



BANK OF ENGLAND

Speech

From Protectionism to Prosperity

Speech given by

Mark Carney, Governor of the Bank of England

Northern Powerhouse Business Summit — Great Exhibition of the North

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Introduction

It is a great pleasure to join the Great Exhibition of the North and to be a small part of your proud tradition of innovation and openness.

This gathering rightly echoes the Great Exhibition of 1851. The event at Crystal Palace took place in the middle of the 1st Industrial Revolution, around the start of the first wave of globalisation. In the Newcastle of the 1850s, innovation meant the most advanced steam locomotive of the day, the Rocket, and the world's first passenger railway, the Stockton to Darlington Railway. Today, on the cusp of the 4th Industrial Revolution, the businesses of the Northern Powerhouse are connecting through superfast broadband, and even working to turn the hyperloop from concept to reality.

Then as now, the North looked outwards. During the first wave of globalisation, this region built the ships that enabled Britain's economic transformation and its ports were amongst the busiest in the world.

The parallels with the past run deeper still. We meet today after the first decade of falling real incomes in the UK since the middle of the 19th century, in the wake of a global financial crisis, and in the midst of a technological revolution that will change the very nature of work. Substitute platforms for textile mills, AI for the steam engine, and Twitter for the Telegraph and the dynamics echo those of 150 years ago.

A fundamental challenge is that, while technological revolutions ultimately drive great improvements in prosperity, they first involve painful periods of adjustment. It takes time for new jobs to be created to replace those made obsolete. It can take more than a generation for new skills to be acquired. And decades can pass before gains in productivity flow through to the wages of all workers (Charts 1a and 1b).¹

Of course, the point of recalling the past isn't to accept it and repeat it, but to learn from it and improve upon it.

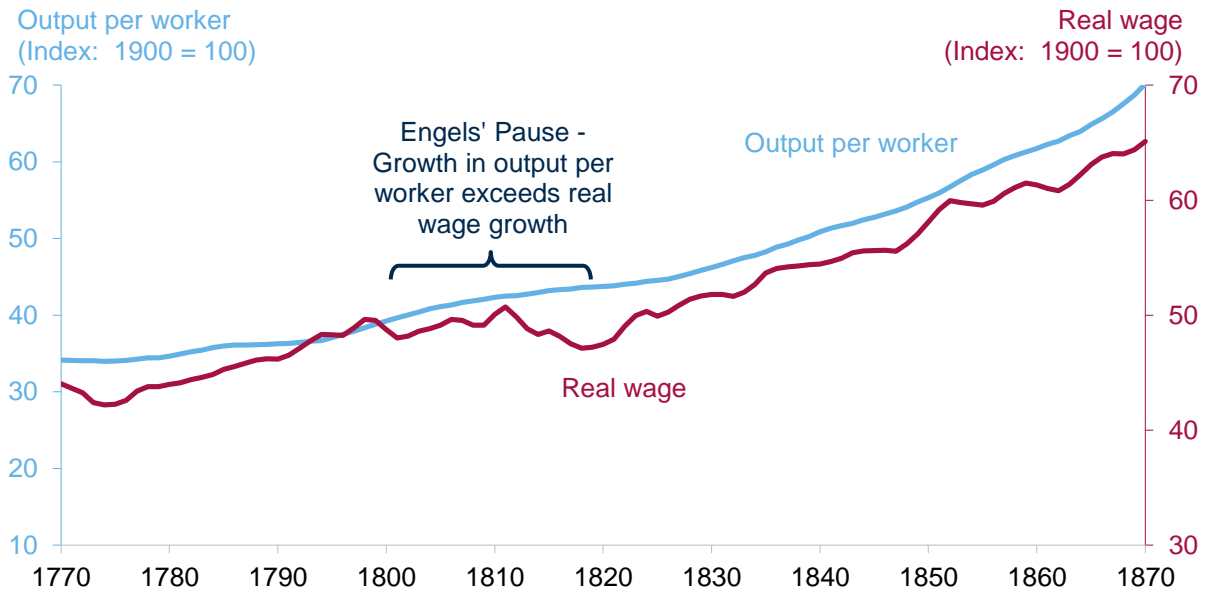
That is why this gathering is rightly focused on how the people and businesses of this region, the country and the world can begin to benefit *now* from the synergies between the 4th Industrial Revolution and global commerce.

There are already examples across the North. Sunderland's automotive companies are at the heart of the world's most sophisticated supply chains. Northumberland's Offshore Renewable Energy Catapult Centre is at the cutting edge. Durham's digital bank, Atom, is exploring the latest in machine learning to serve their customers.

These innovators show it can be done. The challenge is to make such successes the norm at a time of accelerating change and in a more uncertain global trading environment.

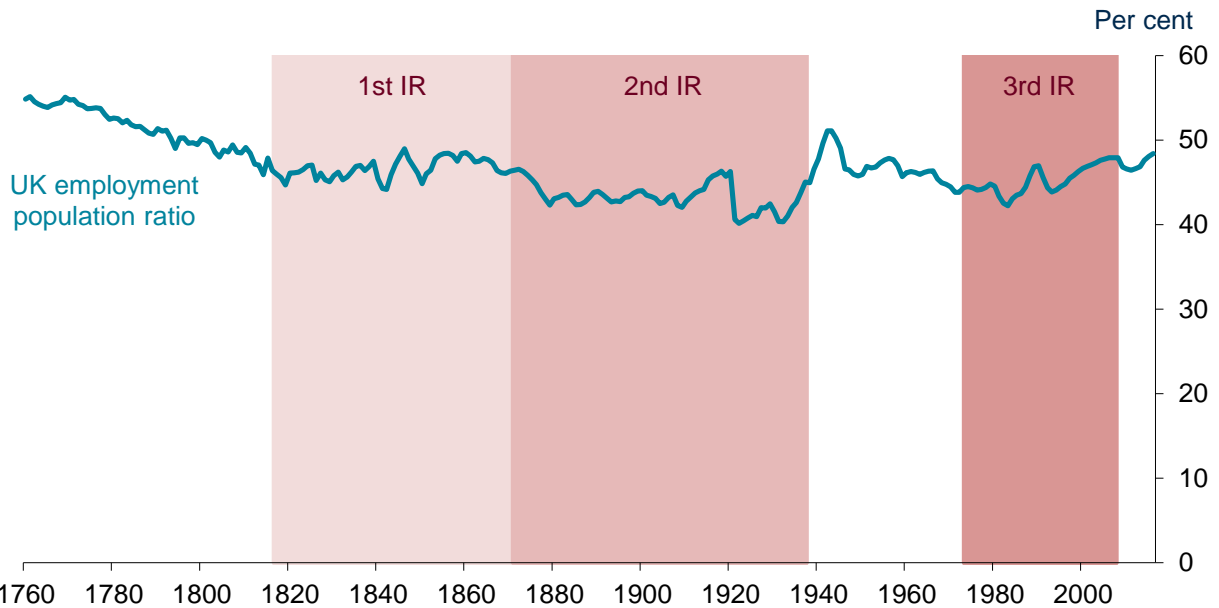
¹ The benefits of the first industrial revolution, which began in the early 19th century, were not felt until the second half of the century. And what economists euphemistically call frictions can lead to depressed regional labour markets and sharply higher inequalities.

Chart 1a: Pickup in real wages lagged productivity during the 1st Industrial Revolution



Sources: A Millennium of Data, Bank of England.
Notes: Series are ten year moving averages.

Chart 1b: Little evidence of technological unemployment over long term



Sources: A Millennium of Data, Bank of England.

One lesson from the past three Industrial Revolutions is that creating opportunities for all requires fundamental changes to labour market, social welfare and educational institutions.²

² See [Carney, M \(2018\) 'The Future of Work', slides to accompany a presentation at the Public Policy Forum, Toronto, 12 April 2018.](#)

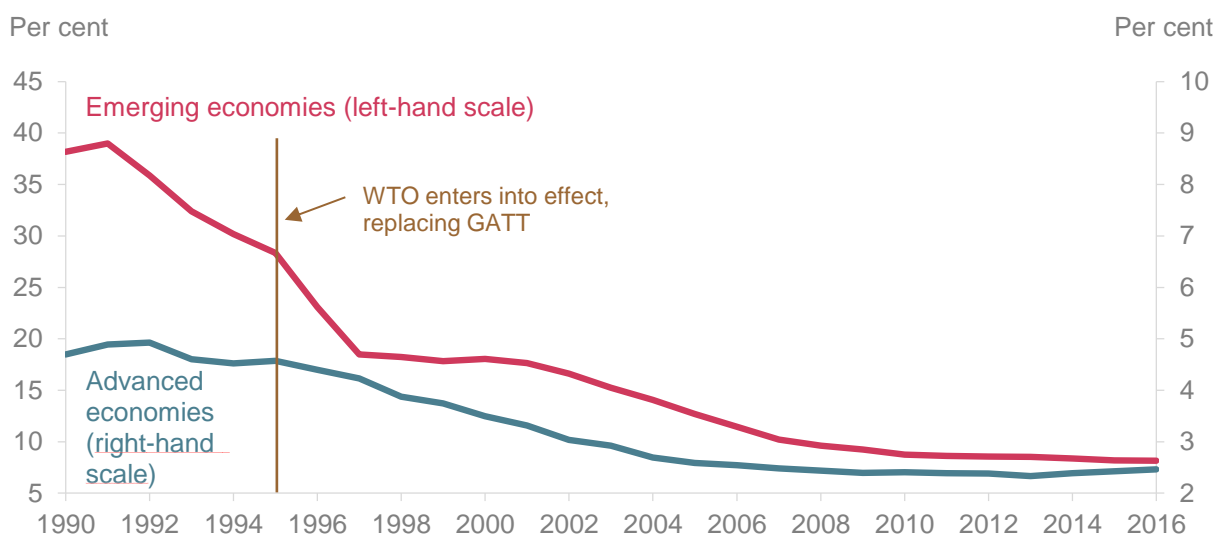
For example, in the first two industrial revolutions, universal primary and secondary education became the norm. By the end of the third, there was a step change in tertiary educational attainment. To keep pace at a time of immense technological change, the biggest issue may be how to institutionalise mid-career re-training and to integrate it with a reformed social welfare system. A quaternary system of education, founded on the same principle of universality but in greater partnership with the private sector, may be required.

I would like to concentrate today on two other enabling institutions – finance and trade – that will be critical to determining the extent to which the new technologies can bring opportunity for all.

The Second Wave of Globalisation

Since the fall of the Berlin Wall, the global trading system has been steadily liberalised (Chart 2), global trade has grown at an annual rate of 8% and production has become increasingly integrated across borders.

Chart 2: Substantial reductions in average tariffs across both advanced and emerging economies



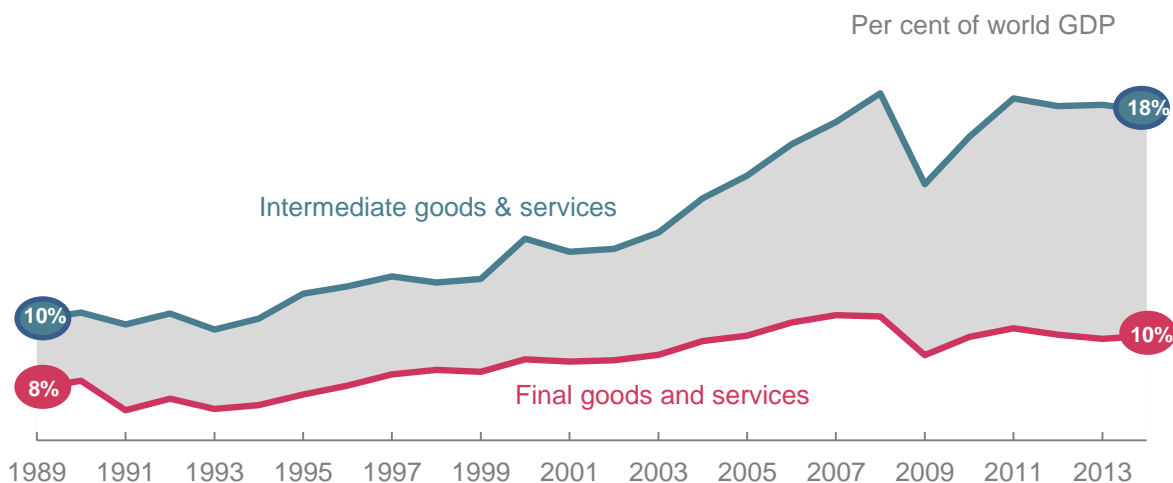
Source: World Bank.

Notes: The chart shows the simple mean of weighted tariff rates. For each individual country this is computed as unweighted average of effectively applied tariff rates for all trade goods subject to tariffs. Aggregates are based on the 14 largest countries in the world (according to purchasing power parity GDP weights in 2010).

Over this period, the use of imported intermediates in domestic production has increased dramatically, with trade in intermediate goods and services doubling (Chart 3) and the value added of imports as a share of exports rising from 10% in 1990 to around 20% in 2015.³

³ See Auer, R, Borio, C and Filardo, A (2017), 'The globalisation of inflation: the growing importance of global value chains', *BIS Working Paper No. 602*.

Chart 3: The development of global value chains has boosted trade in intermediates



Sources: Johnson and Noguera (forthcoming), Powell (2016), World Input-Output Database (2016 release) and BIS.
Notes: Imports and GDP are in current US dollars.

Through this process, the effective global labour force has doubled, more than a billion people have been lifted out of poverty, and living standards have risen dramatically, with output per capita up 40% in both the UK and globally since the mid-1990s.

At the same time, however, in advanced economies globalisation has become associated with rising inequality and heightened uncertainty, with many people lamenting a loss of control and losing trust in the system.

Part of the problem has been that economists and policymakers have not been sufficiently upfront about the distributional consequences of rapid changes in technology and globalisation. Amongst economists, a belief in free trade is totemic.⁴ But, while trade makes countries better off, it does not raise all boats; in the clinical words of the economist, trade is not a Pareto improvement.⁵

Rather, the benefits from trade are spread unequally across individuals, regions and time.⁶ As result, for many citizens of advanced economies, measures of the aggregate gains from globalisation bear little relation to their own experience.

Partly as a result,⁷ protectionist sentiment has been rising, prompting the question what could a period of de-globalisation mean for the economic outlook?

⁴ For example, see Bhagwati, J. (2011), "Why free trade matters", Project Syndicate, June 23.

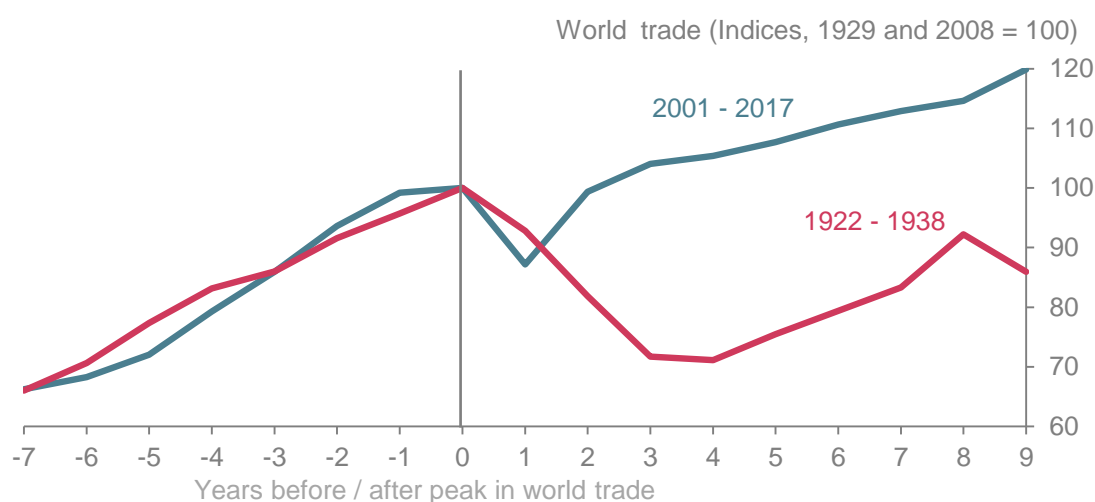
⁵ In neoclassical models, free trade is Pareto Optimal in principle – in that the aggregate gains are sufficient to compensate those that lose out while preserving gains for the winners. This typically means some form of redistribution of the gains from trade is needed to achieve this outcome. This is the Kaldor-Hicks compensation principle. It is an open question, however, whether redistribution of this kind actually takes place in practice and, indeed, whether it is itself costless, as the Kaldor-Hicks principle assumes.

⁶ For example, consumers get lower prices and new product varieties, and, over time, benefit from the spur to innovate and higher productivity. Some workers, however, lose their jobs and the dignity of work, or see their "factor prices" – in plain English, wages – equalised downwards.

Trade in the recent global recovery

One of the unsung triumphs of the post-crisis period was the G20's ability, until now, to resist protectionism.⁸ This admirable restraint helped world goods trade to recover its pre-crisis level two years after the crisis hit, whereas it languished around 20 percent below its peak during most of the decade after the Great Depression (Chart 4). When combined with the aggressive response of world's major central banks, the continued openness of trade after the crisis helped avoid a repeat of the Great Depression.⁹

Chart 4: G20 avoided a protectionist slump in world trade



Sources: Federico-Tena World Trade Historical Database : World Trade and and CPB Trade Monitor data

Notes: The year 0 on the horizontal axis is 1929 in the case of the Great Depression (blue line) and 2008 in the case of the Great Recession (red line). 1922-1938 trade flows are constructed using current country borders.

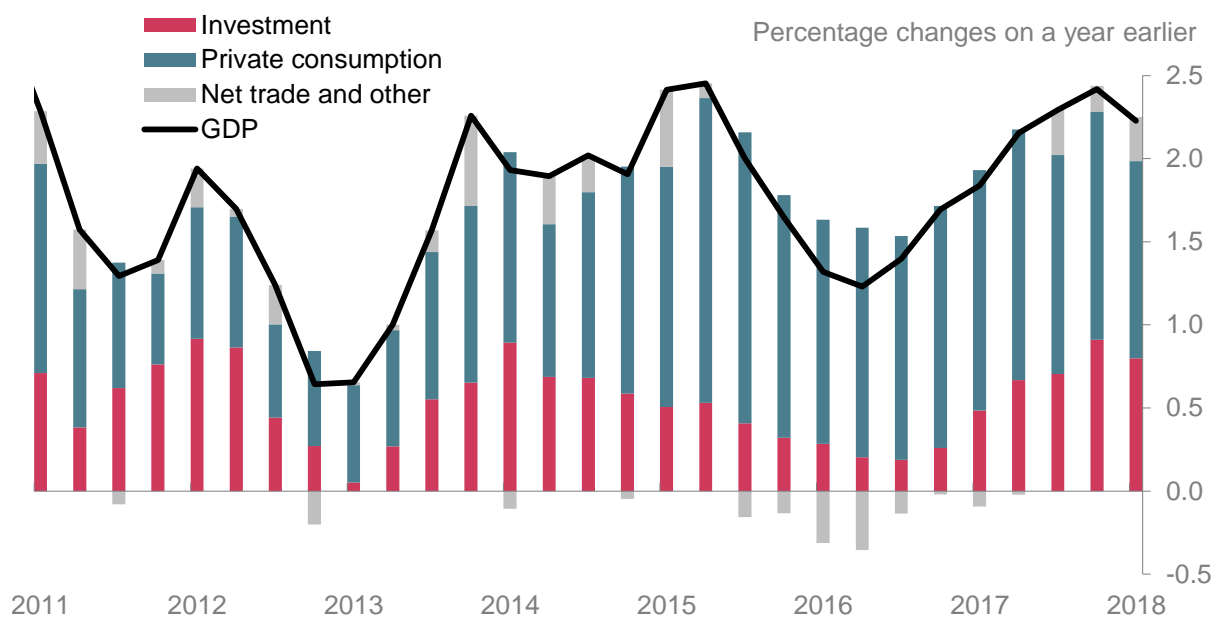
With openness maintained and with the shadow of the financial crisis finally receding over the past few years, global trade began to accelerate, boosting investment and driving a much healthier global recovery (Chart 5). World GDP rose by 3.9% in the year to 2017 Q4, the fastest rate since 2011, with 90% of countries growing at above-potential rates.

⁷ There are other important issues, including protection of intellectual property and the sheer scale of the challenge of rapidly integrating an economy the size of China into the global system.

⁸ See, for example, the Leaders' Statements issued after the G20 meetings, from Washington in 2008 and London and Pittsburgh in 2009 through to the Hamburg G20 meetings last year.

⁹ The slump in world trade following the Great Depression was arguably amplified by stubborn adherence to the gold standard, as countries that tried to maintain their pegs had to keep interest rates high, which depressed activity and trade.

Chart 5: Pickup in G7 growth since 2016 driven by investment and trade



Sources: OECD and Bank calculations.

But protectionist rhetoric has also risen, and it is now turning into action, with the US increasing tariffs and the affected countries retaliating.

At the moment, protectionism is largely just talk (and tweets). But what if rhetoric becomes reality?

Some illustrative simulations of the potential trade impact

Protectionism affects the real economy through three channels. There are direct effects, through reduced trade flows, disrupted supply chains and higher import costs. And there are indirect effects, via business and consumer confidence and financial conditions.

If implemented, the tariffs announced thus far (between the US and China, the US and EU, and the US and its NAFTA partners, as well as the potential US tariffs on EU motor vehicles and parts), will broadly double average bilateral tariff rates (Table 1), and could raise average US tariffs to rates not seen in over 50 years.

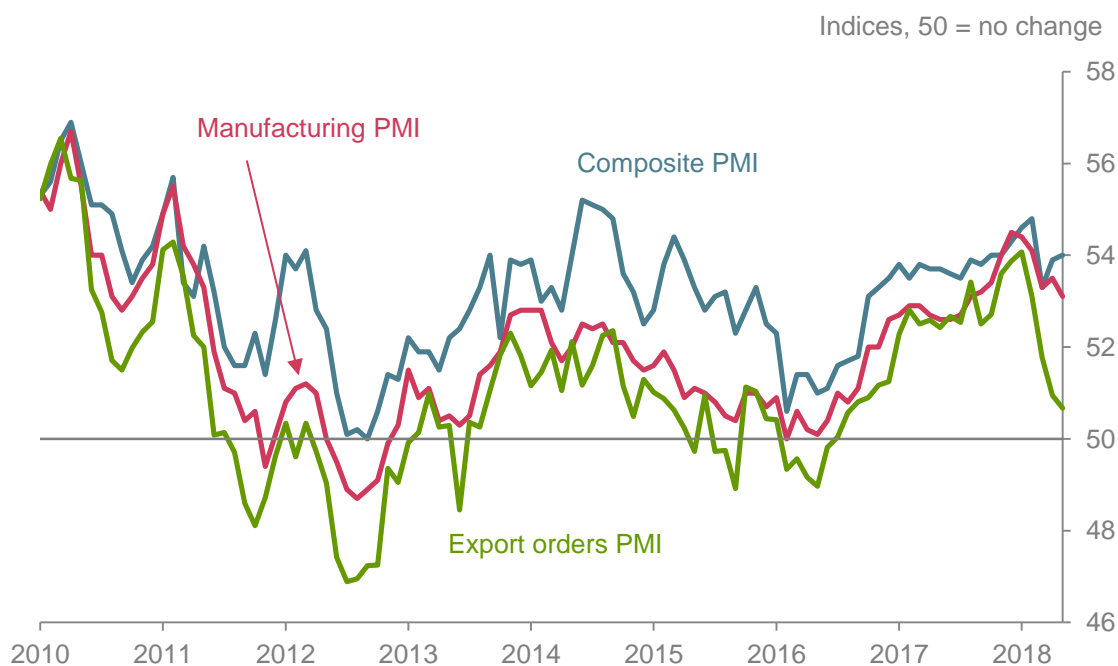
Table 1: Weighted average bilateral tariffs

Tariffs imposed by:	US	China	US	EU
On imports from:	China	the US	the EU	the US
Existing measures	2.6	9.1	3.3	3.0
With announced and contemplated measures ^a	4.5	14.9	6.2	7.2

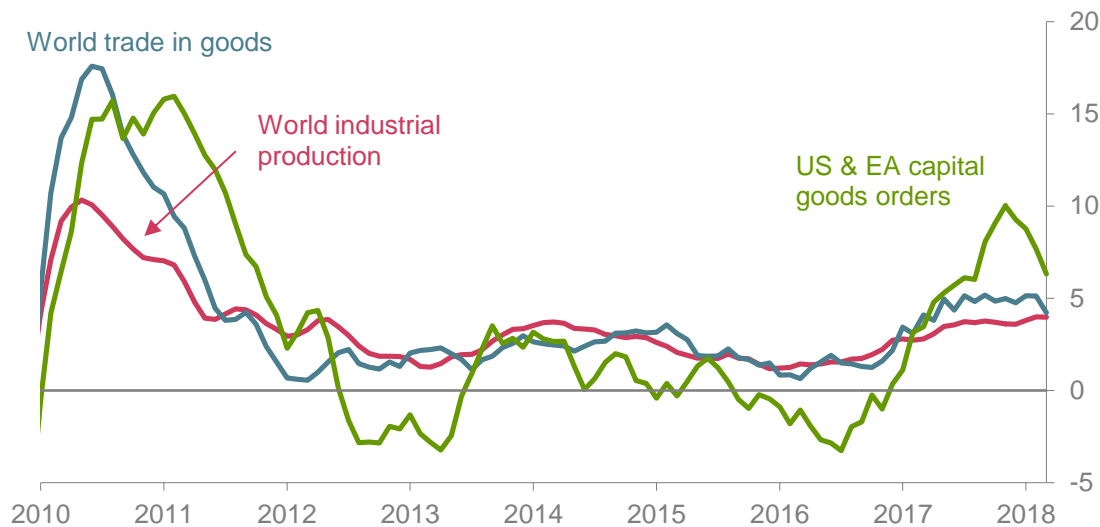
(a) Announced US tariffs on steel and aluminium, the reciprocated 25% tariff on \$50bn of US imports from China, and the potential US tariffs on EU motor vehicles and parts.

There are some, tentative signs that this more hostile and uncertain trading environment may be dampening activity. For example, survey measures of global export orders and manufacturing output have fallen back from highs at the start of this year, and growth in US and euro-area capital goods orders fell to zero in Q1 (Chart 6).

Chart 6: Signs of slowing momentum



Percentage changes, 3 months on 12 months ago



Sources: ECB, Confidence Board, CPB and Markit Economics.

In recent months, global financial conditions have also tightened somewhat though this is likely more to do with US monetary than trade policy. Nonetheless, there is a growing possibility that trade uncertainty could crystallise the longstanding risks of a snap back in long-term interest rates, increased risk aversion and a general tightening in global financial conditions.¹⁰

Bank of England simulations suggest that the impact of narrow, bilateral tariff increases through direct trade channels would tend to be small – reflecting the small share of overall exports affected – and would be largely confined to the countries directly involved. However, a larger, increase in tariffs of 10 percentage points between the US and all of its trading partners could take 2½ per cent off US output and 1 per cent off global output through trade channels alone, although the impact on the UK is smaller reflecting a greater exchange-rate driven boost to net exports. The hit to global and UK GDP would be substantially greater if everyone put up tariffs against everyone else (Chart 7a).

¹⁰ The economic scenario in the Bank of England's 2017 stress test of the UK banking system involved an increase in global risk aversion, which occurred alongside deep, simultaneous recessions in the UK and global economies. See <https://www.bankofengland.co.uk/stress-testing/2017/stress-testing-the-uk-banking-system-2017-results>.

Chart 7a: GDP losses from a 10 percentage point increase in tariffs on US trade substantial¹¹

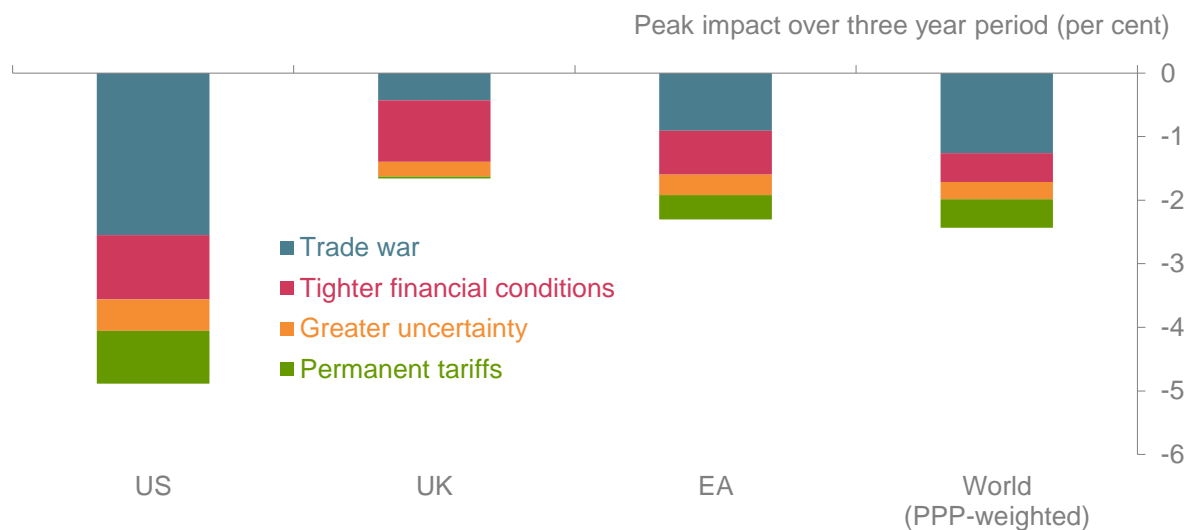
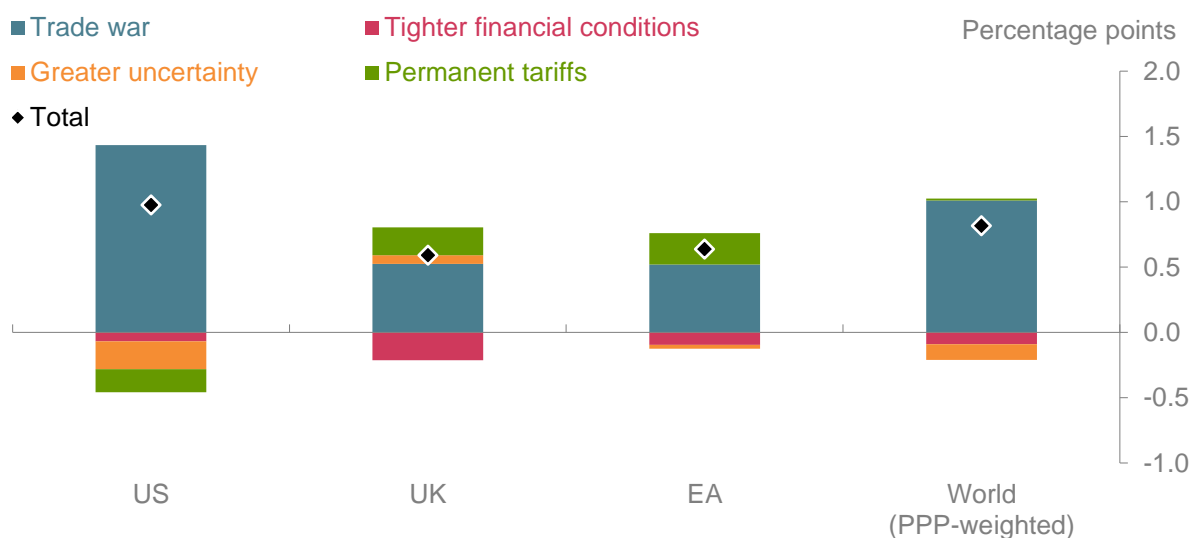


Chart 7b: Sharp rise in inflation would confront monetary policy makers with trade-off



The scenario would put monetary policymakers in a difficult position. Although the shock from higher tariffs would drag on activity, their initial impact would be inflationary, particular for the country at the centre of the trade dispute (Chart 7b).

These simulations consider only direct impacts of tariff increases, and do not include those via business confidence and financial conditions.

In these regards, the current UK experience with Brexit can provide some insight.

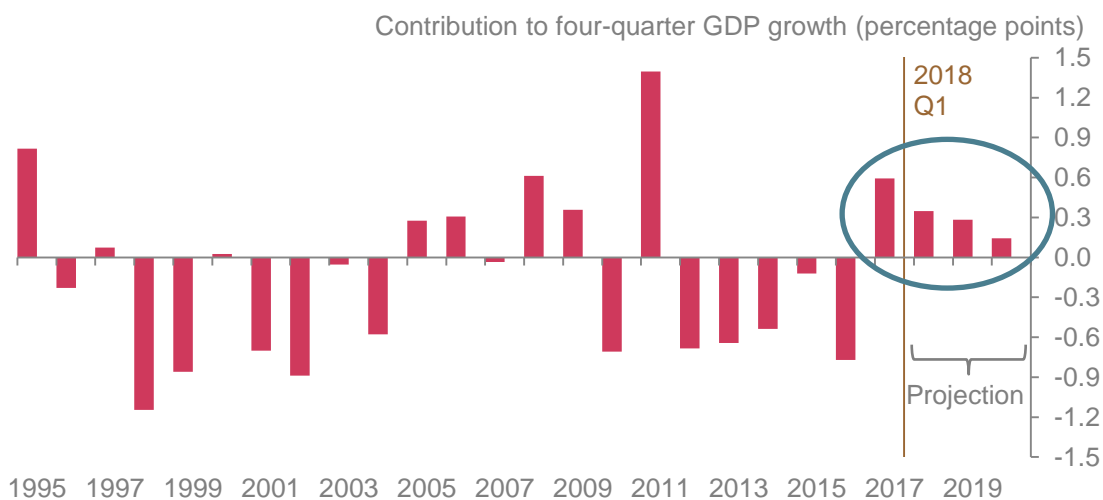
¹¹ Based on simulations using NiGEM. The baseline scenario assumes a 10 percentage point increase in tariffs that persists for three years. The additional impact from tighter financial conditions is based on 75bp increase in term premia and 50bp increase in equity risk premia globally; and the uncertainty impact is proxied by assuming agents anticipate a further 10pp increase in tariffs the following year. Global monetary policy is held fixed for five years.

As we know, the intention of Brexit is not to turn inwards but to broaden openness over time; the strategy is to *step back in order to jump forward*. But Brexit will, for a period, be an example of de-globalisation because any reduction in openness with the EU is unlikely to be immediately compensated by new ties of a similar magnitude with other trade partners. And even if new agreements with other partners could be struck instantaneously, the reorientation of business relationships will take some time.

Since the referendum, exporters have been in a sweet spot (Chart 8), benefiting from the lower level of sterling in anticipation of a Brexit that has not yet happened.

Confidence effects have been more material. Forward-looking business investment has been on the side lines, as Brexit-related uncertainties have outweighed otherwise very favourable conditions (Chart 9).¹² While households looked through Brexit-related uncertainties initially, they cut back on spending as the consequences of sterling's fall showed up in the shops and squeezed their real incomes. Consumer confidence remains well below its pre-referendum levels (Chart 10).

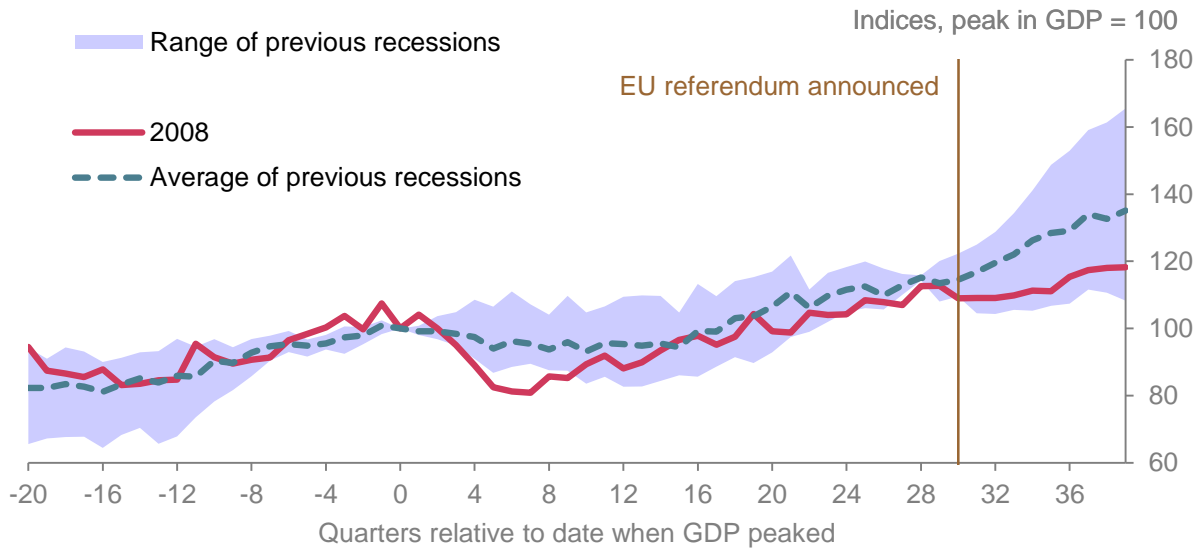
Chart 8: UK exporters currently in a sweet spot



Sources: ONS, May 2018 *Inflation Report* projections and Bank calculations.

¹² Strong world demand, a low cost of capital, the high rates of return on capital and diminishing spare capacity have all supported business investment.

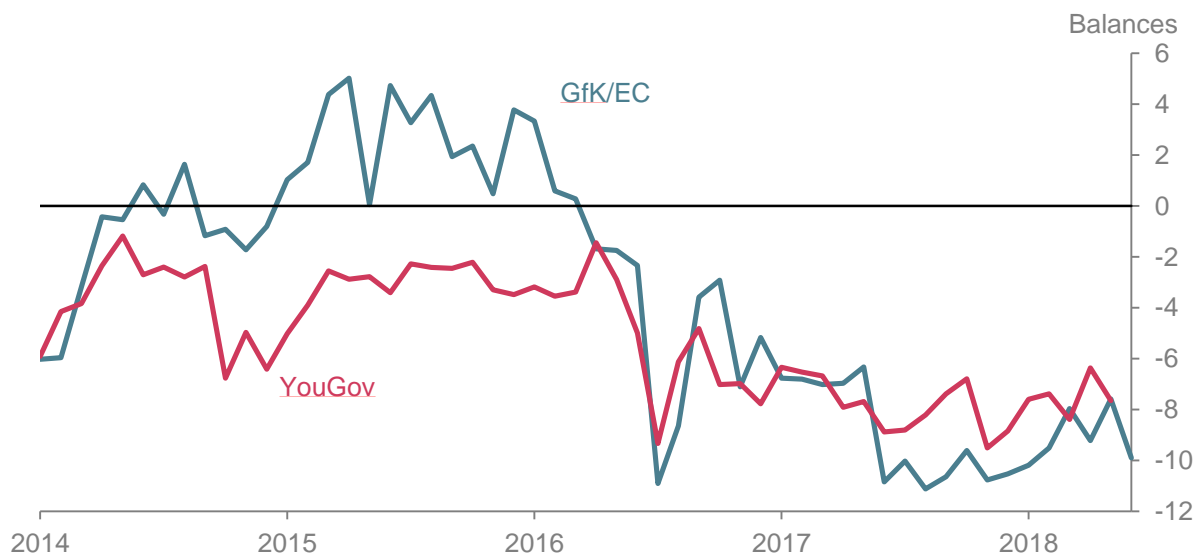
Chart 9: Brexit-related uncertainties dragging on business investment



Sources: ONS and Bank calculations.

Note: The blue dashed line shows the average across the 1973, 1979 and 1990 recessions.

Chart 10: Consumer confidence remains well below pre-referendum levels



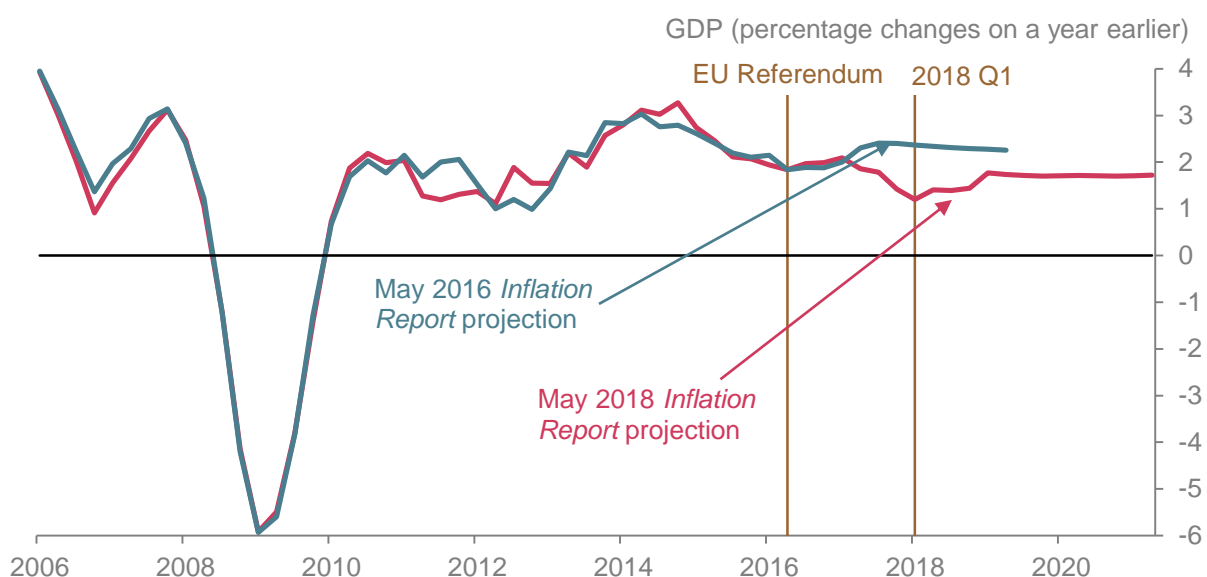
Sources: GfK/EC and YouGov/CEBR.

Notes: The YouGov series has been mean-variance adjusted to match the GfK/EC series data. The latest observation for YouGov is May 2018.

The cumulative impact of these effects has been material. By the first quarter of this year, UK GDP had increased by 1 percentage point less than the MPC had projected just prior to the referendum (Chart 11). Factoring in stronger-than-anticipated growth in the European and global economies and more supportive monetary and fiscal policies, the shortfall increases to around 1¾%-2% – a similar hit to the US from the direct trade channels in the simulations above.

This is despite the fact that Brexit has not happened yet and that UK financial conditions have remained supportive since the referendum, in contrast to previous periods of elevated uncertainty. This in part reflects the package of easing measures implemented by the MPC in August 2016 and less stringent fiscal policy as well as the resilient global environment. In a general trade war, it is unlikely that global financial conditions would prove as robust, or that monetary policy could be as supportive.

Chart 11: Brexit impact on demand approaching 1¾ - 2 percent of GDP



Sources: ONS and Bank calculations.

The experience of Brexit underscores that the impact of global trade war will be greater the more business confidence is affected, the more financial conditions tighten and – most fundamentally – the more permanent the loss of openness is expected to be.

Adding on a fall in business confidence and tightening financial conditions to the direct trade channels in the simulations and the possibility that the tariffs could be viewed as permanent could plausibly double the losses in output, while moderating somewhat the impact on inflation (Charts 7a and 7b).

Over the longer term, reduced productivity growth would be expected to compound the output losses from a sustained trade war. Historically, there has been a strong relationship between trade openness and productivity, with empirical estimates suggesting a 20% reduction in trade tends to drag on productivity by

around 5% in the long run.¹³ What is unclear, because it has not yet been tested, is whether the integration of global supply chains in recent decades has intensified that link. A number of our Agents' business contacts in the North, as elsewhere, have been wondering whether changes to trading arrangements will require them to switch suppliers or find new customers, whether to expand production or even close down certain activities.

For monetary policy, the implications of protectionist measures depend on the balance of their effects on demand, supply, the exchange rate and import prices. Those, in turn, will depend on factors such as the extent to which measures are expected to be a temporary skirmish or the new normal, how quickly tariffs are passed through to prices, whether they hit productivity, and whether there are any non-linear effects – for example arising from disruptions to supply chains or wholesale obsolescence of plant and equipment.

Monetary policy makers also need to take into account the potential for reduced trade to result in more fundamental changes to the relationship between domestic slack and inflation, which could steepen and shift up as trade falls back.¹⁴

UK Monetary Policy

In the exceptional circumstances prevailing since the referendum, the MPC has set policy to balance the trade-off between the speed at which inflation returns to target and the support that monetary policy provides to jobs and activity.

Consistent with its remit, the MPC judged that it was appropriate to set policy so that inflation returned to its target over a longer period than the conventional horizon of 18-24 months in order to support jobs and activity at a time when uncertainty was elevated and the economy was slowing.

That approach has worked (Chart 12). Employment is at a record high. Import price inflation is fading. Real wages are rising. And domestic inflationary pressures are gradually building to rates consistent with the inflation target.

Now, with the excess supply in the economy virtually used up and the Brexit date looming, the economy could travel along two broad paths: one relatively bumpy, the other – my focus here – relatively smooth.¹⁵

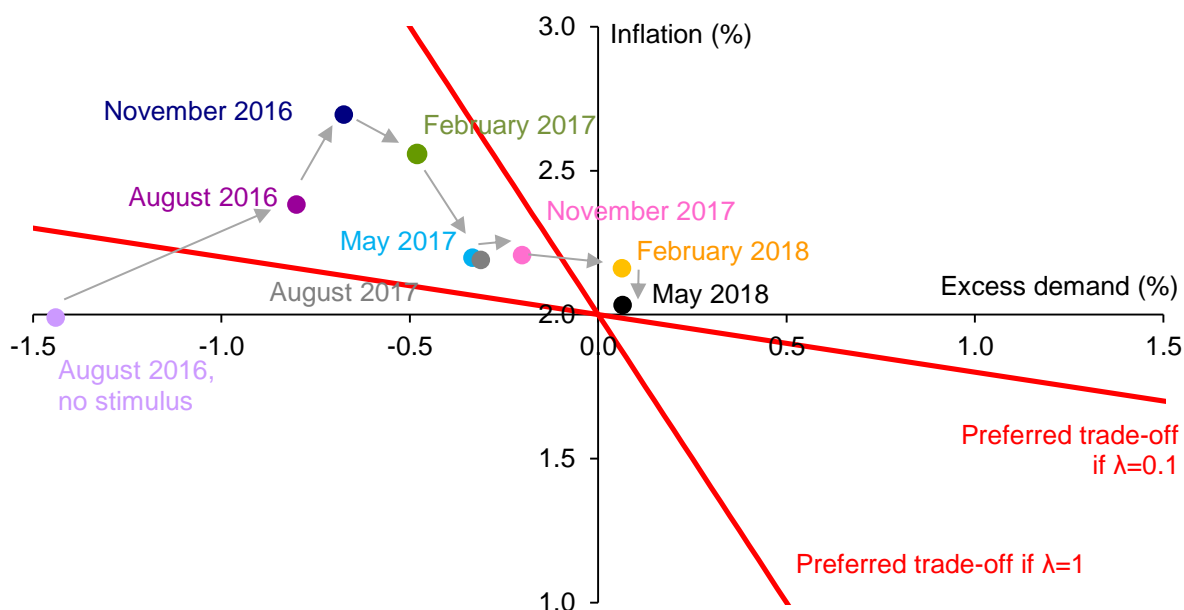
The current path is consistent with the MPC's current central projection, which assumes a relatively smooth transition to a Brexit that is the average of a range of outcomes. In this case, the Committee's reaction function will be more conventional, with the path of policy driven primarily by demand.

¹³ See Feyrer (2009), 'Trade and Income -- Exploiting Time Series in Geography', NBER Working Paper No. 14910.

¹⁴ For more details, see [Carney, M \(2017\), '\[De\]Globalisation and inflation'. 2017 IMF Camdessus Central Banking Lecture.](#)

¹⁵ Along the first of these, a disruptive Brexit – for example, if the transition were disorderly, or the end state agreement materially worse than the average potential outcome – would likely mean the MPC would once again be confronted with a trade-off between the speed with which it returns inflation to target and the support policy provides to jobs and activity. On this path, the MPC can be expected to set policy to manage any trade-off using the framework it applied following the referendum.

Chart 12: Monetary policy managed the trade-off since the referendum¹⁶



As the MPC has stressed, were the economy to develop broadly in line with the *May Inflation Report* projections – with demand growth exceeding the 1½% estimated rate of supply growth leading to a small margin of excess demand emerging by early 2020 and domestic inflationary pressures continuing to build gradually to rates consistent with the 2% target – an ongoing tightening of monetary policy over the next few years would be appropriate to return inflation sustainably to its target at a conventional horizon.

Since our May meeting, international data have been mixed. The US economy is growing robustly, against signs that momentum has faded a little in the euro area and, more markedly, in some emerging market economies. As I noted earlier, the impact of trade uncertainty on business confidence and financial conditions at this stage still appears to be modest. Overall, the outlook for global growth has moderated a little, but remains strong, providing important support to UK activity.

Domestically, the incoming data have given me greater confidence that the softness of UK activity in the first quarter was largely due to the weather, not the economic climate. A number of indicators of household spending and sentiment have bounced back strongly from what increasingly appears to have been erratic weakness in Q1. The UK labour market has remained strong, and there is widespread evidence that slack is largely used up. Pay and domestic cost growth have continued to firm broadly as expected. Headline inflation is still expected to rise in the short term because of higher energy prices.

¹⁶ Each observation shows the central projection for spare capacity or excess demand at the end of the second year of the forecast period (the 'Year 2' point) on the horizontal axis against the central projection for four-quarter CPI inflation at Year 2 on the vertical axis from successive *Inflation Reports*. The left-most observation (labelled "Aug. 2016 no stimulus") is a counterfactual version of the August 2016 *Inflation Report* forecasts with the effect of the MPC's Bank Rate cut, Term Funding Scheme and Asset Purchases removed.

Overall, recent domestic data suggest the economy is evolving largely in line with the May *Inflation Report* projections, which see demand growing at rates slightly above those of supply and domestic cost pressures building. The MPC will continue to monitor incoming data and review prospects for growth and inflation in the UK in order to set monetary policy consistent with returning inflation sustainably to target.

Powering to a positive future

With the economy on the cusp of a revolution and the global economic order rebalancing, people are rightly raising fundamental concerns. How can everyone benefit from the 4th Industrial Revolution? How do we make trade work for all?

One answer could be to harness the opportunities of the 4th Industrial Revolution to pursue new approaches to trade – ones that concentrate more on small businesses and on trade in services rather than the traditional focus on trade in goods by large, multinational corporates.

Advances in technology are making the world smaller, enabling people and businesses to connect across borders as easily as they do across the street. The 4th Industrial Revolution promises an age in which anyone can produce anything anywhere through 3-D printing, where anyone can broadcast their performance globally or sell to China whatever the size of their business.

In a hyper-connected, capital-light world, the future may increasingly belong to small and medium-sized firms, with platforms (such as taskrabbit, Amazon, Etsy, Shopify, and SamaHub) giving them direct stakes in local and global markets. Connections can be made between small businesses in Scunthorpe and their clients in Shanghai, and between households in Bassetlaw and firms in Bangalore.

The financial implications of these developments are only beginning to be realised, but they are likely to be immense. In anticipation, the Bank is creating the new hard and soft infrastructure that the new finance will require.

For example, the Bank of England is in the midst of an ambitious rebuild of the Real Time Gross Settlement (RTGS) system – the backbone of every payment in the UK – so that new private payment systems, including non-bank payment service providers, can simply plug into our system. No longer will access to central bank money be the exclusive preserve of banks.

Several non-bank payment service providers (or PSPs), focused on retail and corporate services, are currently applying. The electronic money flowing through their systems will become more like its physical relative. Electronic payments are becoming instantaneous by using QR codes or mobile phone numbers. Checkout can be eliminated. The customer, not cash, will reign supreme.

The Bank is also making it easier for the UK financial system to realise the promise of big data, which should foster competition and improve choice for UK businesses.^{17,18}

In addition, RTGS is being re-configured to lower the excessive costs of cross-border payments, in part through connecting it to the systems run by other central banks and in part through new private PSPs. Soon UK households and businesses will be able to reap the benefits from more seamless low-cost global payments.¹⁹

With this new commercial and financial infrastructure, perhaps the priority should be free trade of SMEs. By giving local businesses a direct stake in globalisation, growth can be stronger and more inclusive.

Freer trade in services could also make trade work for all. Over the past decade, the Bank has also put in place the pillars of responsible, open financial system – strong global standards; deep supervisory cooperation; and ending “too big to fail”. Responsible openness allows capital to move freely, efficiently and sustainably between jurisdictions and in turn that supports trade, investment and jobs in the UK, Europe and the rest of the world. And it means we are ready for deeper global financial partnerships with the emerging economies that will be the most important drivers of global growth in the decades ahead.

Responsible openness demonstrates how financial services could serve as a template for broader services trade liberalisation. Across the G20, platforms are being created for deference to each other’s approaches when they achieve similar outcomes. With robust standards consistently applied, wholesale financial services could be brought more fully into bilateral trade agreements.

The gains from levelling up the international trading system through liberalising services trade would far outweigh those from levelling down by putting more restrictions on goods trade. The Bank estimates that reducing restrictions on services to the same extent as those on goods have been over the past couple of decades could reduce excess current account imbalances by up to one half.²⁰

Freer services trade would also have broader benefits. The entry of international services providers to domestic markets can improve consumer choice and lower prices. It is likely to result in widespread increases in productivity, not least because services such as IT, R&D, transport, communications and finance are integral to the production of a wide range of products. And it can help make growth more inclusive again, benefiting SMEs – who stand to gain the most from lower costs of complying with diverse

¹⁷ The new RTGS will capture much richer data on every payment made in a format that defines international best practice. The Bank is currently consulting on how to do this, including on the desirability of embedding the best corporate identifier, the Legal Entity Identifier (or LEI), in RTGS and all the UK’s main payment systems.

¹⁸ This is just part of the work the Bank is doing to ensure our rules and regulations – or soft infrastructure – are fit for the new finance. For example, we have also streamlined our approach to authorising banks, approving in recent years 37 banks, including 16 new UK bank start-ups and 4 internet-only. With the FCA, we are exploring how artificial intelligence and machine learning could be used to make the reading of our rulebooks easier, the reporting of regulatory data quicker and analysis of that data more efficient.

¹⁹ At present, cross-border payments can cost ten times more than domestic ones (McKinsey World Payments Map (2016)). We estimate that in the UK alone there is scope to realise annual savings of over £600 million.

²⁰ See [Joy, M, Lisack, N, Lloyd, S, Reinhardt, D Sajedi, R and Whitaker, S \(2018\) 'Mind the \(current account\) gap', Bank of England Financial Stability paper No. 43](#) and [Carney, M \(2017\) 'A Fine Balance', speech at the Mansion House London, 20 June 2017](#).

regulations across countries – and those in emerging markets, where services are the main source of employment growth, particularly for women.

To conclude, there are some breath-taking opportunities currently disguised as intractable problems. There are growing pressures on the international trading system that has brought prosperity to so many. The 4th Industrial Revolution will potentially force a large number of people to switch where and how they work. Both of these developments have the potential, if for a time, to disrupt growth and increase inequality.

But in those challenges lie huge opportunities – to change the trading system to be more inclusive by bringing freer trade to SMEs and to services, and for all businesses to be supported by a new finance which harnesses the promises of the 4th Industrial Revolution.

That would be taking the spirit of the Northern Powerhouse to the world to bring prosperity to all.