

**IP
PR** Economics
Prize

RUNNER UP

A REBALANCING PROGRAMME FOR BRITAIN

**ENDING AUSTERITY
IN THE UK**

**Richard Plackett and
Dr George Cooper**

July 2019

ABOUT THE IPPR ECONOMICS PRIZE

The inaugural IPPR Economics Prize invited entries in response to the question: “What would be your radical plan to force a step change in the quality and quantity of the UK’s economic growth?”

We wanted to know whether the downward trend in the rate of economic growth can be reversed, and if so, how this can be done. Is it realistic, desirable and achievable for the UK economy to grow at 3 or 4 per cent in the 2020s? We wanted to capture the best new thinking out there.

Crucially, we wanted to understand not just what policies could raise the growth rate, but also how growth could translate into higher pay for ordinary households and reduced inequalities across regions and generations. We wanted to know whether such proposals could be environmentally sustainable, accelerate decarbonisation, and ensure that the UK meets its international commitments and its responsibilities to present and future generations.

We offered a main prize-pot of £100,000, with a dedicated under-25s prize of £25,000 and a runners-up prize also of £25,000. IPPR and the judging panel, chaired by Stephanie Flanders, with John Eatwell, John Mills and Helena Morrissey, examined over 200 ideas and ultimately awarded prizes to four entries: two winners of the main prize, an under-25 and a runner-up.

The IPPR Economics Prize was generously supported by John Mills, The de Laszlo Foundation, the Nigel Vinson Charitable Trust and Christopher Nieper.

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The progressive policy think tank

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ABOUT THE AUTHORS

Richard Mark Plackett graduated from Cambridge with an MA in economics. He was a leading investor in smaller UK companies over a 25-year career with 3i, M&G and Blackrock. He is an international bridge player.

Dr George Cooper is co-founder and chief investment officer of Equitile Investments Ltd. Prior to founding Equitile George worked for Goldman Sachs, Deutsche Bank, JP Morgan and BlueCrest. He is the author of two books on financial market instability and flaws in economic theory: *The Origin of Financial Crises* and *Money, Blood and Revolution*.

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SUMMARY

The rate of economic growth in the UK has fallen noticeably in recent decades. Economic growth since 2000 has averaged under 2 per cent per annum, and this poor growth rate looks set to continue for the foreseeable future. Worse, that meagre growth which does exist is unevenly distributed, with the result that living standards for many have stagnated and in-work poverty has increased.

At the heart of the UK's low economic growth is low investment and low productivity. Investment as a percentage of the UK economy is significantly below that of any other G7 country. Investment in productive capacity has fallen from 3.6 per cent of gross domestic product (GDP) in 2008 to 2.7 per cent in 2017. Productivity growth over the 10 years to December 2017 is thought to have been the lowest since the 1820s on a rolling 10-year basis.

Our thesis is that a sustained improvement in productivity growth, and an increase in investment by both private and public sector, is the key to increasing the trend rate of growth.

There is no single solution. What is needed is the consistent adoption over a long period of a set of policies which, taken together, can correct the imbalances which create a low-growth environment, and in so doing revolutionise the UK economy.

A COMPETITIVE EXCHANGE RATE

A major influence on decisions to invest in productive capacity is clearly terms of trade – the competitiveness of goods and services produced in the UK relative to those elsewhere.

Exchange rates are set by markets; ours is a function of our significant current account deficit and a surplus on the capital account. Governments can nevertheless significantly influence their currency. We would make a competitive exchange rate a key criterion for the Bank of England in setting monetary policy. We would take direct action to limit the freedom of foreign nationals to buy UK residential property, which would limit capital inflows. If sterling began to appreciate, we would implement a policy of foreign asset purchases similar to those of the Swiss National Bank.

The overall aim of policy would be to maintain sterling at or lower than current competitive levels over the medium term.

AN ACTIVE INDUSTRIAL POLICY

The theoretical benefits of a competitive exchange rate are only achieved if manufacturing and service industries respond by investing in productive facilities. To do so they need more than simple financial incentive; they also need confidence that the UK has the right skills, technologies, housing and transport infrastructure to enable them to grow their businesses and get goods to market.

We would develop a meaningful industrial policy, significantly increasing investment in public transport, roads and public housing. We would involve industry and educational leaders in developing a long-term plan for skills and would manage higher education, vocational training and immigration accordingly.

This policy would involve a significant increase in public investment as a percentage of GDP with a clear emphasis on investments which would contribute to increased productivity.

INCREASES IN THE NATIONAL LIVING WAGE

The principal downside to an exchange rate and investment-led economic approach is the short-term squeeze in living standards that results. A currency devaluation works like a real wage cut as imports become more expensive. This reduces consumption and unsurprisingly has historically proved unpopular with voters.

Such a strategy therefore requires an element of compensating action to support consumption, particularly for below-average earners. This ensures that the purchasing power of those with the highest propensity to consume is safeguarded, and that inequality does not increase.

We therefore propose real increases in the national living wage each year with the objective that this is raised over a five-year period to a level that exceeds the OECD definition of low pay. We would make changes to the tax system to further assist the lower-paid.

While such a policy safeguards the purchasing power of the lowest earners, it would by no means negate the overall cost benefit to firms of a devalued currency. We would ensure through exchange rate management that the overall costs of domestic businesses remain competitive in euro and dollar terms.

CORPORATE TAX ENVIRONMENT

A competitive corporate tax environment is also required to attract investment. Corporation tax should directly encourage investment much more effectively than it does at present. In preference to current policy of low overall rates, we would instead provide much greater direct incentives to invest in both research and development (R&D), and capital and equipment. We would also significantly enhance incentives for companies to set up in economically deprived areas.

TECHNOLOGY AND INNOVATION

A sustained increase in productive capacity cannot be based on low-technology manufacturing where the UK will mostly never again be competitive. For our international businesses to thrive we need to properly harness all intellectual property created by research and innovation in the UK. This requires a much closer partnership between business, finance and universities.

We would make scientific research a key growth industry. This would be achieved through the establishment of a British Research Agency which would provide a significant multi-billion sterling public sector investment alongside private sector R&D.

PREFERMENT

The government is the biggest purchaser of goods and services in the UK. Once we have left the European Union, we should use the increased flexibility this brings to prefer UK suppliers for government contracts where those suppliers are credible.

ENVIRONMENT

Faster growth will increase carbon emissions and plastics pollution unless government takes tougher action than currently proposed to prevent this. Such action involves incentivising consumers to switch to environmentally

friendly products, mandating energy efficiency in the planning process, and setting mandatory targets for business.

CONCLUSION

This is our rebalancing programme for the UK. The consistent combination of these policies over an extended period would be unparalleled in the context of recent UK economic history.

In this manner we can significantly improve the trend growth rate of the UK in a fair and environmentally-friendly way.

1. INTRODUCTION

The rate of economic growth in the United Kingdom has been falling markedly in recent decades. At the heart of the UK's anaemic economic growth is very low investment by international standards and a very poor track record in growing productivity.

Our overall proposition is that a sustained improvement in productivity growth, and an increase in investment by both private and public sector, is the key to increasing the trend rate of growth.

There is no single solution. We need a holistic approach. It would comprise a whole suite of complementary, mutually-interdependent policies to be adopted and applied over a protracted period. It is the consistent application of these policies which would be revolutionary in the context of recent British economic history and which offers the prospect of transforming the UK economy, correcting the imbalances which create a low growth environment.

The key difference with policy over recent decades is a recognition and understanding of how the various policy levers available – exchange rate, industrial policy, minimum wage, tax incentives and public and private sector research and development (R&D), can work together to transform the British economy. Important in this mix is an acceptance of the crucial role that both public and private sector must play in achieving the desired outcome.

1.1 DECLINE IN TREND RATE OF UK ECONOMIC GROWTH

Average growth in UK gross domestic product (GDP) in the decades since the second world war have been as follows (PwC 2018).

TABLE 1.1: THERE HAS BEEN A LONG-TERM TREND OF DECLINING ECONOMIC GROWTH IN THE UK

Average growth in the UK's GDP per decade (%)

Decade	GDP growth (%)
1950s	3.1
1960s	3.4
1970s	2.6
1980s	2.8
1990s	2.2
2000s	1.9
2010s	1.8

Source: PwC (2018)

For the first time in the post-war period, UK economic growth has slipped back below the long-term, post-industrialisation (1820) average of 2.1 per cent (ibid).

Immediate growth prospects continue to appear very muted. The Office for Budgetary Responsibility (OBR) is forecasting an economic growth rate of between 1.2 and 1.6 per cent each year from 2019 to 2023 (OBR 2019). The Bank of England (BoE) is marginally more optimistic, with the Monetary Policy Committee forecasting economic growth 0.1 to 0.3 per cent, per annum, higher than the OBR over the period 2020-21 (ibid). However, none of the National Institute of Economic and Social Research (NIESR), International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD) or European Commission forecast UK economic growth exceeding 2 per cent in any of the years up to and including 2023 (ibid).

Analysing the data overall, it seems highly probable that the trend rate of growth in UK GDP is now little more than 1.5 per cent, less than half of that of the world economy as a whole.

1.2 LOW GROWTH IN PRODUCTIVITY

At the heart of this worrying decline in trend economic growth is a very poor performance in raising productivity. GDP per hour worked in the UK in 2016 was 16.3 per cent below the average of the other G7 countries and 26.2 per cent worse than that of Germany (ONS 2018a). Slow productivity growth has been a consistent factor since the early 1960s when British productivity first fell below that of France and Germany.

Productivity growth has slowed in all major economies since the 2008 financial crisis, but the slowdown in the UK has been particularly stark. Productivity growth averaged 2.3 per cent per annum between 1980 and 2008, but has averaged just 0.4 per cent per annum thereafter (ONS 2019a). UK productivity growth over the 10 years to 2017 was the worst since records began and probably weaker than any period since the early-1820s (ONS 2018b). Productivity in the fourth quarter of 2018 was actually 0.1 per cent lower than in the previous year (ONS 2019b).

1.3 LOW LEVELS OF INVESTMENT

Over the last 20 years the UK has consistently had a lower level of gross fixed capital formation (GFCF) investment as a percentage of GDP than any of the other G7 economies. In Q2 2017, for example, GFCF was 16.5 per cent of GDP in the UK compared to 19.7 per cent in the US, 20.4 per cent in Germany and 23.8 per cent in Japan (ONS 2017a).

There has, in fact, been only one single quarter since 2005 where GFCF in the UK has been equivalent as a share of the economy to that in *any* other G7 nation– it was equal to that of Italy in Q1 2015 only (ibid). In every other quarter we were in last place.

Interestingly this shortfall is in both private and public sector investment. Over the 20 years 1997-2017 as a whole private sector investment in the UK averaged 14.3 per cent of GDP compared to 17.3 per cent for the G7 average (ibid). Public sector GFCF averaged 2.4 per cent of GDP compared to 3.4 per cent for the G7 average (ibid).

Investment in machinery and equipment tends to have a particularly large impact on productivity. Some G7 economies still invest a relatively large proportion in these assets, whereas the UK does not. In the UK this investment averages 25.9 per cent of total GFCF compared to 34.9 per cent for Germany. Investment in this category made up 2.7 per cent of UK GDP in 2017 compared to 3.8 per cent in 2008 (Mills 2018).

It is impossible to escape the clear conclusion from these stark statistics: the UK economy invests too little, and too little of what we do invest is spent in those areas which have the biggest positive impact on productivity.

1.4 OUTPUT GAP

The output gap in an economy is the amount by which economic activity currently exceeds or falls short of the sustainable level. The current output gap in the UK economy, based on the existing workforce and stock of invested assets, appears to be negligible. Unemployment in the UK has fallen sharply in recent years from 8.2 per cent in August 2011 to 3.9 per cent as of January 2019 (ONS 2019c). Analysis of spare capacity shows that the labour market has steadily tightened since the financial crisis and suggests that the economy is operating at or close to trend. More anecdotally, surveys from the Confederation of British Industry (CBI) and British Chambers of Commerce (BCC) revealed that many firms faced increasing recruitment difficulties and were operating at or close to full capacity in 2018 (OBR 2019).

The OBR estimates that the economy was actually operating at just above long-term potential in Q4 2018 – by 0.2 per cent (ibid).

1.5 THE PATH TO GROWTH

The lack of any significant output gap strongly indicates that inadequate demand management and underutilisation of capacity are *not* issues in the UK's poor economic performance, and that, rather, it is the significant structural imbalances in the UK economy – the low levels of investment and productivity growth – which are holding back the trend rate of growth.

The re-balancing that is required to address these issues should not be underestimated. There is no single solution to the problems of low investment and low productivity. The answer is the consistent adoption over a long period of a whole set of policies which, taken together, can correct the structural issues in the UK economy.

What then are these necessary policies?

2. A COMPETITIVE EXCHANGE RATE

One policy tool available to governments seeking to rebalance an economy in favour of production and investment is exchange rate management. A devaluation adjusts the terms of trade in favour of domestic production by making domestically produced goods cheaper relative to foreign goods in both domestic and export markets. In economic theory, the Marshall-Lerner condition asserts that a devaluation will improve the balance of payments if the sum of the long-term price elasticities of demand for imports and exports exceeds one.

The evidence from past devaluations in the UK has been mixed. Major devaluations in the second half of the last century certainly did lead to some significant improvements in the balance of payments. The 1967 devaluation by the Wilson government resulted in trade and current account surpluses being recorded from 1969-71 (Harari 2017). Following the 1992 devaluation, when Britain exited the Exchange Rate Mechanism (ERM), Britain achieved a trade surplus from 1995-97 (McGeever 2016).

Experience of devaluations in the most recent decade has been disappointing, however. Sterling fell significantly post the 2008 financial crisis and (after recovering) again following the 2016 EU referendum. The productive response to these devaluations was positive but very muted. For example, export volumes grew by an estimated 5.7 per cent in 2017, and import volumes by 3.2 per cent (OBR 2018). These numbers compare to growth in global trade volumes as a whole of 5 per cent in that year (*ibid*). The OBR anticipates that, despite the devaluation, the current account and trade balance will remain at or close to a deficit of 5 per cent of GDP throughout their forecast period (OBR 2019). Net trade added 0.5 per cent to UK GDP in 2017, but in 2018 made a negative contribution of 0.2 per cent (*ibid*).

It is the response of UK firms to the recent devaluation which has dampened any potential surge in exports. As we have seen, the output gap in the UK economy is currently negligible and surveys from the CBI and BCC suggest that industry is working at very high levels of capacity utilisation (OBR 2019). In these circumstances, UK-based exporters have unsurprisingly reacted to the fall in the pound principally by raising prices. These rose in sterling terms by 12 per cent in the two years following the devaluation (Tombs 2018). Prices for UK exports in foreign currency terms did fall just over 5 per cent over this period (*ibid*), but the decisions to raise sterling prices have significantly reduced the overall competitive advantage gained from the fall in the currency. As Tombs (*ibid*) notes, higher prices will presumably have increased the margins and profits of UK exporters. However, in the short term at least, firms seem to have decided to retain these increased profits rather than invest them back into increasing production.

Decisions to invest significantly in new capacity are taken with a longer-term horizon. One probable explanation of the unwillingness of firms to invest to take advantage of their increased competitiveness is the climate of significant uncertainty that has existed over the period as to the UK's future trading relationship with the European Union (EU) and rest of the world, following the vote to leave the EU. Until the longer-term relationships are clarified, it is rational for businesses to defer major

investment decisions and it would appear that some have been being doing so. Once the trading relationships are clear, businesses may then choose to expand production, particularly if they are confident that the currency will remain at competitive levels over the medium to long term.

Given the unique circumstances of the UK voting to leave the EU it would be unwise to dismiss the importance of a competitive exchange rate simply on the basis of the evidence of the last two years. It should, however, serve as a strong reminder that a devaluation of sterling will only succeed in an environment where businesses also choose to invest in expanding production in the UK, and that a competitive exchange rate needs to be operated in tandem with other policies designed to improve the supply-side response of our industrial and service sectors to the competitive advantage given.

All these historic devaluations, even to a very limited extent the most recent one, did have at least some beneficial impact on import and export volumes. This suggests that devaluation should not be completely discounted as a macroeconomic tool, and that a competitive currency should play its part in rebalancing the economy. We would conclude that a competitive exchange rate is a necessary condition for rebalancing the UK economy and expanding production, but far from in itself a sufficient one.

Having concluded that the UK should have a competitive exchange rate, how in practice can a government achieve one? Sterling is a floating currency and the rate is of course therefore set by markets. In the UK's case the exchange rate is a function of our significant current account deficit balanced by a capital account surplus. There are, nevertheless, significant measures that the UK government can take to influence markets and so manage the rate.

We would make the exchange rate a specific criterion for the BoE when setting monetary and interest rate policy. To this end, discussions will be held with the BoE to encourage a suitably accommodative monetary stance. To be clear, we do not believe that monetary policy should be entirely divorced from other areas of macroeconomic policy. Rather we believe monetary, fiscal, wage and trade policies should be managed as an integrated whole.

We would also use the increased policy freedom post-Brexit to place restrictions on foreign nationals buying UK residential property, and make it more difficult for foreign companies to achieve takeovers of UK businesses. Such restrictions on capital account inflows, other than those to invest in productive capacity, would have a direct negative impact on the currency given the size of the current account deficit.

The Swiss National Bank (SNB) uses certain specific policy levers to prevent the Swiss Franc appreciating which we would consider as part of our exchange-rate management programme if these were to prove necessary to maintain sterling at a competitive rate. The SNB has resorted to negative overnight interest rates to deter those holding the currency. The SARON (Swiss Average Rate Overnight), is currently minus-75bps. The SNB also carries out quantitative easing to buy external assets, such as large global equities. As a first resort, the SNB's policy of purchasing foreign assets would be copied if sterling began to appreciate.

The overall minimum aim of exchange rate policy would be to maintain sterling at or below the current competitive levels for a period of years, long enough to enable a full supply-side response from the productive economy to be achieved.

3.

AN ACTIVE INDUSTRIAL POLICY

As we have discussed, a competitive exchange rate gives businesses a clear financial incentive to increase capacity, but it is not automatically the case that they will choose to do so, particularly in periods of economic or political uncertainty. As we have also seen, historic devaluations have certainly not on their own been sufficient to achieve permanent economic change.

Businesses need to be persuaded to invest to increase capacity. Government has an important role to play in creating a stable environment for business in terms of tax and regulation, but there are also many things that government need to do directly. Businesses investing for the long-term need confidence and assurance that the UK has the right skills, technologies, housing and transport infrastructure to enable them to recruit the correct staff, get goods to market and operate efficiently.

The laissez-faire attitude of successive governments towards the economy since 1979 has ignored this important role of government in ensuring that the economy has the correct infrastructure to enable private businesses to thrive. Confidence in the ability of governments to take action has been eroded. The establishment of the National Health Service together with large-scale post-war investment in public housing and transport infrastructure demonstrated what the state can accomplish on a foundation of political support for – and a belief in – public enterprise. Regrettably, the political and societal consensus which underpinned the state's active role in economic expansion has been badly eroded. The state has lost confidence at all levels in its capacity for direct provision and has wrongly ceded parts of its rightful domain to the private sector. Examples of this loss of confidence abound and include the view that the state has no role in running our national railways, or that it has no role in the construction of public housing for rent. These are widely held views – but in our opinion wrongly held ones. Too often, opinion is that the state can't or shouldn't intervene in such areas. We believe the origin of that view is partly ideological but also partly a misguided lack of confidence in the role and capabilities of the state. The problem, at root, is cultural and is partly based on fear. Politicians and civil servants have lost the appetite to decide and procure and, instead, rely on outsourcing and, increasingly, consultants, to vouchsafe decisions. It is important to recognise that in blocking off appropriate state investment – within its rightful social market domain – the UK loses both the direct contribution such investment would make as a source of economic growth and the benefits that a long-term industrial strategy would bring to the private sector.

The need for governments to pursue an active industrial policy is well based in economic theories such as the endogenous growth model, which states that investments in human capital, infrastructure, innovation and knowledge are significant contributors to the trend rate of economic growth in advanced economies. Endogenous growth economists believe that improvements in productivity can be linked directly to greater innovation and increased investment in education and training. They argue that government policies can raise a country's growth rate and that there can be significant returns

from capital investment, particularly if targeted towards infrastructure, education and telecommunications.

The current OBR forecasts show UK public expenditure falling to 37.9 per cent of GDP by 2023/24, a deficit of 0.5 per cent of GDP (OBR 2019). The improving fiscal position leaves leeway in government finances for a significant increase in public sector investment as a percentage of GDP. An increase of as much as 2 per cent of GDP per annum would be affordable whilst allowing total government debt to continue to decline gradually as a percentage of the economy (given nominal GDP growth of 3 to 3.5 per cent).

Modern monetary theory (MMT) advocates that sovereign currency issuing states like the UK need never suffer a shortage of funds, as such states are always in a position to issue more of their own currency. This line of reasoning has been used, by some, to argue that the governments are in a position to finance all projects they desire. In our view such thinking is misguided. A government unhindered by fiscal discipline will likely, over time, begin funding low-quality projects offering a poor return on investment. Continuing to do so, with printed money as advocated by MMT, will inevitably lead to an economically damaging inflationary debasement of the currency. For this reason, we support sound government financial planning, which requires that only modest government deficits are maintained on average over the economic cycle.

That said, there are clear situations when deficit financing of investment projects can and does make economic sense. Such situations are when the asset acquired by the government, through such deficit financing, can be definitively shown to match or exceed the financing costs. We believe, for example, that this would be the case as regards the funding of the construction of social housing on a large scale. Both the value of the social housing and its prospective rental income can be assessed with a high degree of confidence and, given the current elevated price levels, housing can be constructed at below market costs. We believe a large-scale social housing program, backed up by suitable supportive changes to planning legislation, would benefit the UK economy and would also provide the state with an asset whose value exceeds its prospective funding cost. Overall, however, our plans are fiscally responsible and do not involve government debt rising any further as a percentage of GDP, having already increased significantly over the last 10 years.

Increased public sector investment would in itself have a short-term beneficial impact on economic growth relative to current forecasts due to the high multiplier effect of public sector investment on the overall economy. The OBR estimate this multiplier as 1.0 in the year of expenditure in their economic forecasts, falling steadily to zero over five years (OBR 2018). Interestingly, this compares to a multiplier of just 0.3 for tax cuts, suggesting that public sector investment is a significantly more efficient way of stimulating the economy in the short term.

The more lasting and significant long-term benefit would be a boost to the overall productivity of the economy. It is therefore crucial that the increased investment is concentrated in those areas that would have the greatest impact on productivity. These are roads; public transport; housing; broadband and mobile internet; education, training and skills; and science, technology and innovation. Each area is very important in its own right and so each shall be considered in turn.

3.1 ROADS

According to official government road traffic forecasts, traffic levels will rise by between 17 and 51 per cent by 2050 due to increases in population and a decline in vehicle running costs. An additional one to two cars are forecast for every three currently using the roads (DfT 2018).

It is relatively unsurprising therefore that the majority of Britain's major roads are forecast to have moderate, regular or severe congestion by 2040 (HM Treasury 2013). The proportion of traffic in congested conditions in 2050 is forecast to increase to up to 16 per cent depending on precise assumptions, compared to 7 per cent in 2015. The average speed during all periods is forecast to fall from 34mph in 2015 to 31mph by 2050. On average, a 17-minute car journey today will take 20 minutes by then (DfT 2018).

We shall describe later how we shall seek to reduce this forecast growth in road travel through investment in public transport, and also seek to limit the environmental impact of increased traffic volumes through policies to accelerate the adoption of electric vehicles. However, given the magnitude of these stark traffic statistics, an increase in investment in our roads network will also be essential simply to prevent congestion becoming a further significant drag on productivity, both in terms of workers getting to work and goods getting to market. Very significant investment will be required if current congestion levels are actually to improve. A coordinated strategy to add lanes to the busiest motorways, convert single lane to dual carriageway and build bypasses around town centres and other hot-spots is essential.

Two case studies will highlight the challenges facing the road network and how sensible investment can overcome them.

- The proposed M4 relief around Newport is our first example of the sort of scheme which is required. The Brynglas tunnel on the M4 causes significant delays at peak times and is a clear impediment to the local economy. Indeed, given its strategic position on the M4 not far into Wales, it significantly impacts all traffic flows into and out of Wales along the motorway.

In an open letter, CBI Wales and various Welsh business executives stated: "The constant disruption and delay along the main motorway route across South and West Wales caused by the Brynglas tunnel bottleneck around Newport significantly damages the Welsh economy and negatively impacts upon Wales's standing as a globally competitive business location" (Wales Online 2019).

The proposed relief road to the south of Newport at an estimated cost of £1.5 billion will enable traffic to run much more smoothly from England into Wales and vice versa. The economic assessment of the scheme carried out by the Welsh government estimated that direct cost savings to business would amount to £40 million, and that indirect benefits – improved communication between businesses and widening the effective pool of labour and skills – would benefit the economy to the tune of a further £39 million (Welsh Government 2016). This analysis shows a very good economic return compared to current long-term government borrowing rates.

- Our second example is the pressing need for investment in the northern road network. The *High-Speed North* report published by the National Infrastructure Commission in March 2016 highlighted a number of important priorities to ease traffic congestion in the north of England. This highlighted the M62 as the main east-west thoroughfare and the fact that certain stretches of the motorway had a 70 to 80 per cent chance of significant congestion in peak periods. The report showed that connections to key ports and airports are also frequently at capacity, highlighting in particular the heavy traffic flows on the M56 as critical for access to Manchester airport. It revealed that many of the major roads in the North are relatively old, being some of the first motorways in the UK, and that these needed significant investment simply to remain fit for purpose. Finally, it included a list of major road projects it believed essential to ensure future efficient flow of goods and people in the region (NIC 2016).

These are just two examples of many similar schemes which are required throughout the UK if traffic congestion is not to become a major issue for the UK economy and if productivity is to begin to improve rather than worsen further.

3.2 RAIL TRANSPORT

In order to accelerate decarbonisation and meet international environmental obligations, government policy should seek to limit the growth in car usage as much as possible. It would be attractive from an environmental perspective to believe that growth in car use could be prevented by raising the taxes on cars and petrol, but the unfortunate reality is that many people no longer have a viable and reliable alternative to personal motorised transport.

Clearly it will help the UK to meet its environmental obligations if we do manage to minimise the growth in car usage. We can only hope to achieve this by significantly increasing investment in our public transport infrastructure.

Unfortunately, government policy in the second half of the 20th century has consistently reduced the viability of rail and bus services particularly in rural areas. Following the nationalisation of the railways in 1948 over 3,000 miles of track were taken out of service in the years up to 1962 (Heffer 2017). The Beeching Report in 1963 then recommended closing about a third of the remaining network – 5,000 miles of track, including many branch lines and over 2000 stations (Beeching 1963). This left many parts of the country without any effective means of transport other than the motor vehicle.

Some lines have begun to reopen this century, with 13 old Victorian lines reopened including the Borders Railway in 2015 (Heffer 2017). However, far too much of the rail investment that is currently scheduled is based on large ‘vanity’ projects. HS2, the proposed high-speed rail link between London and the North, is clearly the most obvious example. The cost of the HS2 scheme was originally estimated at £56 billion, but evidence given by the former chairman of HS2 to the House of Lords Economic Affairs Committee in January 2019 suggested that there is a huge degree of uncertainty as to the ultimate cost of the project and indeed as to whether the proposed 18 high-speed trains per hour will ever run. The economic benefits relative to the significant and increasing costs are questionable at best. The cost benefit case for HS2 is undermined when ‘door to door’ travel time savings are considered rather than merely ‘station to station’, since the former are significantly lower as a percentage than the latter.

Investment in the wider rail network needs to be urgently and sustainably increased. Rather than projects such as HS2, the priority should be increased investment in regional transport provision, linking countryside and towns and regional towns and cities so that these can become viable competitors to London as a home for productive capital. Far more investment is needed than that currently planned if rail is to become a viable alternative to road travel for people and freight once more.

The Northern Powerhouse Rail project (previously called HS3) is a much better example than HS2 of the sort of rail investment that is required. Rail investment per capita in the north of England has lagged significantly behind that in the South East in government spending plans. Analysis of government plans for infrastructure investment between 2016/17 and 2020/21 by IPPR North found that London was due to receive around £17 billion of spending over the period – more than half of the total planned expenditure for England (Blakeley 2017). They also found that the individual budget for the Crossrail train link exceeded the total for all projects in the north of England. Their analysis showed that spending in London of £1,869 for each inhabitant compared to that of £304 in the North East, £289 in the North West and £247 in Yorkshire and the Humber (ibid).

Addressing this issue of a relative lack of investment in the North presents a major opportunity to increase productivity and harness the potential of the region's ports, cities and universities. Journey times between northern cities compare unfavourably to equivalent journeys in the South East. The *High-Speed North* report identifies that the fastest journey time on the very important Manchester to Leeds link is currently 49 minutes, whereas a journey of equivalent length between Reading and London is under 30 minutes, with much higher frequencies of fast train departures between Reading and London too (NIC 2016).

We propose an enhanced Northern Powerhouse Rail proposal providing high speed rail links running east to west across the North from Liverpool to Manchester and on to Leeds, Hull and Newcastle. This should be combined with a dedicated freight line linking Northern ports. This investment has the potential to help significantly close the 10 per cent productivity gap between the North and the rest of the UK, and the 30 per cent productivity gap between the North and the South East (IPPR North 2017).

3.3 BUS TRANSPORT

Even after significant investment in our rail infrastructure, many commuters will still for the foreseeable future have no realistic viable alternative to road travel, particularly those in rural areas. The bus network will remain the only potentially available form of public transport. Investment in bus networks must therefore also play a significant part in any joined-up transport strategy. Unfortunately, rural bus services are in decline. Fiscal constraints on local government in recent years have resulted in sizeable cuts. Between 2011/12 and 2016/17, rural bus mileage fell by over 6 per cent (Tracks 2018).

There has also been an absence of strategic vision in recent decades. The vast majority of bus routes are operated by large private companies. Outside of London and a few other major urban areas, bus operators have almost total freedom as to whether, where and when they run commercial services. Local authorities can at their discretion fund non-commercial, 'socially necessary' services under a tender agreement. Central government also provide funding under the Bus Service Operators' Grant (BSOG) and concessionary fares scheme. London has a completely different system – Transport for London (TfL) decides the bus services required for the purpose of providing 'safe, integrated, efficient and economic' transport services in Greater London and plans the detailed routes in the capital. The use of Oyster cards in London makes bus travel cheaper and more user friendly than in many parts of the country. Bus travel outside London often requires a change of operator which can make it expensive for lowly-paid workers.

The difference in the experience and success of these two competing systems of operating buses could not be starker. Bus journeys in London have increased since 1990 from 1.2 billion passenger journeys then to 2.2 billion in 2017/18. This is in sharp contrast to the rest of the UK, where journeys have fallen from 3.1 billion to 2.1 billion (DfT 2019). While this cannot purely be put down to the model of bus operation, it has in our opinion undoubtedly been a factor.

Any attempt to reinvigorate bus travel in rural regions will involve significantly greater subsidies than today. These greater subsidies should be accompanied by a more widespread move to the TfL model, giving local authorities much more say over which bus routes are operated in their areas and over which routes they choose to subsidise.

A combination of increased government finance for bus operations and increased strategic direction of bus services offers the prospect of reversing the decline in passenger numbers outside London over time by offering a real viable alternative to the motor vehicle for some commuters.

Whether road, rail or bus, further investment in our transport network is an absolute prerequisite for improving the efficiency of our economy, both in terms of getting goods to market and of getting people to their places of work. Moderating the growth in road traffic by reinvesting in public transport is also essential if the economy is to grow in a sustainable and environmentally friendly way.

3.4 HOUSING

Housing is a vital part of the UK's economic infrastructure, supporting labour mobility and providing employers with the certainty of a secure workforce. A growing population combined with the tendency for more people to live alone has pushed up the demand for housing which is growing faster than supply. Estimates put the quantity of new homes required in England at between 240,000 and 340,000 per year (Wilson and Barton 2018). The number of new homes being built annually has been recovering in recent years and reached 222,000 in 2017/18 (MHCLG 2019), but is still significantly lower than estimated need.

At the same time, direct provision of housing by the UK public sector has massively diminished. In 1969/70, local authorities started building 175,550 houses. This fell to just 860 in 2009/10, and was just 2,990 in 2017/18 (ibid). New builds by housing associations increased by just 20,000 over the period, nowhere near enough to make up for the reduction in council house building (ibid).

Meeting a target of upwards of 300,000 new homes a year clearly requires the recent recovery in private sector housebuilding to be sustained. We would continue and strengthen government schemes to encourage private sector housebuilding. We would additionally simplify planning laws to facilitate conversion of retail property to create high streets which are a mix of residential, retail and leisure. The trend towards online shopping is unlikely to be reversed and declining secondary high streets need to be reinvented to become vibrant communities with integrated local shops and services.

The highest number of new dwellings started by the private sector in any one year in the last 40 years is 228,970 in 1998/99 (ibid). It therefore seems very unlikely that expansion of private sector housebuilding will by itself provide the number of new homes required. In any event, exclusive reliance on private sector schemes completely ignores the government's historic role as a housebuilder in its own right.

We would therefore reinitiate significant public housebuilding, focusing initially on surplus public sector land. Large-scale new housing developed by private housebuilders would also include new council housing as a requirement of a successful planning application. A minimum of 300,000 new council homes would be targeted in aggregate over 10 years. Thereafter, council house stock would be increased further as a percentage of total UK housing stock. All UK district, unitary, county and London Boroughs will be required to participate in the programme.

This would additionally help to ensure that the social requirement to provide affordable housing is once again fulfilled. The Joseph Rowntree Foundation (2018) has found that the shortage of housing has created particular problems for low-income families with children. Rents have grown faster than average for these families due to a shortage of suitable rental property and an increase in the number of families renting privately due to the lack of social and council housing. The council houses built would prioritise families as well as key workers and veterans. New council housing would also include a sufficient number of homes which are either specifically designed for, or fully modified for, the use of disabled citizens.

Existing council and social housing tenants would continue to enjoy 'right to buy' opportunities in their existing homes. However, 'right to buy' would not apply

to newly constructed council housing to safeguard these homes as affordable housing in the medium to long term.

Increased investment in new housing is not a choice for the UK economy – it is absolutely essential both for the proper functioning of the labour market and for a cohesive society in which affordable housing is available to all. The collapse in council house building is a regressive feature and a failure of government ambition in recent decades, and its recommencement is long overdue.

3.5 BROADBAND AND MOBILE INTERNET COVERAGE

Inadequate broadband service and lack of mobile internet coverage, particularly in some rural areas, is a major detriment to personal and corporate productivity, particularly for the self-employed. While broadband coverage is gradually improving, Ofcom's *Connected Nations* report shows that there is much more to be done to create a truly universal network (Ofcom 2018). Too many rural areas are left with patchy or unreliable mobile reception. For example, while 83 per cent of urban homes and offices have complete 4G coverage, the comparative figure for rural premises is only 41 per cent. In some remote parts of the country, there is a complete absence of coverage (ibid).

Lack of mobile internet coverage is also an increasing cause of inequality and social exclusion, particularly as an increasing number of benefit claims need to be made online. Lack of internet coverage makes it unduly difficult for claimants to get the benefits they need.

The government must work with Ofcom and fixed and mobile providers to mandate and ensure universal coverage in all towns and villages. Fast and reliable internet is now an absolute necessity for the efficient operation of small businesses.

3.6 EDUCATION, TRAINING AND SKILLS

In a knowledge economy, possession of a workforce with the right skillset is fundamental to increased productivity.

Education and training in the UK in recent decades has increasingly focused on the academic route. Official figures show that 49 per cent of those in England are expected to have entered or competed advanced studies by the age of 30 (DfE 2017). Approximately one in three people in the 18–24 age group are currently in full-time higher education (ONS 2016). Numbers in full-time education have nearly doubled since 1992, from 984,000 to 1.87 million (ibid).

It is not clear that the increase in the number of graduates has been accompanied by an increase in the number of graduate jobs. According to the 2018 *Education at a glance* report commissioned by the OECD, 28 per cent of graduates in England are employed in jobs which do not require a degree – this is twice the 14 per cent average for OECD countries, and second only to Japan's 29 per cent (Turner and Rudgard 2018). This may help to explain why the increase in participation rates in higher education in the UK has not led to any improvement in our poor productivity record.

The 2013 and 2014 reviews of vocational and post-school training in England and in the UK commissioned by the OECD concluded that there is now significant excess provision of vocational-style university degrees for careers that do not in practice need three years of full-time, classroom-based training. The OECD noted that the expansion of universities since 1990 had meant that shorter vocational courses were steadily subsumed into the university sector as full-length degree courses. Courses have also become more academic, with less involvement from business, and have squeezed out traditional vocational qualifications. The OECD found

the UK vocational system overly complicated by international standards, with pathways for advancement of students into employment often unclear (Musset and Field 2013).

A report by Mason and Rincon-Aznar (2015), commissioned by the House of Commons Business, Innovation and Skills Committee, recommended a vocational training system offering technical and occupational qualifications alongside general skills such as problem solving, communication, teamworking and customer management. It argued that classroom-based learning should be accompanied by employment-based apprenticeships so that trainees are also taught workplace related skills (ibid). We strongly support the recommendations of this report. A report for the Chartered Institute of Personnel and Development (CIPD) in 2017 similarly advocated a focus on practical skills, with emphasis on literacy and numeracy, and on vocational pathways into careers (Brinkley and Crowley 2017).

As well as neglecting practical skills and vocational training, the UK has dismantled the structures that were historically put in place to enable strategic forward planning for the future skills required by industry. The 1964 Industrial Training Act gave the government statutory powers to set up industrial training boards (ITBs). Each was responsible for overseeing training in its industry, setting standards and providing advice to firms. These ITBs were progressively dismantled from 1979 onwards, and only two still operate – the Construction Industry Training Board and the Engineering Construction Industry Training Board. Such boards need to be reintroduced for all major sectors; they should include senior level representation from government, industry and higher education, so that a 10-year rolling plan can be generated for the skills required in significant industries, which can then be used to influence both higher education courses and vocational training.

The ultimate goals of our education and skills policy are two-fold. Firstly, there should be a much greater emphasis on vocational training as a viable alternative to university education, with significantly enhanced business involvement in that training. Secondly, there needs to be much greater cooperation between industry and education to plan strategically for the future skills that businesses and the economy require.

Post-Brexit we will also have an opportunity to link future UK immigration policy more closely to the present and future skills needed for development of the economy. This opportunity should be taken by introducing an Australian style points-based immigration system. Some limitation on the significant increase in the supply of unskilled and semi-skilled workers that has occurred in recent decades should help to kick-start wage growth for some workers after a decade of wage stagnation. This in turn will ultimately increase the attractiveness of automation in some industries, which would aid overall productivity levels. Fruit picking is one obvious example of an industry where the pace of automation appears to have been slowed down by an abundant supply of cheap labour.

3.7 CONCLUSION

We are confident that an increase in public investment concentrated in the correct areas would have a significant positive impact on UK productivity growth. As we have seen, there is a very strong case for increased public sector investment in our transport infrastructure, our housing stock, our national broadband and internet coverage and our system of vocational training. The forecast improvement in government finances offers us the opportunity to invest significantly in these areas whilst keeping the government deficit below 3 per cent of GDP, still allowing net government debt to fall back gradually as a percentage of nominal GDP. It is essential that this opportunity is taken.

4.

INCREASE IN THE NATIONAL LIVING WAGE

The principal drawback of an investment and exchange-rate lead approach to economic growth is the short-term negative impact it can have on consumption and living standards. A devaluation works like a real wage cut in that import prices rise whilst wages are constant. This can reduce economic growth in the short term due to the high percentage (66.3 per cent in 2016) of the UK economy made up of personal consumption (Trading Economics 2019). This was seen in the UK's experience following the 2008 devaluation of sterling, when a rise in inflation coupled with stagnant wages depressed economic growth in the immediate aftermath of the economic crisis. Constraints on consumption can also prove unpopular with the electorate, and both the Wilson government and the Major government were rejected decisively by the electorate following the devaluations of 1967 and 1992.

If an investment-led policy is to be sustainable both economically and politically over the long period required to properly address the imbalances in the economy, it needs to provide protection for the purchasing power of lower paid workers. This helps ensure that economic growth is spread more fairly, but is also important in protecting overall consumer expenditure in the economy, since the marginal propensity to consume of lower paid workers is typically higher than that of the better-off.

This aspect of policy is particularly important given that wage growth has stagnated over the last decade and in-work poverty has been increasing. The median real UK wage in 2017 was still 3 per cent lower in real terms than it was in 2008 (Cribb and Johnson 2018). Younger workers at the most common ages for starting families have been particularly badly impacted, with the median earnings of those in their 20s 5 per cent lower than in 2008 in real terms, and those of people in their 30s as much as 7 per cent lower (ibid).

According to the Joseph Rowntree Foundation, 4 million workers currently live in relative poverty, a rise of over half a million over five years. In-work poverty has been rising faster than employment over this period. Their report defines poverty as being when a family has an income of less than 60 per cent of median income for their family type, after housing costs (JRF 2018). They additionally report that, as a result of poor wage growth for people in their 20s and 30s and a lack of affordable rented accommodation for families, child poverty has also been rising significantly. They highlight that 4.1 million children now live in poverty in the UK, a rise of 500,000 in the last five years, with virtually all of this rise in child poverty having taken place within working families. They reveal that poverty has been increasing for all types of working families – whether part-time or full-time workers, single-parent or couple, and that nearly half of children in single-parent families now live in poverty (ibid). These are bleak trends in a developed nation.

The OECD definition of low pay is two-thirds of median earnings (OBR 2018). Current government policy is for the national living wage to increase to 60 per cent of median earnings by 2020. We would advocate increasing it further, so that it exceeds the OECD definition over a five-year period.

The OBR carried out an analysis of the impact of raising the national living wage up to the OECD definition of low pay in their October 2018 *Economic and Fiscal outlook*. They estimated that approximately 16 per cent of workers would benefit from an increase in their wages and that there would also be an impact on the wages of some workers earning up to 40 per cent more than the increased minimum, as employers were compelled to maintain some earning differentials. They calculate that this might cause a loss of 140,000 jobs due to the increased cost of labour (OBR 2018). With a competitive exchange rate and increased public sector investment providing balancing boosts to employment, a relatively tight labour market, and falling levels of immigration, we would argue that overall policy impact on unemployment is unlikely to be significant.

Tax changes would also help protect the purchasing power of those on below average earnings by raising tax thresholds or reintroducing a 10p rate of income tax. This could be funded by using the freedom given by leaving the EU to make VAT a more progressive tax, imposing a luxury rate of VAT on a limited range of items. Such a tax, constraining to an extent the consumption of better-off members of society, would also help in the rebalancing of the economy towards investment.

Interestingly, there are a number of counterbalancing factors in the fiscal impact of an increase in the living wage which might roughly cancel out so as for it to be fiscally neutral. Savings in welfare benefits and increased taxation on the one hand, and increased public sector pay on the other hand, are thought likely by the OBR to roughly cancel each other out so that any fiscal impact would be relatively limited (OBR 2018). Raising the living wage would not therefore lead to a deterioration in government finances, and so would have no negative impact on the ability of the government to fund the increases in public sector investment advocated earlier.

Underpinning our thinking with respect to our wage policies is what we call a ‘circulatory growth model’ of the economy. We believe that in a free-market economy, entrepreneurs and business owners are primarily incentivised by the profit motive. The profit motive naturally requires entrepreneurs to maximise their revenues while minimising their outgoings, including wages, so as to retain the maximum possible accumulated profit. This process can lead to an excessive accumulation of wealth at the top of the social pyramid together with a deficit of spending power from the bottom of the social pyramid. In extremis, for companies selling to domestic markets including their own workforces, this situation may lead to an economic configuration whereby the entrepreneur has the means with which to invest but, due to insufficient demand, not the incentive to do so. In circumstances such as this it can be necessary and valuable to enact policies designed to directly stimulate higher demand.

In recent years, workers in the developed world, including those in the UK, have been obliged to compete in an increasingly globalised labour market influenced by the rapid influx of many low-wage workers from less affluent economies. In the UK’s case, membership of the EU has led to high levels of immigration from former communist countries in eastern Europe. As a result, workers in the developed economies have suffered a deterioration in their wage negotiating position. Our policies are designed to counteract this effect.

In a globalised economy, there is of course some tension between seeking to increase the wages of workers while also maintaining the competitive position of UK industries. Using the OBR modelling we calculate that raising national living wage to the OECD definition might increase overall wage costs to business by approximately 2 per cent in sterling terms. The competitive exchange rate policy described earlier is designed to ensure that, despite this, labour costs in US dollar and euro terms will remain significantly lower than those prevailing before the

recent devaluation, while domestically sourced materials and sub-components also fall when measured in foreign currency terms. The overall thrust of policy, including investment in infrastructure, enhanced regional policy and significant tax incentives to invest, is therefore very favourable to private business investment.

The increase in the national living wage, combined with changes in the tax system, is essential in ensuring that the negative effects of an investment and exchange rate-led policy on the lowest paid are outweighed, and that the impact on overall consumption levels within the economy is minimised and concentrated within the more affluent sections of society. This will make application of the policy over a longer time period a much more practical and politically acceptable option than has been the case historically.

5.

CORPORATE TAX ENVIRONMENT

UK rates of corporation tax have been cut significantly in recent years, from 28 per cent in 2010 to 19 per cent currently, with a proposed rate of 17 per cent due to commence in April 2020. The UK now has the lowest rate of corporation tax within the G7 group of large economies.

Despite the cuts in headline rates, actual receipts have been climbing in recent years and are forecast to reach £63.5 billion by 2023/24 (OBR 2019). There appears to be little if any correlation between the rate of corporation tax historically and the actual level of corporation tax receipts. In 2017/18 corporation tax receipts made up 2.6 per cent of national income, almost identical to the 1980/81 percentage when the corporation tax rate was 52 per cent (Miller 2017). Corporation tax has varied between approximately 2 and 4 per cent of national income since 1979 (ibid) and the level appears to have been far more closely linked to the prevailing economic climate than to the headline rate.

Whilst low headline rates might on the face of it appear a good way of attracting significant inward investment, the detail of the corporation tax regime is crucial if this is to happen in practice. We need to look at the specific tax incentives to promote investment in R&D and plant and equipment as well as the headline rate.

As the current government itself acknowledges in *Building a Britain Fit for the Future* (HM Government 2017), private sector R&D in the UK economy is low at just 1.7 per cent of GDP compared to 2.8 per cent of GDP in the US and 3.0 per cent in Germany (OECD 2017). The R&D which does take place is generally concentrated in a few sectors such as pharmaceuticals, automotive and technology. (ONS 2017b). It is also dominated by large corporations – over 75 per cent of private R&D investment in the UK is driven by just 400 large businesses (ibid) The tax system needs to be used to promote private sector R&D and this is done currently by an R&D tax credit which offers tax reliefs to large business and small and medium sized enterprises (SMEs) under separate schemes at a cost of the taxpayer in 2016/17 of £3.45 billion (HMRC 2018).

A study of the effectiveness of UK R&D tax credits by Guceri and Liu (2017) found that they were very effective in promoting R&D expenditure. They estimated a government cost elasticity of approximately -1.6, meaning that significantly more than a pound of private sector R&D is being generated by the tax credits for each pound of corporation tax revenue foregone (ibid).

Given the apparent effectiveness of the R&D tax credit scheme we would significantly increase the scope and size, making changes to the detail of the scheme with the aim of doubling the cost of the incentives and thereby significantly boosting private sector R&D in the UK.

While the UK has the most competitive headline corporate tax rate across the G7, the investment costs which businesses can recover using capital allowances are amongst the lowest in the G7. The direct tax incentives (with the exception of the modest £200,000 Annual Investment Allowance (AIA)) to encourage investment in productive capacity are not particularly generous, since the UK allows a smaller

share of capital expenditure to be deducted from profits than many others, and the marginal rate of tax for new investments is therefore above that of some of the other G7 and EU nations (Miller 2017).

The present value of capital allowances in the UK, a measure of the percentage of investment costs that businesses can recover, is the worst in the entire G7 at only 46 per cent, compared to 62 per cent in Germany, 68 per cent in the US and 73 per cent in France (El Sibaie 2018). This is partly due to the lack of capital allowances for industrial buildings. Even if we allow for this, however, and consider only plant and machinery, we still lag near the bottom of the G7 league table (ibid). The situation has worsened in recent years, since all other G7 nations have increased the present value of their capital allowances, whereas reductions in the UK's writing down allowance (WDA) have reduced UK incentives, further dampening the UK's competitiveness.

It would seem therefore that the UK corporation tax regime in recent years has been far too focused on reducing headline rates, with far too little attention given to the actual detailed tax incentives required to incentivise the investments in plant and machinery and R&D which would help to close the UK's chronic private sector investment shortfall. We would therefore cancel the government's further planned cuts to the headline rate below the current 19 per cent and would instead significantly enhance tax incentives to invest in capital equipment and R&D. A competitive corporation tax regime is required if we are to attract investment, but that tax system has to actively incentivise the investment itself if it is to achieve its objectives.

The decision of the UK to leave the EU also presents the opportunity to reshape and revitalise UK regional policy. Economic incentives for businesses to set up in less economically successful parts of the country are vital to attract foreign direct investment and also to ensure that investment is concentrated in those parts of the UK which need it most – only in this way can we hope for our economic growth to be more evenly spread.

The once powerful domestic UK-wide regional policy has been largely dismantled in recent decades to be replaced by EU programmes which need to be consistent with the strict EU rules on governments providing state aid to industry. The most significant element of regional policy in recent years have been EU structural funds – the European Regional Development Fund and the European Structural Fund – which are allocated centrally for spend throughout the EU. €10.6 billion of funding was allocated to the UK from these funds for the period 2014–2020, but going forward such investments into the UK will be phased out as part of Brexit.

The existing UK programmes are a series of largely disjointed programmes such as enterprise zones, the Northern Powerhouse, the Midlands Engine and local enterprise partnerships. We would use the necessary reorganisation of regional policy required by our exit from the European Union to re-establish a much more coherent national programme aimed at attracting foreign direct investment. The system would be based upon a significant expansion of the scope and incentives of enterprise zones. The current government system of enterprise zones, reintroduced in 2011, offers businesses in specific areas assistance such as business rate relief, simplified planning, enhanced capital allowances and super-fast broadband. Incentives are not, however, universal, but are rather based on local circumstances within each enterprise zone. The measures and associated costs are currently very modest, as are estimates of the number of jobs created by the scheme. In August 2015, the government announced that enterprise zones had created just 19,000 jobs up to that point (HM Government 2015).

The EU state aid restrictions would cease to apply to a post-Brexit UK, freeing Westminster to significantly increase the value of the existing tax breaks and other incentives within enterprise zones, with the UK only needing to comply with the

less strict World Trade Organisation (WTO) rules on state subsidies. For example, we would advocate the reintroduction of an industrial buildings allowance for new production facilities within enterprise zones, allowing businesses to offset the cost of these plants over time against corporation tax.

An attractive tax regime should be established for international companies seeking to locate their R&D centres in the UK. The setting up of tax advantaged research zones close to key universities should be considered alongside a fast track work-visa scheme for highly skilled research professionals from any part of the globe.

In addition, we would support the idea of introducing free ports within enterprise zones. Free ports would be areas inside the UK geographically, but deemed outside of the country for customs purposes. Goods can therefore enter and re-exit without incurring import procedures or tariffs – incentivising domestic manufacturing, particularly in finished goods where sub-components are imported from a global supply chain. The majority of British ports are in areas of the UK where living standards are below average. Free ports are not possible under the current EU customs code and state aid rules, but are relatively common internationally. The US has over 250 free trade zones, which employ 420,000 people and handle \$750 billion of merchandise (Sunak 2016). Ports have a vital role in the UK economy due to our island geography and long coastlines, and around 96 per cent of UK trade by volume is routed via the country's ports (ibid).

It is clear from this analysis that the UK's strategy to attract business in recent years has amounted to little more than setting the rate of corporation tax at the lowest among the G7 and waiting for market forces to achieve the rest. Even ignoring the need for a joined-up industrial strategy as previously discussed, this policy fails to take into account that the corporation tax rate is an inefficient and inadequate instrument, and that a targeted approach of specific incentives promoting investment would be much more effective.

Our proposed combination of significantly enhanced direct tax incentives to invest in R&D and plant and machinery, together with an enhanced system of enterprise zones and free ports to take advantage of our ability, post-Brexit, to offer much stronger regional investment incentives than currently allowed under EU rules, offers much greater prospects of attracting the sustained level of private sector investment required to rebalance the economy. This would be backed by a competitive currency which ensures that unit costs are very competitive in dollar and euro terms.

6.

SCIENCE, TECHNOLOGY AND INNOVATION

A return to low technology mass-production manufacturing in the UK is unlikely due to the very significant cost advantages of the developing world. Any strategy to increase manufacturing from the current 9 per cent of GDP (World Bank 2019) or exports from the current 25–30 per cent of GDP (OBR 2018) must recognise that increased production has to come mainly from high value-added industries, technology companies, and global service businesses.

Successful UK export companies over the last 30 years – businesses like Arm, Aveva, Renishaw, Rotork, Rolls Royce, Spirax Sarco and Victrex – have common characteristics: stable strategy; products with high barriers to entry which are competitive on the world stage; strong gross margins creating cash-flows that can be reinvested in the business; a high emphasis on internal investment and R&D; and strong balance sheets able to withstand external shocks. Any sustainable industrial renaissance in the UK has to be based on businesses like these.

If future businesses such as these are to be discovered and develop, all the intellectual property (IP) created by research and innovation in the UK needs to be harnessed and, where appropriate, commercialised. This will require a close partnership between business, finance and universities. The success of the Cambridge Science Park, and of businesses like IP Group, Oxford Sciences Innovation and British Technology Group (BTG), businesses who work with universities to commercialise research, show what is possible. These examples must be built upon if sustainable growth in high value-added manufacture and productive services is to be achieved.

To further assist the development of our internationally facing businesses a UK Sovereign Wealth Fund will be established, making investments of £1–2 billion annually on behalf of the British people in the quoted equity of suitable businesses, focused predominantly on those companies with UK production which generate a significant proportion of their sales overseas. The fund will have an emphasis on primary equity issues to provide additional capital to businesses. Growth in the value of the fund will also help to provide a store of value for future generations.

The UK has a tradition of scientific enquiry and the highest density of leading universities in the world. Education is already a major business for the economy. These strengths, together with The UK's unique global network of business, political and cultural relationships, the English language, and a welcoming international culture, makes the UK potentially a natural centre for cutting edge scientific R&D.

It would be our intention to exploit these natural advantages by making scientific research a key growth industry for the UK. This would be achieved through the establishment of a British Research Agency (BRA).

The objective of the BRA will be to identify the key challenges facing the UK, and indeed mankind as a whole, over the coming generations. Having identified these challenges, the BRA would then direct an ongoing research program aimed at finding, developing and commercialising solutions to those problems. One

overarching emphasis of the research program would be to address the greatest challenge facing mankind, that of environmental sustainability. The aim of the BRA will be to discover and develop the technologies necessary to achieve an indefinitely sustainable zero-impact economy. Accordingly, the likely research areas will include, not be limited to: sustainable energy, biodegradable materials, sustainable agriculture and food production, zero impact transportation and sustainable healthcare. The research agenda of the BRA will be designed to dovetail with a complementary industrial policy to commercialise the outcome of the BRA in partnership with business as described above.

A secondary but important goal of the BRA will be to lift and tangibly change the national mood. To shake off the fatalism which has grown up from decades of laissez-faire, free-market philosophy, which has fostered the notion that market forces left to their own devices can and will address and find solutions to any problems. This culture has led to the notion that mankind in general, and national governments in particular, cannot and should not intervene in markets in an attempt to improve their outcomes, but rather must submit to the will of market forces. This, we believe, feeds into a culture of resigned defeatism. The BRA, by very publicly setting out to find practical commercial solutions to some of the world's great challenges, will aim to foster a much more positive national mood, one in which we recapture the can-do attitude of the original industrial revolution and of governments in the immediate period following the second world war.

Building a successful scientific research program will require a number of key elements. First and foremost, will be funding. In the long run it is anticipated this initiative will be directly and indirectly self-funding through the accumulation of valuable intellectual property and through tax receipts generated by spin-out industries and private research programs. However, achieving this longer-term goal will require a substantial initial and ongoing investment. This would be funded with the issuance of long dated UK government guaranteed bonds. The initial investment commitment should be substantial so as to signal a material commitment to the research program. At this stage we anticipate a first commitment of £10 billion.

R&D is an area where public sector investment encourages as opposed to crowding out that in the private sector. Countries with above average levels of public R&D usually have above average levels of private investment too (OECD 2019). The Department for Business, Innovation and Skills (BIS) commissioned a study in 2015 into the relationship between public and private investment into science, research and innovation in the UK from Economic Insights, which concluded every pound of public investment on R&D was accompanied by an increase of £1.36 in private R&D (Economic Insights 2015).

The borrowing needed to fund the research program of the BRA will be unfunded and will therefore constitute an element of a Keynesian economic stimulus. At least part of this stimulus program would involve additional debt purchases by the Bank of England. That is to say additional quantitative easing. By funding the BRA research initiatives in this way, we would seek to achieve the required economic boost without an associated increase in the exchange rate, thereby maintaining the UK's competitive position.

Private sector companies, charitable foundations and universities will be invited to partner with the BRA both in the development of the research agenda and its subsequent implementation. In addition, the BRA would run an ongoing series of open competitions for research initiatives. The purpose of these competitions would be to solicit ideas, but also to educate and motivate the wider public about the purpose and aims of the research initiative.

7. PREFERMENT

The government is the biggest purchaser of goods and services in the UK. General government consumption is expected to have accounted for £306 billion of expenditure in 2018/19 excluding transfer payments (OBR 2019).

Post-Brexit, the UK government will have more flexibility to prefer domestic firms when awarding government contracts. Current UK procurement legislation derives mainly from EU directives, which have been implemented into UK law, and which give all firms within the EU equal access to government contracts. When we leave the EU, the UK must decide whether to sign the Agreement on Government Procurement (GPA) of the WTO. This agreement gives businesses in signatory countries the right to bid for government business on a level playing field, but is significantly more limited in scope than current EU rules and does not for example cover private utilities or defence procurement.

It is economically rational to prefer UK firms where the price difference with a foreign contractor is marginal, due to the potential positive multiplier effects on economic growth of sourcing domestically. We would require government departments to write a justification when choosing a foreign contractor over a domestic company, or a company with productive facilities in the UK, ensuring that the wider benefits of domestic sourcing are considered as well as headline price.

8. ENVIRONMENT

Faster growth increases carbon emissions and plastic pollution unless government takes direct action to prevent this. A policy that seeks to enhance economic growth sustainably must therefore also enhance government action to tackle these issues. We are ambitious on the environment and believe that we can accelerate progress in reducing carbon emissions whilst simultaneously boosting economic growth.

Just as a strong range of measures is required to increase the trend rate of economic growth, so equally a strong range of measures is required to ensure that this growth is environmentally friendly. With the correct measures, it is possible to achieve economic growth and simultaneously reduce emissions. Indeed, since 1990 UK nominal GDP has grown by over 70 per cent and UK greenhouse gas emissions have fallen by 43 per cent (CCC 2018). However, even at current rates of forecast GDP growth, the UK does not appear to be on course to meet its long-term obligations, and stronger measures are undoubtedly required.

In some cases, consumers should be offered direct incentives to switch to environmentally friendly products. For example, government incentives to switch from conventional to hybrid vehicles (or electric as these become affordable) should be strengthened. We would reverse the recent cuts to the governments plug-in grant scheme announced in October 2018 which reduced incentives to switch from conventional to plug-in hybrid and electric vehicles. This decision jeopardises development of the UK's electric vehicle market. More generally, correct timing of incentives to switch to environmentally friendly technologies is crucial, as there is a balance between an immediate beneficial impact and a greater but delayed impact as technology becomes more efficient. The government should assess each case individually.

Energy efficiency should be mandated into the planning process. The energy efficiency requirements for new homes and offices should be strengthened to mandate renewable energy sources. We would work towards achieving and mandating a zero-carbon standard for new-build homes. All new residential developments above a minimum size should require electric vehicle charging points. National planning guidance should be amended to encourage local authorities to take traffic volumes into account, so that new developments are as close as possible to places of work to minimise commuter traffic.

We propose a number of practical measures to reduce carbon emissions in line with those recommended in the Committee on Climate Change's report of June 2018. This report was critical of the governments failure to adequately support and promote low-cost solutions. Examples include prioritising onshore wind and solar power, restoring incentives to invest in building insulation, significant increases in tree planting and mandating the recycling of food waste (ibid).

We would strengthen the government's plans to tackle air pollution. We support recent proposals to cut domestic and agricultural emissions but shall also consider proposals to bring forward the date of phasing out combustion engine cars in England and Wales from 2040 to 2032, in line with the target in Scotland and the recommendations of the Business, Energy and Industrial Strategy Committee in parliament.

Businesses should be mandated to take action to reduce carbon emission and plastic use, drawing on best practice to set demanding, yet realistic, targets and forcing companies via regulation to adopt the successful plastic-saving policies of their competitors. The recent ban on micro-plastics is a good example where some suppliers were encouraged to voluntarily stop using micro-beads and their example was then used to mandate others. The steps taken by Iceland to accelerate the reduction of plastic use in their stores could similarly be used to compel action from other food retailers. We support the recently announced ban on plastic straws and plastic buds, and are prepared to ban plastic packaging in further products where suitable non-plastic alternatives are available.

We support the introduction of a nationwide deposit return scheme for plastic bottles, where consumers pay an up-front deposit which is redeemed on return of the empty drink container. While disposable coffee cups are recyclable, they are not currently recycled in quantity. We would levy a 25p charge on disposable cups, refundable on return to a recycling bin, and mandate that all cups returned to such bins must be recycled.

We shall develop and strengthen existing government plans to make the UK a global leader in carbon capture and storage with an acceleration of proposed timescales. We shall roll out the successful trials of some councils in using waste plastic in road building as an alternative to bitumen.

Significant investment in rural transport networks, as described in detail earlier, will offer an alternative to vehicle use and may eventually make further rises in fuel duty politically acceptable. These will help to moderate current forecasts for growth in road traffic.

Finally, the government has an important direct role to play in the development of green technologies. The UK government set up and capitalised a Green Investment Bank to invest in environmentally friendly technologies, but this was sold in 2017. The focus of our new proposed British Research Agency on the environment will ensure that there is very significant government backing for further research in this area.

9.

IMPLEMENTATION AND TRANSITION

Our programme would be announced in a UK budget statement with the aim of implementing all policies within a single five-year parliamentary term.

The change in the Bank of England's terms of reference to include the exchange rate would be effective immediately. Policies involving tax changes (the 10p rate of income tax, the luxury rate of VAT, and increased investment incentives for plant and machinery and R&D) would be brought in for the following fiscal year.

Our industrial strategy, increasing public sector investment, would require a plan for each area to be developed to determine the optimum additional infrastructure projects and the best locations for council house building. Increasing public investment too quickly would clearly run the risk of significant sub-optimal expenditure. We would anticipate that investment would be increased gradually but that the annual 2 per cent increase in public sector investment would be fully achieved by the end of the five-year period.

Increases in the national living wage would also be phased over a five-year period to give businesses time to plan for the increase in labour costs.

Policies which are dependent on a full exit from the EU (changes to immigration policy, regional policy and procurement policy) would be planned to commence at the end of any transition period negotiated. At the time of writing, a deal to leave the EU is yet to be agreed. In the event of the UK leaving the EU on WTO terms, the new policies will be brought in as soon as the detail has been agreed and enacted by parliament.

Planning for the British Research Agency and Sovereign Wealth Fund would begin immediately with the former fully operational within two years and the latter within a year.

New environmental legislation incorporating our principal recommendations would be put before parliament within the first year of the programme. We would seek independent verification from the Committee for Climate Change and other independent bodies to confirm our opinion that our programme would accelerate decarbonisation and allow the UK to exceed its international climate change obligations. In the absence of such independent confirmation we would put forward further proposals to ensure that these targets were met.

Once the policies are fully in place, it would be the intention to maintain them over a minimum of a 10-year period. It would be incorrect and naïve to believe that the substantial imbalances in the UK economy can be cured by a short-term programme. Even if this were practical economically, the restraint on consumption required would be politically unacceptable if concentrated into too short a period. Investment needs to increase gradually and consistently as a percentage of the economy over a decade or more if there is to be sustainable change.

10. CONCLUSION

The causes of the declining growth rate in the UK are relatively easy to diagnose, and are rooted in insufficient investment and a collapse in productivity growth. They are much more difficult to cure, as successive governments over the last 50 years have found. However, the combination of a suite of suitable policies over an extended period of time does offer an excellent opportunity to significantly raise the trend rate of growth.

Our proposed policy programme of a competitive exchange rate, significantly increased public sector investment in skills, housing and infrastructure, an increased living wage, a tax system that actively promotes research and capital investment, a new British Research Agency committing significant government funds to R&D, and a real understanding of the links between R&D, IP and industry which create and sustain successful businesses, offers a compelling prospect of improving productivity and growth.

Action on the national living wage, on regional transport, and on tax incentives to invest outside the South East, is vital to ensure that the proceeds of such growth are shared more evenly than has been the case historically.

A strong and credible range of policies to combat carbon emission and plastics use is vital if any increase in economic growth is to be sustainable.

None of these policies, save the formation of the British Research Agency, is individually revolutionary but a full understanding of how the policies interrelate and work in combination has been completely missing from government policy in recent decades. In order to invest, businesses need financial incentive to do so through a competitive exchange rate and tax incentives. They also need to be confident that government will ensure the economy has the right infrastructure and skills, and that the government has a real commitment to promoting the research and development crucial in a modern knowledge economy.

Our policy combination understands the proper role of government and the private sector and how each must play a vital role in a Social Market if investment and growth is to be increased sustainably. Consistent application of our programme over a decade or more certainly *would* be revolutionary in the context of the recent economic history of the UK.

This, then, is our blueprint for significantly improving the trend growth rate of the UK in a fair and environmentally friendly way.

REFERENCES

- Beeching R (1963) *The Restructuring of British Railways*. <http://www.railwaysarchive.co.uk/docsummary.php?docID=13>
- Blakeley G (2017) *Paying for our Progress*, IPPR North. <https://www.ippr.org/publications/paying-for-our-progress>
- Brinkley I and Crowley E (2017) *From inadequate to outstanding – making the UK skills system world class*, CIPD. https://www.cipd.co.uk/Images/from-inadequate-to-outstanding_2017-making-the-UK-skills-system-world-class_tcm18-19933.pdf
- Committee on Climate Change [CCC] (2018) *Reducing UK emissions – 2018 Progress Report to Parliament*. <https://www.theccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/>
- Cribb J and Johnson P (2018) *10 years on – have we recovered from the financial crisis?*, Institute for Fiscal Studies. <https://www.ifs.org.uk/publications/13302>
- Department for Education [DfE] (2017) 'Participation rates in higher education between the academic years 2006 to 2007 and 2015 to 2016', national statistics. <https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2016>
- Department for Transport [DfT] (2018) *Road Traffic Forecasts 2018: Moving Britain Ahead*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740399/road-traffic-forecasts-2018.pdf
- Department for Transport [DfT] (2019) 'Local Bus Passenger Journeys', statistical dataset. <https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys>
- Economic Insights (2015) *What is the relationship between public and private investment in science, research and innovation?* <https://www.economic-insight.com/wp-content/uploads/2016/05/bis-15-340-relationship-between-public-and-private-investment-in-R-D.pdf>
- El Sibaie A (2018) *Capital Cost Recovery across the OECD, 2018*, Tax Foundation. <https://taxfoundation.org/capital-cost-recovery-across-oecd-2018/>
- Gucerli I and Liu L (2017) *Effectiveness of Fiscal Incentives for R&D: Quasi-Experimental Evidence*, IMF Working Papers. <https://www.elibrary.imf.org/abstract/IMF001/24181-9781475591170/24181-9781475591170/24181-9781475591170.xml?rskey=vvXwbm&result=9>
- Harari D (2017) *Pound in your pocket" evaluation: 50 years On*. House of Commons Library. <https://commonslibrary.parliament.uk/economy-business/economy-economy/pound-in-your-pocket-devaluation-50-years-on/>
- Heffer S (2017) 'The New Age of the Train', *New Statesman*. <https://www.newstatesman.com/politics/uk/2017/08/new-age-train>
- HM Government (2017) *Industrial Strategy - Building a Britain Fit for the Future*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730043/industrial-strategy-white-paper-print-ready-a4-version.pdf
- HM Revenue and Customs [HMRC] (2018) *Research and Development Tax Credits Statistics September 2018*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/742661/Research_and_Development_Tax_Credits_Statistics_September_2018.pdf
- HM Treasury (2013) *Investing in Britain's future- Cm8669*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/209279/PU1524_IUK_new_template.pdf
- IPPR North (2017) 'A North that works for everyone', IPPR North General Election Briefing 2017. <https://www.ippr.org/research/publications/a-north-that-works-for-everyone>
- Joseph Rowntree Foundation [JRF] (2018) *UK Poverty 2018*. <https://www.jrf.org.uk/report/uk-poverty-2018>

- Mason G and Rincon-Aznar A NIESR (2015) *Skills and Productivity in the UK, US, France and Germany- A report to the Business, Innovation and Skills and Education Select Committees*, House of Commons. <https://www.niesr.ac.uk/publications/skills-and-productivity-uk-us-france-and-germany-literature-review>
- McGeever J (2016) 'Pound's Brexit plunge unlikely to boost exports at 1992, 2008 rate', *Reuters*. <https://uk.reuters.com/article/uk-britain-eu-trade-idUKKCN0ZT1BZ>
- Miller H (2017) *Briefing Note: what's been happening to corporation tax?*, Institute for Fiscal Studies. <https://www.ifs.org.uk/publications/9207>
- Mills J (2018) *Why Is the World Economy growing at less than half the world average?*, Underlying data from Office for National Statistics (2017/2008) GFCF plant and machinery time series divided by 2017/2008 GDP
- Ministry of Housing, Communities and Local Government [MHCLG] (2019) 'Live table on housebuilding- new build dwellings- table 208', statistical dataset. <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>
- Musset P and Field S (2013) *A Skills beyond School Review of England: OECD Reviews of Vocational Education and Training*, OECD Publishing/OECD. <https://www.oecd.org/education/skills-beyond-school/ASkillsBeyondSchoolReviewOfEngland.pdf>
- National Infrastructure Commission [NIC] (2016) *High Speed North*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/507791/High_Speed_North.pdf
- Organisation for Economic Co-operation and Development [OECD] (2017) 'Main Science and Technology Indicators', 2017 data points. <https://www.oecd.org/science/inno/msti.htm>
- Organisation for Economic Co-operation and Development [OECD] (2019) 'Main Science and Technology Indicators'. https://read.oecd-ilibrary.org/science-and-technology/main-science-and-technology-indicators/volume-2018/issue-2_g2g9fae2-en#page3
- Ofcom (2018) *Getting Rural Areas Connected*. <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2018/getting-rural-areas-connected>
- Office for Budget Responsibility [OBR] (2018) *Economic and Fiscal Outlook*. <https://obr.uk/efo/economic-fiscal-outlook-october-2018/>
- Office for Budget Responsibility [OBR] (2019) *Economic and Fiscal Outlook*. <https://obr.uk/efo/economic-fiscal-outlook-march-2019/>
- Office for National Statistics [ONS] (2016) *How has the student population changed?* <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/articles/howhasthestudentpopulationchanged/2016-09-20>
- Office for National Statistics [ONS] (2017a) *An international comparison of gross fixed capital formation (using OECD data)*. <https://www.ons.gov.uk/economy/grossdomesticproductgdp/articles/aninternationalcomparisonofgrossfixedcapitalformation/2017-11-02>
- Office for National Statistics [ONS] (2017b) *Business enterprise research and development, UK: 2016*. <https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/businessenterpriseresearchanddevelopment/2016/>
- Office for National Statistics [ONS] (2018a) *International Comparisons of UK Productivity 2016 (final estimates)*. <https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/bulletins/internationalcomparisonsofproductivityfinalestimates/previousReleases>
- Office for National Statistics [ONS] (2018b) *Productivity Economic Commentary October to December 2017*. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/ukproductivityintroduction/julytoseptember2017/>
- Office for National Statistics [ONS] (2019a) *Labour Productivity Time Series PRDY*. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/datasets/labourproductivity>
- Office for National Statistics [ONS] (2019b) *Productivity Economic Commentary October to December 2018*. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/ukproductivityintroduction/octobertodecember2018>

- Office for National Statistics [ONS] (2019c) *Unemployment rate time series*. <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment>
- PricewaterhouseCoopers [PwC] (2018) *UK Economic Outlook Nov 2018*. <https://www.pwc.co.uk/economic-services/ukey/ukey-nov18-final.pdf>
- Sunak R (2016) *The Free Ports Opportunity – How Brexit could boost trade, manufacturing and the North*, Centre for Policy Studies. <https://www.cps.org.uk/research/the-free-ports-opportunity/>
- Tombs S (2018) *Why hasn't Britain enjoyed a significant trade boost?*, Pantheon Macroeconomics. <http://www.pantheonmacro.com/documents/uk-publications/i/28-february-2018-why-hasnt-britain-enjoyed-a-significant-trade-boost/>
- Tracks (2018) *The future of rural bus services in the UK*. <https://bettertransport.org.uk/sites/default/files/research-files/The-Future-of-Rural-Bus-Services.pdf>
- Trading Economics (2019) 'United Kingdom - Household final consumption expenditure, etc (% of GDP 2016)', dataset. <https://tradingeconomics.com/united-kingdom/household-final-consumption-expenditure-etc-percent-of-gdp-wb-data.html>
- Turner C and Rudgard D (2018) 'Almost one in three graduates are overqualified for their job, major report finds', *Daily Telegraph*. <https://www.telegraph.co.uk/education/2018/09/11/almost-one-three-graduates-overqualified-job-major-report-finds/>
- HM Government (2015) 'Enterprise zones boom with thousands of new jobs attracted this year', press release. <https://enterprisezones.communities.gov.uk/enterprise-zones-boom-thousands-jobs-attracted-year/>
- Wales Online (2019) 'Delivery of M4 Black Route is vital for the Welsh economy', open letter from CBI Wales and Welsh business executives. <https://www.walesonline.co.uk/business/business-news/welsh-business-message-politicians-deliver-10827523>
- Welsh Government (2016) *M4 Corridor around Newport: Economic Appraisal Report*. <https://gov.wales/m4-corridor-around-newport-economic-appraisal-report>
- Wilson W and Barton C (2018) *Tackling the undersupply of housing in England*, House of Commons Briefing Paper 07671. <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-7671#fullreport>
- World Bank (2019) 'Manufacturing value added (percentage GDP) by country', dataset. <https://data.worldbank.org/indicator/nv.ind.manf.zs>





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