November 2017

UK Economic Outlook

Special features on:

- How might lower EU migration affect the UK economy after Brexit?
- The twin puzzles – disappointing UK trade and productivity performance

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Highlights and key messages for business and public policy

Key projections

	2017	2018
Real GDP growth	1.5%	1.4%
Consumer spending growth	1.6%	1.1%
Inflation (CPI)	2.7%	2.7%

Source: PwC main scenario projections

Recent UK developments and prospects

- UK economic growth held up better than expected in the six months following the Brexit vote, particularly as regards consumer spending. But growth has slowed in 2017 as inflation has risen sharply, squeezing household spending power.
- In our main scenario, we project UK growth to slow from 1.8% in 2016 to around 1.5% in 2017 and 1.4% in 2018. This is due to slower consumer spending growth and the drag on business investment from ongoing political and economic uncertainty relating to the outcome of the Brexit negotiations.
- The weaker pound could also boost net exports, however, which should offer some support for overall GDP growth and reduce the current account deficit relative to 2016. The pick-up in the Eurozone economy over the past year should also help here.
- Service sector growth will slow down but remain positive in 2017-18. Some manufacturing exporters will benefit from the weaker pound, but businesses serving domestic consumers are likely to see some slowdown in growth and commercial construction has been relatively weak recently.
- The Bank of England raised interest rates by 0.25% in November, but future rate rises are likely to be very modest and gradual.
- The government is under considerable political pressure to ease austerity, but a potential medium-term public borrowing overshoot means that the Chancellor may need to offset most of any giveaways (e.g. on health and housing) with takebacks in other areas.

How might lower EU migration affect the UK economy after Brexit?

- EU migrants have played an increasingly important role in the UK economy since 2004, with particularly large impacts on London and certain sectors such as food manufacturing, hotels and restaurants, warehousing and construction.
- As an illustration we have modelled the effect of an ONS population scenario involving a 50% reduction in future EU migration. We estimate that this could reduce the level of UK GDP in 2030 by around 1.1%, or around £22 billion at 2017 GDP values.
- However, a better measure might be the impact on average GDP per capita in 2030, which we estimate to be reduced by around 0.2%, or around £60 per person at 2017 GDP values, in this scenario.
- In the long run, efforts could be made to fill skill gaps arising from lower EU migration through enhanced training of UK nationals and automation. But, realistically, such alternatives are unlikely to make up for any large reduction in EU migrant workers over the next 5-10 years.

The twin puzzles – disappointing UK productivity growth and trade performance

- Two of the major puzzles about UK economic performance since the financial crisis relate to comparatively weak growth in both productivity and exports.
- New analysis in this report shows that weak UK productivity growth has been focused in particular sectors – notably financial services and property-related activities. Manufacturing and other private sector services have generally seen more reasonable productivity growth of around 2%, similar to pre-crisis norms.
- Relatively weak UK export volume growth since the crisis also seems to be focused on financial services and some other service sectors, rather than goods exports which have grown at close to pre-crisis rates since 2010.
- There is no quick fix for these issues, but rather requires a long-term strategy focused on improving access to skills, developing better transport networks, providing stronger incentives to invest and innovate, and creating the conditions for more balanced regional growth.

1 – Summary

Recent developments

The UK economy held up well in the six months after the EU referendum, particularly as regards consumer spending. But growth has slowed markedly during 2017 as both consumer spending and services growth have moderated, while construction output has fallen in the past two quarters.

A key factor behind this recent moderation has been an increase in the rate of consumer price inflation (CPI) from around zero on average in 2015 to 3% in the year to September 2017, as global commodity prices have picked up from lows in early 2016, and the effects of the weak pound after the Brexit vote have fed through supply chains. Higher inflation has squeezed real household incomes and this has taken the edge off consumer-led growth.

On the more positive side, UK exports should be boosted by the upturn in global growth over the past year, notably in the Eurozone. The weaker pound, although bad for UK consumers, has been helpful to exporters and inbound tourism.

Table 1.1: Summary of UK economic growth and inflation prospects

Indicator (% change on previous year)	OBR forecasts (March 2017)		Independent forecasts (October 2017)		PwC Main scenario (November 2017)	
	2017	2018	2017	2018	2017	2018
GDP	2.0	1.6	1.6	1.5	1.5	1.4
Consumer spending	1.8	0.9	1.6	1.1	1.6	1.1
Inflation (CPI)	2.4	2.3	2.7	2.7	2.7	2.7

Source: Office for Budget Responsibility (March 2017), HM Treasury survey of independent forecasters (average value of new forecasts made in October 2017 survey) and latest PwC main scenario.

Future prospects

As shown in Table 1.1, our main scenario is for UK GDP growth to slow from 1.8% in 2016 to around 1.5% in 2017 and 1.4% in 2018. Our views on growth are similar to the latest consensus forecasts but somewhat lower than the last OBR forecasts in the March 2017 Budget (see Table 1.1). However, the broad pattern of gradually slowing growth in 2017-18 is common to most forecasts at present. Our views on inflation are also similar to the consensus forecast, but higher than the OBR since we can take account of more recent data. We expect the OBR to revise their projections more into line with the consensus view at the time of the November Budget.

Consumer spending growth is expected to moderate in 2017-18 as inflation bites into real spending power. So far, consumers have offset this in part through higher borrowing, but there are limits to how much further this can go, particularly now interest rates have started to edge up.

On the other hand, the weak pound should also have some offsetting benefits for net exports as will a somewhat stronger global economy. Brexit-related uncertainty may hold back business investment, but this should be partly offset by planned rises in public investment (which could be added to in the Budget in areas like social housing).

There are always uncertainties surrounding our growth projections and these are particularly marked following the vote to leave the EU, as illustrated by the alternative scenarios in Figure 1.1. There are still considerable downside risks relating to international geopolitical risks and the fallout from Brexit, but there are also upside possibilities if these problems can be contained. In our main scenario, we expect the UK to suffer a moderate slowdown not a recession, but businesses need to monitor and make contingency plans for potential downside risks.

Inflation could rise further to just over 3% over the next few months, although it should then fall back gradually over the course of 2018 assuming no major shifts in exchange rates or global commodity prices. Given continued uncertainties around Brexit, we expect the MPC to be cautious about the pace of any further interest rate rises.

The Chancellor faces some tough choices in the Budget

Since the election in June, the Chancellor has come under significant political pressure to further ease austerity, over and above what he announced in his 2016 Autumn Statement (which was primarily focused on higher infrastructure spending). Public borrowing does look set to come in lower than expected this year, perhaps by as much as £10 billion. However, much of this is due to a temporary spending undershoot and, in future years, slower productivity growth may lead to lower tax revenues than the OBR forecast in March.

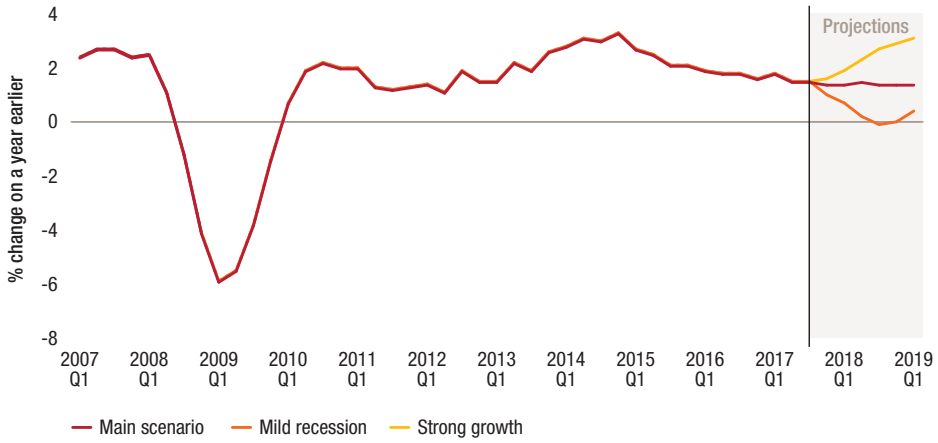
Our main scenario projection is therefore for a somewhat higher budget deficit of around £24 billion in 2021/22, assuming no new fiscal policy changes, as compared to the OBR's March 2017 forecast of a £17 billion deficit in 2021/22 (see Figure 1.2).

Our fiscal projections suggest a cyclically adjusted budget deficit of just over 1% of GDP in 2020/21, which would still be below the Chancellor's medium term target of getting the structural deficit below 2% of GDP in that year.

This would leave the Chancellor some scope for selective easing of austerity in his Budget, but he is likely to want to retain most of this 'wiggle room' for future years given the uncertainties around how the Brexit process will play out and what its economic impact will be.

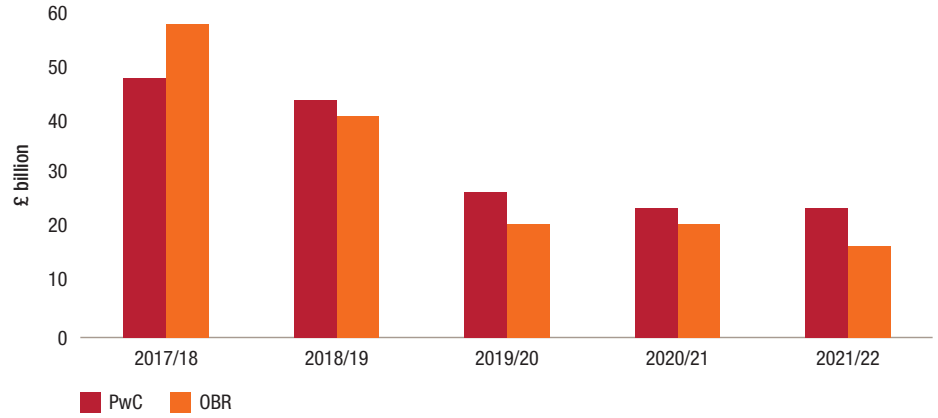
Nonetheless, we would still expect the Chancellor to find some room for additional spending on priorities like housing, health and social care, and some selective further relaxation of public sector pay caps. Any such giveaways are, however, likely to be largely offset by 'takebacks' through net tax rises (e.g. further anti-avoidance measures) or spending cuts in lower priority areas.

Figure 1.1 – Alternative UK GDP growth scenarios



Sources: ONS, PwC scenarios

Figure 1.2 – PwC and OBR public borrowing projections



Sources: OBR (March 2017), PwC main scenario assuming no fiscal policy changes

How might lower EU migration affect the UK economy after Brexit?

Our detailed analysis in Section 3 of this report shows that EU migrants have played an increasingly important role in the UK economy since 2004, with particularly large impacts on London and certain sectors such as food manufacturing, hotels and restaurants, warehousing and construction (see Figure 1.3)

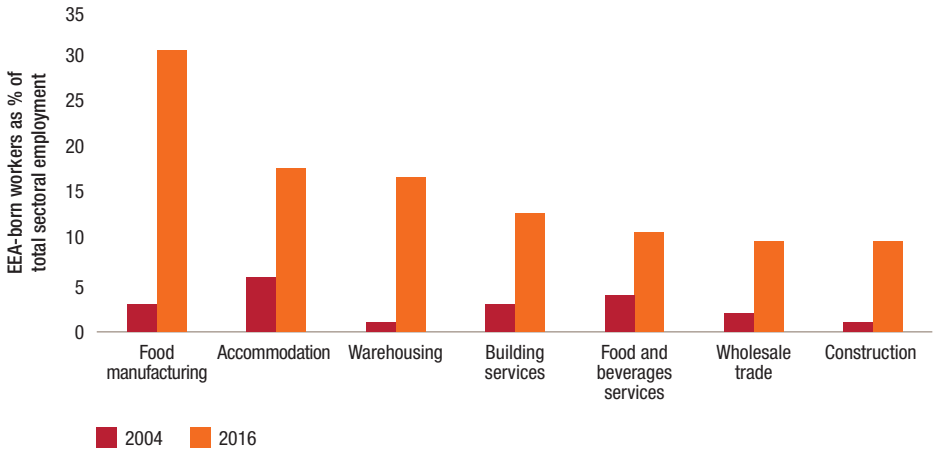
High-skilled EU migrants also play a key role in sectors like finance, business services, technology, healthcare, academia and the arts.

As an illustration we have modelled the economic impact of a recent ONS population scenario involving a 50% reduction in future EU migration. We estimate that this could reduce the level of UK GDP in 2030 by just over 1%, or around £22 billion at 2017 GDP values.

However, a better measure might be the impact on average GDP per capita in 2030, which we estimate to be reduced by around 0.2% in this scenario, or around £60 per person at 2017 GDP values, in this scenario.

Any such model estimates have their limitations, and the net impacts on GDP per capita are relatively small compared to the many other uncertainties about average UK income levels in 2030. Indeed, based on earlier analysis[1], the potential negative trade implications of a 'no deal' scenario where the UK had to fall back on WTO rules would be worse than any negative impacts from migration changes.

Figure 1.3 – UK industry sectors with highest reliance on EEA-born workers



Source: ONS Labour Force Surveys

Nonetheless, our analysis makes clear that unduly restricting future migration from the EU could have disproportionate effects on some industry sectors and regions, notably London. In the long run, efforts could be made to fill skill gaps through enhanced training of UK nationals, and automation might also be a solution in certain sectors if we look 10-20 years ahead. But, realistically, such alternatives are unlikely to make up for any large reduction in EU migrant workers over the next 5-10 years. Government policy decisions on the post-Brexit EU migration regime need to take full account of these considerations.

1 PwC (2016), 'Leaving the EU: Implications for the UK economy': https://www.pwc.co.uk/services/economics-policy/insights/implications-of-an-eu-exit-for-the-uk-economy.html

The Twin Puzzles – disappointing UK trade and productivity performance

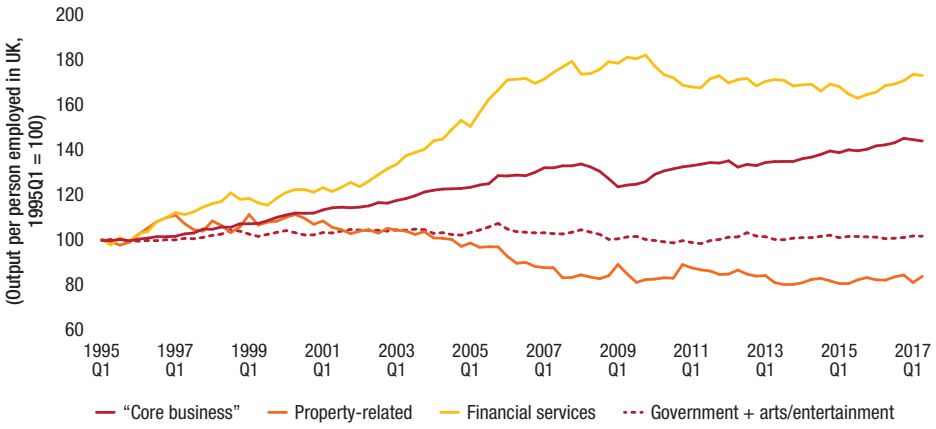
As discussed in detail in Section 4 of this report, the UK has been one of the better performers in terms of economic growth since the Global Financial Crisis relative to the other G7 economies, with GDP increasing on average by close to 2% a year, a creditable record in the post-crisis "new normal" economic climate. But export and productivity performance has been less impressive – at or close to the bottom of the G7 league table.

There has been a general slowdown in productivity growth across the major industrialised economies since the crisis. This reflects some combination of long-term structural factors, the unintended consequences of policies designed to cushion the impact of the financial crisis (including monetary policy), and a lack of investment of various forms.

In the case of the UK, however, the lacklustre performance of the financial sector and property-related activities has also exerted a further drag on productivity growth (see Figure 1.4). The impact of this drag on performance relative to the period before the financial crisis is reinforced by the fact that the same sectors provided a boost to productivity growth as the world economy expanded and trade opportunities increased in the 1990s and the first half of the 2000s.

Disappointing UK export performance can also be attributed to a similar pattern in key services industries, including financial services. Services exports boosted UK trade performance before the financial crisis, but have been relatively lacklustre since.

Figure 1.4 – Divergent UK productivity trends



Source: PwC calculations based on ONS data for output per job

There is no easy quick fix to address these issues, and a devalued exchange rate has not yet given a significant boost to either trade performance or productivity. A modern industrial strategy which seeks to improve the conditions in which all businesses operate in the UK is likely to prove a more successful approach, but it needs to be pursued as a long-term strategy that will yield long-term dividends. This should be focussed on improving access to skills, developing better transport networks, providing stronger incentives to invest and innovate, and creating the conditions for more balanced regional growth.

2 – UK economic prospects[1]

Key points

- In our main scenario, we project UK growth to slow from 1.8% in 2016 to 1.5% in 2017 and 1.4% in 2018.
- Europe and the world economy are strengthening, but UK will find it difficult to benefit due to the drag on domestic demand from higher inflation and Brexit-related uncertainty.
- A key factor behind the slowdown is slower consumer spending growth as real incomes have been squeezed by higher inflation and further rises in borrowing become hard to sustain.
- Wage growth continues to be slow despite the lowest unemployment rate since 1975. This reflects low productivity growth and lack of worker bargaining power.
- We also project investment growth to remain sluggish for the rest of this year and into 2018 as Brexit-related uncertainty remains a drag on business confidence in the UK.
- We expect growth to become more balanced across the UK regions in 2017-18, with London no longer growing ahead of the UK average. We project all regions to grow by around 1-2% in 2018.
- The Bank of England voted to increase interest rates by 0.25% in November, but future rate hikes are likely to be limited and gradual.
- Public borrowing in the current financial year looks set to be lower than projected by the OBR in March, but is likely to be somewhat higher in the medium term due to lower projected productivity growth. The Chancellor should still have some room for extra spending on priorities like housing, health and public sector pay, but any giveaways may need to be largely offset by takebacks.

Introduction

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

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

1 This section was written by John Hawksworth and Saloni Goel

2.1 – Recent developments in the UK economy

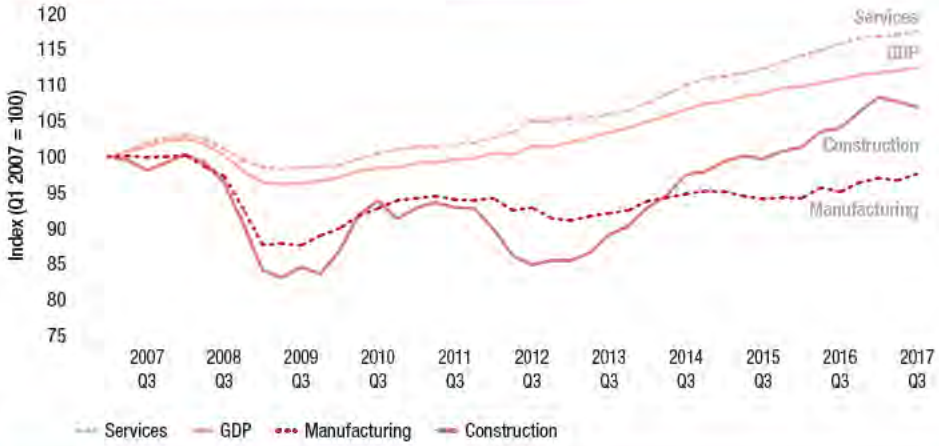
The UK economy remained resilient in the second half of 2016 despite the Brexit vote, but has not shared the benefits from stronger growth in the global economy in 2017. UK growth slowed to around 1.5% in the year to the third quarter of 2017 as inflation bit into consumer spending power and Brexit-related uncertainty dampened commercial investment. Nonetheless the UK economy has continued to register steady but modest growth, although with considerable variations by industry sector (see Figure 2.1).

Manufacturing sector output is still below pre-crisis peak levels, but has generally been on a rising trend since 2015. Most recently, manufacturing output bounced back strongly in Q3 2017 after a decline in the previous quarter. Higher demand for UK goods exports because of a weak pound and strong global demand could help to explain this recent upward trend.

The construction sector has been volatile over time, but had generally been growing relatively strongly in 2014-16 before dipping again over the past two quarters. Commercial construction activity has been particularly weak this year, perhaps reflecting the impact of Brexit-related uncertainty. But public infrastructure investment has been stronger, following a boost to spending on this in the 2016 Autumn Statement.

The dominant influence on UK growth comes from the services sector, however, which now accounts for almost 80% of UK GDP (compared to just 10% for manufacturing and 6% for construction). Services sector output has shown relatively steady growth ever since the recession bottomed out in mid-2009, but has moderated more recently as Figure 2.2 shows.

Figure 2.1 – Sectoral output and GDP trends



Source: ONS

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

Source: ONS

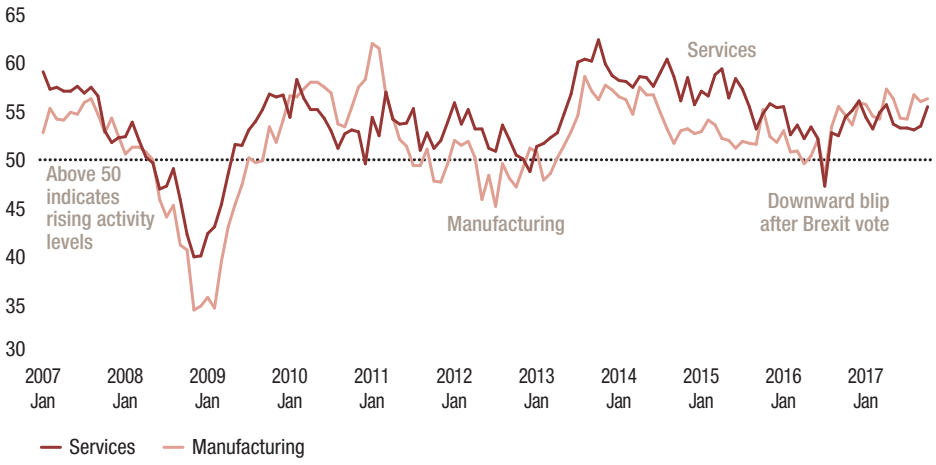
Figure 2.2 also shows the influence of slower consumer spending growth on overall GDP growth in recent quarters (although we do not have official consumer spending growth estimates yet for Q3 2017). This reflects the dampening effect of higher inflation on real household spending power.

Prior to 2017, consumer spending was a key driver of GDP growth, but this was achieved in part by running up ever higher debts. We explore this further in our latest Precious Plastic report[2], which highlighted that, in 2017, unsecured debt per household in UK reached an all-time high of around £11,000. This does not look sustainable in the longer term, particularly as interest rates start to edge up. The Bank of England also warned earlier this year that consumer credit growth has become uncomfortably high and suggested that some banks may need to tighten their lending standards.

While 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 has been reasonably strong in recent months. The services PMI had weakened over the summer months, but bounced back in October.

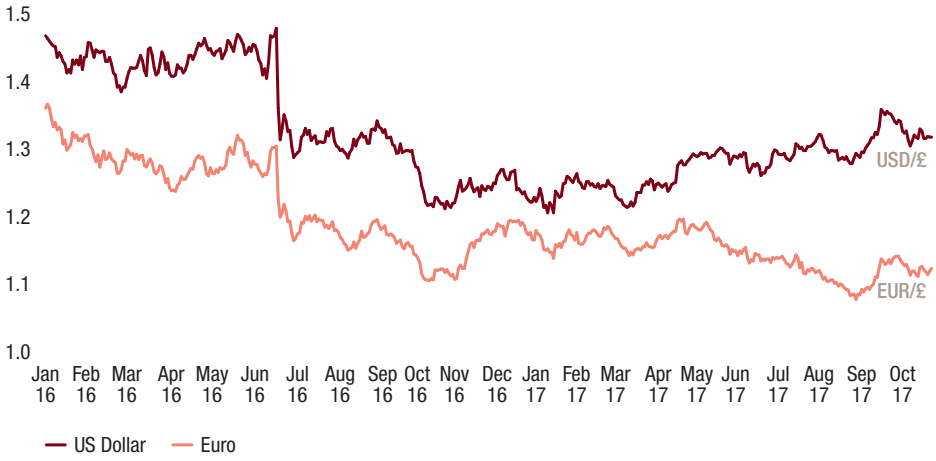
A key factor underpinning recent trends has been the sustained weakness of the pound since the Brexit vote, as shown in Figure 2.4. Sterling has been a little stronger against the dollar in recent months, but correspondingly weaker against the euro (reflecting the relatively robust economic recovery in the euro area this year). A weak currency makes exports relatively cheaper to overseas customers, promoting the sale of British goods and services while also improving tourist inflows. But depreciation also raises the prices of imports and this has pushed inflation up to 3%, so squeezing consumer spending power.

Figure 2.3 – Purchasing Managers' Indices of business activity



Source: Markit/CIPS

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



Source: Bank of England

2 https://www.pwc.co.uk/industries/financial-services/insights/precious-plastic.html

Figure 2.5 – Trends in productivity and employment

Source: ONS

UK creates record numbers of jobs, but productivity growth remains stubbornly low

In the previous edition of UK Economic Outlook in July, 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). In this edition, we consider why productivity growth – the ultimate driver of real wage growth – has been so low since the financial crisis. High level trends are outlined below, with further discussion in the special article in Section 4 by our senior economic adviser, and former MPC member, Andrew Sentance.

As shown in Figure 2.5, both UK employment and labour productivity (defined here as average output per worker) were on a steady upward trend before the financial crisis but fell back sharply during the crisis years. 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 smart phones). 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.

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 and beyond (as we discuss further in Section 3 of this report). Uncertainty around Brexit has been a further dampener on business investment over the past year, which has been broadly flat at a time when global economic conditions and very low interest rates might normally have been expected to lead to much stronger UK business investment growth.

Looking 10-15 years ahead, emerging technologies like robotics and artificial intelligence could hold the potential for faster productivity growth[3], albeit at the cost of some existing job losses as we have argued in past reports[4]. But, at least for the next few years, productivity growth may remain relatively subdued, which also has implications for the public finances as we discuss in Section 2.4 below.

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 See, for example, this article on whether robots will steal our jobs from our March 2017 UK Economic Outlook: https://www.pwc co.uk/economic-services/ukeo/pwcukeo-section-4-automation-march-2017-v2.pdf

2.2 – Economic growth prospects after Brexit: national, sectoral and regional

Our main scenario is for real GDP growth of 1.5% in 2017 and 1.4% in 2018, somewhat below estimated longer term trend growth of around 2%. Further details of this main scenario projection are set out in Table 2.1.

As in our July report, we expect UK growth to remain moderate in 2017-18, but we think it is unlikely that the economy will fall into recession unless there are major new adverse shocks. We assume here 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 2019 without any trade deal or transitional arrangement, so reverting immediately to WTO rules. But clearly this is a key downside risk.

The projected deceleration in growth as compared to 2016 is driven primarily by slower consumer spending growth due to the squeeze on real household incomes from higher inflation. So far consumers have increased borrowing to keep spending growth going at a reasonable pace but, as mentioned earlier, there are limits to how much further this can go.

Table 2.1 - Main scenario projections for UK growth and inflation

% real annual growth unless otherwise stated	2016	2017	2018
GDP	1.8	1.5	1.4
Consumer spending	2.9	1.6	1.1
Government consumption	1.1	0.6	0.7
Fixed investment	1.3	2.2	1.0
Domestic demand	2.1	0.8	1.1
Net exports (% of GDP)	-0.9	0.6	0.3
CPI inflation (%: annual average)	0.7	2.7	2.7

Sources: ONS for 2016, PwC main scenario for 2017-18

Total fixed investment growth has been reasonable this year at an estimated 2.2%, buoyed by increased public sector infrastructure investment, but is expected to slow in 2018 as Brexit-related uncertainty drags on private investment. Overall, UK domestic demand growth is expected to average only around 1% per annum in 2017-18, down from 2.1% in 2016.

Weaker domestic demand growth is expected to be offset to a degree by a positive contribution from net exports in 2017-18, reversing the strongly negative contribution in 2016. This reflects a boost to exports from the recovery in growth in the Eurozone in particular, as well as the relatively competitive level of the pound. However, since net exports are contingent on trade negotiations with the EU, there is considerable uncertainty over whether these positive effects can be sustained beyond the short term.

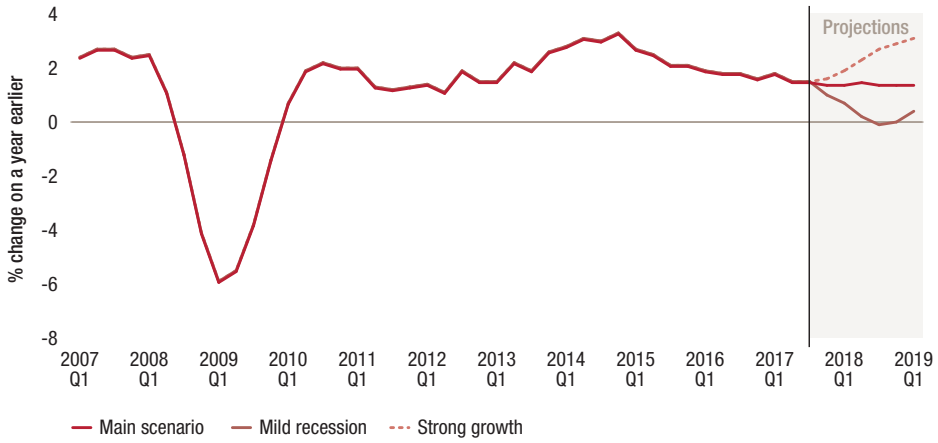
Alternative growth scenarios – businesses need to make contingency plans

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 rebound to around 2.5% on average in 2018. This is a relatively optimistic scenario, which assumes that good early progress is made in UK-EU negotiations next year and that there are strong favourable trends in the global economy, pushing world growth higher in 2018 and boosting UK exports.

- Our **'mild recession scenario'**, by contrast, would see average UK growth drop to close to zero in 2018 as the global outlook worsens and there is little or no progress in negotiations with the EU over the next year, 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. Even in this downside case, however, we do not expect a deep recession of the kind seen in 2008-9, barring some very major new adverse shocks.

Figure 2.6 – Alternative UK GDP growth scenarios



Sources: ONS, PwC 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 appear to be weighted somewhat to the downside given the political and economic uncertainties around Brexit. 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.

At present, risks to growth appear to be weighted somewhat to the downside given the political and economic uncertainties around Brexit.

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

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

Issues	Implications	Questions
Trade	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.	• How much do you rely on EU countries for revenue growth? • Have you reviewed your supply chain to identify the potential impact of tariffs and additional customs procedures on your procurement and logistics? • Have you identified which third party contracts would require renegotiation in different Brexit scenarios (EEA/FTA/WTO)?
Tax	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.	• Have you thought about the impact of potential changes to the UK and EU tax regimes after Brexit? • Have you upgraded your systems to deal with a significant volume of tax changes?
Regulation	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.	• Have you quantified the potential regulatory impact of Brexit to keep your stakeholders up-to-date? • How flexible is your IT infrastructure to deal with potential changes to Data Protection laws? • Is your compliance function ready to deal with any new reporting requirements arising from Brexit?
Sectoral effects	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.	• Have you briefed potential investors on the impact of Brexit for your sector and organisation? • How up-to-date are your contingency plans in place to deal with Brexit? • Are you aware of the impact of potential volatility in financial markets on your capital raising plans?
Foreign direct investment (FDI)	FDI from the EU makes up around 45% of the total stock of FDI in the UK. Brexit could put some of this inbound investment at risk.	• How much do your rely on FDI for growth? • How does Brexit affect your location decisions? • How are your competitors responding to the risk of Brexit? Are they relocating any key functions?
Labour market	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. We discuss possible economic impacts of EU migration changes after Brexit in Section 3.	• How reliant is your value chain on EU labour? • Have you communicated with your UK-based employees who are nationals of other EU countries? What advice should you give them on registering for UK residency? • Have you considered the additional cost of hiring EU labour after Brexit? • Could changes in access to EU labour increase the case for automation?
Uncertainty	Uncertainty has increased since the referendum and this seems likely to continue through the Brexit negotiation period.	• How well prepared are you to manage future volatility in the Sterling exchange rate as Brexit negotiations proceed? • Have you communicated your approach to Brexit to your key stakeholders, customers and suppliers? • Is your organisation ready for a worst-case scenario where there is a prolonged period of uncertainty and/or a 'hard Brexit'?

Source: PwC

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

Output growth projected to moderate in most sectors in 2018

The sector dashboard in Table 2.3 shows latest ONS estimates of growth rates for 2016 along with our projected growth rates for 2017 and 2018 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.

The most marked downward trend in growth is in the distribution, hotels and restaurants sector, which recorded output growth of around 5% in 2016, but could slow to less than 2% growth in 2018 as real consumer spending power is squeezed.

Manufacturing has seen some revival this year due to stronger exports, but may see growth moderate again in 2018 as earlier competitiveness gains from a weak pound fade. Construction was strong going into 2017, which boosts projected average growth this year, but this disguises declining output for the past two quarters. Even if this decline bottoms out, average growth seems likely to be modest in 2018.

Business services and finance growth should remain relatively strong at 1.8% next year, although there are 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[6].

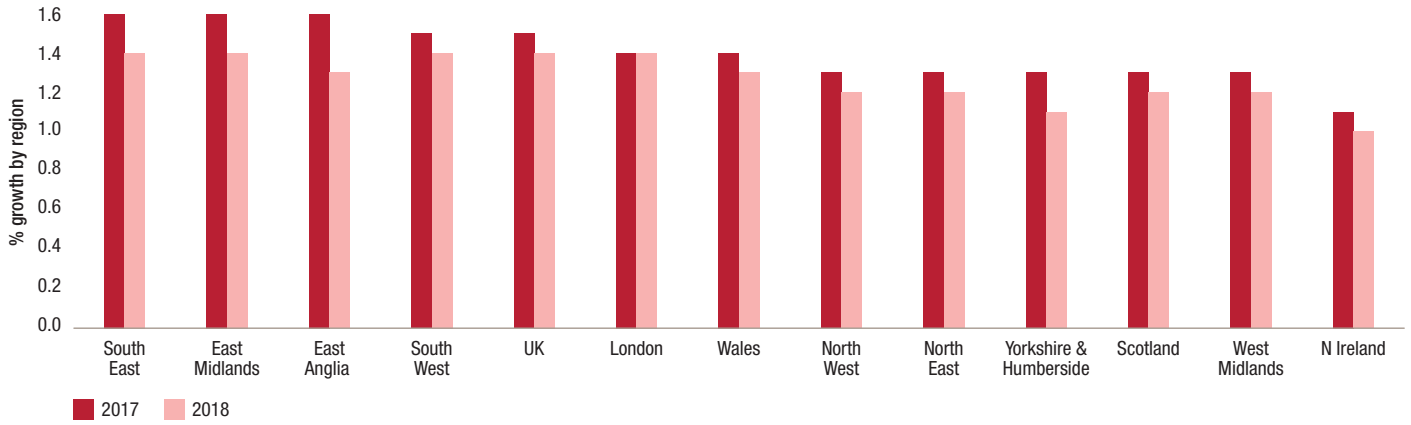
Table 2.3: UK sector dashboard

	Growth			
Sector and GVA share	**2016**	**2017**	**2018**	**Key issues/trends**
Manufacturing (10%)	0.7%	2.1%	1.3%	Manufacturing PMI has been relatively robust in recent months. Exporters have gained from a weaker pound and a stronger Eurozone recovery.
Construction (6%)	2.4%	3.6%	0.5%	Construction PMI has weakened significantly in recent months. The construction sector saw relatively strong growth in the first quarter of 2017, but has declined since then. The government has boosted infrastructure investment to try to offset weakness in commercial construction due to Brexit.
Distribution, hotels & restaurants (14%)	5.1%	2.3%	1.8%	A weaker pound has boosted tourism, both from overseas and domestically, leading to increased expenditure in the hospitality sector. But its broader effect has been to push up import prices and inflation, slowing down real spending growth this year and probably also next year.
Business services and finance (31%)	2.4%	1.5%	1.8%	The financial sector remains particularly concerned about the possible implications of Brexit, especially if a "hard Brexit" occurs with the loss of EU passporting rights. Some banks are preparing to relocate certain functions and thousands of staff overseas, though we have not seen large moves yet. The Bank of England has increased the counter-cyclical capital buffer to constrain consumer debt levels, which may impact lending by retail banks.
Government and other services (23%)	1.5%	1.0%	1.1%	Public services may continue to face real-term cuts for the next few years, though the Budget may see some modest easing of austerity.
Total GDP	**1.8%**	**1.5%**	**1.4%**	

Sources: ONS for 2016 estimates, PwC for 2017 and 2018 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%

6 The potential impact of Brexit on financial services was considered in detail in our April 2016 report for TheCityUK, which can be accessed here: http://www.pwc co.uk/industries/financial-services/insights/leaving-the-EU-implications-for-the-UK-financial-services-sector.html

Figure 2.7 – PwC main scenario for output growth by region in 2017 and 2018



Source: PwC analysis

Regional prospects: all parts of the UK likely to see some moderation in growth in 2017-18 with London no longer leading the pack

In contrast to previous years where London has generally had one of the strongest growth rates of any UK region, our latest projections suggest London's growth rate may fall to close to the UK average in 2017-18 (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[7].

Most other regions are projected to expand at around the UK average of 1.4% in 2018, although Northern Ireland is predicted to lag behind somewhat with growth of around 1% 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.

2.3 – Outlook for inflation and real earnings growth

As mentioned earlier, consumer price inflation (CPI[8]) picked up from just 0.7% on average in 2016 to 3% in the year to September due in large part to the feedthrough from a weaker pound into import prices. The rise in global oil prices from their low point in early 2016 to around $60 a barrel at the time of writing has also played a part here.

Over the next few months, we expect CPI inflation to rise a little further, peaking at over 3% around the turn of this year in our main scenario (see Figure 2.8), but moderating slightly over the course of 2018 as earlier effects from the weak pound fade. Annual average rates of inflation in our main scenario would be around 2.7% both this year and next, but this would disguise a general upward trend during 2017 giving way to a projected gradual decline during 2018.

7 For more on local economic trends see our latest Good Growth for Cities report: https://www.pwc.co.uk/industries/government-public-sector/good-growth.html

8 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

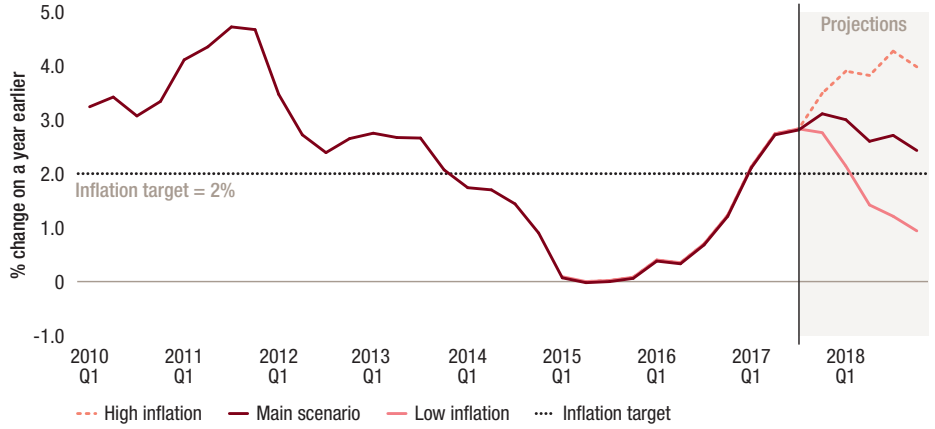
There is always considerable uncertainty over inflation projections as they are particularly sensitive to movements in exchange rates and global commodity prices, both of which are very hard to predict with any confidence. As such, we also present two alternative scenarios for UK inflation in Figure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

- In our **'high inflation' scenario** we project UK inflation to rise to around 4% on average in 2018 as a result of further falls in the pound and a possible pick-up in global commodity prices if other economies grow more strongly and/or oil supply is constrained by producers. Wage growth could also pick up faster than expected in this case.

- 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 below the Bank of England's 2% target rate during the course of 2018.

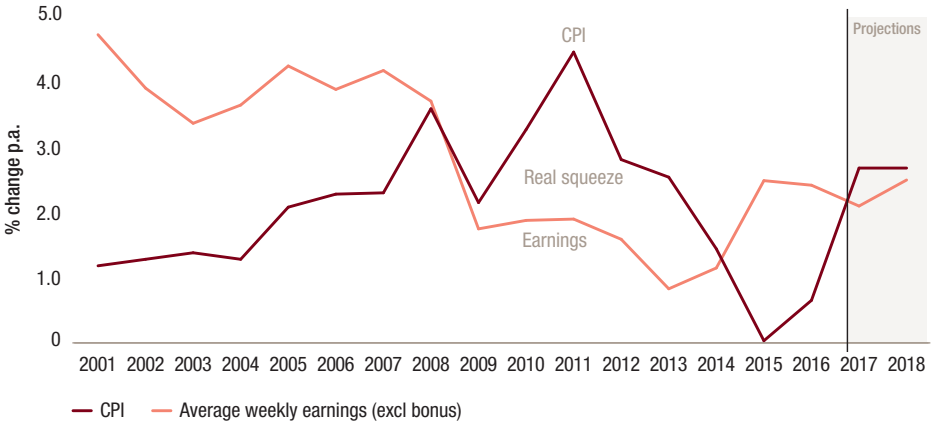
As with our GDP growth scenarios, neither of these two alternative variants is as likely as our main scenario. But given recent volatility and uncertainty, businesses should plan for a broad range of outcomes.

Figure 2.8 – Alternative UK inflation (CPI) scenarios



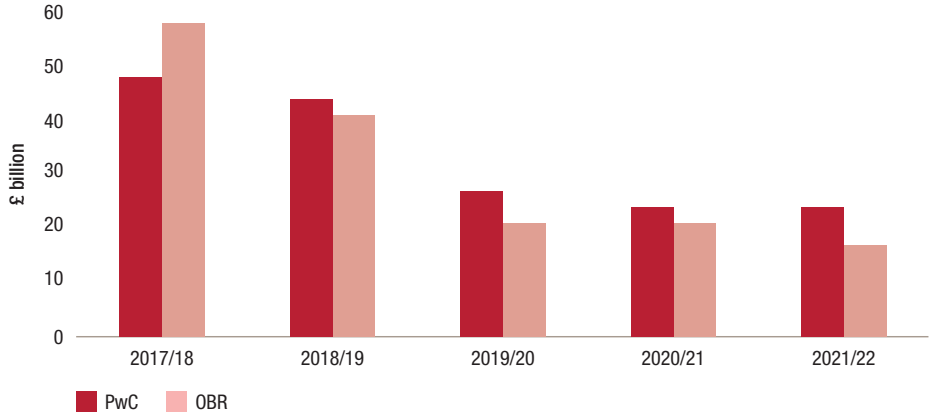
Sources: ONS, PwC scenarios

Figure 2.9 – CPI inflation vs average earnings growth



Sources: ONS, PwC analysis

Figure 2.10 – PwC and OBR public borrowing projections



Sources: OBR (March 2017), PwC main scenario assuming no fiscal policy changes

Real earnings squeeze projected to persist into 2018

As Figure 2.9 shows, real earnings growth was squeezed from 2009-14 but then regained some ground in 2015-16 as low global commodity prices pushed down UK inflation to close to zero. But the real earnings squeeze has resumed this year as wage inflation has failed to pick up in response to higher consumer price inflation.

We expect negative real earnings growth to continue in 2018 (see Figure 2.9), although the squeeze should ease over the course of the year based on our main scenario projections. It is difficult for earnings to pick up unless productivity picks up, which there has not been much sign of so far during this recovery cycle as we discussed in Section 2.1 above.

2.4 – Monetary and fiscal policy options

The Monetary Policy Committee (MPC) voted by a majority of 7-2 at its meeting in November to increase interest rates by 0.25%, the first such increase in a decade. This was to be expected after earlier signals in the September MPC minutes that the majority of the committee were now minded to raise rates at some point over the next few months.

However, the latest MPC minutes suggest that any future rises will be limited and gradual, and will depend on how the data evolve. For 2018, this would suggest only one further quarter point rate rises based on the Bank's latest forecast for UK growth and inflation (which is similar to our own main scenario). So we have not yet seen any dramatic shift in monetary policy that would have a major impact on UK prospects in the short term. The road to normalisation, which may now mean base rates ending up at around 2-2.5% as opposed to the 5% pre-crisis norm, could be long and bumpy.

Table 2.4 - Comparison of PwC and previous OBR public finance projections

	2017/18	2018/19	2019/20	2020/21	2021/22
Real GDP growth (%)					
OBR (March 2017)	1.8	1.6	1.8	1.9	2.0
PwC main scenario	1.5	1.4	1.6	1.7	1.8
Public sector net borrowing (£ billion)					
OBR (March 2017)	58	41	21	21	17
PwC main scenario	48	44	27	24	24
Cyclically-adjusted budget deficit (% of GDP)					
OBR (March 2017)	2.9	1.9	0.9	0.9	0.7
PwC main scenario	2.4	2.1	1.3	1.1	1.0
Public sector net debt (% of GDP)					
OBR (March 2017)	88.8	88.5	86.9	83.0	79.8
PwC main scenario	87.6	87.6	86.4	82.9	80.1

Source: OBR Economic and Fiscal Outlook (March 2017), latest PwC main scenario assuming no tax and spending policy changes

The Chancellor faces some tough choices in the Budget

Since the election in June, the Chancellor has come under significant political pressure to further ease austerity, over and above what he announced in his 2016 Autumn Statement (which was primarily focused on higher infrastructure spending). Public borrowing does look set to come in lower than expected this year, perhaps by as much as £10 billion, but much of this is due to a temporary spending undershoot and, in future years, slower productivity growth may lead to lower tax revenues than the OBR forecast in March.

Our main scenario projection is therefore for a somewhat higher budget deficit of around £24 billion in 2021/22, assuming no new fiscal policy changes, as compared to the OBR's March 2017 forecast of a £17 billion deficit in 2021/22 (see Figure 2.10).

Our fiscal projections, as set out in more detail in Table 2.4, suggest a cyclically adjusted budget deficit of just over 1% of GDP in 2020/21, which would still meet with some margin of comfort the Chancellor's medium term target of getting the structural deficit below 2% of GDP in that year.

If the OBR projections are similar to those in Table 2.4, this would still give the Chancellor some potential scope for selective easing of austerity in his Budget. However, he may want to retain most of this 'wiggle room' for future years given the uncertainties around how the Brexit process will play out and what its economic impact will be.

Nonetheless, we would still expect the Chancellor to find some room for additional spending on priorities like housing[9], health and social care, policing and some selective further relaxation of public sector pay caps. Any such giveaways are, however, likely to be largely offset by 'takebacks' through net tax rises (e.g. further anti-avoidance measures) or spending cuts in lower priority areas.

The Chancellor should be able to afford some such net giveaways while still meeting his medium term targets to get the structural budget deficit below 2% of GDP by 2020 and have the public debt to GDP ratio falling by 2021/22 (albeit still uncomfortably high at around 80% of GDP). His longer term target of eliminating the deficit entirely by the mid-2020s looks much more challenging, particularly given likely rises in age-related spending on health and pensions over this period. But that is a problem for the next Parliament, not for the present Budget.

9 It is worth noting here that the extra £10 billion announced for the 'Help to Buy' scheme at the Conservative Party conference is counted as a 'below the line' financial transaction in the national accounts, and so does not add to annual public sector net borrowing, although it does add to the stock of government debt until the associated loans are repaid. However, if the government allows local authorities to build more social housing, this will add directly to the annual budget deficit.

2.5 – Summary and conclusions

UK economic growth has slowed this year to around 1.5% as inflation has squeezed consumers and Brexit-related uncertainty has dampened business investment growth. There has been some offset from a stronger global economy, but not enough to keep UK growth from falling below its long term trend rate of around 2%.

In our main scenario, we expect this period of modest, sub-trend growth to continue in 2018, with GDP growth down to around 1.4% and real consumer spending growth to just over 1%.

The impact of slower growth will be felt across most major industry sectors, although manufacturing exports are receiving a short-term boost from the depreciation of the pound and recent stronger Eurozone growth.

London is projected to see a particular moderation in growth in 2017-18 due to increasing uncertainties over Brexit, bringing it back into line with the average of other UK regions.

After the interest rate rise by the MPC in November, it seems likely that further rate rises will be limited and gradual, with perhaps just one more increase during 2018.

The Chancellor may ease up on austerity a little in his Budget by allocating more money to priority areas like health and housing. But he remains constrained by fiscal circumstances and the need to keep some ammunition in reserve to deal with any future Brexit-related economic turbulence, so any giveaways in the Budget on 22 November may be largely offset by takebacks.

It is important to note that there are considerable uncertainties around any such projections at present. So organisations should stress test their business and investment plans against alternative economic scenarios and also review the potential wider implications of Brexit for all aspects of their operations.

3 – How might lower EU migration affect the UK economy after Brexit?[1]

Key points

- EU migrants have played an increasing role in the UK economy since enlargement of the EU in 2004, with particularly large impacts on London and certain sectors such as food manufacturing, hotels and restaurants, warehousing and construction.
- Highly skilled EU migrants also play a key role in sectors like finance, business services, technology, healthcare, academia and the arts.
- As an illustration, we have considered the economic impact of a recent ONS population scenario in which future EU migration is reduced by 50%. Our modelling work suggests that reduced migration of this scale could decrease the level of UK GDP in 2030 by around 1.1%, or around £22 billion at 2017 GDP values.
- However, a better measure might be the impact on average GDP per capita in 2030, which we estimate to be reduced by around 0.2%, or around £60 per person at 2017 GDP values, in this scenario.
- In the long run, efforts could be made to fill skill gaps from reduced EU migration through enhanced training of UK nationals and automation. But, realistically, such alternatives are unlikely to make up fully for any large reduction in EU migrant workers over the next 5-10 years.
- Government policy decisions on the post-Brexit EU migration regime need to take full account of these considerations.

Introduction

Net migration from the UK to the EU has risen rapidly since enlargement of the EU in 2004 and now forms an important part of the labour force in many industry sectors in the UK. While non-EU migrants have faced tighter controls in recent years, there have been no such restrictions on EU migration. As a result, migration from the EU became an increasing proportion of total net inflows to the UK in the run-up to the EU referendum in June 2016, though it has fallen back somewhat since the Brexit vote.

At present, it remains unclear exactly how Brexit will affect future migration from the EU to the UK, but the general assumption is that the government will impose some degree of tighter controls on this, at least after some transitional period. Even before any such changes in the legal regime, however, net migration from the EU has fallen since the Brexit vote in June 2016 as Figure 3.1 shows, so the referendum result already seems to be having an effect, although other factors (e.g. stronger growth in some other EU economies) could also be playing a part here.

In this article, we contribute to the debate on this topic by reviewing past trends in UK migration and existing studies on the economic impacts this has had on the UK economy. We then go on to present updates of earlier PwC Computer General Equilibrium (CGE) model projections of how alternative future migration regimes could affect the UK economy (as measured by both GDP and GDP per capita) after Brexit.

The discussion is organised as follows:

- Section 3.1 reviews past trends in UK migration (from the EU and elsewhere)
- Section 3.2 reviews previous studies on the economic impact of migration
- Section 3.3 presents our own updated model estimates of the economic impact of alternative post-Brexit migration scenarios to 2030
- Section 3.4 summarises and draws conclusions from the analysis.

Further details of the modelling methodology and assumptions are contained in a technical annex at the end of the article.

1 It is worth noting here that the extra £10 billion announced for the 'Help to Buy' scheme at the Conservative Party conference is counted as a 'below the line' financial transaction in the national accounts, and so does not add to annual public sector net borrowing, although it does add to the stock of government debt until the associated loans are repaid. However, if the government allows local authorities to build more social housing, this will add directly to the annual budget deficit.

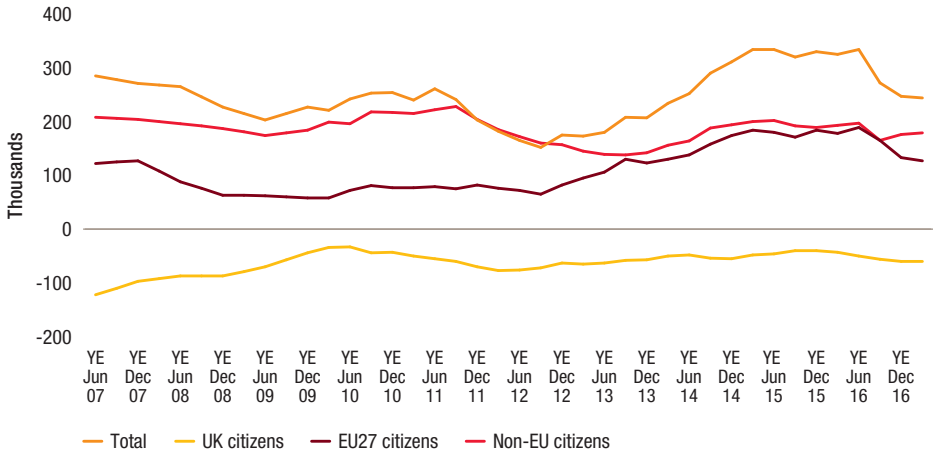
3.1 – Past trends in UK migration

Net migration to the UK was relatively low until 1997 but then started to pick up, accelerating after 2004 when Poland and other Central and Eastern European countries (EU8) with relatively low income levels joined the EU. At the time, the UK economy was doing well and this generated much larger net flows of EU workers to the UK in 2004-7.

As Figure 3.1 shows, there was a notable drop in net migration to the UK from 287,000 in the year to June 2007 to a recent low point of 160,000 in the year to September 2012 as the financial crisis hit both the pound and labour demand. But net migration then picked back up again to over 330,000 in 2015 as the economy and, in particular, the jobs market recovered faster in the UK than elsewhere in the EU. The accession of Romania and Bulgaria (EU2) to the EU also drove a further rise in net migration in 2015-16.

The rise in EU migration has offset more subdued net inflows from non-EU countries in recent years as immigration regimes have been tightened for non-EU migrants. Since mid-2016, however, net migration has fallen back to 246,000 in the year to March 2017, which the ONS assesses to be a statistically significant decline from a peak of 336,000 in the year to June 2016. This appears to be particularly focused on more EU8 migrants leaving the UK, only partly offset by a continuing flow of migrants to the UK from the EU2.

Figure 3.1 – Trends in long-term net international migration to the UK



Source: ONS

Various factors could explain this trend, including the weaker pound making the UK less attractive as a place to work, the post-referendum political environment seeming less positive and more uncertain as regards attitudes to EU migrants and a recovery in other EU economies while the UK has slowed somewhat. Given that, at the time of writing, we only have three quarters of a year of post-referendum data, it is not possible to distinguish between these factors with any precision, but it is plausible that all have had an influence to some degree.

Which UK sectors and regions are most reliant on European migrant workers?

Work is the most important reason for immigration to the UK, particularly for EU migrants, and has the most significant impact on the UK economy as a whole (although overseas students are also very important for British universities and English language schools).

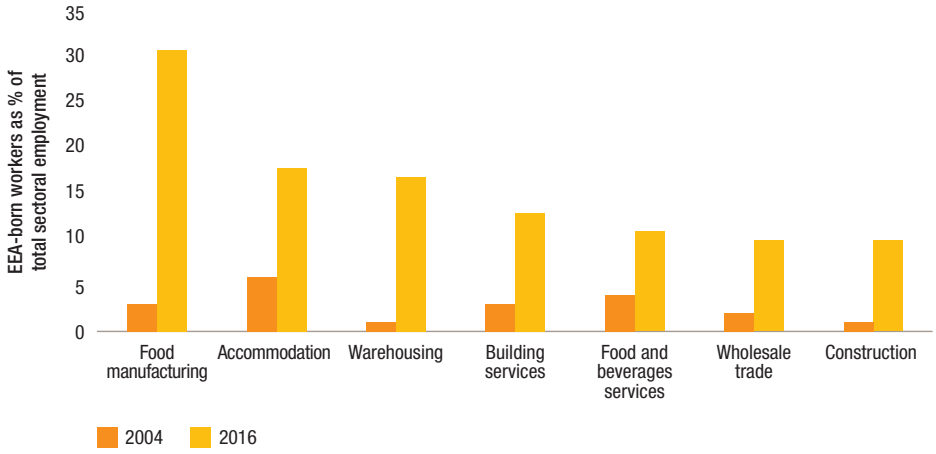
Workers born in other European Economic Area (EEA[2]) countries now account for around 7% of total UK employment, up from around 2% in 2004. However, as illustrated in Figure 3.2, some sectors have become heavily reliant on EEA workers since 2004. In food manufacturing, almost a third of the workforce in 2016 was EEA-born, while it is around 10-20% in a range of other sectors including accommodation (18%), warehousing (17%), food and beverage services (13%) and construction (10%).

There are also marked differences in the share of EEA-born workers at a regional level, as shown in Figure 3.3.

London has more than twice the proportion of EEA-born workers (14% vs the UK average of 7% in 2016) and this has doubled since 2004, but some other regions have seen even greater proportional increases. Wales is the part of the UK with the lowest reliance on EEA-born workers, though even there it has risen significantly since 2004.

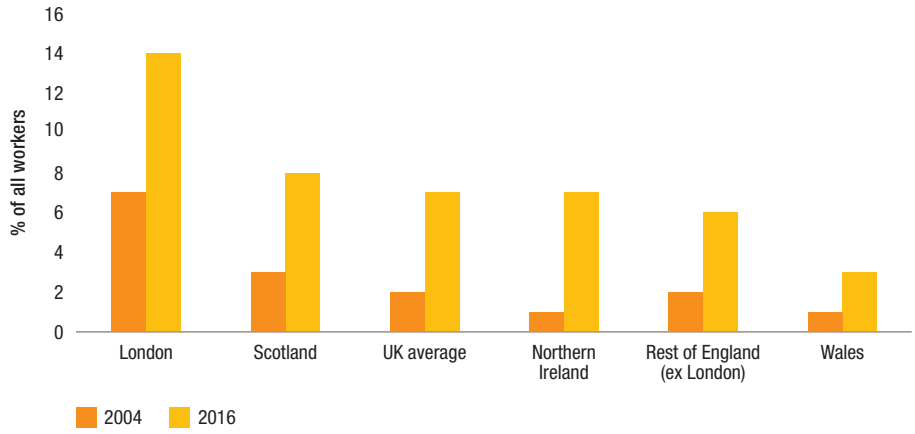
Further analysis of the figures reveals some sectoral concentrations within regions. In particular, in 2016 almost 30% of construction workers in London were EEA migrants and over 35% of accommodation and food services workers in London were from EEA migrants. So these industries in London could potentially be hard hit by any significant post-Brexit restrictions on inward migration from the EEA.

Figure 3.2 – UK industry sectors with highest reliance on EEA-born workers



Source: ONS Labour Force Surveys

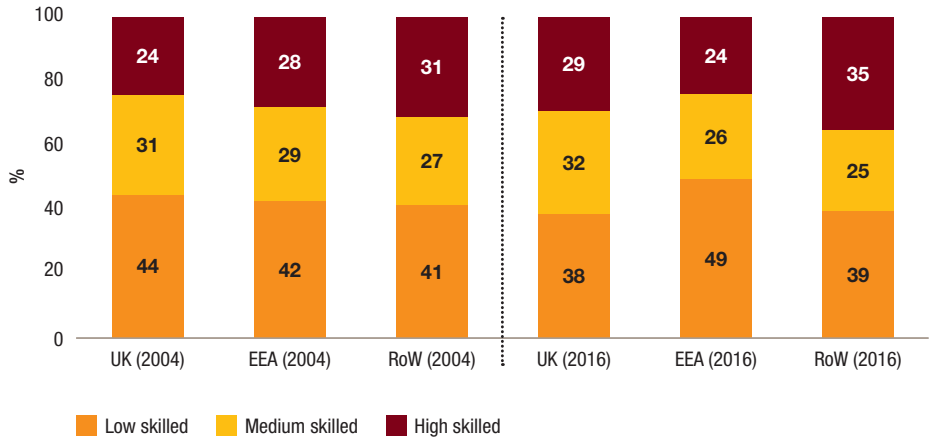
Figure 3.3 – Share of workers that are EEA-born by region (%)



Source: ONS Labour Force Surveys

2 As well as the EU, the EEA also includes Iceland, Liechtenstein and Norway.

Figure 3.4 – Relative skills mix of UK-born, EEA-born and Rest of World-born workers in UK (2004 and 2016)



Source: ONS Labour Force Surveys (low skilled = NQF 1-2; medium skilled = NQF 3-4; high skilled = NQF 5+

As shown in Figure 3.4, EEA-born workers have a range of skill levels, as for UK-born workers and those born outside the EEA.

The skill mix was fairly similar across the UK, the EEA and the rest of the world in 2004, although somewhat more weighted to higher skilled migrants from outside the EEA. By 2016, however, the skill mix for EEA-born workers has shifted to becoming more focused on lower skilled workers (NQF1-2), which made up almost half of all EEA-born workers in that year, as compared to just under 40% for workers born in the UK or outside the EEA.

Nonetheless, around a quarter of EEA workers were in the high skilled category in 2016. This includes many critical workers in sectors such as financial and professional services, technology, academia, medicine and the arts. As discussed further below, any reductions in the numbers of such workers due to limitations on recruiting them after Brexit could have particularly negative implications for longer term UK productivity and international competitiveness in these sectors.

Other statistics on total UK migration of relevance to pressure on health and education systems are that:

- New GP registrations by migrants in England and Wales rose from 534,000 in 2005 to 731,000 in 2016, although the latter was still just 1.3% of the total resident population in that year. Since many migrants are relatively young, however, particularly those from other EU countries, this may not necessarily translate into significantly greater pressure on GP services. In addition, of course, the NHS relies heavily now on doctors and nurses from other EU and non-EU countries.

- The proportion of total UK live births to mothers born outside the UK rose from around 20% in 2005 to around 27% in 2016. This would initially have implications for demand for NHS services and later for education demand if the children remain in the UK.

3.2 – Previous assessments of the economic impact of migration

There have been a number of previous studies of the economic impact of migration to the UK, as summarised, for example, in a Migration Advisory Committee (MAC) briefing note published in August 2017[3] to accompanying a call for evidence on post-Brexit migration policy.

A study by Nickell and Saleheen[4] published by the Bank of England in December 2015 found that there were negative but relatively small effects of increased migration on the average wages of native UK workers, particularly at the lower skilled end of the labour market. But the effects for the wages of higher skilled native workers could be positive, reflecting the fact that their skills were more likely to be complementary to, rather than substitutable by, migrant workers.

An earlier 2014 MAC study[5] focused on lower skilled workers found similar results in terms of wages. It also considered whether increased migration of lower skilled workers would allow prices to be kept lower, so benefiting UK consumers, but found the net impact on average prices to be 'minute' after allowing also for the fact that migrant workers would also add to the demand for consumer goods in the UK, so pushing up prices to some degree.

There have also been a number of studies on the impact of migration on the UK public finances as surveyed by Vargas-Silva (2017)[6]. The general conclusion is that the overall fiscal impact of migration has been small, but tends to be more positive for EEA migrants than non-EEA migrants[7]. This reflects the fact that EEA migrants tend to be working and so paying taxes, while also being relatively young and so putting less pressure on the NHS and other public services. However, this could change in the long run if migrants make their home in the UK, start families and eventually grow old. In the shorter term, however, the net fiscal impact of restricting EEA migration seems likely to be negative according to these studies, and this is also the conclusion from previous OBR projections using different migration assumptions.

There are also studies that suggest some types of higher skilled migration can boost long-term productivity growth through increased entrepreneurial activity, innovation and trade. As discussed in Portes and Forte (2017)[8], this could translate into significant long-term losses in GDP if there were significant restrictions on higher skilled EEA migration to the UK after Brexit.

So far, most of the policy discussion has focused more on potential restrictions to lower skilled migration, where the productivity implications may be less significant. But there could still be significant negative implications for those sectors (see Figure 3.2 above) that make extensive use of lower skilled EEA migrants such as food manufacturing, hotels and restaurants, warehouses and construction companies.

These negative effects would be particularly severe in the hospitality, healthcare and construction sectors in London, as confirmed by PwC discussions with businesses in the capital. In construction, for example, around 30% of London workers are (non-UK) EEA nationals and 20% non-EEA nationals, while a fifth of UK-born workers are due to retire in the next five years and there are now around 60,000 vacancies in the industry in London. More broadly, in a recent study[9] for London First, we estimated that London's 1.8 million migrant workers contribute around £83 billion to the capital's economy (c.22% of London's annual Gross Value Added).

Future EU migration controls would also hit other UK regions where sectors like food manufacturing and seasonal agricultural work are focused.

In summary, the evidence from past studies suggests some potential negative economic impacts from restricting EU/EEA migration to the UK after Brexit. But different studies reach different conclusions as to the magnitude of these effects and they will vary by sector and region.

To explore this further, we present in the next section of this article our own latest model projections of the potential impacts on UK GDP and GDP per capita of alternative future EU migration scenarios.

3 Migration Advisory Committee, 'EEA workers in the UK labour market', August 2017: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/636286/2017_08_08_MAC_Briefing_paper.pdf
4 Nickell and Saleheen (2015): http://www bankofengland co.uk/research/Documents/workingpapers/2015/swp574.pdf
5 Migration Advisory Committee (2014): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/333083/MAC-Migrants_in_low-skilled_work__Full_report_2014.pdf
6 Vargas-Silva (2017): http://www.migrationobservatory.ox.ac.uk/resources/briefings/the-fiscal-impact-of-immigration-in-the-uk/
7 However, these studies were mostly done before the International Health Surcharge was introduced for non-EEA migrants, which will have increased their net fiscal contribution.
8 Portes and Forte (2017): http://voxeu.org/article/economic-impact-brexit-induced-reductions-migration-uk
9 'Facing Facts: the impacts of migrants on London, its workforce and its economy' (March 2017): http://londonfirst.co.uk/wp-content/uploads/2017/03/Facing-Facts-The-impact-of-migrants-on-London-its-workforce-and-economyFINAL.pdf

3.3 – PwC model estimates of the economic impact of alternative post-Brexit migration scenarios

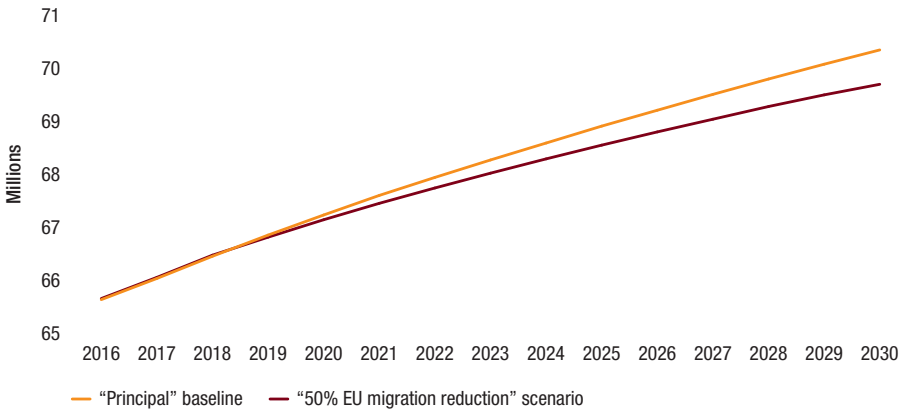
The ONS recently updated their UK population projections[10] and provided a number of variants for different migration scenarios. We have used our Computable General Equilibrium (CGE) model[11] to assess the impact that two of these scenarios would have on the UK economy. This updates an analysis we conducted in March 2016 before the EU referendum[12].

For our baseline scenario, we use the ONS "principal projection". This is their central case and, although it does not make any explicit assumptions on the change in migration expected due to the UK's decision to leave the EU, it does assume that long term international net migration will be 20,000 per year lower than in the previous (2014-based) ONS principal projections (i.e. 165,000 per annum rather than 185,000 per annum from 2023 onwards).

Our second scenario is based on the ONS "50% future EU migration reduction" variant. As the name suggests, this projection assumes a 50% decrease in net EU migration from mid-2019 onwards, spread across sex and age categories (with equal percentage falls in both inflows and outflows). Non-EU migration is assumed to be as in the ONS principal projection. This scenario does not attempt to model future migration policy after Brexit in relation to, in particular, rebalancing the skills mix of EU and non-EU migrants.

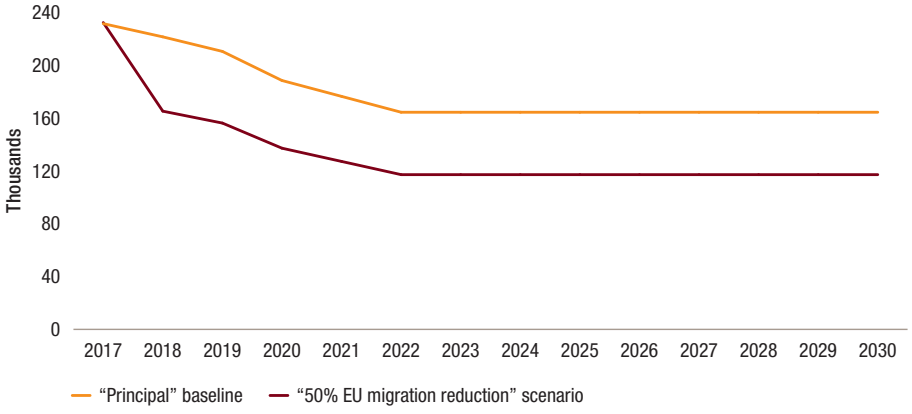
Estimated net long-term migration (EU and non-EU) falls to 117,000 per annum from 2023 in this alternative ONS scenario.

Figure 3.5 – UK population projections in the "Principal" baseline and "50% EU migration reduction" scenario



Source: ONS population projections (October 2017)

Figure 3.6 – Net migration projections in the "Principal" baseline and "50% EU migration reduction" scenario



Source: ONS population projections (October 2017)

10 For details of the latest ONS populations projections published on 26 October 2017 see: https://www ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2016basedstatisticalbulletin
11 See technical annex for further details of our CGE model
12 PwC, 2016. Leaving the EU: Implications for the UK economy

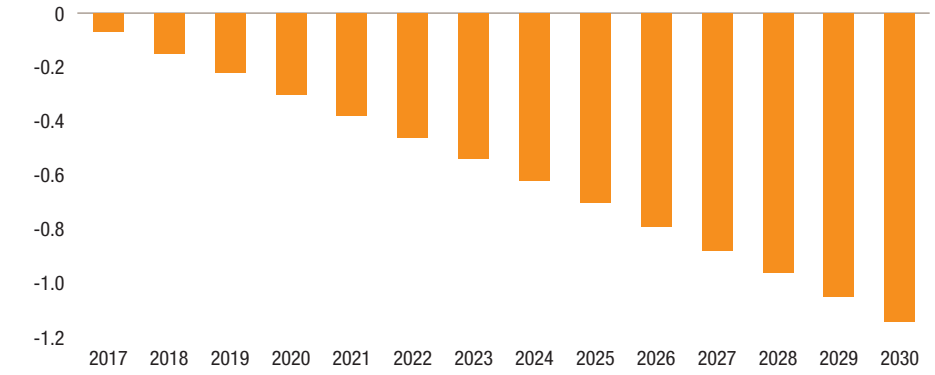
Although a 50% reduction might seem like a relatively extreme case for EU migration, it would still leave total migration slightly above the government's ultimate objective of getting this down to the 'tens of thousands'. So it is not unreasonable to consider this as an illustration of what a much tighter post-Brexit regime for EU migrants might imply in terms of total numbers (though it does not capture potential changes in the skills mix of migrants as we discuss further below in relation to the limitations of the analysis).

We present the overall UK population projections under each scenario in Figure 3.5. The difference between the scenarios is driven solely by migration, as factors such as the fertility and mortality rates are held constant between these two scenarios.

Figure 3.6 shows how net migration to the UK varies over time in these same two scenarios.

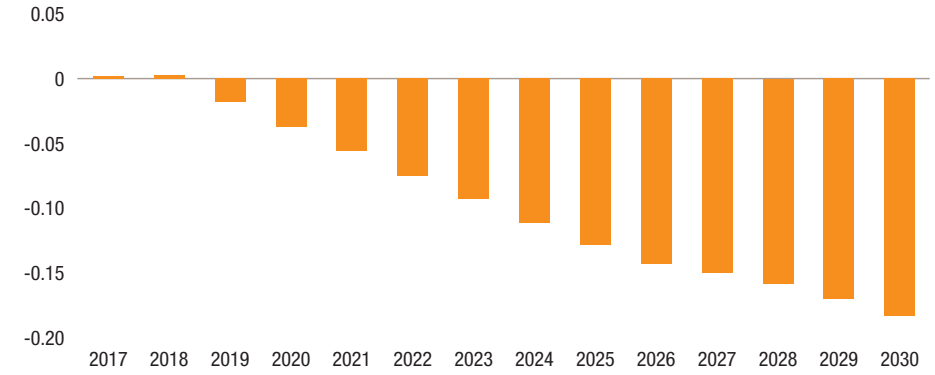
We then used our CGE model to forecast the impact of these alternative population scenarios on GDP, allowing also for the more detailed breakdowns by age group provided by the ONS. As shown in Figure 3.7, we estimate that GDP would be around 1.1% lower in the "50% EU migration reduction" scenario than the baseline scenario, equivalent to around £22 billion per year at estimated 2017 GDP values. In directional terms, this result is to be expected: an economy with more workers produces more output, so a reduction in population as a result of more tightly controlled immigration would be expected to reduce total GDP.

Figure 3.7 – % Difference in GDP between the "Principal" baseline and "50% EU migration reduction" scenario



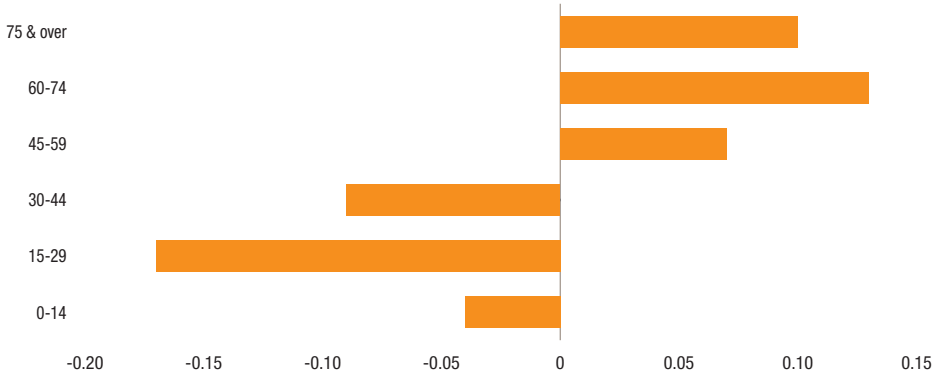
Source: PwC analysis based on ONS population projection variants

Figure 3.8 – % Difference in GDP per capita between the "Principal" baseline and "50% EU migration reduction" scenario



Source: PwC analysis based on ONS population projection variants

Figure 3.9 – Percentage point difference in 2030 in the proportion of the population in each age-group between the "Principal" baseline and "50% EU migration reduction" scenario



Source: PwC analysis based on ONS population projection variants

By contrast, the impact of lower migration on average output per person, as measured by GDP per capita, is less obvious. However, our analysis, as presented in Figure 3.8, suggests that a cut to EU migration would also reduce average GDP per capita, albeit by a much smaller proportion of around 0.2% by 2030, which is equivalent to around £60 per person at 2017 GDP per capita values.

This result is driven primarily by the fact that EU migrants tend mostly to be younger workers, rather than retired people. The change in the proportion of the population in each age-group in 2030 in the 50% EU migration reduction variant is shown in Figure 3.9.

We can see that the 15-44 age group, who will mostly be working, is relatively smaller as a share of the total population in the EU migration reduction variant, whereas the number of older people is relatively higher. This means that lower EU migration tends to reduce the ratio of workers to the total population, which also tends to reduce GDP per capita.

Limitations of the analysis

We should recognise that there are some limitations to this analysis. First, we are assuming here – in line with the ONS scenario considered - that the EU migrants who no longer come to the UK (or leave the UK if they are already here) will, on average, have the same skill levels as the workers that remain. As Figure 3.4 above shows, this may not be entirely representative of the current EU migrants in the UK, who on average tend to have slightly lower qualification levels than UK-born workers according to the ONS Labour Force Survey for 2016. Future migration policy after Brexit may well also be geared towards rebalancing overall migration towards higher skilled workers, although we don't yet know in any detail what post-Brexit migration policy will be and so have not tried to model it here.

Second, the model does not pick up the potential benefits of lower EU migration in terms of reduced pressure on transport systems, housing and key public services such as health and education. On the other hand, the model also does not pick up in sector-specific detail the significant negative effects that losing EU workers would have on many of these same sectors, whether they be doctors and nurses in the NHS, teachers in schools, or construction workers helping to build new houses, railways and roads.

3.4 – Summary and conclusions

Our analysis has shown that EU migrants have played an increasing role in the UK economy since 2004, with particularly large impacts on London and certain sectors such as food manufacturing, hotels and restaurants, warehousing and construction. High-skilled EU migrants also play a key role in sectors like finance, business services, technology, healthcare, academia and the arts.

As a quantitative illustration, we have modelled the economic impact of a recent ONS population scenario in which future EU net migration is reduced by 50%. Our analysis suggests that this could reduce the level of UK GDP in 2030 by around 1.1%, or around £22 billion at 2017 GDP values.

However, the fact that a lower population due to reduced migration leads to a lower level of GDP is not surprising. A better measure might be the impact on average GDP per capita in 2030, which we estimate to be reduced by around 0.2%, or around £60 per person at 2017 GDP values, in this scenario.

Any such model estimates have their limitations, and the net impacts on GDP per capita are relatively small compared to the many other uncertainties about average UK income levels in 2030. Indeed, based on earlier analysis[13], the potential negative trade implications of a 'no deal' scenario where the UK had to fall back on WTO rules for its future trade with the EU27 would be worse than any negative impacts from migration changes.

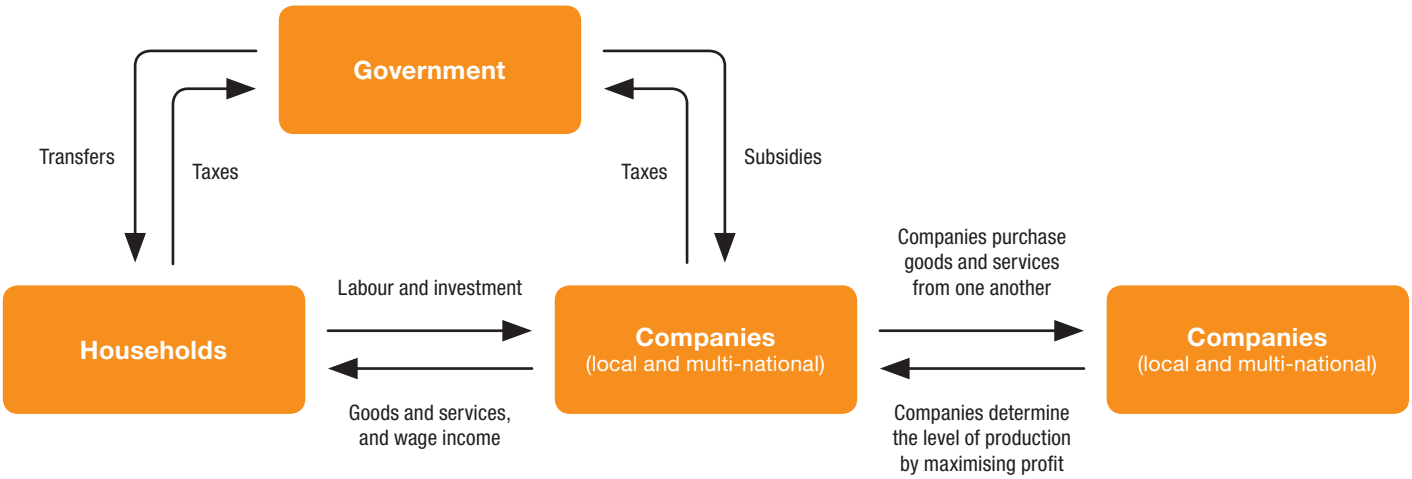
Nonetheless, our analysis makes clear that unduly restricting future migration from the EU could have disproportionate effects on some industry sectors and regions. In the long run, efforts could be made to fill skill gaps left by reduced EU migration through enhanced training of UK nationals, and automation might also be a solution in certain sectors if we look 10-20 years ahead. But, realistically, such alternatives are unlikely to make up fully for any large reduction in EU migrant workers over the next 5-10 years. Government policy decisions on the post-Brexit EU migration regime need to take full account of these considerations.

Our analysis makes clear that unduly restricting future migration from the EU could have disproportionate effects on some sectors and regions.

13 PwC (2016), 'Leaving the EU: Implications for the UK economy': https://www.pwc co.uk/services/economics-policy/insights/implications-of-an-eu-exit-for-the-uk-economy.html

Technical annex
CGE modelling methodology and key assumptions

Figure 3.10 – A high level overview of how our CGE model works



Source: PwC

We have used a computable general equilibrium (CGE) model to estimate the impact of alternative future EU migration scenarios on the UK economy. CGE models are empirical tools used to capture the overall ('general equilibrium') impact of a shock (such as a policy decision) on the economy. Over the past 25 years, CGE modelling has become a standard approach to applied economic analysis, and an established tool to evaluate key policy decisions in the UK. Such models are widely used by government bodies such as HM Treasury and other international institutions such as the World Bank, IMF and OECD.

CGE models combine economic data and a complex system of equations to capture the economic interactions between the three main institutions in an economy – households, businesses and the government (see Figure 3.10).

Each institution is defined and linked through labour market or capital market flows, household consumption, intermediate product demand, taxes or government transfers. These micro-economic interactions are aggregated by the model and provide the foundations for the macro-economic relationships in the model.

CGE models assume that, in equilibrium, demand and supply in each market and sector in the economy is balanced. Hence, they simultaneously "solve" for all markets, institutions and factor resources to find the state of the macro-economy in which all the micro-interactions have worked through to equilibrium (this is what we mean by 'general equilibrium'). The model uses appropriate economic theory (the functions) for each interaction, combined with historical empirical data (the inputs) to achieve this.

Our model features the supply chain interactions of different industries in the economy based on the 2014 Supply and Use Tables for the UK compiled by the Office for National Statistics (ONS). The population projections we use as inputs into the model are also the latest published by the ONS (on 26 October 2017). The only input assumptions we vary in the model are the total population and the total workforce. This implicitly takes into account differences in age distributions, fertility rates and migration rates in the two ONS population projection variants we consider.

4 – The Twin Puzzles – Disappointing UK Trade and Productivity Performance[1]

Key points

- Since the Global Financial Crisis, the UK has been one of the better performers in terms of economic growth relative to the other G7 economies, with GDP increasing on average by close to 2% a year, a creditable record in the post-crisis "new normal" economic climate. But export and productivity performance has been less impressive – at or close to the bottom of the G7 league table.

- There has been a general slowdown in productivity growth across the major industrialised economies after the crisis. This reflects some combination of long-term structural factors, the unintended consequences of policies designed to cushion the impact of the financial crisis (including monetary policy), and a lack of investment of various forms.

- In the case of the UK, however, the lacklustre performance of the financial sector and property-related activities has also exerted a further drag on productivity growth. The impact of this drag on performance relative to the period before the financial crisis is reinforced by the fact that the same sectors provided a boost to productivity growth as the world economy expanded and trade opportunities increased in the 1990s and the first half of the 2000s.

- Disappointing UK export performance can also be attributed to a similar pattern in key services industries including financial services. Services exports boosted UK trade performance before the financial crisis, but have been very lacklustre since.

- There is no easy quick fix to address these issues, and a devalued exchange rate is not offering a significant boost to either trade performance or productivity. A modern industrial strategy which seeks to improve the conditions in which all businesses operate in the UK is likely to prove a more successful approach, but it needs to be pursued as a long-term strategy that will yield long-term dividends. This should be focussed on improving access to skills, developing better transport networks, providing stronger incentives to invest and innovate, and creating the conditions for more balanced regional growth.

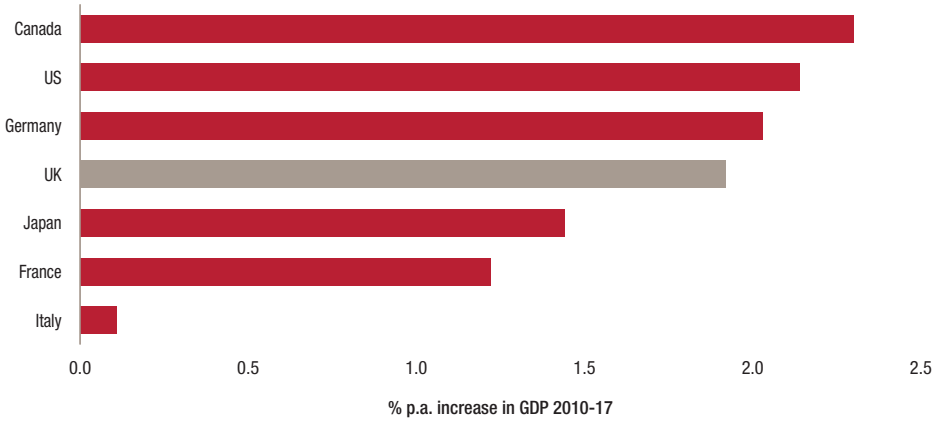
Introduction

We are now into the ninth year of economic recovery – both in the UK and globally. The turning point when most economies moved into a recovery phase after the Global Financial Crisis was around the middle of 2009. So this summer marked the 8th anniversary of that turning point, taking us into the ninth year of economic expansion.

The economic recovery has been very uneven across different advanced economies, however. Figure 4.1 shows the experience of the G7 economies in the eight years 2010-17, using the IMF's latest forecasts for this year. The fastest growing economy has been Canada, recording an average real GDP growth rate of 2.3 percent, and the slowest growing has been Italy, averaging just 0.1%. This is a massive difference – if Italy had enjoyed the same rate of growth as Canada, its GDP would now be nearly 20% larger than its current value.

1 This article was written by Andrew Sentance, senior economic adviser at PwC.

Figure 4.1 – G7 economic growth in current recovery



Source: IMF World Economic Outlook, October 2017

Over the course of the recovery, the UK economy has been in the middle of the G7 league table for economic growth - though it is one of four major industrialised economies which have achieved an annual average GDP increase of around 2% or more. But there have been two – possibly related - aspects of UK economic performance which have been more disappointing: trade and productivity growth. UK export volumes have grown more slowly than any other G7 economy in the eight years of recovery so far – despite the potential boost provided by a substantial currency devaluation. The UK also has the largest current account deficit as a percentage of GDP within the G7.

Meanwhile, productivity growth has been the second slowest of the G7 economies (only ahead of Italy) –though all the major industrialised nations have experienced sluggish productivity increases in the current recovery.

This article examines the evidence on these "twin puzzles" facing the UK economy and discusses how economic policy should respond. In particular, we consider the role of a "modern industrial strategy" in addressing the UK's disappointing trade and productivity performance. Section 4.1 reviews UK economic growth and productivity growth over the economic recovery so far. Section 4.2 looks at the widely-discussed "productivity gap" between the UK and other major economies. Section 4.3 reviews the reasons for disappointing UK trade performance. And finally Section 4.4 discusses the implications for economic policy and industrial strategy.

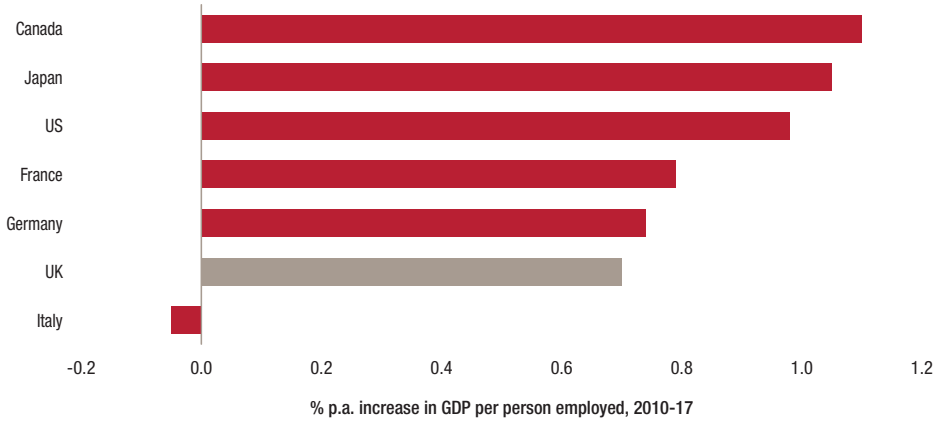
4.1 – Growth and productivity performance

Economic growth across the richer industrialised countries in the world has been much slower in this recovery than in previous economic cycles. In the first eight years of the 1980s recovery (1981-88), G7 economic growth averaged 3.2 percent. The average rate of G7 GDP growth in the first eight years of the 1990s recovery (1992-99) was 2.6 percent. But economic growth is now expected to average just 1.8 percent in the first eight calendar years of the current economic expansion – 2010-17[2].

A key feature of this slower economic recovery has been disappointing productivity growth. Employment across the G7 has increased at a respectable rate - by nearly one percent per annum, and the average unemployment rate has fallen to 5% - the lowest level recorded since the 1970s. The UK has been an above average performer in terms of jobs growth over this period. But even the best-performing G7 economies have struggled to achieve productivity growth much above 1% per annum over the eight years of recovery so far, as Figure 4.2 shows. This compares with around 2 percent average G7 productivity growth in the equivalent phase of the 1980s and 1990s recoveries.

The UK is therefore not alone in suffering a slowdown in productivity growth, though it has been one of the poorer performers as Figure 4.2 shows: UK GDP per person employed has risen over this recovery by an average of just 0.7% per annum, about a third of the longer-term average rate of increase of just over 2%.

Figure 4.2 – Productivity growth in G7 economies



Source: IMF World Economic Outlook, October 2017

How do we account for this productivity slowdown, which has been particularly noticeable in the UK economy? In the early days of the economic recovery it was tempting to blame it on the shock of the financial crisis. But over eight years into a sustained economic expansion, that explanation looks rather weak. In a recent review of its forecasting performance, the UK Office for Budget Responsibility[3] highlighted three main hypotheses.

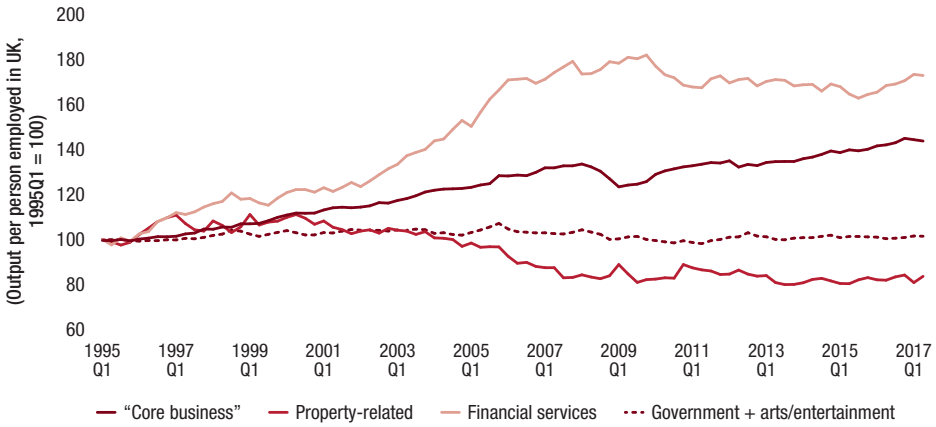
First, a prolonged period of extremely low interest rates has dampened the incentive to move resources around the economy to find higher returns. In particular, the shake-out of labour we have seen in previous recessions did not take place, and many employees (including migrant workers) have been kept on in low-wage low-productivity jobs which might not have been sustainable if the normal forces of "creative destruction" had been allowed to play out after the financial crisis.

Second, business investment has been very subdued in this recovery – and possibly this might also reflect weakness in other forms of intangible investment, such as training innovation. Investment, skills and innovation are key drivers of economic growth, so weak investment in these areas would be a dampener on productivity increases.

Third, there may be long-term structural factors underpinning a productivity slowdown in the UK and other major economies. The UK economy and other major industrialised economies are becoming more services-oriented, and services industries have tended to demonstrate lower productivity growth than manufacturing, partly because the delivery of a service is often intrinsically labour-intensive. This idea was popularised by the economist William Baumol in the 1960s and became known as "Baumol's cost disease" – reflecting the tendency of the cost of services to rise faster than goods.

2 Figures taken from October 2017 IMF World Economic Outlook and include the IMF's forecasts for 2017.
3 http://budgetresponsibility.org.uk/fer/forecast-evaluation-report-october-2017/

Figure 4.3 – Divergent UK productivity trends



Source: PwC calculations based on ONS data for output per job

These explanations may have all played a part in the productivity slowdown, but one other factor has been overlooked in the UK's case. The financial sector and property-related activities played a major part in supporting UK productivity growth in the 1990s and in the 2000s before the financial crisis. As Figure 4.3 shows, productivity in both of these sectors has stagnated or gone into reverse since the mid-2000s. In short, the financial and property sectors provided a boost to UK productivity growth before the financial crisis – based on the global credit boom which artificially inflated economic growth across many western economies. This productivity boost has now run out of steam and reversed. In addition, within the financial sector, the increased burden of regulation in response to the financial crisis has played a part in creating a drag on productivity growth.

By contrast, the productivity growth performance of most non-financial businesses has recovered reasonably well since 2009. Figure 4.3 also shows a measure of "core" non-financial business sector productivity growth based on 9 sectors which account for 55% of GDP and 90% of non-financial business output in the UK[4].

This measure shows that there was a significant hit to productivity in 2008-9. But the productivity growth rate for this diverse group of activities has recovered to broadly the same rate as it was before the crisis. From 1990 to 2007, productivity in this "core" non-financial business sector rose on average by 2.1 percent a year. And from mid-2009 until the end of 2016, the average productivity growth rate was also 2.1%[5]. Productivity growth in these core non-financial businesses has dropped back in the past few quarters, however, as the UK economy has slowed in response to the impact of the Brexit referendum as discussed further in Section 2 above.

This does not mean that the recent disappointing growth of productivity in the UK or other major economies is a mirage. But it does highlight that it may reflect different trends in the wide variety of sectors which underpin a modern economy. And that the UK's relatively high exposure to finance and property may help to explain why our economy may have experienced a somewhat greater productivity slowdown than others since the crisis.

4 The sectors included in the "core business" index in Figure 4.3 are construction, manufacturing, retail and wholesale distribution, transport and storage, hotels and catering, IT and communications, professional services, administrative support and other services

5 This analysis broadly supports the conclusions of an earlier article in the PwC UK Economic Outlook in July 2015: http://www.pwc.co.uk/assets/pdf/ukeo-section4-services-productivity-july-2015.pdf

4.2 – The productivity gap – myth or reality?

The discussion so far has focussed on productivity growth, which has been disappointing in the UK and other major western economies for a variety of reasons. But there is another angle to the productivity debate in the UK, which is the notion that employees here are generating less output when they turn up for work than in most other leading industrialised economies. What is the evidence which supports this idea?

The idea of a productivity gap between the UK and other major industrialised nations goes back to the 1960s, when various industrial policy initiatives were taken to recover lost ground in terms of the nation's competitive position in relation to European competitors and the US after the Second World War[6]. Then, British manufacturing industry was struggling to compete on world markets because of a combination of bad management and volatile industrial relations. These problems worsened in the 1970s, but there was an industrial recovery in the 1980s and 1990s – aided by a new wave of inward investment (particularly from Japan) and a better tax and business policy climate for enterprise growth and start-ups.

From the 1980s onwards, the UK economy also became more diverse and services-oriented and so the performance of manufacturing firms became less important for overall economic growth and employment. In the mid-1960s, manufacturing firms employed around 35% of the workforce – the current proportion is 8%.

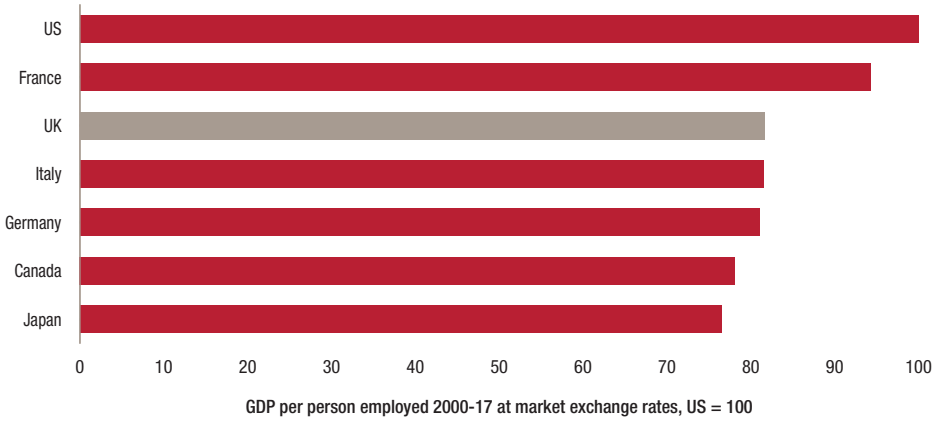
So how should economists measure and compare the combined output of the very disparate activities which make up a modern economy? The idea that factories in one country are less efficient or productive than elsewhere is very compelling, and that was certainly an issue in 1960s and 1970s Britain. However, in a modern services-oriented economy the issue of measuring relative productivity is much more complex. Germany, for example, will have a higher weighting in its economy towards manufacturing, while the UK will have a higher weighting towards services. The way in which these different sectors are combined together may also affect our conclusions about relative economic performance.

There are two basic approaches to this issue, which revolve around exchange rates. International organisations like the OECD use Purchasing Power Parity (PPP) exchange rates to compare the relative productivity performance of economies. These PPP exchange rates aim to equalise price differences across economies based on an extensive international data collection exercise for a broad, representative basket of goods and services in each country. Correcting for these price differences makes sense when trying to compare the relative living standards of people in different countries, particularly where you are comparing economies at very different stages of development where average price levels may vary hugely (e.g. India vs US).

It is not, however, an obvious correction to make for measuring the relative performance of businesses. Nobody actually makes trades or investments using PPP exchange rates. A more direct measure of the relative value of money across countries from a business perspective is the market exchange rate, which reflects the currency values at which people and businesses actually trade and carry out their transactions.

6 For an analysis of the UK's "productivity gap" with the US and Europe see Stephen Broadberry's paper from the early 2000s: https://www2.warwick.ac.uk/fac/soc/economics/staff/sbroadberry/wp/niesr9.pdf

Figure 4.4 – Output per person employed in G7 economies



Source: IMF World Economic Outlook, October 2017

Market exchange rates, however, are notoriously volatile. So any approach to comparing productivity levels across countries using actual currency rates has to take a long-term average to smooth out this volatility. Figure 4.4 shows a comparison of UK productivity with other G7 economies using average market exchange rates for the period since 2000. That would seem to be a reasonable basis for comparison, as it captures 8 years before the Global Financial Crisis (2000-07), the recession created by the financial crisis (2008-9) and the eight years of recovery since (2010-17). Some economies may have done better than others in these different phases of the global economy, and exchange rates will have varied widely over these different periods, but by combining them together we should arrive at a reasonable picture of the underlying relative productivity performance of the major industrialised nations since the turn of the century.

The clear leader for global productivity using this measure is the United States, followed by France. The other G7 economies are bunched much more closely together – about 20 percent behind the US and 15% behind France. The UK is actually at the top of this group of five G7 economies in terms of productivity. Our level of productivity – using average market exchange rates since 2000 – is ahead of Germany, Italy, Canada and Japan. It is not therefore obvious that the UK is such a poor performer in terms of its level of productivity relative to other G7 economies as some alternative measures based on PPPs might suggest. But the US and France seem to stand out from the rest of the pack.

The productivity leadership of the United States is not hard to account for – it has a leading edge in many high technology industries. It is a large country which is less likely to suffer from the diseconomies of congestion which affect more crowded countries like the UK and Japan. Whether measured at market exchange rates or PPP exchange rates, the US has always come out as the world leader for most of the 20th Century.

Explaining the superior productivity performance of France is more contentious, but it is noticeable that France has one of the highest unemployment rates in the G7 and one of the lowest labour participation rates. Countries which have relatively low unemployment and high labour participation – like the UK and US – tend to have more flexible labour markets which support a wide range of lower-wage and lower-productivity jobs. The French approach to labour market regulation makes it more difficult for these jobs which offer lower wages based on lower productivity to be sustained, and hence the workers who would otherwise fill these jobs end up unemployed or outside the workforce altogether.

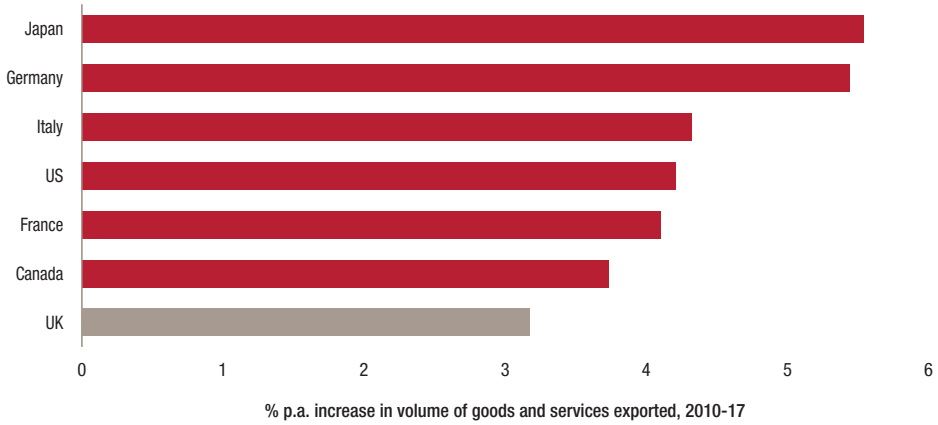
However, based on the evidence presented in Figure 4.4, it is not clear that the UK suffers a "productivity gap" or a deficit in productivity levels with the G7 economies excluding the US and France. Indeed, if the US is excluded, the UK's productivity level using market exchange rates is just 0.8 percent below the other five G7 economies – even with France included. This is not to say that improving UK productivity is not important – it is critical to improving living standards in the long run – but just that we should not be too negative about relative UK performance here.

4.3 – Export performance

The other disappointing dimension to UK economic performance since the financial crisis has been on the export front. Figure 4.5 shows that UK export volume growth – including both goods and services – has been the lowest of the G7 economies on average since 2010. This is despite a substantial depreciation in the value of the pound versus other currencies just before this period in 2007-9. As a result, in the eight years from 2009 to2016, the sterling Effective Exchange Rate was about 17% below its value in the decade before the Global Financial Crisis (1998-2007). It is not obvious that this fall in the value of the UK currency has helped UK trade performance (although, of course, it is always possible this may have been even worse had the pound remained at pre-crisis levels).

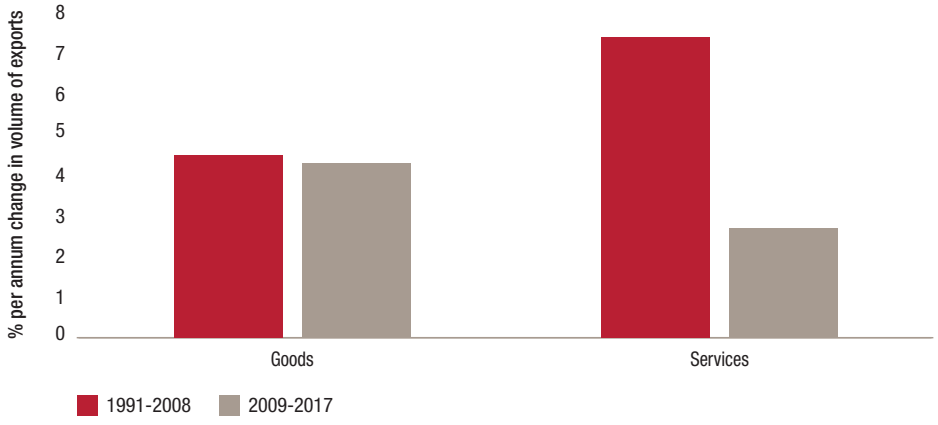
Discussion of trade performance tends to focus on exports and imports of goods – especially manufactures. But if we are looking for the reasons for relatively poor UK export performance over the recovery period since the crisis, we need to focus more on the services side of the account. Services exports are particularly important for the UK economy: in 2016, services exports were 45% of total overseas sales and accounted for 12.5% of UK GDP. This is a much bigger contribution to national output than for other G7 economies – the equivalent figures for Germany and France are around 8% and for the US only 4%[7].

Figure 4.5 – Export growth in G7 economies



Source: IMF World Economic Outlook, October 2017

Figure 4.6 – UK export growth in goods and services

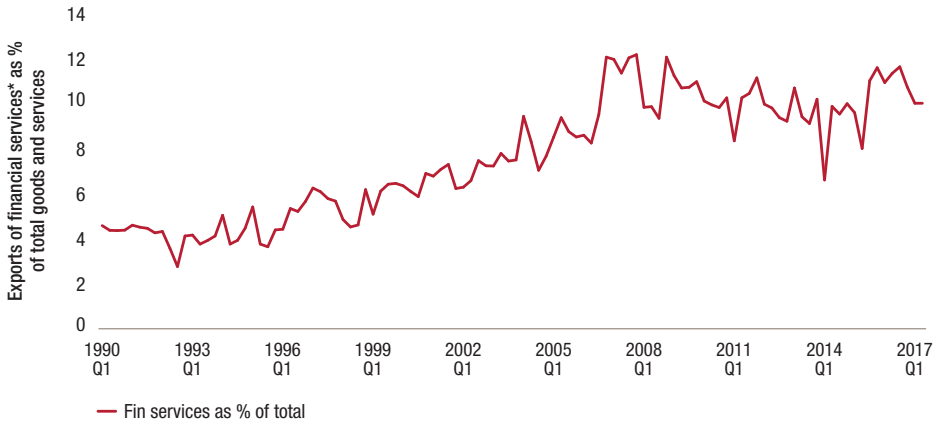


Source: ONS

7 See the July 2015 edition of UK Economic Outlook for a fuller discussion of UK services trade performance: http://www.pwc co.uk/assets/pdf/ukeo-section4-services-productivity-july-2015.pdf

Over the course of the current economic recovery, UK services exports have increased by just 2.7% per annum in volume terms compared with 4.3% annual growth in goods exports. The equivalent figures for the long expansion that started in the early 1990s and came to an end in 2008, were 7.4% and 4.5% respectively, as Figure 4.6 shows. The rate of growth of UK goods exports in this recovery has been very similar to that seen in the economic upswing before the Global Financial Crisis, but services exports have grown at only just over a third of their pre-crisis rate. It is, therefore, the relatively disappointing performance of services exports that explains most of the UK's lacklustre trade performance over this recovery period.

Figure 4.7 – Financial services as % of total UK exports



Source: Office for National Statistics

*Excludes insurance/pensions

How can this be explained? The first point to recognise is that the 1990s and the first half of the 2000s saw an unprecedented opening up of the global economy – supported by trade liberalisation in various forms – including the establishment of the Single European Market and a global trade regime overseen by the World Trade Organisation (WTO). This allowed countries to expand their exports in areas where they had a strong comparative advantage. In the case of the UK, this supported the rapid growth of a cluster of export-oriented services industries, including financial services, professional services and the creative industries (e.g. media, design, software etc). This one-off boost to UK services exports has now come to an end.

The second key factor has been the disappointing performance of financial services, which we have already noted in terms of its contribution to productivity. The percentage of the value of UK exports accounted for by financial services (not including insurance and pensions) peaked at over 12% in 2007/8 but has since fallen back to around 10%, as Figure 4.7 shows. The global credit boom which preceded the financial crisis also supported the growth of the UK financial services industries in the late 1990s and the first half of the 2000s, but has been much less supportive since the crisis[8].

Third, the fall in the sterling exchange rate since the financial crisis is of limited benefit to services exports, which are mostly relatively price-inelastic. The main exception to this is travel and tourism activity, which is quite sensitive to the exchange rate. However, many activities linked to travel and tourism – such as hotels, restaurants, and visitor attractions – are relatively low wage and low productivity sectors. So when the exchange rate falls, it tends to support the growth of lower productivity activities in the services sector more than the growth in the higher value-added sectors such as financial and professional services and the creative industries.

8 For an analysis of the pre-crisis financial boom, see "The Global Credit Boom" by Michael Hume and Andrew

4.4 – Conclusions and policy implications

Nearly 80 percent of UK GDP is accounted for by services sector activities. So it is not surprising that the evidence trail of disappointing UK productivity and trade performance leads us to key services industries. In particular, the financial services sector – which provided a strong boost to the UK's productivity and trade performance in the 1990s and in the 2000s before the Global Financial Crisis – has delivered a much weaker contribution over the recovery period since mid-2009. This is apparent in both the productivity and trade figures.

On the productivity front, the core of the non-financial business sectors operating in the UK still seems capable of delivering productivity growth of around 2% per annum. Similarly, export performance in terms of goods has held up better since the financial crisis than exports of services – at least in volume terms. What might this imply for public policy?

One important conclusion is that we should not put too much faith in a devalued exchange rate to support improved trade and productivity performance in the UK economy. The key services sectors which have been underperforming are not particularly exchange rate sensitive.

The high value-added industries which make up the bulk of modern UK manufacturing industry are also not particularly exchange-rate sensitive either. Long gone is the heyday of bulk commodities like coal, steel and other basic manufactures which allowed the UK economy to respond positively to the move off the Gold Standard in 1931 or the post-war devaluation of sterling from $4 to $2.80 in 1949.

There are no quick fixes in terms of macroeconomic policy to the issues which have contributed to disappointing UK trade and productivity performance. Also, a return to the interventionist policies pursued by governments in the 1960s and 1970s does not look promising in the modern globalised economy. The UK government is right to focus on a "horizontal approach" to Industrial Strategy, which does not seek to favour individual sectors or businesses. The objective should be to create the best conditions for businesses of all types and across all sectors to contribute to national economic growth.

In a recent submission to the UK government on its Industrial Strategy, PwC has argued that four main themes should underpin the government's Industrial Strategy: developing skills and education; upgrading national infrastructure; supporting investment, innovation and business growth; and ensuring a more regionally balanced economy[9].

The policies needed to implement a successful Industrial Strategy are not just the responsibility of one or even a few government departments. They cut across all areas of government policy. The tax system – which shapes the competitiveness of the economy in so many ways and affects business of all sizes – should play a key role. A successful Industrial Strategy also needs to be based on a consistent long-term approach to policy. It also needs to be focussed on delivery – and the outcomes from key policies need to be delivered efficiently and effectively so that economic benefits are realised in a timely fashion.

However, even with the right policies in place, any improvement in UK trade and productivity performance is likely to be a slow process – and Brexit risks add to the range of uncertainties. So policy-makers would be right to plan on the basis of a limited improvement from recent trends - which provides a sobering backdrop to the Chancellor's Autumn Budget in November.

9 https://www.pwc co.uk/government-public-sector/assets/pwc_industrial_strategy_response.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 2016 and this is expected to continue, increasing the global weighted average real growth rate to 3.1% in 2017 and 3% in 2018 (using GDP at market exchange rates as weights). This growth is expected to be driven by the large emerging economies with continued strong growth of around 7-7.5% in India and around 6.5-7% in China projected for 2017 and 2018. 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.

There has been a clear upswing in Eurozone economic activity this year, increasing projected growth to over 2% this year. Relative to the rest of the G7, reasonably strong growth is projected for the US economy in 2017-18 as fiscal stimulus strengthens an already recovering economy. But this could be offset by gradual rises in US interest rates to keep inflation under control.

These projections are updated monthly in our Global Economy Watch publication, which can be found at www.pwc.com/gew

Table A.1: Global economic growth and inflation prospects

	Share of world GDP	Real GDP growth (%)		Inflation (%)	
	2016 at MERs	2017	2018	2017	2018
US	24.7%	2.2	2.2	2.2	2.1
China	14.9%	6.8	6.4	1.8	2.2
Japan	6.6%	1.4	0.8	0.5	0.7
UK	3.5%	1.5	1.4	2.7	2.7
France	3.3%	1.7	1.7	1.0	1.0
Germany	4.6%	2.1	1.9	1.8	1.7
Greece	0.3%	1.6	2.0	1.1	1.2
Ireland	0.4%	4.4	3.4	0.3	0.9
Italy	2.5%	1.5	1.2	1.3	1.2
Netherlands	1.0%	3.2	2.3	1.4	1.5
Portugal	0.3%	2.8	2.0	1.5	1.5
Spain	1.6%	3.2	2.5	1.8	1.2
Poland	0.6%	3.6	3.3	1.8	2.0
Russia	1.7%	1.6	1.6	4.2	4.0
Turkey	1.1%	4.1	3.2	10.0	8.1
Australia	1.7%	2.3	2.8	1.9	2.3
India	3.0%	6.9	7.4	3.6	4.8
Indonesia	1.2%	5.1	5.3	4.0	4.0
South Korea	1.9%	3.0	2.7	2.1	2.0
Argentina	0.7%	2.6	2.9	25.0	n/a
Brazil	2.4%	0.6	1.7	3.6	4.1
Canada	2.0%	2.4	1.9	1.9	1.8
Mexico	1.4%	2.0	1.8	5.9	3.5
South Africa	0.4%	0.9	1.2	5.8	5.5
Nigeria	0.5%	0.7	1.8	15.0	14.1
Saudi Arabia	0.8%	-0.1	2.0	0.0	4.8
World (PPP)		3.6	3.6	2.8	2.8
World (Market Exchange Rates)	100%	3.1	3.0	2.5	2.3
G7	47.1%	2.0	1.8	1.8	1.8
Eurozone	13.9%	2.2	1.9	1.4	1.4

Source: PwC main scenario for 2017 and 2018; IMF for GDP shares in 2016 at market exchange rates (MERs).

Appendix B
UK economic trends: 1979 – 2016

Annual averages	GDP growth	Household expenditure growth	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	3.2	6.1			10.9	-1	2.0
1987	5.4	5.1			9.7	-1.6	1.3
1988	5.8	7.4			10.4	-3.5	-0.6
1989	2.6	3.9		5.2	13.9	-4.1	-0.6
1990	0.7	1.0		7.0	14.8	-3.1	0.6
1991	-1.1	-0.6		7.5	11.5	-1.3	2.6
1992	0.4	0.9		4.3	9.6	-1.5	5.6
1993	2.5	2.8		2.5	5.9	-1.3	6.7
1994	3.9	3.2		2.0	5.5	-0.5	5.8
1995	2.5	2.1		2.6	6.7	-0.7	4.6
1996	2.5	3.9		2.5	6.0	-0.6	3.3
1997	6.6	8.7		1.8	6.8	-0.1	1.9
1998	3.1	4.0	0.4	1.6	7.3	-0.7	0.2
1999	3.2	4.9	0.5	1.3	5.4	-2.6	-0.8
2000	3.7	4.8	2.3	0.8	6.1	-2.4	-1.5
2001	2.5	3.6	-1.5	1.2	5.0	-2.1	-0.2
2002	2.5	3.8	-2.2	1.3	4.0	-2.2	2.0
2003	3.3	3.6	-0.5	1.4	3.7	-1.9	3.4
2004	2.4	3.2	1.8	1.3	4.6	-2.4	3.3
2005	3.1	3.1	0.0	2.1	4.7	-2.1	3.2
2006	2.5	1.8	2.1	2.3	4.8	-3.1	2.8
2007	2.4	2.7	0.6	2.3	6.0	-3.8	2.6
2008	-0.5	-0.6	-2.8	3.6	5.5	-4.6	5.4
2009	-4.2	-3.3	-9.4	2.2	1.2	-3.9	10.1
2010	1.7	0.7	4.6	3.3	0.7	-3.8	9.1
2011	1.5	-1.0	2.2	4.5	0.9	-2.4	7.1
2012	1.5	1.8	-1.5	2.8	0.8	-4.2	7.6
2013	2.1	1.9	-1.0	2.6	0.5	-5.5	5.7
2014	3.1	2.2	2.9	1.5	0.5	-5.3	5.3
2015	2.3	2.7	0.0	0.0	0.6	-5.2	4.1
2016	1.8	2.9	0.9	0.7	0.5	-5.9	2.9
Average over economic cycles****							
1979 - 1989	2.8	3.7			12.2	-0.8	2.2
1989 - 2000	2.5	3.3		3.3	8.3	-1.6	2.4
2000 - 2014	1.8	1.9	-0.2	2.2	3.3	-3.3	4.4

* After the revisions to the national accounts data, pre-1998 data is not currently available ** Pre-1997 data estimated *** 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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