July 2019

UK Economic Outlook

Special features on:

UK housing market outlook

How does UK labour market performance compare to other OECD countries?

www.pwc.co.uk/economics

pwc

Contents

Highlights and key messages for business and public policy

Key projections

(%)	2019	2020
Real GDP growth	1.4	1.3
Consumer spending growth	1.6	1.3
Fixed investment growth	-0.4	0.1
Inflation (CPI)	2.0	2.0
House prices	1.2	2.1

Source: PwC main scenario projections

Recent UK developments and prospects

- In our main scenario, we project UK economic growth to remain modest at 1.4% in 2019 and 1.3% in 2020, somewhat below its long term trend rate of around 2%. These projections assume that a Brexit deal is eventually passed in parliament leading to an orderly exit from the EU. Risks are weighted to the downside over this period due to the possibility of a more disorderly Brexit.
- Consumer spending has continued to drive the economy, but the housing market has cooled and business investment has been on a declining trend as a result of Brexit-related uncertainty.
- The Bank of England is expected to keep interest rates on hold this year. It could start to raise them very gradually at some point in 2020, assuming an eventual orderly Brexit. By contrast, a no deal scenario could see renewed monetary and fiscal policy relaxation to support the economy in the short term, but might require renewed fiscal tightening in the longer term.

House price growth likely to remain subdued in 2019-20

- In our main scenario, we project that UK house prices will rise at an average of around 1% this year, but could pick up again from 2020 and rise broadly in line with earnings thereafter.
- The picture varies across the UK, however, as we project most regions to see growth in house prices of between 2.5% and 4% a year in 2019-20, with the exception of London and the South East, where house prices are expected to fall in 2019 and record only very modest growth in 2020.

Private rents unaffordable for many key workers in London and South

- There are wide regional variations in the cost of private renting. We find that median private rents in London, the South West, the South East and East Anglia are above a commonly used threshold of 30% of incomes that deems them unaffordable. Key workers such as nurses and primary school teachers often face rents above the 30% of affordability threshold in these regions.
- In London, we estimate that tenants aged 22-29 years on average now have to spend over half (53%) of their incomes on private rents.
- High private rent levels may prevent people who work in key professions from living in or moving to London and Southern England, leading to shortages of nurses, teachers and other key workers, as well as limiting economic and social mobility across the country.

UK labour market performance has improved significantly, but many OECD countries still do better – matching Sweden could add up to £250bn to UK GDP

- The labour market has been one of the strongest elements of the UK economy in recent years, with the employment rate at a record high and unemployment at its lowest level since the mid-1970s. Employment rates have risen particularly significantly since 2007 for women and older workers, while youth unemployment rates have fallen back to pre-crisis levels.
- However, in a new composite PwC Labour Market Performance Index, which combines results from our Youth Employment, Golden Age and Women in Work indices, we find that the UK still ranked only 19th out of 33 developed (OECD) economies in 2018. Iceland tops these rankings, followed by Sweden.
- If the UK could further improve its labour market performance to match Sweden[1], the boost to UK GDP could be as much as 12%, or around £250bn.

1 We chose Sweden as a benchmark as it ranked second in our OECD Labour Market Performance index and seemed to be a more realistic comparator for an economy of the scale of the UK than Iceland, which topped our index rankings but is an outlier on many labour market performance indicators.

1. Summary

Recent developments

Economic growth has been volatile in recent quarters. Consumer spending growth has remained relatively strong, and government spending has picked up somewhat, but business investment has softened and shrank for four consecutive quarters in 2018 as anxiety about the uncertainties of Brexit became more acute. Investment rose slightly in the first quarter of 2019, and stockbuilding jumped, but this is likely to have been only a temporary increase owing to contingency plans for a possible 'no deal' Brexit at the end of March. Latest data suggest GDP growth fell to around zero in Q2 2019, though it is likely to remain volatile from quarter to quarter as we approach the next Brexit deadline at the end of October.

The jobs market has generally remained strong, with the employment rate at record levels and unemployment down to its lowest rate since the mid-1970s. Over the past year the scarcity of workers has finally lent them some bargaining power, which has fed through into increased real wage growth. But this will be difficult to sustain in the medium term unless productivity growth also picks up from the subdued rates seen over the past decade.

Future prospects

As shown in Table 1.1, our main scenario is for UK GDP growth to remain at around 1.3-1.4% on average in 2019-20, similar to the average rate in 2018. Our views on growth and inflation are broadly similar to the latest consensus and OBR forecasts (see Table 1.1), and indeed the latest Bank of England forecasts.

Table 1.1: Summary of UK economic growth and inflation prospects

Indicator (% change on previous year)	OBR forecasts (March 2019)		Independent forecasts (June 2019)		PwC main scenario (July 2019)	
	2019	2020	2019	2020	2019	2020
GDP	1.2	1.4	1.4	1.4	1.4	1.3
Consumer spending	1.1	1.5	1.6	1.5	1.6	1.3
Inflation (CPI)	2.1	1.9	1.8	2.1	2.0	2.0

Source: Office for Budget Responsibility (March 2019), HM Treasury survey of independent forecasters (average value of new forecasts made in June 2019 survey) and latest PwC main scenario.

Consumer spending growth held up well in 2018 and the first quarter of 2019, but is projected to moderate to around 1.6% in 2019 as a whole in our main scenario. This reflects our expectation that stronger real wage growth will be offset by concerns about the implications of Brexit, slower projected jobs growth and subdued house price growth.

Brexit-related uncertainty will also continue to hold back business investment in the UK. Our main scenario still assumes that a deal will be struck at some point, but the timeline for this is unclear. Despite the slight increase in business investment and the rather large rise in stockbuilding in the first quarter of the year, subsequent data have showed that this is likely to prove a one-off, and we assume that fixed investment will shrink for the year as a whole, and show only fractional growth in 2020. Stockbuilding is likely to have gone sharply into reverse in Q2 2019, according to latest business survey results.

The October 2018 Budget provided a significant boost to government spending in the medium term, particularly on the NHS, and also some short-term tax cuts that will have begun to support growth from the second quarter of 2019.

The global economy has cooled over the past year as a result of slower growth in each of the US, China and the Eurozone. In the US, the impetus given by one-off personal and business tax cuts in early 2018 has faded; the Chinese government is continuing to manage the gradual moderation of its economy as smoothly as possible; and in the Eurozone a progressive deceleration in growth from 2016 peak rates has already caused the ECB to start to consider the need for renewed monetary loosening.

The fact that the three largest economies in the world have slowed simultaneously has weakened business sentiment as indicated by PwC's latest Global CEO Survey[2] earlier this year. There is also a risk that US trade policy towards China and others could cause a broader slowdown in global growth, although trade tensions continue to ebb and flow from month to month. If a full-scale trade war did break out, however, this would have adverse effects on both UK exports and, through confidence effects, business investment.

2 For further details of this survey see: https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2019/gx.html

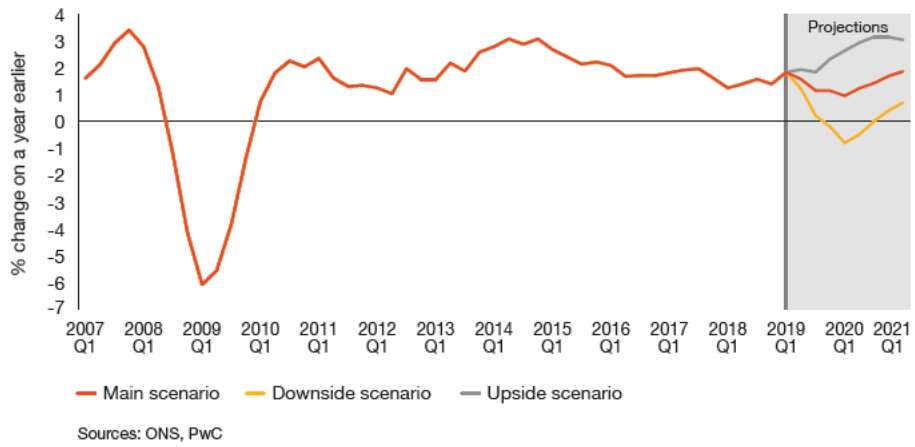
There are always uncertainties surrounding any growth projections, as illustrated by the alternative scenarios in Figure 1.1. There are still considerable downside risks relating in particular to the outcome of the Brexit process and the global outlook, but there are also some upside poss bilities if these problems can be contained and global growth regains some momentum. In our main scenario, we expect the UK to continue to see moderate growth in 2019-20, but businesses need to monitor and make contingency plans for potential alternative scenarios related to Brexit and other factors such as global growth.

Consumer price inflation has returned to the Bank of England's 2% target rate recently as international oil prices have fallen back from 2018 peak levels. Although there are many uncertainties around this linked to global commodity price and exchange rate trends in particular, our main scenario projects that UK inflation will remain around its 2% target rate on average for the rest of 2019 and in 2020.

Given benign current levels of inflation and continued uncertainties around Brexit and the global economy, we expect the Monetary Policy Committee to remain cautious. In our main scenario we assume no interest rate changes in 2019 and just a single quarter-point rate rise to 1% at some point in 2020. But the timing of any such increase is highly dependent on developments on Brexit as well as wider global economic trends.

In a no deal scenario, both monetary and fiscal policy would probably be loosened in the short term to soften the blow to the economy, but fiscal policy in particular might need to be tightened again in the longer term to repair the potential damage to the public finances from a disorderly Brexit.

Figure 1.1 – Alternative UK GDP growth scenarios



Sources: ONS, PwC

UK housing market outlook and the rental affordability challenge

Section 3 of this report presents our regular annual review of recent trends and future prospects for the housing market, with a particular focus this time on the affordability of private rents across different occupations and regions.

UK house price inflation has been weakening steadily since mid-2016. Annual house price inflation was just 1.4% in the year to April 2019, compared with 7.9% three years ago. The average house price stood at £229,000 in April 2019, down from an all-time peak of £232,000 in August 2018. Two main factors have been exerting downward pressure on house price inflation over the past three years: economic and political uncertainty following the EU referendum in June 2016 and the introduction of the Stamp Duty surcharge on second homes earlier that year.

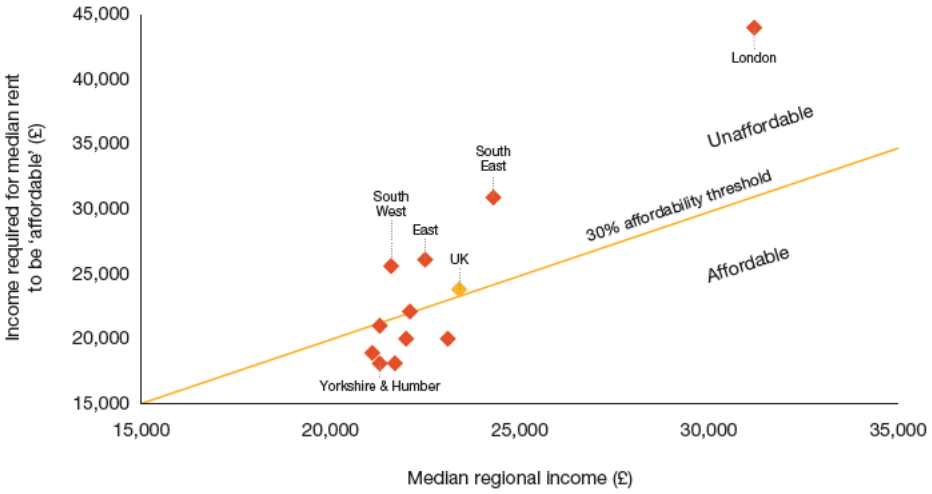
In the remainder of 2019, we expect the drag from Brexit-related uncertainty to continue, offset in part by strong fundamentals such as low unemployment, low interest rates and increasing real earnings growth, resulting in sluggish annual average UK house price growth of around 1% in 2019. House price inflation could pick up slightly to around 2% in 2020, but only if there is a reasonably orderly Brexit.

Compared to the late 1990s, 25-34 year-olds are now disproportionately less likely to purchase a property with a mortgage, and more than twice as likely to rent privately. A conventional assumption used in previous studies is that renting must cost less than 30% of gross annual income for it to be considered affordable. Using this benchmark, an employee would need an annual salary of £23,800 to afford the median private rent in the UK, compared with the median UK wage of £23,400 in 2017/18. This means that the country's median private rent has just crossed over the 30% rental affordability threshold.

As Figure 1.2 shows, however, the picture varies considerably by region: Southern England, and particularly London, have private rents well above the affordability threshold.

Rental affordability is a particular challenge for the public sector employees, such as NHS workers, teachers and police officers. The affordability challenge for these key workers is particularly pronounced in London and the South East. In our study, prison officers had the worst rental affordability ratios in London in 2018 at around 45% (see Table 1.2). Rental affordability ratios were also high at around 40% for primary school teachers and nurses. For the latter, median wages would need to increase by roughly £10,000 a year for current median private rents to be considered affordable in London.

Figure 1.2 – Affordability of private rents by region, 2017/18



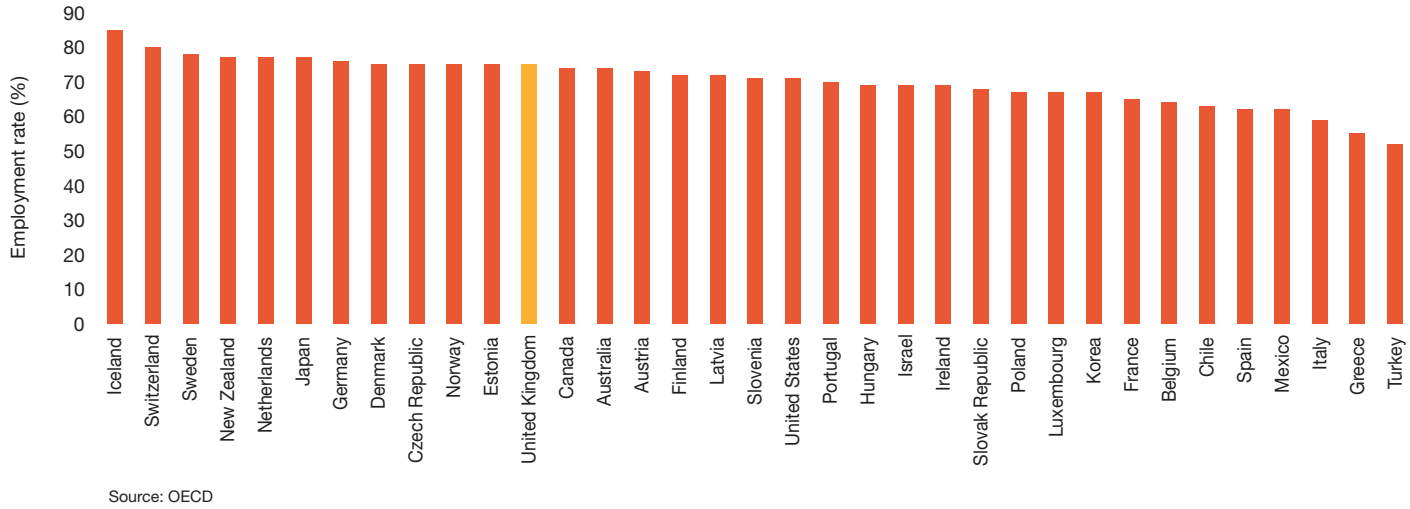
Source: ONS, PwC analysis

Table 1.2: Rental affordability ratio by region and key worker profession, 2018

Indicator (%)	Police officers	Secondary school teachers	Social workers	Fire service officers	Primary & nursery teachers	Nurses & midwives	Prison service officers
Wales	15	15	18	N/A	16	19	N/A
North East	14	15	20	18	18	18	19
Scotland	15	17	17	20	18	22	15
Yorkshire and The Humber	14	18	19	17	17	19	24
North West	15	17	18	19	19	21	25
West Midlands	17	18	20	20	22	25	24
East Midlands	17	18	21	N/A	24	23	26
South West	19	21	28	25	27	29	N/A
East	20	22	26	26	26	32	30
South East	23	27	30	27	33	34	33
London	29	33	34	36	40	39	45

Source: ONS, PwC analysis based on ratio of median private rents to median income. Note that comparable data are not available for Northern Ireland.

Figure 1.3 – OECD Employment rate (2018)



Source: OECD

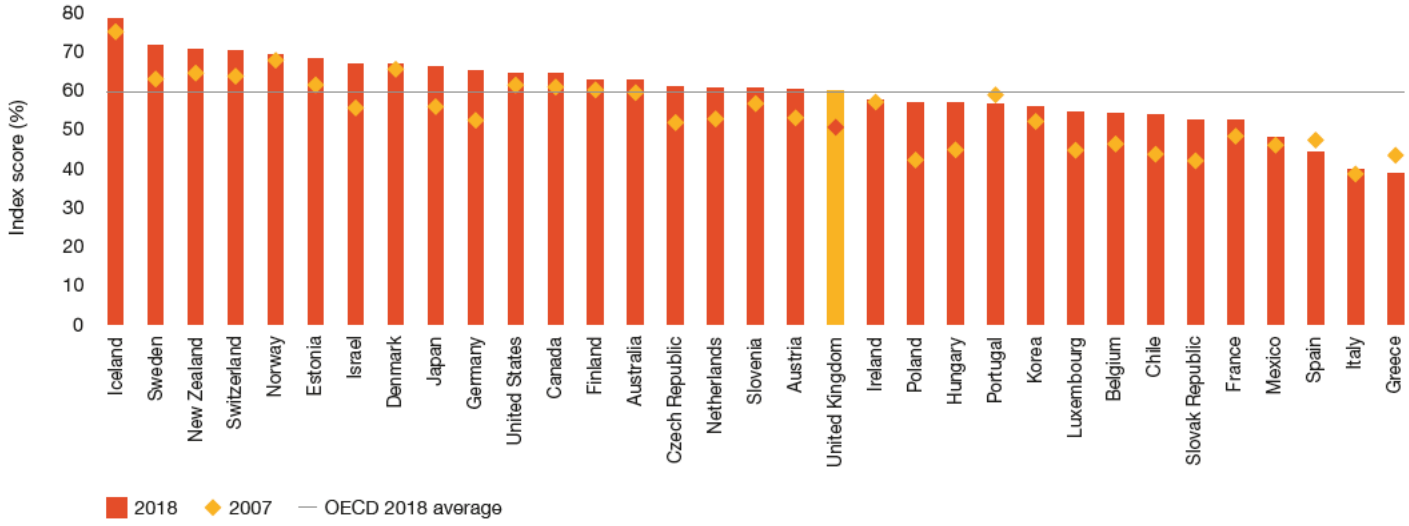
> UK jobs growth has been remarkably strong over the past seven years, but we still lag some way behind the top international performers.
>
> **John Hawksworth**
> Chief Economist, PwC

How does UK labour market performance compare to other OECD countries?

As we discuss in detail in Section 4 of this report, the UK is currently enjoying record employment rates of more than 75%, but its performance looks less impressive when put in the context of its OECD peers (see Figure 1.3). The UK ranks 13th out of 35 economies on this measure, with the leading economies, such as Iceland, Switzerland and Sweden, having employment rates of around 80% or above. Labour markets in all of the OECD economies in our study were affected to varying degrees by the global financial crisis, but have since bounced back. The UK is among a majority of countries whose employment rate now exceeds that in 2007, before the financial crisis hit.

Using data from our Youth Employment Index, Golden Age Index (for workers aged 55 and above) and Women in Work index, we have compiled a new composite Labour Market Performance Index, in which the UK ranks 19th out of 33 countries based on a broader range of labour market indicators covering younger, older and female workers (see Figure 1.4). The UK's labour market score has improved since 2007 for all three indices, reflecting structural improvements in employment rates for older workers and women in particular, as well as a cyclical reduction in youth unemployment rates since 2012. But other countries have also improved so our overall index score remains only in line with the OECD average in 2018 as Figure 1.4 illustrates.

Figure 1.4 – 2018 Labour Market Performance Index scores



Source: PwC analysis of OECD data

We also conducted analysis of the potential long-run boost to GDP from improving the UK's labour market performance in 3 key indicators: the incidence of young people not in employment, education or training and the incidence of full-time work for those aged 55 and above and for women aged 25-54. We estimate that if the UK was able to match Sweden, which ranks 2nd[3] in the overall index, on these three metrics, it could see a potential GDP boost of up to 12%, or around £250bn a year.

Realising these gains will require government and business to continue to work together to combat age and gender discrimination, support flexible working and childcare provision, and improve vocational training opportunities not just for young people but also for older workers needing to keep up with advances in digital technologies.

3 Iceland ranks top on our combined index but it is an outlier in the data and not a very realistic comparator for a much larger and more diversified economy such as the UK. We therefore chose Sweden as our benchmark for this calculation of potential GDP gains. See Section 4 for more details of the basis of this comparison.

2. UK economic prospects[1]

Key points

- In our main scenario, we expect economic growth in the UK to remain modest, at 1.4% in 2019 and 1.3% in 2020, following an expansion of 1.4% in 2018. These projections assume that a Brexit deal is eventually passed in parliament. Accordingly, risks are weighted to the downside over this period due to the possibility of a more disorderly Brexit.
- Consumer spending has continued to drive the UK economy, supported by recent rises in real incomes. However, the housing market has cooled and, for this and other reasons, we project only moderate consumer spending growth of around 1.6% this year.
- Business investment has been weighed down by uncertainties related to Brexit. After a temporary bounce in early 2019 owing to preparations for a potential 'no-deal' outcome, we expect investment to return to its previous trend, at least until a Brexit deal is agreed.
- We expect UK growth to be more balanced across regions in 2019-20, with London no longer growing significantly faster than the UK average as has been the norm for most of the past three decades.
- As consumer price inflation remains moderate in 2019-20, real wages are expected to continue to grow, but at rates below those seen before the global financial crisis as productivity growth remains relatively subdued.
- The Bank of England is expected to continue with very gradual interest rates rises over the next few years, but not until greater clarity has been provided on Brexit. A no deal scenario could see renewed monetary and fiscal policy relaxation to support the economy in the short term.

Introduction

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

2.1 Recent developments in the UK economy

2.2 Economic growth prospects: national, sectoral and regional

2.3 Outlook for inflation and real earnings growth

2.4 Monetary and fiscal policy

2.5 Summary and conclusions

> "After a brief bounce, we expect business investment to return to its previous, declining trend until clarity is provided on Brexit.
>
> **Mike Jakeman**
> Senior Economist, PwC

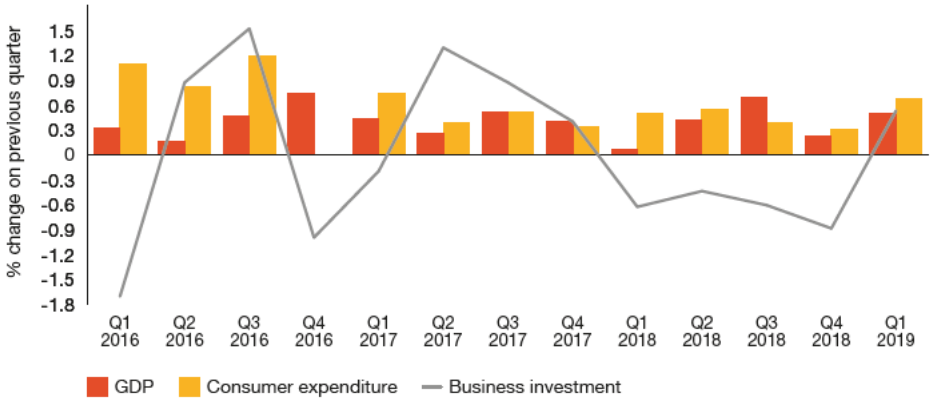
1 This section was written by Mike Jakeman.

2.1 – Recent developments in the UK economy

UK economic growth accelerated in the first quarter of 2019 (see Figure 2.1) as business investment returned to growth after four quarters of contraction and stockbuilding picked up[2]. However, we do not expect this bounce to be sustained. Investment spending and stockpiling seem to have been driven in large part by firms' preparation for a potential 'no deal' Brexit at the end of March 2019. With this deadline delayed and no clarity yet on the likely outcome on Brexit, we expect firms to return to their previous conservatism and the economy to slow again in the remainder of 2019, although another round of stockbuilding could add volatility to the picture around the latest Brexit deadline at the end of October. Household spending is likely to remain the main driver of the economy, thanks to moderate inflation and a strong labour market generating sustained real wage growth.

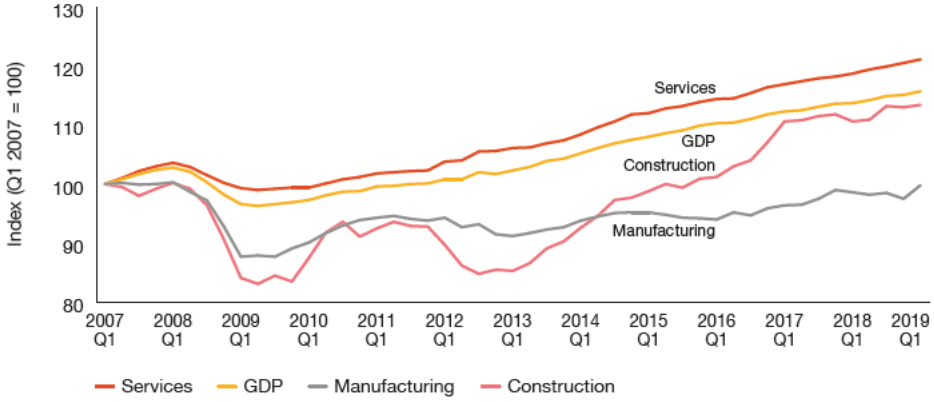
Manufacturing sector output is still below pre-financial crisis peak levels, and suffered a renewed decline in output in the second half of 2018 (see Figure 2.2). This partly reflects the marked slowdown in key Eurozone markets during the course of 2018, which accelerated towards the end of the year, as well as the drag on activity from Brexit-related uncertainty. We do not expect the bounce in the first quarter of 2019, which was associated with inventory accumulation prior to a potential no deal Brexit at the end of March, to be sustained. This was confirmed by much weaker production data for April, although this bounced back somewhat in May.

Figure 2.1 – Trends in GDP, consumer spending and business investment growth



Source: ONS

Figure 2.2 – Sectoral output and GDP trends



Source: ONS

The performance of the construction sector is generally quite volatile. The referendum appears to have ended a period of relatively strong growth in 2014-16, and the sector has also had to cope with a moderation of house price inflation (see Section 3). Brexit-related uncertainty has also had a clear, negative effect on commercial construction activity, and this is likely to continue in the coming quarters.

The dominant influence on UK growth comes from the services sector, which now accounts for almost 80% of UK GDP (compared to only around 10% for manufacturing and around 6% for construction). Services sector output has grown relatively steadily ever since the recession bottomed out in mid-2009, although there have been some fluctuations in the pace of growth more recently.

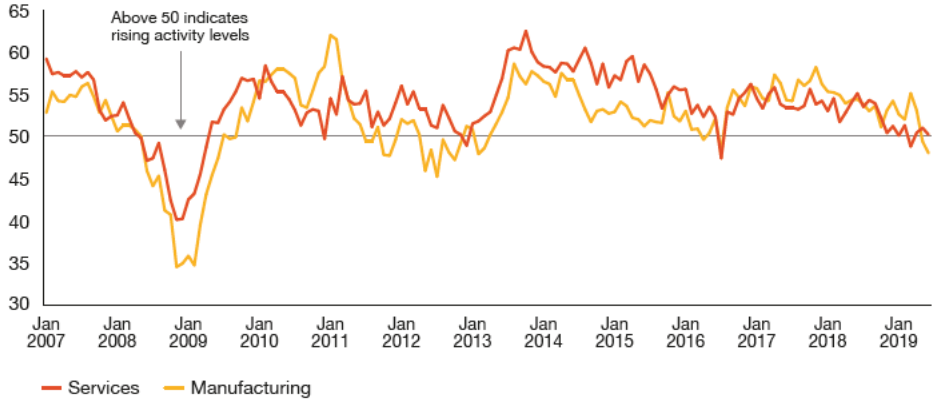
2 Our analysis in this section takes account of revisions to GDP data for the first quarter of 2019 published on June 28th. We are aware of planned changes to how the ONS calculates GDP data with effect from the publication of the Blue Book at the end of September and these will be incorporated in the projections made in our November 2019 edition of UK Economic Outlook.

After a relatively strong summer in 2018, services growth slowed in late 2018 and showed little growth between March and May, according to the latest monthly data. Retail sales, which represent an important component of services, have also seen slower growth in recent months.

Although official data are more comprehensive, business surveys can provide a more timely indication of short term economic trends. In particular, it is worth keeping an eye on the Markit/CIPS purchasing managers' indices (PMIs) for services and manufacturing, as shown in Figure 2.3. The manufacturing PMI began to weaken in late 2017 and has been on a steady downward trend since then. In May and June it fell into contraction for the first time in three years, after a brief pick-up in early 2019 due to 'no deal' Brexit-related preparations. The services PMI has also struggled, falling below 50 in March and, after a brief recovery, dropping back to only just above 50 in June. These readings suggest that the economy could shrink in the second quarter by 0.1%, based on past relationships between the PMI survey results and GDP growth. Our own machine learning nowcasting model suggests quarterly GDP growth of around zero in Q2 2019, with a plausible range from -0.2% to 0.2% based on average model prediction errors over the past seven years.

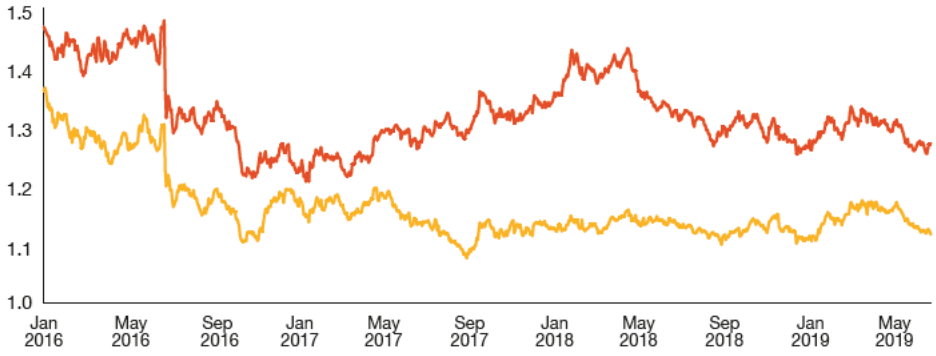
A key factor influencing UK economic trends since the Brexit vote in June 2016 has been the relative weakness of the pound, as shown in Figure 2.4. Sterling regained some ground against the US dollar between mid-2017 and April 2018, but has fallen back since then. Despite the political turmoil, there has been relatively little volatility against the Euro over the past two years, but the pound remains around 15% weaker than it was at the time of the referendum. A weak currency has made UK exports relatively cheaper for overseas customers, promoting the sale of British goods and services and making the UK a more affordable destination for international tourists.

Figure 2.3 – Purchasing Managers' Indices of business activity



Source: Markit/CIPS

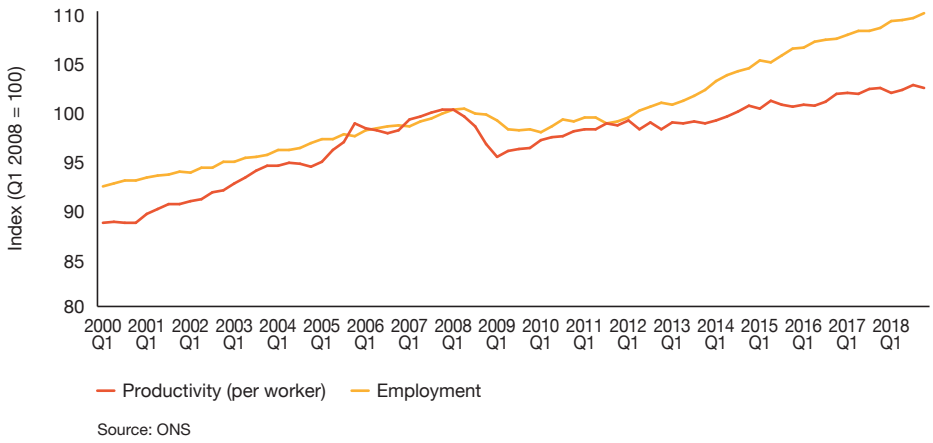
Figure 2.4 – US dollar and euro exchange rates against the pound



Source: Bank of England

But depreciation also raised the prices of imports, resulting in faster inflation in 2017 in particular and squeezing consumer spending power. These effects have now worked their way through the economy, but there is a risk of a 'no deal' Brexit resulting in a further long-term fall in sterling. Conversely, the pound could strengthen if a Brexit deal can be agreed later this year (or soon after) leading to an orderly transition period.

Figure 2.5 – Trends in productivity and employment



Source: ONS

UK creates record number of jobs, but productivity growth remains subdued

UK productivity growth, measured using output per worker, has been relatively weak since the global financial crisis, as illustrated in Figure 2.5. The positive side of this has been strong jobs growth, particularly since 2012.

Recent trends have continued to follow this general pattern, with jobs growth remaining reasonably strong in the final quarter of 2018 and early 2019, while productivity is little greater than it was before the financial crisis (at least in terms of output per worker). The ideal combination of strong jobs growth and robust productivity and real earnings growth, as seen before the financial crisis, remains elusive.

Why has productivity growth been so weak since the global financial crisis?

Many possible explanations have been put forward for weak productivity growth over the past decade, including measurement error (in particular, not capturing the full benefit of digital innovations like smartphones). Soon after the 2008-09 recession, some put this down to labour hoarding by firms or credit constraints by banks, but both these explanations are less convincing now after ten years of recovery since mid-2009. Reduced competition in some sectors might be a possible explanation, but other sectors have seen their markets disrupted by technology-savvy new entrants, which would usually generate innovation and faster productivity growth. Another possible explanation is that less productive firms have been kept alive by very low interest rates, impeding the reallocation of capital and labour to more productive activities.

The most convincing explanation from our perspective is that business investment has not grown as quickly in the recovery phase from the financial crisis as it had in previous 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 abundant, low-cost labour, including migrant workers from the EU. Uncertainty around Brexit has emerged as an increasingly significant dampener on business investment over the past three years. In the decade up to the referendum UK business investment growth largely kept pace with an average of that in the other G7 economies. However, since the vote, UK business investment has been broadly flat in real terms, while aggregate business investment growth in the rest of the G7 has accelerated. This suggests that the UK has missed out on potential investment during a period since mid-2016 when global economic and financial conditions have generally been favourable for businesses to invest[3].

Looking 10-20 years ahead, emerging technologies like robotics and artificial intelligence could hold the potential for faster productivity growth[4], with a net impact on UK employment that we think could be broadly neutral in the long run as we discussed in detail in the July 2018 edition of this report[5]. But, at least for the next few years, productivity growth may remain relatively subdued, with any recovery being at the expense of slower jobs growth.

3 The comparison between business investment in the UK and the rest of the G7 is discussed in a recent speech by Michael Saunders, an external member of the Bank of England's Monetary Policy Committee: https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/the-economic-outlook-speech-by-michael-saunders

4 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

5 Available here: https://www.pwc.co.uk/economic-services/ukeo/ukeo-july18-net-impact-ai-uk-jobs.pdf

2.2 – Economic growth prospects: national, sectoral and regional

Our main scenario is for real GDP growth of around 1.4% in 2019 and 1.3% in 2020, significantly below the UK's estimated longer term trend growth rate of just under 2%. Further details of this main scenario projection are set out in Table 2.1.

We assume in this main scenario that the UK will avoid a 'no deal' Brexit, where it falls out of the EU at the end of October 2019 (or later) without any transitional arrangement, which could be highly disruptive. But clearly this is a key downside risk as discussed further below.

Slower year-on-year growth in 2018 was driven primarily by a decline in business investment. We do not expect the modest bounce in investment in the first quarter of 2019 to lead to renewed growth in this component of GDP. Instead, firms will remain wary of making major commitments until they know more about the nature of the UK's future trading relationships. However, we also assume in our main scenario that business investment will return to growth in mid-2020 on the assumption that a reasonably orderly Brexit can be achieved by this time.

There is also likely to be continued volatility in stockbuilding around potential future key Brexit dates, as we saw with the stockpiling before March that seems to have gone sharply into reverse in April. This will make quarterly GDP growth volatile, but will have less impact on underlying growth trends.

Table 2.1: Main scenario projections for UK growth and inflation

% real annual growth unless otherwise stated	2017	2018	2019	2020
GDP	1.8	1.4	1.4	1.3
Consumer spending	2.2	1.8	1.6	1.3
Government consumption	-0.2	0.4	2.4	2.5
Fixed investment	3.5	0.2	-0.4	0.1
Domestic demand	1.4	1.6	2.7	0.8
Net exports (% of GDP)	0.5	-0.2	-1.4	0.4
CPI inflation (%: annual average)	2.7	2.5	2.0	2.0

Source: Latest ONS estimates for 2017-18, PwC main scenario for 2019-20

Consumer spending held up relatively well in 2018 and early 2019, helped by a moderation of inflation, higher earnings growth and continued strong jobs growth. The latest data on retail sales suggests consumer spending growth may have subsequently slowed in the second quarter, owing to a combination of relatively poor spring weather and ongoing Brexit-related uncertainty. However, the favourable labour market and the support provided by income tax cuts that took effect from April should mean that household spending growth has the potential to accelerate again, but only once there is greater clarity on Brexit.

An increase in government spending was foreshadowed in the October 2018 Budget. This acceleration in spending growth is accounted for in our main scenario projections and will provide greater support to the economy than at any point since before the global financial crisis. Higher public spending could also feed through into somewhat higher inflation and interest rates in the medium term, which would tend to dampen the impact on economic growth, but this is likely to be a lagged response that would not have a significant effect until after 2020.

Overall, UK domestic demand growth is expected to average around 2.7% in 2019, a much stronger rate than last year, attributable to the surge in 'no deal' Brexit stockpiling in March. We project weaker growth, of 0.8%, in 2020. Net exports are projected to have a highly negative impact on growth in 2019 owing to the 'no deal'-related surge in imports in the first quarter of the year. Net exports could make a positive contribution in 2020.

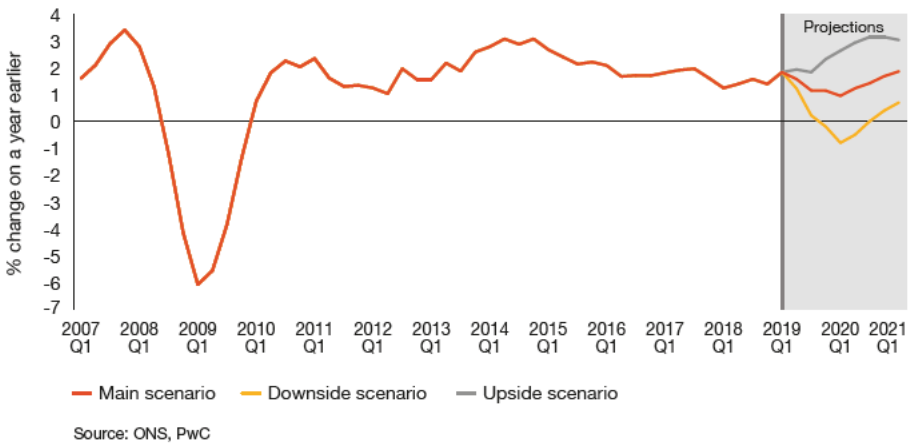
We have revised up our main scenario for UK GDP growth in 2019 to 1.4% from 1.1% in our previous report in March, reflecting the unexpectedly strong growth in the first quarter of the year. However, our view of the lacklustre performance of the economy in the remainder of the year has changed little. If anything, we are more pessimistic now about the possibility of strengthening business investment growth in the remainder of 2019, following the failure of parliament to pass the Withdrawal Agreement by the end-March deadline. Given the possibility of prolonged Brexit uncertainty and the renewed rise in global trade tensions in recent months, we have revised down our main scenario for GDP growth in 2020 from 1.6% to 1.3%.

Alternative growth scenarios – businesses need to make contingency plans

To reflect the uncertainties associated with any such projections, particularly (but not only) in relation to Brexit, we have considered two alternative UK growth scenarios, as shown in Figure 2.6.

- Our **'upside scenario'** projects that the economy will expand by around 3% in 2020, a significant increase from 1.3% in our main scenario. This is a relatively optimistic scenario, which assumes not just a Brexit agreement, but also good early progress in subsequent UK-EU trade negotiations. It also assumes that global economic growth revives later in 2019 and into 2020, so boosting UK exports.
- Our **'downside scenario'**, by contrast, would see the economy shrink later this year and in the first half of 2020 if the UK leaves the EU without a deal. The associated uncertainty would be likely to reduce investment, jobs and growth, although the potential effects could vary considerably across sectors and individual companies depending on their particular circumstances. We do assume here that some kind of mitigating measures would be put in place to avoid more severe disruption. This is therefore not a worst-case scenario. We assume, for example, that serious delays at major ports are avoided and that there is a loosening of monetary and particularly fiscal policy to support the economy. We also assume that the Bank of England/ECB currency swap facility is deployed to maintain stability in financial markets and cross-border payments systems.

Figure 2.6 – Alternative UK GDP growth scenarios



Source: ONS, PwC

We do not believe that either of these two alternative scenarios is the most likely outcome, but they are certainly possible. At present, risks to growth are weighted to the downside given both global trade tensions and, in particular, the political and economic uncertainties around Brexit. Businesses would therefore be well advised to make appropriate contingency plans for the potential impact of different Brexit outcomes[6] on their operating environments (see Table 2.2).

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

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

Issues	Implications	Questions
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 the EU more difficult, but the extent of this will depend on the type of deal, if any, agreed with the EU.	• 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 sales, procurement and logistics? • Have you identified which third party contracts would require renegotiation in different Brexit scenarios (EEA/FTA/WTO)? • Have you ensured your banks can continue to provide financial support for your operations in different Brexit scenarios? • What risk assessments and contingency plans have you made for alternative Brexit scenarios?
Tax	The UK would gain more control over VAT and some other taxes. However, 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 is likely to 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 different Brexit scenarios, including no deal variants? • 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 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 or in work preferences for EU nationals.	• 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? • 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 (including extension) period.	• How well prepared are you to manage future volatility in the exchange rate (and other asset prices) related to Brexit? • Is your organisation ready for a prolonged period of uncertainty and/or a 'no deal' Brexit?

Source: PwC

Most industry sectors projected to see relatively modest growth in 2019-20

The sector dashboard in Table 2.3 shows latest ONS estimates of growth rates for 2018 along with our projected main scenario growth rates for 2019 and 2020 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 distribution, hotels and restaurants sector recorded relatively strong output growth of 2.8% in 2018, helped by strong summer sales, but we expect this to moderate throughout 2019-20, in line with a slowdown in consumer spending.

Manufacturing growth has slowed quickly and, given the recent downward trend, we project no growth in 2019. Unless conditions improve in the global economy or clarity is provided quickly on Brexit, there is unlikely to be a major improvement in 2020.

Construction, as ever, has been volatile, with growth having dropped dramatically to just 0.3% in 2018 according to our latest estimates. We expect some recovery in 2019, though this is partly just due to a statistical bounce-back from the lows seen in early 2018, rather than strong underlying growth in the sector.

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

The business services and finance sector is highly exposed to Brexit-related sentiment factors. UK financial services companies could be particularly badly affected by any loss of access to EU markets, particularly if this happens in a disorderly fashion, although there is also positive longer term potential for the sector beyond Brexit[7]. Some business services firms should benefit from the need of firms to understand new regulatory and tax environments after Brexit.

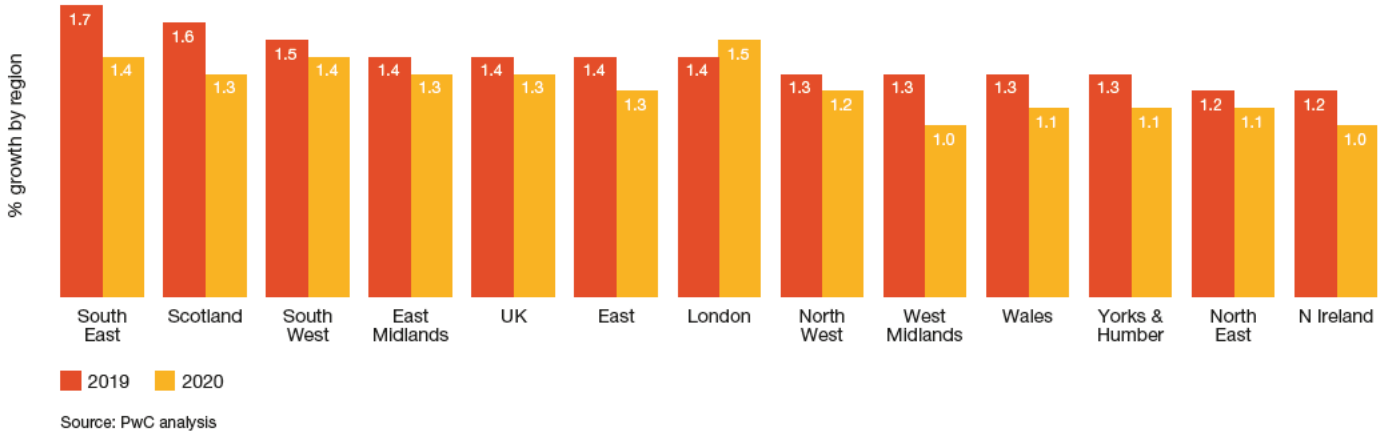
Table 2.3: UK sector dashboard

	Growth (%)			
Issues	**2018**	**2019**	**2020**	**Key issues/trends**
Manufacturing (10%)	0.9	0.0	0.4	• Manufacturing PMI has been on a declining trend for 18 months and was in contractionary territory in May • Exporters gained in 2017-18 from a weaker pound and a stronger global economy, but manufacturers around the world are now struggling with weak demand
Construction (6%)	0.3	2.5	1.5	• Government measures to boost infrastructure investment to try to offset weak commercial construction are starting to take effect • Housing market remains sluggish and prices are falling in London
Distribution, hotels & restaurants (13%)	2.8	2.6	1.0	• A weaker pound since 2016 has boosted tourism, both from overseas and domestically, although some of the former has been offset by damage to UK's reputation for openness to visitors • Total consumer spending remains robust, as earnings growth and job creation continue
Business services and finance (34%)	1.6	0.9	1.7	• The financial sector remains particularly concerned about the possible implications of Brexit, especially if this is disorderly • The Bank of England has increased the counter-cyclical capital buffer to constrain consumer debt levels, which may impact lending by retail banks • Business services, however, continued to see relatively strong growth during 2018
Government and other services (22%)	0.3	1.4	1.6	• Public services continue to face tight budgets, but austerity was eased in the Budget and NHS spending is planned to increase significantly
Total GDP	**1.4**	**1.4**	**1.3**	

Sources: ONS for 2018 estimates, PwC for 2019 and 2020 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%

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

Figure 2.7 – PwC main scenario for output growth by region in 2019 and 2020



Source: PwC analysis

Regional prospects: all parts of the UK likely to see modest growth in 2019 and 2020

In contrast to previous years and indeed decades where London has generally had the strongest growth rate of any UK region, our latest projections suggest London will grow no more quickly than the UK average in 2019 (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. If, as we assume in our main scenario, a 'no deal' outcome is avoided and greater clarity is provided on Brexit, we expect London could see growth accelerate to around 1.5% in 2020, although this rate would still be markedly slower than the pace seen in past periods.

The South East and Scotland could be the best-performing regions this year, while most other English regions are projected to expand at close to the UK average rate of 1.4%. The North East and Northern Ireland are predicted to lag behind slightly with growth of only around 1% in 2019.

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

We should also bear in mind that economic growth is only one of several indicators that should be considered in assessing performance of regions and cities across the UK, as discussed in more detail in our latest Good Growth for Cities report published in November 2018[8].

2.3 – Outlook for inflation and real earnings growth

Inflation as measured by the consumer price index (CPI[9]) picked up from just 0.7% on average in 2016 to around 3% in late 2017 due to the effect of a weaker pound into import prices. This also reflected the rise in global oil prices from their low point of around $30 per barrel in early 2016 to over $80 a barrel at their peak in 2018. However, consumer price inflation has since fallen back to around its 2% target rate as the effect of past import price rises fell out of the 12-month inflation calculation. We expect CPI inflation to average around 2% in both 2019 and 2020 in our main scenario (see Figure 2.8), but there could be considerable turbulence along the way.

8 Available here: https://www.pwc.co.uk/goodgrowth

9 The ONS switched from CPI to CPIH as its primary 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 back above 3% in 2020 as a result of renewed falls in the pound and/or strong growth in global commodity prices if other economies grow more strongly and/or global oil supply is constrained by producers.
- In our **'low inflation' scenario**, by contrast, the UK and global economies weaken by more than expected in our main scenario leading global commodity prices to fall back sharply over the next year. In this case, UK inflation could fall back to below 1% over the next year.

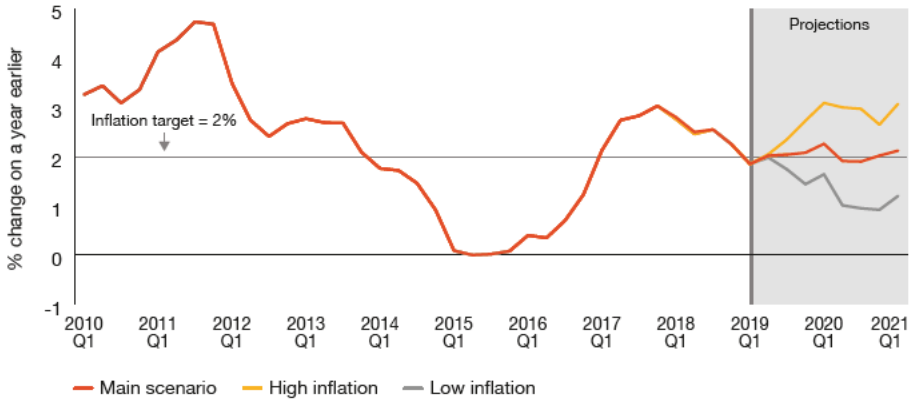
As with our GDP growth scenarios, neither of these two alternative variants is as likely as our main scenario. But given recent volatility and uncertainty, businesses should plan for a broad range of outcomes. It is worth noting here that a 'no deal' Brexit scenario could push up UK inflation in the short term by weakening the pound, but might lead to lower inflation in the medium term if it slows economic growth.

Real earnings projected to pick up gradually

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 UK inflation down to close to zero. The real earnings squeeze returned temporarily in 2017 as the post-referendum weakness of the pound pushed up inflation again, but over the past 18 months nominal wage growth has accelerated as the unemployment rate has fallen to below 4%, the lowest level seen since 1974.

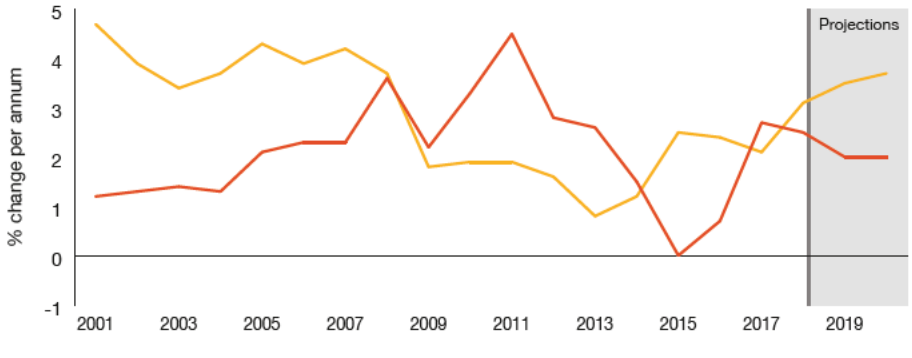
As inflation has slowed in recent months, real earnings (excluding bonuses, which tend to be erratic) have now started to grow again at a reasonably strong pace and we expect this upward trend to continue in 2019-20 (see Figure 2.9). It is difficult for real earnings to grow significantly on a longer term basis, however, unless productivity growth also picks up for a sustained period.

Figure 2.8 – Alternative UK inflation (CPI) scenarios



Source: ONS, PwC scenarios

Figure 2.9 – CPI inflation vs average earnings growth



Source: ONS, PwC scenarios

2.4 – Monetary and fiscal policy

The Monetary Policy Committee (MPC) raised interest rates from 0.5% to 0.75% in August 2018 in response to stronger growth in mid-2018 and signs that wages had started to grow at a faster rate again, but have left rates on hold since then in the face of ongoing Brexit uncertainty. The MPC has been signalling for some time their eventual intention to raise interest rates very gradually over the next few years, but the timing of this will depend on how the economic data evolve and, at present, a further rate rise seems unlikely until we get real clarity on Brexit. As things stand, this makes it unlikely we will get a rate rise during 2019.

In the medium term, we project further small and gradual rate rises in our main scenario assuming an orderly Brexit, but interest rates will remain very low by historical standards for the foreseeable future. UK base rates may end up at around 2-3% in the medium term, as opposed to the 5% pre-crisis norm. If there is a 'no deal' Brexit, however, then the MPC might loosen monetary policy again in the short term to support the economy through a difficult period. We note that the longer term impact of such a 'no deal' scenario on interest rates is less clear, as it depends on the relative scale of the impact on both demand and supply capacity.

The public finances are now in a relatively healthy state as a result of years of government austerity measures. The latest figures show that in 2018/19 borrowing came in at around £24bn, which is just over 1% of GDP and was the lowest level of borrowing seen for 17 years. Preliminary estimates for the first two months of 2019/20 show a higher level of borrowing relative to year-ago levels, but it is much too soon to claim this as evidence of a change in trend.

In his October 2018 Budget, the Chancellor benefited from a significant and persistent improvement in official public finance projections by the Office for Budget Responsibility (OBR). This reflected what the OBR judged to be a structural increase in the tax-to-GDP ratio as well as a lower sustainable unemployment rate of around 4% going forward. The Chancellor used most of the fiscal windfall at the time of the Budget to fund the increase in NHS spending over the next five years announced by the Prime Minister in June 2018. There were also modest net tax cuts in the short term, starting from April 2019, but these will be offset by other tax rises in the medium term. There were no major changes to the fiscal policy stance in the Spring Statement, with major decisions being deferred to the planned Budget and Spending Review in the autumn.

The latest OBR projections assume an orderly Brexit, but note the downside risks to this. A disorderly 'no deal' Brexit could lead the Chancellor to spend more and/or cut taxes further in the short term to cushion the impact on the economy in 2019-20, but could require renewed austerity in the longer term given the damage that a disorderly Brexit would potentially do to the public finances.

2.5 – Summary and conclusions

UK economic growth has slowed since early 2018 as Brexit-related uncertainty has dampened business investment. Consumer spending has held up better so far, helped by rising real earnings growth and a continued strong jobs market.

Our main scenario is for UK GDP growth to remain subdued, growing by around 1.4% on average in 2019 and a similar rate in 2020. These main scenario projections assume that a 'no deal' Brexit is avoided, but also that there is no broad and synchronised acceleration in the global economy (or indeed a sharp decline into global recession).

It also takes into account the boost to short-term growth from the tax and spending measures announced in the October 2018 Budget and coming into effect from April 2019 onwards.

Most industry sectors are projected to see relatively modest growth in 2019-20, though short-term trends remain volatile and highly dependent on how events develop on Brexit. Manufacturing and other export-intensive sectors also face downside risks from any further deceleration in global growth in 2019-20 owing to heightened trade tensions.

In our main scenario with an eventual orderly Brexit we assume a single one-quarter-point interest rate rise at some point in 2020, although the exact timing of future rate changes remains especially uncertain at present.

Given the ongoing lack of clarity around Brexit, there are particularly large uncertainties around any economic projections at present. A disorderly 'no deal' Brexit could lead to a significantly less favourable outcome for growth, despite some offset from likely mitigating actions by the government, the EU, the Bank of England and others, but there could also be some upside potential for the economy if a smooth Brexit can be achieved without too much further delay. Organisations should therefore stress test their business and investment plans against alternative economic and political scenarios and review the potential wider implications of different Brexit outcomes for all aspects of their operations.

3. UK housing market outlook[1]

Key points

- House price growth across the UK has been softening since the middle of 2016. However, the regional picture is mixed. Prices in London have been falling since the middle of last year, while prices in Scotland, Wales and Northern Ireland are showing some resilience.
- In our main scenario, we project that house prices in the UK will grow at an average of only around 1% this year, implying a 1% decline in real terms. Beyond 2019, we expect house price growth to recover slightly in 2020 and then continue to accelerate slowly in the medium term. This assumes that a disruptive 'no deal' Brexit can be avoided, earnings continue to grow in real terms and unemployment remains low.
- Over five million households live in privately rented accommodation. We have looked in detail at the affordability of private rents in different regions and for different occupations. Based on a standard benchmark that affordable rents should be no more than 30% of incomes, we find that, on average across the UK, private rents are currently slightly above this affordability threshold.
- Rental affordability varies significantly across regions, however, with median private rents well above 30% of income in London and Southern England, but still some way below this threshold in Northern England and Wales.
- The rental affordability challenge is even more pronounced for young people and we estimate that 22-29 year olds on average now have to spend over half (53%) of their income on private rent in London.
- Among the key worker occupations that we have studied, prison officers had the worst rental affordability ratios, reaching 45% in London in 2017/18, while primary school teachers and nurses in the capital also face very high ratios of around 40%.
- The high cost of rental housing may therefore prevent people who work in key professions from living in or moving to London and the South East, leading to shortages of nurses, teachers and other key workers in these regions, as well as limiting economic and social mobility across the country.

Introduction

In this section, we explore how the UK housing market has performed (Section 3.1). We then present our latest projections for national house prices to 2025 and regional house prices to 2022 (Section 3.2). To assess the impact of the housing market on social mobility, we compare the affordability of private rents for different key professions and by region (Section 3.3). Finally, in Section 3.4, we discuss the implications of our analysis for government policy and business. Technical details of our house price modelling methodology are presented in the annex.

> "Rents are unaffordable for many key workers in London and the South, limiting social mobility.
>
> **Jamie Durham**
> Economist, PwC

1 This article was written by Jamie Durham and Tilly Thomas with additional inputs from Mike Jakeman and John Hawksworth.

3.1 – Recent trends in household disposable income

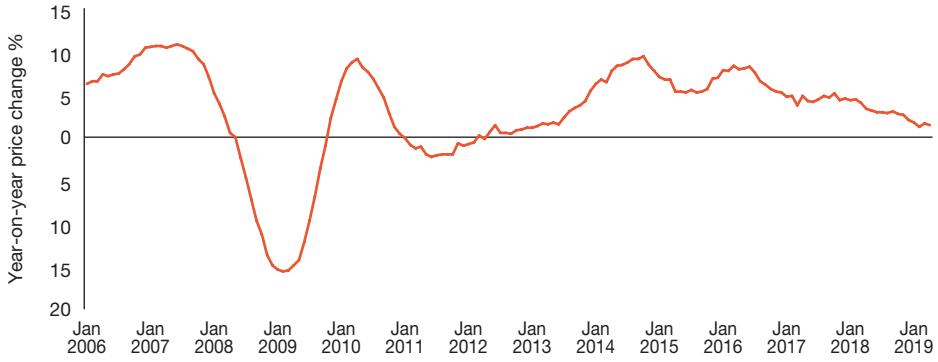
UK house price inflation has been weakening steadily since mid-2016. Annual house price inflation was 1.4% in the year to April 2019, compared with 7.9% three years ago[2]. The average house price stood at £229,000 in April 2019, down from an all-time peak of £232,000 in August 2018.

The recent weakening in house price growth is in line with broader market data on transactions. Across the UK, the most recent data shows that sales volumes declined by 12% in the year to January 2019, from 71,900 to 63,400.

Two main factors are exerting downward pressure on the housing market: continued uncertainty following the EU referendum in 2016 and the introduction of the Stamp Duty surcharge on second homes earlier that year, which is equivalent to an additional 3% tax on the purchase price.

In the remainder of 2019, we expect these trends to continue, partially offsetting strong fundamentals such as low unemployment, low interest rates and increasing real earnings growth, resulting in sluggish average UK house price growth for the year as a whole, of around 1%.

Figure 3.1 – UK house price inflation since 2006



Source: ONS, Land Registry

The regional picture is mixed, with London showing the largest downturn in prices

Weak house price growth in England has been driven by falling prices in London and surrounding areas. Annual house price inflation in the capital turned negative in July 2018 and has remained so in every month since then. This weaker performance is driven by similar factors as the national picture, but to a greater extent. For example, the uncertainty associated with Brexit is amplified in London due to its close integration with Europe, while the increase in stamp duty on high value and buy-to-let properties in 2016 disproportionately affects London owing to higher prices and its larger rental sector. Other areas of the UK have fared better. House price growth was strongest in Wales in the year to April 2019, at 6.7%, while the Midlands and North West have regularly been the strongest performers in England, although growth has started to weaken in these regions too in recent months.

Our regional house price projections for 2019 to 2022 are set out in detail in Section 3.2 below, while Box 3.1 considers how rents have evolved recently.

Table 3.1: Annual house price growth by region, April 2019

	April 2019 (12 month % change)
Wales	6.7
East Midlands	2.9
North West	2.6
Yorkshire and The Humber	2.5
West Midlands	2.2
Northern Ireland	2.1
North East	2.0
Scotland	1.6
United Kingdom	**1.4**
South West	1.3
East	0.6
South East	-0.8
London	-1.2

Source: ONS, Land Registry

2 April 2019 is the most recent data point available at the time of publication.

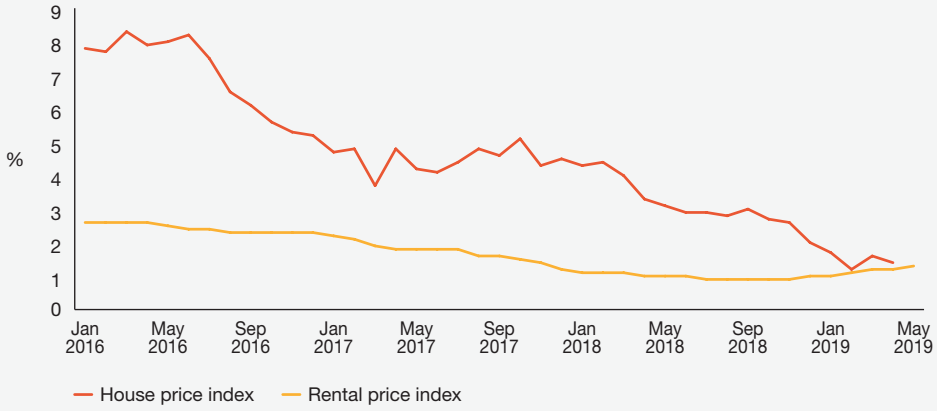
Box 3.1 – Rental price growth has also slowed since 2016

The Office for National Statistics (ONS) now publishes an experimental index of private rental prices[3]. The index captures the change in price for average properties across the UK and breaks out these changes by region. As with house price growth, rental price growth has softened since 2016, but not to the same extent.

In 2016 house price growth exceeded rental price growth significantly. House prices grew on an annual basis by 7% in 2016, while rental prices grew by 2.4%[4]. However, annual house price growth and rental price growth are now broadly equal, averaging 1.5% and 1.1% in the first four months of 2019, respectively.

Rental price growth has been particularly weak in London, with average annual rental prices in 2018 falling by 0.1%. Price growth in the capital has picked up slightly in the first few months of 2019 to average 0.4% year on year.

Figure 3.1.1 – Comparison of UK house price growth and rental price growth since 2016



Source: ONS, Land Registry

Rental price growth is subject to many of the same pressures as house price inflation. From a demand perspective, continued uncertainty in the market may dampen demand to move. From a supply perspective, increased stamp duty on second properties, greater restrictions on buy-to-let properties and increases in alternative renting models via online platforms mean that the availability of homes to rent may be constrained.

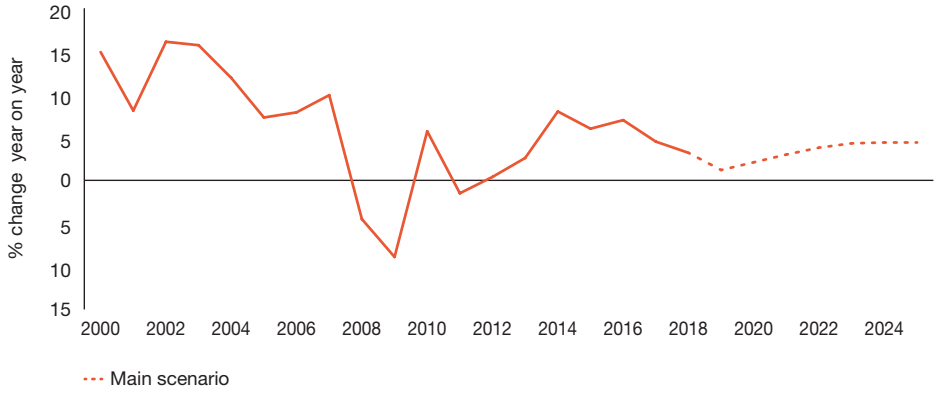
3 The Index of Private House Prices can be found here: https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/indexofprivatehousingrentalprices/april2019
4 April 2019 is the most recent data point available at the time of publication.

3.2 – UK and regional house price projections

In this section, we present our projections for house price inflation in the UK and regional markets. We use econometric time-series models to make our projections, as descr bed in more detail in the technical annex. These models link house prices to underlying drivers of the housing market and the economy more generally, such as earnings growth, housing supply and credit conditions. We then use these relationships to project how prices may evolve going forward.

Where possible, we base our assumptions for the model on forecasts from official and reputable sources. In our main scenario we assume that real earnings growth is sustained out to 2025, in line with Office for Budget Responsibility (OBR) forecasts. We assume that mortgage lending drops in 2019, before returning to steady growth from 2020 onwards as uncertainty in the market subsides, and in line with forecasts by the Council of Mortgage Lenders. The population is assumed to grow in line with ONS projections, while housing stock growth is assumed to grow by 250,000 homes a year over the period. This is slightly below the government's official target of 300,000 a year, but is aligned to the OBR's forecasts.

Figure 3.2 – UK house price projection in main scenario, 2020-25



Source: ONS, PwC analysis

UK house prices are projected to grow slowly this year

In our main scenario, we project that house prices in the UK will grow at an average of around 1% this year, representing a small decline in real terms. This would be much slower than the 3.2% increase in house prices last year and an annual average rate of increase of around 4% since the financial crisis, but would be in line with the data for the first few months of the year.

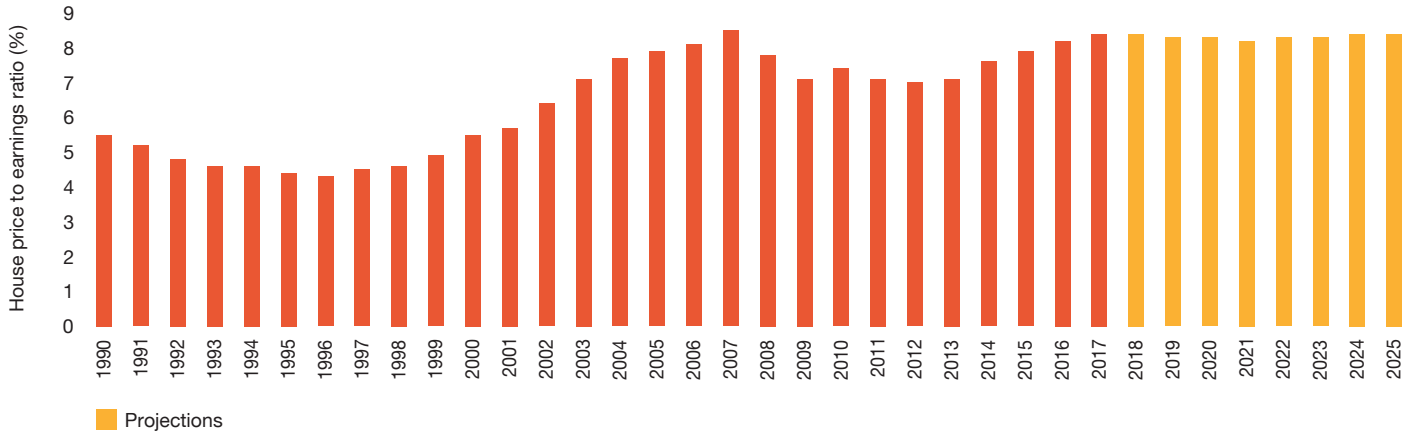
Beyond 2019, we project in our main scenario that house price growth will recover slightly in 2020 and then continue to accelerate slowly, as shown in Figure 3.2. This trajectory assumes that uncertainty in the market continues for much of 2019, before subsiding during 2020 based on our main scenario assumption of an orderly Brexit (as discussed further in Section 2 above). As uncertainty subsides, consumer and lender confidence should pick up, contributing to a gradual increase in housing demand and transactions, which would then push real house price growth back up towards its long term average rate.

In practice, house price growth rates are likely to be volatile, and there are many uncertainties around our main scenario relating to Brexit and other factors, so we also present alternative higher and lower house price inflation scenarios later in this article.

Our main scenario projection implies that the average UK house price to earnings ratio will remain high, but relatively stable over the next few years. Figure 3.3 shows the ratio in 2018 was 8.4, and that this is projected to remain relatively flat until 2025 in our main scenario[5]. This relatively stable ratio implies that house price growth is likely to keep up with earnings growth over the period as Brexit uncertainty is assumed to subside in our main scenario and the economy as a whole also remains relatively stable.

5 The ratio we show in Figure 3.3 is based on average annualised earnings for an individual in the economy – meaning that average earnings reflect a mix of full-time and part-time work. Earnings would be higher if presented at the household level, rather than the individual level, or if they were just for full-time workers.

Figure 3.3 – House price-to-earnings ratio, 1990-2025



Source: ONS, PwC analysis

Note: Earnings are annualised average weekly earnings for the whole UK economy

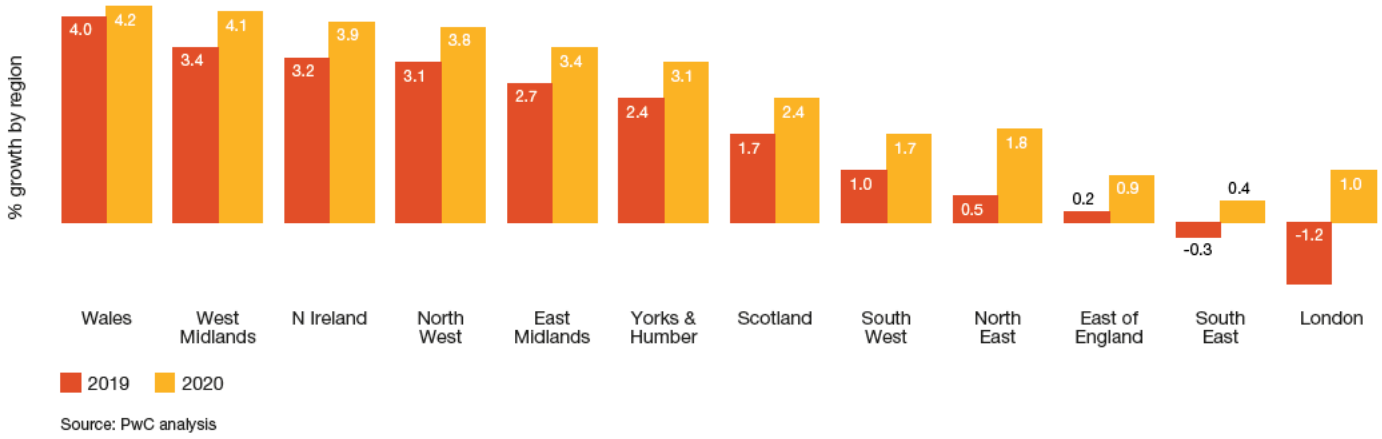
In our main scenario, the average price of a UK house in 2019 is around £231,000. This represents a slight increase of around 1% over the average 2018 price. Thereafter, our main scenario projection is for the average UK house price to rise to around £287,000 in 2025. As shown in Table 3.2, even after adjusting house prices for projected consumer price inflation, prices continue to rise in real terms in the medium term after a 1% decline in 2019. We project that house prices could be just over 9% more expensive in 2025 than in 2018. We expect that the house price to earnings ratio will be broadly flat, owing both to slower growth in the housing market and consistent real wage growth.

Table 3.2: UK house prices – main scenario projections

Year	Main scenario (% growth)	Main scenario (in cash terms)	Main scenario (real terms at 2018 prices)	House price-to-earnings ratio
2018 (actual)	3.2	£229,000	£229,000	8.4
2019	1.2	£231,000	£226,000	8.3
2020	2.1	£236,000	£227,000	8.3
2021-2025	4.0 (average growth)	£286,000 (in 2025)	£249,000 (in 2025)	8.4 (in 2025)

Source: PwC analysis based on ONS house price index

Figure 3.4 – Projected house price inflation by UK region in 2019-20



Source: PwC analysis

We project that London and surrounding areas will see house prices fall this year, before rebounding next year

Regionally, the average house price differs significantly, ranging from £478,000 in London to just £128,000 in the North East in 2018. The price-to-earnings ratio also differs between regions, making some areas significantly more affordable than others. For example, in the first quarter of 2019, the price-to-earnings ratio in London was 11.8, but 4.3 in the North East.

In our main scenario we project that most regions will see moderate growth in house prices in 2019 (see Figure 3.4), but that this growth will be slower for every region relative to 2018. We project that the strongest house price growth will be found in Wales, while prices will fall in the South East, North East and London.

Our regional projections are set out in more detail in Table 3.3. However, it should be noted that even greater uncertainty exists at the regional level than the national level. Long-term projections should be treated with caution, which is why our regional analysis ends in 2022[6].

Table 3.3: Projected regional house price growth and house price values in our main scenario

	Average house price growth (%)			Average house price values (£'000s in cash terms)	
Region	2019	2020	2021-2022 (average)	2018	2022
Wales	4.0	4.2	4.0	157	184
West Midlands	3.4	4.1	3.2	194	223
Northern Ireland	3.2	3.9	5.2	133	158
North West	3.1	3.8	4.2	160	186
East Midlands	2.7	3.4	3.2	190	214
Yorkshire and The Humber	2.4	3.1	3.7	160	181
Scotland	1.7	2.4	4.7	149	170
South West	1.0	1.7	3.1	255	278
North East	0.5	1.8	3.0	128	139
East of England	0.2	0.9	2.4	291	308
South East	-0.3	0.4	3.1	323	344
London	-1.2	1.0	3.2	478	508
UK	**1.2**	**2.1**	**3.0**	**228**	**252**

Source: ONS, PwC analysis

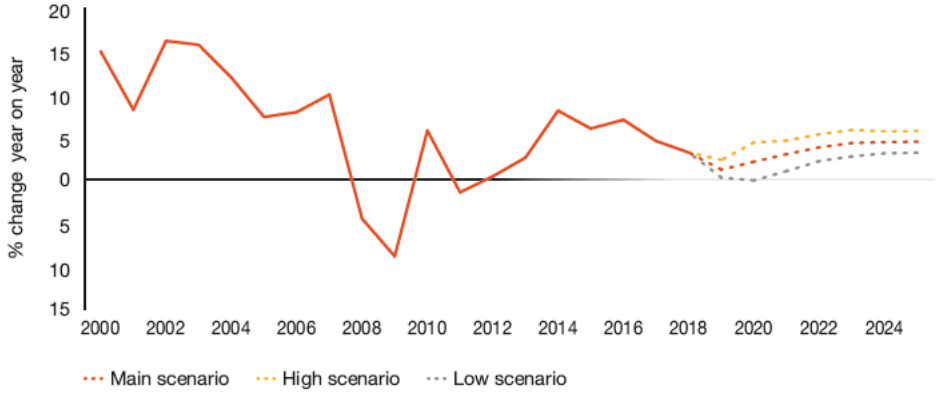
6 This is because some unpredictable factors causing regional house price projection errors will be area-specific factors that are not correlated across regions, and so will tend to cancel out when looking at aggregate national house prices. The latter will therefore tend to have lower forecasting errors on average than projections for individual regions (whether for house prices or other economic variables).

Alternative UK house price scenarios

Projecting house prices involves balancing views on economic fundamentals such as earnings, inflation, and interest rates, with intangible factors like buyers' and lenders' confidence. To reflect these uncertainties, we develop two alternative house price inflation scenarios based on different inputs for the model drivers (see Figure 3.5).

Our high house price scenario assumes real earnings growth picks up more quickly and employment grows slightly faster than in the main scenario, which provides a boost to housing demand. We also assume that credit conditions are more favourable, with a smaller drop in gross mortgage lending in 2019 than in the main scenario, and continued strong mortgage lending growth to 2025. On the supply side, we assume the housing stock grows more slowly than the OBR forecasts. Under these assumptions, we project annual house price will average 2.3% in 2019, before rising to 4.3% in 2020 and then averaging over 5% until 2025. This would result in a further deterioration in affordability and the average house price would rise to nearly £315,000 in 2025.

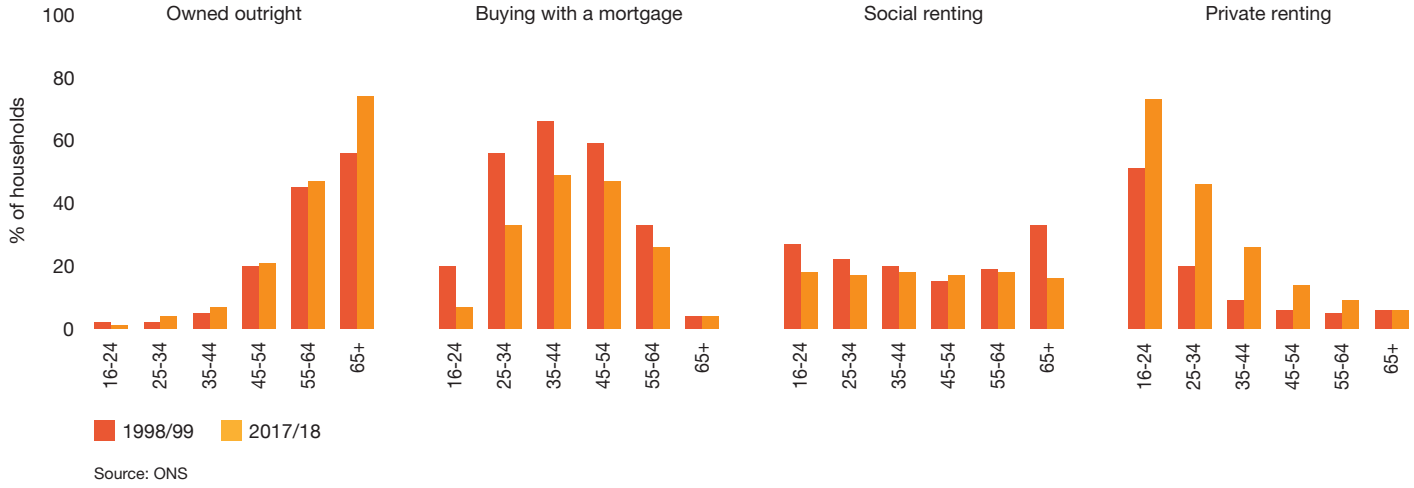
Figure 3.5 – Alternative UK house price inflation scenarios, 2020-25



Source: ONS, PwC analysis

In our low house price scenario we assume that real wages continue to grow but at a slower rate, while employment growth is also more moderate. We also assume that mortgage lending drops by more than in the main scenario in 2019, and credit conditions worsen over the next couple of years. Housing stock is assumed to grow in line with government targets. Under this scenario, UK house price growth weakens substantially this year to around zero, becomes slightly negative in 2020, and then returns to very modest growth from 2021. In this case, the average house prices would reach £258,000 in 2025, which would represent only a slight increase in real terms over prices in 2018. It should be noted, however, that this is not intended to be a 'worst case' scenario involving a highly disruptive 'no deal' Brexit, which represents an additional downside risk over and above that captured in our low scenario, but one that is hard to quantify with any precision.

Figure 3.6 – UK tenure type by age of head of household, 1998/99 and 2017/18



Source: ONS

3.3 – Assessing the affordability of renting

Compared to the late 1990s, 25-34 year-olds are now disproportionately less likely to purchase a property with a mortgage, and more than twice as likely to rent privately. This has opened up an age gap in home ownership between the young and old: home ownership rates among young people have fallen significantly, while the proportion of households aged 65+ owning their homes outright has risen significantly since 1998/99 as shown in Figure 3.6.

Young buyers face a range of hurdles when trying to get onto the property ladder, including a shortage of affordable housing and high deposit requirements. Government initiatives to address this, such as Help to Buy equity loans and ISAs, have primarily boosted demand rather than expanded supply[7].

A recent report by the National Audit Office found that more than 60% of those who have used the Help to Buy scheme could have bought a property regardless, and half of this group could have bought their desired property without support of the scheme, suggesting that current policy is not being targeted as effectively as it might be.

Locked out of purchasing a home, many young people – commonly referred to as "generation rent" – have turned to renting. The proportion of 16-24 year-olds renting privately has risen from 51% in 1998/99 to 73% in 2017/18 and from 20% to 46% for 25-34 year-olds.

The shift to renting among young people is not necessarily a problem. It offers flexibility, such as the ability to move to take up new job opportunities. Other major economies, such as Germany and France, have much higher levels of renting than the UK. However, in these countries, rents are typically lower relative to incomes and there are greater protections for tenants.

In the UK, rental payments tend to be larger than mortgage repayments in the most expensive regions. This may keep people off the housing ladder for longer: if a large proportion of income is spent on rent, then it cannot be saved towards a future deposit. In 2016, for example, we estimated that potential buyers without any support from family might have to save for 19 years to buy their first home[8], up from just 3 years in the early 1990s.

If people are locked out of purchasing a house and rents are too expensive to be able to move to more prosperous areas of the country such as London and the South East, then there are implications for social mobility and productivity.
In the remainder of this article we provide a detailed comparison of private rent levels with earnings for different occupations and by region to understand the scale of this problem.

7 See the July 2018 edition of UK Economic Outlook for full details.
8 Assuming the deposit has to be raised entirely from their own savings without family assistance. See the July 2016 edition of UK Economic Outlook for full details of this analysis.

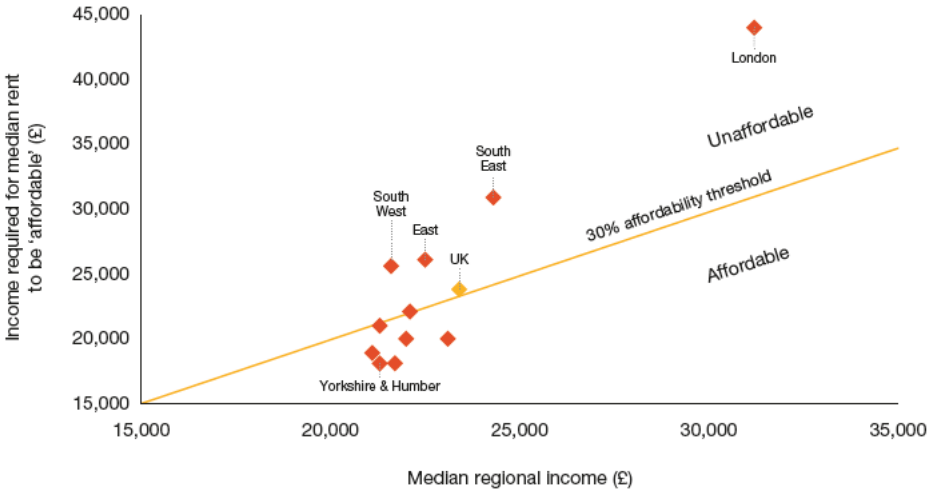
Rent represents a major share of income, and is unaffordable in much of the south of England

A conventional assumption used in previous studies is that, for housing to be considered affordable, it must cost less than 30% of gross annual income[9]. Using this benchmark, an employee would need an annual salary of £23,800 to afford the median private rent in the UK. Currently, the median wage across the UK is £23,400, which means that the country's median rent has just crossed over the 30% rental affordability threshold.

Just as rents vary between regions, the amount that someone needs to earn for renting to be affordable is also different, as shown in Figure 3.7[10]. Our analysis suggests that four regions in the UK are considered unaffordable, while a further two regions are at the limit of affordability. The most affordable region is Yorkshire and the Humber, where a salary of £18,100 is required. At the other end of the scale, a worker in London would need to earn a minimum of £44,000 for the median private rent to be considered affordable.

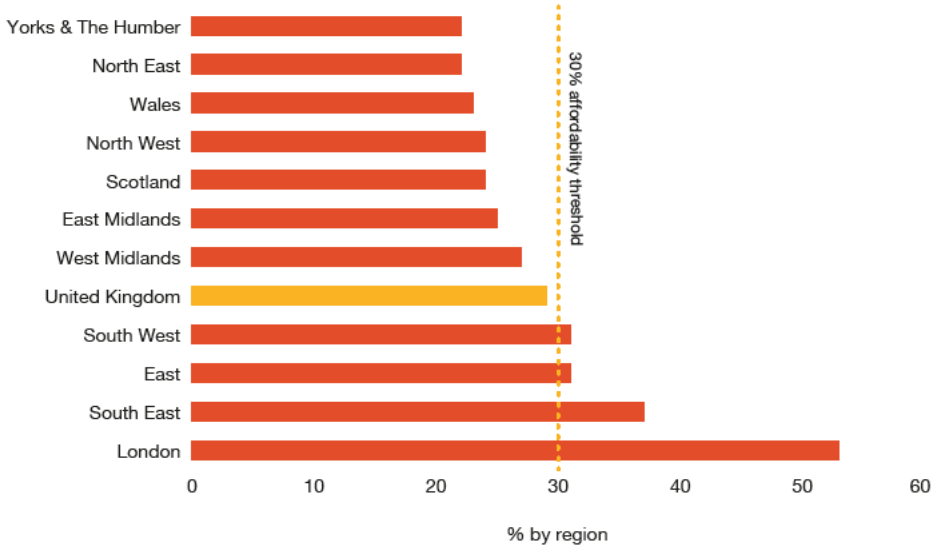
This affordability challenge is even more pronounced for young people in the capital. As shown in Figure 3.8 for 22-29 year olds, we estimate that members of "generation rent" in London had to spend over half (53%) of their income on private rent[11], while those in Yorkshire spent just 22% of their income on rent (based in each case on median values of income and rent).

Figure 3.7 – Affordable income by region, 2017/18



Source: ONS, PwC analysis

Figure 3.8 – Rental affordability ratio by region for 22-29 year olds, 2018



Source: ONS, PwC analysis

9 See, for example, Shelter, 2016, Making renting more affordable for more Londoners.
10 We have chosen to look at rental affordability at a region-level, rather than more granularly. This is because people are more likely to commute across local authority borders for work, which makes the analysis less robust.
11 We calculate the affordability ratio by dividing median rents by median earnings. We use the median in order to exclude extreme values at either end of the scale.

Table 3.4: Rental affordability ratio by region and key worker profession, 2018

Indicator (%)	Police officers	Secondary school teachers	Social workers	Fire service officers	Primary & nursery teachers	Nurses & midwives	Prison service officers
Wales	15	15	18	N/A	16	19	N/A
North East	14	15	20	18	18	18	19
Scotland	15	17	17	20	18	22	15
Yorkshire and The Humber	14	18	19	17	17	19	24
North West	15	17	18	19	19	21	25
West Midlands	17	18	20	20	22	25	24
East Midlands	17	18	21	N/A	24	23	26
South West	19	21	28	25	27	29	N/A
East	20	22	26	26	26	32	30
South East	23	27	30	27	33	34	33
London	29	33	34	36	40	39	45

Source: ONS, PwC analysis based on ratio of median private rents to median income. Note that comparable data are not available for Northern Ireland.

High rental affordability ratios could lead to problems for society

This analysis suggests that many jobs do not offer the wages necessary for rents to be considered affordable in London and other parts of Southern England. To explore this further, we have estimated the affordability of private rents in different regions for a range of key occupations. We do this by dividing median private rents by median incomes to calculate a ratio of rent-to-income, which we refer to as the rental affordability ratio. Importantly, we have assessed affordability using figures for the amount of rent paid per person, rather than average rents[12].

A high rental affordability ratio has two important implications. It may prevent people seeking out better opportunities and greater prosperity by moving to more productive areas of the country, which affects social mobility and the country's productivity growth. But it may also prevent people who work in key professions from living in certain areas of the country, which could lead to shortages of these workers in those regions.

We have focused our analysis on what are commonly referred to as 'key workers'. These are public sector employees considered vital to the infrastructure of the community, including NHS workers, teachers, and police and fire service officers. Most key workers need to be able to afford to live close to the areas that they work, as commuting long distances to work (or working remotely using computers and mobile technology) is neither desirable nor practical.

Although there are a variety of shared or low-cost home ownership and rent schemes with social landlords for which key workers are given priority, the stock of affordable homes in the UK has shrunk across the country[13]. As shown in Figure 3.6, the proportion of people who rent in the social sector fell between 1998/1999 and 2017/18, particularly for younger and older people. Those who previously lived in social housing are being pushed into the private sector. Over five million households are now privately renting and our analysis shows that, for many occupations, this is unaffordable.

We present our results for the levels of private rental affordability for selected key worker occupations by region in Table 3.4.

12 This is a key difference. With a rising share of people in shared accommodation, taking the average rent paid is a better indicator of affordability of housing than the average cost of a flat or house, though it does potentially mask any declines in the quality of accommodation.
13 Ministry of Housing, Communities & Local Government, Dwelling Stock Estimates: 31 March 2018, England.

Our analysis shows that:

- The affordability challenge for key workers is particularly pronounced in London and the South East. Across all of the key worker professions we have looked at, rents are at the limit of affordability or unaffordable in London. Rents are also unaffordable for many professions in the rest of the South East, potentially ruling out commuting in to the capital from further afield (which would also involve additional transport costs as well as longer commuting times).

- Among the group of key workers that we have looked at, prison services officers had the worst rental affordability ratios in London in 2018, at 45%. Rental affordability ratios were also particularly high for primary school and nursery teachers at 40%, while the rental affordability ratio for nurses and midwives was 39%. For the latter, median wages would need to increase by roughly £10,500 a year for current median rents to be considered affordable.

- High rental affordability ratios are not exclusively found in the South East. The East and South West were both also unaffordable for some of the occupations we looked at, including nurses and midwives and prison officers.

- Private rents are generally considered affordable across professions in Scotland and Wales, with the rental affordability ratio ranging between 15% and 22% for the professions we studied[14].

These high rental affordability ratios are before considering additional costs associated with renting (for example, moving house or paying for utilities). For some, cutting the amount spent on rent through relocating may not be realistic, given existing family commitments and the upheaval associated with moving.

It is also important to note that we look at median incomes for occupations that cover a range of grades. Many workers fall into the junior end of these grades. As a result, it may be even more difficult for junior key workers in the low affordability areas, and they may be forced to live in lower quality accommodation or commute from further afield.

Rental affordability ratios have worsened for key professions over the last 5 years

For many of the professions that we have looked at, rental affordability ratios have deteriorated over the last 5 years. The change in the rental affordability ratio is affected by movements in rent and incomes. Our analysis suggests that in the UK as a whole, the amount spent on rent over this period has grown by 8%. At the same time, earnings growth remains relatively weak and below levels seen before the financial crisis.

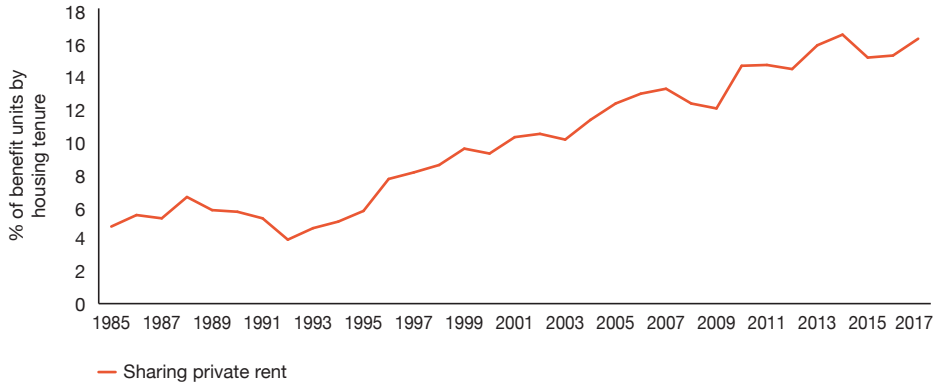
In London, the South East and the East Midlands, increases in rents have outpaced earnings growth, weakening (i.e. raising) rental affordability ratios over time. This has contributed towards a greater divide in the rates of affordability between these regions and the rest of the country. As the capital and its surrounding areas are generally the most productive areas of the country (based on standard measures such as GVA per worker), the worsening rates of affordability have made it more difficult for people to move to these areas to seek out greater prosperity. If current trends continue, we project that the average affordability ratio in London could reach 47% by 2022/23, from 42% in 2017/18. For young people, who already face median rents that are more than half of median incomes as noted above, the additional squeeze on disposable income could be even greater.

As noted previously, these figures show how the amount of rent paid per person has changed over the last five years, rather than how average rents have changed. This difference is important as it accounts for the increasing trend of multiple 'benefit units' (defined as a single adult or a married and cohabiting couple and any dependent children) living in one household, and splitting the average rent between themselves.

Data from the Resolution Foundation, as presented in Figure 3.9, suggests that people have chosen the way they live over the past 20 years, with an increasing proportion of people living in shared accommodation. This may imply that a lack of affordable housing may be pushing people into living in shared or lower quality accommodation, which could be putting downward pressure on the amount of rent paid. If this is correct, the underlying trend in rental affordability could be even worse than our estimates suggest.

14 These are averages across Scotland, however, and rents are likely to be less affordable relative to incomes in major cities like Edinburgh and Glasgow. But this kind of city-level analysis was beyond the scope of the present study (aside from London given this is a region in its own right).

Figure 3.9 – Shared housing in London, 1985-2017



Source: Resolution Foundation

3.4 – Implications for government policy and business

Faced with a shortage of affordable housing, higher deposit requirements and increased demand for housing, young people are increasingly turning to private renting. Our analysis shows that, in London, tenants aged 22-29 now have to spend over half (53%) of their income on private rent, far in excess of the 30% threshold that is generally considered affordable. On an occupational basis, many key workers such as nurses and teachers cannot afford the rents charged in areas such as London and the South East.

Looking ahead, reducing the cost of housing – both renting and purchasing a house - should be a priority. The high cost of housing has implications for key workers as well as those in other professions. For example, it may prevent people who work in key professions from living in certain areas of the country, which could lead to shortages of workers. Without the support of family or others, high rental affordability ratios may also prevent people from seeking out better opportunities and greater prosperity by moving to more productive areas of the country, which affects their prospects as well as national productivity growth.

Both the government and business can improve housing affordability

There are a number of levers that the government could pull to make housing, and particularly rents, more affordable. Most of these involve increasing the supply of properties to put downward pressure on property price inflation. One such lever would involve working with housebuilders to ensure that the government's target for 300,000 new homes a year in England is met. The government will need to continue to implement supporting policy to do this, for example by further relaxing planning rules and facilitating more strategic thinking, with local authorities (and other local stakeholders such as LEPs) coming together to create joint spatial plans that expand housing stock where there is most need. The government could also use its 2019 spending review to offer additional support for developing new affordable homes for both sale and rent. This will be important to ensure that key workers can still afford to live in higher cost regions like London and the South East.

The government could also consider possible policy ideas from other major cities around the world. For example, Berlin has recently introduced rent controls, which means that landlords are blocked from putting up rent on residential properties for five years.

Although the attractions of this need to be balanced against possible disincentives to landlords. Many cities around the world have also regulated short-term letting platforms, which could have the effect of reducing the supply of properties for longer term tenancies.

A recent report by PwC and the World Economic Forum also highlighted a number of other policies implemented in major cities around the world that could help to alleviate the affordability challenges. Examples include defining specific social housing eligibility criteria, repurposing vacant properties, and developing multiple tenures of housing on the same site[15]. Looking specifically at the UK, there is also a case for looking again at how the taxation of residential property can be simplified, as the system's complexity could itself be a deterrent to new investment in the sector.

Employers can also take action to help alleviate high housing costs and the affordability problem. Some have chosen to move jobs around the country to gain better access to employees who cannot afford to live in or commute to more expensive regions and cities. This is not an option for those employing key workers, but there are still ways that they can help. For example, some employers have arranged preferential negotiating terms with selected letting agents, which helps their employees rent at a lower cost.

If some or all of these policies can be implemented – and particularly if the government and business can work together – it is likely to make renting more affordable. This is, in turn, likely to improve social mobility and boost national productivity growth in the longer term by allowing people to move to places in the UK where they can be most productive.

15 See the following link for the associated blog, which lists ten examples: https://www.weforum.org/agenda/2019/06/10-ways-cities-are-tackling-the-global-affordable-housing-crisis/

Technical annex: modelling methodologies

UK house price projections

Our analysis focuses on the new ONS and Land Registry house price indices. Data from the ONS vary from those provided by Nationwide and Halifax, though broad trends tend to be similar over time. We focus on the ONS data as they cover a larger sample size, given that Nationwide and Halifax base their indices only on their own mortgage approvals.

The PwC house price model consists of two parts: a long-run equilibrium equation and a short-run error correction model that indicates how house prices adjust back towards this equilibrium level.

In the long run, we found that real house prices were driven by three key variables: real annual earnings, the ratio of the housing stock to the population ('supply') and a variable which reflects general credit conditions. Monetary values are deflated into real (inflation adjusted) terms using CPI.

In the short run, we found that changes in real house prices were driven by: deviations from the long-run equilibrium; changes in real annual earnings; changes in credit conditions; and the previous period's mortgage interest rate (cost of borrowing). The coefficients for these model variables and other summary statistics for both models are shown in the tables below.

The parameters of the model were estimated using the standard ordinary least squares (OLS) econometric technique based on annual data for 1975-2018.

Regional house price projections

The regional house price projections relate to the main scenario only, but it should be borne in mind that uncertainties are even greater at the regional than the national level, so these projections can only be considered illustrative.

Our regional projections are based on a regression between house price to earnings ratios and mortgage rates. The results are then adjusted so as to aggregate to the UK average estimates.

Technical annex table 3.1: Long run model (Cointegrating equation)

R-squared = 0.99

Dependent variable: Real house prices **No. of observations=44**

	Coefficient	t-statistics
Earnings	8.0	6.5
Credit	23073.5	4.6
Supply	-749.4	-3.8
Dummy: financial crisis	0.2	5.7
Dummy: post-financial crisis	32514.6	5.5
Constant	39764.0	9.8

Technical annex table 3.2: Short run model)

R-squared = 0.75

Dependent variable: Change in Real house prices **No. of observations=43**

	Coefficient	t-statistics
L. co-integrating equation residual	-0.3	-2.3
D.Earnings	7.4	4.7
L.Mortgage rate	-468.9	-2.2
D.Lending	0.2	4.4
D.Credit	12088.7	2.6
Constant	4333.2	2.2

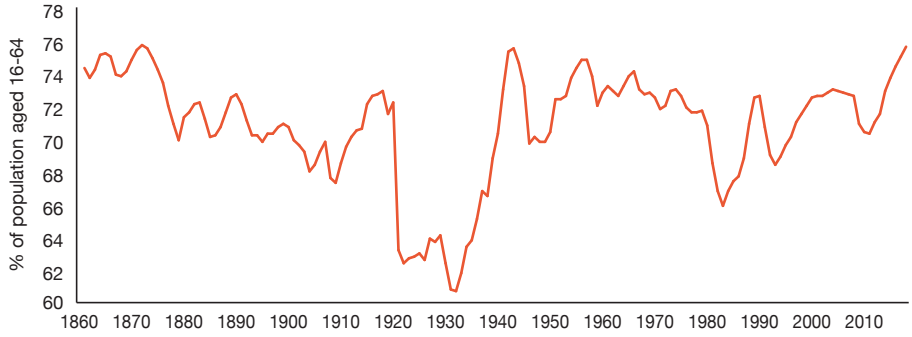
Note: 'D' refers to the first difference of a variable (i.e. change on previous year). 'L' refers to the lagged value of a variable in the previous year.

4. How does UK labour market performance compare to other OECD countries?[1]

Key points

- The UK's employment rate is at record high of over 75%, but it still ranks towards the middle of the OECD range, coming 13th out of 35 countries.
- The UK has improved its scores on both PwC's Youth Employment Index and our Golden Age Index (for workers aged 55 and over) since 2007, but is only performing at around the OECD average level on these indices, as other countries have also improved.
- On a new composite PwC Labour Market Performance index, combining results from our Youth Employment, Golden Age and Women in Work indices, the UK comes 19th overall amongst OECD countries.
- The potential GDP boost for the UK from improving labour market performance to match that of Sweden[2] for women, younger and older workers would be around £250bn, or 12% of GDP.
- Realising these potential gains will require a mix of policies to overcome age and gender discrimination, boost vocational training for all age groups, help with retraining older workers to adapt to new technologies, further improve childcare provision and promote flexible working. Successive UK governments have made progress on these areas over the past two decades, but our analysis suggests there is still more to be done to match international best practice and maximise the UK's labour market potential.

Figure 4.1 – UK employment rate



Source: ONS, Bank of England

Introduction

The UK's labour market performance has been remarkably strong over the past seven years, albeit at the expense of subdued productivity growth. The unemployment rate has fallen to below 4%, the lowest since the mid-1970s, while the employment rate for 16 to 64 year-olds has reached historic highs of over 75%. Longer term analysis by the Bank of England shows that this has only been matched at the peak of World War II mobilisation in 1943 and at the peak of British imperial pomp in the early 1870s (see Figure 4.1).

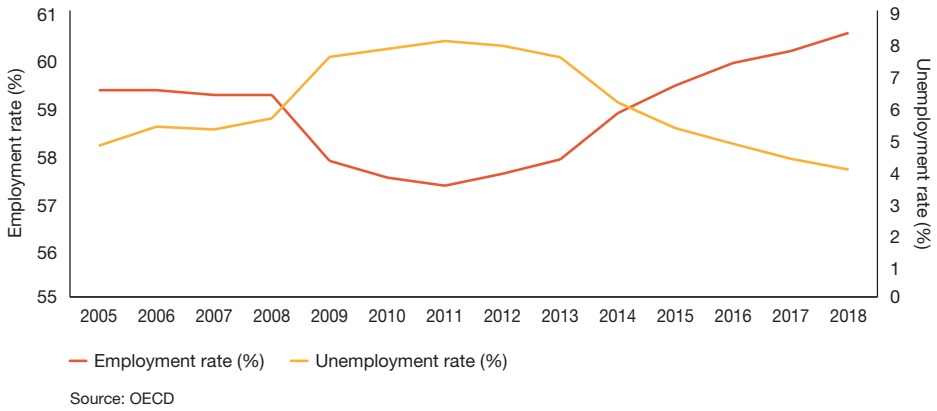
> "Matching Swedish labour market performance could add up to £250bn a year to UK GDP.
>
> **John Hawksworth**
> Chief Economist, PwC

1 This article was written by Frederica Martin with additional inputs by John Hawksworth and Mike Jakeman.
2 Sweden is chosen as the most realistic comparator for the UK as it ranks second in the OECD (and top in the EU) on our composite Labour Market Performance index. The leading country, Iceland, is an outlier in terms of labour market performance and seems less realistic as a comparator for a much larger economy such as the UK.

The impressive recent rise in UK employment rates reflect a number of factors. First, there is a long-term trend towards higher female participation in the workforce. Second, there is a more recent trend towards encouraging people to remain in the workforce for longer, particularly women, whose state pension age has risen from 60 to 65 since 2011. Third, unemployment rates have fallen sharply from their post-crisis peak in 2012 (see Figure 4.2), most notably for young people whose employment prospects were hit relatively hard by the deep recession of 2008-9.

How much further could the UK employment rate rise? To answer this question, it is helpful to benchmark the UK's performance against other OECD countries for key demographic groups. PwC has been doing this for some years through its Golden Age Index (for 55-69 year-olds) and its Youth Employment Index (for 16-24 year-olds) and in this article we update the analysis we published last year for these two indices. We also refer to our latest Women in Work index results, as published in March 2019, and present a new combined index covering all three sub-indices.

Figure 4.2 – UK employment & unemployment (%)



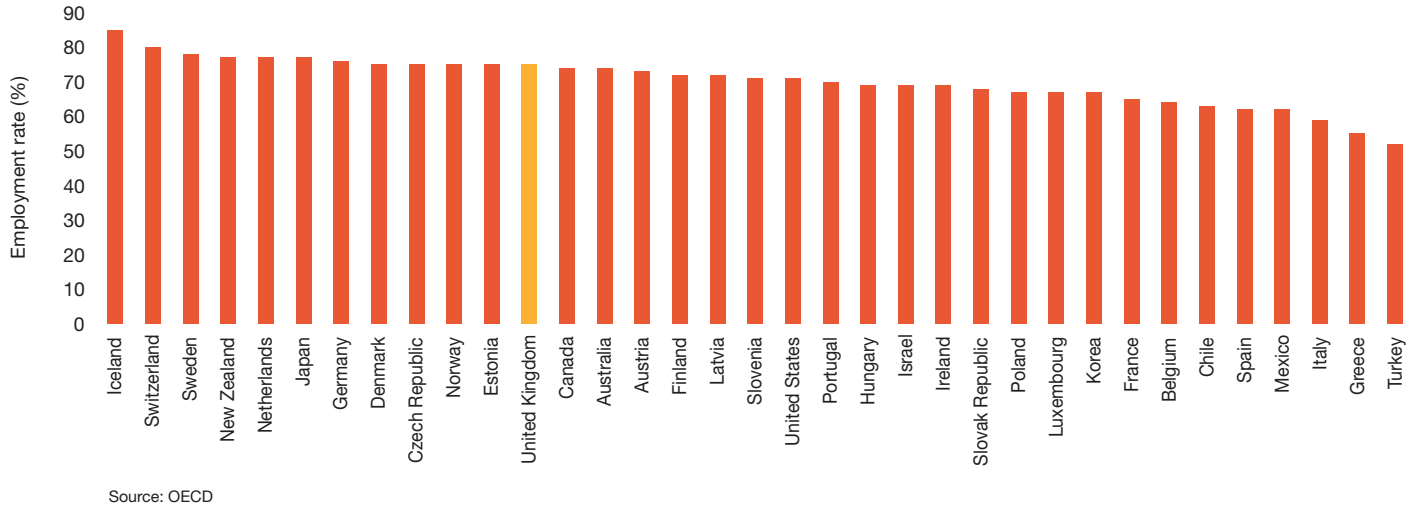
Source: OECD

The discussion in the rest of the article is structured as follows:

- Section 4.1 includes comparisons of recent UK labour market performance with other OECD countries for all workers
- Section 4.2 discusses updated results for our Golden Age and Youth Employment indices
- Section 4.3 considers how the UK performs on a new combined index covering women, young and older workers
- Section 4.4 discusses the potential boost to GDP if the UK could match the labour market performance of top performers in the long term
- Section 4.5 discusses some of the policy measures that the UK could take to realise these gains
- Section 4.6 summarises and concludes.

Methodological details of our three comparative labour market indices are contained in a technical annex.

Figure 4.3 – OECD employment rate (2018)



Source: OECD

4.1 – Comparison between the UK labour market and the OECD

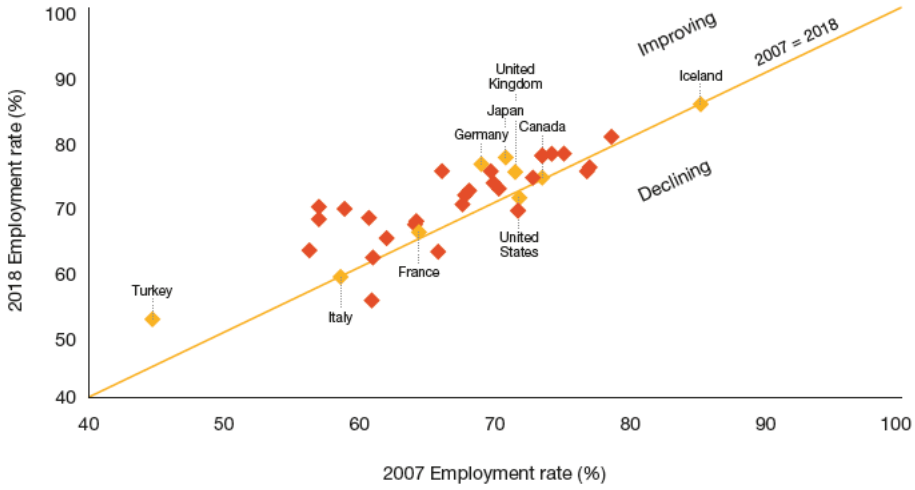
Although the UK is currently experiencing record rates of employment, its performance looks more middling when compared to the rest of the OECD, ranking 13th out of 35 countries (see Figure 4.3.) The strongest performers include Iceland, which tops the rankings for the ninth year in a row, along with Switzerland, New Zealand, Germany and Japan. Although Iceland has reached an employment rate of 85%, when trying to understand how far UK employment rates could rise over the next few years, it is more appropriate to compare it to larger economies, such as Switzerland or Sweden, which rank 2nd and 3rd respectively, and have employment rates of around 80%. Japan, which has a considerably larger economy than the UK, also has an employment rate of more than 78%, demonstrating that there is still potential for the UK see employment rise further.

Although this comparison is useful for understanding the UK's relative performance within the OECD, it is also important to put the current performance in historical context. The 2008 global financial crisis was a massive shock to the world economy and the subsequent global recession caused employment rates to fall across the OECD. Therefore, comparing current employment and unemployment rates to those in 2007 gives a useful picture of how countries are performing relative to their pre-crisis levels.

As seen in Figure 4.4, the majority of OECD countries, including the UK, have employment rates at or above pre-crisis levels. The UK is a relatively strong performer compared with the rest of the G7, showing a notable improvement on its 2007 employment rate. However, since 2007, both Germany and Japan have seen their employment levels improve more quickly, meaning they have now overtaken the UK. The rest of the G7 (the US, Canada, France and Italy) have failed to increase their employment rates beyond pre-crisis levels, with Italy faring worst of all. Turkey lags behind the rest of the OECD, both in 2007 and 2018, but has made significant improvements on its 2007 employment rate, rising 7% to 52%.

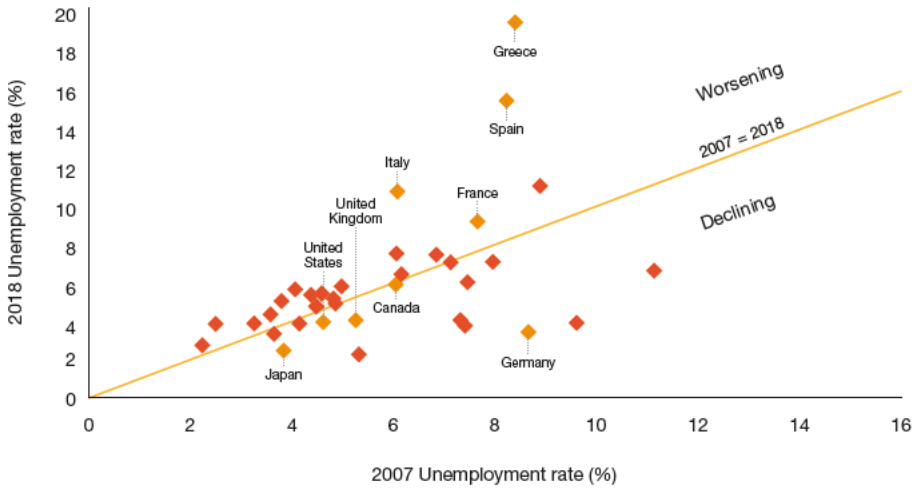
When comparing unemployment rates between 2007 and 2018, the picture across the OECD is more mixed. As shown in Figure 4.5, many countries still have higher unemployment rates than in 2007, even though employment rates have largely returned to or overtaken pre-crisis levels. In the G7, both Italy and France still have significantly higher unemployment rates than in 2007, along with Spain and Greece, two countries badly impacted by the Eurozone crisis. Germany, by contrast, has seen one of the strongest improvements on its 2007 unemployment rate, whilst the unemployment rate in the UK has also fallen some way below 2007 levels.

Figure 4.4 – Employment rate 2007 vs 2018



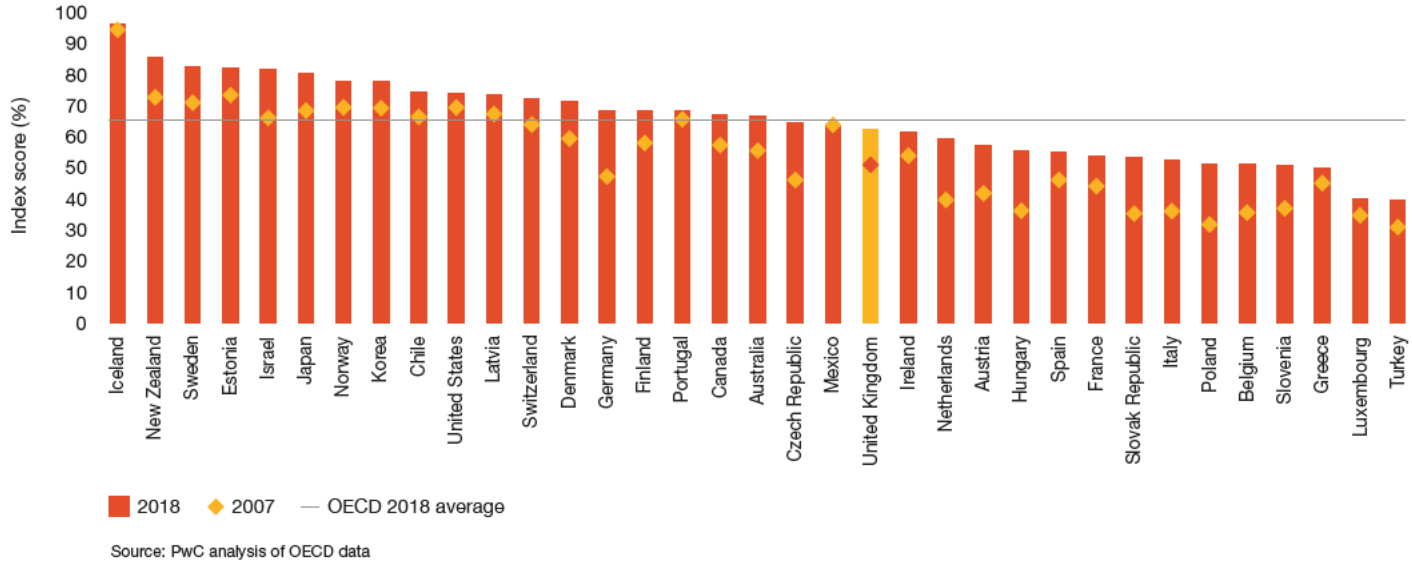
Source: PwC analysis of OECD data

Figure 4.5 – Unemployment rate 2007 vs 2018



Source: PwC analysis of OECD data

Figure 4.6 – 2018 Golden Age Index scores



Source: PwC analysis of OECD data

4.2 – Updated results for the PwC Youth Employment and Golden Age indices

In this section, we present updated results for our Youth Employment and Golden Age indices, which measure how well OECD counties harness the potential of their younger and older workers. It becomes clear when comparing the UK's performance with the rest of the OECD, and in particular with the top performers, that there is much scope for the UK to further increase its employment rate by encouraging further participation in the workforce from these demographic groups.

Golden Age index for older workers

PwC's Golden Age Index is constructed through a weighted average of seven indicators which reflect the labour market for those aged 55 and above, including employment, earnings and training (see annex to this article for further details of how this index and our other labour market indices are constructed). The indicators are normalised, weighted and aggregated to generate an index score for each country on a scale from 0 to 100, with the average OECD value in the base year of 2003 set at 50. This allows for comparisons over time and between countries, as well as giving an indication of absolute improvements for a country over time.

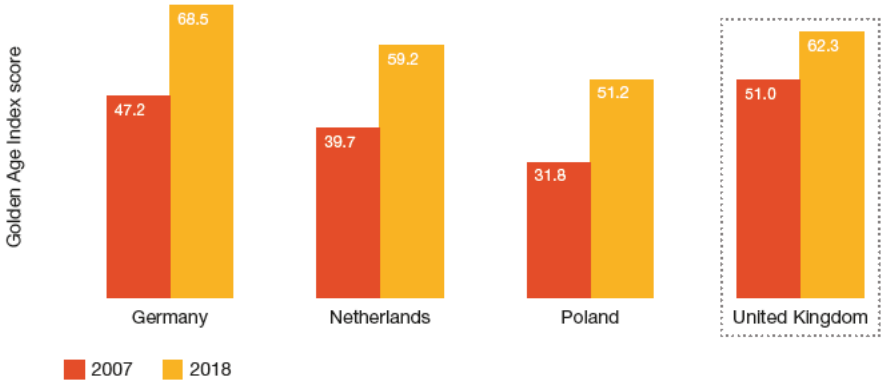
As can be seen from Figure 4.6, the UK falls slightly below the OECD average for its Golden Age Index score, with a score of 62, ranking 21st out of 35 countries. This represents a relative fall in position from 20th in 2007, despite the fact that the UK has seen a significant absolute increase in score of 11 points over this time. These results show that the rest of the OECD's scores have been increasing at a faster rate than that of the UK. It also suggests that there is still scope for further improvement in the employment of older workers in the UK to match the top performers in our index.

As in previous years, Iceland is once again at the top of the index, followed by New Zealand, Sweden, Estonia and Israel. These are a diverse set of countries, both geographically and culturally, although they are all relatively small economies, and have varied performances across the different indicators. For example, while Iceland leads the way for its employment rate and relative participation in training for those over 55, Estonia performs strongly for its narrow gender gap in employment and low incidence of part-time work for its older workers. All of the Nordic countries perform well, while the southern European countries are clustered towards the bottom of the rankings. Mexico is the only country to see a decrease in its absolute index score from 2007, caused by a reduction in the effective labour force exit age from 74 to 69. However, this is owing to increases in social pension provision over this time rather than a decline in labour market conditions.

The biggest improvers since 2007 are Germany, the Netherlands and Poland, as shown in Figure 4.7. These improvements have largely been driven by increases in employment rates for those over 55, which follows the pattern for the rest of the OECD. This is also the case for the UK, owing to recent increases in the state pension age, in particular for women. However, the UK still only ranks 16th out of 35 for its employment rate for 55 to 64 year-olds, which is at 65% versus 81% for Iceland and 78% for New Zealand. The UK plans to increase the state pension age to 66 for both men and women by October 2020, with further increases expected by 2028, which may lead to further rises in employment for older workers.

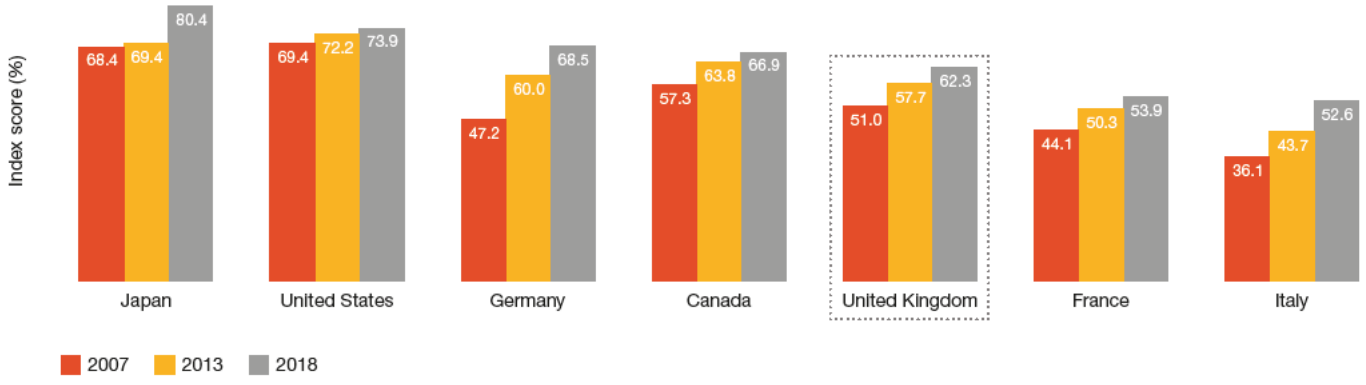
Owing to Germany's strong improvements, it has overtaken the UK in the overall rankings, leaving the UK in the bottom half of G7 countries (see Figure 4.8), albeit still well ahead of France and Italy. Japan has made a notable improvement since 2013 to become the top performer in the G7.

Figure 4.7 – Largest improvements in GAI (2007 vs 2018)



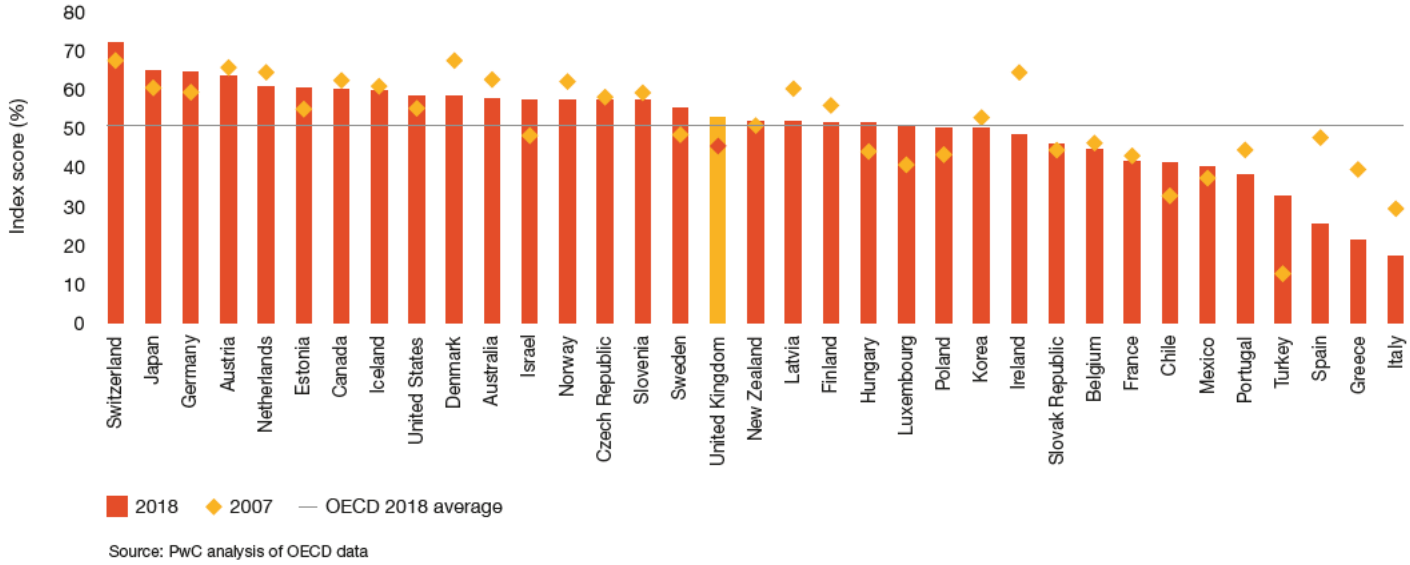
Source: PwC analysis of OECD data

Figure 4.8 – G7 Golden Age Index scores



Source: PwC analysis of OECD data

Figure 4.9 – 2018 Youth Employment Index scores



Source: PwC analysis of OECD data

Youth Employment index

Our Youth Employment Index (YEI) is constructed using a weighted average of eight indicators which reflect the labour market for workers aged 15 to 24 across the OECD, again including indicators related to employment, education and training (see annex for more details). As for the Golden Age index, these indicators are normalised, weighted and aggregated to generate index scores for each county on a scale from 0 to 100, this time setting 2006 as the base year, with the OECD average score in that year set to 50.

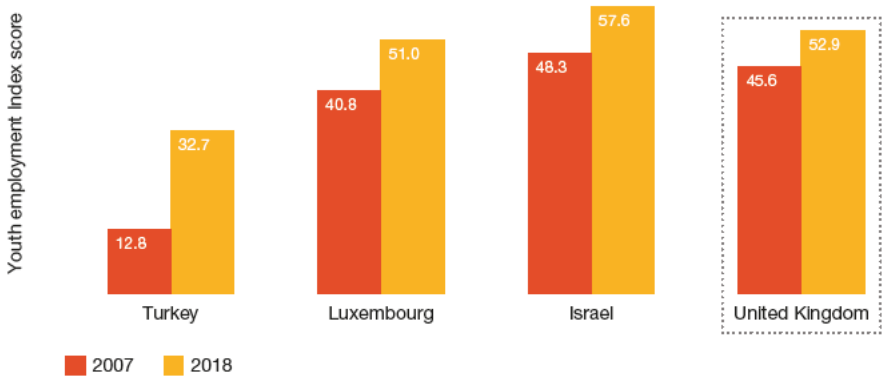
As shown in Figure 4.9, the results for the YEI across the OECD are more mixed than for the Golden Age Index, with a higher variance between scores and many countries with a lower score in 2018 than in 2007. Switzerland maintained its position at the top of the rankings, as it has done for several years, followed by Japan and then Germany. These two economies have switched places since 2016.

The UK performs better for younger workers than older ones, coming 17th out of 35 countries and performing slightly above the OECD average with a score of 53. This represents a slight improvement on 2017 and a significant improvement on its 2007 score of 46. The UK has improved faster than the OECD average, climbing the YEI rankings by 7 places since 2007. This increase in score has largely been driven by a reduction in the UK's NEET rate (the percentage of those not in employment, education or training) for 20 to 24 year-olds of over 5 percentage points, which is one of the best performances on this measure across the OECD. Another key area of improvement is in the UK's educational enrolment rate for 15 to 19 year-olds, increasing from 70% in 2007 to 85% in 2018. This is due to increases in the school leaving age over this period from 16 to 18, moving the UK more into line with the OECD norm in this respect. The UK performs worst for its relative unemployment ratio between 15 to 24 year-olds and 25 to 54 year-olds, falling to 34th in the rankings on this indicator. This shows that there is still more to be done to ensure young workers are sharing in wider jobs growth in the UK economy.

As shown in Figure 4.10, the biggest improvers on the YEI since 2007 are Turkey, increasing its score by 20 points to reach 32nd, Luxembourg, which has raised its score by 10 points, and Israel, which has seen a score increase of 9 points.

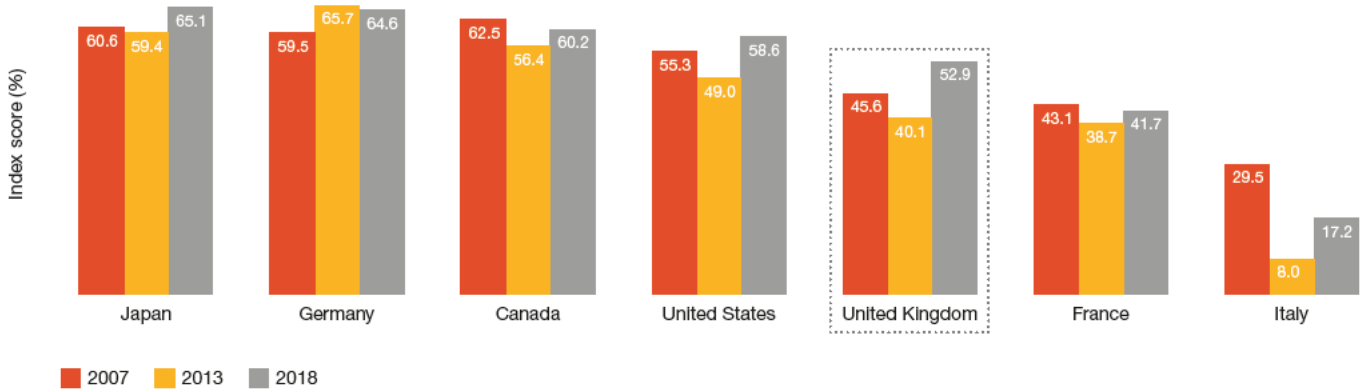
As shown in Figure 4.11, the UK is still lagging behind most of the G7 in terms of its overall Youth Employment Index score, with Japan and Germany in particular being two of the strongest performers in the OECD (while Italy has been one of the weakest). However, the UK has shown the largest rise in its YEI score among G7 members since 2007. It is important here to note that, unlike for the Golden Age Index, where all G7 countries improved in absolute score since 2007, most G7 countries experienced a considerable reduction in their Youth Employment Index score after 2007, with several countries still not at pre-crisis levels.

Figure 4.10 – Largest improvements in YEI (2007 vs 2018)



Source: PwC analysis of OECD data

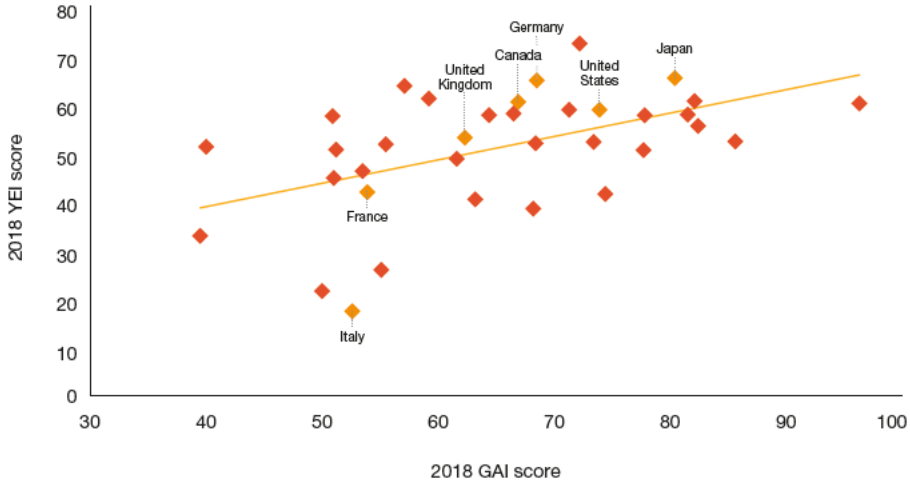
Figure 4.11 – G7 Youth Employment Index scores



Source: PwC analysis and OECD data

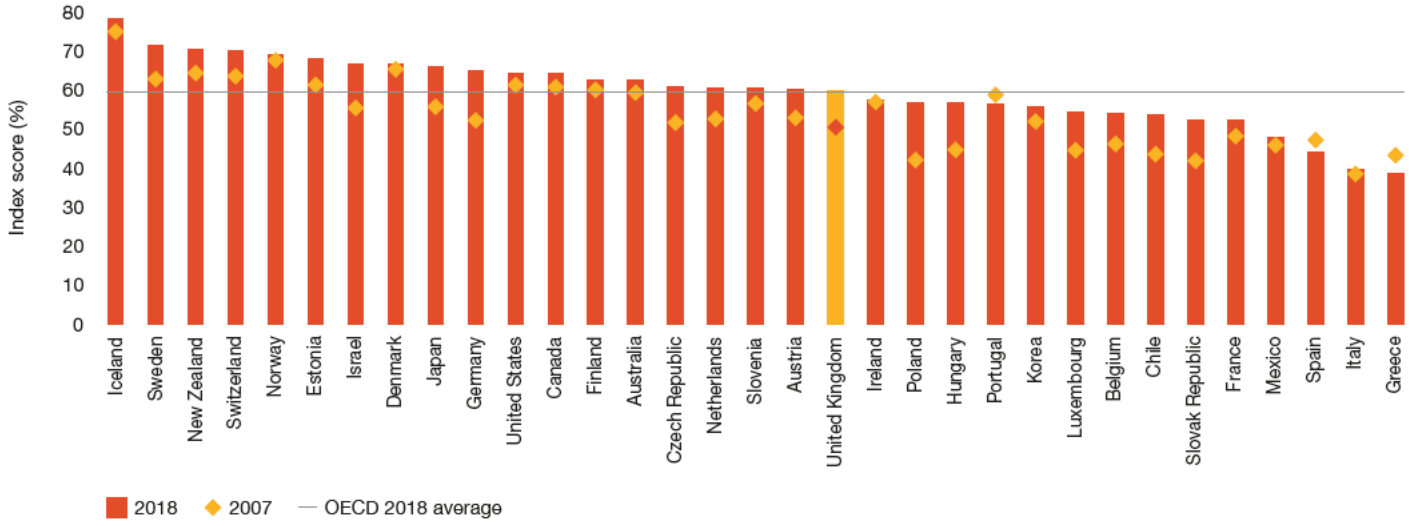
A common misconception is that encouraging older workers to remain in the workforce for longer will crowd out younger workers. If this were the case, then we might expect to see a negative correlation between a country's scores on the Youth Employment and Golden Age indices. Figure 4.12 shows, however, that there is a significant positive correlation between the two index scores. This shows that there is not a trade-off between including younger and older workers in the labour market, as both indices are driven by similar factors, including the overall strength of the economy, the flexibility of the labour market and government policy.

Figure 4.12 – Youth Employment Index (YEI) vs Golden Age Index (GAI) scores



Source: PwC analysis of OECD data

Figure 4.13 – 2018 Labour Market Performance Index scores



Source: PwC analysis of OECD data

4.3 – Combined PwC Labour Market Performance Index results

In this section we present the results of a new composite index, constructed from our Youth Employment and Golden Age Indices, presented above, along with our Women in Work index, the latest results of which were published in March 2019. We refer to this as the PwC Labour Market Performance Index (LMPI). Each index has been given an equal weighting to create a total combined score, which reflects the general labour market conditions for these demographic groups across different OECD countries. The results are shown in Figure 4.13.

Unsurprisingly, Iceland comes first in the combined index by a high margin, due to its high scores in the Women in Work and Golden Age Indices, although it is rather a special case as a small island economy.

The UK comes 19th out of 33 countries (Latvia and Turkey have been excluded as they were not included in this year's Women in Work index), and scores around the OECD average. The UK has increased its absolute score by 11 points since 2007, while the OECD average is a rise of 6 points. The UK's healthy improvement has seen it rise up the relative rankings by 3 places. The UK's highest ranking (13th) is in the Women in Work index, but its largest improvement in score come from the Golden Age Index, thanks to higher employment rates.

The largest changes in LMPI ranking since 2007 come from Poland, which has risen by 10 places to 21st, Israel and Germany, which have both risen by 9 places to 7th and 10th respectively. Countries hit especially hard by the Eurozone crisis, such as Portugal, Ireland and Spain have fallen most since 2007, but have shown some improvement in absolute index scores in recent years.

Overall, it appears that labour markets have strengthened for all three demographic groups across the OECD in the past decade, but the gains have been more notable for women and older workers, as they have experienced structural improvements in labour market participation through policy changes. In the UK, these have included increases in the female state pension age and the introduction of shared parental leave. Younger workers have seen some general improvements in labour market conditions, but these have largely come about through stronger economic performance in the post-crisis period than through specific government policy measures.

4.4 – Potential boost to GDP from improved labour market performance

We have also conducted analysis of the potential long-run boost to GDP from improving the UK's labour market performance in 3 key indicators: its NEET rate for 20 to 24 year=olds, its full-time equivalent (FTE) employment rate for women aged 25 to 54, and its FTE employment rate for those aged 55 and over. If the UK could match Sweden, which ranks 2nd in the overall index, in these three metrics, it could see a potential GDP boost of up to around £250bn, or around 12% of GDP. We have selected Sweden as our benchmark country as it performs strongly across all three indices and is more comparable to the UK in its scale and economic structure than Iceland.

There is a wide variance of potential gains across the OECD from matching Swedish performance, with the highest performers having the least to gain and those at the bottom of the LMPI rankings the most. Greece could see the highest boost to its economy in percentage terms (up 39% of GDP), while the US has the most to gain in absolute terms (almost $2 trillion), due to the size of its economy. The OECD as a whole could see a potential GDP boost of up to $7 trillion if it could match Sweden across these three variables, with the majority of these gains, around $4.7 trillion, coming from the G7.

4.5 – Policy options

It is beyond the scope of this article to offer a comprehensive discussion of the policy options for the UK to further improve its labour market performance and realise the large potential GDP gains identified above. But below we summarise three key areas where we think further progress can be made for different demographic groups: dispelling misconceptions, encouraging training and promoting flexible working[3].

Dispel misconceptions and combating discrimination: Often, important barriers to entry for specific groups of workers are the misconceptions held by them or by potential employers, preventing people from applying or being hired for the correct position. This may involve implicit discrimination even where legal rules are being followed. For example, many young people believe that they will be worse off in an apprenticeship than as a graduate, disincentivising them from applying and exacerbating the growing skills mismatch present in the UK economy, causing there to be an ever-increasing shortage of skills in STEM subjects and a large proportion of graduates in non-graduate roles. Harmful myths also impact older workers, with many employers seeing them as less productive than their younger counterparts, making employers less likely to hire and retain them. Governments could combat this by introducing specific policies, such as financial incentives or information campaigns, to dispel these myths, giving firms and workers the information they need to make the right decisions for their business or career.

Encourage training: A second obstacle preventing many from entering or remaining in the workforce is a lack of appropriate training. The UK has already made some steps towards further harnessing the potential of young workers with the introduction of the Apprenticeship Levy, which has incentivised some firms, especially larger firms, to hire more apprentices. However, through redesigning the policy, such as removing the link to payroll, which disproportionately taxes firms who hire large numbers of workers relative to revenue, the Levy could be made even more effective. Countries that score well in the Youth Employment Index also typically have high quality vocational training opportunities for young people, such as Germany and Switzerland, who both have large-scale public vocational education and training programmes. With regards to older workers, the UK does not score highly for its relative participation in training ratio between 55 to 64 year-olds and 25 to 54 year-olds. Recent data from the Labour Force Survey suggest that only 45% of those aged 65 and over have received at least one day of training in the last 12 months. Advances in technology are putting many jobs at risk, especially for older workers. Introducing specific policies to target this issue, such as training schemes in digital jobs for older workers, will be necessary to ensure these workers remain productive and relevant in a changing labour market.

3 For further detail on potential policy options for each demographic, please see our previous reports:
https://www.pwc.co.uk/economic-services/WIWI/pwc-women-in-work-2019-final-web.pdf
https://www.pwc.co.uk/economic-services/YWI/youth-employment-index-2018-final.pdf
https://www.pwc.co.uk/economic-services/golden-age/golden-age-index-2018-final-sanitised.pdf

Promote flexible working: One of the most effective ways that business can attract a more diverse workforce is through promoting flexible working wherever possible. Younger workers tend to be more interested in other forms of compensation to salary, such as increased holiday, more relaxed uniform policy and medical insurance benefits. Older workers may also benefit from being able to work from home more freely or work part-time. Flexible working policies would particularly benefit older female workers, who have a high risk of leaving the labour force owing to caring responsibilities for their spouse or grandchildren. Government policy can be introduced to encourage businesses to adopt these practices. In Finland the Employment Contracts Act 2011 was amended to entitle working carers to extended care leave.

4.6 – Summary and conclusions

The UK is currently experiencing record rates of employment. However, this achievement only places it 13th out of 35 countries in the OECD, which suggests that there are still considerable gains to be made to further include workers across all demographic groups into the labour force, building on the gains of recent years.

Although the UK has improved in its scores in our Youth Employment and Golden Age indices since 2007 (and indeed since 2016), these changes have only brought it up to around the OECD average. Most of these improvements have come from increases in the employment rate, in particular for older workers. In our new composite Labour Market Performance Index (LMPI), the UK ranks 19th out of 33 OECD countries covered by this index.

The gains from harnessing the potential of all groups of workers could be significant. If the UK could match Sweden's labour market performance, we estimate that the boost to UK GDP could be around £250bn, or 12% of GDP. The potential gain for the OECD as a whole from matching Swedish performance could be up to around $7 trillion, with $4.7 trillion of this coming from the G7 economies.

There are many policy options open to countries to encourage further participation. First, by using financial incentives and information campaigns, the government could encourage more people to apply for the right positions. Second, both businesses and governments could encourage further and higher quality vocational training for workers to ensure their skillsets match the changing needs of the economy, especially in relation to developments in digital technologies. Third, businesses could promote flexible working wherever possible to attract a more diverse workforce.

Governments could encourage flexible working through financial incentives or by introducing legislation, such as entitling certain workers to care leave and providing additional state-subsidised childcare. By focusing on the specific needs of certain demographics and taking policy inspiration from other OECD countries, the UK could build upon its already strong recent jobs market performance to become a top performer in the OECD in the longer term.

Technical annex: methodology used to compile PwC labour market indices

All three PwC labour market indices – the Women in Work Index (WIW), the Golden Age Index (GAI) and the Youth Employment Index (YEI) – are calculated using the same general methodological approach.

Firstly, the different indicators used in each index are standardised using the z-score method, based on the mean and standard deviation of the sample of OECD countries in a particular base year for each index (2000 for WIW, 2003 for GAI and 2006 for YEI). This allows for comparisons both across countries and across time. A positive/negative factor is applied to each indicator to ensure each variable enters the index with the correct sign (e.g. positive for employment rates, negative for unemployment rates). Individual country scores are constructed as a weighted average of these normalised indicator values and rescaled to values between 0 and 100, with the average value across all 36 countries set, by definition, to 50 in the chosen base year.

All indices have been constructed using the latest available data from the OECD. Index scores for previous years have been updated using the most recent figures for that year and therefore may be different to those published in previous years.

PwC Golden Age Index

Our Golden Age Index is constructed from 7 different indicators and given the following weights:

Technical annex table 4.1: Golden Age Index indicators and weightings

Measure	Weighting (%)
Employment rate 55-64 (% of the age group)	40
Employment rate 65-69 (% of the age group)	20
Gender gap in employment, 55-64 (ratio women/men)	10
Incidence of part-time work, 55-64 (% of total employment)	10
Full-time earnings 55-64 relative to 25-54 (ratio)	10
Effective labour force exit age, 55-64 (years)	5
Participation in training (ratio, 55-64 relative to 25-54)	5

Source: PwC Analysis of OECD data

The latest overall results are as follows:

Technical annex table 4.2: Golden Age Index Scores

Rank			Country	Score		
2007	**2017**	**2018**		**2007**	**2017**	**2018**
1	1	1	Iceland	94.4	98.4	96.3
3	2	2	New Zealand	72.7	85.8	85.6
4	4	3	Sweden	70.9	81.4	82.4
2	3	4	Estonia	73.4	81.5	82.1
11	5	5	Israel	66.1	81.2	81.5
8	6	6	Japan	68.4	79.2	80.4
5	8	7	Norway	69.4	77.7	77.8
7	7	8	Korea	69.2	78.1	77.7
10	9	9	Chile	66.4	74.1	74.4
6	10	10	United States	69.4	73.5	73.9
9	12	11	Latvia	67.3	71.3	73.4
13	11	12	Switzerland	63.9	71.9	72.2
15	13	13	Denmark	59.4	70.1	71.3
21	14	14	Germany	47.2	67.6	68.5
16	15	15	Finland	58.0	66.4	68.4
12	18	16	Portugal	65.6	66.1	68.2
17	16	17	Canada	57.3	66.4	66.9
18	17	18	Australia	55.5	66.3	66.5
22	20	19	Czech Republic	46.1	62.3	64.4
14	19	20	Mexico	63.8	63.0	63.2
20	**21**	**21**	**United Kingdom**	**51.0**	**61.5**	**62.3**
19	22	22	Ireland	53.9	60.2	61.6
27	23	23	Netherlands	39.7	57.9	59.2
26	24	24	Austria	41.8	55.3	57.1
29	26	25	Hungary	36.2	53.6	55.5
23	25	26	Spain	46.1	54.0	55.1
25	27	27	France	44.1	53.3	53.9
32	28	28	Slovak Republic	35.3	52.6	53.5
30	29	29	Italy	36.1	51.6	52.6
34	30	30	Poland	31.8	50.7	51.2
31	31	31	Belgium	35.6	49.6	51.0
28	33	32	Slovenia	37.0	47.9	50.9
24	32	33	Greece	45.1	48.0	50.0
33	34	34	Luxembourg	34.7	39.5	40.0
35	35	35	Turkey	30.9	38.9	39.5
			Average	**54.4**	**64.5**	**65.4**

Source: PwC Analysis of OECD data

PwC Youth Employment Index

Our Youth Employment Index is constructed from 8 different indicators using the following weights:

Technical annex table 4.3: Youth Employment Index indicators and weightings

Measure	Weighting (%)
NEET rate 20-24 (% of the age group)	20
Employment rate 15-24 (% of the age group)	20
Unemployment rate (% of the labour force)	10
Relative unemployment rate youth/adult (15-24)/(25-54)	10
Incidence of long-term unemployment (% of unemployment)	10
Incidence of part-time work (% of employment)	10
Enrolment 15-19 (% in education)	10
School drop-outs (% of the age group)	10

Source: PwC Analysis of OECD data

The overall results are as follows:

Technical annex table 4.4: Youth Employment Index Scores

Rank			Country	Score		
2007	2017	2018		2007	2017	2018
2	1	1	Switzerland	67.6	72.3	72.2
10	3	2	Japan	60.6	63.9	65.1
12	2	3	Germany	59.5	64.4	64.6
3	4	4	Austria	65.8	63.2	63.5
5	5	5	Netherlands	64.6	60.3	60.9
17	8	6	Estonia	55.1	60.0	60.4
7	6	7	Canada	62.5	60.3	60.2
9	7	8	Iceland	61.0	60.1	59.9
16	9	9	United States	55.3	58.6	58.6
1	10	10	Denmark	67.6	58.2	58.6
6	13	11	Australia	62.7	57.3	57.8
21	11	12	Israel	48.3	57.9	57.6
8	14	13	Norway	62.2	57.2	57.5
14	12	14	Czech Republic	58.2	57.8	57.5
13	15	15	Slovenia	59.3	57.2	57.3
20	16	16	Sweden	48.6	55.2	55.3
24	**17**	**17**	**United Kingdom**	**45.6**	**52.9**	**52.9**
19	19	18	New Zealand	50.9	51.6	52.1
11	18	19	Latvia	60.4	52.0	52.0
15	21	20	Finland	56.1	51.2	51.7
27	20	21	Hungary	44.2	51.5	51.5
30	23	22	Luxembourg	40.8	50.1	51.0
28	24	23	Poland	43.4	50.0	50.4
18	22	24	Korea	52.9	50.6	50.3
4	25	25	Ireland	64.6	48.4	48.5
26	26	26	Slovak Republic	44.6	45.8	46.0
23	27	27	Belgium	46.4	43.9	44.6
29	29	28	France	43.1	41.3	41.7
33	28	29	Chile	32.8	41.6	41.3
32	30	30	Mexico	37.4	40.2	40.2
25	31	31	Portugal	44.6	37.8	38.3
35	32	32	Turkey	12.8	32.5	32.7
22	33	33	Spain	47.8	25.3	25.7
31	34	34	Greece	39.6	21.5	21.4
34	35	35	Italy	29.5	17.0	17.2
			Average	**51.3**	**50.5**	**50.8**

Source: PwC Analysis of OECD data

PwC Women in Work Index

Our Women in Work Index is constructed from 5 different indicators using the following weights:

For the most recent set of results, please refer to our latest Women in Work Index report, published in March 2019[4].

PwC Labour Market Performance Index

Our new composite index, the Labour Market Performance Index, was constructed by taking the mean score for each country, using its latest scores from the GAI, YEI and WIW. Each score was given an equal weighting in the composite index. This covered the 33 OECD countries where we had data for all three indices.

Technical annex table 4.5: Women in Work Index indicators and weightings

Measure	Weighting (%)
Gap between female and male earnings	25
Female labour force participation rate	25
Gap between female and male labour force participation rates	20
Female unemployment rate	20
Share of female employees in full-time employment	10

Source: PwC Analysis of OECD data

4 https://www.pwc.co.uk/economic-services/WIWI/pwc-women-in-work-2019-final-web.pdf

The full results are as follows:

Technical annex table 4.6: Labour Market Performance Index Scores

Rank			Country	Score		
2007	2013	2018		2007	2013	2018
1	1	1	Iceland	75.0	77.5	78.4
6	5	2	Sweden	62.9	65.3	71.5
4	4	3	New Zealand	64.4	66.2	70.4
5	3	4	Switzerland	63.6	66.6	70.0
2	2	5	Norway	67.7	68.9	69.2
7	11	6	Estonia	61.4	60.1	68.1
16	6	7	Israel	55.5	64.1	66.8
3	7	8	Denmark	65.4	62.8	66.6
15	14	9	Japan	55.8	58.2	66.2
19	9	10	Germany	52.3	61.3	65.0
8	13	11	United States	61.3	59.6	64.5
9	8	12	Canada	60.8	61.4	64.4
10	10	13	Finland	60.1	60.6	62.6
11	12	14	Australia	59.4	59.7	62.5
21	20	15	Czech Republic	51.7	50.9	61.0
18	16	16	Netherlands	52.7	57.0	60.7
14	21	17	Slovenia	56.6	50.4	60.6
17	15	18	Austria	52.9	57.0	60.3
22	**18**	**19**	**United Kingdom**	**50.5**	**52.0**	**59.8**
13	28	20	Ireland	57.0	45.7	57.5
31	26	21	Poland	42.1	47.4	56.9
27	29	22	Hungary	44.7	43.3	56.7
12	24	23	Portugal	58.8	48.1	56.5
20	19	24	Korea	52.0	51.3	55.7
28	22	25	Luxembourg	44.6	49.7	54.3
25	25	26	Belgium	46.2	47.7	53.9
29	17	27	Chile	43.6	54.1	53.7
32	30	28	Slovak Republic	41.9	42.0	52.5
23	23	29	France	48.2	49.4	52.3
26	27	30	Mexico	45.9	45.8	48.0
24	31	31	Spain	47.2	33.0	44.1
33	32	32	Italy	38.5	32.8	39.8
30	33	33	Greece	43.3	27.5	38.5
			Average	**54.1**	**53.9**	**59.7**

Source: PwC Analysis of OECD data

Methodology for calculating potential GDP impacts from improving labour market conditions

The total GDP boost estimate is calculated through summing together the individual GDP boost estimates from matching the chosen benchmark country, Sweden, across three key indicators: the NEET rate for 20-24 year olds, FTE employment rates for women and FTE employment rates for workers over 55. The female FTE figure is scaled down to 60% of its original value to estimate the GDP boost for females aged 25 to 54 to ensure there is no overlap between age groups for the different GDP boost figures. A scaling factor of 60% is chosen as this represents the percentage of the UK's female labour force within this age bracket. For simplicity, we apply the same scaling factor to other countries (given our primary focus in this article is on the UK).

For young workers, we assume that a percentage point decrease in a country's NEET rate will lead to a 0.34% increase in GDP, as younger workers will on average not reach their productive potential until later in their careers (for further details of the rationale behind this assumption, which draws on an earlier academic study, please see our original Youth Employment Index report published in 2015).

For the FTE rate for females, we calculate the GDP per FTE, using total GDP and full-time and part-time employment rates for each country (scaled down by 60% as described above), and then use this figure to calculate the overall estimated GDP boost from increasing the female FTE rate to that of Sweden.

For the FTE rate for those over 55, a similar approach was taken, but instead using the FTE rate for those aged 55 to 64 and 65 and over. In both cases we calculate full-time equivalent employment as full-time employment plus half of part-time employment, making the assumption that a full-time worker is twice as productive as a part-time worker.

The full set of estimates (with the US dollar figures being based on 2018 GDP values) are as follows:

Technical annex table 4.7: Potential GDP boost estimates from matching Swedish labour market performance

Country	Potential GDP boost (%)	Potential GDP boost ($bn at 2018 GDP values)
Greece	39	100
Italy	35	783
Belgium	26	143
Mexico	26	520
Spain	25	399
France	23	641
Luxembourg	21	14
Chile	18	72
Poland	18	135
Netherlands	17	161
Austria	17	80
Slovenia	17	10
Ireland	16	59
Slovak Republic	15	19
Hungary	14	26
Portugal	12	33
United Kingdom	12	352*
Australia	12	155
Korea	11	212
Germany	11	445
United States	10	1993
Finland	10	26
Israel	9	33
Denmark	9	30
Switzerland	9	55
Canada	8	134
Japan	7	388
Czech Republic	7	21
New Zealand	5	9
Estonia	4	1
Norway	4	13

Source: PwC Analysis of OECD data

* This is the US dollar estimate based on average 2018 exchange rates. In sterling terms, the estimate for the UK equates to around £250bn at 2018 GDP values.

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 accelerated in 2017 and remained reasonably strong on average in 2018. However, we expect global growth at market exchange rates to slow from 3.2% in 2018 to 2.8% in 2019 and the same rate in 2020. (Using purchasing power parity GDP weights, global growth could slow from 3.7% in 2018 to 3.4% in 2019 and 3.5% in 2020). This moderation in growth in 2019 is expected to come from weaker expansions in the US, China and the Eurozone. We have also become less confident about prospects for two major emerging markets that have performed poorly in recent years: Brazil and South Africa. Elsewhere there are expected to be some bright spots, with India posting growth in excess of 7% a year in 2019-20 and a generally solid performance among the ASEAN economies.

There was a marked acceleration in Eurozone economic activity in 2016-17, but this faded during 2018. We project Eurozone growth to be significantly slower in 2019, at only around 1.1%, although it could then pick up slightly to 1.6% in 2020 as the impact of some temporary factors (e.g. relating to German car sales) fade and monetary policy remains very accommodative. The US economy is also coming off a cyclical high, with growth expected to slow from 2.9% in 2018 to 2.3% in 2019, as past rises in interest rates feed through to the real economy and the effect of earlier fiscal stimulus fades. Nevertheless, the US will remain among the fastest growing advanced economies this year, thanks to a buoyant consumer sector and the possibility that the Fed could now start to easing monetary policy.

Finally, we expect the long-term cooling of the Chinese economy to continue in 2019-20. The government has deployed fiscal and monetary stimulus to try to reduce the impact of greater protectionism in the US.

Table A.1: Global economic growth and inflation prospects

	Share of world GDP (%)	Real GDP growth (%)		Inflation (%)	
	2017 at MERs	2019p	2020p	2019p	2020p
US	24.3	2.3	1.8	1.8	1.7
China	15.0	6.3	6.2	2.4	2.7
Japan	6.1	1.0	0.3	0.9	1.5
UK	3.3	1.4	1.3	2.0	2.0
France	3.2	1.2	1.5	1.4	1.6
Germany	4.6	0.7	1.6	1.4	1.7
Greece	0.3	2.0	2.2	0.7	1.2
Ireland	0.4	3.4	3.7	1.0	1.2
Italy	2.4	0.1	0.9	0.9	1.3
Netherlands	1.0	1.6	2.3	2.3	1.5
Spain	1.6	2.3	1.8	1.0	1.6
Poland	0.7	3.8	3.0	2.0	2.5
Russia	1.9	1.5	1.8	4.5	4.5
Turkey	1.1	-1.5	2.6	17.1	13.9
Australia	1.7	2.2	2.7	2.1	2.3
India	3.3	7.3	7.5	4.2	4.8
Indonesia	1.3	5.2	5.1	3.4	3.9
South Korea	1.9	2.5	2.8	1.4	1.6
Brazil	2.6	1.3	2.2	4.3	3.9
Canada	2.1	1.6	1.8	1.7	1.9
Mexico	1.4	1.8	2.7	3.2	2.7
South Africa	0.4	1.3	1.7	4.6	4.8
Nigeria	0.5	2.1	2.5	12.4	11.7
Saudi Arabia	0.9	1.8	1.9	2.8	3.0
World (PPP)	-	3.4	3.5	2.8	3.0
World (Market Exchange Rates)	100	2.8	2.8	2.3	2.4
G7	46.0	1.7	1.5	1.6	1.7
Eurozone	13.9	1.1	1.6	1.3	1.6

Source: PwC main scenario projections for 2019 and 2020; IMF for GDP shares in 2017 at market exchange rates (MERs).

This means that growth is likely to slow only as far as 6.3% in 2019 and 6.2% in 2020, compared with 6.5% in 2018. US-Chinese trade tensions remain an important source of uncertainty for both economies, and for global growth more generally over the next few years.

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

Appendix B
UK economic trends: 1979-2018

Annual averages	GDP growth	Household expenditure	Manufacturing output growth*	Inflation (CPI**)	3 month interest rate (% annual average)	Current account balance (% of GDP)	PSNB*** (% of GDP)
1979	3.7	4.8			13.7	-0.6	4.2
1980	-2.0	0.1			16.6	0.5	3.9
1981	-0.8	0.3			13.9	1.5	3.0
1982	2.0	1.2			12.2	0.6	2.3
1983	4.2	4.4			10.1	0.2	3.0
1984	2.3	2.5			10.0	-0.5	3.3
1985	4.2	5.1			12.2	-0.3	2.5
1986	3.2	6.1			10.9	-1.0	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	3.1	4.5		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
2017	1.7	1.9	2.6	2.7	0.3	-3.7	1.8
2018	1.4	1.9	0.9	2.5	0.6	-4.1	1.4
Average over economic cycles****							
1979 - 1989	2.8	3.7			12.2	-0.8	2.2
1989 - 2000	2.4	2.9		3.3	8.3	-1.5	2.4
2000 - 2014	1.9	1.9	-0.2	2.2	3.3	-3.1	4.4

* After the revisions to the national accounts data, pre-1998 data is not currently available ** Pre-1997 data estimate
*** Public Sector Net Borrowing (calendar years excluding public sector banks) **** Peak-to-peak for GDP relative to trend
Sources: ONS, Bank of England

Contacts and services

Economics

Our macroeconomics team produce the UK Economic Outlook three times a year.

The present report was written by John Hawksworth, Mike Jakeman, Jamie Durham, Tilly Thomas and Frederica Martin.

For more information about the technical content of this report please contact:

John Hawksworth
john.c.hawksworth@pwc.com

or

Mike Jakeman
mike.jakeman@pwc.com

In addition, we provide a range of macroeconomic consulting services for clients, including:

- Revenue forecasting
- Scenario analysis (including stress testing)
- Economic impact analysis (including Brexit)

For enquiries concerning these services, please contact **Jonathan Gillham** on 07714 567 297 or **Barret Kupelian** on 07887 885 139.

Our UK economics team is part of Strategy&, PwC's strategy consulting practice. Strategy& is a global team of practical strategists committed to helping you seize essential advantage.

Our economics practice offers a wide range of services, covering competition and regulation issues, litigation support, public policy and project appraisals, financial economics, behavioural economics and macroeconomics.

For more information about these services please visit our website (www.pwc.co.uk/economics) or contact the relevant person from the list to the right.

Competition Economics	Nick Forrest	+44 (0)7803 617 744
	George Hall	+44 (0)7843 371 018
Economic Regulation	Alastair Macpherson	+44 (0)7703 546 424
	Daniel Jacobson	+44 (0)7803 455 617
Economic modelling and appraisal	Jonathan Gillham	+44 (0)7714 567 297
	Barret Kupelian	+44 (0)7887 885 139
	Jing Teow	+44 (0)7525 281 974
Total impact measurement and management	Mark Ambler	+44 (0)7740 023 382
International trade and development	David Armstrong	+44 (0)7713 680 266

To receive future editions by e-mail please sign up on our website **www.pwc.co.uk/economics**

Our UK Economic Outlook report forms part of PwC's Connected Intelligence programme, which aims to understand the likely impact of the economic and technological changes taking place right now, make sense of disruptive change and balance business understanding with technology innovation and human insight.

www.pwc.co.uk/economics

The Design Group 33812 (07/19)