TONY BLAIR INSTITUTE FOR GLOBAL CHANGE

The UK at a Crossroads: Framing the Economic Challenge

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Executive Summary

- The UK is at a crunch point as it deals with an unprecedented set of economic shocks which, combined, threaten the basis of our prosperity. Covid-19 and Brexit are heavily impacting the main job-creating and export-earning sectors of the economy, while technological change is upending old business models in unpredictable ways. These colossal challenges come on top of underlying problems with low-productivity growth and regional inequality. The long-term task of decarbonising the economy is also looming.
- At stake, therefore, is not only Britain's economic future, but also its ability to tackle growing social and environmental challenges. But policymakers seem unable to develop a coherent, forward-looking vision for the type of economy we want to see – let alone the means of getting us there.
- What is needed is a comprehensive plan to position ourselves to take advantage of the growth industries and technologies of the future, while seeing a genuine levelling up through the creation of more productive, high-paying jobs across the whole country. This plan needs to build on our existing economic advantages while tackling accompanying weaknesses.
- The UK has many economic strengths on which to build – for example, success in financial business services, life sciences and advanced manufacturing. Our strong science and technology base fosters world-leading industries and products, such as the Oxford University/AstraZeneca vaccine for Covid-19. Much of the economy is innovative, adaptable and employment-generating.
- But our economic record is chequered, and there are some key weaknesses. These include dismal productivity growth over the past decade and stark regional imbalances. Too many of the jobs generated are low paid and unskilled. If we are not careful, we risk squandering our strengths and failing to tackle our weaknesses.
- Into this mix comes an unprecedented set of shocks which, combined, represent an enormous challenge to our current economic model. Covid-19 has delivered the worst recession of modern times, threatening employment in "social" service sectors over the short-term as well as the vibrancy of urban centres dependent on commuter business in the longer run.
- Brexit, meanwhile, threatens key export sectors as varied as cars and financial services. Switching to new, global markets will be hampered by possible trade wars, protectionism and the corrosive effect of distance on trading relationships.
- The impact of new technologies on employment and business models, as well as the structure of the economy, will be equally profound, although there are vast opportunities in new growth industries to be seized as well as turmoil to be navigated.
- Policymakers need a plan to tackle the disruption. There should be three main goals: 1) kickstarting, and sustaining, a return to growth and prosperity by attending to structural weaknesses in the economy; 2) levelling up productivity, incomes and opportunity by investing in the individual, social and community foundations of growth; and 3) addressing the challenge of reaching net zero carbon

emissions by 2050 while building new, “clean” industries in sectors for which there will be enormous future global demand.

- In pursuit of these goals, politicians need a clear, strategic vision around which to build the policy platform for achieving it. They should be prepared to harness the toolkits of industrial strategy, technology and skills policies to foster comparative advantages in leading global industries, as well as pursuing trade negotiations with a view to securing inclusion in the most important global value chains. The net zero strategy needs to be fully integrated into economic and industrial strategy. Unfortunately, though, indications are that the government will abandon the Industrial Strategy put in place by Theresa May. This is a mistake.
- Renewing the UK’s economic model in the face of these shocks and challenges will not be easy. But the current turmoil represents a strategic opportunity to do this, and we should not squander the opportunity.

Introduction: Facing Up to the UK's Economic Challenge

The UK is at a fork in the road as it deals with a set of unprecedented economic shocks that will reshape its economy and sources of prosperity in a more profound way than anything since the second world war. At stake is not only our prosperity as a country but also our ability to tackle growing social and environmental challenges that demand urgent action. Yet elements of both the left and the right are attracted to failed policies of the past. A new vision is needed.

The government's minimalist Brexit deal with the EU, while better than no deal at all, still represents a deep rupture with the UK's economic model. That model was, for 40 years, built on access to the European market, political and economic stability, and the rule of law, all of which have been damaged in the decade since the financial crisis.

Key drivers of our economy have for many years been the professional services – exemplified by the City of London – and high-value manufacturing sectors. But without ready access to European markets after Brexit, it is by no means certain that these can remain the workhorse sectors of the economy.

The global picture for the UK is further darkened by growing commercial rivalry between major trading blocs that risks a retreat into economic nationalism. The implications for our prosperity are grave. While Brexit will do damage to our export-earning sectors, Covid-19 has hit our domestic service economy hard, with a particular impact on "social" businesses like entertainment and retail which are vulnerable to social distancing. It is also set to have profound effects on the future of work, our relationships with our communities and the social contract between governments, business and people.

At the same time, the technological revolution continues to upend old business models. Globally, it is accelerating winner-takes-all dynamics, favouring companies and individuals that can leverage technology to capture increasingly global markets. This presents enormous opportunities, but also threats arising from concentrations of market power that have to be navigated.

Without adept handling, these shocks risk exacerbating some dangerous political dynamics. As Brexit and the 2019 election demonstrated, many voters reject globalist, free-market policies they believe threaten their economic security and living standards.

But nor does the interventionist, dirigiste Brexit some instinctively prefer – like a return to the 1970s – offer real or affordable solutions to the problems which led to the UK leaving the EU. At the same time, the short-term shocks from Covid-19 and the technological change and upheaval that has come with it, if mishandled, could amplify the economic insecurity that feeds the discontent.

In response to this profound economic moment, policymakers are in danger of focusing reactively on day-to-day policy minutiae, letting the pieces of the new economic model fall where they will. This approach may be complemented by parochial ideas like a drive to reshore supply chains and strike politically motivated trade deals that cut across our economic strengths. The result is likely to be a decade of drift, and a further stagnation of living standards that will exacerbate political polarisation and economic insecurity, while the urgent challenges of our time go unaddressed.

Instead, policymakers should seize the moment to reshape the UK's economic model. That demands strategic thinking about the strengths of our economy in a global context and how policy – from state aid to skills, and from competition policy to R&D – must change to carve out a new economic role for the UK in the world.

Rethinking Our Economic Model

What should guide those decisions? In responding to these forces, policymakers need to foster an environment conducive to our economic capabilities if we are to maximise living standards and reignite wage growth. But they also need to be clear about how this fits with other pressing challenges that will define this decade. The 2020s are the key decade for us to address the net zero challenge. The UK has already led the world in the development of wind energy; how can we build on that experience across all areas of the challenge?

Regional inequality has worsened significantly in recent decades despite the efforts of successive governments to tackle the problem. The reshaping of our economy offers a rare opportunity to level up the regions and rebalance economic power. As unemployment resulting from the pandemic grows, it will underscore the charge of insecurity levelled at the labour market of the 2010s. The new economy must be better at generating "good jobs" that harness the opportunities of technology while complementing that with economic security.

Other countries are wasting no time in rethinking their economic models. Germany is preparing to abandon its rules-based creed of "ordoliberalism" and embrace state intervention; France plans a massive R&D effort to turbocharge its innovation potential; China is embarking on a profound shift from an export-led to a domestic demand-led economy; in the US, President Biden proposes an embrace of the economic potential of technology and the Green New Deal.

Our economic model is equally in need of renewal. But where is the plan? The March 2021 budget contained a raft of policies which the government hopes will boost the economy. But freeports, tax breaks for investment and the proposed National Infrastructure Bank will do little to lift the UK's dismal rate of productivity growth, cautions the Office for Budget Responsibility. [1]

Nor will they shift the economy onto a path of higher, more sustainable growth. That could have been the task of a far-reaching industrial strategy. But instead, the government seems set on ditching Theresa May's Industrial Strategy White Paper. This was launched in 2017 and tasked with coordinating growth policies by focusing on a pressing set of grand challenges, such as shaping the future of mobility. The Industrial Strategy Council, which was set up to monitor this and might have blown the whistle on the absence of any coherent plan for growth, will be abolished.

What is needed is an entirely new economic vision, informed by a set of realistic, achievable goals and with a clear strategy to put it into effect. As well as lifting GDP and standards of living, future growth must also generate good, secure and well-paid jobs across the country. This means ending overreliance on a handful of high-productivity sectors like finance, centred on major cities and south-east England, while leaving large sections of the domestic economy to languish. Instead, we need to build economic strength more extensively and in a wider spread of future growth sectors, particularly in green and high-technology industries where the UK has existing strengths and where huge opportunities await.

These should be our goals. But what is the route to achieving them, and how can we identify these future growth sectors?

What matters for economic development and structural transformation is the capacity to create and shape comparative advantage in global markets – what an economy is *relatively* good at producing and trading with other economies, given the alternatives.

As an open economy, trade is very important to the UK. We are better off importing some things rather than producing them ourselves, and we need to pay for these imports with exports. Economic strategy should therefore have a significant focus on developing comparative advantage in tradeable sectors. As Brexit will disrupt some of our current export channels, we need to work out the best prospects for developing export sectors in the future. Many of these sectors are likely to be in the fields of technology and sustainability. But how well set up is our economy to reap these benefits?

Inevitably, the scale at which the UK can change or develop its comparative advantage in these sectors will be constrained by path dependence. In other words, where you begin (in terms of initial endowments), tends to determine where you end up. Any reform programme must therefore start with a realistic assessment of the UK's existing economic structure, where this puts us in the global division of labour, and whether this position is sustainable in the long run without profound reform.

This should be coupled with genuinely strategic thinking about the strengths and weaknesses of our economy in a global context, and a willingness to harness the toolkits of industrial strategy, technology and skills policies to foster comparative advantages in leading global industries. Trade policies should complement this by seeking the inclusion of UK industries into the most important value chains. In addition, the net zero ambition needs to be fully integrated into economic and industrial strategy.

In this paper, we will set out the strengths and weaknesses of the UK's current economic model. We will then explore the nature of the current shocks impacting this model, before setting out the right goals and strategies for addressing these.

The Past: What Characterises the UK's Economic Strengths Since 1979?

The UK's economic development over the past few decades has given us many strengths, such as rapid employment growth, and success in high-end service industries and parts of advanced manufacturing. The main downside of this otherwise successful model has been an inability to extend these strengths across the whole economy, resulting in regional and sectoral imbalances and, latterly, very sluggish productivity growth. These vulnerabilities risk being exacerbated by the effects of Covid-19 in the short term, and by Brexit in the longer run.

To a large extent, the ability of the economy to adapt to these shocks will be determined by the trajectory of its development over the past few decades. Supply-side reforms since the early 1980s have endowed the UK with a very liberal set of economic institutions, compared with our economic rivals, that support flexible labour and product markets.

These include decentralised wage-setting, an abundance of short-term venture capital, a broad-based university education system that promotes general and transferable skills, and competitive inter-firm relationships sustained by a tough competition regime.

The importance of this configuration lies in the fact that it tends to foster strengths in some economic sectors, while at the same time hindering success in others that require a different set of institutions to prosper. The industrial and occupational structure that results also has distributional consequences for society as whole.

Because the UK lacks a vocational training system centred around industry-specific skills, manufacturing has historically specialised in low-cost production. Under Margaret Thatcher and then New Labour, the UK evolved into a dualised skill economy, where its export champions shifted from traditional manufacturing to high-technology and high-skilled services sectors, while low-skilled, low-wage services came to dominate its domestic sector.

This economic model has generated high employment and comparative advantages in business and financial services, ICT, biotechnology and a few sectors of advanced manufacturing. These sectors thrive in highly competitive and fast-moving market niches that require flexible, switchable assets (labour and access to capital) and where they are able to exploit the fruits of radical innovation generated in the UK's excellent universities and the R&D efforts of a handful of leading firms.

However, on the downside, this model rests on an occupational structure bifurcated between well-paid graduates and technicians on the one hand, and a larger and more precarious service sector with notably low wages and productivity on the other.

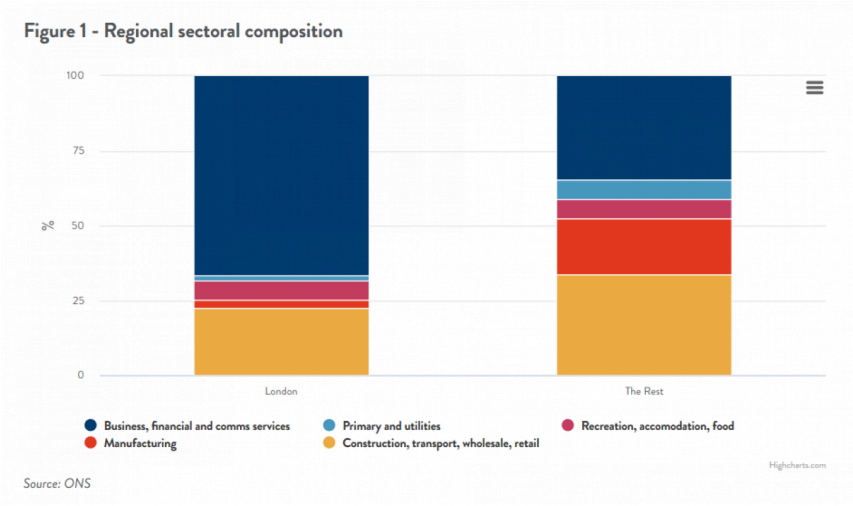
This manifests itself in a highly unequal geographical distribution of productive industries and the well-paid jobs which accompany them, with the Institute for Public Policy Research claiming the UK is more regionally divided in this regard than any other comparable advanced economy. [2]

The country undoubtedly stands out among large OECD economies in the extent to which productivity problems are regional rather than sectoral, and the degree to which productivity spillovers are not transmitted between the core and periphery of the UK economy. [3] While there is a cluster of high-productivity subregions in London and the South East, this contrasts sharply with much of the rest of the country where many areas have relatively similar average productivity levels which are low in comparison with other major European regions. [4] Two-thirds of workers are employed in businesses where productivity is below average for their size and sector, significantly more than in high-productivity countries like Germany. [5]

Regional disparities in gross value added (GVA) and productivity have, in fact, increased over the last decade and are now the highest in Europe. [6] The UK is the only country in Western Europe to have both 'very high income' regions (London) and 'very low income' regions (Wales and north-east England), based on the EU's definition of regional development. [7]

The paucity of high-productivity industries and jobs in much of the country also feeds into sharp disparities in disposable incomes, although the largest gaps tend to be within rather than between regions (this is particularly true in London). [8]

Figure 1 - Regional sectoral composition



Another source of imbalances is sectoral; the economy's core is particularly skewed towards services. While most other UK regions have more of a balance between manufacturing and services, productivity

in regional services industries tends to be much lower than London's. Figure 1 indicates just how detached the capital's economy has become from the rest of the country.

These problems are compounded by government policy: Public investment spending, such as transport and R&D, is heavily skewed towards London and the South East. [9] The sectoral-geographical imbalance has implications for how different regions stand to be affected by Brexit (and to a lesser extent, Covid-19) as this shock impacts industries differently (as discussed in the next chapter).

Policymakers have not been indifferent to these issues. New Labour tried to tackle imbalances by upgrading the UK's growth strategy to embrace the "knowledge economy" of high technology and intellectual capital. The intention was that this would thereby allow the UK to dominate the upper echelons of global value chains and share the proceeds of the ensuing growth more equally around the country. Key to this strategy was increasing the proportion of the labour force that served in high-skilled (and high-wage) industries via an expansion of higher education. But sharply increasing the supply of graduates to close the skills gap resulted in only partial success, as evidenced by the large and increasing proportion of graduates finding themselves in jobs for which they are overqualified. [10]

The strategy of the coalition and Conservative governments from 2010 to 2019 was a shift of gear to try to boost the rate of productivity growth, which rose at the slowest rate in over 200 years during the decade. However, the main mechanism for this – creation of clusters of high-tech knowledge jobs near top universities – not only failed in its objective of boosting economy-wide productivity, it also entrenched rather than reduced regional disparities. A Sheffield University study found that industries benefiting from the Industrial Strategy Challenge Fund announced in 2017 accounted for little more than 1 per cent of the whole economy (by employment). [11]

To recap, the UK's economic trajectory during our almost 40 years of EU membership was one that fostered export strengths in a number of radically innovative service and manufacturing industries. This has been accompanied by strong employment growth, particularly in domestically focused service sectors. But this economic model, while highly successful in many respects, also contains flaws that leave it vulnerable to the shocks currently buffeting the global economy.

Productivity growth has slumped since the 2008 financial crisis, and regional and social inequality remains high. Business investment in the UK is the lowest in the G7 and is set to tumble further as firms rebuild their balance sheets after Covid-19. The UK economy may be very good at generating jobs, but not nearly enough of these are the "good" jobs that pay well and make people feel part of society.

Together, Covid-19 and Brexit look set to exacerbate these economic and social problems because of their likely disproportionate impact on export and employment-generating sectors. Beyond these two events, further challenges loom, such as adapting to technological change. The next section looks more closely at the probable impact of these on our economic model.

The Present: What Are the Shocks Roiling the UK Economy Today?

The previous section outlined the strengths and weaknesses of the UK economy and explained how these emerge out of its economic structure and institutions. This structure has endured, despite weaknesses and tensions, over the past 30 years because of strong job creation and success in high-value export sectors like finance. But it is now being buffeted by three sets of shocks – Brexit, Covid-19 and the revolution in technology – which, in combination, require the fundamentals of this model to be rethought.

Brexit and Covid-19 are severe supply shocks that will slash growth and disproportionately impact two large segments of the economy: business services and the domestically focused "social" sectors like retail, entertainment and hospitality, which are major export earners and account for large proportions of employment, respectively.

The long-term impact of these shocks, particularly Covid-19, is difficult to determine. Exporting industries will likely respond to Brexit by shifting focus away from Europe and to the rest of the world, where they may carve out new markets. Domestic sectors like entertainment could bounce back once pandemic-related restrictions are lifted, although city centres may continue to be battered by the curtailment of the commuter economy. Either way, Brexit and Covid-19 together will engender major changes to the economy which need to be faced.

The third force – technological transformation – will also have a major impact on the economy and its effect will be even more profound. However, the changes it will bring should be viewed as opportunities to be grasped as much as challenges to be surmounted. These forces are considered below, starting with Brexit.

Brexit and Our Place in the Global Division of Labour

Leaving the EU will disrupt trade and investment relations with what is by far the UK's most important market and will further exacerbate the uncertainty caused by Covid-19. Beneath all the triumphalism, the government's last gasp trade deal secured with the EU in December 2020 represents a deep rupture with Britain's economic model. That model was built on unfettered access to the single European market (SEM) – the world's largest, deepest and richest trading bloc – which the UK was instrumental in creating and which has determined our pattern of economic growth and development since its creation.

As argued above, key drivers of our economy have for many years been professional and financial services, as well as some high-value manufacturing sectors alongside a recently revived automotive industry. However, deprived of frictionless access to European markets and supply chains after Brexit, there will inevitably be some diversion of trade away from the EU and towards the rest of the world (albeit insufficient to make up the loss). Our analysis of the relative competitiveness of individual sectors of the UK economy shows that some gain but many lose competitiveness when shifting emphasis from the SEM onto global markets, which was one of the main justifications for Brexit.

This conclusion chimes with the steady stream of analyses from government and respected researchers [12] showing that the sub-Canada style Brexit deal reached with the EU is set to do real damage to the economy by undermining, rather than unshackling, key export sectors in both services and manufacturing industries. Government estimates suggest that trade volumes will be 4.9 per cent lower after 15 years under a free trade agreement (FTA), which approximates to what has been agreed, compared with the status quo. [13]

Brexit has also increased the UK's heavy exposure to risks in financial markets, given high asset valuations and indebtedness globally. This followed the UK's downgrading by ratings agencies following the 2016 referendum. Covid-19 has tended to conceal a sharp decline in domestic and foreign investment over the four years since the Brexit vote. One estimate is that business investment fell by 11 per cent in the three years after the referendum, robbing the economy of future growth potential. [14]

Workers in the jobs most at risk from disruption to EU trade are on average slightly more productive than the average UK worker, as firms trading with the bloc benefit from greater competition which encourages them to specialise and become more innovative. Any net loss of trade resulting from leaving the EU is therefore likely to exacerbate the UK's already serious productivity problem. [15]

Moreover, the alleged upside of Brexit – that it would allow the UK to regain economic sovereignty – is a largely specious notion that may encourage the return of policy tools, such as a much more interventionist regime of state aid, that has in the past led to political capture by favoured sectors that locks in inefficiency.

What Are the Likely Sectoral Impacts of Brexit?

Services were left out of the Brexit deal, meaning that blanket access to the SEM by City firms has ceased. In its place, the government is still negotiating what would anyway be a far weaker provision of third-country "equivalence", which could be easily withdrawn if the EU decides that regulatory divergence has taken place to its detriment.

This failure to cushion the impact of Brexit on services trade is significant because the EU is the largest destination for our financial services exports, accounting for 34 per cent of the total. The UK's legal and

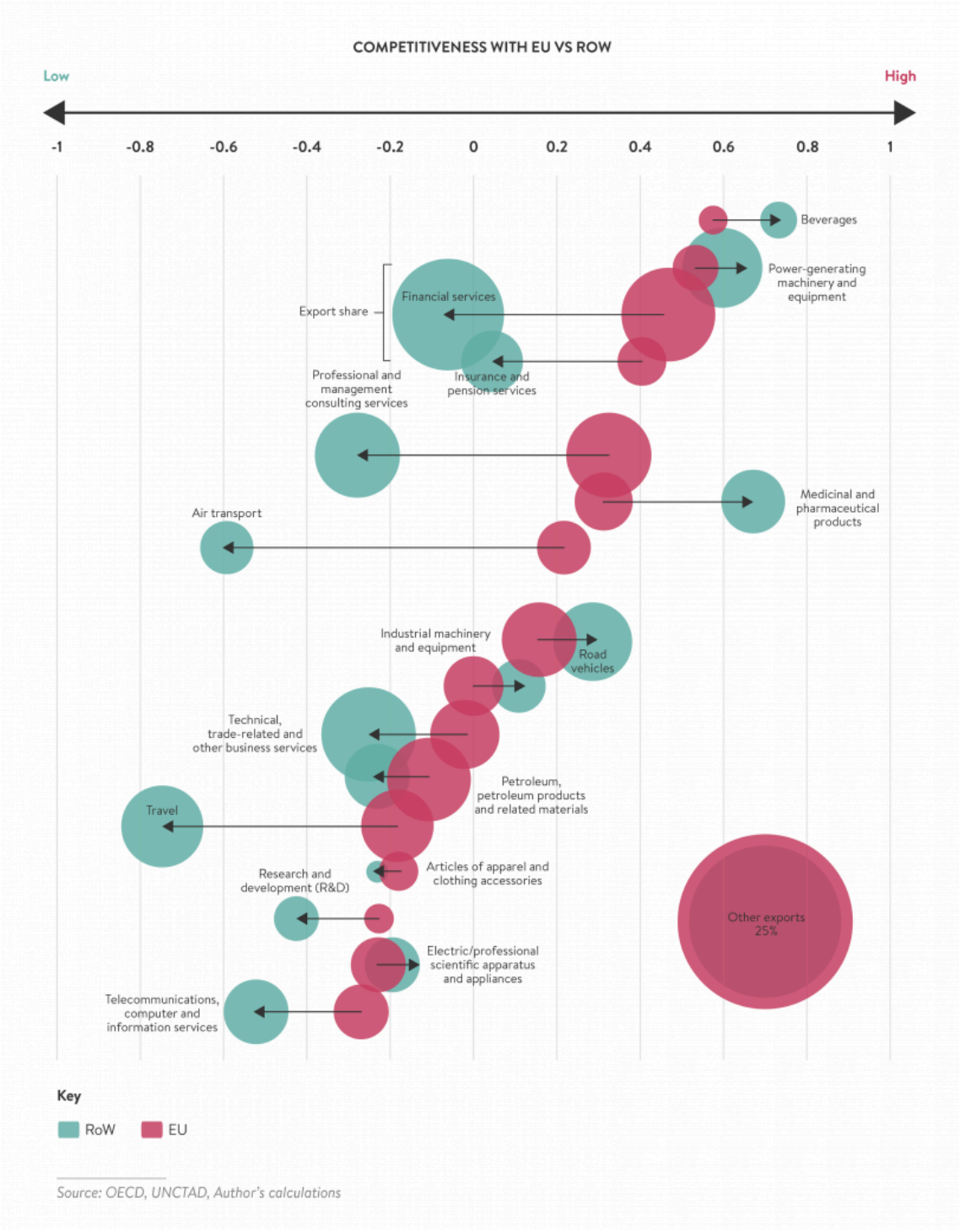
insurance sectors are also the biggest in Europe. [16] Brexit and the subsequent loss of "passporting" rights that allow firms to sell their services across the EU without additional regulatory clearances also threatens the UK's emerging fintech sector, which is presently tied closely to the European market even though it is claimed by Brexiteers that the most promising future markets are elsewhere.

In essence, one of our most important export sectors has exchanged a regime of easy market access to Europe, where it was dominant, for one of higher and more uncertain barriers to trade.

This creates strong incentives for financial firms presently based in the UK to shift activities to EU countries, in line with previous government estimates that an FTA in services, which has not yet been negotiated, would still represent a 13 per cent increase in trading costs compared with the passporting rights the City previously enjoyed. [17]

The OECD therefore estimates that increased trade barriers arising from Brexit will depress long-term productivity by 3 per cent to 5 per cent in most service sectors. The impact varies, with transport and storage, professional scientific and technical activities, and finance and insurance most affected. [18] Regardless, Brexit represents a further hit to the already weak rate of productivity growth in our largest economic sector.

Figure 2 – Sectoral competitiveness with the EU vs the rest of the world (RoW)



How well positioned are key economic sectors for a shift in focus to global trade? Figure 2 shows differences in the competitiveness of the UK's main economic sectors when trading with the EU compared with the rest of the world. It presents an analysis of "Revealed Comparative Advantage", based

on the principle that a country's industrial strengths can be revealed by identifying what it exports relatively more of – albeit at a given moment in time and given that specific industrial structure. [19]

The figure shows that several key service industries, including finance, are less competitive with the rest of the world compared to the EU. The increasing cost of operating in the EU following Brexit means UK financial companies will be forced to refocus on non-EU markets and so will compete more with other leading financial centres for global business where they are less competitive. These industries account for a sizeable share of exports (as indicated by the size of their bubbles in the chart).

As well as finance, the consulting and legal services sectors are also less competitive in non-EU markets. They will face the additional disadvantage of the absence of any framework for mutual recognition of professional qualifications, which will make it harder for licensed professionals such as lawyers to serve their clients on the continent. [20] These sectors may ultimately be even more exposed to Brexit than financial services as they also sell intensively to domestic UK manufacturers exporting to the EU.

Rebuilding competitiveness in global services markets depends critically on swift progress in reaching comprehensive trade deals with non-EU countries. Yet trade in services is notoriously one of the hardest sectors of all to liberalise, so this will be an uphill struggle. [21] Growing geopolitical tensions with China may also stunt the ambitions of Brexiteers to corner a larger share of the Chinese market for financial and professional services.

The UK's **manufacturing and goods** sectors are highly dependent on the European market. Overall, around 50 per cent of total goods exports (of which manufactures account for approximately 80 per cent) go to the EU, with the US coming in a distant second at around 15 per cent. [22] Moreover, the reliance of other sectors on manufacturing for products and services means that any disruption to trading patterns automatically has a sizeable negative impact on the wider UK economy. [23]

As Figure 2 shows above, the UK punches above its weight in global markets in several key goods sectors. These sectors include industrial equipment, power-generation machinery and scientific equipment. This might appear to chime with Brexiteer arguments that the UK can easily refocus EU trade onto other export markets in the US and fast-growing Asia. However, this notion ignores the deadening effects of distance on trading relationships which accounts for the fact that, despite globalisation, trade flows within regions are much greater than between them. [24] For example, the UK currently trades more with Ireland than it does with China. PwC estimates that doubling the distance to an export market reduces the value of goods exports by 44 per cent [25] and by 41 per cent for services, all else equal. [26]

A related and extremely important issue for manufacturers is the close integration of many UK firms into European supply chains. While the Brexit deal rules out tariffs or quotas on manufactured goods, the extra border friction arising from leaving the SEM inevitably increases logistical and cost burdens, which is a major headache for firms practising inventory-light, "just-in-time" production. [27]

These issues – distance and supply-chain friction – pose a particular problem for parts of the motor vehicle sector (employing 186,000 people directly and 864,000 indirectly). Once an embarrassing emblem of the UK's industrial dysfunction, car production for both domestic and export markets is now a major economic strength.

The picture is complex as car production is highly segmented in this country. While the mass-production sector of the industry is closely integrated with the EU, the UK also possesses a number of luxury producers that are highly competitive in global markets.

Most vulnerable are the high-volume, low-margin brands. These are especially reliant on components imported from EU suppliers as well as physical proximity to European markets for finished cars. Even if new domestic or international supplier networks could be built up to compensate for European supply-chain disruption, these manufacturers are not in a good position to refocus on global markets because greater transport costs would comprise an uneconomically high proportion of the sales value.

Prospects for the luxury segment of the market, in which UK firms such as Rolls-Royce, Bentley and Aston Martin are well represented, would be less impacted by decoupling from EU markets. These enjoy much higher profit margins, are less reliant on EU supplier networks, and already enjoy export success in US and Asian markets. But this is the rarefied, high-value but low-volume, end of the market that employs relatively few people (Aston Martin, for example, has 2,800 workers). Export growth here is unlikely to compensate for the long-term damage Brexit seems set to inflict on mass vehicle manufacturing in the UK.

A critical issue for the future of UK mass car production is the transition to lower-carbon vehicles and the development of battery technology to power electric vehicles as conventional engines are phased out. Rules of origin (RoO) requirements mean that UK carmakers must prove that at least 40 per cent (rising to 55 per cent by 2027) of the value of parts of finished cars shipped to the EU are produced in the UK or EU in order to qualify for lower or zero customs tariffs. Because it is advanced technology, batteries for electric vehicles typically comprise 50 per cent of the value of the car.

The new RoO requirements will therefore shape the cost-benefit analysis for carmakers with plants in the UK: If they are unable to source batteries in the UK, they will move production elsewhere. But the industry is currently lagging in developing supply chains for battery production, a factor which will weigh heavily in the minds of manufacturers contemplating future investment. While there are numerous battery-plant projects on the continent, there is currently only one concrete plan for a so-called battery gigafactory in the UK.

Because of the enormous sunk costs, manufacturers are unlikely to withdraw from the UK market any time soon. Rather, the impact may be felt through future investment being diverted elsewhere, leaving the industry to wither. It would be an unfortunate legacy of Brexit if, as a result, the UK ends up being

home to the last factory left building cars powered by the environmentally damaging and soon-to-be obsolete internal combustion engine. [28]

Transport costs and supply-chain issues are not as important for less bulky goods like pharmaceuticals, which are also competitive with the rest of the world compared with the EU. Indeed pharma, as well as the life sciences sector, is touted by Brexiteers as having important global export prospects because of increasing demand for therapeutics from the rising middle classes of India and China. The Covid-19 vaccine developed by Oxford University/AstraZeneca is a totemic success story that points the way towards further export opportunities.

This may be the case, and these sectors represent achievements on which to build, although there is likely to be some accompanying damage to these sectors from exclusion from European R&D networks and loss of access to Horizon 2020 funding.

The Regional Impact of Brexit

Brexit may also have divisive regional impacts which could exacerbate the structural imbalances described in the previous chapter of this report. Although all parts of the UK are damaged by Brexit, some stand to lose more than others. Government modelling indicates that the North East and North West of England, the West Midlands and Northern Ireland will experience the largest economic hit, as they are more dependent on EU trade and therefore have greater exposure to a change in trade barriers. [29]

London, notwithstanding its heavy concentration of financial services, is one of the areas least affected by Brexit as so many of its businesses already serve markets beyond the EU. London's trade volume with the EU may be greater than any other UK region, but it accounts for a relatively smaller share of its GDP – just 7 per cent, compared with the UK average of just over 10 per cent.

Outside London, many regions are more heavily focused on manufacturing and extractive industries, many of which export to the EU and are closely integrated into European supply chains. Their service sectors serve these businesses and so are not presently well positioned to switch to global markets. [30] Research on previous episodes where the financial services industry has contracted nationally suggests the effect will be to concentrate even more activity on London at the cost of regional financial centres as these lack the benefits of agglomeration enjoyed by the City. [31]

In other words, while London has globalised over the last few decades, most other regions of the UK have "Europeanised". This dislocation is likely to turn Brexit into an increasingly regional as well as national problem. [32]

The Regional and Sectoral Impacts of Covid-19

While Brexit will particularly damage our export-earning sectors, Covid-19 will hit domestic social consumption sectors, such as retail, hospitality and entertainment, hardest. It is also set to have profound effects on the future of work, our relationships with our communities and the social contract between governments, business and people.

The pandemic, which has claimed more than 120,000 lives in the UK, represents a massive and simultaneous supply and demand shock. The disease itself, as well as the measures taken to contain it, have produced the worst drop in output in history. The full extent of the economic impact over the long term is yet to be revealed. The OECD warns that productivity and investment are likely to have been harmed, with some permanent damage to the skills base. [33]

Some parts of the economy will have been damaged much more than others, and it is important to understand the local and sectoral effects of Covid-19. Because the pandemic is ongoing, analysing this in detail requires making assumptions about its impact on human behaviour. At least in the short term, the previously mentioned social sectors, as well as transport and construction, are being hit hard by recession and the impact of lockdowns, as well as lingering caution over health risks.

London will likely face the greatest proportional underperformance, followed by the East of England, as these regions rely most heavily on these highly exposed sectors, while Wales and Scotland will be least affected. However, underperformance in London will likely impact growth in other parts of the country because of its centrality to the national economy, according to analysis by the Social Market Foundation. [34]

Once the pandemic recedes, though, pent-up demand could see these sectors bounce back strongly over the next few years. This, however, depends on Covid-19 not having engendered permanent changes in consumer attitudes which could cause long-term scarring to these industries. [35] For example, pubs were in long-term decline prior to Covid-19, but restaurants and theatres were not. It is possible that other leisure industries could follow the pub trade on a downward spiral even as the health risks decline.

Covid-19 is also expected to have a particularly long-lasting effect on localities with high concentrations of businesses dependent on commuters. The recession and lockdowns have disproportionately affected the local economies of towns and cities with lots of workers who commute into them. In the longer term, the loss of the commuter economy of travel, restaurants and coffee bars could be severe as the "Covid-19 aristocracy" opts to work more from home.

For example, KPMG estimates that 20 per cent of London's jobs will continue to be done from home after the pandemic, many of which are higher paying than average. [36] On the other hand, breathless

forecasts of the "death of the city" [37] are probably premature. Urban centres function as concentrations of talent and will continue to benefit from agglomeration and network effects unavailable to businesses and workers operating remotely. [38]

Industries will have to respond to shifts in production processes and working arrangements involving more teleworking. Changes in consumer preferences will likely cement the transition towards greater adoption of e-commerce (which was already surging pre-pandemic, with sales rising 18 per cent in 2018 compared with the year before) and the digital delivery of services. [39] These changes are neither automatically good or bad; rather, they are profound transformations that need to be faced.

Pandemic-induced changes to how business is done are therefore likely to boost economic sectors geared towards remote working, such as IT and communications. Unfortunately, as Figure 2 shows, these are some of our least internationally competitive sectors, meaning that foreign firms may be better placed to tap this market, unless domestic industries are able to improve their competitiveness.

The Regional and Sectoral Impacts of Technological Change

Compounding the brutal impact of Covid-19 and Brexit, the technological revolution continues to upend old business models in more profound and widespread ways.

Two facets of the technology revolution are especially relevant for the UK's economic future: its horizontal impact on working and business practices; and a vertical focus on the need to push the economy further up the value chain by developing competitive technology industries that leverage our strengths in basic science research.

A critical issue for the first of these is harnessing future technologies to improve productivity, which has increased at the slowest rate in 250 years in the decade since the financial crisis, stifling growth in real wages. This will inevitably involve some labour-displacing innovation, but in the long term this should raise the rate of economic growth and productivity, and produce a net increase in jobs.

The process is not necessarily smooth, however. Some analysts warn that in previous technological transformations there has been a long enough gap between job destruction and job creation to cause unrest. [40] The transition therefore needs to be managed carefully to avoid this, particularly in view of the labour market disruption already taking place as a result of Covid-19 and Brexit.

A related issue that may also stoke tension is the way expansion of home-working due to Covid-19 has confirmed that most jobs can now be done from almost any location, thanks to rapid advances in ICT. This shift could potentially herald the loss of large numbers of white-collar jobs to lower-wage countries, as happened with most manufacturing. [41] Managing these processes is crucial in ensuring that the

ongoing technology revolution does not exacerbate social fissures among its short-term losers in ways that stoke feelings of disenfranchisement.

Regarding the second facet of the technological revolution – building globally competitive industries – it is clear that many of the fastest-growing economic sectors are in high-technology fields, and this has profound implications for our future wealth and the structure of the economy. Covid-19 has impacted technology industries very differently. Some of the sectors previously most favoured – for example, aerospace – face serious short-term disruption, while others – such as life sciences – are set to prosper. In rethinking our growth model, we need to identify where our strengths in high-technology industries lie, and what can be done to raise their competitiveness.

The potential prizes are significant for those countries which can adapt their economies to new technologies and develop export champions in key areas. For example, the World Economic Forum forecasts that the adoption of technologies based on the Internet of Things could generate up to $25 trillion in value for business and societies annually by 2025. [42]

But there are significant hurdles in translating innovation potential into export achievement. The UK currently spends a lower proportion of GDP on R&D (1.7 per cent) than the EU average of 2.12 per cent. [43] The government wants to increase this to 2.4 per cent by 2027. However, the relationship between R&D spending and innovation activity is not straightforward and so merely increasing funding may not be enough on its own.

For example, the European Commission has previously designated the UK as one of a small group of countries considered to be "innovation leaders" in the EU, with innovation activity and capacity well above the EU average – despite its comparatively low R&D spend. [44] The problem is that the UK's innovation strengths tend to be concentrated in our very strong academic science base (measured by citations).

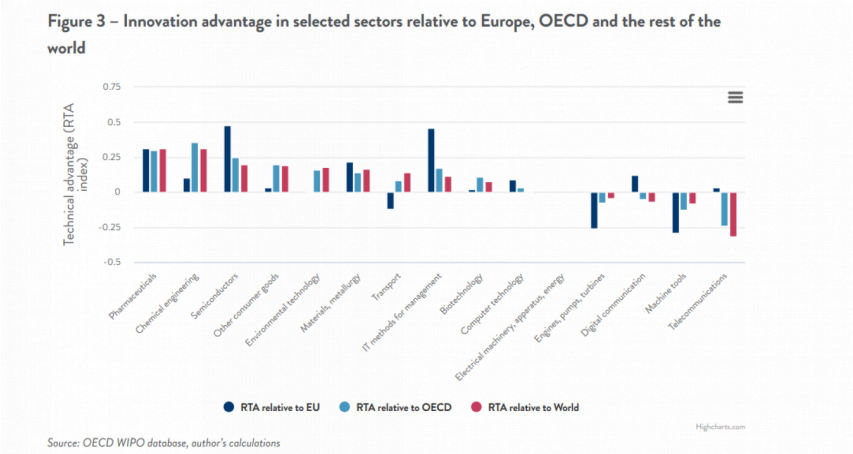
This, however, is accompanied by a comparatively small industrial R&D base (producing relatively few patents) that is concentrated in a few sectors such as aerospace, pharma and computing, and dominated by overseas-owned companies. Further improving linkages between university and industry, and increasing the amount of R&D done by all businesses (but particularly small and medium enterprises) will be needed to improve the rate at which science and innovation is commercialised.

Figure 3 provides a rough indication of relative strengths and weaknesses in R&D by sector, based on patent data, in comparison with the EU, OECD advanced countries generally and the rest of the world. [45] Sectors to the left of the graph are those in which UK firms issue a lot of patents compared with those in other countries. Roughly speaking, a relatively high number of patents is an indicator of greater innovation activity, although it is an imperfect measure as not all innovative firms issue patents.

The table clearly shows some broad strengths in a number of important areas. UK industries like pharmaceuticals and materials perform relatively well on patent activity with both the EU and other regions. In fact, a number of industries – chemical engineering, consumer goods, environmental technology, transport and biotechnology – are in a more advantageous position vis-à-vis the rest of the world and OECD countries.

These are clearly areas where industrial and technology policy should be focused in order to improve export prospects in these sectors, for example through government-funded R&D and rational immigration policies to ensure a supply of skilled workers. This will inevitably be derided as "picking winners". But backing promising sectors, as opposed to individual companies, is entirely legitimate as it allows policymakers to focus on upstream interventions with broad downstream impacts while avoiding "capture" by a few well-connected firms.

Figure 3 – Innovation advantage in selected sectors relative to Europe, OECD and the rest of the world



The technological revolution also has distributional implications that must not be ignored. In terms of levelling up and fostering more extensive and inclusive growth, one critical issue is that high-tech industries have tended to cluster around leading universities, particularly in the "Golden Triangle" of Oxford-Cambridge-London. This is the inevitable result of an innovation system based on commercial application of scientific research done in leading universities. [46] Evidence from the US shows that variations in R&D and wider innovation capacity between regions lead to differences in regional economic performance. [47]

It is therefore essential that high-productivity jobs, and the prosperity associated with them, is shared around the UK more equally.

Building Back a Lot Better

In summary, the UK's economic model, which has generated growth and jobs for the past three decades (albeit not always spread equally across the country and society) is under threat and must change. While economic path dependencies are strong, they are not immutable, and Covid-19 and Brexit together represent an unprecedented combination of severe shocks that will disrupt the platform on which past success was built. Unless we adapt to these, as well as the technological and green revolutions, we risk being left behind.

So, what can be done? The next section sets out some key goals for policymakers and the means for achieving them.

The Future: What Are the Goals We Want to Achieve That Should Guide Policy at This Critical Moment?

Rapid change is being forced on the UK economy, and policymakers must adapt quickly and decisively to the new realities. Brexit will usher in a period of painful adjustment and require the UK to find new sources of growth and competitiveness in global markets. Covid-19 will disrupt high-employment parts of the economy in the short term and hasten changes to the way people and companies work in the longer run. At the same time, new opportunities are opening up to harness technology in raising productivity and developing new industries and competitive strengths.

The policy of the current government is to promote technology-led growth while also laying the foundations for this growth to be more extensive in its impact through investment in infrastructure and a more dirigiste approach to state intervention. However, this strategy is clouded by Covid-19 and overshadowed by Brexit, and is notably incoherent in its approach to balancing competing objectives. [48] Instead, policymakers need a clear set of goals and appropriate strategies for achieving them. There should be three broad priorities:

1. Kickstarting and sustaining a return to growth and prosperity.

Some commentators anticipate a post-Covid-19 "roaring twenties" of rapid economic expansion as the unprecedented monetary and fiscal stimulus engenders a swift, V-shaped recovery. [49] But this is by no means guaranteed, nor will it address underlying structural weaknesses in the economy, such as the low-productivity growth that stifles real wages and the regional imbalances explored earlier. The key task will be to address these weaknesses and rebuild competitiveness lost in some sectors as industries switch to new markets following Brexit.

This means fostering globally successful industries and technologies in important market sectors where the UK has either clear competitive strengths or the potential to develop these. As our analysis has shown, industries such as pharmaceuticals, scientific equipment and power-generation machinery are already well placed to prosper in global markets. Others, such as financial services and consulting, are also vitally important to the UK economy but will need to switch their focus onto global markets.

They should be assisted in achieving this through urgent trade diplomacy tasked with securing FTAs with trading partners in key markets, coupled with regulatory reform to ensure they are able to compete effectively once the barriers come down. Emerging but fast-growing sectors, like fintech and green

finance, should in particular be nurtured in order to leverage embedded technological and economic strengths and exploit the huge new opportunities.

Achieving this hinges on getting the right systems in place for producing and disseminating commercialisable ideas and innovation between researchers and industries, and across industries and regions. It also means putting the right regulatory, competition and state aid policies in place to ensure that markets work properly for the economy and society, but without introducing new rigidities that stifle competition.

Unfortunately, the government's approach to boosting competitiveness seems to be mostly based on deregulating labour and product markets – ignoring the fact that the UK is already one of the most deregulated of the advanced economies – and to focus on diverging as much as possible from the EU in order to try to demonstrate that Brexit was worth it. [50] A better strategy is tailoring regulation to enterprise-friendly policies that encourage exploitation of new technologies, something which could well involve upwards re-harmonisation of UK with international (including EU) standards.

2. Levelling up productivity, incomes and opportunity.

This is essential for social cohesion as well as achieving a more balanced economy. But levelling up should be motivated by a genuine ambition to spread prosperity more evenly across the country, rather than shoring up precarious voting blocs.

The UK's regional and social disparities are deep-seated and will be hard to alter. Solving them requires a shift in government spending and policy priorities. It also requires institutional and local government innovation to raise the productivity of regional economies and enhance the effectiveness with which technical innovation and know-how is spread among firms.

But it is also, arguably, as much about developing and investing in individual, social and community foundations for growth as it is about improving the UK's national infrastructure. [51] An additional goal should therefore be to improve the availability, quality and take-up of vocational training to counter emerging biases in the training system which leave disadvantaged young people and adults in left-behind areas high and dry.

3. Addressing the challenge of reaching net zero emissions by 2050.

Although the financial costs of decarbonising the UK's economy and society are immense, they can be spread over several decades, and the task itself brings great opportunities for economic reinvention. The

Climate Change Committee estimates achieving net zero will cost just under 1 per cent of GDP a year, assuming no further technological cost breakthrough, but would result in substantial wellbeing gains. [52]

However, on current policies, the UK may still struggle to meet its emission-reductions target, even though CO2 emissions per unit of GDP have fallen more rapidly here than elsewhere in the OECD. Most of the reductions so far have reflected lower emissions in the power sector industry and to a lesser extent in waste, with little change in the other sectors. In other words, the lower-hanging fruit has been picked already.

Getting back on track will mean further big changes and it is critically important that the government gets ahead of the curve. Its Ten Point Plan [53], announced in November, is a good start but many commentators agree it is too limited in ambition and lacks medium-term goals for the next decade.

The critical priority is therefore to use the challenge of decarbonising the UK economy to foster long-term strengths in climate-related industries and financial services – so called green finance. There is much to build upon. Improving sustainability plays to our strengths in scientific innovation, and clean innovation is particularly effective at generating productivity gains. The UK has already led the world in the development of wind energy and can build on that experience across all areas of the net zero challenge.

Many net zero projects, such as infrastructure construction and insulation retrofits, are also not very import-intensive and so will require development of UK supply chains. Retrofitting low-emissions boilers could create hundreds of thousands of jobs in all regions of the country. Done right, therefore, net zero policy could achieve decarbonisation as well as transforming our economic potential, provided we can gain a foothold in new low-carbon industries for which there will be enormous global demand over the next 30 years.

The Policy Toolbox

Policymakers have an array of levers they can use in pursuit of these goals. All of these should be deployed in pursuit of the regeneration and renewal of the UK's economic model. There are clear synergies between the policy areas that make formation of a coherent plan informed by an ambitious vision all the more urgent.

For example, industrial policy should be tasked with boosting technology industries of the future, such as life sciences and biotech, and greening industry, as well as tackling the wider productivity agenda. Trade and state aid policies should be conducted in symphony with this, with a view to assisting important industries in gaining footholds in key emerging markets and supply chains. Training policy is essential in

securing enough trained workers to ensure these other policy goals can be met, as well as improving life chances. Below are some of the policy areas that should be focused on:

- **Industrial strategy:** A revamped industrial strategy, which the government has promised, should go beyond the traditional market-failure approach to adopt a set of missions tasked with fostering the growth industries of the future, as well as attending to the long tail of low-productivity firms and sectors that act as a drag on the rest of the economy.
- **Technology policy:** For governments to shape the economy of the future requires long-term commitment to science and innovation as well as ambitious regulatory reform to reshape rules on innovation that act, increasingly, as barriers to growth.
- **Net zero policy:** Tackling climate change can bring long-term economic possibilities and advantages, as well as short-term costs, so it is important that net zero policy is put at the heart of economic and industrial policy.
- **State aid:** Brexit has opened up a Pandora's box of possibilities for intervention in order to foster national champions. The government has already indicated that it plans to intervene in selected areas. If so, a sensible and flexible regime should be put in place to ensure the new opportunities do not lead to a repeat of the overly interventionist mistakes of the past.
- **Trade policy:** Rather than replicating FTAs lost due to exiting the EU, the government should seek to sign trade deals with economies that play to UK strengths in services and ensure inclusion in leading manufacturing supply chains.
- **Skills strategy:** Wide and persistent skills gaps need to be tackled with a comprehensive policy drive to revamp vocational training, centred around reforms to the apprenticeship system that will embed closer employer involvement while also subsidising training where the social returns may be higher than the economic returns.
- **Infrastructure strategy:** The UK has underspent for decades on infrastructure, and the results of this neglect are becoming painfully apparent. But we need an infrastructure strategy that addresses the real needs of communities and the country, not big-ticket vanity projects with uncertain payoffs.

Renewing the UK's economic model will not be easy. This has been tried before and proved elusive and painful. It is often easier to tear down practices and institutions than build new ones. But Brexit and Covid-19 have been forced on us, and we should respond in ways that turn these shocks into opportunities. The enormity of the challenge calls for radicalism and imagination in rethinking how the UK pays its way in the world. The scale and nature of some of the gathering forces that policymakers must contend with, such as technology and the net zero ambition, carry with them the possibility for profound economic reinvention. Politicians must seize the moment to carry out long-term reform to secure prosperity.

Charts created with Highcharts or original TBI creation unless otherwise credited.

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