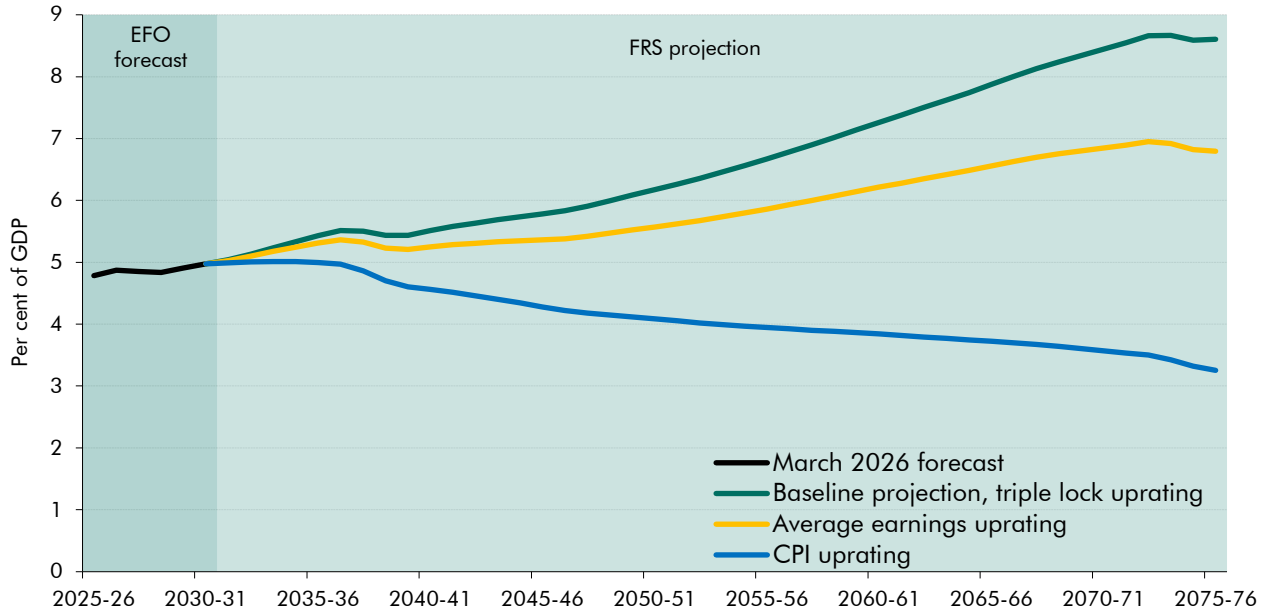
3.52 In the baseline scenario, the triple lock drives 1.2 per cent of GDP out of the overall 3.6 per cent of GDP long-term increase in state pension spending. Analysis in the 2025 *FRS* showed that this is highly sensitive to assumptions about the future volatility and level of inflation and earnings growth.[52] In that report we included a scenario which showed that if earnings growth and inflation were to be more volatile, then state pension spending would be 1.5 per cent of GDP higher than our stated baseline scenario.[53] Chart 3.11 shows the implications of alternative uprating assumptions on the long-term projection for state pension spending relative to the baseline scenario in 2075-76. If the state pension were to

[52] We estimate the triple lock has cost around three times more than initial expectations primarily because the period since 2012 has seen more volatile inflation and lower earnings growth than the two decades prior to the triple lock's introduction. The non-earnings elements of the lock have been triggered in eight of 14 years to date, and they are expected to be triggered in three of the five years of our latest medium-term forecast. We project the future costs of the triple lock by estimating an annual triple lock 'wedge' relative to earnings uprating, on the basis of observed inflation and earnings trends since 1990. Our latest estimate of this wedge is 0.56 percentage points. The 2025 *FRS* estimated that uprating by the triple lock rather than earnings will have added £15.5 billion (0.5 per cent of GDP) to state pension spending annually by 2029-30, around three times higher than the £5.2 billion we estimate the triple lock would have cost by that point under initial assumptions. Relative to CPI uprating, we expect that the triple lock will have added £22.9 billion to annual state pension spending by 2029-30.
[53] We estimate the triple lock uprating premium ('wedge') relative to earnings uprating in our long-term baseline scenario using observed earnings and inflation trends since 1990. In the 'more volatile' scenario of the 2025 *FRS*, we instead estimated the 'wedge' based on more recent trends in inflation and earnings since 2010-11.

be uprated by average earnings, spending would be reduced by 1.8 per cent of GDP compared to baseline by the end of the projection period, while uprating by CPI inflation is projected to reduce it by 5.4 per cent of GDP compared to the baseline.

3.53 Another policy assumption underpinning the state pension projection is around future changes to the state pension age. In the baseline scenario, we assume that the state pension rises to 68 in 2037-39,[54] and then to 69 in the 2070s. If the state pension age were to rise to 68 in 2044-45 in line with legislation, rather than the Government's stated policy that the rise to 68 will happen in 2037-39, this would cost an average additional £6 billion in today's terms in each of the years the state pension age rise is delayed.

Chart 3.11: State pension spending under alternative uprating assumptions



Source: OBR

Summary of scenarios for long-term public spending

3.54 Chart 3.12 summarises the main scenarios for long-term public spending set out in this Chapter, which we use to underpin the assessment of the sustainability of the public finances in Chapter 5. There is significant uncertainty around the assumptions that underpin these projections, however, in all of these scenarios there is significant upwards pressure on the future path of public spending:

- **In the baseline scenario**, total spending is projected to rise from 40 per cent of GDP in 2030-31 to 49 per cent of GDP by 2075-76.

[54] The Treasury has confirmed to us that this is the Government's current policy position, rather than the legislated increase set in the *Pensions Act 2007*. This is also consistent with the recommendation of the first state pension age review in 2017 that the legislated-for rise to 68 between 2044 and 2046 should be brought forward to the late 2030s, and the principle that 32 per cent of adult life should be spent in retirement, both of which the Government at the time committed to. However, the rise to 68 remains legislated to happen between 2044 and 2046, with no subsequent rises legislated for.

- **In the higher population scenario**, where there is faster population growth than in the baseline due to a higher birth rate and a lower death rate, total spending is projected to rise to 52 per cent of GDP by 2075-76. This is higher than the baseline scenario due to a higher young- and old-dependency ratio, which raises age-related spending as a share of GDP.

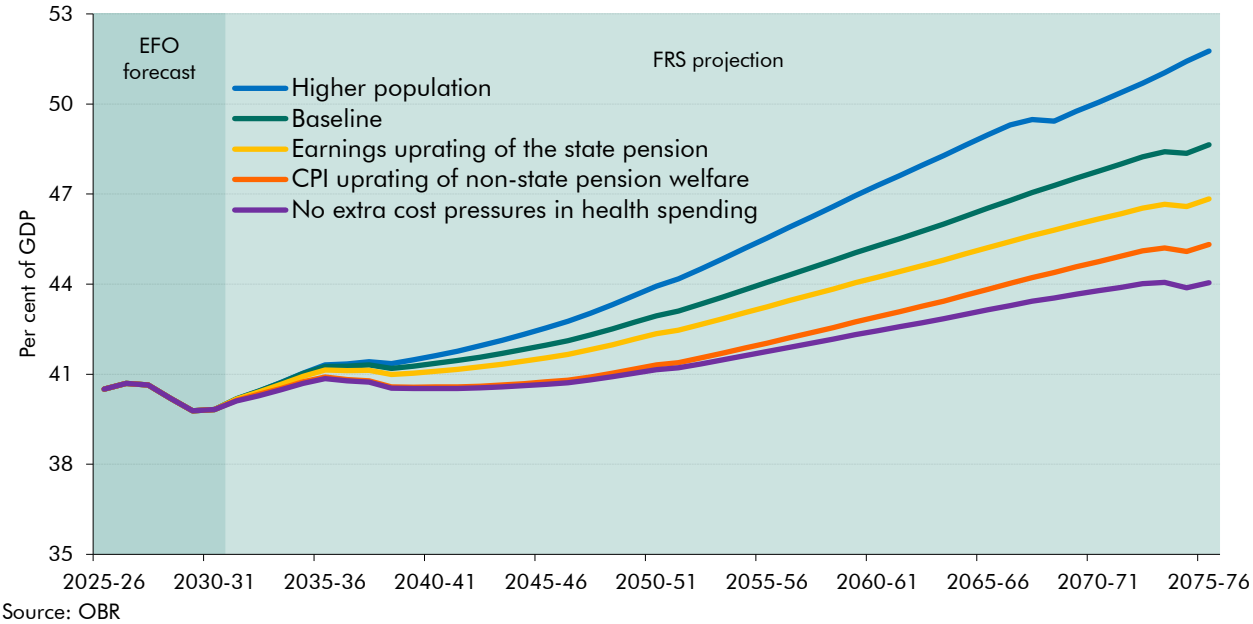
- **In the no extra cost pressures in health spending scenario**, in which we assume additional cost pressures are absent (consistent with the scenario discussed in paragraph 3.17) and so health spending growth is driven solely by demographic and income effects, total spending is lower than the baseline scenario, rising to 44 per cent of GDP.

- **In the CPI uprating of non-state pension welfare scenario**, total spending is projected to rise to around 45 per cent of GDP by 2075-76, 3 per cent of GDP lower than our baseline. This reflects slower growth in welfare payments compared to the baseline scenario, in which welfare payments are assumed to rise with average earnings.

- **In the earnings uprating of the state pension scenario**, total spending rises more slowly, to 47 per cent of GDP, reflecting weaker growth in state pension spending than under our baseline triple lock assumption.

3.55 Taken together, these scenarios show that the upward pressures on public spending remain across a range of plausible assumptions. There is an underlying pressure across all scenarios from the demographics of an ageing population (and even more so in the scenario with a larger young and old age population). However, the degree of upward pressure is significantly affected by wider assumptions such as on the continuation of wider health cost pressures and the nature of the uprating of pensions and other welfare benefits.

Chart 3.12: Primary spending under alternative policy and demographic assumptions



Source: OBR

3.56 In our baseline long-term projections, we generally do not attempt to model the wide-ranging potential interactions and feedback mechanisms that long-term changes in public spending, taxation and debt could have on macroeconomic performance. Some of these interactions, while highly uncertain, could have significant economic and fiscal implications. We therefore produce sensitivity analysis to explore some of these possible effects. In Chapter 4, we consider the potential impacts that a rising tax take over the long term could have on labour supply. In Chapter 5, we consider the potential impact that rising debt levels could have on the interest rate on government debt. In Box 3.3, we set out some key potential feedback mechanisms between long-term trends in public spending and the economy and public finances.

Box 3.3: The potential long-term effects of public spending on the economy

There are many channels through which public spending can affect the economy, for example through impacts on productivity and labour supply. We have explored a number of these channels in previous *Fiscal risk and sustainability reports* (*FRS*s) and as part of the medium-term forecasts and analysis in our *Economic and fiscal outlooks* (*EFO*s). These have included:

- Analysis of the implications of **improved public health outcomes** for the economy and public finances over the long term. Our 'better health' scenario in the 2024 *FRS* assessed the impact of lower chronic and work-limiting ill health, and improved life and healthy life expectancy, which could, for example, potentially be achieved through preventative health spending. By reducing public spending on both health care and welfare in the long term, and increasing tax revenues due to higher employment and earnings, this significantly reduced debt compared to our baseline scenario, as set out in paragraph 3.24. By 2073-74, improved public health outcomes in this scenario were projected to increase employment by around 1 million people, while around a further 1 million people already in work were projected to increase working hours.[a]
- Assessing the economic and fiscal implications of spending on the **net zero transition** and **damage from climate-related risks**. The 2021 *Fiscal risks report* estimated the impact that early global policy action to reduce carbon emissions through public investment could have on the economy and public finances over the long term, compared to a delayed global policy action scenario.[b] The 2025 *FRS* analysed the potential impact that additional public investment to deliver the net zero transition could have for productivity growth.[c] Next year's *FRS* will assess the costs and potential fiscal benefits of public investment in the means of adapting to climate change, such as flood defences and other infrastructure.
- Analysis of the potential long-run effect of increased overall **public investment** on the economy and public finances. In our 2024 discussion paper, we found that a sustained 1 per cent of GDP increase in public investment could plausibly increase the level of potential output by around 2.5 per cent at the 50-year horizon.[d] The magnitude is sensitive to a number of factors, including the type of public investment, whether it crowds in or crowds out private sector investment, and the effectiveness of project delivery. These

effects are included in our long-term modelling as we identify the public sector capital stock as contributing to productive capacity.

- The potential economic benefits of increased **housing supply**, delivered through either public social housing or private sector housing. The March 2025 *EFO* found that successful implementation of the Government's planning reforms could increase potential output by 0.4 per cent by 2034-35, through various channels.[e]
- The impact on labour supply of various **welfare and other labour market policies** in the March 2023 *EFO*. This included Department for Work and Pensions employment support programmes and the introduction of **additional free childcare hours.** We judged these and other labour market policies incorporated into that forecast would together increase labour supply by 110,000 by 2027-28.[f] However, we have generally found that the scale of individual employment support programmes has been low, it has been difficult to judge whether they represent additional support relative to previous similar programmes, and several of them have not subsequently been delivered as originally planned.[g] In contrast, the demand for childcare places has exceeded expectations, leading to upward revisions to planned spending.[h]

We will continue to assess these interactions between public spending and the economy where this is relevant and material to our core remit of forecasting the medium-term public finances and assessing longer-term fiscal sustainability. In next year's *FRS*, for example, we intend to examine the longer-term outlook for education spending in more depth. This will include assessing the channels through which educational outcomes and early-life circumstances can affect the economy and public finances over the long run.

Public services, such as education, health, and transport provide the foundation for long-term economic growth. However, economic evidence typically suggests that *changes* in macroeconomic performance resulting from *changes* in the scale or nature of public spending to take time to materialise, are highly uncertain, and depend on the effectiveness of public service delivery. For example, public spending on preventative health measures would typically have the greatest impact on health and labour market outcomes at older ages when chronic health conditions are most common.[i] And reforms to early year childcare and education will potentially impact the level of participation and skills in the adult workforce only gradually over subsequent decades.[i]

More generally, spending policies typically affect 'flows' – for example the annual level of public investment or entrants into the workforce from employment support programmes. These flows are typically small relative to the total 'stock' of capital and labour, which drive overall economic performance. For example, the total government gross capital stock is around £1.5 trillion, while Government plans set out in Budget 2024 increased departmental capital spending at most by £24 billion in one single year of the forecast.[k] The total workforce is around 37 million, while the largest individual new employment support programme we have reflected in our medium-term forecasts in recent years aimed to support an additional 15,000 people back into work. This means that while increases in, or reforms to, public spending may have very important medium-

term impacts for specific groups of individuals or specific sectors, a material impact on the overall economy is often only seen over the long term.

[a] OBR, *Fiscal risks and sustainability report*, September 2024.

[b] OBR, *Fiscal risks report*, July 2021.

[c] OBR, *Fiscal risks and sustainability report*, July 2025.

[d] Suresh, N., R. Ghaw, R. Obeng-Osei, and T. Wickstead, *OBR Discussion paper No.5: Public investment and potential output*, August 2024.

[e] OBR, *Economic and fiscal outlook*, March 2025.

[f] See Box 2.2 in OBR, *Economic and fiscal outlook*, March 2023.

[g.] OBR, *Briefing paper No.10: Accounting for the supply-side effects of policy*, November 2025. Several employment support programmes (such as Restart and those in 'health and disability package' in Chart 4.2 in that report) would not have exceeded the 0.1 per cent potential output threshold we set in November 2025.

[h] IFS, *Annual report on education spending in England: 2025-26*, January 2026.

[i] Head, A., et al., *Exploring the contribution of risk factors on major illness: a microsimulation study in England 2023-2043*, November 2025. This study simulated the health of adults aged 30 and over from 2023 to 2043. Improvements in health from a 10 per cent reduction in risks factors would not be fully realised in 2043 and health improvements would continue to grow into the 2050s and beyond. See also: International Longevity Centre UK, *Never too late: Prevention in an ageing world*, February 2020; Martin, S., J. Lomas, and K. Claxton, *Is an ounce of prevention worth a pound of cure? A cross-sectional study of the impact of English public health grant on mortality and morbidity*, August 2020.

[i] See Diniz, J., et al., *The long shadow: How childhood disadvantage depresses the earnings of university graduates in England*, March 2026; Hirsch, D., *Estimating the costs of child poverty*, October 2008; Blanden, J., K. Hansen, and S. Machin, *The GDP cost of the lost earning potential of adults who grew up in poverty*, 2008; Bramley, G., and D. Watkins, *The public service costs of child poverty*, 2008.

[k] ONS, *Capital stocks and fixed capital consumption*, 2025.

4 Long-term receipts projections

Introduction

4.1 This chapter provides an assessment of the pressures on public sector receipts – which are mainly tax revenues – over the next 50 years. Typically, our long-term projections have focused on public spending, as this is where demographic changes over the next 50 years are likely to create significant pressures. When analysing the fiscal implications of these spending pressures we have typically assumed in our projections that tax revenues remain relatively constant as a share of GDP over the long term. In this year's report we consider potential long-term pressures on taxation in more detail, including those generated by demographic change, rising wealth, the net zero transition, and technological change.

4.2 The scenarios we use to illustrate the impact of these pressures are based on an assumption about what unchanged government policy means. They are designed to illustrate how long-term pressures could affect taxation if future governments did not change policy in response. As discussed in Chapter 1, in the baseline scenarios our unchanged policy assumption is that tax thresholds rise in line with average earnings growth. The projections are very sensitive to this assumption and so we also explore the impact of alternative policy assumptions, specifically increasing personal tax thresholds with inflation. This would lead to a significant increase in tax as a share of GDP over the long term. This chapter therefore also explores how the current level of taxation in the UK compares historically and internationally, and the potential feedback from long-term increases in taxation on economic performance.

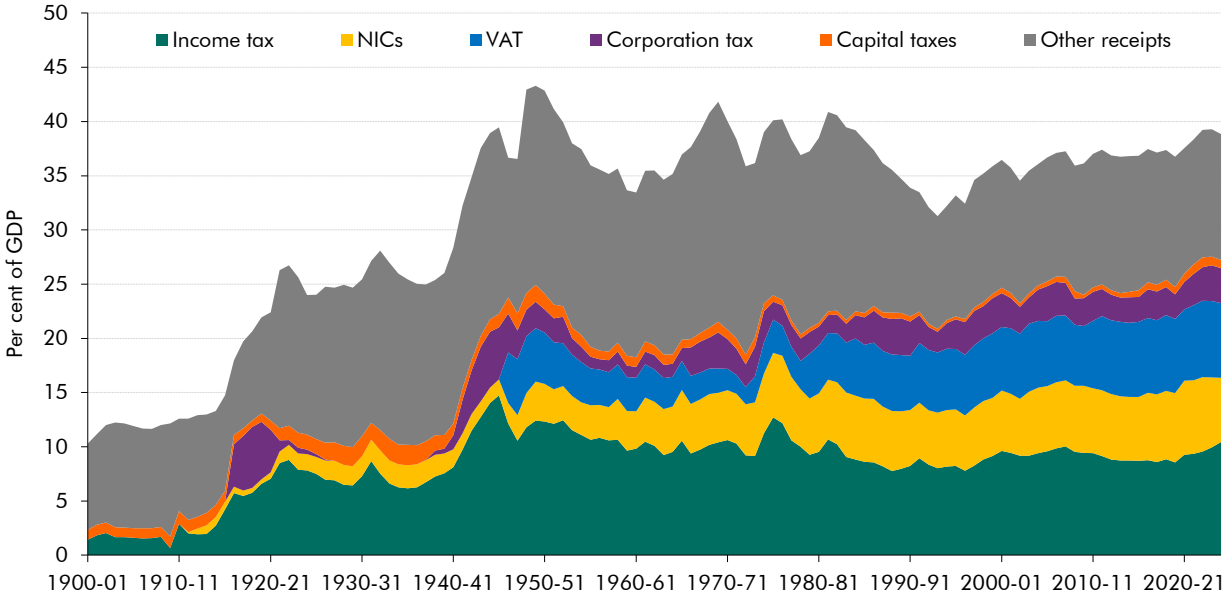
4.3 This chapter sets out:

- the evolution of **public sector receipts over the past century**;
- the **long-term pressures** that could affect levels of taxation over the next 50 years, related to demographic change, increased wealth, and the net zero transition, and scenarios which show the impact of making different assumptions about these drivers;
- the impact that different assumptions about the nature of unchanged **government policy** could have on these projections; and
- a discussion of the **long-term impact of taxation on economic incentives**, including an exploration of average and marginal tax rates in the UK, and a case study of the possible economic implications of increasing rates over the long term.

Public sector receipts since the start of the 20th century

4.4 Since the start of the 20th century, public sector receipts in the UK have increased significantly as a share of GDP (Chart 4.1). At the beginning of the 20th century, public sector current receipts were around 10 per cent of GDP. They rose sharply during and after both the First and Second World Wars, reaching a peak of around 43 per cent of GDP in 1949-50. Receipts declined during the 1980s reflecting a number of factors including a fall in oil and gas revenues, income tax policy changes, and the loss of non-tax receipts following the privatisation of nationalised industries. They subsequently increased steadily and currently, in 2025-26, are at one of the highest ever peacetime levels of around 40 per cent of GDP. In our latest March 2026 medium-term forecast, we expected public sector receipts to rise further to around 43 per cent of GDP by 2030-31, which would be close to the highest level on record.

Chart 4.1: Public sector current receipts as a share of GDP



Note: Corporation tax includes profits taxes prior to 1966-67. VAT includes the purchase tax prior to 1973. Capital taxes include capital gains tax and death duties/inheritance tax.
Source: Bank of England, ONS, OBR

4.5 Alongside the increase in the overall level of public sector receipts there has been a shift in their composition. Income tax expanded to fund the First World War and, after the introduction of PAYE in 1944, rose to a peak of 37 per cent of overall receipts in 1945-46. National Insurance contributions (NICs) also became a significant source of receipts after the Second World War and since then have more than doubled as a proportion of overall receipts. In the post-war period, purchase tax was introduced as a broad-based consumption tax, before being replaced by VAT in 1973, which currently raises around 7 per cent of GDP. As mentioned above, in the post-war period non-tax receipts generated by nationalised industries were an important source of revenue, which declined during the 1980s following the privatisation programme.

Long-term pressures on receipts

4.6 The scenarios for long-term revenues presented in this chapter are all consistent with our March 2026 *Economic and fiscal outlook* (*EFO*), which provides our latest five-year forecast for revenue conditional on stated government policy. Specifically, the structure of taxation as a share of GDP in 2030-31, the final year of the medium-term forecast, is the starting point for the long-term scenarios. There are several assumptions for the path of long-term revenues that could then be used to underpin our assessment of long-term fiscal sustainability. The simplest approach would be to keep primary receipts as a share of GDP constant at the forecast 2030-31 level of 41.3 per cent of GDP.[1] This would allow an assessment of the fiscal consequences of the long-term spending pressures, set out in the previous chapter, if the tax take were unchanged.

4.7 However, long-term pressures could potentially also drive changes to the level of taxation in future, in the absence of changes to policy that are designed to offset them. Assessing the potential implications of these pressures allows us to build up a range of scenarios for long-term tax revenues that provide a richer picture of the outlook for fiscal sustainability. In this section, we therefore first assess the potential impact on tax of long-term policy commitments on net zero and tobacco use. We then consider the possible direct impact on some of the main revenue streams – income tax, NICs, VAT and some capital taxes – of demographic change and economic trends such as rising wealth and technological change. To do this we use the same methodology that underpins the spending projections, applying projected changes in the population age structure to estimated tax liabilities by age. Lastly, we consider the impact of the choice of long-term assumptions for the indexation of personal tax thresholds.

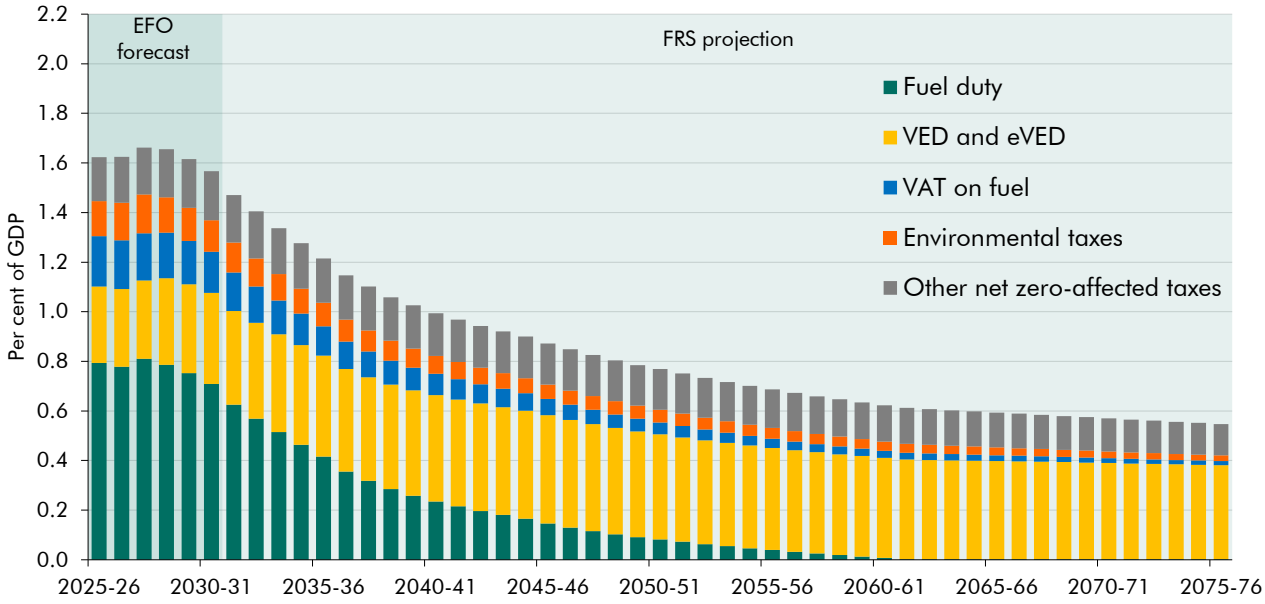
Impact of long-term policy commitments on future revenues

Impact of the transition to net zero on future revenues

4.8 As set out in the 2025 *Fiscal risks and sustainability report* (*FRS*), the most significant fiscal cost of the commitment to reduce carbon emissions to net zero by 2050 is due to the loss of revenues linked to carbon emissions, in particular fuel duty. Government taxes carbon emissions indirectly through several duties on petrol and other hydrocarbon fuels, motoring, aviation, and waste, and more directly through environmental levies and taxes. As these sectors transition to net zero and emissions are projected to fall, we project that total revenue from the affected taxes could fall from 1.6 per cent of GDP in 2030-31 to 0.5 per cent in 2075-76 (Chart 4.2).[2,3]

[1] Primary receipts refer to non-interest revenues, and are the focus of our long-term receipts projections. Public sector current receipts (PSCR) include interest and dividend receipts – where figures refer to PSCR rather than primary receipts, this is stated explicitly. Interest and dividend receipts are incorporated into our long-term scenarios for public sector net borrowing and debt presented in Chapter 5, alongside debt interest spending.
[2] We have used the same methodology as in our 2025 *FRS*, where we use the Climate Change Committee's (CCC's) Seventh Carbon Budget advice released in February 2025, which contains whole-economy costs based on a balanced pathway to achieving net zero by 2050. We have updated inputs where new data is available including aligning to our most recent medium-term forecast.
[3] Net zero-affected taxes include fuel duty, VAT on petrol and diesel, vehicle excise duty, electric vehicle excise duty, air passenger duty, landfill tax, plastic packaging tax, the emissions trading scheme, carbon price support and climate change levy. The 2025 *FRS* provides further details.

Chart 4.2: Long-term projection for net zero-affected taxes



Source: HMRC, OBR

4.9 Around three-quarters of the expected decline in receipts is from the loss in fuel duty revenues due to the transition to electric vehicles. Fuel duties are projected to fall to 0.1 per cent of GDP by around 2045-46 and approach zero beyond that. This reflects the current policy that all new cars and vans should be zero-emission by 2035, and new HGVs by 2040. These projections are based on an assumption that fuel duty will be uprated annually by RPI. However, increases to fuel duty rates have been postponed for the past 15 consecutive years. Assuming that fuel duty rates continue to be permanently frozen rather than uprated annually from April 2027 would mean fuel duty revenue falling to 0.1 per cent of GDP earlier in the long-term projections, around 2042-43.

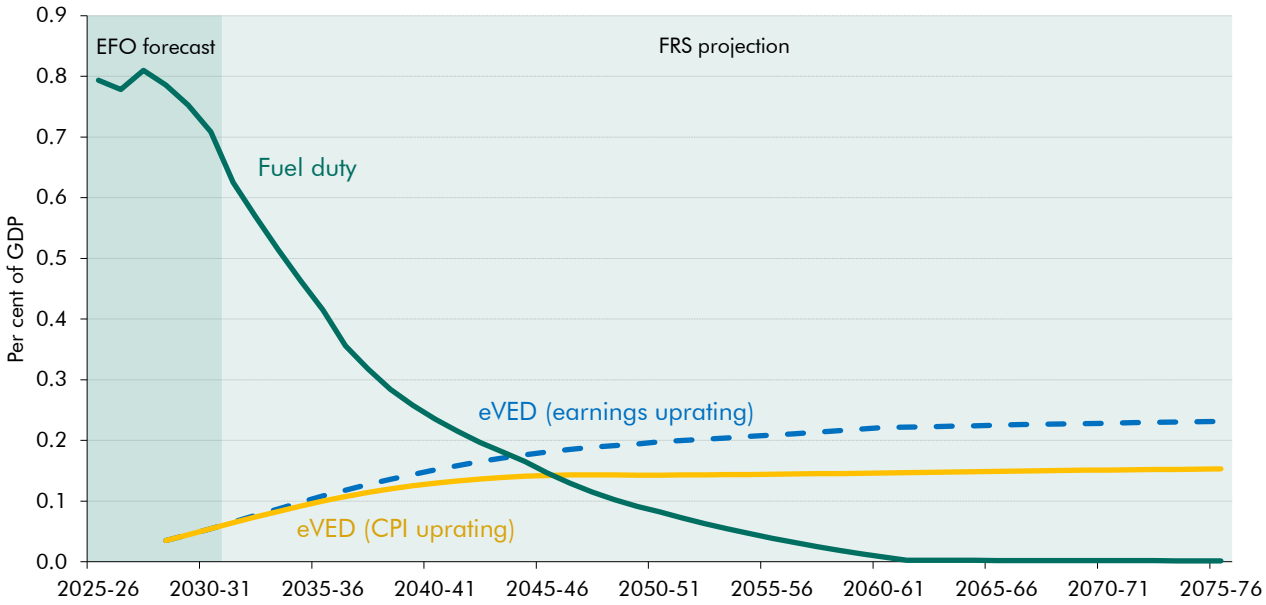
4.10 Around a quarter of this decline in fuel duty revenues is expected to be offset by the new electric vehicle excise duty (eVED) announced in the 2025 Budget (Chart 4.3). This is a new mileage-based charge on electric cars, additional to current vehicle excise duty (VED) charges, which will be implemented from April 2028.[4,5] In 2028-29, the charge will be roughly equivalent to half the rate of fuel duty paid by drivers of petrol and diesel vehicles. In addition, current eVED policy is that it applies only to cars and not to vans and lorries, which currently contribute around 35 per cent of fuel duty receipts. It is for these two reasons that eVED revenues are only projected to partially offset the decline in fuel duty from the switch to electric vehicles.

4.11 We project long-term revenues for motoring taxes based on the policy assumption that eVED is uprated with CPI from 2029-30. We use this assumption, which is based on current stated medium-term policy, to be consistent with the approach for fuel duty, and the modelling of the long-term impact of eVED we included in the November 2025 *EFO*. Chart 4.3 also shows how the long-term projections would differ if we instead assumed that eVED

[4] See paragraphs 3.36 to 3.37 of our November 2025 *Economic and fiscal outlook* for more detail on this measure.
[5] Electric vehicles have also been liable to pay VED since April 2025, but at a lower rate in the first year.

rates were uprated in line with earnings. In this case, eVED would offset around a third of the loss in fuel duty revenues.

Chart 4.3: Long-term projections of fuel duty and eVED revenues



Source: HMRC, OBR

4.12 Revenue from VAT charged on petrol and diesel is also expected to decline due to the transition to electric vehicles. VAT on petrol and diesel for cars, which is charged at the standard rate of 20 per cent, raised around £6.2 billion of revenue in 2025-26 (0.2 per cent of GDP). Assuming consumers instead distribute this spending proportionally across standard-, reduced- and zero-rated VAT goods and services, this portion of VAT receipts is projected to fall to less than 0.1 per cent of GDP by 2075-76. Finally, we project that direct carbon taxes and levies – from the UK's emissions trading scheme, carbon price support and climate change levy – would fall from 0.1 per cent of GDP in 2030-31 to close to zero in 2075-76.[6]

Impact of the tobacco ban on future revenues

4.13 The Government has also made a long-term policy commitment that from 2027 the sale of tobacco products to anyone born on or after 1 January 2009 will be banned.[7] This would mean that only individuals aged 68 or older would still be able to purchase tobacco at the end of our projection period in 2075-76. Taking into account both this ban and the existing trend towards declining tobacco use, tobacco duty receipts are projected to fall from 0.2 per cent of GDP in 2030-31 to virtually zero in 2075-76. There has been significant growth in vaping in recent years. However, revenue from taxation on vaping is only forecast to be 0.02 per cent of GDP in 2030-31 and so based on current policy is unlikely to provide a material offset to the future loss of tobacco revenue.

[6] This is based on the CCC's balanced pathway of various emissions. For more detail see our 2025 *Fiscal risks and sustainability report*.
[7] See the *Tobacco and Vapes Act 2026* for more information.

Potential impact of demographic changes on future revenues

4.14 As set out in Chapter 2, the 2024-based ONS principal population projection suggests that there will be significant demographic change over the next 50 years, with a shift towards significantly fewer young people and more older people in the population relative to working-age people. Annex C sets out our latest estimates of the shares of taxes paid by individuals at different ages, based on outturn and survey data on the typical tax liabilities of people of a given gender and age. We combine these with population projections to produce estimates of the potential direct impact of these demographic changes on receipts over the long term.[8]

4.15 These projections are based on the assumption that tax liabilities by age remain constant as a share of GDP beyond our medium-term forecast, so that changes in tax receipts primarily reflect shifts in the population's age structure. This approach is not relevant to all tax streams. For example, there is weaker evidence that would support allocating corporation tax receipts to individuals by age. In this section, we therefore only consider those taxes where there is reasonable evidence or a theoretical basis for tax liability being linked to age.

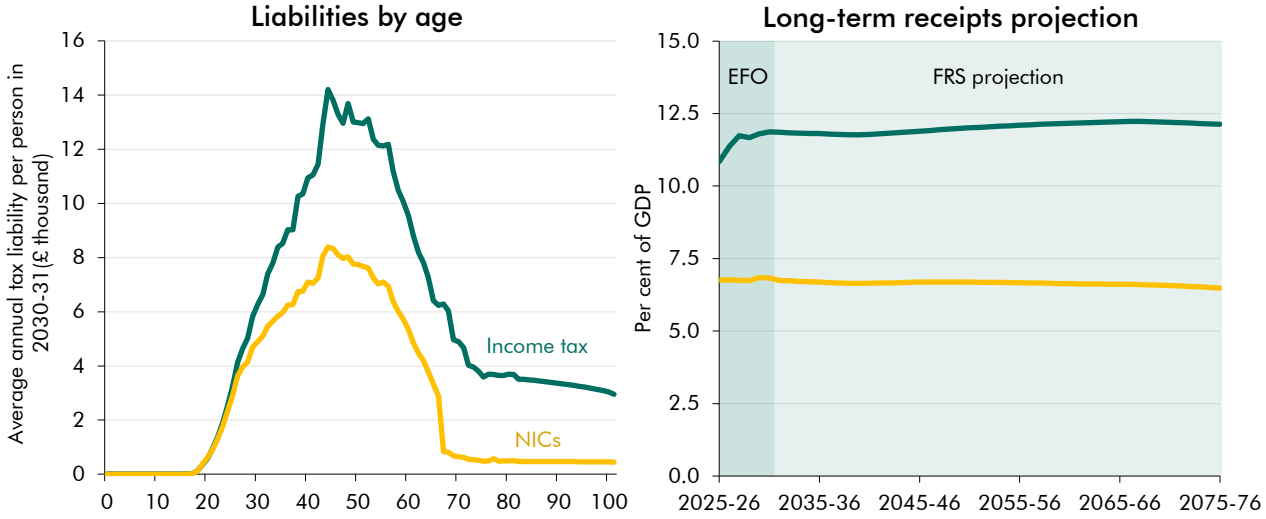
Income tax and NICs

4.16 The left panel of Chart 4.4 shows our latest estimate of average income tax and NICs liabilities per person by age, which is explained further in Annex C. From age 17, income tax liabilities steadily increase with age until peaking when individuals reach around age 45. Income tax liabilities then reduce with age and stabilise once individuals reach the state pension age. This reflects the fact that earnings and labour participation rates are highest in the middle of working lives, and in combination generally peak around age 45. This is amplified by the progressive nature of the income tax schedule which means that higher earners pay a higher average tax rate. NICs liabilities follow a similar pattern but with liabilities falling close to zero after state pension age after which employee NICs is not paid. In addition, because the structure of NICs is less progressive than income tax, liabilities rise less sharply as earnings increase. For both income tax and NICs, the lifetime trends are similar across genders though the average liability is lower at all ages for women.

4.17 Despite this significant variation in average income tax liabilities across ages, our projections suggest that, other things equal, future demographic changes would have only a marginal impact on income tax and NICs receipts as a share of GDP. As shown in the right panel of Chart 4.4, income tax would rise very slightly due to a larger share of workers being older and therefore assumed to have, on average, higher earnings. However, NICs receipts would fall very slightly because there would be a higher proportion of the population above the state pension age and therefore largely not paying NICs.

[8] Changes in the population age structure also affect receipts via their effects on overall labour participation rates, which are reflected in our economic assumptions set out in Chapter 2. The direct effects of the changing population age structure on receipts considered here are implicitly additional to those captured in our underlying economic assumptions.

Chart 4.4: Income tax and NICs: age profiles and long-term receipts projections



Source: OBR

4.18 A key question for the purposes of projecting long-term tax revenues is whether these age-based patterns would hold as the age structure of the population changes, i.e. whether relative earnings and employment rates by age would remain constant with an ageing population. It may be that earnings patterns by age would shift broadly in line with the shifting age structure of the population such that changing demographics have little effect on overall labour tax receipts. For example, as the share of older workers increases throughout the projection period, the assumption that earnings increase as individuals remain in the workforce may not hold as strongly, as there may be limited senior positions associated with higher wages available in the labour market. It may also be that there are changes in these age-based patterns driven by shifts in the overall demographic structure of the population. For example, an increase in the old-age dependency ratio could lead individuals to increase their work effort, so maintaining their earnings peak for longer, if they believe public spending pressures caused by demography will mean less government support in old age. Box 2.1 in Chapter 2 explores the economic implications of an ageing population in more detail. It sets out how an ageing population could reduce overall labour participation and aggregate earnings, but that this could be partially offset by rising participation at older ages.

4.19 Implicit in our approach to these projections is an assumption that the share of economic growth that is captured by labour remains unchanged. This is consistent with the evidence that the labour share of income in the UK has remained broadly stable at around 55 per cent of GDP since the mid-1980s.[9] However, technological change, in particular from the growing use of AI in the economy, could conceivably lead this to change significantly in the future. We discuss this further in Box 4.1.

[9] The labour share of income is defined as wages and salaries, plus employer social contributions, plus mixed income, divided by nominal GDP.

Box 4.1: The potential impact of AI on the labour share and tax receipts

An important area of uncertainty in our long-term projections is the impact that the increased use of artificial intelligence (AI) could have on the economy and on future tax receipts. Tax revenue is driven both by overall nominal **GDP growth** and by the composition of GDP, particularly the **shares relating to labour and profits** – both because the effective tax rate on each is relatively high and because it is currently higher on labour than on profits.[a]

AI could significantly affect **overall GDP growth** through its impact on productivity growth. But the size of this effect is extremely uncertain, with a very wide range of estimates in the economic literature. In *Briefing paper No.9: Forecasting productivity*, based on this literature and our own analysis, we produced a central estimate that AI could boost annual UK productivity growth by 0.2 percentage points over the next decade, but also considered alternative scenarios where this effect was less than 0.1 percentage points or reached up to 0.8 percentage points. In Chapter 2, we explain that a larger long-term impact from AI is one motivation for the higher productivity scenario we use in this report.

AI could also significantly affect the **relative shares of GDP going to labour and profits**, which is the focus of this box. The effective tax rate on labour income is higher than on profits, so a lower wage and salary share would, other things equal, decrease tax receipts (and vice versa). The framework presented by Acemoglu (2024) suggests that the long-term impact of AI adoption on the labour share will depend on the degree to which AI becomes incorporated into economic activity, whether it functions as a substitute or a complement to existing labour, and the degree to which new jobs are created by AI.[b,c] In more detail, Acemoglu suggests that:

- If AI is used as a **substitute for labour**, so that work tasks previously done by workers will be done by AI, then the income from this work will largely accrue to the owners of AI capital rather than workers (although wages may still increase).[d] This could be associated with a reduction in the share of labour income in GDP.
- If AI functions as a **complement to labour**, it will make workers more productive and raise their wages. However, this would have an ambiguous effect on the overall share of labour compensation in GDP as it will also raise returns to capital.[e]
- AI will likely create **new tasks and jobs**, either directly as a result of the emergence of new tasks that are complementary to AI or indirectly as higher productivity from AI raises real incomes and creates new demand. Where these tasks are labour intensive, this raises the labour share under Acemoglu's framework.

The net impact of AI on the labour share is therefore not clear as it depends on the balance of these factors, alongside the degree to which they affect the relative bargaining power of employees and employers. To date, most studies find significant scope for AI to both complement and substitute for labour, especially in more developed economies.[f,g,h] The estimates we produced in *Briefing paper No.9* for the UK economy suggest that, over the next 10 years, around 10 per cent of the UK labour force could be exposed to substitution from AI and a further 30 per cent could have their work complemented.[i] There is some support in the literature for

future developments in AI capability leading to a greater share of work being substituted beyond the next 10 years – though this is very uncertain.[i]

Our baseline long-term scenario in this report implicitly assumes that the labour and profit shares remain similar to the shares at the end of our medium-term forecast in 2030-31. This would be in line with the stable trend seen over the previous 40 years – a period which included the adoption of the previous general-purpose technology (GPT) through the ICT revolution. A long-term shift in the labour share would require generative AI to be significantly different to previous GPTs, where job destruction has resulted in higher productivity and higher wages for existing workers, and a limited overall impact on the labour share. Drozd and Tavares (2024) have suggested that this could occur because AI differs from previous new technologies which were automating tasks that were already heavily mechanised.[k] To demonstrate the potential fiscal consequences of changes in the labour share, we present an illustrative scenario where the share of GDP accounted for by wages and salaries declines significantly:[l]

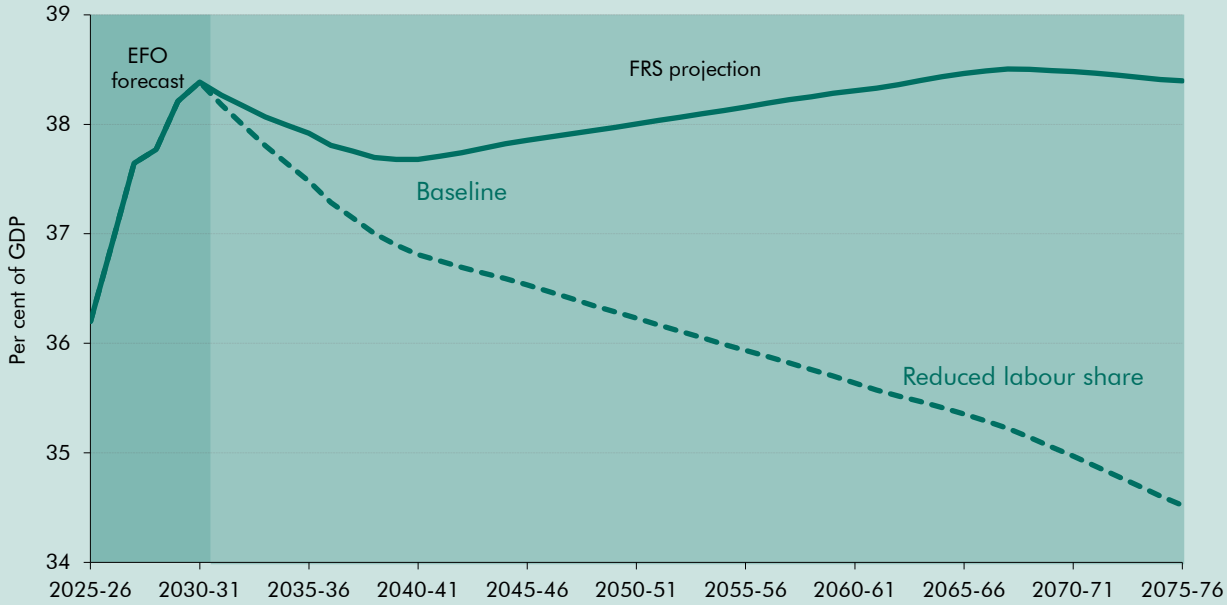
- In the **baseline scenario**, wages and salaries are unchanged at 40 per cent of GDP. Tax as a share of GDP remains roughly constant at 38 per cent (Chart E). This would be consistent with Acemoglu and Restrepo's (2019) finding that historically, displacement effects have largely been offset by task creation and labour reinstatement.[m]
- In the **reduced labour share scenario**, AI – in net terms – leads to a significant reduction in jobs in the economy and/or large changes in relative wage bargaining power away from workers to employers. The wage and salary share falls from 40 per cent in 2030-31 to 20 per cent in 2075-76. Much of the literature supports AI putting downward pressure on the labour share,[n] but the scale of reduction we present here is at the upper end of the scenarios explored in it, such as Benzell et al. (2015) or Drozd and Tavares (2024).[o,p] In our reduced labour share scenario, total GDP is unchanged relative to the baseline but tax falls to under 35 per cent of GDP over the same period, nearly 4 percentage points lower than in the baseline. This occurs because the fall in taxes paid on wages and salaries, which have an average effective tax rate (ETR) of 46 per cent over the projection, is only partly offset by a rise in taxes paid on profits, for which the average ETR is 27 per cent.[q]

This reduced labour share scenario is highly stylised. For example, it assumes the effective tax rates on profits and wages and salaries are unchanged from the baseline. However, ETRs could change – for example, if AI affects the earnings distribution, or if future governments respond with changes to policy. The scenario also assumes that additional corporate profits from AI would be captured by existing taxes. However, it may be that this income cannot be efficiently taxed using existing instruments, and so some commentators have suggested that increased taxes on consumption or wealth, or new taxes directly on AI use, could be needed.[r,s]

There are also wider areas of potential fiscal risk associated with AI, including: the gains from AI accruing offshore or in parts of the economy that are hard to tax; increased public spending pressures due to structurally higher unemployment (see Box 2.2 in the March 2026 *Economic and fiscal outlook*) and/or the need to retrain workforces and support the transition to new occupations; or other countries building a dominance in AI infrastructure and attracting capital

away from the UK, leading to higher interest rates.[t] AI also presents potential opportunities for improved public service delivery that could reduce fiscal pressure.

Chart E: National Accounts taxes projection under AI-driven labour share assumptions



Note: This scenario focuses just on tax receipts using the National Accounts definition, and so differs to other measures of receipts shown in this chapter.
Source: OBR

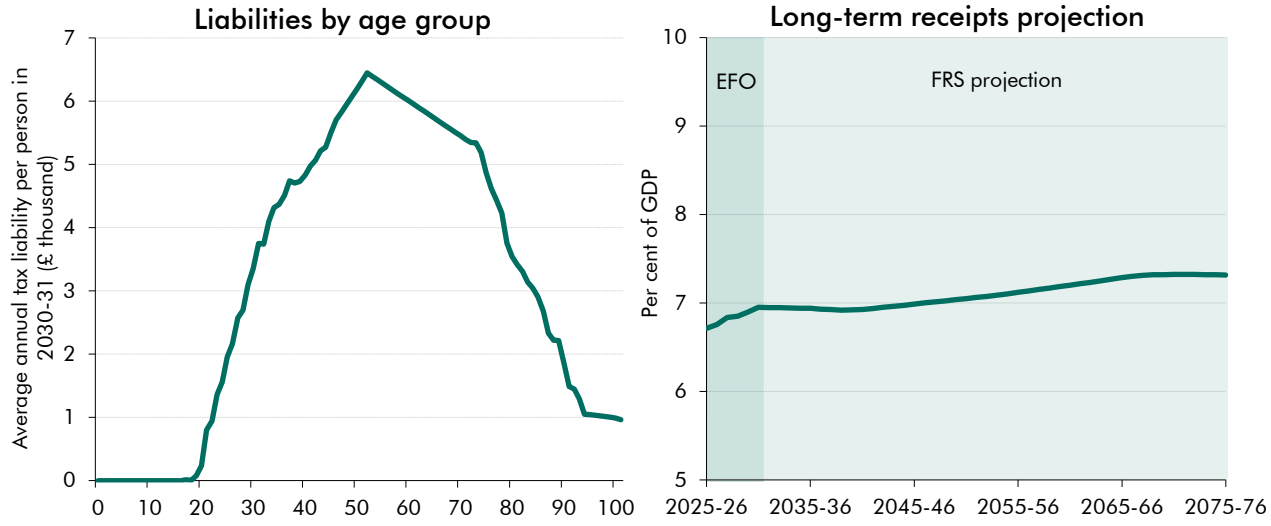
[a] In this analysis we focus on the shares of GDP related to wages and salaries for 'labour', and profits for 'capital', as this is the classification used in our forecasts and ONS outturn. The literature generally considers a split of the economy purely between labour and capital (consistent with a Cobb-Douglas production function). This definitional difference does not affect the conclusions – AI adoption could reduce the labour share (and therefore wages and salaries) while increasing the capital share (and therefore profits).
[b] Acemoglu, D., and P. Restrepo, *Artificial Intelligence, Automation and Work*, NBER, 2018.
[c] Acemoglu, D., *The Simple Macroeconomics of AI*, Economic Policy, 2024.
[d] Autor, D., and B. Kausik, *Resolving the automation paradox: falling labour share, rising wages*, 2026.
[e] AI may also function as a complement to capital, for instance by improving the efficiency of already-automated tasks. This would be expected to increase the capital share of income.
[f] Comunale, M., and A. Manera, *The Economic Impacts and the Regulation of AI: A Review of the Academic Literature and Policy Actions*, IMF, 2024.
[g] Gmyrek, P., J. Berg, and D. Bescond, *Generative AI and jobs: A global analysis of potential effects on job quantity and quality*, International Labour Organisation, 2023.
[h] Sharps, S., et al., *The Impact of AI on the Labour Market*, Tony Blair Institute, 2024.
[i] See Annex B of *Briefing paper No.9: Forecast Productivity*, November 2025.
[j] Auer, R., et al., *The rise of generative AI: modelling exposure, substitution, and inequality effects on the US labour market*, BIS, 2024.
[k] Drozd, L., and M. Tavares, *Generative AI: A Turning Point for Labor's Share?*, Economic Insights, Federal Reserve Bank of Philadelphia, 2024.
[l] This scenario presents a reduction in the labour share at the high end of those considered in literature, in excess of the 'faster automation' scenario modelled by Benzell and others (Benzell S., et al., *Robots Are Us: Some Economics of Human Replacement*, National Bureau of Economic Research, 2015), but not as significant as that considered by Korinek and Lockwood (Korinek, A., and Lockwood, L., *Public finance in the age of AI: A primer*, Brookings, 2026).
[m] Acemoglu, D., and P. Restrepo, *Automation and New Tasks: How Technology Displaces and Reinstates Labor*, Journal of Economic Perspectives, 2019.
[n] Acemoglu, D., *The Simple Macroeconomics of AI*, Economic Policy, 2024.
[o] Benzell S., et al., *Robots Are Us: Some Economics of Human Replacement*, National Bureau of Economic Research, 2015.
[p] Drozd, L., and M. Tavares, *Generative AI: A Turning Point for Labor's Share?*, Economic Insights, Federal Reserve Bank of Philadelphia, 2024.
[q] For the purposes of calculating ETRs for this scenario, taxes on income include income tax and NICs, and taxes on capital include corporation tax and capital gains tax. These differ from ETRs presented elsewhere in this chapter given the definitions used for labour and capital income and taxes in this scenario, but this does not affect the general results in the scenario.
[r] Korinek, A., and L. Lockwood, *Public finance in the age of AI: A primer*, Brookings, 2026.
[s] Leong, T., et al., *Mapping Tax Risks From Labour-Displacing AI*, Windfall Trust, 2026.
[t] Ibid.

VAT

4.20 Like income tax and NICs, average VAT liabilities also vary significantly across ages (left panel of Chart 4.5), peaking when individuals reach their mid-50s which coincides with the point at which earnings and incomes peak. Average liabilities initially remain high once individuals reach state pension age, which is likely due to spending lump-sum pension withdrawals, but then decline steeply through older ages. Because the VAT age profile is based on surveys of household spending, it attributes all consumption to a single adult in the household. This means that VAT liabilities are assumed to be zero for all individuals aged 16 and below. In the baseline population projections, this group as a share of the population is expected to fall from 19 per cent in 2025 to 14 per cent in 2075.

4.21 Applying this age profile to the ONS population projections suggests that VAT is projected to increase slightly from around 7 per cent of GDP in 2030-31 to 7½ per cent of GDP in 2075-76. This is driven by the relative increase in the population share of older workers in the projection and the relative decline in the share of individuals below age 18.

Chart 4.5: VAT: age profile and long-term receipts projection



Source: OBR

4.22 Similar to personal taxes, these age-based patterns of VAT liability may not hold as the age structure of the population changes, as spending patterns may not be constant by age. For example, we may expect less spending by adults as a result of fewer children, allowing for higher levels of saving or resulting in a reduction in labour supply due to a lower level of income required to fund household spending. The decline in average liabilities at older ages could also be somewhat offset by expected higher levels of wealth held by future generations in old age, explored further in paragraphs 4.25 to 4.28.

Inheritance tax and capital gains tax

4.23 Demographic effects are also likely to be relevant to long-term projections of capital taxes. An older population and greater numbers of deaths would result in increased inheritance tax (IHT) liabilities. IHT liability is linked to age of death and so concentrated on those aged

80 and above (see Annex C for details), with the share of the population in this age group expected to increase from 5 per cent of the population in 2025 to 12 per cent in 2075.[10] Applying this age profile to the population projections implies inheritance tax revenues would double, increasing from 0.4 per cent of GDP in 2030-31 to 0.9 per cent of GDP by the end of the long-term projection period (green line in the left panel of Chart 4.6).

4.24 The age profiles we use suggest that capital gains tax (CGT) receipts will be less driven by demographic factors than inheritance tax over the coming half-century, because liabilities are more spread across the age distribution and concentrated at ages 40-79 (see Annex C). Applying this age profile to the ONS population projection therefore implies a relatively flat path of capital gains tax revenues as a proportion of GDP by the end of the projection period (green line in the right panel of Chart 4.6).

4.25 The use of age profiles to estimate CGT and IHT receipts implicitly assumes that tax liabilities by age are unchanged throughout the projection period – that is, that wealth crystallising into liabilities over the projection period, and the future growth of wealth, are unchanged relative to GDP from the levels in the medium term. This is consistent with our baseline assumption across many areas of tax and spending that, absent demographic effects, receipts would remain broadly constant as a share of the economy (see Chapter 1). Such an approach does not therefore incorporate any effects from the concentration of accumulated wealth in specific cohorts, or the fact that the growth of household wealth has outpaced that of GDP in recent decades. We consider these two effects below.

4.26 There is much evidence to suggest that recent generations of older households are wealthier than previous generations at the same point in their life cycle.[11] These effects have been largely driven by the increase in private homeownership in the 1970s and 1980s and subsequent large increases in average house prices.[12] Generations that bought housing before sustained house price growth have accumulated more wealth over their lifetimes, which means the value of estates at death are higher, leading to an increase in expected inheritance tax liabilities.

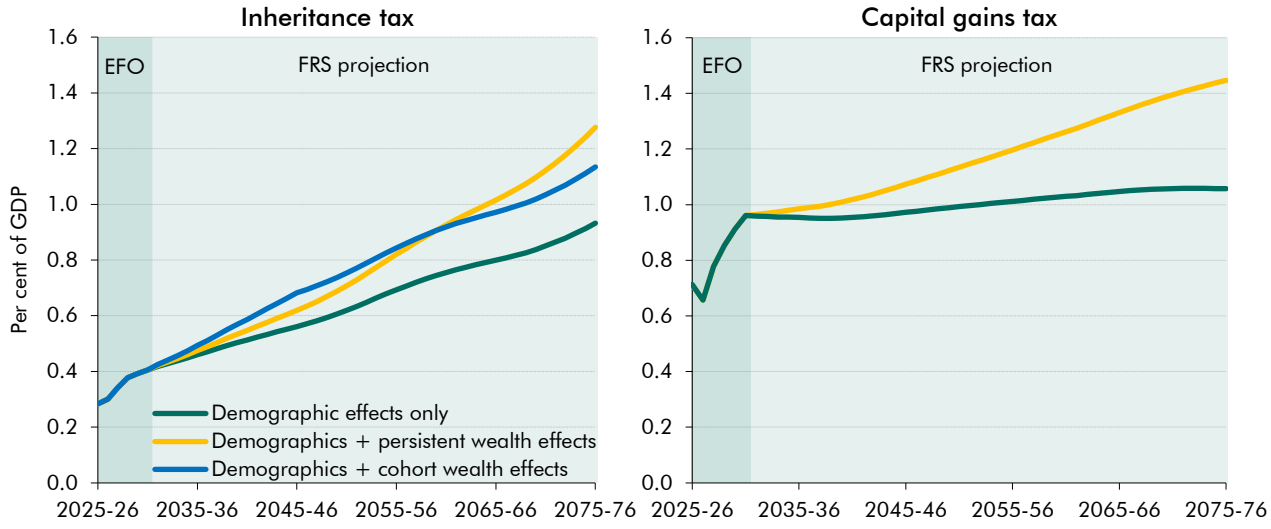
4.27 Estimating the impact of these cohort effects on wealth is highly uncertain. To do so we have considered the implied accrued wealth of the 'baby boomer' generation (born between 1946 and 1964) from HM Revenue and Customs (HMRC) data on the value of assets in tax-paying estates. Comparing the average value of assets of someone born in the early 1930s with someone born later in the early 1950s allows us to estimate a multiplier for expected increases in inheritance tax liability over the coming decades as wealthier cohorts reach the end of life.[13,14] This approach implies that inheritance tax as a share of GDP could be 0.2

[10] The inheritance tax profile is based on the ages at which people died in the underlying estates data. Like other age profiles, this profile is applied to the ONS population projections by age, rather than death projections specifically – the effect on receipts is very similar to that if death projections were used.
[11] See for example Sturrock, D., *Wealth and welfare across generations,* April 2023.
[12] See for example Advani, A., and D. Sturrock, *Reforming inheritance tax,* September 2023.
[13] This modelling relies on stylised assumptions to identify differences in cohort wealth levels. It also incorporates a standard attrition adjustment (40 per cent) to account for tax planning behaviours, meaning that the differential in wealth between cohorts is greater than the differential in IHT receipts as a result of this wealth.
[14] We do not present cohort effects for other capital taxes, such as CGT, given tax crystallisation is more dispersed over an individual's lifetime and concentrated in older working age, implying that any cohort effects from those cohorts who benefited most from historical housing wealth gains are largely already being felt in receipts.

percentage points higher following the expected peak of deaths from this cohort (blue line in the left panel of Chart 4.6), when comparing to a scenario with just the standard demographic effects (explained in paragraph 4.23). These estimates are in line with those produced by the Institute for Fiscal Studies over a somewhat shorter time horizon.[15,16]

4.28 These cohort effects are reflected in the trend over recent decades of household wealth growth outpacing growth in GDP: since around 1980, wealth captured in household survey and similar data has grown from around 300 to around 700 per cent of GDP.[17] Instead of principally reflecting a cohort effect whose implications for receipts will wane eventually, we also consider an alternative scenario where this trend of wealth growth outpacing GDP growth continues across our projection period, but at a slower pace. We calibrate this scenario based on the differential between growth in wealth and growth in GDP persisting at roughly half that of the past four decades over the coming 50 years. This assumption reflects the fact that some forces that have pushed up asset prices over the past 40 years, such as the fall in interest rates from very high interest levels in the early 1980s, might not be expected to continue.[18] The yellow lines in each panel of Chart 4.6 show the effects of this illustrative scenario on IHT and CGT receipts, which in combination rise to 2.7 per cent of GDP at the end of the projection period, compared to 2.0 per cent in the scenario where only standard demographic effects are accounted for (green lines in Chart 4.6).

Chart 4.6: Long-term receipts projections for inheritance tax and capital gains tax



Source: OBR

[15] The Institute for Fiscal Studies projects the distribution of IHT payments using a wealth distribution observed in the Wealth and Assets Survey. This method predicts strong growth in IHT revenues, estimating an increase of around 0.2 per cent of GDP by 2032-33.
[16] Along with HMRC we evaluated potential cohort effects from rising wealth in the medium-term forecast ahead of the November 2025 forecast by calibrating historical forecasts to outturn, and analysed past fiscal forecasting differences. We found no evidence of bias relating to cohort effects in the current medium-term modelling approach. We will continue to keep this under review as we receive further outturn data.
[17] Pittaway, S., *Wealth check,* July 2024.
[18] We also include the same attrition assumption to that in our cohort effects scenario – 40 per cent – to account for tax planning behaviours muting growth in tax receipts relative to the growth in wealth.

Summary of potential demographic effects on long-term revenues

4.29 Overall, the direct implications of demographic change for tax receipts are much more muted than for spending. Income tax and VAT receipts could rise very slightly as a result of the population shifting towards older working-age adults with higher average liabilities, while NICs receipts could fall very slightly as a larger share of the population moves above state pension age. The most significant potential positive effect comes through inheritance tax, where an older population results in higher receipts, which is amplified when potential cohort wealth effects are accounted for.

4.30 Therefore, while demographic change does not generate significant downward pressure on tax revenues, it also does not create material upward pressures that could naturally offset the much larger demographic pressures on spending detailed in Chapter 3. Overall, we project, based on the assumptions set out in this chapter, that demographic change could push up on overall receipts by only just over 1 per cent of GDP by the end of the projection period. There is potential downside risk to this from AI and other technological change reducing the share of GDP going to labour instead of profits, as discussed in Box 4.1.

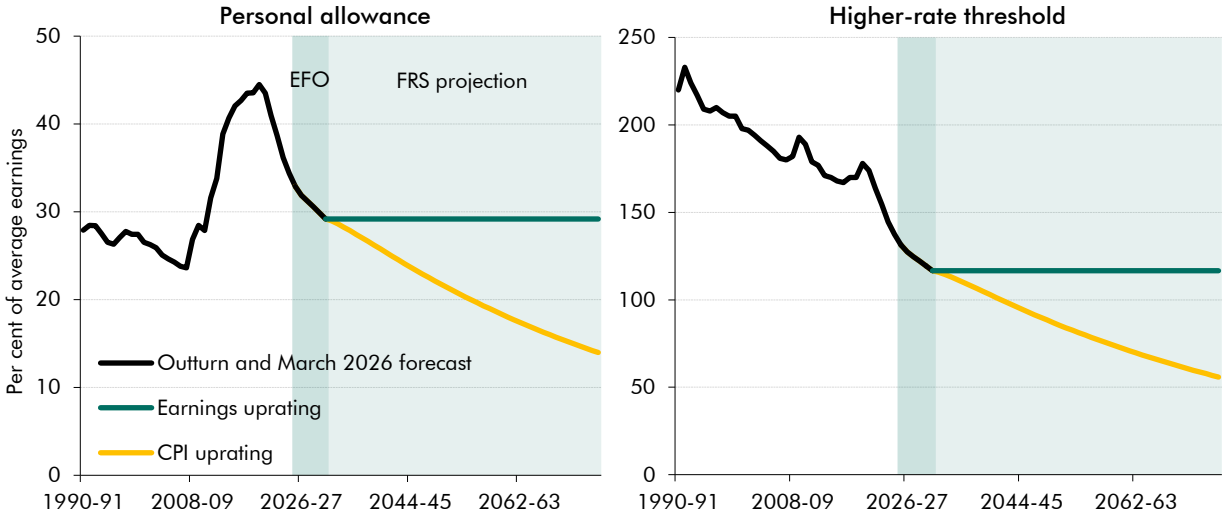
The long-term impact of assumptions on personal tax threshold uprating

4.31 As set out in Chapter 1, the projections in this report are constructed based on a set of assumptions which represent unchanged government policy over the next 50 years. The long-term scenarios set out above are based on the assumption that personal tax thresholds rise in line with average earnings. This is consistent with the way in which we define unchanged policy across most areas of tax and spending, by assuming that, absent the impact of demographic and other long-term pressures, tax or spending as a share of GDP would remain broadly constant at the 2030-31 level. However, this approach is not consistent with the legislated default assumption which is that most personal tax thresholds are grown with CPI inflation. And, in practice, recent governments have chosen to fix most personal tax thresholds in cash terms from 2021-22 until 2030-31.

4.32 If future governments were to decide to continue this practice, or even to return to uprating with inflation rather than earnings, this would have a very significant effect on the long-term projections. Because we assume that earnings rise consistently faster than inflation, uprating tax thresholds with CPI over 50 years would result in a very significant increase in the effective tax rate on incomes and therefore change to the structure of personal taxation. Our economic assumptions set out in Chapter 2 entail earnings growing by an average of 1.7 percentage points per year faster than CPI inflation over our projection period, in contrast to trends since around 2010 when the average rate of growth in each has been similar. This difference between earnings and inflation trends in our long-term economic assumptions compared to the recent past is a further reason, beyond our general approach to defining unchanged policy across a range of areas of tax and spending, for making a different assumption about personal tax threshold uprating to that reflected in legislation or recent practice.

4.33 To illustrate this, Chart 4.7 compares a scenario in which the personal allowance and higher-rate thresholds are uprated in line with CPI inflation, against our baseline scenario in which they are assumed to grow in line with average earnings. It shows that, between 2030-31 and 2075-76, the personal allowance would decrease as a share of average earnings from 29 per cent to 14 per cent, while the higher-rate threshold would fall from 117 per cent of average earnings to 56 per cent of average earnings. Chart 4.7 also shows that, over the past 35 years, while the higher-rate threshold has steadily fallen as a share of average earnings, the value of the personal allowance was relatively stable until rising sharply in the 2010s, and then declining again in the past five years.

Chart 4.7: Personal tax thresholds relative to average earnings



Note: 'Average earnings' uses ONS average weekly earnings data.
Source: IFS, ONS, OBR

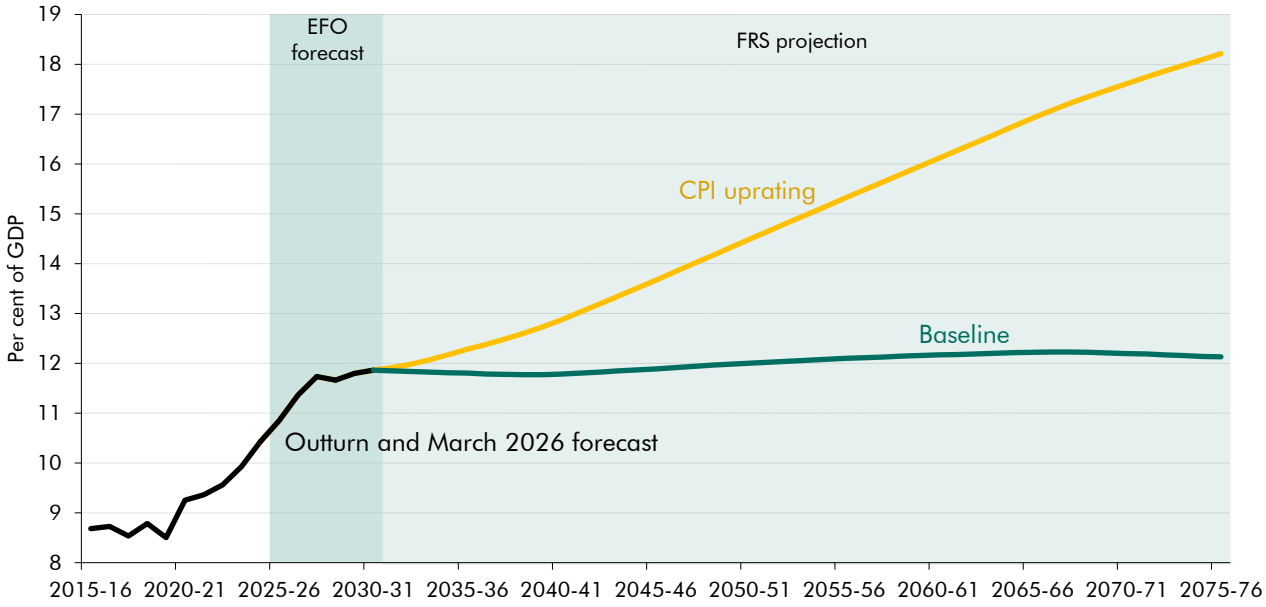
4.34 Recognising that different approaches could be taken to representing unchanged government policy, we produce a receipts scenario in which personal tax thresholds are uprated with inflation, rather than average earnings, over the long term. Chart 4.8 shows that in this scenario, income tax receipts rise by around 6 per cent of GDP over the projection period, from 12 per cent of GDP to 18 per cent to GDP. This reflects both the higher number of people who pay tax due to the lower personal allowance, and the greater proportion of income earned which is subject to a higher marginal tax rate. The effective tax rate on income would increase from 21 per cent under the assumption of earnings uprating, to 31 per cent under CPI uprating. We focus here on income tax receipts, given that NICs receipts would be broadly unchanged due to offsetting effects in employer and employee contributions.[19]

4.35 These results capture only the direct effects of such a change and assume that pre-tax incomes are unaffected by the changes to effective tax rates implied. In practice, the very significant increases in effective and marginal tax rates that this would imply would have a large impact on work incentives, likely leading to materially lower labour supply, and

[19] For employee NICs, CPI uprating of the primary threshold and upper earnings limit (which mirror the personal allowance and higher-rate threshold, respectively) means that more employees pay tax but at a lower average tax rate, reducing receipts. For employer NICs, CPI uprating of the secondary threshold results in more taxpayers and a higher average tax rate, increasing receipts.

affecting wages earned.[20] We consider these issues further in paragraphs 4.46 to 4.50 below.

Chart 4.8: Income tax receipts under CPI uprating assumption



Source: ONS, OBR

Alternative scenarios for long-term receipts

4.36 The analysis in the previous sections considers how several different trends and policy assumptions could affect different tax streams over the long term. We can use this analysis to construct alternative scenarios for the evolution of overall primary receipts over the 50-year projection period, which are shown in Chart 4.9 below, compared to a neutral assumption where the primary-receipts-to-GDP ratio is held flat at the 2030-31 forecast level of 41.3 per cent of GDP:

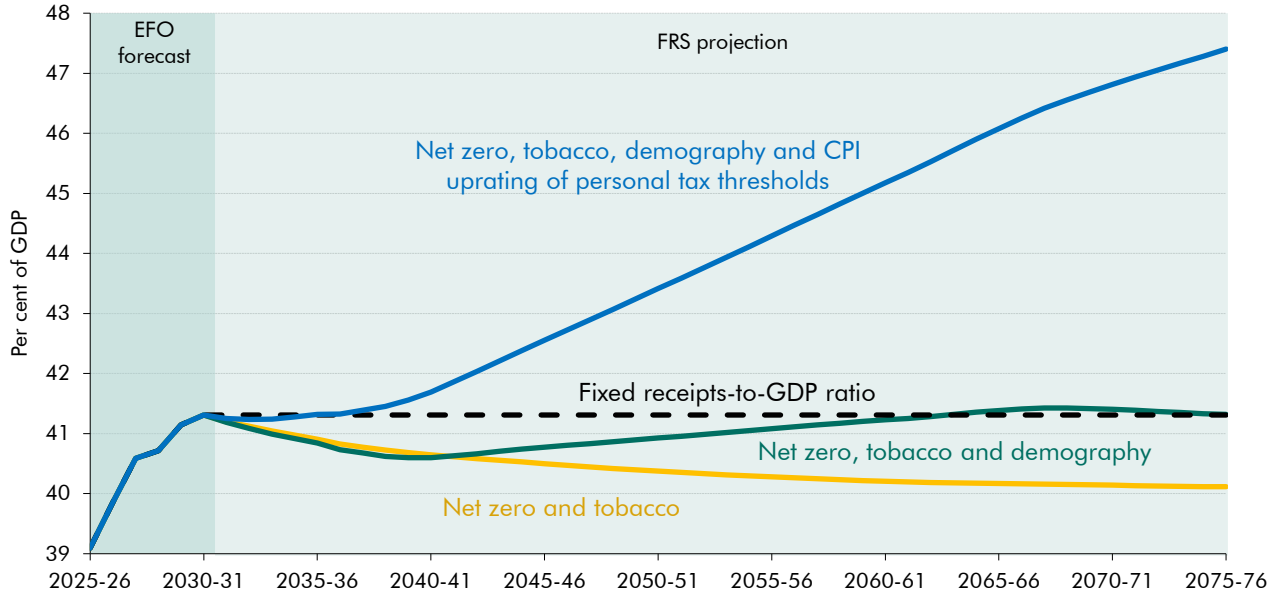
- Incorporating just the effects of the government's **stated long-term policy commitments**, in relation to net zero and tobacco, would reduce primary receipts by around 1.2 per cent of GDP by 2075-76, shown in the yellow line.

- Adding to this the impact of the **demographic changes**, discussed above, on income tax, NICs, VAT, CGT and IHT (including cohort wealth effects in IHT), entails primary receipts falling slightly in the first 20 years of the projection due to the reductions in net zero taxation. Beyond this, primary receipts increase slightly due to demographic changes, to a level that is similar to the 2030-31 starting point by the end of the projection period, shown in the green line.

[20] Our methodology is based on projecting the income by percentile of income taxpayers, from the 2023-24 Survey of Personal Incomes, in line with our forecast for growth in average earnings. We then apply the relevant income tax thresholds (including the personal allowance taper), indexed in line with CPI inflation, and rates, to find the average tax rate paid across the percentiles. We use this to calculate an effective tax rate based on this income distribution and apply it to the projection for total taxable income which underpins our baseline scenario. This methodology does not capture some people who would not pay any income tax under earnings indexation, but become taxpayers under CPI indexation. The fiscal effects of these additional taxpayers would, however, be very small given the strongly progressive structure of the tax system and the relatively small amount of taxable income not captured.

- Additionally assuming that **personal tax thresholds are uprated by CPI** over the projection period, rather than our baseline policy assumption of earnings uprating, would result in receipts rising sharply to around 47 per cent of GDP by 2075-76, shown in the blue line

Chart 4.9: Primary receipts under alternative assumptions



Source: OBR

4.37 Overall, this analysis suggests that the demographic trends and long-term policy commitments that we assess in this report would not have a material impact on the tax-to-GDP ratio over the 50-year projection period. This contrasts with the analysis in Chapter 3, which suggests that demographic and other pressures would significantly raise public spending as a share of GDP, on the basis of our assumptions on what constitutes unchanged government policy. When we combine the analysis of tax and spending, in order to examine the outlook for fiscal sustainability in Chapter 5, we generally use as our baseline the scenario which captures both the effects of the long-term policy commitments and the impact of demographic changes (the green line in Chart 4.9). Table 4.1 shows the breakdown of the projection of major taxes in this baseline scenario.

4.38 The alternative scenario in which we assume that personal tax thresholds are uprated with inflation would lead to a sharp rise in the receipts as a share of GDP, due to the average tax rate rising steadily as more income is pulled into higher tax bands. This is modelled under the strong assumption that this would have no effect on labour supply incentives and GDP growth. In the next section, we therefore explore the potential impact on economic incentives of substantially increasing the level of taxation over the long term.

Table 4.1: Baseline receipts scenario

	Per cent of GDP						
	Forecast[1]		FRS projection				
	2025-26	2030-31	2035-36	2045-46	2055-56	2065-66	2075-76
Income tax	10.9	11.9	11.8	11.9	12.1	12.2	12.1
NICs	6.8	6.8	6.7	6.7	6.7	6.6	6.5
VAT	6.7	7.0	6.9	7.0	7.1	7.3	7.3
Corporation tax	3.3	3.4	3.4	3.4	3.4	3.4	3.4
Capital taxes[2]	1.7	2.3	2.4	2.6	2.8	3.0	3.1
Net zero-affected taxes	1.6	1.6	1.2	0.9	0.7	0.6	0.5
Other receipts	8.2	8.4	8.4	8.4	8.4	8.4	8.4
Total primary receipts	**39.1**	**41.3**	**40.8**	**40.8**	**41.1**	**41.4**	**41.3**
Interest and dividends	1.3	1.4	1.5	1.4	1.3	1.3	1.3
Total receipts	**40.4**	**42.7**	**42.4**	**42.1**	**42.4**	**42.7**	**42.7**

[1] Receipts consistent with the March 2026 *Economic and fiscal outlook*.
[2] Capital taxes include capital gains tax, inheritance tax, property transaction taxes, and stamp taxes on shares.
Source: OBR

The long-term impact of taxation on economic incentives

4.39 The analysis in the Chapter 5 suggests that, on the basis of our assumptions around unchanged policy, over the long term public sector net debt would be put on an unsustainable upward trajectory largely due to demographic and other upward pressures on public spending. This baseline is based on the scenarios, set out above, where receipts remain broadly flat over the next 50 years.

4.40 Therefore, one option for future governments would be to increase taxation with the aim of preventing this upward spiral in debt. For example, as we discuss above, uprating personal tax thresholds by inflation over the long term could generate a significant increase in receipts. But with taxes in the UK already forecast to reach historically high levels in the next five years, raising taxation over the long term to considerably higher levels than currently forecast would have implications for economic incentives and growth. To consider this issue further we first provide context by comparing current levels of taxation in the UK to those in other countries. We then consider the potential impact of steadily increasing labour taxation over the long term on economic incentives.

4.41 In the following discussion we focus on the potential long-term economic effects of higher taxation on labour income. There are of course many other areas of taxation that could be used as long-term sources of revenue, though each would also have impacts on economic incentives to varying degrees. Focusing on labour income taxation is relevant because of:

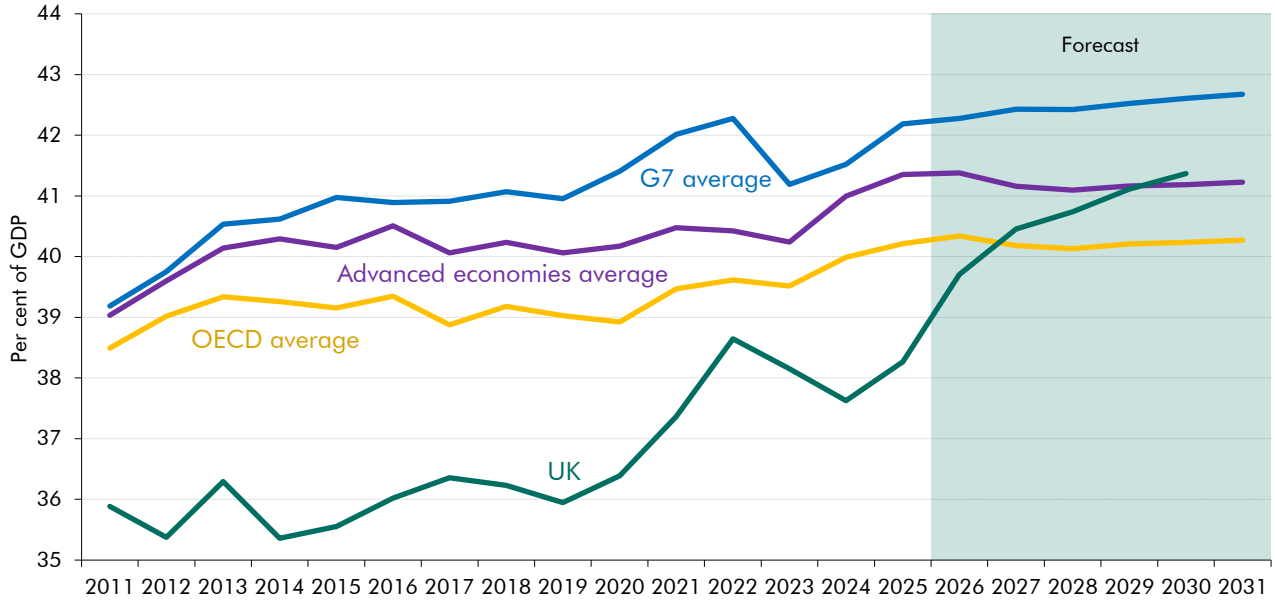
- the relative size of labour-related taxation, with income tax and NICs currently around 40 per cent of total receipts, and these taxes contributing significantly to structural increases in overall receipts over the past century (Chart 4.1);

- the tendency of recent governments to use personal taxation to increase receipts, with threshold freezes through the 2020s estimated to yield in excess of £60 billion by 2030-31, for example; and
- the significant direct yield that would be generated by the long-term CPI uprating of personal tax thresholds scenario set out above (Chart 4.8).

UK taxation in an international context

4.42 Comparing the overall tax-to-GDP ratio provides a basic indicator of relative tax levels across countries. As set out in the first section of this chapter, public sector receipts as a share of GDP are forecast to increase to what would be a historical high of 42.7 per cent of GDP in 2030-31. Chart 4.10 compares general government revenue across countries using comparable IMF data. On this measure, in the UK general government receipts are forecast to reach 41.4 per cent of GDP by 2030-31. This would put the UK above the OECD and advanced-economy averages, though still below the G7 average by 2030. This metric does not, however, capture the composition and structure of taxes across countries, nor where the incidence of taxes fall, making it difficult to use to assess a government's capacity to raise additional revenue.

Chart 4.10: General government revenue as a share of GDP across countries



Note: This chart shows general government revenue as a share of GDP, rather than just tax alone, and excludes revenue from public corporations; see IMF, *Fiscal Monitor*, April 2026. OBR and IMF definitions of general government revenue are broadly consistent. UK data reflects the OBR's projection for general government revenue, converted from financial to calendar years. Outturns and other forecasts shown are from the IMF. The advanced economies are: Andorra, Australia, Austria, Belgium, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, the Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the UK and the USA. When calculating group averages, we have taken the arithmetic mean of the tax-to-GDP ratio for countries in the group.
Source: IMF, OBR

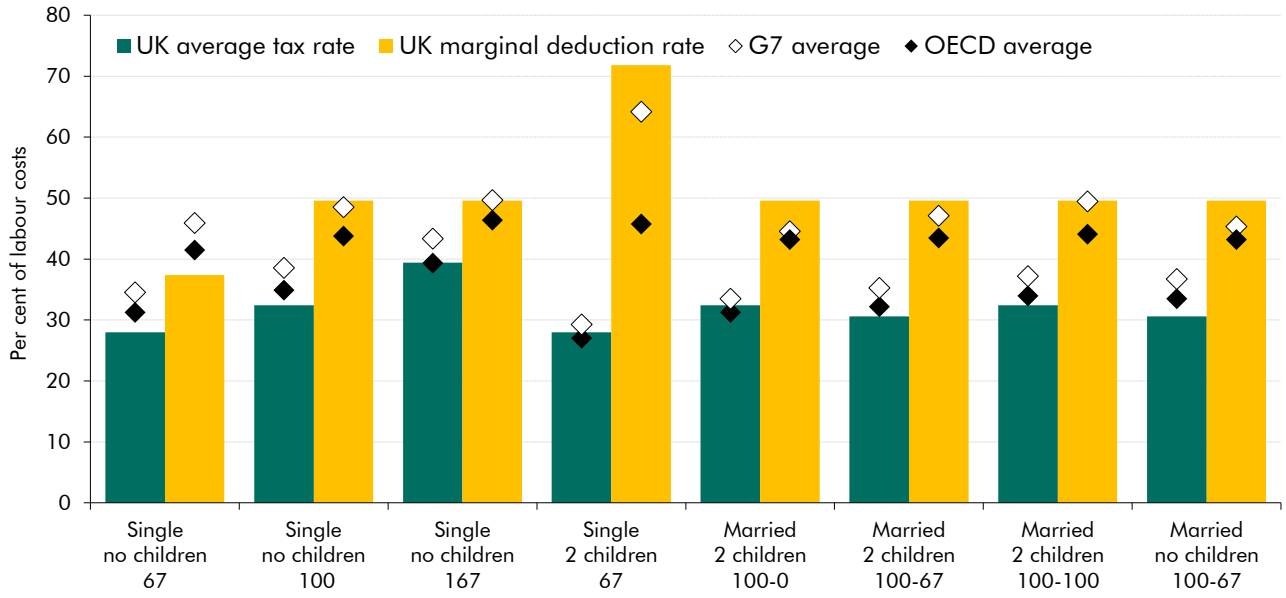
4.43 A further approach to comparing international tax rates on labour income is to consider *average tax rates*. The OECD's *Taxing Wages 2026* report compares average and marginal

tax rates across OECD countries using eight stylised household types.[21] This suggests that *average tax rates* in the UK have risen over the medium term but generally remain somewhat below the OECD and G7 averages (Chart 4.11). These average tax rates are calculated as the effective tax rate on labour income, taking total taxes (defined as personal income tax and social security contributions paid by employees and employers) as a proportion of total labour costs.[22]

4.44 *Marginal deduction rates* indicate the extra income retained for each additional unit of income earned, accounting for increases in tax paid and, where relevant, reductions in benefits received. They are particularly relevant when considering how individual's labour supply incentives will be affected by changes to taxation. However, marginal deduction rates are very difficult to comprehensively compare across countries, because they are typically affected by a range of different policies and vary significantly across the income distribution and household circumstances. Chart 4.11 also shows a comparison of marginal deduction rates estimated by the OECD. These are calculated as the proportion of total labour costs that is paid in taxes and social security contributions or foregone in means-tested cash benefits, given an increase of 1 national currency unit in gross salary of the principal earner.[23] This analysis suggests that overall marginal deduction rates for the UK are currently close to the OECD and G7 average. However, this varies by income level and family type. For example, the marginal deduction rate for a single person with two children earning around two-thirds of the average wage is particularly high due to the withdrawal of means-tested benefits in the UK. Certain household types across the income distribution beyond those considered by the OECD have similarly high marginal deduction rates, due to the design of the benefits system and the tax schedule. We explore this further in the next section.

[21] Any international comparisons of tax rates have analytical limitations. The OECD analysis excludes capital and indirect taxes, and varying tax and benefit systems across countries mean the incorporation of certain taxes and benefits are policy dependent. For example, free childcare hours in the UK are provided as a benefit-in-kind paid directly to providers, so is not reflected in tax rates. However, in Korea for example, eligible households receive a monthly childcare service voucher which is reflected in tax rates.
[22] Labour costs are defined as the gross wage plus employer social security contributions. The OECD includes cash benefits within its standard calculation of average tax rates, however we have excluded these from Chart 4.11 so that average tax rates reflect the tax share of labour costs only. In contrast to other definitions of average earnings from UK survey data, average earnings for the UK as defined by the OECD are based on data published in Labour Market Trends, and are above the higher-rate threshold.
[23] Cash benefits include child benefit and universal credit for the UK and are treated as government transfers that offset taxes.

Chart 4.11: International comparisons of average and marginal tax rates, 2025



Note: Numbers in horizontal axis labels reflect the earnings level of adult(s) in the household relative to the average wage. Average tax rates include personal income tax and social security contributions only, to reflect the tax share of labour costs. Marginal deduction rates also include the withdrawal of cash benefits, where applicable.
Source: OECD, OBR

UK marginal deduction rates

4.45 The OECD comparisons suggest that, at the level of the eight stylised household types, marginal deduction rates in the UK are broadly in line with the OECD and G7 averages. However, marginal rates vary significantly at a more disaggregated level. Chart 4.12 shows a more detailed picture of how net income after deductions in the UK could vary across the income distribution and when considering elements of the tax and welfare system beyond labour income taxes. It should be noted that the two stylised case studies shown are designed to demonstrate some of the more extreme and non-linear (in terms of broadly increasing as income rises) marginal deduction schedules that can be experienced by UK households, rather than to reflect the typical experience. They show that the UK's tax and welfare system can generate several thresholds that create sharp increases in the marginal deduction rates faced by workers, due to:

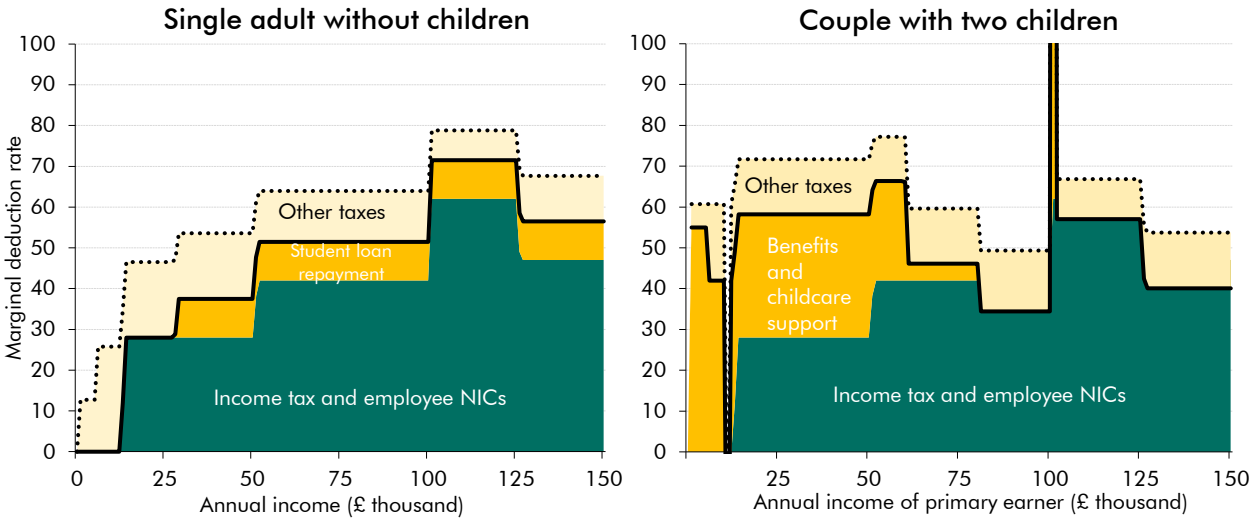
- **Direct taxes on labour** (shown by the dark green areas in Chart 4.12), where a marginal deduction rate of 28 per cent applies to income between £12,570 and £50,270, which increases to 42 per cent for income up to £100,000. The personal allowance is reduced by £1 for every £2 of income earned above £100,000, leading to a marginal deduction rate of 62 per cent until the allowance is fully withdrawn at £125,140. Above this point, the marginal deduction rate settles at 47 per cent.

- The **repayment of student loans** (dark yellow area in the left panel of Chart 4.12), which leads to an increase in the marginal deduction rate of 9 percentage points once a worker's gross income rises above the repayment threshold of £29,385.

- The withdrawal of **means-tested benefits and childcare support** (dark yellow area in the right panel of Chart 4.12). Recipients of universal credit have payments withdrawn at a tapered rate of 55 per cent once their earnings rise above their work allowance (which is around £5,000 for renting parents, for example). Child benefit gets tapered away for households in which the income of the highest earner exceeds £60,000, which accounts for a further increase in marginal deduction rates at this point. Working parents earning at least the equivalent of 16 hours a week at the National Living Wage are eligible for both tax-free childcare and free childcare hours, with both fully withdrawn once either parent earns £100,000 or more, leading to a spike in marginal deduction rates significantly in excess of 100 per cent at this point.

- There are also a **broader range of taxes** where the economic incidence falls on workers and will therefore affect incentives to work (light yellow areas in Chart 4.12). For example, the incidence of employer NICs is largely on workers as firms pass through the costs in the form of lower real wages.[24] Indirect taxes, such as VAT, reduce the purchasing power of workers and so also influence their work incentives. Taken together, these can lead to increases of between 7 and 26 percentage points) in the effective marginal deduction rate of workers. However, the impact that these taxes have on labour supply decisions is likely more muted than for direct taxes and benefits.

Chart 4.12: Stylised marginal deduction rates by income, 2026-27



Note: Annual income reflects taxable income. 'Other taxes' includes both employer NICs and VAT, the incidence of which is assumed to be fully on workers and consumers, respectively. Left panel assumes the adult is on a Plan 2 student loan repayment plan (i.e. related to an undergraduate course that started between 2012-13 and 2022-23). Right panel assumes that: i) the couple live together and at least one of them is aged 25 or over (so that the household receives an annual universal credit (UC) standard allowance of £8,004); ii) the couple have two children who are both born after 6 April 2017 (so that the household receives both an annual UC child element payment of £7,295 and an annual child benefit payment of £2,344); iii) the secondary earner works 16 hours a week on the National Living Wage (so that the household is eligible to receive government support for childcare costs); iv) one of the children has no childcare costs and the other is below two years old and has gross annual childcare costs (before tax-free childcare and free childcare hours for working parents) of £12,000; and v) the couple rent a two-bed property in England (so that the household receives an annual UC local housing allowance of £7,500). These case studies are chosen to illustrate the non-linear marginal rate schedules by income that some individuals may face, rather than attempting to portray a typical picture; in practice, marginal rates will vary significantly according to personal circumstance.
Source: OBR

[24] See paragraph 3.11 of our October 2024 *Economic and fiscal outlook* for more details on this pass-through judgement.

The potential impacts of tax on long-run economic incentives

4.46 Continually increasing taxes on labour over the long term, as occurs in the CPI uprating of personal tax thresholds scenario presented earlier, would lead to the average and marginal rates shown in the previous section steadily increasing further. This would likely have economic effects over the long term though the impact on labour supply incentives. Labour supply is affected by taxation through both the 'extensive' and 'intensive' margin:

- The **extensive margin** reflects whether people decide whether to work or not. Lower average taxes on labour earnings increase the relative benefit of working compared with relying on non-labour income, and would increase participation. This is particularly salient for groups who are less attached to the labour market. For example, evidence from tax credit reforms show that lone mothers' labour supply response occurred primarily at the extensive margin through an increase in employment rates.[25]

- The **intensive margin** reflects the decisions of those who are already employed about how many more or fewer hours to work. For individuals already in employment, high marginal tax rates can discourage working additional hours and progression into higher-paid roles due to reducing the proportion of additional earnings workers retain. Evidence for this is shown by the 'bunching' of taxable income levels before some of the sharp marginal deduction rate increases shown in Chart 4.12.[26,27]

4.47 The degree to which labour supply responds to marginal tax rates is not likely to be uniform and will vary depending on the type of employment, the level of flexibility around working hours, and potentially demographic factors. This means that estimates of behavioural responses of individuals to changes in tax rates are uncertain. We do, however, incorporate estimates of such effects in our medium-term forecast where we judge the impacts are material and can be quantified with reasonable certainty. In the scenario discussed in paragraphs 4.31 to 4.35, we only considered the direct effects of long-run CPI uprating of personal tax thresholds, with lower thresholds bringing more individuals into tax or into higher rates. But these ever-increasing average and effective tax rates would inevitably have broader effects:

- As we discuss above, average tax rates are particularly relevant for decisions to enter or leave the labour market (the extensive margin). In the scenario in which personal tax thresholds are uprated with inflation rather than earnings over the long term, the average effective tax rate increases by around half, from 21 per cent to 31 per cent, by 2075-76.

- Marginal tax rates are more pertinent for decisions around working more or fewer hours (the intensive margin). In the baseline earnings uprating scenario, around a

[25] Blundell, R., M. Brewer, and A. Shephard, *Evaluating the labour market impact of Working Families' Tax Credit using difference-in-differences*, 2005.
[26] Bunching refers to individuals reducing their taxable income in response to the tax and benefit schedule, and in addition to adjusting labour supply may include other behaviours to reduce taxable income (for example increasing pension contributions).
[27] Adam, S., et al., *Frictions and taxpayer responses: evidence from bunching at personal tax thresholds*, August 2017.

quarter of the income distribution has incomes in excess of the higher-rate threshold (and faces a marginal income tax rate of 40 per cent or above), while under the CPI uprating scenario, this increases to around two-thirds by 2075-76.

- If we assume, consistent with government policy, that the National Living Wage remains constant as a share of the median wage once it reaches its target level (that is, it grows in line with earnings thereafter), a full-time National Living Wage earner would be subject to the higher rate of income tax from the late 2060s.

4.48 Overall, therefore, over the long term the increases in average and marginal tax rates in this scenario could be expected to materially weaken financial work incentives. Drawing on our previous labour supply modelling, a stylised calculation suggests that it could reduce labour supply by around 2 million in average hours equivalent terms by 2075–76.[28] This reflects the assumption, supported by economic theory, that labour supply responses rise more than proportionally with the size of the tax change.[29] Applying this modelling, which is designed for short-term estimates, to an extended time horizon adds broader uncertainties, for example from applying existing elasticities to a backdrop of higher living standards assumed in our broader long-term projections.

4.49 The IMF has recently noted some of the challenges that exist in looking to raise further revenue from taxes on labour, stating in the recent Article IV concluding statement on the UK that: *"Beyond the planned tax ratio increase until 2030, staff analysis suggests that the long-term scope for further revenue increases is becoming limited unless more fundamental tax reforms are envisaged"*.[30] This conclusion is based on upcoming IMF analysis of average and marginal rates in the UK. It finds the potential for negative economic impacts from a uniform increase to labour taxation, because of the further increases to marginal deduction rates that this would imply at points in the earnings distribution where these are already very high.

4.50 Consistent with this conclusion, the analysis in this section does not mean there is no scope to make reforms and raise revenue from labour income. But it suggests that, over the long term, to use taxation of labour income to deliver the scale of ongoing fiscal tightening that the analysis across this report suggests is consistent with achieving a sustainable fiscal path would become increasingly challenging to do without ever-rising economic costs and increasingly unfavourable trade-offs.

[28] In Box 3.2 in the March 2024 *Economic and fiscal outlook*, we used the Treasury-OBR labour supply model to estimate the impact of threshold freezes that took effect in 2022-23 for income tax and NICs, reducing labour supply by an estimated 130,000 in average hours equivalent terms by 2028-29. In this stylised calculation, the change in tax thresholds over the projection period under CPI uprating, relative to growth in earnings, is around four times as large as the change in tax thresholds when frozen, relative to CPI uprating, in that prior analysis. Consistent with the assumption that labour supply responses scale more than proportionally with the size of the tax change (see, for example, Stiglitz, J., and J. Rosengard, *Economics of the Public Sector,* 2025), we scale the resulting labour supply impact by the square of this factor. This figure should be interpreted as a stylised illustration of the potential scale and direction of labour supply responses rather than a precise estimate, particularly given the long time-horizon.
[29] Economic theory suggests that the deadweight loss from taxation rises more than proportionally with the tax rate – approximately with its square. See, for example, Stiglitz, J., and J. Rosengard, *Economics of the Public Sector,* 2025.
[30] IMF, *United Kingdom: Staff Concluding Statement of the 2026 Article IV Mission,* May 2026.

4.51 There are also alternative potential sources of long-term revenue increases other than from labour-related taxation. However, increasing these over the long term would all also have impacts on economic incentives to varying degrees. Broadening the VAT base, as suggested by the IMF,[31] could yield significant revenue,[32] although it could disproportionately impact individuals on lower incomes. The IMF, OECD and the Institute for Fiscal Studies have all recently proposed different reforms to taxes on assets.[33] Increasing taxes on capital over the long term could negatively impact investment and because capital is generally more much internationally mobile than labour, the yield generated from higher capital taxes is more uncertain. Similar to the conclusion in relation to labour income, this does not mean that there is no scope to raise taxation overall. But with the tax-to-GDP ratio in the UK already set to move to historically high levels, and on the basis that economic and behavioural effects amplify as tax rates rise, it is likely that raising revenue over the long term to address fiscal sustainability would come with increasing risks and trade-offs.

[31] IMF, *United Kingdom: Staff Concluding Statement of the 2026 Article IV Mission*, May 2026.
[32] HMRC, *Tax Relief Statistics: January 2026*, January 2026.
[33] IMF, *United Kingdom: Staff Concluding Statement of the 2026 Article IV Mission,* May 2026; OECD, *Economic survey: United Kingdom,* 2024; Institute for Fiscal Studies, *IFS Green Budget,* 2024.

5 Long-term fiscal sustainability

Introduction

5.1 This chapter uses a set of scenarios for the evolution of the public finances over the next 50 years to provide an assessment of long-term fiscal sustainability. These are conditioned on the economic and demographic assumptions detailed in Chapter 2. They combine the scenarios for spending and receipts set out in Chapters 3 and 4, to project the evolution of the primary deficit, debt interest, public sector net borrowing, and public sector net debt over the next 50 years.

5.2 There is significant uncertainty around all the assumptions that underpin these projections. We address this by setting out a range of alternative scenarios in which we vary some of the key underpinning economic and demographic assumptions. As explained in Chapter 1, the scenarios are conditioned on a set of assumptions for unchanged government policy. This is important because the goal is to identify whether current government policies would be fiscally sustainable in the face of the long-term pressures that we identify. However, there are different ways to interpret unchanged policy and therefore we also produce scenarios which illustrate the impact of alternative policy assumptions.

5.3 In nearly all cases, these scenarios move public sector net debt onto an unsustainable, ever-rising trajectory. It is important to underline that we do not consider it plausible that debt could actually continue to rise on the unsustainable paths presented in these scenarios. It is almost certain that future governments would at some point have to take action to prevent this from happening, and we assess for each scenario the fiscal tightening needed to maintain sustainability. The scenarios should therefore not be seen as forecasts of the evolution of debt far into the future. Rather they provide an illustration of the long-term pressures on the public finances and of the scale of changes in spending and taxes that would need to be made at some point to maintain sustainability.

5.4 In summary, to explore the long-term sustainability of the public finances, this chapter:

- presents a baseline **long-term fiscal scenario**, for the path of the primary deficit, public sector borrowing, and debt over the next 50 years;
- explores the **sensitivity of the baseline scenario to alternative assumptions**, including around the economy, demography, policy, and the key drivers of the debt dynamics that underpin the projections, outside of tax and spending; and
- assesses in different ways the **fiscal tightening** that would be necessary to stabilise the debt-to-GDP ratio at certain levels in each scenario.

Baseline long-term scenario for the fiscal aggregates

5.5 The starting point for the long-term scenarios presented in this chapter is the detailed five-year forecasts for government revenue, spending and the fiscal aggregates set out in our March 2026 forecast which ends in 2030-31. From this point, we combine the baseline long-term scenarios for primary receipts and primary spending, set out in the previous chapters, to produce long-term projections for the key fiscal aggregates: the primary deficit, public sector net borrowing, and public sector net debt.

Primary deficit and borrowing

5.6 In the baseline scenario, based on the assumptions we make for unchanged policy, a wide gap opens up over the long term between the projections for receipts and spending:

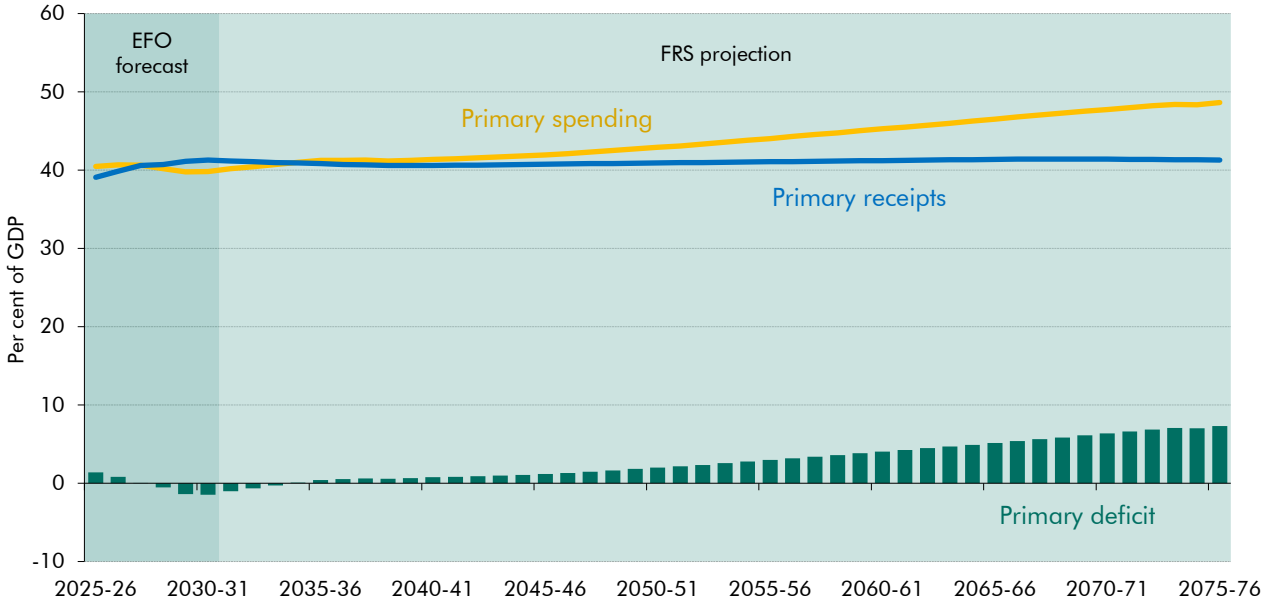
- **Primary spending** is projected to rise sharply as a per cent of GDP as explained in Chapter 3, mainly due to demographic and other cost pressures pushing up the costs of health and pensions.

- **Primary receipts** are projected to be broadly constant as a share of GDP because demography has a much more muted upward effect on receipts and this is largely offset by the loss of net zero-affected receipts. This is explained in detail in Chapter 4.

5.7 Combining these projections for primary spending and receipts produces a projection for the **primary deficit**, which is borrowing excluding net debt interest costs (or equivalently, primary spending less primary receipts). In our March 2026 *Economic and fiscal outlook* (*EFO*), we forecast that there will be a primary *surplus* of 1.5 per cent of GDP by the end of the medium-term forecast period in 2030-31, and this is the starting point for the long-term projection. As a result, a primary surplus remains for the first few years of the projection, which initially helps to keeps debt as a percentage of GDP on a broadly flat path.

5.8 However, as demographic pressures, defence spending commitments, and other pressures begin to increase spending, a primary deficit returns by 2034-35. It then grows rapidly and is projected to reach around 7 per cent of GDP in 2075-76 (Chart 5.1). The main contributors to the deterioration are increases in health spending and state pension spending, which rise by around 5 per cent of GDP and 3.6 per cent of GDP respectively over the projection period (Chart 5.2). The fall in net zero-affected taxes also adds to the deficit, while changes to other spending and other taxes partially mitigate the overall decline.

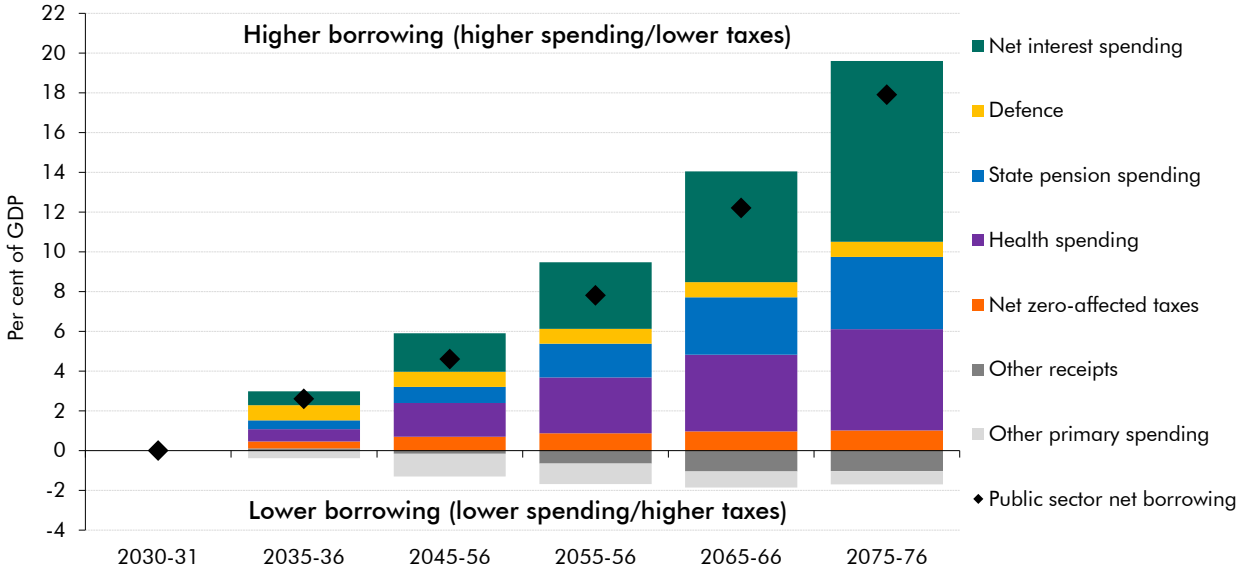
Chart 5.1: Primary receipts, spending and primary deficit in the baseline scenario



Note: Positive bars indicate a primary deficit, negative bars indicate a primary surplus.
Source: OBR

5.9 **Public sector net borrowing** is projected in the baseline scenario to rise from 1.6 per cent of GDP in 2030-31 to around 20 per cent of GDP by 2075-76. This is driven by the same factors as the primary deficit plus the resulting increase in net debt interest spending from the rising stock of debt. As shown in Chart 5.2, by the end of the projection period, debt interest becomes the largest contributor to the increase in borrowing, accounting for more than half of the overall rise.

Chart 5.2: Decomposition of change in borrowing from 2030-31 to 2075-76 in the baseline scenario



Source: OBR

Public sector net debt

5.10 Rising borrowing in each year of the baseline scenario results in public sector net debt being projected to rise from around 95 per cent of GDP in 2030-31 to around 300 per cent of GDP by 2075-76.[1] In practice, this ever-upward trajectory of debt would be unsustainable and so, if this baseline scenario began to materialise, it is almost certain that future governments would have to take policy action to stop it. In the final section of this chapter, we consider the degree of fiscal tightening that would be needed to keep debt sustainable. Before that, in the next section, we produce a range of alternative scenarios in which we vary the key assumptions underpinning the projections.

Table 5.1: Baseline scenario: fiscal aggregates

	Per cent of GDP						
	Forecast[1]		FRS projection				
	2025-26	2030-31	2035-36	2045-46	2055-56	2065-66	2075-76
Public sector current receipts	40.4	42.7	42.4	42.1	42.4	42.7	42.7
Total managed expenditure	44.8	44.3	46.6	48.4	51.8	56.5	62.2
Public sector net borrowing	4.4	1.6	4.2	6.2	9.4	13.8	19.5
Public sector net debt	94	95	98	117	154	215	300
Memo: Primary spending	*40.5*	*39.8*	*41.3*	*42.0*	*44.1*	*46.5*	*48.6*
Memo: Primary receipts	*39.1*	*41.3*	*40.8*	*40.8*	*41.1*	*41.4*	*41.3*
Memo: Primary deficit	*1.4*	*-1.5*	*0.4*	*1.2*	*3.0*	*5.1*	*7.3*
Memo: Net interest	*2.9*	*3.1*	*3.8*	*5.0*	*6.5*	*8.7*	*12.2*

[1]Estimates are consistent with the March 2026 *Economic and fiscal outlook* .
Source: OBR

Alternative long-term scenarios

5.11 Given the significant degree of uncertainty around the assumptions underlying these projections, in this section we present a range of alternative scenarios, which:

- change factors, outside of future tax and spending decisions, which affect **debt dynamics** (i.e. the pace at which debt rises as a share of GDP) in the scenarios, such as the starting primary deficit position and the interest rate;
- consider the impact of alternative **economic** and **demographic** assumptions; and
- explore the implications of using **alternative interpretations of unchanged government policy**.

Alternative assumptions for non-tax and spending drivers of debt

5.12 This section considers the impact of making alternative assumptions for some key factors, outside of the paths of tax and spending, which affect the debt dynamics underpinning the projections and so determine the pace at which debt rises as a share of GDP. These are: a

[1] Annex D compares this baseline scenario for the path of public sector net debt to the baseline projection in our 2024 *Fiscal risks and sustainability report*.

less favourable starting point for the primary deficit in the projections; an assumption that the economy is hit by a major shock at regular intervals; and modelling feedback from higher debt to the interest rate on debt. In this section, we show the combined impact of each of these effects as it is plausible that they could occur in parallel over time. Taking each in turn:

- The baseline long-term scenario jumps off from the fiscal position in 2030-31, which is the final year of our March 2026 medium-term forecast. The **primary deficit at the end of the medium-term forecast** is effectively therefore locked into the long-term projections, as we assume that the economy is operating at trend thereafter and that fiscal policy is subsequently unchanged. The Government's current plan to consolidate the public finances over the next five years means we forecast that the primary deficit will improve from 1.4 per cent of GDP in 2025-26 to a primary *surplus* of 1.5 per cent of GDP by 2030-31. This would be the largest primary surplus that has been achieved in the UK since 2000-01 and is consistent with debt falling slightly as a share of GDP, given the assumption in the forecast for economic growth and the cost of debt at this point. However, as set out in the March 2026 *EFO*,[2] over the period since the end of the pandemic, successive governments have set out similar plans to improve the primary deficit over time, but these plans have been pushed back by the impact of economic shocks, low growth and policy decisions to delay fiscal consolidation. We therefore present an alternative scenario which assumes the starting point for the projections in 2030-31 is a primary *deficit* at the 2025-26 level of 1.4 per cent of GDP.

- The baseline long-term projections assume a smooth path for economic growth over the 50-year period. We know, however, that it is almost inevitable that the economy will at some points be hit by **major shocks** in the future, and historically major shocks have overwhelmingly been negative. Just over the past 20 years, the UK economy has faced major negative shocks from the global financial crisis, the Covid pandemic, and the sharp rise in energy prices following Russia's invasion of Ukraine. These shocks have been the major driver of the substantial increase in debt over the past 20 years, as set out in Chapter 1, with debt ratcheting up as the sharp increases driven by each shock have not been reversed in the intervening periods. We therefore present a scenario which combines the impact of the preceding scenario with an assumption that, based on international and historical evidence, a major shock occurs on average every nine years and adds around 10 percentage points to the debt-to-GDP ratio each time.[3]

- In our baseline scenario, we do not assume that interest rates respond to changes in the debt level. However, in practice it is likely that higher debt would lead to higher interest rates on government debt and in turn this would push debt up even further. Therefore, we present a scenario which adds a **debt interest feedback response** to the two effects detailed above, calibrated using our UK Overlapping Generations model

[2] See paragraphs 6.3 and 6.4 and Chart 6.1 in the March 2026 *Economic and fiscal outlook*.
[3] See, for example, IMF, *Analyzing and Managing Fiscal Risks—Best Practices*, June 2016, and our 2024 *Fiscal risks and sustainability report*.

(see Box 5.1 for details). It should be noted that this scenario includes a direct debt interest response only and no corresponding impact on economic activity – for example, from a wider rise in interest rates and crowding out of private sector activity – which could be expected to cause a further feedback response.

Box 5.1: Rising debt and interest rates

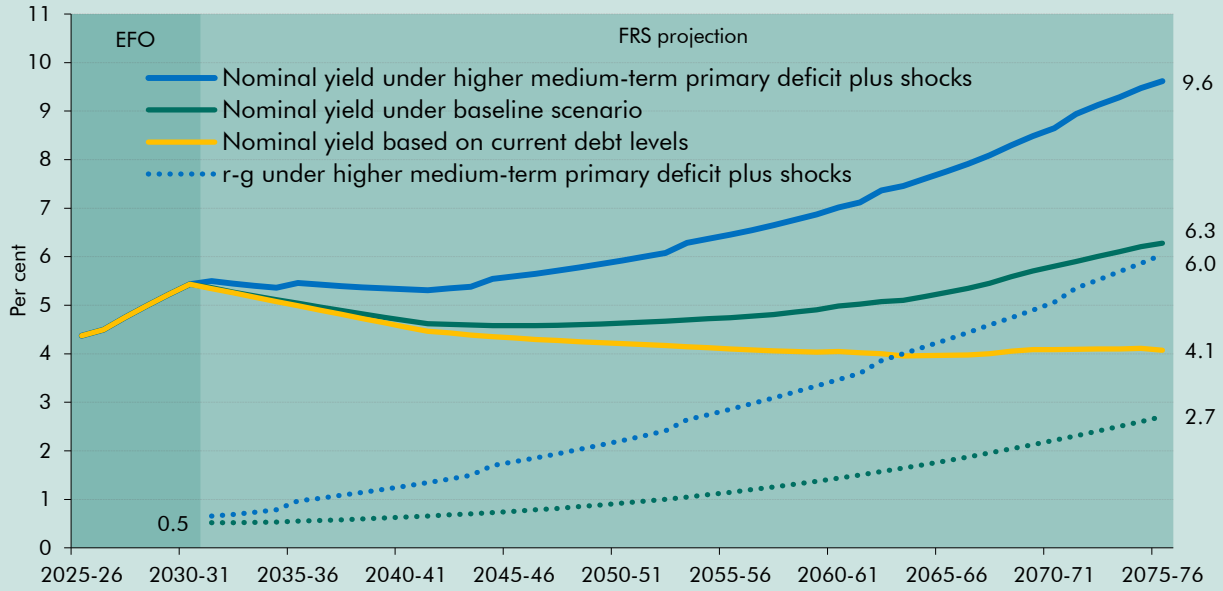
To investigate the long-term effects of a sharply increasing debt-to-GDP profile on debt financing costs and the wider economy, we use our UK Overlapping Generations model (UK OLG).[a] OLG models are useful for analysing economy-wide impacts of long-term trends, as they explicitly model households of different ages who make forward-looking decisions.

As in our analysis of the long-term impact of population ageing on asset demand and rates of return for the 2025 *Fiscal risks and sustainability report* (*FRS*),[b] we use a version of the UK OLG that sets interest rates based on domestic savings matching investment. While some models of an open economy, like the UK, fix interest rates at a global price, that would not account for the impact of government debt issuance on the yield the government needs to offer on that debt. Rising public debt is a widespread phenomenon across advanced economies, so similar dynamics may affect global bond yields as well. And our 2025 *FRS* analysis suggested that foreign investors absorbing more gilt demand, as the UK defined benefit pension system winds down, may make gilt yields more sensitive to issuance, rather than less.

The UK OLG model's default settings assume that the government debt stock remains constant at current values of around 95 per cent of GDP across its entire time horizon.[c] We use two alternative debt endpoints in the UK OLG to examine the effect of these higher debt levels on gilt yields and economy-wide outcomes. One is our baseline scenario described in paragraph 5.10, in which debt rises to around 300 per cent of GDP by 2075-76. The other is the higher medium-term primary deficit plus shocks scenario described in paragraph 5.13, bullet point 2, in which debt rises to around 540 per cent of GDP.

In the UK OLG model, a higher stock of government debt means more household savings are absorbed by government bonds, leaving less available for private capital investment. As funding for private sector capital becomes scarcer, this raises its cost. Real interest rates rise to incentivise additional household saving, beyond the portion increasingly directed towards public debt. In the baseline scenario for government debt, the UK OLG equilibrium interest rate would need to rise by 2.2 percentage points relative to a stable debt scenario by the end of the projection (Chart F). Under the higher medium-term primary deficit plus shocks scenario, this difference rises to 5.5 percentage points. This raises the growth-adjusted interest rate (r-g, explained in greater detail in Chapter 2), which rises to 2.7 and 6.0 per cent in each scenario, respectively.

Chart F: Interest rates under alternative assumptions for the debt-to-GDP ratio



Note: r-g is the growth-adjusted effective yield on government debt.
Source: OBR

Higher real interest rates would also have impacts beyond debt servicing costs. In the baseline scenario, reduced capital deepening lowers the level of productivity by 7 per cent, in turn cutting GDP per person by 14 per cent relative to the stable debt steady state. These effects are not captured in the baseline scenario in this report but demonstrate the risks around it, which we explore further via productivity scenarios (described in paragraphs 5.17 to 5.20).

This analysis illustrates the potential feedback loop between an unsustainable debt path and the cost of servicing that debt, which can exponentially ratchet up the debt-to-GDP ratio. In reality, debt markets typically exhibit highly non-linear behaviour, driven by factors outside the scope of this analysis including changes in market sentiment, rollover risk, and other potential tipping points.[d] These can lead to abrupt and large increases in interest rates and, though very difficult to predict, they generally become more likely as the stock of debt grows larger or moves onto an unsustainable path. We previously explored the potential implications of a loss of investor confidence in our 2021 *Fiscal risks report*.

[a] See Brzezinski, A., A. Hantzsche, and J. Watson, *OBR Working paper No.22: A new UK overlapping generations model*, April 2025. The model is calibrated to match recent UK economic data from the ONS as well as key current policy settings. It has been jointly developed by the OBR and the Treasury.
[b] See Box 2.1 in our July 2025 *Fiscal risks and sustainability report*.
[c] The model has the government meet a fixed, steady-state debt share of GDP by flexing a residual budget term representing 'fiscal space' – a fall implies the government has had to cut spending or raise taxes.
[d] For example, see Cole, H., and J. Kehoe, *Self-Fulfilling Debt Crises*, The Review of Economic Studies, Volume 67, No.1, January 2000.

5.13 In all of these scenarios, debt moves onto an unsustainable path much more quickly than in the baseline scenario and then ratchets up much more sharply (Chart 5.3):

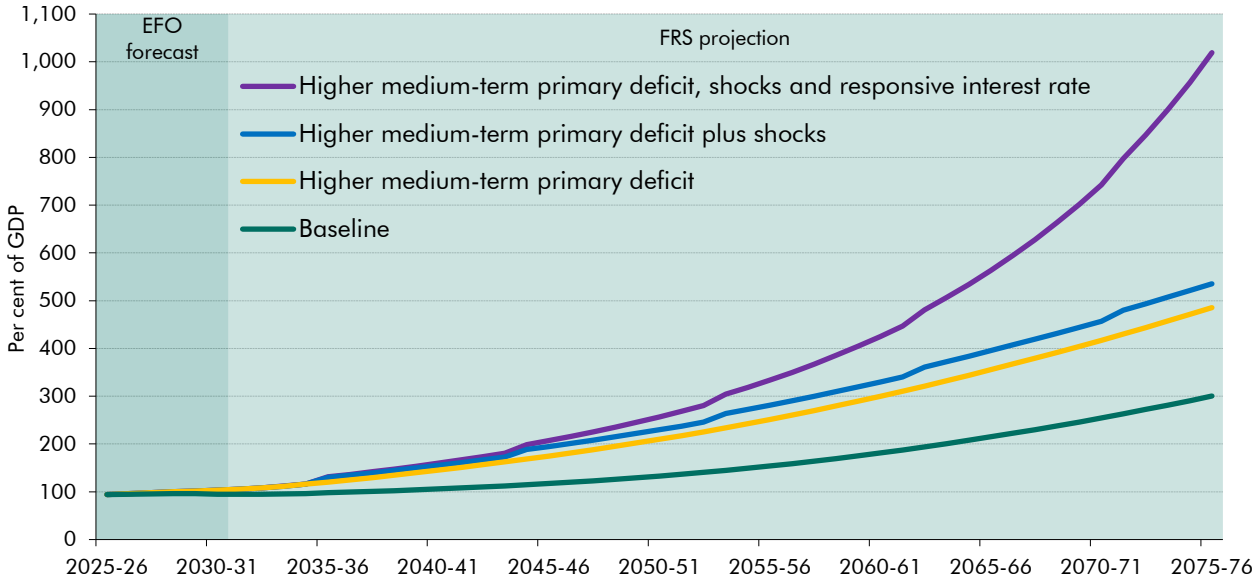
- In the **higher medium-term primary deficit** scenario, debt rises across the medium-term forecast period and then continues to rise when entering the long-term projection period. Therefore, the pressures set out in this report push debt onto an unsustainable

path much more quickly than the baseline scenario, in which debt begins rising from 2032-33 and reaches a clearly unsustainable upward trajectory by the late 2040s.

- In the scenario that combines the higher medium-term primary deficit with the impact of **major shocks** on the path of debt, the upward trajectory of debt also starts earlier than in the baseline and ratchets upwards from when the first shock occurs. Overall this would add around 50 per cent of GDP to the stock of debt by 2075-76 relative to the previous scenario.

- In the scenario where on top of the two factors described above the **interest rate responds to the level of government debt**, the interest rate rises to 9.6 per cent from the baseline level of 4.1 per cent (see Box 5.1). As a result, in this scenario debt moves onto an extremely steep upward trajectory that would clearly very quickly become unsustainable.[4]

Chart 5.3: Public sector net debt: debt dynamics scenarios



Source: OBR

5.14 Together, these scenarios underline the importance of early action to address fiscal sustainability, and of using periods where the economy is not experiencing major shocks to build resilience to future fiscal challenges. Improving the position of the primary deficit in the medium term, as in the baseline scenario, delays the point at which debt starts to accelerate especially if the economy is then hit by major shocks – which at some point is a near certainty. But, if debt were, nevertheless, to move onto one of these steep upward paths, it is almost certain that future governments would have to take further action to address it. This would be needed to avoid the risk of the type of negative interest rate feedback loop modelled here from developing, and because of the increasing likelihood of a sudden adverse market reaction. As shown in the final section of this chapter, choosing to

[4] This scenario also includes the debt interest implications from the increase in debt due to the economic shocks.

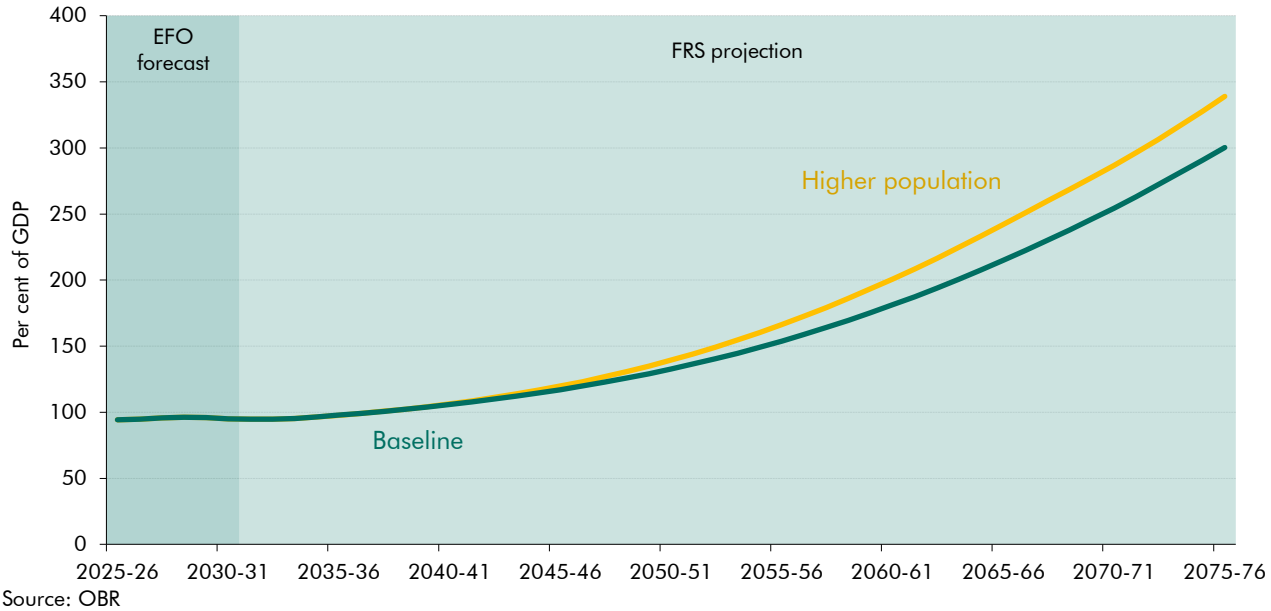
delay the policy action needed to do this would require a more significant, and therefore more painful, fiscal tightening in the future.

Alternative economic and demographic assumptions

5.15 As set out in Chapter 2, the baseline scenario is based on the 2024-based ONS principal population projections. To explore the sensitivity of our results to these projections, Chapter 2 also sets out an alternative population projection where, with net migration unchanged, we assume an increase in the birth rate combined with a fall in the death rate. This is calibrated to mean there is no natural change in the population (with births exactly offsetting deaths) from 2040 onwards, with ongoing significant net migration therefore leading to a substantial rise in the total population. In this scenario, the overall size of the population by the end of the projection period is around 9 million higher than in the baseline, and the lower death rate results in a rise in the old-age dependency ratio relative to the baseline.

5.16 In this alternative scenario, public sector net debt is projected to be somewhat higher than the path in our baseline scenario, rising to around 340 per cent of GDP in 2075-76, close to 40 per cent of GDP higher than in the baseline. As described in more detail in Chapter 3, this is driven by higher public spending compared to the baseline – mostly on health, state pensions, and education – due to more older and younger people in the scenario. This is partially offset by an increase in working-age adults, but nevertheless still leads to a lower working-age share of the population, and consequently a lower share of the population in employment, and lower real GDP per person. Receipts are broadly unchanged as a share of GDP in this scenario relative to the baseline. This alternative scenario illustrates that a larger population coming through increased birth rates and lower death rates is not sufficient to relieve pressure on the public finances.

Chart 5.4: Public sector net debt: higher population scenario



Source: OBR

5.17 The assumed path for productivity growth is one of the most significant and uncertain judgements for the path of the long-term fiscal projections. To illustrate this, we construct two alternative productivity scenarios, which are described in Chapter 2. The higher productivity scenario assumes average annual total factor productivity (TFP) growth of 1.3 per cent, in line with the three decades preceding the global financial crisis, which would result in productivity growth 0.4 percentage points higher than in our baseline. The lower productivity scenario uses the post-global financial crisis annual average for TFP growth of 0.2 per cent, which leaves productivity growth 1.2 percentage points lower than in our baseline scenario. When using these alternative assumptions to produce long-term fiscal scenarios, we also assume that:

- **Average earnings** change with productivity and that there is no change in **interest rates** as productivity changes.

- Within **primary spending**, we assume public sector staff costs, state pension spending and welfare spending, are uprated by average earnings, and public sector net investment similarly rises in line with nominal GDP. All other areas are unchanged in real terms relative to the baseline scenario. The latter is a key assumption as it means that higher productivity growth translates into lower spending as a share of GDP, and conversely lower productivity growth translates into higher spending as a share of GDP. We also look at a further variant of the higher productivity scenario where *overall* primary spending as a share of GDP remains constant. This reflects the fact that, despite sustained and often high economic growth in the post-war period, governments have kept spending broadly constant within a range of around 35 to 45 per cent of GDP, outside periods of shocks. This in part likely reflects the challenges of constraining the growth of areas of public spending, given that many input costs in these areas may be influenced by private-sector earnings.

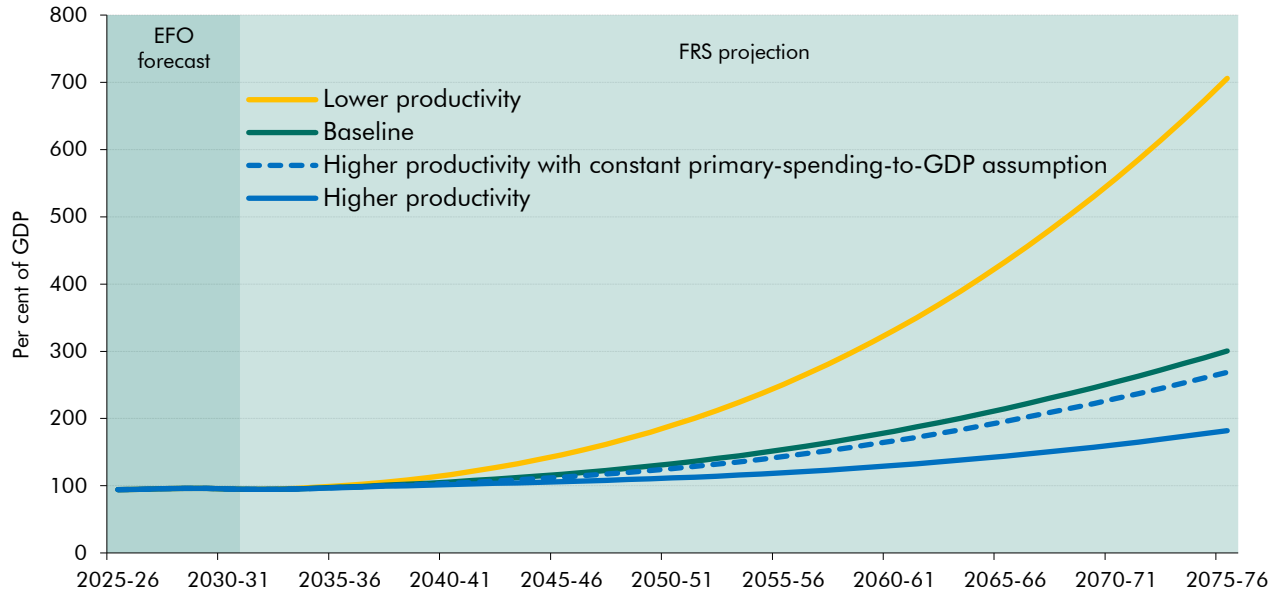
- **Primary receipts** remain at the same share of GDP as in the baseline scenario.

5.18 The fiscal implications of the **higher productivity scenario** (blue line in Chart 5.5) result from unchanged non-interest receipts as a share of GDP, alongside primary spending that is around 5 per cent of GDP lower than in the baseline scenario in 2075-76. The primary balance still, however, remains in deficit from 2034-35 and reaches a deficit of 2.3 per cent of GDP in 2075-76, but is around 5 per cent of GDP lower than in the baseline scenario by then. This leaves net debt still rising throughout the projection period, but much more slowly than in the baseline. It reaches around 180 per cent of GDP at the end of the projection period, about 120 percentage points lower than in the baseline scenario.

5.19 Conversely, in the **lower productivity scenario** (yellow line in Chart 5.5), primary spending is 16 per cent of GDP higher than in the baseline scenario, with primary receipts again unchanged as a share of GDP. The primary balance is thus 16 per cent of GDP lower than the baseline scenario by 2075-76, reaching a deficit of 23 per cent of GDP. This would mean that net debt is projected to be on a steeper upward trajectory compared to in the baseline scenario and would quickly become unsustainable.

5.20 The improved fiscal trajectory in the higher productivity scenario is largely driven by the assumption that governments maintain parts of public spending at the same level in real terms relative to the baseline, but otherwise use higher growth to allow spending to fall as a share of GDP. This scenario is likely to represent an upper bound on the fiscal benefits of productivity, given the challenges of constraining spending in this way, as noted in paragraph 5.17. Similarly, the lower productivity scenario could represent an edge case where governments do not restrict spending despite lower earnings growth and GDP growth relative to the baseline. In the variant of the **higher productivity scenario in which we assume overall primary spending remains at the same share of GDP** as in the baseline (dotted blue line in Chart 5.5), there is only a small difference in the debt trajectory compared to the baseline. This is driven by a lower 'r-g' – as we assume interest rates do not vary from the baseline scenario – which reduces debt interest spending due to higher growth. This variant demonstrates that the benefits of higher economic growth for the sustainability of the public finances depend in large part on whether or not it translates into proportionate growth in the provision of public services.

Chart 5.5: Public sector net debt: productivity scenarios



Source: OBR

Alternative long-term policy assumptions

5.21 In the baseline scenario, our assumption for unchanged long-term policy is equivalent to assuming that tax thresholds and non-state pension welfare benefits are uprated each year in line with average earnings. In Chapters 3 and 4, we also set out the implications of using an alternative assumption where both personal tax thresholds and non-state pension welfare payments rise with inflation, and where the state pension rises with earnings rather than the triple lock. Chapter 3 also presents a scenario which assumes that there are no cost increases in health spending other than those driven by demographic changes and income effects. This could occur due to technological advancements improving health sector

productivity relative to economy-wide productivity, or as a result of persistent efforts by successive governments to constrain cost pressures in public health spending.

5.22 Using each of these alternative scenarios to underpin the fiscal projections, as set out in more detail below, would lead to lower debt relative to the baseline scenario. However, as set out in Chapters 3 and 4, the alternative uprating scenarios would also represent a significant long-term change to the structure of tax and spending policy. They would lead to significant reductions in the real value of welfare payments or substantial increases in average and marginal tax rates. This would generate significant economic and other behavioural responses, such as those we explore in relation to CPI uprating of personal tax thresholds in the final section of Chapter 4, which are not captured in these projections.

5.23 Chart 5.6 shows that using these alternative assumptions produces a set of long-term scenarios in which debt still rises relative to its current level, but by the end of the projection period is lower than in the baseline scenario, often substantially:

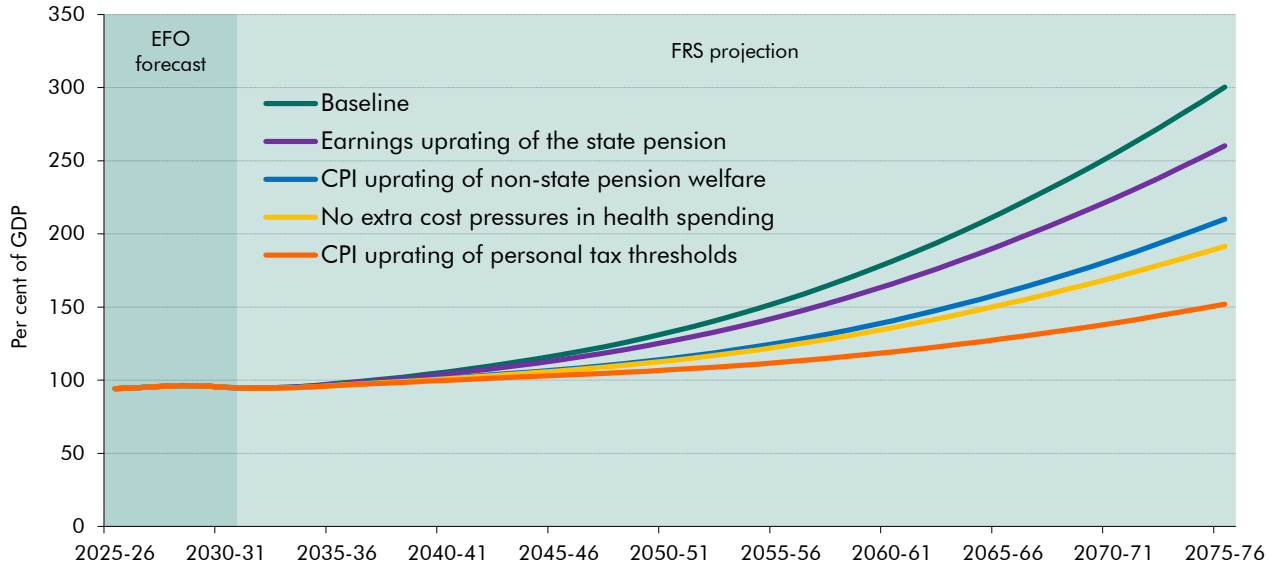
- Under the assumption of **CPI uprating of personal tax thresholds**, debt remains below 100 per cent of GDP until 2040-41, compared to 2037-38 in the baseline scenario, but then increases to reach around 150 per cent of GDP by 2075-76. This leaves debt at around half the level of the baseline scenario.

- Under the **no extra cost pressures in health spending** scenario, debt also remains below 100 per cent of GDP in earlier years of the projection, before then rising more rapidly from the 2040s to reach around 190 per cent of GDP by 2075-76. This leaves debt around two-thirds of its level in the baseline scenario.

- Under **CPI uprating of non-state pension welfare**, the path for debt follows a similar path to the health cost scenario until 2050-51, after which it rises more quickly to 210 per cent of GDP by 2075-76, seven-tenths of its level in the baseline scenario.

- Under **earnings uprating of the state pension**, debt remains below 100 per cent of GDP until 2039-40, two years later than in the baseline scenario. It rises more rapidly than in the other alternative scenarios presented here, increasing to around 260 per cent of GDP by 2075-76. This leaves debt almost nine-tenths of the level of the baseline scenario.

Chart 5.6: Public sector net debt: alternative long-term policy assumption scenarios



Source: OBR

Fiscal sustainability

Fiscal gaps: adjustment to maintain sustainability

5.24 In nearly all of the scenarios discussed above debt moves onto an unsustainable ever-rising trajectory. If the public finances were to follow these paths, then it is almost certain that future governments would have to take action to tighten fiscal policy to put debt back on a sustainable path. To assess the degree of fiscal tightening that would be required to do this we use the concept of the 'fiscal gap'. This is the permanent change in the primary balance needed to achieve a chosen debt-to-GDP ratio in a given year. In this report, we assess the degree of tightening to keep debt below, and then achieve, a target debt-to-GDP ratio in 2075-76.

5.25 A strength of fiscal gaps is that they are intuitive and can be interpreted easily if the government has a fiscal rule targeting a specific level of debt relative to GDP. However, this has not been the case since 2008 when the sustainable investment rule, which targeted debt of 40 per cent of GDP, was dropped. Instead, recent governments have often instead had a target for a measure of debt to be falling in a particular target year. Moreover, there is no consensus regarding the optimal level of debt and how quickly one should aim to return to it if the public finances move off course. In the absence of an obvious debt target, we consider two cases: one where the debt level achieved in 2075-76 is roughly where it currently is at around 95 per cent of GDP, and one where it is reduced to the pre-financial crisis level of around 40 per of GDP.

5.26 Table 5.2 shows the necessary tightening in 2031-32 for each of the scenarios presented in the previous sections of this chapter in order to achieve a debt level of 40 per cent of GDP and 95 per cent of GDP at the end of the projection period. Even in the most benign

scenario, significant tightening beyond that already planned for the medium term would be required to achieve the debt targets that we use:

- In the **baseline scenario**, the required immediate and ongoing increase in the primary balance is estimated at 3.8 per cent of GDP to achieve debt at 95 per cent of GDP, and 4.9 per cent to get to a 40 per cent debt-to-GDP level. To put this level of tightening in context, 3.8 per cent of GDP is roughly equivalent to a tax the size of onshore corporation tax or almost the size of current spending on education in 2030-31.[5] It would be around 0.9 per cent of GDP larger than the tightening in the Government's planned consolidation in the current medium-term forecast period to 2030-31.

- In the scenario where there is a **higher starting primary deficit in addition to regular economic shocks**, the required tightening to achieve debt at 95 per cent of GDP rises to 8.2 per cent of GDP, which is in excess of a tax the size of NICs and capital gains tax combined, or roughly equivalent to total spending on health.

- In the **higher productivity** scenario, assuming that governments choose not to spend all of the proceeds of higher growth on additional public services, the required tightening falls to only 1.8 per cent of GDP, which is roughly two-thirds of spending on defence in 2030-31. In the **lower productivity** scenario, the adjustment is much larger at 8.6 per cent of GDP. In the **higher population** scenario, more fiscal tightening is needed to achieve debt at 95 per cent of GDP than in the baseline, with tightening of 4.8 per cent of GDP necessary in this scenario. This illustrates that a higher population is not in and of itself fiscally beneficial, as the composition of the population matters.

5.27 The scenarios that consider alternative long-term **policy assumptions** can be seen as embodying a degree of policy tightening, as, relative to current policy, they would represent a significant change to average and marginal tax rates, to the relative value of welfare payments, or to the nature of health spending. Despite this, even in these scenarios additional future fiscal tightening would be required to achieve debt at 95 per cent of GDP in 2075-76. The least additional tightening is needed in the scenario where personal tax thresholds are uprated by CPI, which would require a further permanent adjustment of 1.1 per cent of GDP.

[5] The comparisons are with respect to tax and spending forecasts as a share of GDP in 2030-31, as they were in our March 2026 *Economic and fiscal outlook*.

Table 5.2: Primary deficit adjustment needed from 2031-32 to achieve target debt-to-GDP ratios

	Adjustment in primary deficit, per cent of GDP	
	40 per cent	95 per cent
Baseline projection	-4.9	-3.8
Debt dynamics scenarios		
Higher medium-term deficit	-8.3	-7.3
Higher medium-term deficit plus shocks	-9.3	-8.2
Economic and demographic scenarios		
Higher productivity	-2.9	-1.8
Higher population	-5.8	-4.8
Lower productivity	-9.4	-8.6
Alternative long-term policy assumptions scenarios		
CPI uprating of personal tax thresholds	-2.1	-1.1
No extra cost pressures in health spending	-2.8	-1.8
CPI uprating of non-state pension welfare	-3.2	-2.2
Earnings uprating of the state pension	-4.1	-3.1

Source: OBR

The pace of fiscal adjustment

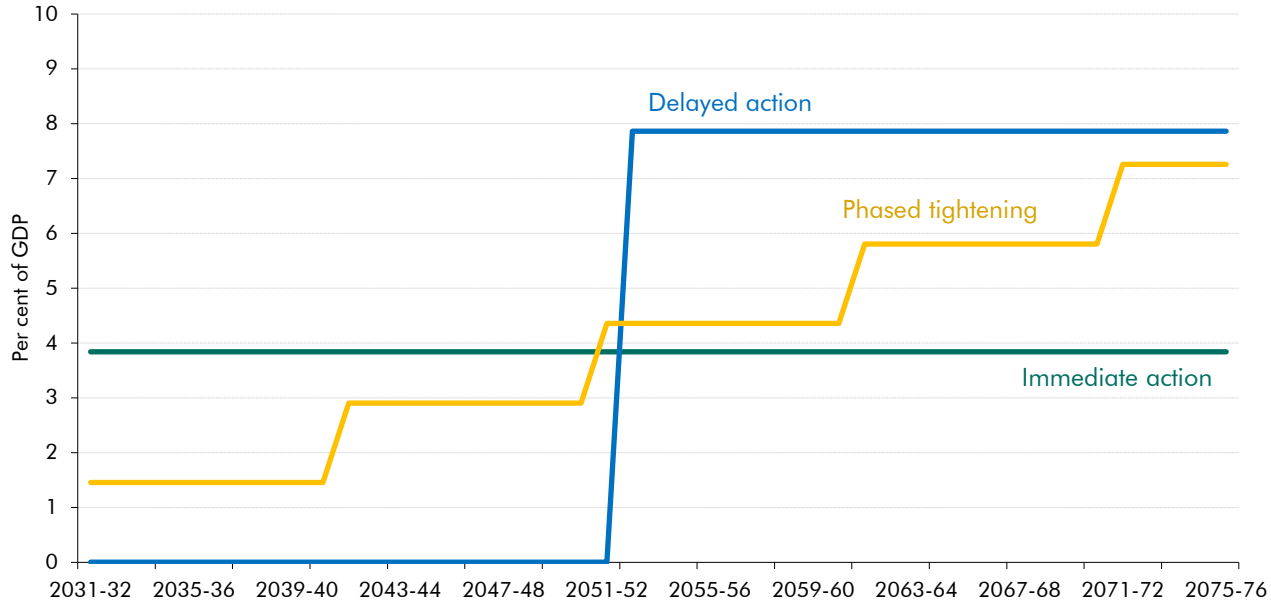
5.28 The fiscal gap calculations above assume a single adjustment in the first year that is maintained across the full projection period. In reality, future governments could choose different adjustment paths that would deliver the same level of debt. Three alternative paths to deliver debt of 95 per cent in the baseline scenario are shown in Chart 5.7:

- In the **immediate action scenario**, where the tightening is achieved through a permanent, one-off adjustment in 2031-32, as set out above, the increase in the primary balance required is around 3.8 per cent of GDP.

- In the **phased tightening scenario**, in which equal adjustments are assumed to be made evenly spaced through the projection period, the increase in the primary balance relative to the baseline scenario required is an additional 1.5 per cent of GDP every 10 years from 2031-32 onwards, leaving a total adjustment of 7.3 per cent by 2075-76.

- In the **delayed action scenario**, where governments choose to make no adjustment until a single, one-off, permanent adjustment in 2052-53 relative to the baseline scenario, the improvement in the primary balance required is around 8 per cent of GDP, almost equivalent to total departmental spending on health, or a tax rise generating revenues of around two-thirds the size of total income tax receipts.

Chart 5.7: Primary balance adjustment needed to keep debt at 95 per cent of GDP in the baseline: illustrative timing scenarios



Source: OBR

5.29 These different paths have very different consequences for future generations. Immediate action distributes the tightening evenly across generations, while the other two paths leave far more of the work to restore sustainability to future generations. There are also likely to be additional positive consequences to early action. Immediate action which reduces the level of debt earlier could also lead to lower debt servicing costs. The scenarios presented here do not include any positive debt interest feedback effects – the inverse of the negative feedback loop presented by the combined responsive interest rate scenario in Chart 5.3. Further, the longer that debt is rising, the greater the risk of a sudden adverse investor reaction, such as those explored in our 2021 *Fiscal risks report* which considered the implications of an extreme case of loss of investor confidence in the UK's creditworthiness that causes a flight from UK government bonds.

5.30 This all underscores our conclusion that unsustainable fiscal outcomes that may not occur for some years are today's challenge not tomorrow's. It is highly likely, based on the scenarios in this report, that governments will have to adjust fiscal policy beyond the consolidation planned over the next five years to keep debt at levels that is sustainable. And the analysis shows that making this adjustment earlier avoids much sharper adjustments later, even if an unstainable debt trajectory is not expected to materialise in the short term. If debt is kept on a lower trajectory, this will give future governments more room to manoeuvre in the event of future shocks. The scenarios presented in this report are designed to illustrate the trade-offs – the costs and benefits – of the possible alternative choices that governments will face in dealing with these challenges.

A Economic assumptions and model structure

Structure of our economic projections

A.1 To give our long-term projections a solid foundation, despite substantial uncertainties over a 50-year period, we ground them in the theory of long-term economic growth. We use a simple Solow neoclassical growth model, where output is a log-linear function of labour supply, the capital stock, and total factor productivity (TFP, the efficiency with which capital and labour are combined to produce incomes and output). Labour supply feeds into output growth with an elasticity of two-thirds, the public capital stock at a ratio of one-tenth, and the private capital stock at a ratio of one-third minus one-tenth. [1]

A.2 We can summarise this model in the Cobb-Douglas production function below. Y is potential output; K_M is the capital stock owned and managed by the private ('market') sector; K_G is the public ('government') capital stock; L is labour supply; and A is TFP.

$$Y = A \cdot K_M^{\alpha} \cdot K_G^{\beta} \cdot L^{1-\alpha-\beta}$$

A.3 Despite its simple structure, the model embodies some desirable, intuitive properties:

- Each factor of production individually displays **diminishing marginal returns** – an extra unit of capital or labour creates a bit less output than the previous unit. This arises because each factor has an exponent in production of strictly less than one.
- The overall economy exhibits **constant returns to scale** – doubling the size of all inputs would exactly double the size of output. This arises because the exponents sum to one.

A.4 But the model also comes with some simplifying assumptions:

- It is **deterministic**, meaning there are no random shocks to long-run potential output, and our projections constitute average growth through a potentially volatile future. While we recognise the significant uncertainty in long-run projections, we choose to model this through alternative scenarios, rather than using a stochastic baseline.
- There is **no endogenous process for the evolution of TFP.**
- Unlike in the medium term, we **do not decompose GDP into expenditure or income components**. For fiscal purposes, we implicitly assume fixed shares in overall output.

[1] Suresh, N., R. Ghaw, R. Obeng-Osei, and T. Wickstead, *OBR Discussion paper No.5: Public investment and potential output,* August 2024.

How we project the components of potential output

A.5 To reach a projection for potential output using the above framework, we need an approach to modelling each individual factor of production and TFP.

A.6 We measure labour supply in total hours worked, and project it as follows:

- We begin with detailed **demographic projections** using the ONS's cohort-component framework. This takes population by year of age in outturn and then for each projection year, runs on a series of deterministic assumptions for death rates, birth rates and net migration by year of age.

- We then run these demographic projections through our own cohort model of **labour market participation**. This takes by-age participation rates and projects them forward with adjustment for known factors like increases in the state pension age.[2] We recently published an article with more detail on this model.[3]

- Finally, we assume a stable path for both the **structural unemployment rate** (or non-accelerating inflation rate of unemployment, NAIRU) and **average hours worked**.

A.7 Measured by its real value in 2023 prices, we break down the capital stock into parts owned and managed by the private sector and the government. We project these as follows:

- The capital stock's contribution to output growth – referred to as **capital deepening** – is proxied by the growth rate of the ratio between the capital stock and total hours worked, multiplied by the relevant exponent in the production function.

- We evolve the **private capital stock** by converging it gradually to a fixed share of output, barring changes to the cost of capital. Business investment then evolves consistent with the level and retirement rate of the private capital stock. As TFP growth ramps up over the first 10 years of the projection, business investment picks up as a share of GDP to over 11 per cent. As TFP growth stabilises, it eases to 10½ per cent, similar to the endpoint of our medium-term forecast.

- We evolve the **public capital stock** using an assumed path for government investment as a share of GDP, combined with a constant imputed retirement rate. The baseline public investment path uses assumptions set out in more detail in Chapter 3. In scenarios, we keep government investment fixed at the baseline share of GDP.

A.8 We set **TFP growth** by assumption, rising from 0.8 per cent at the end of our March 2026 forecast to a steady pace of 1 per cent a year from the 2040s onwards.

[2] State pension age increases raise participation among those losing eligibility. Rises are phased in over three years rather than implemented at once. Historical state pension ages are drawn from government communications; the 2075 increase to 69 is based on the assumption that individuals spend 32 per cent of their adult life in retirement.
[3] Rawlings, J., *Forecasting participation trends: the cohort model*, September 2025.

Prices and nominal assumptions

A.9 Translating our estimates of the UK's long-term supply capacity into fiscally relevant figures requires cash values. Key tax bases and spending plans are driven by prices and nominal earnings, and the interest on debt is primarily expressed in nominal terms. We use the following assumptions for prices:

- We set long-term **consumer price index** (CPI) inflation at 2 per cent a year, consistent with the Bank of England's target.
- We project **CPI including owner-occupier housing costs** (CPIH) inflation to run at 2.4 per cent a year by the end of our projections, which is also our estimate for **retail price index** (RPI) inflation.[4] The wedge between this and CPI inflation reflects housing costs rising in line with nominal average earnings, and council tax growth consistent with our medium-term forecasts. RPI is used to index some UK bond yields.
- We project that the **GDP deflator** will grow at 2.2 per cent a year in our baseline. This captures the price of all domestically produced goods and services in the economy and we build it up by component of GDP, using CPIH for consumption prices and historical averages for others.[5]

A.10 Consistent with our long-term growth model, we expect real wages to grow in line with labour productivity. For **nominal earnings growth**, we combine projected productivity growth and the GDP deflator to get a long-term average of 3.8 per cent a year.

A.11 For our average **gilt yield** and **Bank Rate** projections, we use long-run market interest rates, comparing them to projected GDP growth to derive r-g as set out in paragraph 2.34.

[4] The ONS will set RPI inflation equal to CPIH inflation from February 2030, so we align the two across our long-term projections.
[5] We also assume that the UK terms of trade are steady over the long term, so export and import prices grow at the same pace.

B Policy baseline assumptions

B.1 This annex details the policy assumptions that underpin the baseline scenarios presented in this report. In the medium term, we use the government policy settings that were incorporated in our March 2026 *Economic and fiscal outlook* (*EFO*). Beyond the medium-term forecast period, over the 50-year horizon used in this report, in many areas there is not a well-defined, long-term policy and so we have to make assumptions about how policy will evolve. The *Charter for Budget Responsibility* requires that *"where a long term policy has not yet been set by the Government, the OBR will set out the assumptions it makes in its projections regarding policy transparently"*. Given the importance of these assumptions, we aim to be fully transparent about them and our reasons for choosing them.

B.2 In some cases, governments have set clear long-term policy commitments, for example stated government policy on future increases to the state pension age or the legislated commitment to achieve net zero carbon emissions by 2050, and in such cases we use these commitments as the basis for the projections. The primary approach that we take in the absence of a clear long-term policy is to assume that the structure of tax and spending policy as it is applied in the final year of the medium-term forecast is unchanged over the 50-year period. Our base-case interpretation of this is that, absent the impact of demographic and other long-term pressures that we identify, the level of each individual tax and spending area as a share of GDP would remain constant over the projection period.

B.3 In some cases, this means the long-term policy assumption could be viewed as inconsistent with stated medium-term policy parameters, for example in relation to personal tax thresholds and non-state pension welfare payments, which are uprated each year in line with average earnings in our baseline scenarios. While personal tax thresholds and non-state pension welfare payments are largely legislated to rise in line with inflation (and in practice personal tax thresholds have been frozen for many years), applying such policies over the long run would result in significant changes to the overall structure of the tax and welfare systems. Therefore, we do not think it would be consistent with our wider assumption on unchanged policy, nor in many cases be realistic over a 50-year period, to assume inflation uprating in our baseline scenarios. However, recognising that there are different ways to represent unchanged long-term policy, Chapters 1, 3 and 4 set out these considerations in further detail and present scenarios in which will illustrate the impact of alternative uprating assumptions.

B.4 Table B.1 and B.2 summarise the medium- and long-term policy assumptions underpinning our baseline scenarios for spending and receipts respectively.

Table B.1: Spending policy: baseline medium- and long-term assumptions

Policy	Medium-term assumptions	Long-term assumptions
Health spending	Total spending is grown in line with the Department of Health and Social Care's current spending allocation until 2028-29, and its capital spending allocation until 2029-30. Thereafter until 2030-31, it is grown in line with the wider DEL envelope for current and capital spending.	After 2030-31, health spending is grown by a combination of demographic effects, other cost pressures and an income effect.
Adult social care	Adult social care spending is grown in line with the March 2026 forecast for local authority current expenditure until 2030-31.	After 2030-31, adult social care spending is grown in line with nominal GDP, apart from demographic influences.
Defence	We assume defence spending rises linearly until 2028-29, before falling back in 2030-31 consistent with the wider path for the wider DEL envelope. The Defence Investment Plan had not been published at the point this report was finalised.	Projections are consistent with the Government's commitment for defence spending to reach 5 per cent of GDP by 2035, of which 3.5 per cent of GDP is allocated to 'core defence' spending and 1.5 per cent is allocated to 'security and resilience'. We assume defence spending rises on a linear path to reach the 3.5 per cent of GDP commitment.
Net zero transition spending	Net zero investment is grown in line with updated 2025 Spending Review allocations until 2029-30. Thereafter until 2030-31, it is grown in line with the wider DEL envelope for capital spending.	After 2030-31, investment is in line with the 2025 *Fiscal risks and sustainability report* central scenario for public sector investment, using the balanced pathway from the Climate Change Committee's Seventh Carbon Budget advice.
Education	Functional education spending is grown in line with the Department for Education's Spending Review allocation until 2028-29 for current spending. Thereafter until 2030-31, it is grown in line with the wider DEL envelope for current spending.	After 2030-31, education spending is grown in line with nominal GDP, apart from demographic influences.
Student loans	Until 2030-31, student loans are in line with the March 2026 forecast. This does not include the recently announced 6 per cent cap on interest rates to Plan 2 and Plan 3 loans from 2026-27.	After 2030-31, the cap on tuition fees and repayment thresholds are uprated in line with average earnings growth.
Public service pensions net expenditure	Consistent with the March 2026 forecast, payments are uprated with CPI, and amended scheme benefits are in line with the *Public Service Pensions Act 2013* , including linking the pension age to the state pension age.	After 2030-31, payments are uprated with CPI.
State pension	Consistent with the March 2026 forecast, the state pension age reaches 67 between 2026 and 2028. Basic state pension and new state pension payments are uprated using the triple lock mechanism. The additional state pension is uprated using CPI.	The state pension age reaches 68 between 2037 and 2039, which the Government has confirmed is its current policy position rather than the rise to 68 happening between 2044 and 2046 as is currently legislated for. The state pension age reaches 69 between 2073 and 2075. After 2030-31, basic state pension, additional state pension and new state pension payments are uprated using the triple lock.
Other welfare spending	Consistent with the March 2026 forecast and legislation, most welfare benefit rates are uprated in line with CPI inflation.	After 2030-31, all benefits are uprated in line with average earnings growth. After 2030-31, qualifying ages for non-state pension pensioner benefits, such as pension credit and attendance allowance, rise in line with the state pension age.
Other spending	Consistent with the March 2026 forecast, spending by function is projected based on historical splits.	After 2030-31, spending by function is grown in line with nominal GDP.

Source: OBR

Table B.2: Receipts policy: baseline medium- and long-term assumptions

Policy	Medium-term assumptions	Long-term assumptions
All taxes, other than tobacco and emissions taxes	Up until 2030-31, receipts are in line with the policy stated in the March 2026 forecast.	After 2030-31, direct tax allowances and thresholds, and indirect tax duty rates, are uprated in line with average earnings growth.
Tobacco duty	Up until 2030-31, receipts are in line with the policy stated in the March 2026 forecast.	After 2030-31, projections reflect the generational smoking ban, where from 2027 the sale of tobacco products to anyone born on or after 1 January 2009 will be banned.
Emissions taxes (including fuel duty)	Up until 2030-31, receipts are in line with the policy stated in the March 2026 forecast. For fuel duty this reflected a staged unwinding of the 5p cut to duty rates from September 2026 and RPI uprating from 2027-28 onwards. This does not include the announcement since the March 2026 forecast that the freeze to duty rates will be extended until the end of 2026.	After 2030-31, fuel duty rates are uprated in line with RPI inflation. In line with the approach to fuel duty, after 2030-31 other motoring tax rates are also uprated in line with current policy settings: vehicle excise duty with RPI, and electric vehicle excise duty (eVED) with CPI.

Source: OBR

C Age profiles

C.1 The scenarios presented in this report build on the detailed five-year forecasts for government revenue, spending, borrowing, and debt set out in our March 2026 *Economic and fiscal outlook*. The final year of that forecast in 2030-31 provides the starting point for the long-term projections, which model the impact of future demographic developments on tax and spending. This is important because the demand for many public services varies significantly by age, while taxes paid peak during working age. We model the impact of demographic developments using representative profiles of spending and tax by age – specifically, the forecast average spending or tax liability per person at each age in 2030-31[1] – for those areas of tax and spending where there is a theoretical and analytical basis for differences across the age range. For this report, and for the first time since we began producing long-term projections in 2011, we have updated almost all the major tax and spend age profiles that we use from versions originally estimated in the mid-2000s.[2]

C.2 In practice, of course, there is not an automatic link between demographics and the demand for, and provision of, public services, or the amount of tax paid. To a significant extent this relationship is determined by government policy, alongside a wide range of other factors related to individual circumstances. For example, demand for health services is not directly linked to an individual's age but to how healthy people are at different ages. The discussion and alternative scenarios across this report consider the implications of many of these wider factors.

Spending profiles

C.3 The representative spending profiles by age for those areas of spending for which we use age profiles are shown in Chart C.1. The key features are as follows:

- In early life, children and young people consume relatively high levels **of education spending**,[3] accounting for nearly 50 per cent of total public spending on 10-to-19 year olds. Per-person spending falls sharply after people pass the age of mandatory schooling. The profiles are based on 2025-26 data published by the Department for Education and informed by analysis from the Institute for Fiscal Studies.

- **Health spending** per person remains relatively flat until the mid-50s, at which point average per-person health costs increase substantially as people age. The age profile

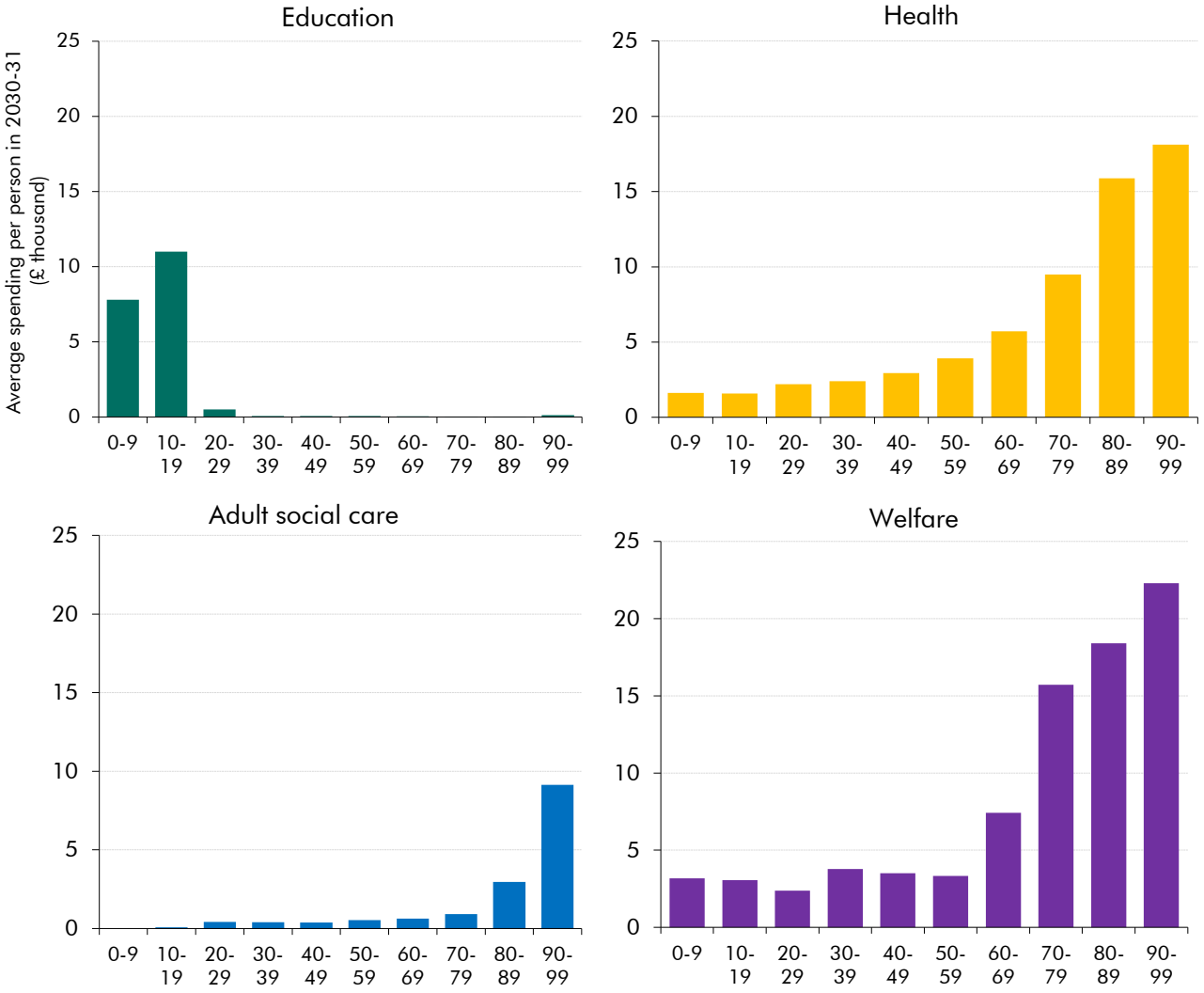
[1] As these age profiles are based on the total population, whether they are working or not or in receipt of a specific welfare payment or not, for example, the figures they present differ from other commonly used metrics such as the average tax liability per taxpayer or average benefit spending per welfare claimant.
[2] For the purposes of presenting an overall age profile capturing total primary receipts and spending, we apportion receipts for which we do not apply a specific age profile equally across working-age adults, and other spending equally across the population. Apportioning across working-age adults is consistent with our baseline assumption in the projections in this report that absent demographic change or other specific pressures, receipts grow in line with GDP.
[3]This does not include student loans, which are partially accounted for in 'other' spending. For more information on the long-term fiscal impact of student loans, see Box 3.1.

for health spending is the same as that used in our 2024 *Fiscal risks and sustainability report*, for which it was updated as part of an in-depth assessment of health spending in that report. The profiles are based on 2022-23 data from NHS England.

- Per-person **adult social care spending** slowly increases as people age, with a sharp increase for individuals over the age of 80. The profiles are based on 2023-24 data from the Department of Health and Social Care.

- **Welfare spending** includes spending on benefits for children, all working-age benefits including universal credit and disability benefits, and the state pension and other pensioner benefits. Welfare spending per person is higher among the older population due to state pension spending, which accounts for around 40 per cent of total public spending for those aged 70 and over. Non-state pension welfare spending is broadly flat across all ages until it too begins to rise for those aged 70 and over. The profiles are based on 2023-24 data from the Department for Work and Pensions.

Chart C.1: Age profiles for selected areas of spending



Source: OBR

Tax profiles

C.4 Chart C.2 shows the representative tax profiles by age for taxes for which we use age profiles. The key features are as follows:

- **Income tax** liabilities by age reflect people typically entering the workforce in their early 20s, with liabilities rising until the mid-40s when both earnings and labour participation rates are high, before falling thereafter. Income tax makes up the largest share of primary receipts at each age group, accounting for around 30 per cent on average. The profiles are based on the proportion of income tax liabilities by age and sex from the 2022-23 Survey of Personal incomes (SPI).

- Like income tax, **National Insurance contributions (NICs)** by age reflect employment patterns across the age range. The impact of different earnings levels at different ages is more muted than for income tax because NICs are much less progressive. Given people stop paying employee NICs once they reach state pension age, liabilities fall close to zero from age 67 onwards, with the small amounts above this age reflecting employer NICs.[4] The profiles are based on several sources of HM Revenue and Customs (HMRC) data including the same SPI data as the income tax profiles.

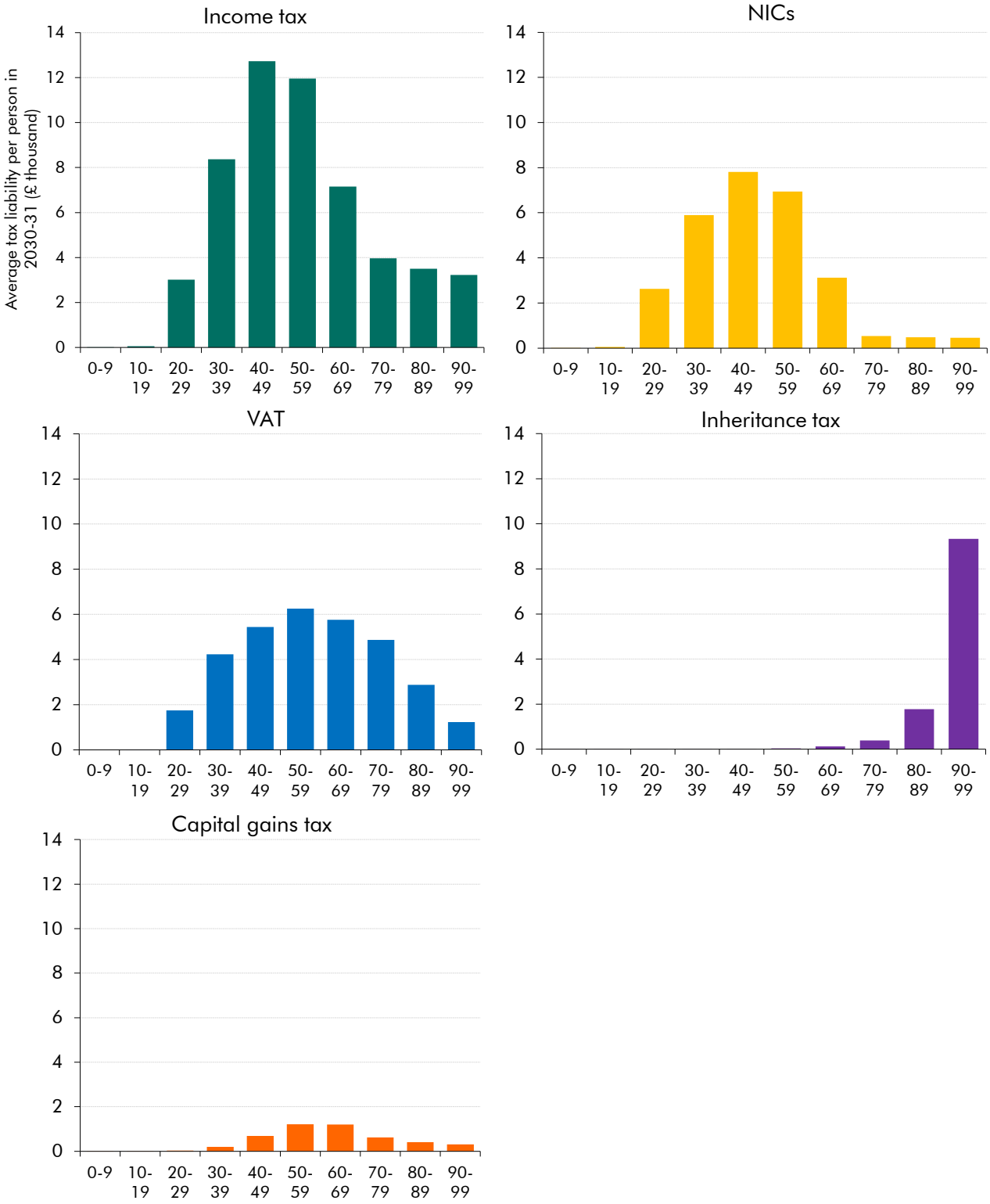
- **VAT** liabilities peak as individuals reach their early 50s, with consumption patterns generally following earnings and income peaks in an average person's lifetime. Liabilities remain high just above state pension age when consumption is also high. Because household consumption is attributed to one adult in the household in the data underpinning the projections (the ONS Living Costs and Food Survey), liabilities are assumed to be zero until an individual reaches age 17.[5]

- In later life, **inheritance tax** makes up a significant proportion of total tax liabilities, with the average tax paid reaching over £9,000 for individuals aged 90 and above.[6] These age profiles attribute the liability to the estate rather than the beneficiaries and are based on 2022-23 Inheritance Tax statistics from HMRC.[7]

- **Capital gains tax** liabilities peak for individuals in their mid-50s. Like personal taxes, this profile largely follows the pattern of earnings across an individual's lifetime. These profiles are based on 2023-24 Capital Gains Tax statistics from HMRC.

[4] Employer NICs above the state pension age are based on liabilities on non-pension earnings.
[5] Projections are derived from Treasury modelling using the ONS Living Costs and Food Survey and OBR economic assumptions from the November 2025 forecast. Due to limited data at an individual level, consumption spending is assigned to the head of the household.
[6] This applies for individuals aged between 90 and 99.
[7] The inheritance tax profile is based on the ages at which people die in the underlying estates data. Like other age profiles, this profile is applied to the ONS population projections by age, rather than death projections specifically – the effect on receipts is very similar to that if death projections were used. Inheritance tax age profiles are based on the averages of pooled data across the 2018-19 to 2022-23 tax years.

Chart C.2: Age profiles for selected receipts

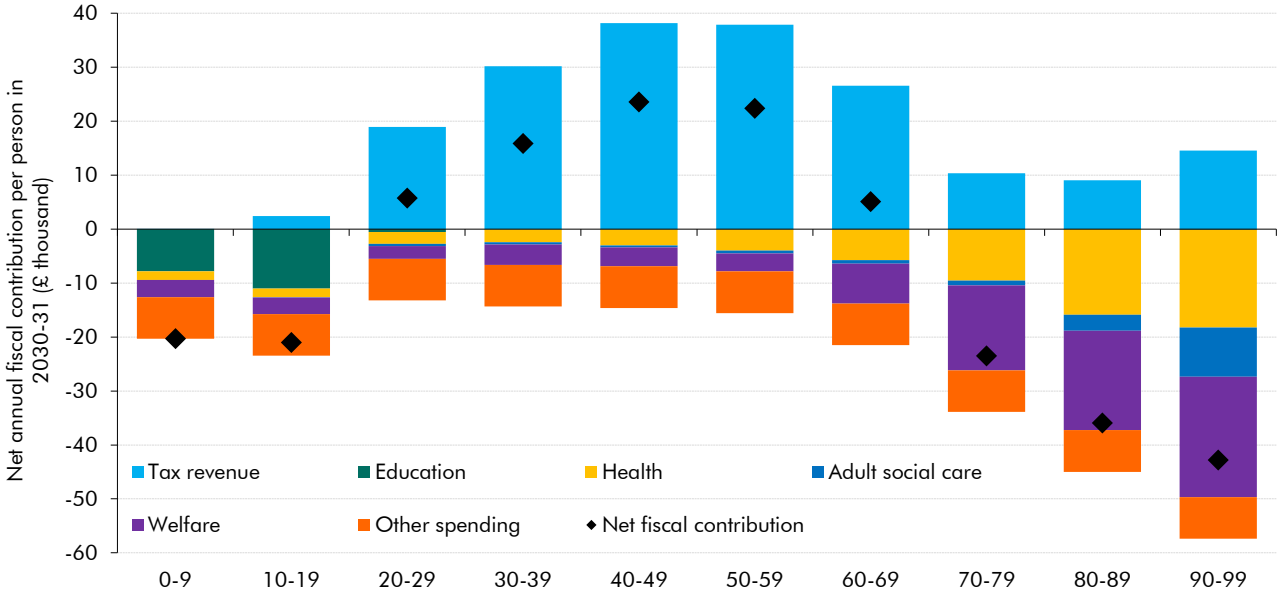


Source: OBR

C.5 Taking total primary spending and receipts together, the net fiscal contribution of a representative person starts off negative from birth, turns positive around age 21, peaks around the early 50s, and then turns negative again at around age 67 (Chart C.3). It is

around age 82 where the representative person no longer makes a cumulative positive contribution. This means that an average person with a life expectancy of 82 years in 2030-31 can be expected to be broadly fiscally neutral over their lifetime.

Chart C.3: Age profile for total primary spending and primary receipts

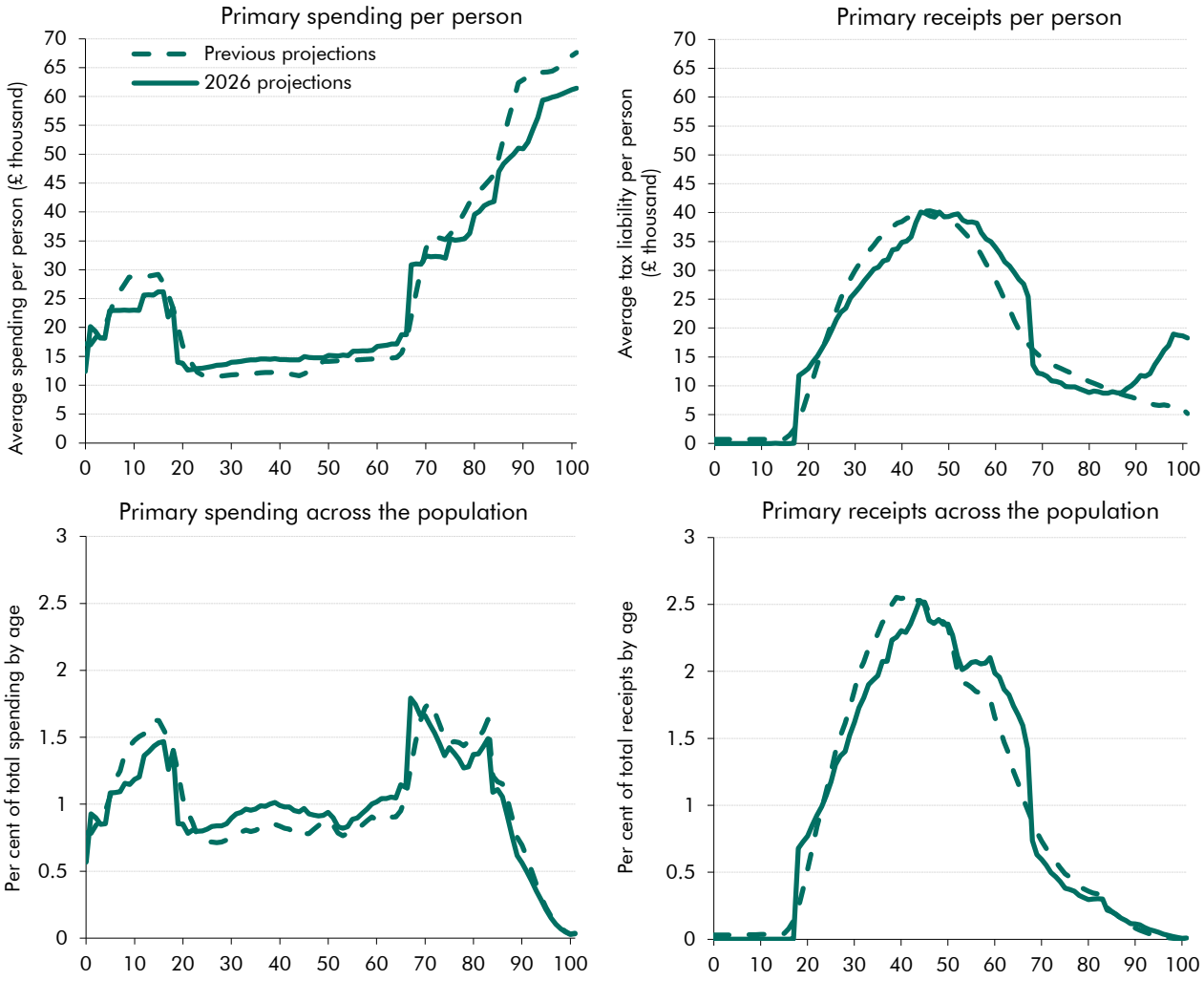


Note: These profiles are constructed on the basis that aggregate primary spending and receipts are broadly in balance, as is the case on average over the medium term in our March 2026 forecast. Therefore, they do not capture the fiscal impact of major economic shocks on public spending and receipts, nor the implications of net debt interest spending.
Source: OBR

C.6 The updated profile for primary spending by age is very similar to the age profiles used in all our previous long-term projections, which were largely estimated in the mid-2000s. The main difference is slightly higher per-person spending on people of working age and slightly lower per-person spend for the young and the old (top-left panel of Chart C.4). Primary spending per person increases significantly after state pension age and this makes up a sizeable proportion of overall spending on the population. However, at the ages where spending per-person is the highest, 90 onwards, the population is small and as such, the proportion of total spending spent on this age group is very small (bottom-left panel of Chart C.4).

C.7 The profile for primary receipts (top-right panel of Chart C.4) has shifted towards older ages, due to the ages of peak employment, earnings and consumption having risen since the previous profiles were estimated as working lives have extended. There has also been a methodological change to the calculation of the inheritance tax profile which was previously smoothed across older ages, but is now attributed to an assumed age of death. This raises the average tax liability per person right at the top of the age range, however, as with the spending profiles, the population at these ages is small. The bottom-right panel of Chart C.4 shows that across the population, receipts liabilities remain heavily concentrated in working age where the population is concentrated.

Chart C.4: Age profiles for total primary spending and primary receipts compared to previous estimates, 2030-31



Note: The previous profiles are expressed in 2030-31 terms so that the old and new profiles are broadly comparable.
Source: OBR

D Changes since the 2024 long-term projections

D.1 There have been several updates to the long-term projections in this report compared to the most recent version in the 2024 *Fiscal risks and sustainability report* (*FRS*), including:

- **Updated population projections**, with the 2024-based ONS population projections used in this report showing around 10 million fewer people in the mid-2070s than the 2022-based population projections used in the 2024 *FRS*. The dependency ratio, comparing the number of children and people in old age to working-age adults, is also slightly higher in the latest population projections.

- **Changes to economic determinants**, for example as a result of the effects of updated population projections on the workforce and therefore GDP, and a slightly lower baseline assumption for average productivity growth across the projection period, at 1.4 per cent compared to 1.5 per cent, due to a slower transition path to the long-term rate. Per-person GDP is also slightly lower compared to the 2024 *FRS*.

- **Changes to the medium-term economic and fiscal starting point** for the long-term projections, reflecting the differences between our March 2024 and March 2026 medium-term forecasts.

- **Updated age profiles for tax and spending**, detailed in Annex C, which include tax liabilities being concentrated at slightly older ages relative to the previous estimates.

- **Changes in long-term government policy commitments**, detailed in Chapters 3 and 4, including in relation to defence spending, net zero commitments, charging reforms in adult social care, and the announcement of the phased tobacco ban.

D.2 Table D.1 presents a stylised decomposition that identifies the role of some of the main factors driving the difference between the endpoint of the baseline scenario for public sector net debt in this report and the baseline projection in the 2024 *FRS*. The two projections are shown in Chart D.1 and overall are very similar. This reflects changes, which are broadly offsetting, including:

- **Changes in the medium term** which lower debt by around 39 per cent of GDP by the end of the projection compared to the 2024 *FRS* projections. This is mainly driven by a more favourable primary surplus in 2030-31, the final year of the March 2026 medium-term forecast which is the starting point for the long-term projections in this report, compared to the primary surplus projected for 2030-31 in the 2024 *FRS*.

- Updated **age profiles for tax and spending**, which lower debt by around 63 per cent of GDP by the 2070s compared to the 2024 *FRS*. This is a result of the shift in the primary receipts age profile towards older ages, where the population is more concentrated at the end of the projection period. In addition, it reflects a decision to allow the age profiles to feed through to more taxes than in the 2024 *FRS*, in which more were held constant as a share of GDP.

- Updated ONS **population projections**, which raise debt by around 71 per cent of GDP compared to 2024 *FRS*. The higher dependency ratio in these latest projections means that there are more net fiscal recipients and fewer net fiscal contributors. Within the older population, there is a shift towards the very old who are the largest recipients of state spending.

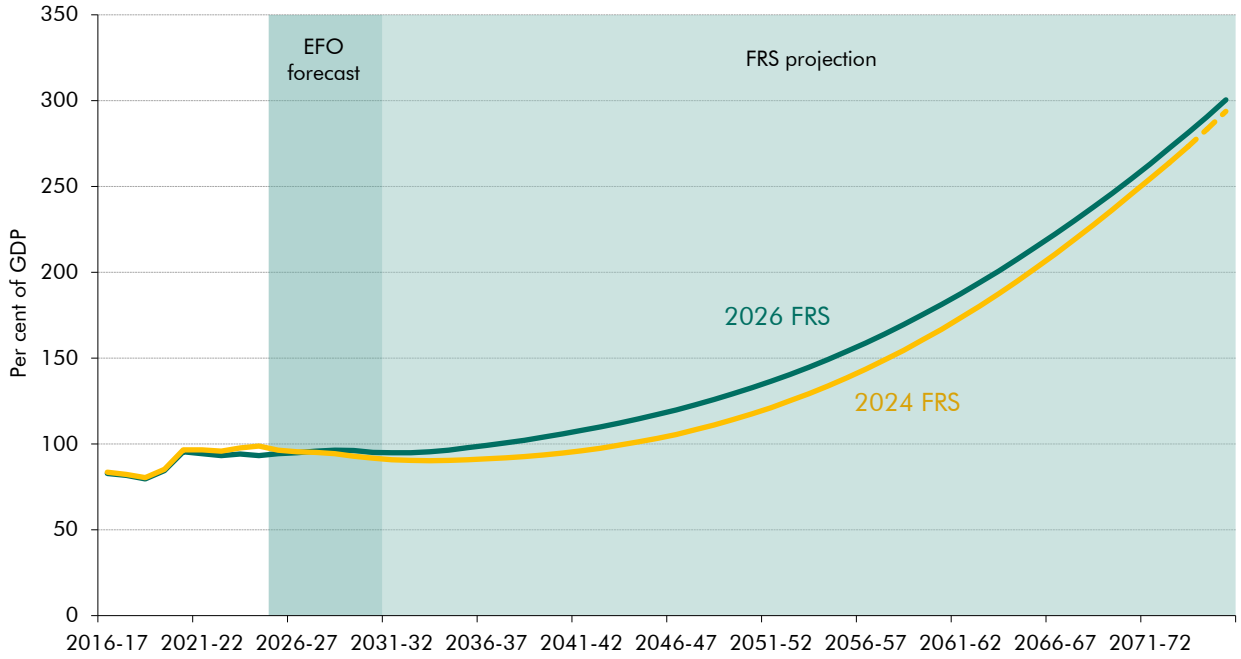
- Changes to specific government **policy commitments**, which raise debt overall, by around 45 per cent of GDP in the 2070s compared to 2024 *FRS*. This is mainly due to higher defence spending and lower receipts as a result of net zero commitments, slightly offset by lower spending as a result of the removal of social care charging reforms from the baseline.

Table D.1: The effect of revised key assumptions on the final level of debt in the baseline scenario compared to the 2024 *FRS* baseline projection

	Per cent of GDP
	2075-76
	Debt
2024 FRS	294
Difference	**7**
of which:	
Changes in the medium term	-39
Age profiles	-63
Population projections	71
Selected policy commitments	45
of which:	
Defence spending	41
Net zero receipts	15
Adult social care charging reforms	-11
Other modelling changes	-7
2026 FRS	300

Note: We have extrapolated debt in the final year of our FRS 2024 projections for an extra two years, allowing us to make this comparison.

Chart D.1: Baseline scenarios for public sector net debt in the 2024 and 2026 *FRS*



Note: We have extrapolated debt in the final year of our 2024 *FRS* projections for an extra two years, allowing us to make this comparison.
Source: OBR

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