

November 2018

# UK Economic Outlook

## Special features on:

Paying it down: past trends and future prospects for UK debt

UK economic growth: long-term trends and prospects for the 2020s



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# Highlights and key messages for business and public policy

## Key projections

	2018	2019
Real GDP growth	1.3%	1.6%
Consumer spending growth	1.7%	1.5%
Fixed investment growth	-0.5%	0.8%
Inflation (CPI)	2.5%	2.2%

Source: PwC main scenario projections

## Recent UK developments and prospects

- In our main scenario, we project UK growth to remain modest at around 1.3% in 2018 and 1.6% in 2019. This reflects the drag on business investment from ongoing economic and political uncertainty relating to the outcome of the Brexit negotiations, which remain a major source of downside risk to our main scenario at the time of writing. But the higher government spending and short-term tax cuts announced in the Budget will provide some support for growth in 2019.
- The stronger global economy, and the competitive value of the pound, have boosted UK exports and inbound tourism, offering some support to the economy over the past two years. But the Eurozone economy has slowed recently and any escalation of international trade tensions could dampen global growth in 2019 and beyond.

- Service sector growth should remain modest but positive in 2019, but manufacturing growth has slowed markedly recently from the relatively high rates seen in 2017. Construction sector output has fallen back since early 2017 due to the weakness of commercial property investment in particular and looks set to remain relatively weak in the short term, given the uncertainty around Brexit.
- London has grown significantly faster than other UK regions for most of the past three decades, but recently there have been signs from both the labour and housing markets that London's relative performance has been less strong. We therefore expect London to grow at only slightly above the UK average rate in 2018-19, with limited variations in growth across regions over this period.
- In our main scenario with a smooth Brexit, we assume that the Bank of England raises interest rates by a quarter of a percent to 1% in mid-2019. But the precise timing of this will be data-dependent and the pace of any subsequent rate increases are likely to remain limited and gradual.

## Rising private sector debt likely to outweigh declining public debt over next five years

- Over the next five years we expect the government to reduce gradually the size of its debt relative to GDP, but households and companies are both likely to borrow at a faster rate than economic growth. The net effect will be a gradual rise in the UK economy's overall debt-to-GDP ratio from 252% in 2017 to around 260% in 2023.
- Assuming that the Bank of England gradually raises interest rates to 2% by 2023, we project that total debt servicing costs in the UK economy could rise from an estimated 7.7% of GDP in 2017 to around 9.6% of GDP in 2023. This will squeeze the discretionary spending power of both households and companies.

## UK growth could average 1.75% in 2020s

- UK economic growth has averaged below 2% in each of the first two decades of this century, the weakest performance in any decade since the Second World War.
- Our central estimate is that average UK growth may remain relatively subdued at around 1.75% per annum in the 2020s, allowing for the effects of an ageing population.
- But there is scope for government, working with business, to boost UK growth to 2% or more by promoting artificial intelligence and other new technologies, reforming tax and regulation to support productivity growth, encouraging greater participation in the labour force by older workers, and retaining an open approach to EU and global trade after Brexit.



# 1. Summary

## Recent developments

The UK economy held up well in the six months after the EU referendum, but growth slowed from early 2017 as higher inflation bit into household spending power. This slowdown continued into early 2018, but GDP growth picked up again in the second and third quarters of the year, helped by a recovery in consumer spending as the weather improved and inflation eased.

The jobs market has generally remained strong, with the employment rate at record levels and unemployment down to its lowest rate since 1975. In recent months, this has finally started to feed through into increased wage growth, which is one reason why the Bank of England raised interest rates in August.

## Future prospects

As shown in Table 1.1, our main scenario is for UK GDP growth to remain moderate at around 1.3% on average in 2018 and 1.6% in 2019. Our views on growth and inflation are broadly similar to the latest consensus and OBR forecasts (see Table 1.1), and indeed the latest Bank of England forecasts.

Consumer spending growth held up better than expected in 2018, but is expected to moderate to around 1.5% in 2019 in our main scenario as stronger real wage growth is offset by slower jobs growth, a gradual rise in interest rates and subdued house price growth.

Brexit-related uncertainty will continue to hold back business investment in the UK in the short term, although we assume in our main scenario that this eases later in 2019 on the assumption of a relatively smooth Brexit. Total fixed investment in the economy is projected to fall by 0.5% in real terms in 2018, followed by a modest 0.8% recovery in 2019 in our main scenario.

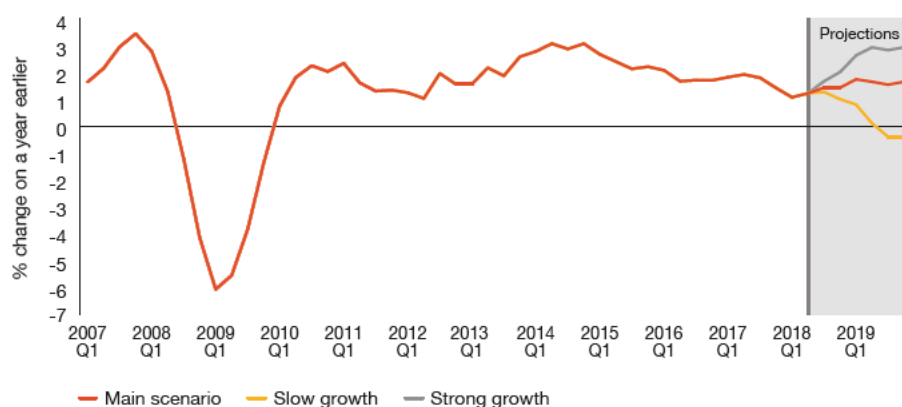
The Budget provided a significant boost to government spending, particularly on the NHS, and also some short-term tax cuts that will support growth in 2019.

**Table 1.1: Summary of UK economic growth and inflation prospects**

Indicator (% change on previous year)	OBR forecasts		Independent forecasts (October 2018)		PwC Main scenario (November 2018)	
	2018	2019	2018	2019	2018	2019
GDP	1.3	1.6	1.3	1.5	1.3	1.6
Consumer spending	1.3	1.2	1.4	1.4	1.7	1.5
Inflation (CPI)	2.6	2.0	2.5	2.1	2.5	2.2

Source: Office for Budget Responsibility (October 2018), HM Treasury survey of independent forecasters (average value of new forecasts made in October 2018 survey) and latest PwC main scenario.

**Figure 1.1 – Alternative UK GDP growth scenarios**



Source: ONS, PwC

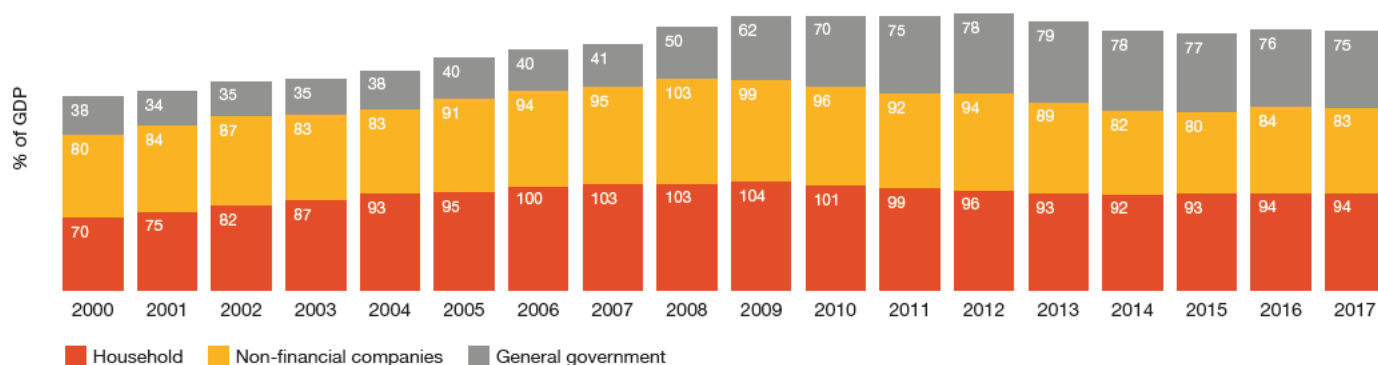
A fairly strong global economy should continue to have some offsetting benefits for net exports in the short term, but there are downside risks in 2019 and beyond from the effects of higher US interest rates and heightened international trade tensions. The Eurozone economy has also slowed recently, which will dampen UK export growth.

There are always uncertainties surrounding our growth projections, as illustrated by the alternative scenarios in Figure 1.1. There are still considerable downside risks relating in particular to possible pitfalls on the road to Brexit, but there are also upside possibilities if these problems can be contained and global growth remains strong in 2019.

In our main scenario, we expect the UK to continue with moderate but steady growth in 2018-19, but businesses need to monitor and make contingency plans for potential alternative scenarios related to Brexit and other factors such as global trade tensions.

Inflation should fall back gradually to around its 2% target rate by the end of 2019, assuming no major shifts in exchange rates or global commodity prices. Given continued uncertainties around Brexit and the UK economy, we expect the Monetary Policy Committee to remain cautious about the pace of future interest rate rises, but in our main scenario we assume a further quarter-point rate rise to 1% in mid-2019.

**Figure 1.2 – Gross UK debt stock outstanding by sector as % GDP**



Source: PwC analysis of ONS data from 2018 Blue Book

**Table 1.2: Projected UK debt stock**

Sectors	Debt in cash terms (£ trillion)		Debt as % of GDP	
	2017	2023	2017	2023
Households	1.9	2.6	94	100
General government	1.5	1.8	75	69
Non-financial companies	1.7	2.4	83	91
<b>Total</b>	<b>5.1</b>	<b>6.7</b>	<b>252</b>	<b>259</b>

Source: ONS data for 2017, PwC main scenario projections for 2023

Several years of government austerity and private-sector deleveraging have brought down the total debt stock, but the economy remains much more indebted than it was before the crisis.

Over the next five years we expect the government to continue to reduce the size of its debt relative to GDP, but households and companies are both likely to borrow at a faster rate than economic growth. The net effect will be a gradual rise in the economy's debt-to-GDP ratio from 252% in 2017 to just under 260% in 2023 (see Table 1.2). In cash terms, the total debt stock might reach £6.7 trillion by 2023 in our main scenario.

Assuming that the Bank of England gradually raises its official bank rate to 2% by 2023, we estimate that total debt servicing costs in the UK economy could rise from an estimated 7.7% of GDP in 2017 to around 9.6% of GDP in 2023. This will squeeze the discretionary spending power of both households and companies.

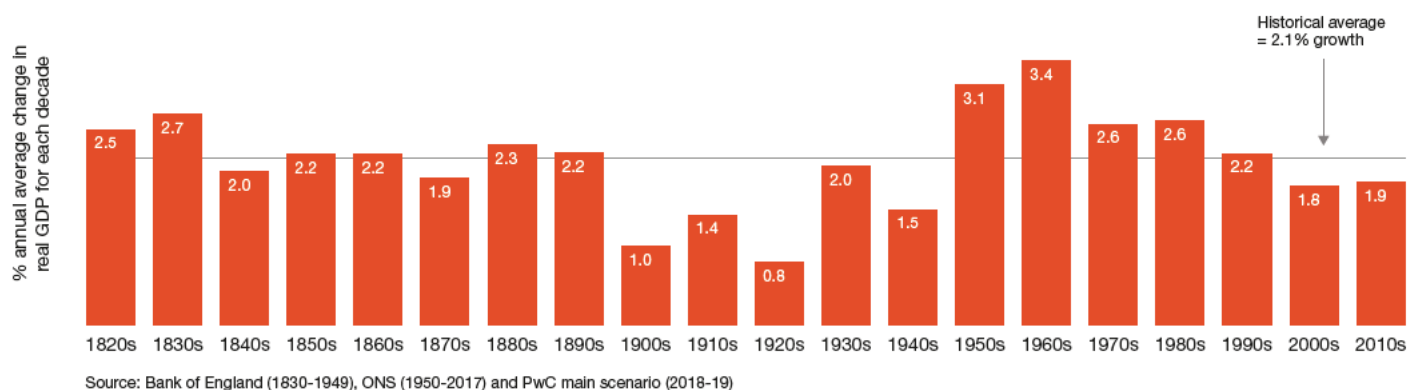
“ Total debt interest costs could rise from 7.7% of GDP in 2017 to 9.6% of GDP in 2023”.

**Paying it down: past trends and future prospects for UK debt**

The total stock of debt held by UK households, non-financial companies and the government rose sharply during the 2000s, so that by the time of the global financial crisis in 2008, the economy's debt burden was equivalent to more than 250% of national income (GDP), up from less than 200% of GDP at the turn of the century (see Figure 1.2).

The onset of the crisis saw the private sector begin to pay down its debt, but the combination of higher government spending and falling tax revenue saw public debt double as a proportion of GDP between 2007 and 2013.

**Figure 1.3 – Two centuries of UK economic growth**



**Long term UK growth trends and prospects**

Based on our main scenario for 2018-19, UK economic growth will average below 2% per annum in both of the first two decades of the 21st century. This period of sub-2% growth is the weakest since the end of the Second World War (see Figure 1.3).

The UK is not alone in suffering a drop in economic growth. G7 average growth is also projected to be below 2% in the current decade.

Shifts in productivity growth rates have been critical to variations in overall UK economic growth rates across the decades, and trade and technology appear to be the main drivers of productivity for the UK and other advanced economies.

Looking forward, these two key productivity drivers are giving mixed signals. We estimate that Artificial Intelligence (AI) and related technologies could boost UK GDP by up to 10% by 2030. But Brexit and global protectionism could be negative factors for the decade ahead.

Our central estimate is for UK GDP growth in the 2020s to average around 1.75% per annum, not far from the average in the first two decades of the 21st century. But there could be potential to boost this growth rate to around 2% through appropriate policies.

This would include measures which support the contribution of new technologies like AI to productivity, help to establish more efficient tax and regulatory systems, engage older people in the workforce and maintain open trading relations with the EU and the rest of the world. Government needs to work with business and other stakeholders to achieve these objectives.

“ Our central estimate is for UK GDP growth in the 2020s to average around 1.75%”.

# 2. UK economic prospects<sup>1</sup>

## Key points

- In our main scenario, we project UK growth to continue at moderate rates of around 1.3% in 2018 and 1.6% in 2019, assuming a reasonably smooth Brexit. But risks are weighted to the downside in the short term due to the possibility of a more disorderly Brexit.
- Consumer spending was boosted during the warm summer months and will be helped by recent rises in real incomes. But jobs growth has slowed recently, the housing market has cooled and further rises in household borrowing may be hard to sustain.
- Business investment remains constrained by uncertainties related to Brexit. It could also be put at risk in 2019 and beyond if there is further escalation of the recent US-led trade war.
- We expect UK growth to be more balanced across regions in 2018-19, with London no longer growing significantly faster than the UK average and all regions growing at 1% or above.
- As consumer price inflation gradually moderates in 2019, real wages are expected to continue to grow, but at rates below those seen before the global financial crisis as productivity growth remains relatively subdued.
- The Bank of England is expected to continue with very gradual interest rates rises over the next few years assuming a reasonably smooth Brexit. But the next rate increase seems unlikely to come before mid-2019 and the timing of future rate rises will depend on the evolution of both the economic data and the Brexit negotiations.
- The Budget offered some support to growth in 2019, with higher public spending and around £4 billion of net tax cuts in that year. Fiscal policy will also be looser in the medium term, with a fiscal windfall from more favourable OBR public finance forecasts used to fund increased NHS spending.

## Introduction

In this section of the report we describe recent developments in the UK economy and review future prospects. The discussion covers:

- 2.1 Recent developments in the UK economy
- 2.2 Economic growth prospects: national, sectoral and regional
- 2.3 Outlook for inflation and real earnings growth
- 2.4 Monetary and fiscal policy
- 2.5 Summary and conclusions

“ In our main scenario, we project UK growth to continue at moderate rates of around 1.3% in 2018 and 1.6% in 2019”.

<sup>1</sup> This section was written by John Hawksworth with additional inputs by Mike Jakeman and Robbie Allatt.



## 2.1 – Recent developments in the UK economy

UK economic growth slowed in 2017 as inflation bit into consumer spending power and Brexit-related uncertainty dampened business investment, although this was offset in part by an upturn in the global and Eurozone economies. UK growth then fell further in the first quarter of 2018, although this decline was exaggerated by the negative effects of the snow in late February and March. As the weather improved, consumer spending and construction activity perked up, leading to a recovery in growth during the second and third quarters.

Manufacturing sector output is still slightly below pre-crisis peak levels, but has generally been on a rising trend since 2015 (see Figure 2.1<sup>2</sup>). Output bounced back strongly in the second half of 2017 due to higher demand for UK goods exports because of stronger global and European demand, as well as the competitive value of sterling. But manufacturing growth then moderated somewhat during 2018 as growth in key Eurozone markets slowed.

The construction sector has been volatile over time, but had generally been growing relatively strongly in 2014-16 before declining again in 2017 and early 2018 before a tentative recovery this summer. Commercial construction activity has been particularly weak over the past year, perhaps reflecting the impact of Brexit-related uncertainty, and housing activity has also moderated in London in particular.

The dominant influence on UK growth comes from the services sector, however, which now accounts for almost 80% of UK GDP (compared to only around 10% for manufacturing and around 6% for construction).

Figure 2.1 – Sectoral output and GDP trends

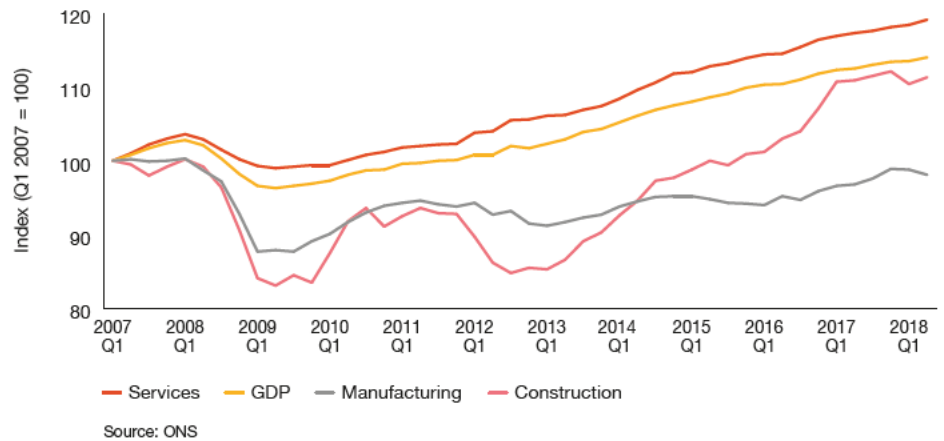
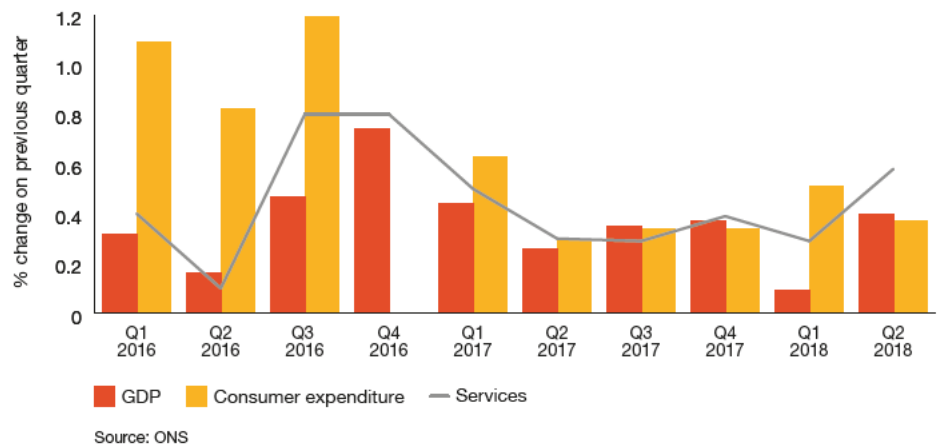


Figure 2.2 – Trends in GDP, consumer spending and services sector growth



Services sector output has shown relatively steady growth ever since the recession bottomed out in mid-2009, although there have been some fluctuations in the pace of growth more recently as Figure 2.2 shows. This fell back markedly in the first quarter of 2018, but has picked up again since then.

Figure 2.2 also shows the influence of slower consumer spending growth on overall GDP growth in 2017 and early 2018 as higher inflation squeezed real income levels, though it then recovered somewhat through the spring and summer with better weather and the recent acceleration in real wage growth.

2 This report went to print prior to publication of official ONS estimates of GDP and sectoral output growth in Q3 2018. The data in Figure 2.1 and related comments in the text are therefore based on our own estimates for Q3 2018, extrapolating from published ONS data for the period to August 2018.

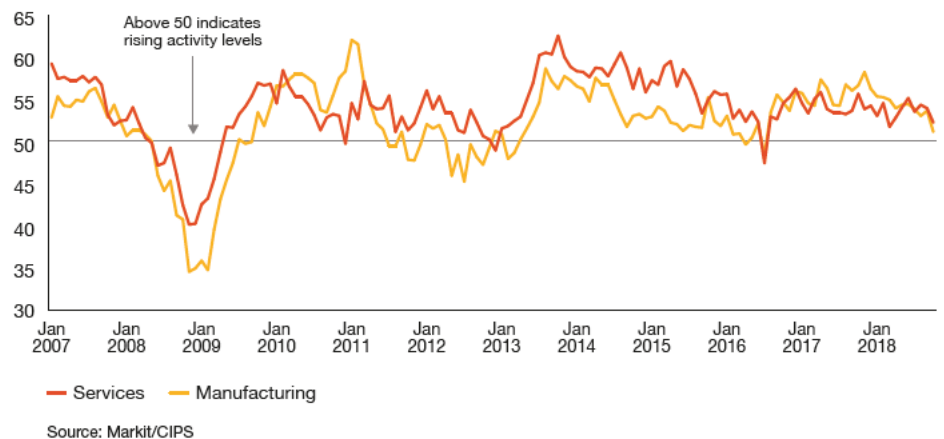


As noted above, the housing market has also slowed, particularly in London. Retail sales growth was particularly weak in the first quarter of 2018, but has recovered since then with relatively strong volume growth of 1.2% between the second and third quarters of the year. Online sales have been especially buoyant, while the high street has continued to suffer from a combination of slower sales growth and rising costs.

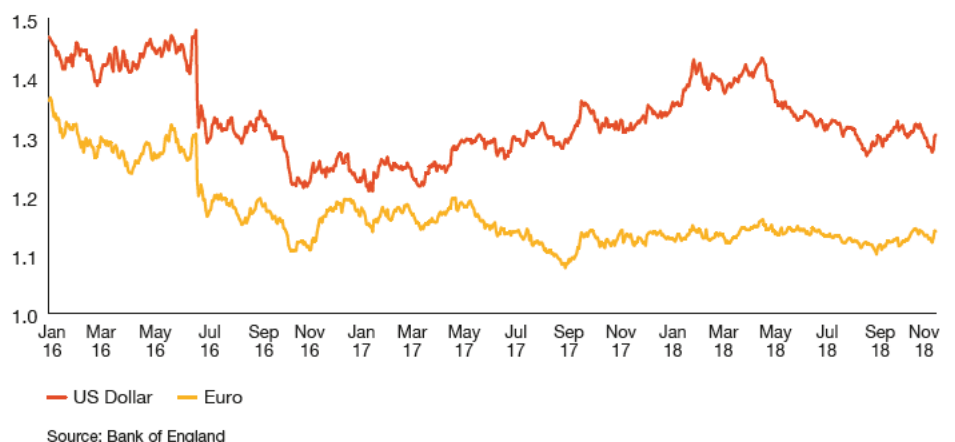
Although official data are more comprehensive, business surveys can provide a more timely indication of short term economic trends. In particular, it is worth keeping an eye on the Markit/CIPS purchasing managers' indices (PMIs) for services and manufacturing, as shown in Figure 2.3. Despite some volatility, the manufacturing PMI had been relatively strong in the second half of 2017, but has moderated during the course of 2018 with a further sharp fall in October. The services PMI has also been relatively erratic, though generally suggesting continued moderate growth.

A key factor underpinning UK economic trends since the Brexit vote in June 2016 has been the relative weakness of the pound, as shown in Figure 2.4. Sterling regained some ground against the US dollar between mid-2017 and April 2018, but has fallen back again since then and remains weak against the euro. A weak currency makes UK exports relatively cheaper for overseas customers, promoting the sale of British goods and services and making inbound tourism more affordable. But depreciation also raises the prices of imports and this pushed up inflation, so squeezing consumer spending power (though these effects have largely worked their way through the system now).

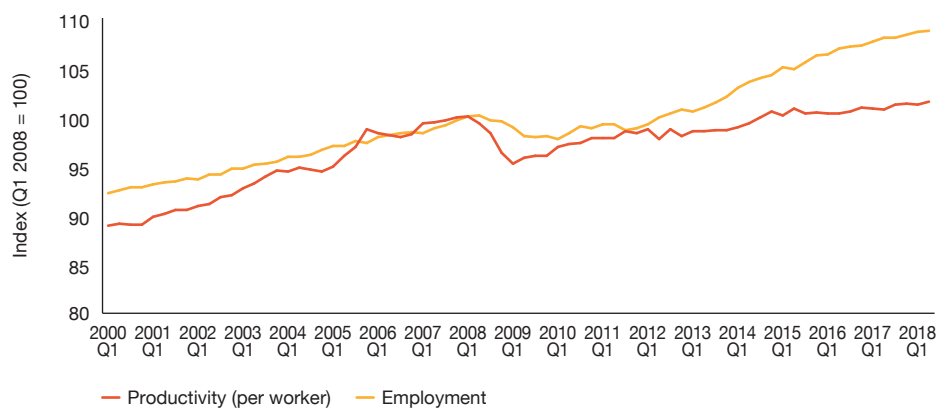
**Figure 2.3 – Purchasing Managers' Indices of business activity**



**Figure 2.4 – US dollar and euro exchange rates against the pound**



**Figure 2.5 – Trends in productivity and employment**



Source: ONS

**UK creates record numbers of jobs, but productivity growth subdued since the crisis**

In the July 2017 edition of UK Economic Outlook, we discussed how the recent combination of low wage growth and low unemployment indicated a flattening of the traditional Phillips Curve (which describes the historical negative relationship between wage inflation and unemployment). One of the key reasons for subdued real wage growth has been relatively weak UK productivity growth since the financial crisis as illustrated in Figure 2.5 for output per worker. The positive side of this has been strong jobs growth, particularly since 2012.

Recent trends have been less clear cut, with jobs growth slowing down in the three months to August 2018 but productivity growth and real earnings growth picking up a little. But the ideal combination of both strong jobs growth and robust productivity and real earnings growth, as seen before the crisis, has generally proved elusive.

**Why has productivity been weak since the crisis?**

Many possible explanations have been put forward for recent weak productivity growth, including measurement error (in particular, not capturing the full benefit of digital innovations like smartphones). Soon after the recession, some put it down to labour hoarding by firms or credit constraints by banks, but both these explanations are less convincing now after eight years of recovery since mid-2009. Reduced competition in some sectors might be a possible explanation, but against that some other sectors have seen their markets disrupted by technology-savvy new entrants, which would usually be associated with increased innovation and productivity growth.

Another possible explanation is that ‘zombie firms’ could have been kept alive by low interest rates despite low productivity, impeding the reallocation of capital and labour to higher productivity activities within the economy.

The most convincing explanation from our perspective is that business investment, while picking up since the recession, has not done so to the extent seen in most past recovery cycles. Many businesses have been reluctant to invest in new labour-saving automation technologies that are relatively risky when compared to the alternative of using more low-cost labour, including migrant workers from the EU. Uncertainty around Brexit has been a further dampener on business investment over the past two years, which has been relatively subdued at a time when global economic conditions and very low interest rates might normally have been expected to lead to a much stronger performance.

Looking 10-20 years ahead, emerging technologies like robotics and artificial intelligence could hold the potential for faster productivity growth<sup>3</sup>, with a net impact on UK employment that we think could be broadly neutral in the long run as we discuss in detail in the July 2018 edition of this report<sup>4</sup>. But, at least for the next few years, productivity growth may remain relatively subdued, with any recovery being at the expense of slower growth in jobs and hours worked.

3 See, for example, our report on the potential impact of AI on the UK economy here, which suggests gains of up to 10% of GDP by 2030: <https://www.pwc.co.uk/services/economics-policy/insights/the-impact-of-artificial-intelligence-on-the-uk-economy.html>  
 4 Available here: <https://www.pwc.co.uk/economic-services/ukey/ukey-july18-net-impact-ai-uk-jobs.pdf>

## 2.2 – Economic growth prospects: national, sectoral and regional

Our main scenario is for real GDP growth of around 1.3% in 2018 and 1.6% in 2019, somewhat below the UK's estimated longer term trend growth rate of just under 2% (as discussed further in Section 4 of this report). Further details of this main scenario projection are set out in Table 2.1.

We assume in this main scenario that the Brexit negotiations will proceed reasonably smoothly, and therefore that the UK will avoid an extreme 'hard Brexit', where it falls out of the EU in March 2019 without any trade deal or transitional arrangement, which would be highly disruptive. But clearly this is a key downside risk as discussed further below.

Slower year-on-year growth in 2017 was driven primarily by the squeeze on real household incomes from higher inflation. But this effect has faded and, as noted above, consumer spending growth now looks set to average around 1.7% in 2018, a little faster than we expected at the time of the last edition of this report in July. But we do expect some moderation in this indicator in 2019, to 1.5%, in part due to limits on the scope for further rises in household debt, which has risen in recent years as discussed further in Section 3 of this report. Real earnings growth should be stronger in 2019, and income tax cuts in the Budget will provide some further support for household spending power, but jobs growth is likely to weaken.

**Table 2.1: Main scenario projections for UK growth and inflation**

% real annual growth unless otherwise stated	2016	2017	2018	2019
GDP	1.8	1.7	1.3	1.6
Consumer spending	3.2	1.9	1.7	1.5
Government consumption	0.8	-0.1	0.5	1.7
Fixed investment	2.3	3.3	-0.5	0.8
Domestic demand	2.4	1.2	1.4	1.7
Net exports (% of GDP)	-0.7	0.7	0.0	0.0
CPI inflation (%: annual average)	0.7	2.7	2.5	2.2

Source: Latest ONS estimates for 2016-17, PwC main scenario for 2018-19

Total fixed investment growth lost momentum during the course of 2017 and the first half of 2018 and is expected to remain relatively weak in late 2018 and early 2019 as Brexit-related uncertainty drags on business investment. However, it is possible that it could pick up later in 2019 once the transition period is in place and assuming (as we do in this main scenario) reasonable progress on agreeing a future UK-EU trading relationship.

The Budget announced a significant rise in government consumption spending in 2019/20, particularly on the NHS, which will provide some support for the economy in that year and beyond. Higher public spending could also feed through into somewhat higher inflation and interest rates in the medium term, which would tend to dampen the impact on economic growth, but this is likely to be a lagged response that would not have a significant effect until 2020 or later.

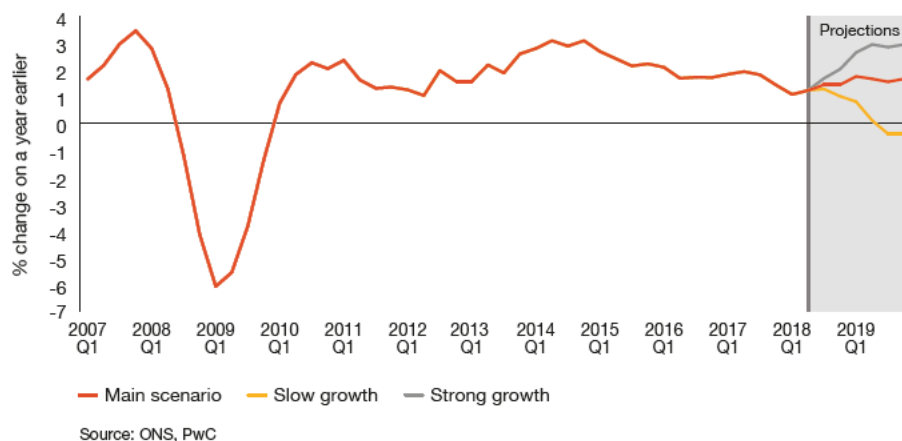
Overall, UK domestic demand growth is expected to average around 1.4-1.7% per annum in 2018-19, down from an average rate of around 2.7% in 2013-16. Net exports are projected to have a broadly neutral impact on growth over this period, so it is domestic demand that is likely to be the main driver of the economy. Our main scenario for UK GDP growth in 2018-19 has not changed materially since our last report in July, although this reflects the offsetting effects of somewhat stronger than expected consumer spending and government consumption growth and slightly weaker business investment and net trade.

### Alternative growth scenarios – businesses need to make contingency plans

To reflect the uncertainties associated with any such projections, particularly in light of Brexit, we have also considered two alternative UK growth scenarios, as shown in Figure 2.6.

- Our **‘strong growth’ scenario** projects that the economy will expand by around 2.8% in 2019. This is a relatively optimistic scenario, which assumes not just a smooth Brexit transition but also very good early progress in UK-EU trade negotiations. It also assumes that there are strong favourable trends in the global economy, pushing world growth higher in 2019 and boosting UK exports.
- Our **‘slow growth’ scenario**, by contrast, would see UK growth stall in the fourth quarter of this year as the global outlook worsens in the face of rising US interest rates and increasing global trade tensions, while there is little or no progress in negotiations with the EU, suggesting that the UK may have to fall back on WTO rules with a consequent imposition of tariffs on trade with the EU. The associated uncertainty would be likely to reduce investment, jobs and growth, possibly leading to a mild recession in 2019. We do assume here that some kind of mitigating measures would be put in place to avoid more severe disruption in the case of a ‘no-deal Brexit’, however, so this is not an absolute worst-case scenario (e.g. we assume flights would still continue between UK and the EU and that ways would be found to avoid a complete logjam at major ports).

Figure 2.6 – Alternative UK GDP growth scenarios



We do not believe that either of these two alternative scenarios is the most likely outcome, but they are certainly possible. At present, risks to growth are weighted to the downside given the political and economic uncertainties around Brexit as well as concerns about an escalating global trade war. Businesses would therefore be well advised to make appropriate contingency plans for such less favourable outcomes, but without losing sight of the more positive possibilities for the UK economy should these downside risks not materialise.

More generally, companies should consider making detailed contingency plans for the potential impact of Brexit<sup>5</sup> on all aspects of their businesses, covering the kind of questions listed in Table 2.2.

5 For more material on the potential impact of Brexit on your business, please see our EU Referendum hub here: <http://www.pwc.co.uk/the-eu-referendum.html>



**Table 2.2: Key issues and questions for businesses preparing for Brexit**

Issues	Implications	Questions
<b>Trade</b>	The EU is the UK's largest export partner, accounting for around 44% of total UK exports – leaving the EU is likely to make trade with EU more difficult, but the extent of this will depend on the type of deal, if any, agreed with the EU27.	<ul style="list-style-type: none"> <li>• How much do you rely on EU countries for revenue growth?</li> <li>• Have you reviewed your supply chain to identify the potential impact of tariffs and additional customs procedures on your procurement and logistics?</li> <li>• Have you identified which third party contracts would require renegotiation in different Brexit scenarios (EEA/FTA/WTO)?</li> <li>• What contingency plans have you made for a 'no deal Brexit' in March 2019 without a transition period?</li> </ul>
<b>Tax</b>	The UK would gain more control over VAT and some other taxes. But Brexit could also open the door to new tax initiatives within the EU that the UK might currently have sought to block.	<ul style="list-style-type: none"> <li>• Have you thought about the impact of potential changes to the UK and EU tax regimes after Brexit?</li> <li>• Have you upgraded your systems to deal with a significant volume of tax changes?</li> </ul>
<b>Regulation</b>	The UK is subject to EU regulation. Brexit could mean less red tape in some areas. But it could also mean that UK businesses need to adapt to a different set of regulations, which could be costly.	<ul style="list-style-type: none"> <li>• Have you quantified the potential regulatory impact of Brexit to keep your stakeholders up-to-date?</li> <li>• How flexible is your IT infrastructure to deal with potential changes to Data Protection laws?</li> <li>• Is your compliance function ready to deal with any new reporting requirements arising from Brexit?</li> </ul>
<b>Sectoral effects</b>	The UK is the leading European financial services hub, which is a sector that could be significantly affected by Brexit. Other sectors which rely on the EU single market could also feel a strong impact.	<ul style="list-style-type: none"> <li>• Have you briefed potential investors on the impact of Brexit for your sector and organisation?</li> <li>• How up-to-date are your contingency plans in place to deal with different Brexit scenarios, including no deal variants?</li> <li>• Are you aware of the impact of potential volatility in financial markets on your capital raising plans?</li> </ul>
<b>Foreign direct investment (FDI)</b>	FDI from the EU makes up around 45% of the total stock of FDI in the UK. Brexit could put some of this investment at risk.	<ul style="list-style-type: none"> <li>• How much do you rely on FDI for growth?</li> <li>• How does Brexit affect your location decisions?</li> <li>• How are your competitors responding to the risk of Brexit? Are they relocating any key functions?</li> </ul>
<b>Labour market</b>	The UK may change its migration policies. Currently EU citizens can live and work in the UK without restrictions. Businesses will need to adjust to any change in this regime or in work preferences for EU nationals	<ul style="list-style-type: none"> <li>• How reliant is your value chain on EU labour?</li> <li>• Have you communicated with your UK-based employees who are nationals of other EU countries? What advice should you give them?</li> <li>• Have you considered the additional cost of hiring EU labour after Brexit?</li> <li>• Could changes in access to EU labour increase the case for automation?</li> </ul>
<b>Uncertainty</b>	Uncertainty has increased since the referendum and this seems likely to continue through the Brexit negotiation period.	<ul style="list-style-type: none"> <li>• How well prepared are you to manage future volatility in the exchange rate (and other asset prices) related to Brexit?</li> <li>• Is your organisation ready for a worst-case scenario where there is a prolonged period of uncertainty and/or a 'no deal Brexit'?</li> </ul>

Source: PwC

### Most industry sectors projected to see relatively modest growth in 2018-19

The sector dashboard in Table 2.3 shows latest ONS estimates of growth rates for 2017 along with our projected main scenario growth rates for 2018 and 2019 for five of the largest sectors within the UK economy. The table also includes a summary of the key trends and issues affecting each sector.

There has been a particular downward trend in growth in the distribution, hotels and restaurants sector, which recorded output growth of almost 4% in 2016, but this slowed to just 2.1% in 2017.

We expect this to pick up a little, to around 2.5% in 2018, given strong summer sales, but to moderate again to just under 2% in 2019.

Manufacturing was relatively stronger with 2.6% growth in 2017, but this has slowed more recently to an estimated 1.2% this year and we expect similar growth of 1.4% next year in our main scenario. Construction, as ever, has been volatile, with growth dropping dramatically to just 0.6% in 2018 according to our latest estimates. We expect some recovery in 2019, though this is partly just due to a statistical bounce-back from the lows seen in early 2018, rather than strong underlying growth in the sector.

This is also a sector where confidence is critical, and which is therefore exposed to any loss of this related to a less-favourable Brexit outcome.

Business services and finance growth should remain relatively steady at around 1.5-1.7% per annum, although there are significant downside risks if Brexit negotiations go less smoothly than we assume in our main scenario. UK financial services companies could be particularly badly affected by any loss of access to EU markets, notably through the possible loss of 'passporting' rights for UK-based firms, although there is also positive longer term potential for the sector beyond Brexit<sup>6</sup>.

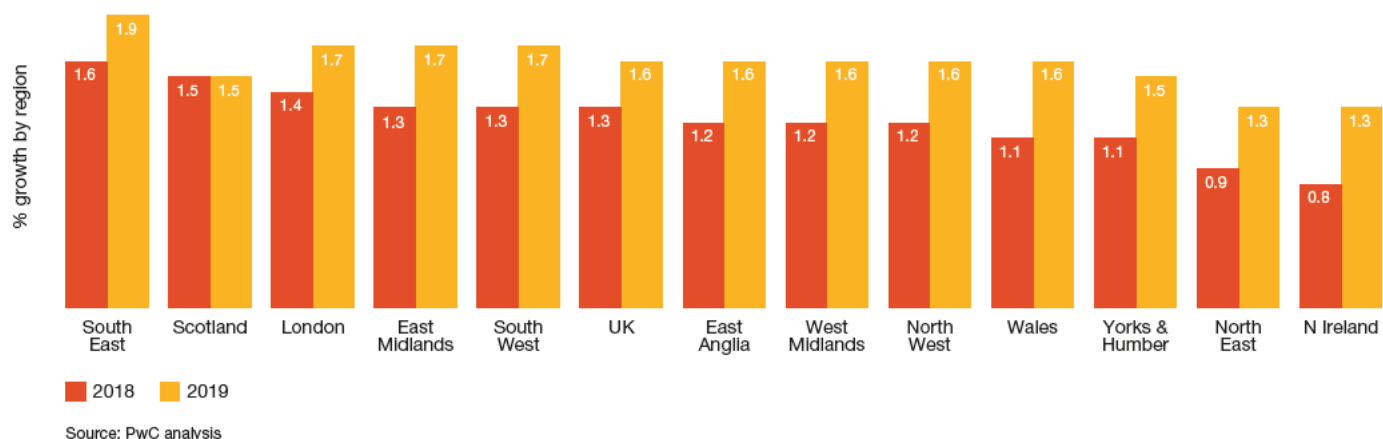
**Table 2.3: UK sector dashboard**

Issues	Growth			Key issues/trends
	2017	2018	2019	
Manufacturing (10%)	2.6%	1.2%	1.4%	<ul style="list-style-type: none"> <li>Manufacturing PMI has moderated somewhat in recent months</li> <li>Exporters gained in 2017 and early 2018 from a weaker pound and a stronger global economy, though there are concerns about trade wars going forward</li> </ul>
Construction (6%)	7.2%	0.6%	2.0%	<ul style="list-style-type: none"> <li>Construction PMI was relatively weak in recent months, although remaining volatile</li> <li>The construction sector fell back sharply from early 2017, despite a modest recovery in activity the summer of 2018</li> <li>The government has boosted infrastructure investment to try to offset weakness in commercial construction due to Brexit</li> </ul>
Distribution, hotels & restaurants (13%)	2.1%	2.5%	2.0%	<ul style="list-style-type: none"> <li>A weaker pound since 2016 has boosted tourism, both from overseas and domestically, leading to increased expenditure in the hospitality sector</li> <li>But its broader effect has been to push up import prices and inflation, slowing down real spending growth (though retail sales picked up this summer as these effects started to fade)</li> </ul>
Business services and finance (34%)	2.1%	1.5%	1.8%	<ul style="list-style-type: none"> <li>The financial sector remains particularly concerned about the possible implications of Brexit, especially if this involves the loss of EU passporting rights</li> <li>The Bank of England has increased the counter-cyclical capital buffer to constrain consumer debt levels, which may impact lending by retail banks</li> <li>Business services have, however, continued to see relatively strong growth in general</li> </ul>
Government and other services (22%)	0.4%	0.4%	1.2%	<ul style="list-style-type: none"> <li>Public services continue to face tight budgets, but austerity was eased in the Budget and NHS spending is planned to increase significantly</li> </ul>
<b>Total GDP</b>	<b>1.7%</b>	<b>1.3%</b>	<b>1.6%</b>	

Sources: ONS for 2017 estimates, PwC for 2018 and 2019 main scenario projections and key issues. These are five of the largest sectors but they do not cover the whole economy - their GVA shares only sum to around 85% rather than 100%

<sup>6</sup> For more on the future of UK financial services after Brexit, see our report with TheCityUK here: <https://www.pwc.co.uk/industries/financial-services/insights/vision-for-transformed-world-leading-industry.html>

Figure 2.7 – PwC main scenario for output growth by region in 2018 and 2019



**Regional prospects: all parts of the UK likely to see moderate growth in 2018-19 with London no longer clearly leading the pack**

In contrast to previous years where London has generally had the strongest growth rate of any UK region, our latest projections suggest London’s growth rate may fall to only just above the UK average in 2018-19 (see Figure 2.7). This is partly due to the greater exposure of some London activities (e.g. the City) to adverse effects from Brexit-related uncertainty, as well as growing constraints on the capital in terms of housing affordability and transport capacity. Most English regions, as well as Wales, are projected to expand at close to the UK average of around 1.3% in 2018, although the North East and Northern Ireland are predicted to lag behind with growth of only around 1% this year before recovering slightly next year.

It is important to note that, since regional output data are published on a less timely basis than national data, the margins of error around these regional output projections are even larger than for national growth projections. Therefore, they can only be taken as illustrative of broad directional trends.

We should also bear in mind that economic growth is only one of several indicators that should be considered in assessing performance of regions and cities across the UK, as discussed in more detail in our latest Good Growth for Cities report published earlier this month<sup>7</sup>.

**2.3 – Outlook for inflation and real earnings growth**

Consumer price inflation (CPI<sup>8</sup>) picked up from just 0.7% on average in 2016 to around 3% in late 2017 due in large part to the feed-through from a weaker pound into import prices. The rise in global oil prices from their low point in early 2016 to over \$80 a barrel at the time of writing has also played a part here. However, CPI inflation did fall back to 2.4% in the year to September 2018 as the effect of past import price rises fell out of the 12-month inflation calculation.

We expect CPI inflation to decline gradually over the next year, eventually returning to close to target by the end of 2019 (see Figure 2.8) although there could be some turbulence along the way. Annual average rates of inflation in our main scenario stand at 2.5% this year and 2.2% in 2019.

<sup>7</sup> Available here: <https://www.pwc.co.uk/goodgrowth>

<sup>8</sup> The ONS switched to CPIH as its main inflation indicator in March 2017, despite some continuing methodological concerns about the reliability of the way that CPIH captures owner occupied housing costs through estimates of equivalent market rents rather than actual outlays on mortgage payments. For the moment, we have stuck to CPI as our key inflation indicator, but we may consider switching to CPIH in the future if this becomes more widely used (in particular if it becomes the MPC’s target measure of inflation). In the long run, however, we would not expect significant differences between average inflation on these two measures (based on long-term historical averages).

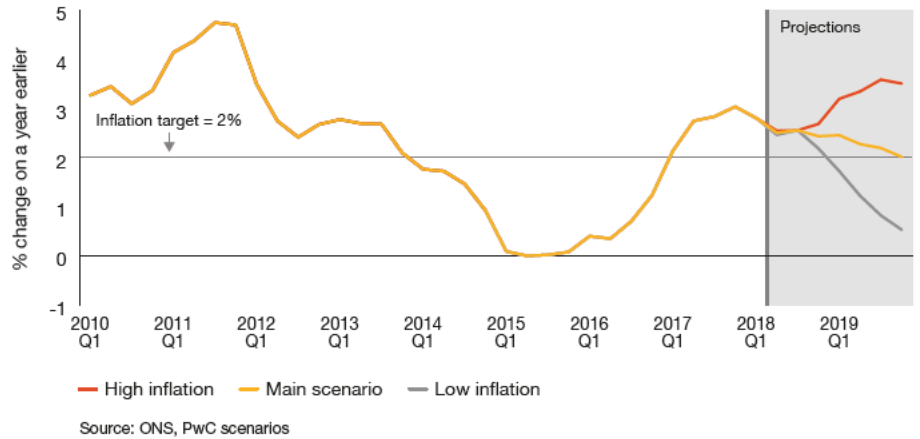
**Alternative inflation scenarios**

There is always considerable uncertainty over inflation projections as they are particularly sensitive to movements in exchange rates and global commodity prices, both of which are very hard to predict with any confidence. As such, we also present two alternative scenarios for UK inflation in Figure 2.8:

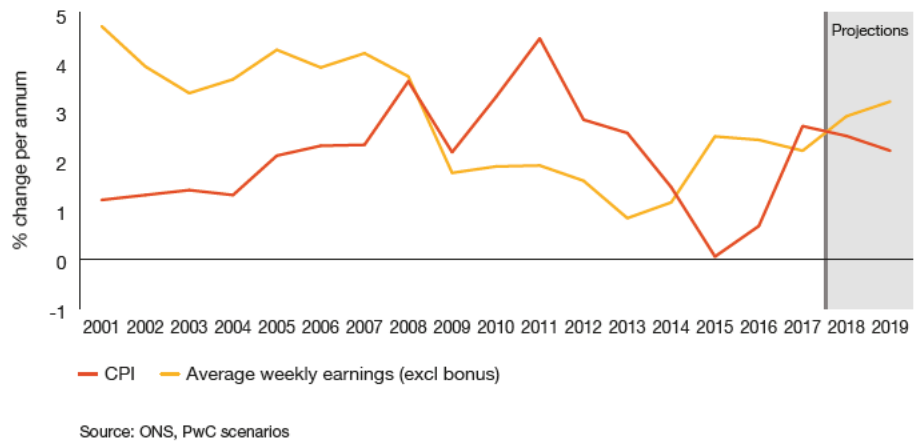
- In our **'high inflation' scenario** we project UK inflation to rise to around 3.5% in 2019 as a result of renewed falls in the pound and/or strong growth in global commodity prices if other economies grow more strongly and/or oil supply is constrained by producers.
- In our **'low inflation' scenario**, by contrast, the UK and global economies weaken by more than expected in our main scenario leading global commodity prices to fall back sharply over the next year. In this case, UK inflation could fall back to well below the Bank of England's 2% target rate next year.

As with our GDP growth scenarios, neither of these two alternative variants is as likely as our main scenario. But given recent volatility and uncertainty, businesses should plan for a broad range of outcomes.

**Figure 2.8 – Alternative UK inflation (CPI) scenarios**



**Figure 2.9 – CPI inflation vs average earnings growth**





## 2.4 – Monetary and fiscal policy

The Monetary Policy Committee (MPC) raised interest rates from 0.5% to 0.75% in August in response to indications that the sharp dip in growth in the first quarter of the year was a blip and that wages had started to grow at a faster rate again. They also signalled the intention to raise interest rates at an average rate of around 25 basis points per year for the next few years, but the timing of this will depend on how both the economic data and the Brexit negotiations evolve and, at present, a further rate rise seems unlikely before mid-2019. In the medium term, we assume further small and gradual rate rises, but interest rates will remain very low by historical standards for the foreseeable future. UK base rates may end up at around 2-3% as opposed to the 5% pre-crisis norm.

In his Budget on 29 October, the Chancellor benefited from a significant and persistent improvement in official public finance projections by the OBR. This reflected what the OBR judged to be a structural increase in the tax-to-GDP ratio and well as a lower sustainable unemployment rate of around 4% going forward. This could have allowed the Chancellor to balance the budget by 2023/24 based on unchanged tax and spending policies. Instead, he used almost all of this fiscal windfall to fund the increase in NHS spending over the next five years announced by the Prime Minister back in June. There were also modest net tax cuts in the short term, but these will be offset by other tax rises in the medium term.

The net effect of the Budget measures will be to give a boost to economic growth in the short term, which has caused us to revise up our projected GDP growth rate in 2019 slightly, as discussed above. But, in the medium term, looser fiscal policy could also feed through into higher inflation and interest rates, which would dampen any boost to real economic growth. The OBR forecasts also rely on assuming, as we do, a relatively smooth Brexit. A disorderly 'no deal' Brexit could lead the Chancellor to relax spend more and/or cut taxes further in the short term to cushion the impact on the economy in 2019-20, but could require renewed austerity in the longer term given the damage that a disorderly Brexit would potentially do to the economy and the public finances.

## 2.5 – Summary and conclusions

UK economic growth has slowed over the past two years as above target inflation has squeezed consumers, the housing market has cooled and Brexit-related uncertainty has led to a decline in business investment this year. There has been some offset from a relatively strong global economy, and consumer spending picked up this summer, helped by the warm weather and stronger real earnings growth. But overall UK GDP growth is estimated to remain some way below trend at around 1.3% in 2018, down from 1.7% in 2017.

In our main scenario, we expect this period of modest, sub-trend growth to continue in 2019, with GDP growth of around 1.6% and real consumer spending growth of around 1.5%. This assumes a relatively smooth Brexit with a transition period lasting at least until the end of 2020. It also takes into account the boost to short-term growth from the tax and spending measures announced in the Budget.

Most industry sectors are projected to see relatively modest growth in 2019, though short-term trends remain volatile and highly dependent on how the Brexit negotiations evolve. Manufacturing and other export-intensive sectors also face downside risks from any further escalation of international trade tensions in 2019.

In our main scenario we assume a single one-quarter-point interest rate rise in mid-2019, although the exact timing of this remains uncertain.

Given the delicate state of the Brexit negotiations, there are particularly large uncertainties around any such projections at present. Organisations should stress test their business and investment plans against alternative economic and political scenarios and also review the potential wider implications of different Brexit outcomes for all aspects of their operations.

# 3. Paying it down: past trends and future prospects for UK debt<sup>1</sup>

## Key points

- The total stock of debt held by UK households, non-financial companies and the government rose sharply during the 2000s, so that by the time of the global financial crisis in 2008, the economy's debt burden was equivalent to more than 250% of national income (GDP), from less than 200% at the turn of the century.
- The onset of the crisis saw the private sector begin to pay down its debt, but the combination of higher government spending and falling tax revenue saw public debt double as a proportion of GDP between 2007 and 2013.
- Several years of government austerity and private-sector deleveraging brought the total debt stock down from 268% of GDP in 2012 to 252% in 2017, but the economy remains much more indebted than it was before the crisis.

- Over the next five years we expect the government to continue to reduce the size of its debt relative to GDP, but households are likely to borrow at a faster rate than economic growth to buy houses and fund university education. The net effect will be a slow rise in the economy's total debt stock to a projected 259% of GDP in 2023.
- The likelihood that the Bank of England will raise interest rates slowly but regularly in the coming years means that the cost of repaying the debt will rise. We estimate that debt interest costs could rise from 7.7% of GDP in 2017 to 9.6% of GDP in 2023, squeezing the discretionary spending power of households and companies.

“ We estimate that debt interest costs could rise from 7.7% of GDP in 2017 to 9.6% of GDP in 2023”.

## Introduction

Since the global financial crisis of 2008-9, successive UK governments have sought to narrow the budget deficit and to stabilise and then bring down the level of public debt relative to GDP. Austerity has driven fiscal policy for nearly a decade. More recently, commentators, including the Bank of England<sup>2</sup>, have become increasingly concerned about the state of households' finances, particularly the level of unsecured borrowing and a decline in the savings rate. In this research article we explore how the UK economy's debt stock has changed since the financial crisis and consider how it might evolve in the future.

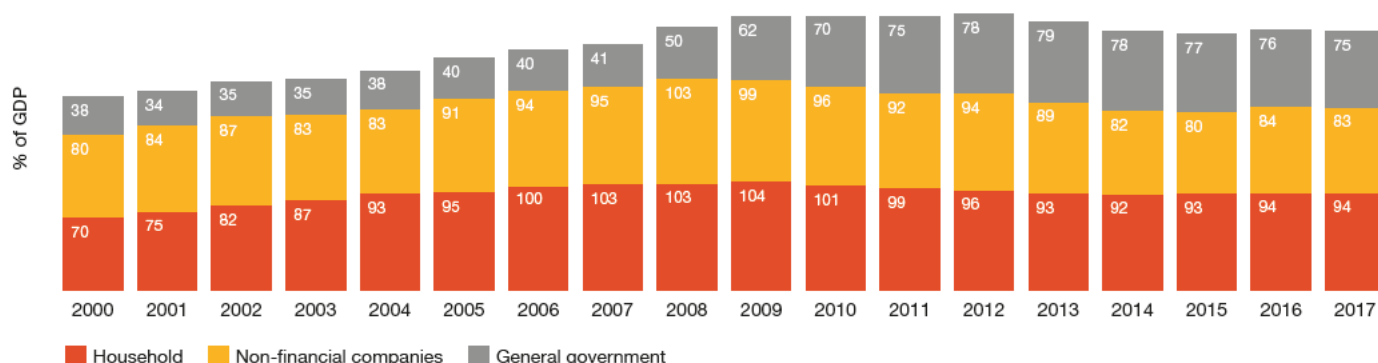
We begin by examining trends in total debt levels since the turn of the millennium (Section 3.1). Next, we move onto a more detailed discussion of trends in borrowing in three major sectors of the economy: households (Section 3.2), non-financial companies (Section 3.3) and central and local government (Section 3.4). In these sub-sections we also discuss the main vulnerabilities of each sector.

In Section 3.5, we then outline some illustrative projections for how UK debt may change over the next five years and what this may mean for debt interest payments as interest rates also rise over this period. We summarise our findings and conclude in Section 3.6. In addition, Box 3.1 considers trends in financial sector debt in the UK.

<sup>1</sup> This article was written by Mike Jakeman and Robbie Allatt with additional inputs from John Hawksworth and Nick Forrest.

<sup>2</sup> Bank of England, Financial Policy Committee statement, September 2017, <https://www.bankofengland.co.uk/statement/fpc/2017/financial-policy-committee-statement-september-2017>

**Figure 3.1 – Gross UK debt stock outstanding by sector as % GDP**



Source: PwC analysis of ONS data from 2018 Blue Book

### 3.1 – Trends in total UK debt: 2000-17

Figure 3.1 shows official data on the total gross<sup>3</sup> debt outstanding of UK households, non-financial companies and general government (central and local government) as a proportion of GDP since 2000<sup>4</sup>. These figures are taken from the ONS’s annual Blue Book of national accounts data, which was most recently published in July 2018. Our analysis in this article focuses on the period since the turn of the millennium, as it is at this point that debt accumulation in the private sector really began to accelerate.

Figure 3.1 shows:

- the economy’s debt burden grew considerably during the early years of the 2000s, rising from below 200% of GDP in 2000 to more than 250% by 2009;
- this rapid accumulation of debt was driven primarily by the household sector, with government borrowing growing at only around the same pace as nominal GDP over this period;
- the rise in the debt stock as a proportion of GDP was ended in 2009 by the global financial crisis;
- total debt remained at this level for four years, during which time there was a major shift in the holdings of this debt from the private sector to the public sector;
- in the years since the crisis, total debt levels have come down fractionally in both sectors, but both households and non-financial companies have begun to increase their borrowing as a proportion of GDP since 2015.

We provide a precise breakdown of the debt stock in cash terms and as a proportion of GDP in Table 3.1. At the end of 2017, the total cash value of debt in the UK economy stood at £5.1 trillion, compared with just over £2 trillion in 2000. However, for the majority of this article we will focus on the ratio between debt and GDP, as it is from GDP that the debt will have to be repaid.

The table shows the three phases of the evolution of the debt stock, with the private sector accumulating debt quickly prior to the crisis; the government subsequently increasing its borrowing while the crisis was at its peak (and in the immediate aftermath) and the period of deleveraging in both sectors since.

However, it is also important to note that since 2015 households and non-financial companies have again begun to increase their borrowing at a faster rate than nominal GDP growth, triggering a renewed rise in the overall debt to GDP ratio.

3 Gross debt is defined to include loans taken out and bonds and other debt securities issued by economic units in each of the three sections. It does not include unfunded or underfunded pension liabilities, which would add to the total for government and non-financial companies, but are not included in the national accounts.  
 4 This total excludes financial sector debt so as to avoid the risk of double counting. However, we explore trends in financial sector debt further in Box 3.1.

We consider this change in behaviour has its origins in both demand and supply factors. On the demand side, several years of improvement in the labour market boosted consumer confidence, while the introduction of higher university tuition fees drove a significant increase in the value of student loans<sup>5</sup>. On the supply side, banks became more willing to lend, thanks partly to a nudge from government initiatives such as Help to Buy.

To explore these issues further, the following sub-sections look in detail at each of the sectors comprising the UK debt stock and consider different metrics where necessary.

### 3.2 – Household debt

Although GDP is a useful denominator for debt ratios across the economy, for households it is more meaningful to look at ratios of debt to disposable income (i.e. after taxes and other net transfers). Figure 3.2 shows this ratio for both mortgage debt and total debt. The difference between the two lines represents unsecured credit, or debts such as credit cards and car loans that are not backed by housing collateral.

Both mortgage debt and gross household debt rose sharply relative to disposable income in 2000-07, fuelled by booming house prices, low unemployment and general economic stability. These conditions boosted households' appetite to take on debt and lenders' willingness to provide it, particularly mortgage debt, which grew at an annual average of 11.3% in this period. As the bottom line in Figure 3.2 shows, the ratio of mortgage debt to housing assets fell a little in the early 2000s, as the supercharged growth in property prices exceeded even the increase in borrowing for mortgages.

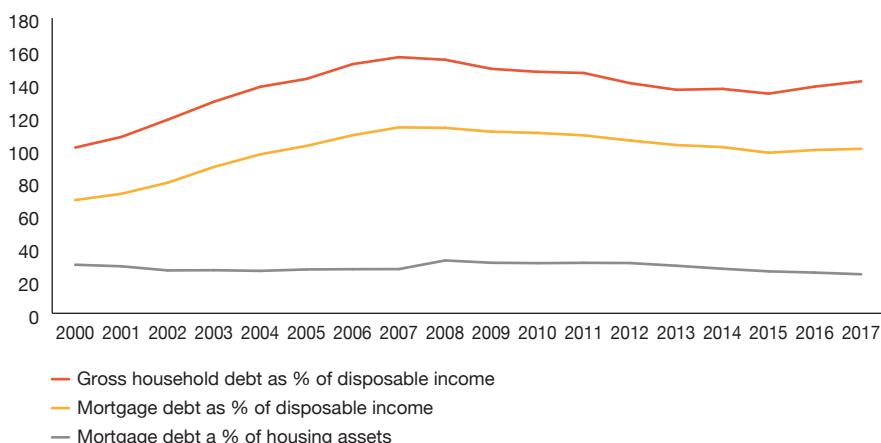
The global financial crisis caused these trends to go into reverse. Between 2008 and 2015, the ratios of both mortgage debt and total household debt to disposable income fell from their peaks in 2007.

**Table 3.1: Trends in gross UK debt stock by sector**

% of GDP (except last column)	2000	2004	2008	2012	2017	Value of debt stock (£ trillion at end of 2017)
Households	70	93	103	96	94	1.9
Non-financial corporations	80	83	103	94	83	1.7
General government	38	38	50	78	75	1.5
<b>Total debt</b>	<b>188</b>	<b>214</b>	<b>255</b>	<b>268</b>	<b>252</b>	<b>5.1</b>

Source: PwC analysis of ONS data from 2018 Blue Book

**Figure 3.2 – Key household debt ratios**



Source: PwC analysis of ONS data from 2018 Blue Book

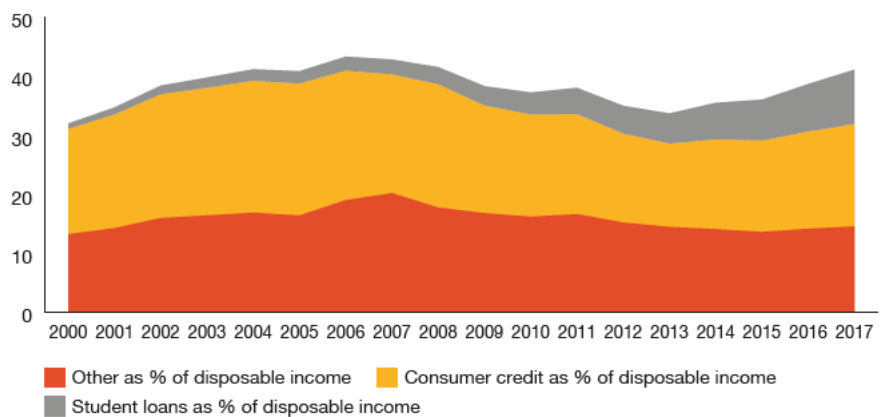
5 The rise in student loans is likely to have implications for the government and its debt stock. In late 2017 the government sold £3.6 billion of student loans to private investors for £1.8 billion. In a sense, it paid a significant premium to the private sector to transfer the risk of non-repayment. Technicalities in the rules of fiscal accounting mean that illiquid assets owned by the government do not contribute to public sector net debt but liquid assets do, giving the sale of student loans the appearance of reducing government debt. However, the IMF and the OBR have described government asset sales that reduce net debt as a fiscal illusion, as the losses will inevitably need to be paid for by increased government borrowing. Currently, the House of Commons Treasury Committee estimate that the inclusion of the estimated cost to government of borrowing to support the student finance system in deficit calculations would increase the value of the deficit by £6-7 billion a year, or 15-17% of the current budget deficit. We note that the current treatment of student loans in the national accounts flatters the budget deficit figures but also makes the household debt projections appear worse than they are. We discuss student loans in more detail in Section 3.2.



There was a moderation in the pace of mortgage lending, which slowed to an average of just 0.7% a year between mid-2009 and mid-2013, as banks tightened lending conditions and consumer confidence weakened, while the value of unsecured debt dropped as households reduced their discretionary spending. During the same period, the ratio of mortgage debt to housing assets rose sharply in 2008 as house prices fell, before it resumed its previous downward trend as the fundamentals of the housing market reasserted themselves.

Consumer behaviour appears to have returned to type in 2015, when both debt ratios began to rise. The Bank of England has suggested that banks loosened lending conditions at this time, and this, along with the launch of the government's Help to Buy initiative, appears to have triggered a mild acceleration in mortgage lending growth. But the more significant increase came from unsecured debt. Figure 3.3 illustrates the two factors behind this increase. First is a rise in the value of outstanding student loans, which have grown from around 10% of non-mortgage debt in mid-2010 to more than 23% by late 2017, thanks to the tripling of the upper limit for annual tuition fees from £3,000 to £9,000 in 2012. Second is the creation of new borrowing agreements to finance car purchases.

**Figure 3.3 – Components of unsecured household debt**



Source: PwC analysis of Bank of England June 2018 Financial Stability report data and ONS data from 2018 Blue Book

We discuss the outlook for household debt alongside our projections in Section 3.5. However, we note that by mid-2018 lending criteria appeared to be tightening for both mortgages and consumer credit, as noted by the Bank of England in its most recent credit conditions survey. This means that mortgage debt is likely to grow sluggishly for the next two years, before a strengthening of consumer confidence drives stronger demand from the beginning of the 2020s, on the assumption of a reasonably smooth Brexit.

The outlook for unsecured credit is slightly different. Although we expect growth in borrowing for big-ticket items to moderate as interest rates are raised, the value of student debt is likely to continue to grow quickly. Growth in university enrolment has remained steady in spite of the fee increase, while the cap on tuition fees was permitted to move in line with inflation from 2017-18. Furthermore, the inevitability of debt repayment does not apply entirely to student loans: repayments only kick in once the borrower earns an annual salary of £25,000, and the debt is cancelled entirely, no matter how much is owed, after 30 years<sup>6</sup>.

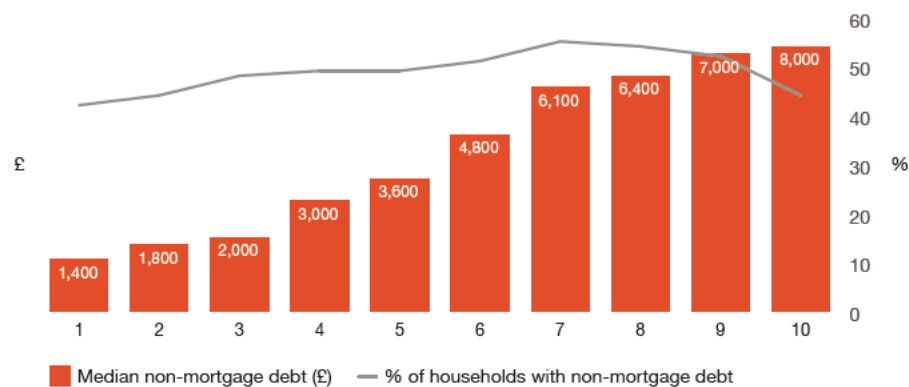
6 The fiscal implications of this are discussed in the previous footnote.

The combination of slow growth in mortgage debt and a moderation in unsecured lending growth (other than student loans) means that the total debt to disposable income ratio is likely to remain at current levels in the short term, but a revival in the housing market from the start of the next decade could push it up again.

In the coming years the Bank of England is projected to raise interest rates gradually but regularly from its current very low level of 0.75%. Higher interest rates will cause households to feel the squeeze of high inherited debt levels. However, measures introduced by the Financial Policy Committee to guard against loosening mortgage underwriting standards, such as the Affordability Test, ought to improve the resilience of mortgage debt to increases in the Bank rate<sup>7</sup>.

The sustainability of non-mortgage debt to higher interest rates is less certain. Although the proportion of households with unsecured debt is fairly consistent across income groups, Figure 3.4 shows that the median value varies considerably, at £1,400 for households in the lowest decile and £7,200 for those in the highest<sup>8</sup>. However, households with 'problem debt' are disproportionately concentrated among those with low incomes.

**Figure 3.4 – Non-mortgage debt by income decile (Jul 2014–Jun 2016)**



Source: PwC analysis of ONS data from Wealth and Assets Survey

These households are particularly vulnerable to rate increases, with around 60% of low-income households that face difficulties servicing their debts doing so because of higher repayment costs, rather than falling incomes. They generally have fewer financial assets relative to debt and are more likely to take out new borrowing when already under pressure<sup>9</sup>. Similarly, PwC<sup>10</sup> has found that these households are more likely to use credit to purchase essential items, which suggests that they have little flexibility to reduce their dependency on debt as the cost of loans rises.

<sup>7</sup> The FPC's affordability test recommends that mortgage lenders test whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, their mortgage rate were to be 3 percentage points higher than the reversion rate specified at origination.

<sup>8</sup> ONS, 'Wealth and Assets Survey', February 2018, <https://www.ons.gov.uk/releases/wealthingreatbritainwave52014to2016>

<sup>9</sup> Institute for Fiscal Studies, 'Problem Debt and Low-Income Households', January 2018, <https://www.ifs.org.uk/publications/10336>

<sup>10</sup> PwC, 'Precious Plastic', October 2017, <https://www.pwc.co.uk/industries/financial-services/insights/precious-plastic.html>

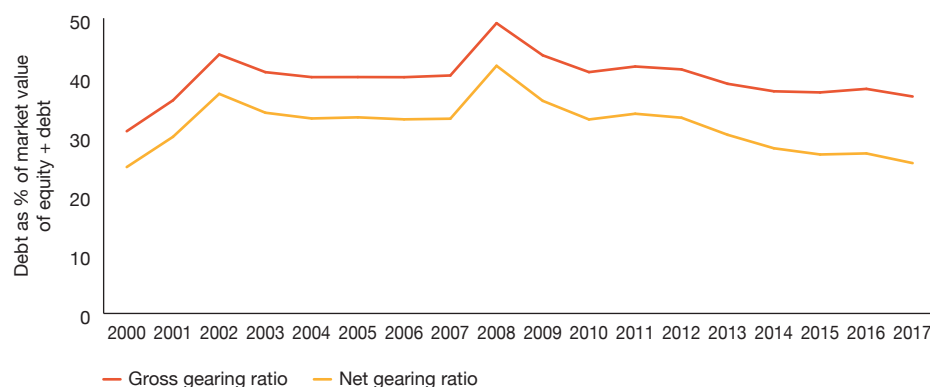
### 3.3 – Non-financial company debt

Over the past 30 years, non-financial companies have accumulated a large debt stock, with much of the growth occurring in three short periods. At the end of the 1980s, their debt rose as a proportion of GDP from 39% in 1987 to 58% in 1990, while ten years later the ratio climbed from 62% in 1997 to 84% in 2001. Finally, another burst saw it reach 103% in 2008, from 83% in 2004. Each of these periods coincided with rapid growth in private equity and the use of debt to fund mergers and acquisitions (M&A).

However, our preferred method of measuring corporate debt levels is to use gearing ratios. These are defined as the ratio of debt to debt plus equity, where equity is expressed at market values. Our analysis includes both gross gearing and net gearing. In the latter case debt levels are adjusted down by the value of currency and bank deposits held. This means that net gearing ratios are lower, but as Figure 3.5 shows, the two measures follow a similar trend over time.

Particularly noticeable are the sharp increase in the gearing ratios in the early 2000s. This increase owed more to falling equity prices during the bursting of the dot-com bubble rather than a boom in corporate borrowing. ONS data shows that the value of equity held by non-financial firms fell from almost £2 trillion in 2000 to £1.3 trillion in 2002. During the mid-2000s, the ratios held steady. Equity prices bounced back quickly, but these were matched by similar growth in corporate debt.

Figure 3.5 – Gearing ratios of non-financial companies



Source: PwC analysis of ONS data from 2018 Blue Book

Both ratios jumped up again in 2008, as the onset of the financial crisis triggered both another fall in equity prices and a surge in corporate borrowing, but this higher level was not sustained, as equity prices snapped back in 2009.

In the years since the crisis, both ratios have fallen steadily and by 2017 were between 10 and 20 percentage points lower than in 2008. Again, it has been equity valuations that have driven the change. Borrowing has been largely flat, and in cash terms has yet to match the level reached in 2008. Meanwhile, the value of equity has risen steadily, at an annual average rate of 5.2% between 2010 and 2017. The net gearing ratio has also fallen considerably faster than the gross ratio. This is because non-financial firms have held onto more and more assets in currency and bank deposits.

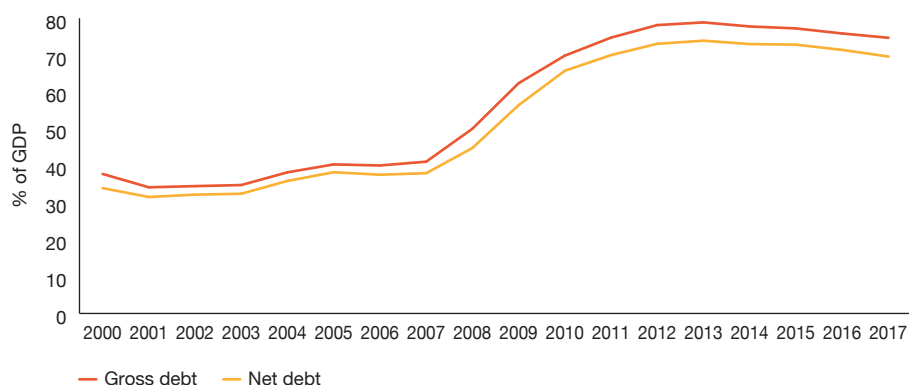
Research by the Bank of England in 2017 found that one-third of non-financial firms believed that they had under-invested in previous years<sup>11</sup>. Respondents gave a range of explanations for their behaviour.

Around 50% said that the availability (or lack) of external financing was an obstacle, while a slightly smaller proportion cited the cost of borrowing. There were real economic blockages too: uncertainty was cited by 85% of firms, while risk aversion was mentioned by around 70%, suggesting that the crisis may have had long-lasting effects on behaviour. Finally, the research found that many firms had not lowered their 'hurdle rates', or the rate of return required for an investment to proceed, despite a fall in the cost of borrowing.

That the most common obstacles were related to sentiment rather than the availability of finance suggests that non-financial companies could increase their borrowing in the coming years as memories of the crisis fade. This may also explain why loan growth jumped in 2016-17, growing by 6% a year, compared with a fall of 0.8% a year in 2010-15. But much now depends on how smoothly Brexit evolves, as well as movements in global financial markets, which can have a large impact on M&A activity and so on corporate borrowing requirements.

11 Bank of England, 'Are firms underinvesting – and if so why?', February 2017, <https://www.bankofengland.co.uk/speech/2017/are-firms-underinvesting-and-if-so-why>

**Figure 3.6 – General government debt as % GDP**



Source: PwC analysis of ONS data from 2018 Blue Book

### 3.4 – General government debt

For most of the last 40 years, general government debt<sup>12</sup> as a proportion of GDP has followed a countercyclical pattern in a range of between 30% and 50% of GDP. When the economy was growing strongly, such as at the end of the 1980s and the early 2000s, the stock fell relative to GDP, while during the recession of the early 1990s, it grew. However, Figure 3.6 shows that this trend ended abruptly in 2008–9, when the debt stock shot up out of this range during the global financial crisis. Since then, governments have focused on slowing the growth of the debt stock, and recently it has fallen by several percentage points of GDP.

During the crisis the economy endured a deep recession that weakened both sides of the government’s finances. With the economy shrinking, its tax receipts declined, while initiatives to support the economy, like a temporary reduction in VAT in 2009 and a cut to stamp duty on property purchases, cost the Exchequer around £25 billion. Consequently, the general government deficit expanded from £41 billion in 2007 (equivalent to 2.6% of GDP) to £154 billion in 2009 (10.1% of GDP), while the debt stock grew in cash terms from £634bn in 2007 to £959 billion two years later.

Since 2010, the government has run an austerity programme to repair its finances. The budget deficit has narrowed and the gross debt to GDP ratio has fallen from 79% in 2013 to 75% in 2017. These efforts have not resulted in a decline in the absolute value of public debt: the stock rose from just under £1.4 trillion to just over £1.5 trillion over these years.

The government is aiming for the structural budget deficit to be brought down to less than 2% of GDP by 2020/21 and for the net debt to GDP ratio to be in decline by the same year. In fact, it is already achieving both targets in the current year, although its longer term goal of eliminating the deficit by the mid-2020s is much more challenging, given upward pressures on spending on the NHS and social care and the raising of the income tax threshold announced in the 2018 budget.

In assessing whether this level of indebtedness is problematic, in the short term the answer depends more on debt interest payments, while in the long term it is more to do with the size of the stock relative to GDP. The value of debt interest payments is set by a combination of the maturity of the gilts that the government issues and the interest rate it sells them at. In this respect, the government’s payments are considerable but manageable, largely because the big issuance of new debt in response to the financial crisis was made at a time when interest rates were very low.

For example, public debt interest payments have risen sharply in cash terms since the financial crisis, from around £32 billion in 2007/08 to £42 billion in 2017/18. But as a proportion of GDP, payments were static, at 2%, thanks to economic growth over this period. Indeed, on this measure, debt interest repayments were greater two decades earlier, when they stood at 3.1%, even though the cash value was much lower, at £29 billion.

<sup>12</sup> Note that we focus here on gross general government debt, whereas the government’s fiscal targets focus on net public sector debt. The latter is higher because it includes the debt of public corporations, but lower because it is net of liquid financial assets of the public sector. At least since the turn of century, however, these two measures have followed broadly similar trends over time (in earlier decades they were more distinct due to a large public corporations sector prior to the privatisations of the 1980s and 1990s).



As for the stock itself, a famous study by Reinhart and Rogoff (2009) suggested that a public debt burden greater than 90% of GDP was associated with financial crises that were likely to disrupt economic growth. Later, however, the robustness of this 90% figure was questioned. Collard, Habib and Rochet (2015), for example, developed a measure of the maximum sustainable public debt, or the highest level at which investors would be willing to roll over maturing debt were an economy to stumble. For the UK, this was estimated at 126% of GDP<sup>13</sup>. The current gross debt-to-GDP ratio of 75% well below these levels, suggesting that the debt burden is unlikely of itself to be a threat to the future health of the economy. That said, if the government is going to maintain a debt-to-GDP ratio that is significantly higher than it was prior to the global financial crisis, it may constrain its ability to respond to future recessions with similarly elevated spending.

In the long term, there are also structural factors that will put upward pressure on the debt stock. The ageing of the population means that state spending on pensions and health and social care will rise, necessitating either greater borrowing or offsetting tax increases. There is also the more immediate challenge of managing the economy's performance during Brexit. To this end, the Chancellor, Philip Hammond, maintained the same contingency of around £15 billion in his 2018 budget which could be deployed to stimulate the economy in the event of a Brexit-related downturn.

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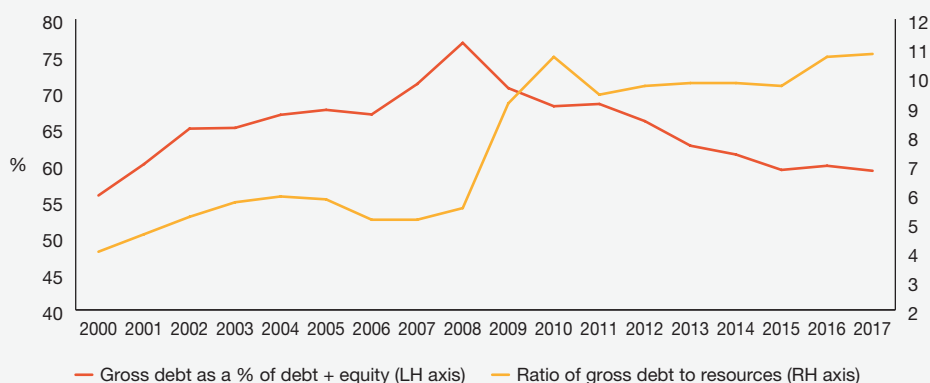
<sup>13</sup> Bank of England, 'It pays to be paranoid: the importance of fiscal space', November 2017, <https://www.bankofengland.co.uk/speech/2017/richard-sharp-ucl-economics-and-finance-society>

### Box 3.1 – Financial sector debt

In this box we briefly explore how the stock of financial sector debt has changed in the years since the financial crisis. It is much more difficult to interpret debt levels for financial services than for other sectors of the economy, as debt is used in a different manner in many transactions between financial companies. For simplicity, we will solely be looking at the liabilities on bank balance sheets: loans taken out and the bonds issued by financial corporations themselves, excluding any deposits held by these institutions.

As a proportion of GDP, UK financial corporations' gross debt has been in slow decline since 2009, falling from a peak of 239%, although this trend appears to have begun to reverse in 2015. However, it is more informative to examine gross debt through gearing ratios. Figure 3.1.1 shows the ratio of gross debt to debt plus equity falling quickly since the onset of the crisis, suggesting a strengthening of balance sheets. It is important to note that the value of equity held by UK financial institutions has more than doubled from its 2008 low and that this increase has been instrumental in pulling down the gearing ratio. It also means that another collapse in equity prices, such as the one in 2008, would see balance sheets weaken quickly.

Figure 3.1.1 – Financial sector debt ratios



Source: PwC analysis of ONS data from 2018 Blue Book

Another way of assessing financial sector debt is by viewing it in relation to the income of financial institutions. As illustrated in Figure 3.1.1, the gross debt to income ratio of such firms increased sharply with the fall in incomes that occurred as the global financial crisis took hold. Importantly, this ratio has remained at this much higher level, as incomes were no greater in 2017 than they were in 2010.

The main source of financial-sector revenue has historically been interest income, and a fall in mortgage and consumer lending, combined with years of record-low interest rates, led to interest income dropping dramatically, from £457 billion in 2008 to £139 billion in 2017. It is important to notice that interest expenditure also fell over this period, meaning that the impact on net interest income has been much less pronounced, and it is this measure that would be most important for the sector in the event of another economic downturn.

**Table 3.1.1: Breakdown of financial sector debts and financial derivatives by type of institution**

£ billion	Banks and building societies		Other financial intermediaries and auxiliaries		Insurance companies and pension funds		Total financial sector debt	
	2009	2017	2009	2017	2009	2017	2009	2017
Bonds and other debt securities	1154	1002	892	956	26	34	2072	1992
Loans	2	3	1557	1569	38	89	1598	1661
<b>Total debt</b>	<b>1156</b>	<b>1005</b>	<b>2449</b>	<b>2525</b>	<b>64</b>	<b>123</b>	<b>3670</b>	<b>3653</b>
Derivative assets	4080	2506	1072	1448	97	106	5249	4060
Derivative liabilities	4027	2457	1084	1435	94	105	5159	3997
<b>Net derivatives</b>	<b>53</b>	<b>49</b>	<b>-12</b>	<b>13</b>	<b>3</b>	<b>1</b>	<b>89</b>	<b>63</b>

Source: PwC analysis of ONS data

Table 3.1.1 presents a breakdown of financial sector debts by types of institution. We can observe several structural changes to the sector in the ten years following the financial crisis:

- the total debt of banks and building societies has fallen slightly since 2009, while other financial intermediaries and auxiliaries (such as hedge funds and fund managers) have increased their debt load, particularly through bonds and other debt securities;
- the debts of insurance companies and pension funds have almost doubled since 2009, but remain fairly immaterial relative to their other non-debt liabilities, such as pensions;
- the value of derivative assets and liabilities has declined by around £1.2 trillion from 2009, but remains high relative to other liabilities of financial institutions (though these tend to cancel out in net terms); and
- exposure has transferred from traditional banks to the shadow banking sector in the face of a stricter regulatory environment following the financial crisis<sup>14</sup>.

To summarise, at 179% in 2017, UK financial sector debt remains significantly higher as a proportion of national income than it did in the early 2000s. However, the same measure has fallen considerably since the financial crisis and the rise since 2015 has been mild. Furthermore, the Bank of England is currently satisfied by banks' capital ratios.

<sup>14</sup> Derivatives played a significant role in the evolution of global financial crisis from its roots in the US the sub-prime mortgage segment. However, they are very much a game between financial institutions and do not typically interact with the real economy. Although there is no guarantee that they will not play a part in any future financial crisis, it is beyond the scope of this article to consider any potential spill-over effects arising from holdings of derivatives.

### 3.5 – Medium-term outlook for UK debt levels and debt interest payments

Projecting the future path of the debt stock is complicated by high levels of uncertainty surrounding the UK economy, not least relating to Brexit. However, in this section we set out what we consider to be a plausible main scenario for the next five years and then offer a broader range of outcomes under high and low growth scenarios. We then look at what this may mean for debt interest payments as interest rates rise over the next five years.

Our main scenario is based on the following assumptions:

- nominal GDP grows by an average of 4% a year in 2019-23, a slightly higher rate than in 2017-18 owing to our expectations of inflation remaining above or very close to the Bank of England's 2% target in 2019-20 and economic growth accelerating from current levels to closer to 2% on average in 2021-23;
- growth in borrowing by non-financial companies accelerates gradually in 2019-20 as economic uncertainty diminishes and growth is faster and more consistent in 2021-23; gearing ratios rise as growth in equity prices slows amid tightening monetary policy, while the gross debt-to-GDP ratio rises steadily;

**Table 3.2: Main scenario projections for UK debt stock (and plausible ranges)**

Sectors	Debt in cash terms (£ trillion)		Debt as % of GDP	
	2017	2023	2017	2023
Households	1.9	2.6	94	100
General government	1.5	1.8	75	69
Non-financial companies	1.7	2.4	83	91
<b>Total</b>	<b>5.1</b>	<b>6.7</b>	<b>252</b>	<b>259</b>
Plausible range		6-7.4		245-273

Source: ONS data and PwC scenarios

- growth in household debt slows relative to nominal GDP in 2018-19 reflecting further sluggish growth in mortgage demand and tighter lending criteria for unsecured borrowing; this trend reverses from 2020 as concerns about the economic outlook diminish after a relatively smooth Brexit and the stock of student loans continues to expand rapidly, triggering a renewed rise in the gross debt-to-GDP ratio; and
- general government borrowing progresses broadly in line with the expectations of the OBR, with higher tax receipts further reducing the debt-to-GDP ratio to less than 70% by 2023.

Applying these assumptions gives us a central projection for the UK debt stock by 2023 in cash terms and as a proportion of GDP, as shown in Table 3.2.



**Figure 3.7 – Projections of gross UK debt stock outstanding by sector**

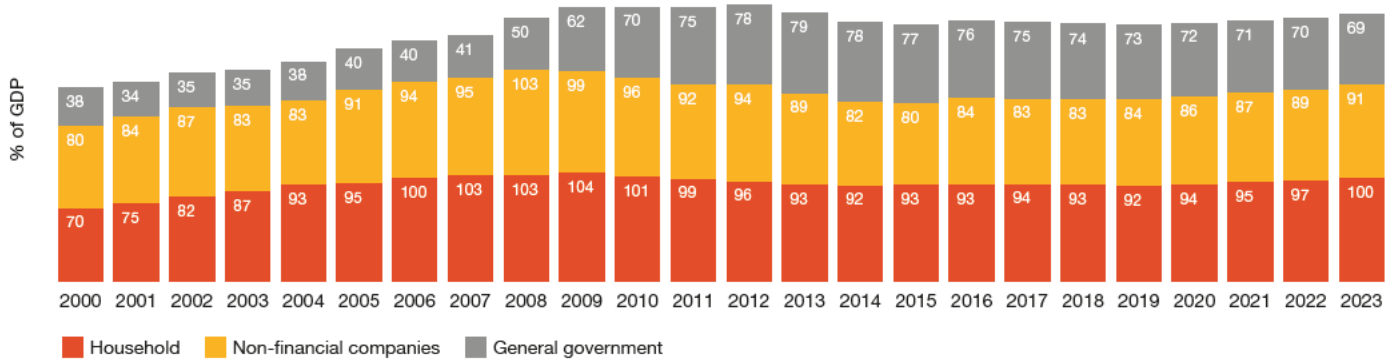


Figure 3.7 illustrates that in the first years of the projection, the debt-to-GDP ratio for households and the government falls, more than offsetting a small rise for non-financial companies, so that the economy-wide ratio dips marginally, to 249% by 2019. Thereafter, we expect household debt to rise more quickly, leading to a renewed rise in the total debt-to-GDP ratio to 259% by 2023. We note that this growth is relatively gradual and will be influenced by a variety of factors, including the outcomes of the Brexit process, the performance of the global economy, the Bank of England’s monetary policy and the appetites of lenders and borrowers.

To reflect this, we also outline alternative high and low growth scenarios to represent the range of plausible outcomes for the debt stock. In the high growth scenario, a strong economy triggers a faster accumulation of debt in the household and non-financial companies sectors (and faster deleveraging in the government sector thanks to a larger denominator), which drives the total debt stock up to 273% of GDP by 2023, surpassing the previous peak of 268% of GDP set in 2012. In the low growth scenario, the trends are reversed. Households and non-financial companies slow their rate of borrowing, while the government borrows more to support the economy. The total debt stock falls to 245% of GDP. It is worth noting that, even in this low growth scenario, the debt stock is significantly higher than it was before the financial crisis.

### The effect of higher interest rates on future debt repayments

In addition to considering potential movements of the debt stock, we have also analysed potential paths for debt interest payments. These projections are illustrative and are intended to give an indication of the broad direction of repayments rather than being precise forecasts. In our main scenario, shown in Table 3.3, we use the same assumptions as in our debt stock projections, with the addition of the Bank of England raising its base rate to 2% by 2023, in line with the Bank's estimate for the long-run neutral interest rate. An additional 125 basis points on the rate over the next five years would increase debt servicing costs for all three sectors of the economy, so that total debt repayments could rise in cash terms from a little above £150 billion in 2017 to around £250 billion by 2023. As a proportion of GDP, this represents an increase from 7.7% to 9.6% as shown in Table 3.3.

We carried out the same analysis for our high and low growth scenarios, also using the higher and lower denominators for GDP. We assumed that the base rate rose to 3% by 2023 in the high growth scenario, but also that lenders were unable to pass on all of the increase to borrowers. In the low growth scenario, the base rate reaches only 1% by 2023, but this small addition to rates is transmitted to consumers and businesses in full. These scenarios gave us an estimated range for debt repayments for the total economy of between 7.5% and 11.2% of GDP in 2023.

**Table 3.3: Illustrative projections for UK debt repayments**

Sectors	Debt repayments in cash terms (£ billion)			
	2017	2023 (main scenario)	2023 (low growth scenario)	2023 (high growth scenario)
Households	66	104	76	125
General government	41	47	41	52
Non-financial companies	50	96	68	126
<b>Total</b>	<b>157</b>	<b>247</b>	<b>186</b>	<b>304</b>
<b>Total as % of GDP</b>	<b>7.7</b>	<b>9.6</b>	<b>7.5</b>	<b>11.2</b>

Source: ONS data and PwC scenarios

These projections need to be accompanied with a couple of caveats. Those households with savings would benefit from higher interest rates, as would companies with interest-bearing bank deposits. This would make larger debt repayments easier to bear. There would be no effect on student loans, as interest rates on this borrowing are linked to movements in the retail price index, not the Bank rate, so these have been stripped out of our debt repayment calculations. Finally, mortgage holders may not be affected immediately, given that more than 60% of mortgages are now on fixed rates, but terms for new mortgages and remortgages would gradually rise along with the base rate.

In sum, repaying the higher debt stock following the financial crisis is likely to become more expensive in the coming years, and this could exert a dampening effect on discretionary spending for both households and businesses. The cost of debt servicing is likely to be an important factor in the decision-making of the Bank of England, which must balance the sensitivity of households and businesses to tighter monetary policy against the need for higher rates to meet inflation targets (and also allow scope for future rate cuts to support the economy during any future economic downturn).

### 3.6 – Summary and conclusions

Our analysis has revealed that the total UK debt stock grew steadily from below 200% of GDP at the turn of the millennium in 2000 to around 270% in the aftermath of the global financial crisis. This expansion was driven by households and non-financial companies, who took advantage of a growing economy, rising equity prices and accommodative monetary policy to borrow more money, and by banks, who were keen to expand their lending levels. Government debt during this period was fairly stable at historically relatively low levels of around 40% of GDP or less up to 2007.

The financial crisis put an end to these trends. Households and non-financial companies began to reduce their debt quickly, and economy-wide deleveraging would have been greater still were it not for a surge in borrowing by the government. The public sector then began its own deleveraging programme, which is still ongoing. We note a change in behaviour among households and non-financial companies since 2015, when they began to accumulate debt at a faster rate than nominal GDP growth.

It is a little soon to say with confidence that the most recent movements in private sector debt represent the start of a longer term trend. The unusual amount of uncertainty facing the UK economy in 2018-19—as a result of Brexit, a stumbling housing market in London and the likelihood of further interest rate increases—means that these years are likely to see a pause in debt accumulation relative to GDP. But, after that, on the assumption of a smooth Brexit transition being agreed with the EU and a subsequent gradual recovery in UK business and consumer confidence, the private sector is likely to resume faster rates of borrowing that cause the debt stock to rise further relative to GDP.

The outlook for general government debt is subject to fewer uncertainties: the government has been reducing its debt stock as a proportion of GDP steadily for five years and this is likely to continue, even taking account of the easing of austerity announced in the October 2018 Budget. That said, we note the long-term structural challenges posed by the ageing of the population through a smaller tax base and higher demand for health and social care for the elderly, as well as increased state pension spending.

Both the projected increase in the debt stock and the rise in debt repayments are relatively modest, but they will come on top of already high levels of debt, so that, by 2023, total debt could again be approaching the peak of around 260% of GDP seen during financial crisis. That interest rates are expected to rise only very gradually in this period, and only to around the level of the Bank of England's long-run neutral rate, may mean that the effect of higher debt repayments on household budgets is manageable and the squeeze on discretionary spending is limited. However, we also note the distributional differences in debt between households and the greater vulnerability of those more reliant on credit. This means that, for some, the UK economy's appetite for debt remains a risk.

# 4. UK economic growth: long term trends and prospects for the 2020s<sup>1</sup>

## Key points

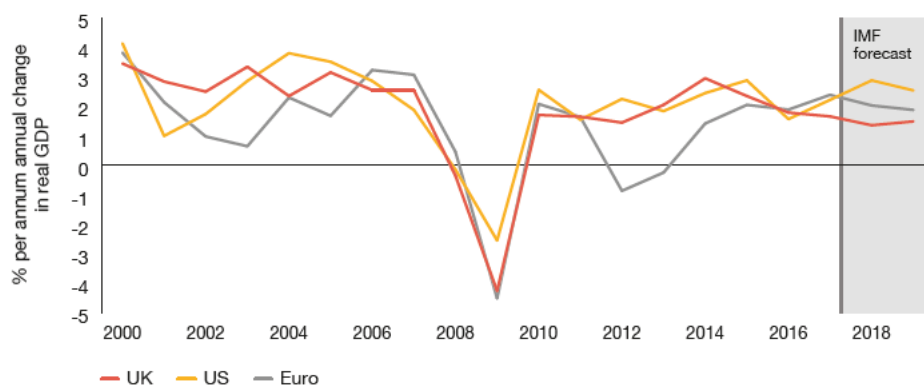
- UK economic growth is likely to average below 2% per annum in both of the first two decades of the 21st century. This period of sub-2% growth is the weakest since the end of the Second World War.
- The UK is not alone in suffering a drop in economic growth. G7 average growth is also projected to be below 2% in the current decade.
- Productivity growth changes are at the heart of variations in UK economic growth across the decades. Trade and technology appear to be the main drivers of productivity for the UK, and for other advanced economies.
- Looking forward, the trade and technology drivers for UK economic growth are giving mixed signals. Artificial Intelligence and related technologies could deliver a boost to UK growth. But Brexit and global protectionism could be negative factors for the decade ahead.
- Our central scenario for average UK GDP growth in the 2020s is 1.75%, not far from the average in the first two decades of the 21st century. But there could be potential to boost this growth rate through appropriate policies.
- Policy measures which support the contribution of trade and technology to productivity, help to establish more efficient tax and regulatory systems, and engage older people in the workforce are most likely to boost UK economic growth in the decade ahead.

## Introduction

The second decade of the 21st century looks set to end on a disappointing note in terms of the growth performance of the UK economy. According to our latest main scenario as set out in Section 2 above, GDP is projected to rise by around 1.3% this year and around 1.6% next year, similar to the latest IMF forecasts. Based on those forecasts, UK economic growth looks set to lag behind growth in both the US and Eurozone economies in 2019 for the third year in a row (see Figure 4.1).

“ Our central scenario for average UK GDP growth in the 2020s is 1.75%”.

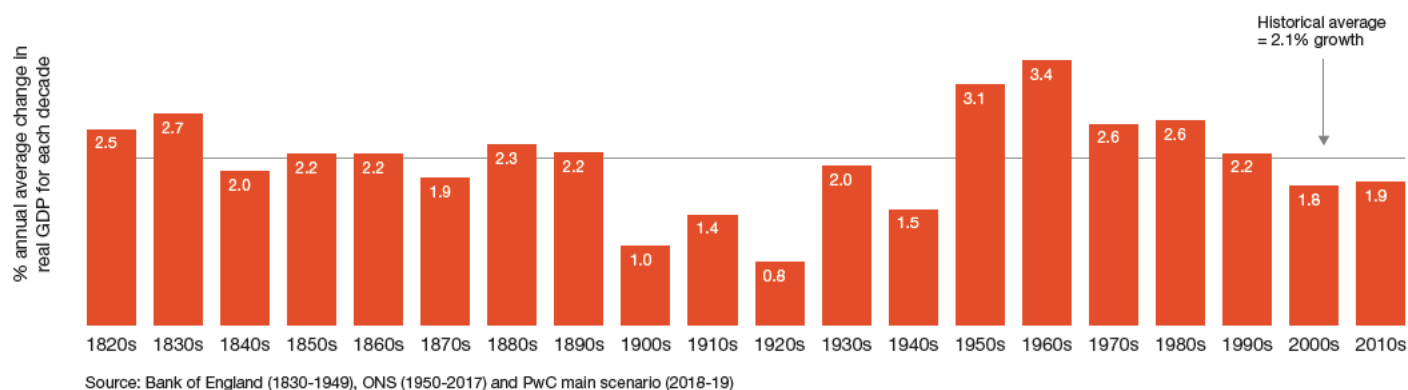
Figure 4.1 – UK, US and Eurozone growth since 2000



Source: IMF World Economic Outlook, October 2018

<sup>1</sup> This article was written by Dr Andrew Sentance, Senior Economic Adviser to PwC and former MPC member.

**Figure 4.2 – Two centuries of UK economic growth**



It is tempting to put the blame for this lacklustre growth on Brexit – and in the short-term it has certainly played a part in dampening economic progress. But longer term forces are also at work. In only three years of the current decade (2013 to 2015) has UK GDP growth exceeded 2%. Productivity growth has been particularly weak. And the current decade follows on from the first decade of the century when economic growth was severely dented by the financial crisis and averaged just 1.8% in the years 2000-2009. The decade of the 2010s is likely to be the second decade in a row in which UK GDP has risen on average by less than 2% – the weakest two decades for economic growth since the Second World War.

Is sub-2% growth the “New Normal” for the UK economy, or will we see a bounce back in the 2020s? This article discusses the prospects for growth and employment in the UK economy over the next decade.

Section 4.1 sets recent growth performance in its historical context, looking back to the beginning of the nineteenth century. With hindsight, the second half of the twentieth century looks to have been an exceptional period for the growth of the UK economy and we now appear to have returned to a rate of growth closer to longer-term historical norms. Section 4.2 looks at the drivers of economic growth, particularly focusing on the role of productivity. It is disappointing productivity performance which underpins lacklustre UK economic growth in the UK over the past two decades. Section 4.3 looks at the prospects for UK GDP growth in the 2020s and the final section draws conclusions and implications for policy.

## 4.1 – UK growth performance in historical context

The Bank of England has very helpfully constructed a database of UK macroeconomic data going back over three centuries – and in some cases even further<sup>2</sup>. Together with more recent official data, this enables us to set economic growth performance over the past two decades in a longer term context. The Industrial Revolution started in England in around the 1760s, but for most of the second half of the eighteenth century and until 1815, when Napoleon was finally defeated at Waterloo, the UK was at war – with France and other European powers as well as in America. The first peacetime decade in the 19th century was the 1820s and Figure 4.2 shows the growth performance by decade since then, using the latest PwC GDP projections for the final years of this decade – 2018 and 2019.

<sup>2</sup> See <https://www.bankofengland.co.uk/statistics/research-datasets>

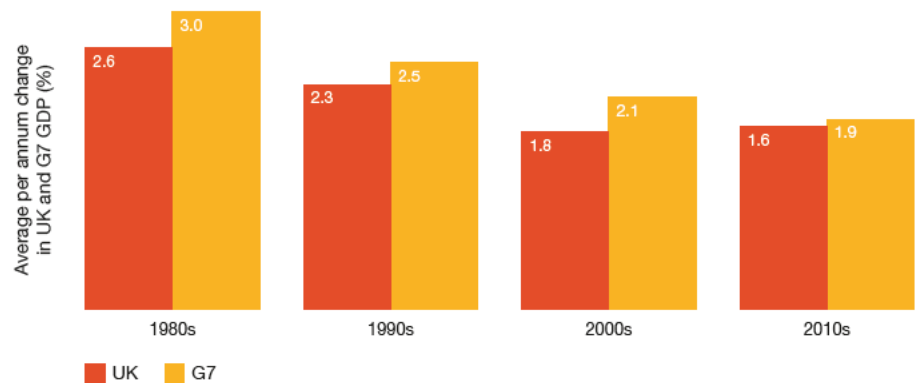


Over the past two centuries, UK GDP in real terms has risen on average by just over 2.1% on average each year. That may not sound dramatic, but the power of compound arithmetic is such that it means that the output of the UK economy in 2019 will be around 67 times its level 200 years before (in 1819). Over the same period, the population of the UK (defined consistently as Great Britain plus Northern Ireland) has increased from just over 15 million to over 66 million. Real GDP per head of population has therefore increased by a factor of 15 in the past two centuries since the end of the Napoleonic Wars.

As Figure 4.2 shows, however, there have been different phases of economic growth. From the 1820s until the 1890s, UK GDP grew by an average rate of 2.3% a year. The first half of the twentieth century, which was seriously affected by two major World Wars, and a series of major recessions before the First World War and in the inter-war years, saw an average growth rate of just 1.3%.

If the nineteenth century growth rate had been sustained over the first half of the 20th century, the GDP of the UK economy would have been 50% bigger in 1950 than its actual size after the devastation of war and depression.

**Figure 4.3 – UK slowdown has mirrored G7 economies**



Source: IMF World Economic Outlook, October 2018

The second half of the twentieth century was a period of growth catch-up. In the 1950s and 1960s, UK GDP rose on average by over 3% and by around 2.5% a year in the 1970s, 1980s and 1990s. However, this post-War surge in growth appears to have run out of steam as we have entered the 21st century. As we have already noted, the two decades of this century so far are showing average annual GDP growth below 2%.

The UK is not alone in experiencing this growth slowdown. Across the major advanced economies, growth rates have slowed since the 1980s. As Figure 4.3 shows, G7<sup>3</sup> economic growth averaged 3% in the 1980s, and has also dropped below 2% in the 2010s (using the IMF's latest forecasts from 2018-19). This can be seen as a product of the global financial crisis, which hit growth severely in 2008-9, and the slow recovery which followed. However, in other respects, the major advanced economies appear to be performing well. The G7 unemployment rate is now at its lowest level since the 1970s, as is also the case in the UK.

<sup>3</sup> We should bear in mind though that the US economy, due to its much greater size, has a high weight in the G7 average growth rate shown in Figure 4.3. Given the US economy has been a relatively strong performer on average since the 1990s, this helps to explain why the UK has lagged behind the G7 average in recent decades.

## 4.2 – Drivers of long-term economic growth

Over the longer-term, there are three key drivers of economic growth. The first is the growth of population – particularly the number of people who are in the normal working age range – conventionally defined as 16-64 but more realistically 18-70 in an economy like the UK. The second key driver is the flexibility and efficiency of the labour market, which determines how easy it is for people to find jobs and for employers to find the workers that they need, at all skill levels. The third – and arguably the most important – factor is the productivity of the workforce. Rising productivity allows GDP to increase faster than employment, with technology, education and skills and capital investment playing important roles in the process of productivity growth.

Table 4.1 analyses the key phases of UK economic growth since the mid-19th century<sup>4</sup>. It is very clear how variations in economic growth have reflected swings in the rate of productivity increase. In the case of the UK, changes in population growth and other influences on employment have played a much smaller part in shaping variations in long-term economic growth trends. In Table 4.1, these population and employment influences are separated into two components – the growth of total population (of all ages) and the impact on growth of changes in the ratio of employment to population. This last component captures both demographic influences and factors related to the efficiency of labour markets.

**Table 4.1: Analysis of UK GDP growth since 1855 (% pa contribution to growth)**

	GDP	Output per worker	Population	Employment ratio*
1855-99	2.18	1.30	1.09	-0.21
1900-49	1.35	0.68	0.59	0.08
1950-99	2.80	2.46	0.31	0.03
2000-19	1.82	0.90	0.63	0.29
<b>1855-2019</b>	<b>2.07</b>	<b>1.41</b>	<b>0.64</b>	<b>0.02</b>

Source: PwC analysis of data from Bank of England and ONS and PwC projections for 2018-19

\*Contribution to GDP growth from a change in the ratio of employment to population

In the words of Nobel Prize-winning economist Paul Krugman: *“Productivity isn’t everything, but, in the long run, it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker<sup>5</sup>.”*

But what drives productivity?

In developing and emerging market economies, very high productivity growth rates can be achieved by catching up with other more advanced economies. That has been the experience of many Asian economies – most notably China in recent decades. They have implemented more growth-friendly economic policies, taken advantage of an expanding world trading system, and invested heavily in modern infrastructure and industrial plants. That has enabled a number of major Asian economies to raise productivity in key sectors of their economies much closer to the levels achieved in the West.

This catch-up story is, however, not really relevant to the UK, which has been one of the richer and most advanced economies in the world since the 19th century. For the UK and other major western economies, four key factors appear to shape the rate of progress in productivity.

The first is having a **well-functioning market economy**, in which resources can flow towards the sectors and businesses which can generate the largest economic returns. A market economy is not perfect, and a well-developed structure of regulation is needed to ensure markets work well.

<sup>4</sup> Reliable employment estimates are only available from the Bank of England database since 1855.

<sup>5</sup> Krugman (1990) “The Age of Diminished Expectations”, MIT Press.

But if the state becomes too interventionist in business and economic affairs, that can stifle enterprise and innovation. So a well-functioning market economy needs to strike the balance between having a framework of rules and regulations which allows the market to work – without holding back wealth creation.

A second key driver of productivity is **technology**. As noted above, the UK economy is delivering more than fifteen times as much output per head of population as it was 200 years ago. The major enabler of this economic progress has been technological advances – particularly in key sectors like manufacturing, transport and communications. However, the relationship between technology and economic growth is not deterministic. It takes years and decades sometimes for key technological innovations to be absorbed into the economic system and to generate substantial improvements in living standards. In 1987, Robert Solow, another Nobel prize-winning economist, coined the “computer paradox”.

He wryly quipped: *“You can see the computer age everywhere but in the productivity statistics.”*

One reason that it has become more difficult to identify technological progress in GDP and other measures of the economy is that official statisticians are struggling to keep up with changes in the structure of the economy. We live in an economy dominated by the services sector, and measuring the output of services is a more difficult and complex exercise than counting the number of widgets coming out of a factory. This also applies to accounting for improvements in service quality due to innovation, as well as entirely new products and services, although this has also been an issue in past technological revolutions so we should not overstate its significance in explaining the recent slowdown in productivity growth.

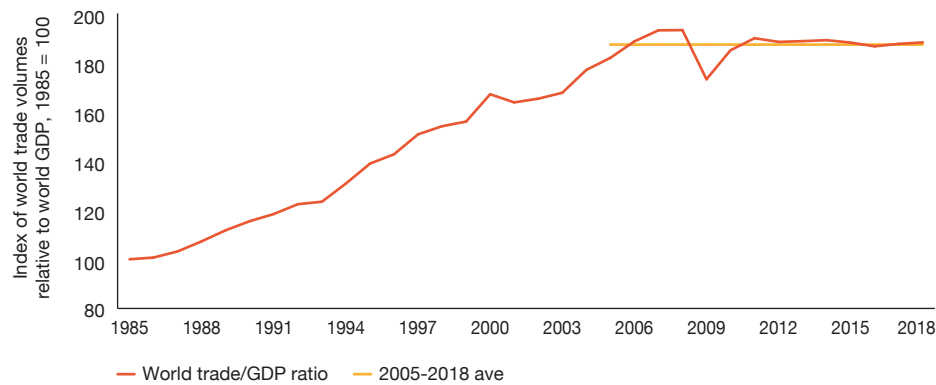
Alongside technology, **investment** – not just in physical capital, but also in skills and various other forms of “intangible” investment – is crucial to the process of productivity growth. We have already noted how China and other Asian economies have demonstrated how quickly they can raise productivity levels with a large injection of investment. It is sometimes argued that the UK productivity growth rate would have been stronger if our investment rate had been higher. A recent analysis by the Office for National Statistics showed that the UK’s average fixed capital investment share of GDP was 16.7% from between 1997 and 2017, compared to around 20% or more in other OECD countries<sup>6</sup>.

A fourth factor which is crucial for productivity growth is **access to global markets**. In his ground-breaking book “The Wealth of Nations”<sup>7</sup>, Adam Smith observed that “the division of labour is limited by the size of the market”. He was referring to what economists have subsequently characterised as “economies of scale”, though there are also “economies of scope” (i.e. applying a similar approach across a range of different businesses and markets) and “network economies” – which are very relevant in transport, communications and energy markets, as well as modern digital platforms covering an ever broader range of activities.

In an expanding world economy, with increasing opportunities for world trade and investment, these economies of scale, scope and expanded networks create the potential for productivity growth. The establishment of the World Trade Organisation (WTO) in 1995, and other regional trade agreements which were forged around the same time – such as NAFTA and the European Single Market – gave this process added momentum during the 1990s.

<sup>6</sup> <https://www.ons.gov.uk/economy/grossdomesticproductgdp/articles/aninternationalcomparisonofgrossfixedcapitalformation/2017-11-02>, published in November 2017  
<sup>7</sup> Adam Smith’s “The Wealth of Nations” was first published in 1776 and set out many of the principles which have underpinned the development of economic thinking on markets and the benefits of trade

**Figure 4.4 – Process of globalisation has now faltered**



Source: IMF World Economic Outlook, October 2018

Trade and technology appear to tell the story of the big swings in UK productivity growth seen since the 19th century. In the 1800s, the UK benefited from many technological changes stemming from the Industrial Revolution – including major innovations in transport technologies, such as the development of railways and steamships. At the same time, the world trading system opened up from the mid-19th century, led by the UK reducing various tariff and non-tariff barriers to trade from the 1820s onwards<sup>8</sup>.

Economic historians describe the second half of the 19th century as the “first era of globalisation” because of the growth of world trade and investment which followed in the wake of trade liberalisation and developments in transport and communications technologies.

The first half of the 20th century saw a major reversal in this pattern of globalisation, with rivalry between the major western powers increasing, leading to the First World War. This was followed by two decades of economic volatility, recessions and rising protectionism in the 1920s and 1930s. Only after the Second War did the world economy start to open up again with a new wave of international trade and investment. At the same time, major technological innovations – from motor cars, jet aircraft, washing machines and fridges to TVs and transistor radios – found mass markets in the major western economies. This led to a surge in productivity growth not just in the UK but across Western Europe and in North America. This was followed in the 1980s and 1990s by the development of new information and communications technologies which led to the internet and mobile phones.

These technologies have not gone away, but they tend to provide a one-off benefit to productivity growth which fades over time. In other words, the productivity level is boosted for a while but it does not rise indefinitely into the future. At the same time, the productivity growth boost which followed the opening up of markets since the 1980s and 1990s has also started to falter. A good indication of this is the fact “trade intensity” in the global economy – as measured, for example, by the ratio of the volume of world trade to world GDP in real terms – hit a plateau not long after the start of the 21st century, as Figure 4.4 shows.

8 The first major trade liberalising measure passed by Parliament was The Reciprocity of Duties Act in 1823.

### 4.3 – Prospects for UK economic growth in the 2020s

The framework underpinning Table 4.1 above can be used to make projections of UK economic growth in the 2020s. Over the decade ahead, UK growth prospects hinge on three main factors. How fast will productivity grow? How strong will population growth be? And how will changes in the ratio of employment to population affect the rate of GDP growth?

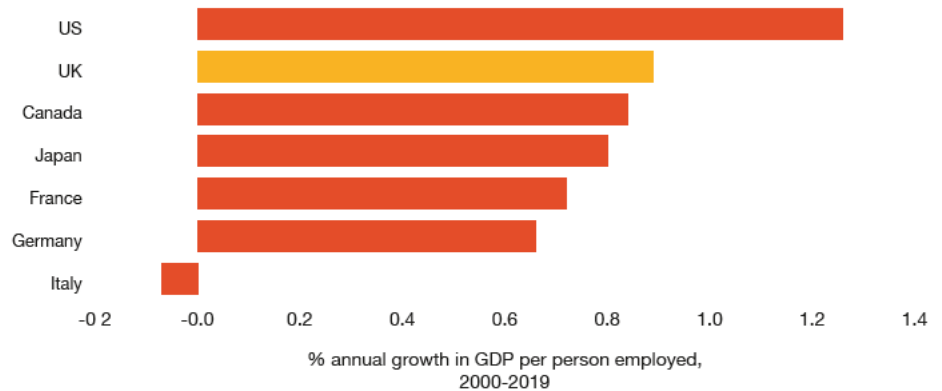
#### Productivity growth

The UK is not alone in experiencing disappointing productivity growth over the past two decades. In fact, Figure 4.5 shows that UK productivity performance in the 21st century has been second only to the United States. But the US is projected by the IMF to achieve an average of just 1.3% annual increase in output per person employed over the 2000s and 2010s. The UK has achieved average annual productivity growth of 0.9% and other G7 economies – except Italy – are in the range 0.7-0.8%.

Looking ahead to the 2020s, there are a mixture of influences which are likely to affect productivity growth in the UK and other advanced economies. If we start from the premise that trade and technology are the big drivers of productivity growth for mature western economies, there are potentially negative influences on the trade side. The US administration under President Trump has adopted a challenging approach to the current world trade order, and followed this up by imposing new tariffs on long-established trade partners, particularly China.

There are also geopolitical developments which point to a more protectionist environment for global trade.

Figure 4.5 – G7 productivity growth league



Source: IMF World Economic Outlook, October 2018

Sanctions have been imposed on Russia for various reasons in recent years, and tensions remain high in the Middle East. The US has repudiated a number of international agreements in recent times – including the Paris Climate Change Treaty, the agreement with Iran, and most recently the US withdrawal from a longstanding nuclear arms treaty with Russia. Rising tension between major powers was a precursor to the end of the first era of globalisation in the early 20th century – and it would be unwise to ignore the lessons from history in the current global climate.

From a UK perspective, Brexit is a potential threat to longstanding trade relationships with our major trading partners in Europe. The government is seeking a deal which retains many of the economic benefits that the UK currently enjoys from EU membership. But even under the scenario in which a future UK/EU trade deal is secured, which is our main scenario assumption, there are likely to be key areas of the UK economy which experience a disruption in market access relative to existing trade relationships with Europe – such as financial services given the likely loss of passporting rights to EU27 markets after the transition period.

The countervailing positive force to offset these negative trade and geopolitical developments could be technology. Artificial Intelligence (AI), machine learning, and various other developments in the world of information and communications technology could provide a significant boost to productivity growth in future decades<sup>9</sup>. But as we have seen from previous technological revolutions, the timing of any productivity boost and extent to which these new technologies feed through into conventional economic measures like GDP is highly uncertain.

In the light of these countervailing influences on UK productivity growth, a realistic central estimate for the 2020s is unlikely to be much higher than around 1% per annum<sup>10</sup> given the experience of the 2000s and 2010s – which saw an annual average productivity increase of 0.9%. A realistic range around this projection would be a low estimate of around 0.7% (the productivity growth rate achieved by the UK in the 2010s). A realistic high estimate might be around 1.3% – the average annual rate of productivity growth achieved by the best performing G7 economy, the US, since 2000.

9 As discussed, for example, in this earlier PwC report: <https://www.pwc.co.uk/services/economics-policy/insights/the-impact-of-artificial-intelligence-on-the-uk-economy.html>  
 10 This is also similar to the latest OBR productivity trend estimates for GDP per worker in the medium term.



## Population and employment projections

Table 4.2 above uses these productivity estimates - alongside projections for population and employment - to produce estimates for the growth of total GDP. Latest official projections for the UK<sup>11</sup> point to an increase in the total population from 67.6 million in 2021 to 70.6 million by 2031. This represents an annual increase of 0.44 percent (rounded to 0.45 percent in the central scenario in Table 4.2). This is significantly below the average rate of increase in UK population in the first two decades of the 21st century (0.63% per annum) and is consistent with slower population growth as migration is constrained post-Brexit.

The other key element in our projections is the change in the ratio of employment to population, which is affected by both demographic and labour market factors. Here, the central estimate is in line with the contribution of rising labour force participation shown in Table 4.1, at 0.3% per annum. A key factor boosting employment in the UK in the past couple of decades is the rising contribution of older workers. This is likely to continue as improving health and life expectancy encourages individuals to prolong their working lives. Indeed, the PwC “Golden Age Index” shows there is potential for the UK to significantly improve its labour market performance in terms of the engagement of older workers<sup>12</sup>. Just over 20 percent of 65-69 year-olds are employed in the UK, compared with 40 percent or more in the OECD countries which have the largest proportions working in this age bracket.

**Table 4.2: Projections of UK GDP growth and employment for the 2020s (% per annum)**

	GDP	Output per worker	Population	Employment ratio*
Low projections	1.20	0.70	0.40	0.10
<b>Central scenario</b>	<b>1.75</b>	<b>1.00</b>	<b>0.45</b>	<b>0.30</b>
High projections	2.30	1.30	0.50	0.50
<b>Projection range</b>	<b>1.2-2.3**</b>	<b>0.7-1.3</b>	<b>0.4-0.5</b>	<b>0.1-0.5</b>

Source: ONS population projections, PwC estimates for other variables and ranges

\* Contribution to GDP growth from a change in the ratio of employment to population

\*\* The plausible projection range for GDP growth may be narrower at around 1.5-2% because not all the worst or best case scenarios are likely to materialise together for each of the three components of GDP growth.

Positive measures to engage older workers in the workforce could therefore boost GDP growth even further than the figures we have achieved in the past two decades - to a contribution of up to 0.5% per annum. On the other hand, in a more pessimistic scenario - where individuals continue to retire earlier and employment participation falls back - we may see a much smaller contribution to UK economic growth from rising employment, possibly as low as 0.1% per annum.

11 <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2016basedstatisticalbulletin>

12 <https://www.pwc.co.uk/services/economics-policy/insights/golden-age-index.html>

## 4.4 – Conclusions and policy implications

The central scenario presented in this article suggests that the UK may not break out of the “sub-2%” low growth trap in the 2020s. Even with some recovery in productivity growth to 1% per annum, from 0.7% on average in the 2010s, GDP growth is likely to average only around 1.75% per annum in the 2020s<sup>13</sup>. Globalisation and trade growth are no longer providing the boost to growth in the UK and other advanced economies that we have seen for most of the post-war period. Brexit, rising protectionism and geopolitical tensions pose downside risks to UK economic growth. So although there could be some boost to productivity from new technologies such as AI, they may not prove strong enough or certain enough to lift growth back above 2% on a sustained basis<sup>14</sup>.

But there are inevitably upside and downside uncertainties around any such long-term growth projections. In a plausible upside scenario, protectionist threats could quickly fade, Brexit works out relatively well for the UK and the technology boost comes through more quickly than expected.

That could create a recovery in growth to around 2% or slightly higher. On the downside, we could see a more severe hit from adverse trade effects and technology might not ride to the rescue quickly. Adverse shocks to the world economy could also play a part in pushing average UK growth down to only around 1.2-1.5% over the decade ahead in this downside scenario.

What policies might be needed to realise to realise the upside scenario and minimise the chances of the downside? The analysis above has highlighted the role of trade and technology in supporting economic growth in the UK and other major economies. A well-functioning market economy, with incentives to move resources to more productive uses, is also a spur to productivity growth. And the role of older workers in boosting participation in the labour force is one of the key factors in terms of the labour market contribution to growth.

So, four main policy conclusions flow from this analysis:

- Tax and regulatory reform which boosts broader economic performance by simplification and shifting the burden of tax and regulation away from productive and internationally competitive activities in the economy.
- Maintaining as far as possible an open approach to international trade, despite Brexit and rising international protectionist tides.
- Policy measures which support and encourage the development and embodiment of new technologies such as AI, despite the fears of potential job losses – which PwC analysis suggests are overstated from a macroeconomic perspective<sup>15</sup>.
- Measures to encourage older workers to remain engaged in the workforce, which could boost the labour force contribution to growth as the population ages.

It seems unlikely that the UK economy is on threshold of a growth renaissance in the 2020s. But there is much that government, working with business and other stakeholders, can do to improve economic prospects, even in the face of some of the international headwinds highlighted in this article.

<sup>13</sup> In assessing the plausibility of this central estimate, we should bear in mind that, based on historical experience, there is likely to be at least one recession at some point in the 2020s, albeit hopefully not as severe or prolonged a downturn as that resulting from the global financial crisis of 2008-9.

<sup>14</sup> Our earlier research on this topic rather assumed that increased investment in these technologies would be needed to push UK trend growth back up to just under 2% on average over the next 20 years: <https://www.pwc.co.uk/economic-services/ukey/ukey-july18-net-impact-ai-uk-jobs.pdf>

<sup>15</sup> See this July 2018 UK Economic Outlook article, which sets out estimates suggesting that AI and related technologies will create as many jobs than they displace over the next 20 years: <https://www.pwc.co.uk/economic-services/ukey/ukey-july18-net-impact-ai-uk-jobs.pdf>

# Appendix A

## Outlook for the global economy

Table A.1 presents our latest main scenario projections for a selection of economies across the world.

World economic growth strengthened through 2017 and has remained relatively strong this year. But we expect the global weighted average real growth rate to slow slightly from 3.2% in 2018 to 3.0% in 2019 (using GDP at market exchange rates as weights – global GDP growth using PPP weights might be around 3.8% in 2018 and 3.6% in 2019). This growth is expected to be driven by the large emerging economies with continued strong growth of around 7.6% in India in 2019 and only a modest slowdown to 6.3% growth in China next year. The outlook for emerging markets has also brightened as a result of somewhat improved economic conditions in Russia and Brazil, which are now moving gradually out of recession. Indonesia is also expected to continue to grow strongly at over 5% in 2018-19, with the ASEAN economies as a group also generally performing well.

There was a marked upswing in Eurozone economic activity in 2016-17, but growth has now started to slow again to just under 2% in 2018-19 in our main scenario. Compared to the rest of the G7, relatively strong US growth of around 2.8% is projected in 2018 as fiscal stimulus has strengthened an already robust economy. But this will be offset by gradual rises in US interest rates to keep inflation there under control, causing some slowing of growth to around 2.3% next year as the effects of the fiscal stimulus fade. Any further shift towards greater protectionism could also pose significant downside risks to growth in 2019 and beyond both in the US and China and in the world more generally.

These projections are updated regularly in our Global Economy Watch publication, which can be found at [www.pwc.com/gew](http://www.pwc.com/gew)

**Table A.1: Global economic growth and inflation prospects**

	Share of world GDP	Real GDP growth (%)		Inflation (%)	
	2017 at MERs	2018p	2019p	2018p	2019p
US	24.3%	2.8	2.3	2.5	2.2
China	15.0%	6.5	6.3	2.3	2.4
Japan	6.1%	1.0	0.8	0.5	1.1
UK	3.3%	1.3	1.6	2.5	2.2
France	3.2%	1.6	1.7	1.7	1.5
Germany	4.6%	1.8	1.7	2.0	1.7
Greece	0.3%	2.0	2.1	0.8	1.2
Ireland	0.4%	5.1	3.3	0.9	1.3
Italy	2.4%	1.0	0.9	1.1	1.4
Netherlands	1.0%	2.7	2.3	1.6	1.9
Portugal	0.3%	2.1	1.9	1.1	1.7
Spain	1.6%	2.8	2.4	1.7	1.7
Poland	0.7%	4.5	3.5	1.9	2.5
Russia	1.9%	1.8	1.7	4.0	4.2
Turkey	1.1%	3.2	0.2	16.0	19.0
Australia	1.7%	2.9	3.0	2.2	2.5
India	3.3%	7.4	7.6	4.8	5.0
Indonesia	1.3%	5.2	5.3	3.8	3.9
South Korea	1.9%	2.9	2.8	1.6	1.9
Argentina	0.8%	-2.4	-1.3	33.0	-
Brazil	2.6%	1.6	2.5	3.7	4.2
Canada	2.1%	2.0	1.9	2.4	1.9
Mexico	1.4%	2.1	2.2	4.2	3.9
South Africa	0.4%	1.2	1.5	4.8	5.3
Nigeria	0.5%	2.0	1.6	11.9	10.8
Saudi Arabia	0.9%	1.7	2.2	3.2	2.5
World (PPP)	-	3.8	3.6	3.3	3.1
World (Market Exchange Rates)	100%	3.2	3.0	2.9	2.6
G7	46.0%	2.2	1.9	2.0	1.9
Eurozone	13.9%	2.3	2.0	1.7	1.6

Source: PwC main scenario for 2018 and 2019; IMF for GDP shares in 2017 at market exchange rates (MERs).

# Appendix B

## UK economic trends: 1979-2017

Annual averages	GDP growth	Household expenditure	Manufacturing output growth*	Inflation (CPI**)	3 month interest rate (% annual average)	Current account balance (% of GDP)	PSNB*** (% of GDP)
1979	3.7	4.8			13.7	-0.6	4.2
1980	-2.0	0.1			16.6	0.5	3.9
1981	-0.8	0.3			13.9	1.5	3.0
1982	2.0	1.2			12.2	0.6	2.3
1983	4.2	4.4			10.1	0.2	3.0
1984	2.3	2.5			10.0	-0.5	3.3
1985	4.2	5.1			12.2	-0.3	2.5
1986	3.1	6.0			10.9	-1	2.0
1987	5.3	5.0			9.7	-1.6	1.3
1988	5.8	7.3			10.4	-3.5	-0.6
1989	2.6	3.8		5.2	13.9	-4.1	-0.6
1990	0.7	1.0		7.0	14.8	-3.1	0.6
1991	-1.1	-0.5	-4.9	7.5	11.5	-1.3	2.6
1992	0.4	0.9	-0.1	4.3	9.6	-1.5	5.6
1993	2.5	2.9	1.4	2.5	5.9	-1.3	6.7
1994	3.9	3.2	4.7	2.0	5.5	-0.5	5.8
1995	2.5	2.0	1.5	2.6	6.7	-0.7	4.6
1996	2.5	3.8	0.8	2.5	6.0	-0.6	3.3
1997	4.3	4.4	1.7	1.8	6.8	0	1.9
1998	3.3	4.0	0.4	1.6	7.3	-0.5	0.3
1999	3.2	4.8	0.5	1.3	5.4	-2.5	-0.7
2000	3.5	4.7	2.2	0.8	6.1	-2.4	-1.5
2001	2.8	3.6	-1.5	1.2	5.0	-2.2	-0.2
2002	2.5	3.8	-2.1	1.3	4.0	-2.3	2.0
2003	3.3	3.6	-0.5	1.4	3.7	-1.9	3.4
2004	2.3	3.1	1.8	1.3	4.6	-2.3	3.3
2005	3.1	3.1	0.0	2.1	4.7	-2	3.2
2006	2.5	1.8	2.1	2.3	4.8	-3	2.8
2007	2.5	2.6	0.6	2.3	6.0	-3.6	2.6
2008	-0.3	-0.6	-2.8	3.6	5.5	-4.2	5.4
2009	-4.2	-3.2	-9.4	2.2	1.2	-3.6	10.1
2010	1.7	0.8	4.6	3.3	0.7	-3.4	9.0
2011	1.6	-0.9	2.2	4.5	0.9	-2	7.1
2012	1.4	1.7	-1.4	2.8	0.8	-3.8	7.5
2013	2.0	2.0	-1.0	2.6	0.5	-5.1	5.7
2014	2.9	2.1	2.9	1.5	0.5	-4.9	5.3
2015	2.3	2.7	0.0	0.0	0.6	-4.9	4.1
2016	1.8	3.2	0.4	0.7	0.5	-5.2	2.9
2017	1.7	1.9	2.6	2.7	0.3	-3.7	1.8
Average over economic cycles****							
1979 - 1989	2.8	3.7			12.2	-0.8	2.2
1989 - 2000	2.4	2.9		3.3	8.3	-1.5	2.4
2000 - 2014	1.9	1.9	-0.2	2.2	3.3	-3.1	4.4

\* Pre-1991 figures for manufacturing output growth are not currently available on a consistent basis \*\* Pre-1997 data estimate

\*\*\* Public Sector Net Borrowing (calendar years excluding public sector banks) \*\*\*\* Peak-to-peak for GDP relative to trend

Sources: ONS, Bank of England

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