

4. UK economic growth: long term trends and prospects for the 2020s¹

Key points

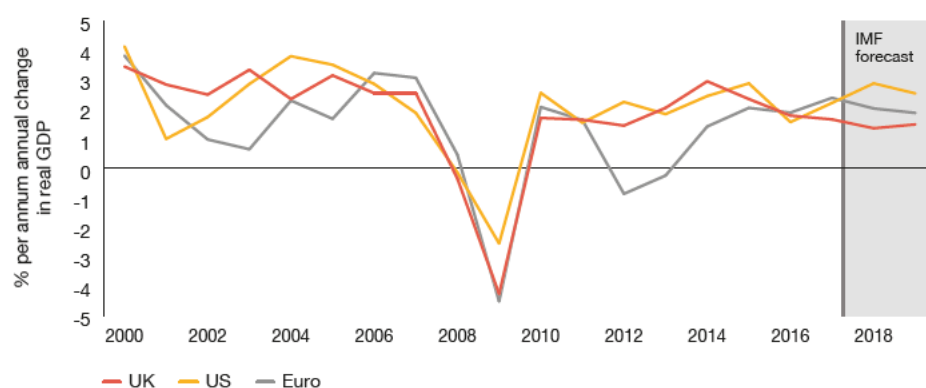
- UK economic growth is likely to average below 2% per annum in both of the first two decades of the 21st century. This period of sub-2% growth is the weakest since the end of the Second World War.
- The UK is not alone in suffering a drop in economic growth. G7 average growth is also projected to be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

Introduction

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

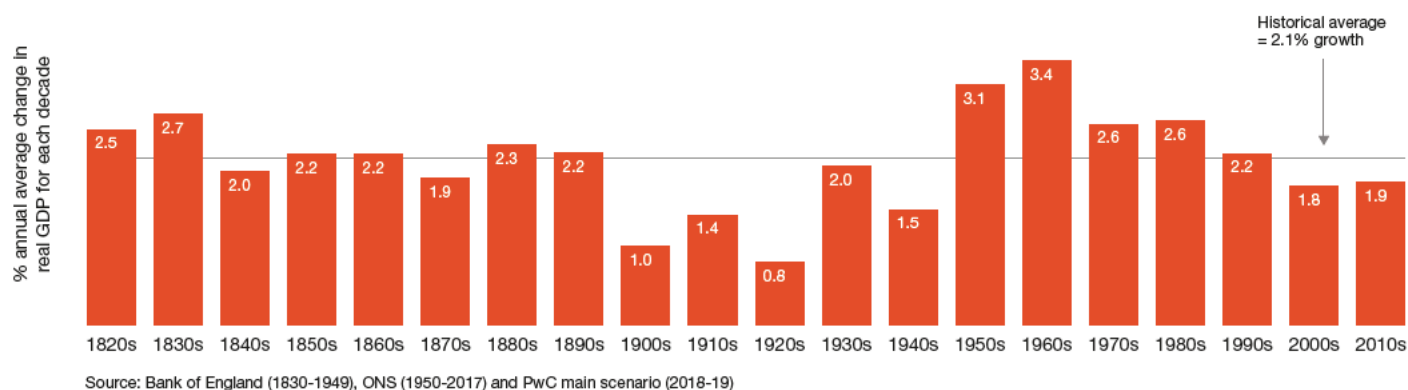
“Our central scenario for average UK GDP growth in the 2020s is 1.75%”.

Figure 4.1 – UK, US and Eurozone growth since 2000



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

Figure 4.2 – Two centuries of UK economic growth



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

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

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

4.1 – UK growth performance in historical context

The Bank of England has very helpfully constructed a database of UK macroeconomic data going back over three centuries – and in some cases even further². Together with more recent official data, this enables us to set economic growth performance over the past two decades in a longer term context. The Industrial Revolution started in England in around the 1760s, but for most of the second half of the eighteenth century and until 1815, when Napoleon was finally defeated at Waterloo, the UK was at war – with France and other European powers as well as in America. The first peacetime decade in the 19th century was the 1820s and Figure 4.2 shows the growth performance by decade since then, using the latest PwC GDP projections for the final years of this decade – 2018 and 2019.

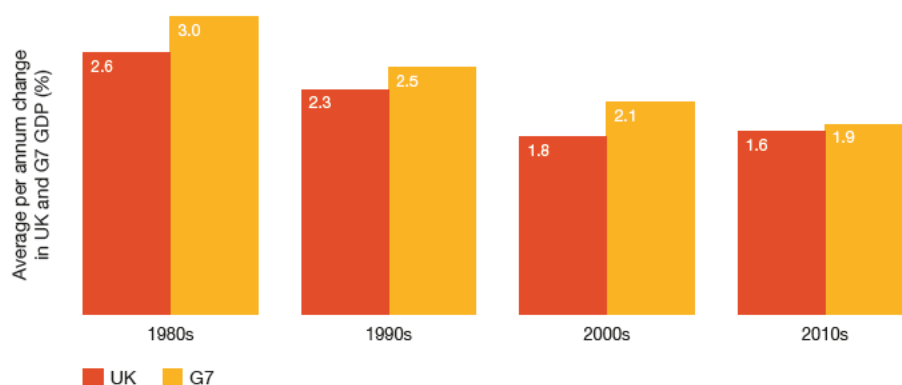
2 See <https://www.bankofengland.co.uk/statistics/research-datasets>

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

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

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

Figure 4.3 – UK slowdown has mirrored G7 economies



Source: IMF World Economic Outlook, October 2018

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

The UK is not alone in experiencing this growth slowdown. Across the major advanced economies, growth rates have slowed since the 1980s. As Figure 4.3 shows, G7³ economic growth averaged 3% in the 1980s, and has also dropped below 2% in the 2010s (using the IMF's latest forecasts from 2018-19). This can be seen as a product of the global financial crisis, which hit growth severely in 2008-9, and the slow recovery which followed. However, in other respects, the major advanced economies appear to be performing well. The G7 unemployment rate is now at its lowest level since the 1970s, as is also the case in the UK.

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

4.2 – Drivers of long-term economic growth

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

Table 4.1 analyses the key phases of UK economic growth since the mid-19th century⁴. It is very clear how variations in economic growth have reflected swings in the rate of productivity increase. In the case of the UK, changes in population growth and other influences on employment have played a much smaller part in shaping variations in long-term economic growth trends. In Table 4.1, these population and employment influences are separated into two components – the growth of total population (of all ages) and the impact on growth of changes in the ratio of employment to population. This last component captures both demographic influences and factors related to the efficiency of labour markets.

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

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

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

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

In the words of Nobel Prize-winning economist Paul Krugman: *“Productivity isn’t everything, but, in the long run, it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker⁵.”*

But what drives productivity?

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

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

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

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

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

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

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

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

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

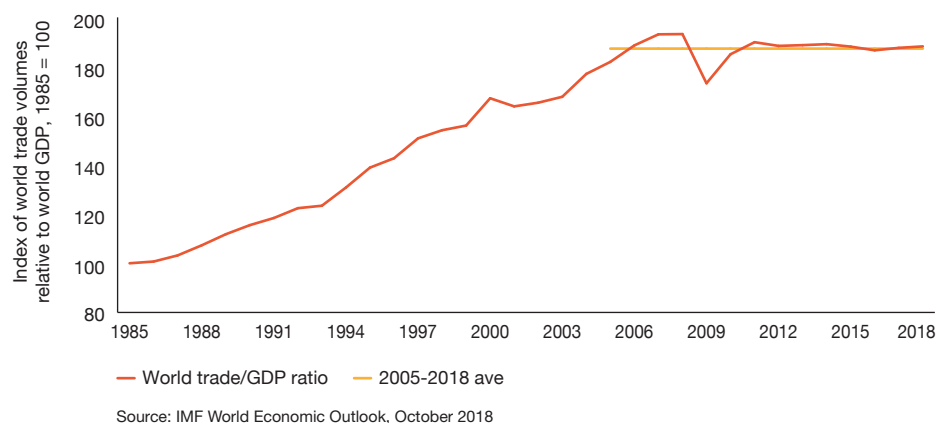
Alongside technology, **investment** – not just in physical capital, but also in skills and various other forms of “intangible” investment – is crucial to the process of productivity growth. We have already noted how China and other Asian economies have demonstrated how quickly they can raise productivity levels with a large injection of investment. It is sometimes argued that the UK productivity growth rate would have been stronger if our investment rate had been higher. A recent analysis by the Office for National Statistics showed that the UK’s average fixed capital investment share of GDP was 16.7% from between 1997 and 2017, compared to around 20% or more in other OECD countries⁶.

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

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

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

Figure 4.4 – Process of globalisation has now faltered



Trade and technology appear to tell the story of the big swings in UK productivity growth seen since the 19th century. In the 1800s, the UK benefited from many technological changes stemming from the Industrial Revolution – including major innovations in transport technologies, such as the development of railways and steamships. At the same time, the world trading system opened up from the mid-19th century, led by the UK reducing various tariff and non-tariff barriers to trade from the 1820s onwards⁸.

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

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

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

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

4.3 – Prospects for UK economic growth in the 2020s

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

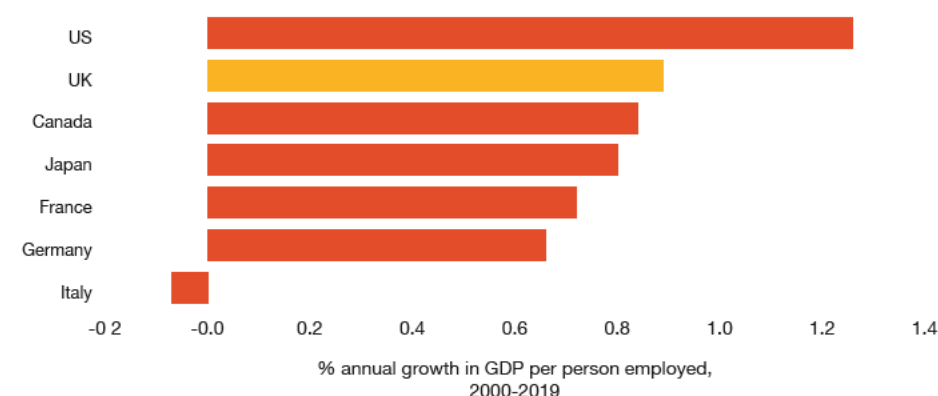
Productivity growth

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

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

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

Figure 4.5 – G7 productivity growth league



Source: IMF World Economic Outlook, October 2018

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

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

The countervailing positive force to offset these negative trade and geopolitical developments could be technology. Artificial Intelligence (AI), machine learning, and various other developments in the world of information and communications technology could provide a significant boost to productivity growth in future decades⁹. But as we have seen from previous technological revolutions, the timing of any productivity boost and extent to which these new technologies feed through into conventional economic measures like GDP is highly uncertain.

In the light of these countervailing influences on UK productivity growth, a realistic central estimate for the 2020s is unlikely to be much higher than around 1% per annum¹⁰ given the experience of the 2000s and 2010s – which saw an annual average productivity increase of 0.9%. A realistic range around this projection would be a low estimate of around 0.7% (the productivity growth rate achieved by the UK in the 2010s). A realistic high estimate might be around 1.3% – the average annual rate of productivity growth achieved by the best performing G7 economy, the US, since 2000.

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

Population and employment projections

Table 4.2 above uses these productivity estimates – alongside projections for population and employment – to produce estimates for the growth of total GDP. Latest official projections for the UK¹¹ point to an increase in the total population from 67.6 million in 2021 to 70.6 million by 2031. This represents an annual increase of 0.44 percent (rounded to 0.45 percent in the central scenario in Table 4.2). This is significantly below the average rate of increase in UK population in the first two decades of the 21st century (0.63% per annum) and is consistent with slower population growth as migration is constrained post-Brexit.

The other key element in our projections is the change in the ratio of employment to population, which is affected by both demographic and labour market factors. Here, the central estimate is in line with the contribution of rising labour force participation shown in Table 4.1, at 0.3% per annum. A key factor boosting employment in the UK in the past couple of decades is the rising contribution of older workers. This is likely to continue as improving health and life expectancy encourages individuals to prolong their working lives. Indeed, the PwC “Golden Age Index” shows there is potential for the UK to significantly improve its labour market performance in terms of the engagement of older workers¹². Just over 20 percent of 65-69 year-olds are employed in the UK, compared with 40 percent or more in the OECD countries which have the largest proportions working in this age bracket.

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

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

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

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

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

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

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

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

4.4 – Conclusions and policy implications

The central scenario presented in this article suggests that the UK may not break out of the “sub-2%” low growth trap in the 2020s. Even with some recovery in productivity growth to 1% per annum, from 0.7% on average in the 2010s, GDP growth is likely to average only around 1.75% per annum in the 2020s¹³. Globalisation and trade growth are no longer providing the boost to growth in the UK and other advanced economies that we have seen for most of the post-war period. Brexit, rising protectionism and geopolitical tensions pose downside risks to UK economic growth. So although there could be some boost to productivity from new technologies such as AI, they may not prove strong enough or certain enough to lift growth back above 2% on a sustained basis¹⁴.

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

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

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

So, four main policy conclusions flow from this analysis:

- Tax and regulatory reform which boosts broader economic performance by simplification and shifting the burden of tax and regulation away from productive and internationally competitive activities in the economy.
- Maintaining as far as possible an open approach to international trade, despite Brexit and rising international protectionist tides.
- Policy measures which support and encourage the development and embodiment of new technologies such as AI, despite the fears of potential job losses – which PwC analysis suggests are overstated from a macroeconomic perspective¹⁵.
- Measures to encourage older workers to remain engaged in the workforce, which could boost the labour force contribution to growth as the population ages.

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

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

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

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

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