Manufacturing and Brexit



Foreword

The United Kingdom has left the European Union. Negotiations are underway over a deal to shape the future relationship between the two parties. As things stand, there is no guarantee that such a deal will be agreed. Even if it is, the new relationship will imply significant changes in the way the UK and EU trade with each other.

These impacts will vary significantly by sector and also by region. In this report, we investigate what they might be in the area of manufacturing. As the authors make clear, manufacturing is perhaps more significant to the UK economy as a whole than is generally realised, so the findings are of huge relevance.

I would like to express my thanks to David Bailey and Ivan Rajic who wrote the report. They have responded over and again to requests for edits or clarifications with alacrity and good humour. Jill Rutter commented on several iterations of the text. Aron Cheung worked his usual magic with the data to produce the diagrams. Alison Howson ensured that the text reads as clearly as possible, while thanks to John-Paul Salter, remaining typos and errors were picked up. Last but not least, Navjyot Lehl coordinated the entire process with her usual (generally) good tempered efficiency.

I very much hope that you find what follows interesting and informative.

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Executive Summary

- Manufacturing is a key part of the UK economy. It accounts for around 10% of the total economy and 9% of total employment. It provides almost half of UK exports and 60% of private sector investment and employment in research and development. It also has higher productivity and wages than the average for the economy as a whole.
- The reliance of other sectors on manufacturing for products and services means that any disruption to it would have a sizeable negative impact on the wider UK economy.
- Brexit could cause several disruptions to the sector. UK manufacturing is deeply integrated into the EU single market nearly half of all UK goods imports and exports are with the EU; many UK manufacturers are dependent on frictionless trade with the EU in order to maintain efficient supply chains; and EU manufacturing workers often plug key skills gaps, such as in engineering, in the UK.
- Nearly all manufacturing sectors are concerned about a potential lack of regulatory alignment with the EU and most manufacturers want to see continued free trade. Some sectors, such as automotive, could suffer a severe blow if they face tariffs when exporting to the EU or if there is no agreement on common regulations.
- Some sectors will face fewer disruptions in some areas for example, even in a no-trade deal scenario, aerospace will likely face no tariffs as international trade in the sector is mostly tariff-free.
- In almost all cases, Brexit will create additional financial or other cost burdens for companies: tariffs, customs declarations, certification costs, audits to ensure rules of origin compliance, loss of collaboration opportunities in R&D, border delays, EU customers switching to other suppliers, visa costs for EU workers, and so on.
- Uncertainty about the future UK–EU relationship is making it difficult for manufacturers to prepare for the post-Brexit business environment. Uncertainty has already contributed to falling and delayed investment in sectors.
- The UK government could introduce further measures to cushion the post-Brexit shock to manufacturing, such as loans, wage subsides and taking equity stakes in companies. These are not dissimilar to the measures currently being deployed during the coronavirus lockdown, but would need to be extended.
- To address regional economic disparities and 'level-up', more power could be transferred to UK's regions and devolved institutions. A range of policies on issues such as skills, R&D, financial support for firms and advisory support could be more firmly integrated within an overarching, regionally sensitive industrial policy. This would entail a 'policy reset' moment, with a need to invest much more into an industrial policy, bringing the UK more into line with other advanced economies.
- Specific sectors or regions could be targeted with industrial policies and firms can be helped to take advantage of new technologies that are part of the fourth industrial revolution ('Industry 4.0').

Introduction

The UK is currently in the Brexit transition period that – unless extended – will last until the end of 2020. All EU rules still apply to the UK during this phase and market access remains unchanged. Officially, the UK has stated that it will not ask for an extension to the transition period, preferring to reach an agreement on future UK–EU relations by the end of 2020. If a deal is not reached and the transition is not extended, then the UK will have no formal agreement governing trade and security cooperation with the EU.

With negotiations ongoing, this report highlights some of the key challenges and opportunities that Brexit raises for manufacturers both in the UK and the EU. Of course, the situation of Northern Ireland is unique as it will stay aligned with many EU regulations on goods to allow its manufacturers frictionless access to the Single Market, but at the price of a customs and regulatory border with the rest of the UK. What happens at this border will hinge crucially on the nature of the overall UK–EU trading relation.

This report is divided into five sections. The first section explains the importance of manufacturing for the UK economy as a whole and for certain regions in particular. The second part highlights the close interconnections between the UK and EU manufacturing sectors, and explores why disruptions to those links could be damaging. The third section looks at specific Brexit-related issues that may affect manufacturers. The fourth section assesses the possibilities that could emerge for UK manufacturers after Brexit. The final section gives an overview of what the government could do to mitigate the negative effects of Brexit on manufacturing, as well as to promote British manufacturing long-term in the context of new emerging technologies.

Manufacturing's contribution to the UK economy

The size and importance of manufacturing in the UK

Manufacturing encompasses all economic activities that transform raw materials into either intermediate goods (such as steel bars) or final products (such as cars). Although economies obviously rely on manufacturing for the products that make modern life possible, most developed countries are considered service-based economies, because services account for more employment and output than manufacturing and other economic activities (agriculture, mining, etc.) combined. This is particularly the case for the UK, which is a world leader in sectors such as financial and legal services (see the <u>UK in a Changing Europe report on the effects of Brexit on the UK services sector</u>). Nevertheless, manufacturing is actually more important to the UK than is often assumed.

Although its share in the economy has been declining for decades, Office for National Statistics' figures show that manufacturing still constitutes <u>around 10% of the UK economy</u> and accounts for <u>almost 9% of</u> <u>total employment</u> (approximately 3 million employees). However, these figures may underestimate the real size and importance of UK manufacturing for a number of reasons.

Throughout the 1980s and 1990s, many manufacturing firms stopped doing certain things in-house – consulting, cleaning, maintenance, deliveries, and some research – and started to buy them in as services. These activities were previously counted as part of manufacturing, but once 'outsourced' they were counted as part of the service sector. In other cases, manufacturing firms have added a large number of services to their products (e.g. financing, post-sale maintenance and optimisation of equipment), and may now make more from these services than from selling physical products and have been subsequently reclassified as service firms. Both these developments contribute to the impression that manufacturing has reduced dramatically, while in practice not much has changed.

Moreover, certain services, including those mentioned above, are so deeply integrated with manufacturing that they would not exist without it. <u>Manufacturing is more important than its direct size alone would indicate</u>, given that it creates demand – and thus output and employment – in other sectors as well. This also works in the opposite direction, in that certain services create the demand for manufactured products (the need for transport creates a need for buses or trains), but <u>research suggests that manufacturing creates a greater demand for services than vice versa</u>. Overall, although there is no easy way to identify the 'true' size of manufacturing, estimates suggest that <u>altogether it accounts for 15-22% of the UK economy and between 5 and 7.4 million jobs</u>.

Apart from direct output and employment, manufacturing is also critically important for the research and development (R&D) conducted by businesses in the UK (this is also the case in other countries), <u>accounting for 65% of total R&D spend and 57% of R&D employment in the private sector</u>. R&D leads to technological advances that increase productivity and enables new products to be created. Manufacturing's role is particularly important in this regard as it depends more than other sectors on technology (such as machinery) and there is greater scope to make improvements through R&D than exists in other sectors. This is also a reason why <u>productivity tends to increase faster in manufacturing</u> <u>than in the overall economy</u>, and why, as shown in Figure 1, manufacturing sectors have higher productivity levels than most other sectors of the economy. It also enables <u>manufacturing to pay wages</u> <u>that are 15% higher than the national average</u>.

Figure 1: Manufacturing sectors are typically more productive



Output per hour worked in different sectors, 2016



Source: Office for National Statistics, LPROD01, 2016.

The contribution of manufacturing to exports is also higher than its contribution to the overall economy – around <u>45% of total exports are of manufactured goods</u>. Even for a country like the UK, well known for exporting services, goods have an advantage in that most of them are more easily transportable than services. Indeed, many services simply cannot be sold except where they are 'produced' (a haircut cannot be sold abroad).

Overall, as summarised in Figure 2, manufacturing is of major importance to the UK economy, and shocks to it could have a major impact on UK output, employment, exports, innovation, and wages.

Figure 2: Manufacturing in the UK economy



Manufacturing makes up a tenth of the economy but almost half of exports





Many sectors are directly reliant on the manufacturing sector

When sectors dependent on manufacturing are taken into account, the estimated true size of manufacturing is:

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15 to 22% of the total economy
18 to 27% of employment
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Weekly earnings are 15% higher in the manufacturing sector



Manufacturing is an important contributor to R&D

Manufacturing as a share of private sector research and development...



Source: Office for National Statistics, EMP13: All in employment by industry, 2018; Regional gross value added (balanced) by industry, 2018; Office for National Statistics, BPAN, IKBH, 2018; Office for National Statistics, EARN02: Average weekly earnings by sector, 2018; University of Cambridge Institute for Manufacturing, Inside the black box of manufacturing: Conceptualising and counting manufacturing in the economy, 2019; Office for National Statistics, Business enterprise research and development, 2018.

Regional and sectoral distribution of manufacturing

Although manufacturing is important for the UK economy, not all sectors within manufacturing are of equal significance, and not all regions of the UK are equally reliant on manufacturing. As shown in Figure 3, manufacturing accounts for around 15% of the economy of most UK regions, with the notable exceptions of Scotland, the South West, South East, and, most importantly, London. However, even in these regions, many of the services that make up most of their regional economies are dependent on manufacturing. As an example, the value of goods exported from London is the second highest in the country, at over £40 billion (behind only the South East, which exports almost £45 billion). Yet, London is the region with by far the lowest share of manufacturing in its regional economy and its contribution to total UK manufacturing is on par with the North East and only slightly higher than that of Northern Ireland, both of which are obviously economically far smaller than London. This might mean that firms in London buy goods from other parts of the country and then export them, or that manufacturing firms have substantial employment in London (as the location of their headquarters), so even if the actual manufacturing happens elsewhere, some of the revenues from the exports will be 'assigned' to London

to reflect that those working in London have actually contributed to the exports, albeit indirectly. In either case, manufacturing is clearly indirectly important even for those regions where relatively little physical production takes place.

Manufacturing as a share of the regional

15%

15%

16%

11%

14%

16%

8%

Figure 3: In most regions, manufacturing directly accounts for around 15% of the economy

Regional share in total UK manufacturing, 2018.



Source: Office for National Statistics, Regional gross value added (balanced) by industry: all NUTS level regions.

Just as different regions depend on manufacturing to varying degrees, so not all sectors of manufacturing are equally important for the UK economy. For the purposes of gathering statistical data, UK manufacturing is divided into 44 sub-sectors. As shown in Figure 4, just 7 of those account for almost 50% of total UK manufacturing: fabricated metal products (9%), motor vehicles (8%), computer, electronic and optical products (8%), pharmaceutical products (8%), machinery and equipment (8%), rubber and plastic products (4%), and air and spacecraft and related machinery (4%). They also account for 52% of total manufacturing employment. Similarly, just three manufacturing sectors – pharmaceuticals (17%), automotive (15%), and aerospace (7%), are responsible for almost 40% of total business R&D in the UK.

Figure 4: Only seven sectors account for almost half of UK manufacturing



Breakdown of UK manufacturing by sector, 2018.



Seven largest manufacturing sectors: 49%

Remaining 37 manufacturing sectors: 51%

Source: Office for National Statistics, GDP output approach - low-level aggregates, 2018.

It is when we bring together the regional and sectoral data that we can see the full impact on the UK economy of manufacturing. For example, <u>the automotive sector employs around 170,000 people</u> directly, and <u>adds £16 billion</u> to the UK economy. However, <u>around half of the £16 billion value added</u> <u>arises in the Midlands</u> (predominantly in the West Midlands). <u>In the West Midlands, Jaguar Land</u> <u>Rover (JLR) alone employs over 20,000 people</u>, and <u>the region accounts for around a third of total</u> <u>employment in the automotive industry</u>. Similarly, the South East, London and the East are home to a substantial pharmaceutical industry, while aerospace is important for Portsmouth and the surrounding area, Lincolnshire, the Midlands, and a few other places. Shocks to certain sectors would not only be damaging to the UK economy as a whole, but their effects would be concentrated in certain regions. The UK has had plenty of experience with this in the past. The North of England, Yorkshire and the Humber suffered as a result of the decline of steel and coal mining, the West Midlands has on several occasions suffered <u>large employment losses in the car industry</u>, while Liverpool and Manchester have suffered the long-term consequences of the virtual disappearance of their textile industries.

Manufacturing and the EU

UK manufacturing links with the EU

<u>UK manufacturing is highly dependent on the EU for both its exports and imports</u>. Overall, around 50% of total goods exports (of which manufactures account for approximately 80%) go to the EU, with the US being a distant second at around 15% (see Figure 5). The EU is also the source of around 49% of total UK goods imports, with the US providing a mere 9%.

Figure 5: Half of the UK's goods exports go to the EU



Top 10 export markets for UK goods, based on the share of goods going to each market, 2018.



Source: Office for National Statistics, UK Balance of Payments, The Pink Book: 2019.

However, these quantities vary substantially between sectors. For example, in the auto industry, 55% of total exports go to the EU (see Figure 6), whereas the EU is the source of around 60% of cars imported to the UK. In the chemicals industry, this is even higher (60% for exports, and 75% for imports). Some sectors are also highly dependent on the EU for the imports of raw materials, intermediate goods, and parts.

Figure 6: More than half of UK car exports are to the EU



Top 10 car export markets, based on the share of UK car exports going to each market, 2019.



Source: SMMT.

The headline export and import data, however, do not reflect the fine-grained nature of the connections between UK and EU manufacturing. A number of UK manufacturing sectors, most notably the auto industry, rely on what are called 'just-in-time' (JIT) supply chains. Most auto assemblers in the UK hold very low stocks of parts, often enough for just a few hours of production. This helps lower costs by reducing warehousing, insurance, and related costs, and improves quality as defects can be identified and quickly corrected without large stocks being wasted. However, for this to work, supply chains have to operate with supreme efficiency, and parts have to be delivered 'just-in-time' throughout the day. As an example, <u>350 trucks arrive from the EU every day at Honda's plant in Swindon, bringing in about 2m parts</u>. Components arrive within 5 to 24 hours after ordering. Honda is not unique in this, as lan Henry has noted in <u>a recent book on the UK automotive sector and the impact of Brexit</u>. Cars assembled in the UK contain a high number of parts produced and imported from the EU – up to 60% of the value of a car in some cases. Frictionless trade within the EU has been critical for enabling the UK car industry to develop deeply entwined supply chains that cross EU borders several times.

Much of UK manufacturing is deeply interconnected with the EU through such complex cross-border value chains. These value chains comprise intricate processes of value-adding by firms in different countries, with component goods and services crossing borders multiple times before reaching the final consumer. For example, a typical driveline system produced by GKN, the British-based supplier of automotive driveline technologies and systems, incorporates specialist forged parts from the UK, Spain, Italy, France and Germany. These are assembled at GKN Driveline's UK factory in Birmingham and supplied to automotive assemblers in the UK and EU. The components, assembled drivelines and the final assembled car could cross the English Channel several times. It is a similar story for BMW,

which assembles engines at its Hams Hall engine-assembly plant near Birmingham. Engine blocks come from France and are processed at the plant. They may go to Germany for further work before being assembled. The engine may go into a Mini assembled in Oxford or the Netherlands, or into a BMW assembled in Germany. The final car could be sold anywhere in Europe or globally.

This close integration and the need for minimal trade friction become even more important when we note that <u>most UK car producers operate on very low profit margins</u> (around £450 on a £15,000 car). So, if auto makers face increased costs due to border delays and the accompanying need to hold larger stocks of parts to deal with such disruptions, their UK operations could quite easily become unprofitable. In other sectors, supply chains are not so deeply integrated and are not as dependent on frictionless trade, but there are other aspects of integration that are important, such as common regulation on technical and safety standards, which we consider below.

As well as trade interconnections, UK manufacturing is also reliant on the EU through labour flows. Food and drink manufacturing are particularly dependent on EU labour, with around 30% of the total workforce being EU27 nationals. Almost 40% of that sector's total work force is also classified as 'low paid' (earning less than £20,800 a year), and it relies in particular on cheap labour from the poorer EU member states. In the automotive sector, 7-10% of the total workforce is from the EU, and in some companies this may be as high as 30%. These are not only shop-floor workers, but also include, for example, employees with key engineering skills that are in short supply in the UK, or, as is often the case with car assemblers, staff on transfer from other plants in the EU (such as when plants need additional expertise to gear up to produce new models). So, even if the absolute numbers of EU workers are relatively low, they perform important functions and roles without which the UK car industry would find it more difficult to function.

Sectoral and regional exposure to Brexit

Taking into account both trade and labour dependence, research by <u>KPMG</u> tried to assess the overall exposure of the UK economy to Brexit impacts, as well as how hard individual sectors would be hit. Their conclusion is that the sectors most exposed to trade with the EU are in manufacturing (such as automotive and metals), whereas in terms of labour, most sectors are similarly exposed, with the very significant outliers in food and drinks manufacturing (very high) and insurance (very low).

With regards to Brexit scenarios, KPMG set out three possible outcomes: a 'hard Brexit', in which both trade and labour flows are restricted; a 'free trade' Brexit, in which trade is free, but labour flows are restricted; and a 'free labour' Brexit, in which trade is restricted, but labour continues to flow freely. Leaving aside the third – as free movement will end when the transition period expires at the end of 2020 – both other scenarios place various manufacturing industries in the top half of sectors most likely to suffer negative impacts. These comprise metals, oil and gas, automotive manufacturing, industrial products, pharmaceutical and biotech, food and drink manufacturing and non-food consumer goods manufacturing. As shown in Figure 7, if labour flows alone are restricted, several of the worst hit sectors will be in services (e.g. hotels and restaurants), but if trade and labour are restricted, then manufacturing becomes the hardest hit part of the UK economy.

Figure 7: Manufacturing sectors are the most severely affected in a hard Brexit scenario



Impact of different Brexit scenarios on different economic sectors, based on the KPMG Brexit sector barometers.



Source: Adapted from KPMG Economic Insights, 'Brexit: The impact on sectors', February 2017. Some non-manufacturing is included in manufacturing sectors: the pharmaceuticals and biotech sector includes scientific research and development, the oil and gas sector includes extraction of crude petroleum and gas, and the metals sector includes mining of metal ores.

UK regions are also exposed to different degrees to Brexit, as academic work and earlier government analysis has shown. The Midlands and the North are the most vulnerable to trade disruptions, given that they are the most dependant on the EU for both their exports and imports (not least in manufacturing). They are also amongst the most vulnerable regions to Brexit in all of the EU and the UK. In contrast, London as well as the South East and to an extent Scotland are already trading more globally, so UK–EU trade disruptions will arguably affect them less.

The close connections that UK manufacturing has with the EU are critical to the sector's functioning and in turn to the economies of the UK's poorer regions. Consequently, the potential disruptions that could follow the transition period will likely have negative impacts on UK manufacturing, the wider UK economy and individual UK regions as well.

Possible Brexit Outcomes

Current uncertainty over the impacts of Brexit is considerable, simply because the final outcome of the UK–EU negotiations and the future trading relationship are unknown. However, the UK government is now seeking a loose relationship with the EU, modelled on a traditional free trade agreement (FTA), taking the UK out of the EU's regulatory orbit, rather than seeking, as the May government did, a much closer relationship based on a common rulebook for goods. This means business will inevitably face new impediments to trade with the EU even with an FTA. Before exploring some of the key points for negotiation, we first stress some broader points over the impacts of Brexit on manufacturing.

First, Brexit, and in particular a no-trade deal Brexit, would affect different UK regions and economic sectors to varying degrees, as already discussed.

Second, Brexit will affect the economy in ways that cannot be dealt with as a part of the negotiations themselves, but that UK manufacturers will need to deal with. For example, the referendum result triggered a major depreciation of sterling. This had different consequences for businesses. On the one hand, a weaker pound should be good for exports, assuming that firms cut prices in overseas markets. (However, as <u>work by Meredith Crowley</u> has found, this is not always the case; firms in some cases may choose to maintain prices in overseas markets and take higher profits, so volumes may not go up but profits may rise.) On the other hand, UK manufacturers, such as those in the car industry, import components and other intermediate goods from abroad, and a weaker pound pushes up their costs. Not surprisingly, a <u>Make UK report</u> suggests that some 60% of manufacturers would increase prices post-Brexit. Manufacturers will have to find ways to deal with these differing effects, but the UK government can do little to mitigate them through the Brexit negotiations themselves. (<u>It has been claimed that the Euro is strategically undervalued, harming UK exporters</u>, but it is doubtful that drawing attention to this alleged imbalance would be a viable bargaining chip in UK and EU trade negotiations.)

Third, manufacturers need to prepare for the administrative changes that will take place after Brexit. A 2020 study on the automotive, aerospace and rail sectors in the West Midlands highlighted the varying degrees of preparedness for Brexit. Even among large manufacturers surveyed, only 55% had established the required procedures to deal with VAT when exporting to the EU post-Brexit, as against 46% of smaller manufacturers. Meanwhile the COVID-19 outbreak has disrupted the training of the 50,000 or so customs agents that the UK government has estimated will be necessary to help businesses with new customs formalities after Brexit, and it is not clear that this training can now be done in time.

<u>There are several changes that Brexit might bring to VAT payments for firms</u>. Normally, when a company imports goods it pays the domestic VAT on those goods at the border when the importation takes place. However, when it comes to trade between EU member states, there is a key difference which will have consequences for a company's cash flow.

When a UK firm imports goods from an EU country, for VAT purposes these goods are *not* counted as 'imports', but as 'acquisitions'. VAT is *not* paid at the border when importing, but is deferred to when a company files its VAT returns (normally every 3 months). This usually provides time for a company to use those imported goods in a way that will allow it to charge VAT to someone else, either by selling on the imported goods or by using them in its own production process and selling the resulting products, in both cases charging VAT on its sales. The consequence being that a company will usually not have

to pay out before it has received some money itself. If, however, VAT is paid at the point when goods are imported, the company has to pay before receiving payment itself. Many companies operate with low cash reserves, so this could become a problem for <u>some 100,000 firms that are both above the VAT threshold and have only ever traded with the EU</u>. EU-based firms importing from the UK will face the same problem, unless their governments take measures to counteract it. <u>The UK government has</u> recently <u>both acknowledged and taken steps to mitigate the issue</u>, by allowing for 'postponed accounting' for VAT, which means companies can pay their VAT on imports when doing their normal VAT returns. This will apply to imports from anywhere in the world. Although this may solve this particular problem, other potential challenges remain.

Being outside the EU VAT framework will likely mean other additional costs for both UK and EU firms. For example, UK firms claiming back VAT paid in the EU will no longer be able to use the EU VAT Refund Portal, they might have to wait longer for refunds, and they might also have to engage fiscal representatives in some EU countries. Many will have to complete import-export declarations for the first time. They will no longer be able to use certain EU VAT simplifications. The effect of all of this might be that <u>some EU</u> firms will decide to switch to EU suppliers to avoid the associated extra costs and time of dealing with <u>UK firms</u>. Of course, UK firms may also choose to switch UK suppliers. ('Reshoring' or bringing more supply chains back to the UK, is a something that the government has said it will prioritise, which we will return to.) However, given the difference in size between the EU and UK economies, EU firms will have an easier time in this. UK firms may also offer to offset some of these extra costs for EU firms (e.g. reducing their sales prices to compensate for the higher administrative costs, or cover some costs for their customers, etc.), but this may erode their competitive position vis-à-vis EU firms.

Across manufacturers in auto, aero and rail sectors in the West Midlands, only 36% have explored what effect Brexit will have on their own suppliers. Just 24% had prepared for the administrative requirements related to customs, such as classifying their goods correctly for EU tariffs, with only 16% feeling that they had the skills needed to deal with customs. At the start of 2020, firms were more prepared for Brexit in terms of stockpiling components (89% of firms had done so); yet these stockpiles have been run down in the response to COVID-19; and rebuilding stocks in the run up to the transition deadline will be difficult.

Similarly, <u>Make UK reports</u> a general lack of preparation. Only half of manufacturers had arranged with service providers to deal with import and export declarations for them, and less than one-third had purchased specialist customs software to help them with post-Brexit customs. Moreover, fewer than 3% have mapped out their data flows, which will likely be important for continued compliance with EU data protection laws (discussed below), and only 23% have started working on being able to notify relevant bodies in the EU when they want to sell their products in EU markets post-Brexit.

Overall there are a lot of administrative bases to cover when trading internationally, and while all of this can be done, British manufacturers that are used only to intra-EU trade are not well prepared to do so. Importantly, small and medium enterprises (SMEs) often find it more difficult to deal with this administrative burden, either because of the skills required or the costs involved. Thus, it is not inconceivable that some British (and EU) manufacturing SMEs will simply stop trading with the EU, with a negative impact on sales and output, unless they can <u>reorientate</u> towards domestic and/or other international markets with which they are familiar.

Tariffs

Tariffs are a tax paid on imports. Governments levy tariffs for several reasons: to raise revenue, to help domestic producers by making foreign imported goods more expensive, or to encourage foreign producers to set up production within the country to avoid paying tariffs.

Most countries would, of course, prefer their domestic producers to have tariff-free access to other markets, but these arrangements tend to be reciprocal. The EU is a large free-trade area – no tariffs are charged on any goods moving between EU countries, while the EU itself sets tariffs on goods imported from outside the EU. The UK is currently still part of this free-trade area. UK exporters to the EU face no tariffs, and vice-versa. However, at the end of the transition period, this could change either because no agreement is reached or the deal agreed does not provide for zero tariff and zero quota (restrictions on the quantity of goods that can be imported) trade.

Almost all countries in the world are part of the <u>World Trade Organization</u> (WTO) which regulates international trade. Should the UK leave the EU without a trade deal, its trade with the EU will be governed by WTO rules. When joining the WTO, each country negotiates the maximum tariffs it can set on various types of goods. For most developed countries and for most sectors of the economy, these are fairly low, and in some sectors, they are zero. For example, <u>tariffs are not a concern for the UK</u> <u>aerospace sector</u>, as there is a specific WTO agreement that covers the sector (although administrative procedures related to tariffs, which are present even when tariffs are 0%, are an issue). Similarly, <u>most pharmaceutical products also incur 0% tariffs</u>, due to the Pharmaceutical Tariff Elimination Agreement, a WTO agreement to which many countries, including the UK and EU member states, are signatories. A similar situation exists in the steel sector, where most steel products and raw materials used in the production of steel receive 0% tariffs, at least in trade between developed countries.

However, the tariff charged by the EU on imported cars is 10%. A company exporting cars from the UK to the EU would be disadvantaged by having to pay this tariff. It could lower its prices so that, when the tariff is paid, the final price to consumers remains the same, but given the industry's low profit margins, this extra cost could push companies into the red. Recent work on the <u>UK automotive industry</u> estimates that EU tariffs would add £3bn worth of cost for UK car producers. Combined with other barriers to trade, this could reduce UK output by a total of 1.5m vehicles between 2020 and 2024 compared to what it would be without trade disruptions. Given current production levels, this is approximately a full year's worth of output, and would come on top of the hit to the industry caused by the pandemic lockdown and economic effects.

The potential danger is that car producers may simply decide that producing in the UK is no longer profitable and could shift production to the EU. As shown in Figure 8, most international automotive companies with plants in the UK also have plants in the EU (and Turkey and Serbia, both of which export cars tariff-free into the EU) to which they could potentially move production. Moreover, many of these plants have spare capacity. Such relocations usually happen when new vehicle models are introduced, and the decisions about sites are normally taken at least 2 years in advance of planned production starts. As Figure 8 shows, key companies in the UK automotive sector, that account for the bulk of UK automotive production (Nissan, JLR, PSA), have all planned new models in the next couple of years, and there is a real danger that they will decide to produce them in the EU, not the UK. This would have a knock-on effect on other industries in the UK. For example, the UK steel industry, which, despite

not being subject to tariffs itself, would still suffer because the car industry would contract reducing demand for steel.

Figure 8: Car manufacturers could potentially relocate more production to the EU



Locations of automotive manufacturing plants for companies with plants in both the UK and EU (plus Turkey and Serbia), 2020.

PSA-Fiat*



25 plants, with 2 UK plants in Ellesmere Port and Luton Production of new Astra model (Ellesmere Port)

to start in 2021, new Vivaro van (Luton) in 2026.

*Assuming the EU approves the PSA-Fiat merger.

BMW

(incl. Mini and Rolls Royce)



Renault-Nissan-Mitsubishi





introduced in 2025.



7 plants, with 3 UK plants in Hams Hall, Oxford (Mini) and Goodwood (Rolls Royce) *MINI electric to start production in 2020.*



Ford

6 plants, with 2 UK plants in Bridgend and Dagenham Bridgend plant to close in September 2020.

Jaguar Land Rover



5 plants, with 4 UK plants in Halewood, Wolverhampton, Castle Bromwich, Solihull

Defender model already shifted to Nitra, Slovakia in 2019. All other models (XJ, XF, XE, Range Rover (incl. Sport and Evoque), Discovery (incl. Discovery Sport), F-Type, F-Pace, Velar, i-Pace and e-Pace) are slated for upgrades by 2024.

Toyota



5 plants, with 2 UK plants in Deeside and Burnaston New Corolla model (Burnaston) to start production in 2024.



Norwich (Lotus) and Ansty (London Electric Vehicle Company)



3 plants, with 1 UK plant in Leyland





Swindon Swindon plant to close in July 2021.

Source: Car plant locations - European Automobile Manufacturers Association, https://www.acea.be/statistics/tag/category/ european-production-plants-map; information on models adapted and updated from Bailey, D., & De Propris, L. (2017). Brexit and the UK Automotive Industry. National Institute Economic Review, 242, R51-R59. doi:10.1177/002795011724200114. <u>British manufacturers also export to third countries covered by existing EU trade deals</u>. The EU has trade deals with 82 countries, which reduce tariffs below WTO rules. Once the UK leaves the EU, it will no longer be party to these trade deals unless it manages to negotiate their continuation. By late March 2020, <u>19 deals</u> covering 50 countries or territories have been rolled over, representing around 8% of total UK trade. <u>But some major markets</u>, such as Japan, are missing. The Japanese government has indicated that it wants further concessions from the UK, <u>such as on eliminating tariffs on auto trade</u>, to be enacted much more quickly than the eight years envisaged under the EU–Japan FTA. Resolving such issues will be critical for major exporters like Jaguar Land Rover. In addition, <u>there are a few countries</u>, <u>such as Serbia and Azerbaijan</u>, that are not WTO members but do have trade deals with the EU. While they are not significant trade partners for the UK, they could charge whatever tariffs they want on UK goods exported there because they are not WTO members.

In addition to the effects of tariffs on UK exports, there is also the issue of the effects of possible UK tariffs on UK manufacturers. WTO rules stipulate that a country must charge the same tariff on imports irrespective of their origin. For example, it is not legal to charge a 7% tariff on furniture imported from country A and 15% on the same type of furniture imported from country B – it has to be either 7% or 15% on *all* furniture imports. One of the few exceptions to this is if two (or more) countries have a free trade deal in place, in which case they can charge each other lower tariffs than they charge to third countries. However, such deals must cover the bulk of the trade between the signatory countries and meet a number of other conditions. If the UK and EU fail to negotiate such an agreement, both will have to charge the same external tariffs that they charge to third countries. The EU will default to its existing external tariffs, while the UK will have to decide its own tariffs.

This is an important decision for the UK, as it will have several consequences. First, if UK tariffs are lower than the current EU ones, UK manufacturers will experience additional competition as they will be less protected than they currently are. On the other hand, buyers of imported products – whether firms or consumers – would enjoy lower costs. Second, if the UK starts charging tariffs on imports from the EU, importers will face increased costs, which most say they will pass onto their customers. This can be harmful both for customers and for the importing companies, if this ends up undermining their competitiveness. However, it could potentially protect some domestic producers from EU competitors.

The original UK government suggestion was to charge zero tariffs on around 87% of all imports into the UK. This would have protected the interests of consumers and importers. Not surprisingly, Make UK, the main manufacturers' association in the UK, <u>was critical of this proposal</u>, arguing that such a tariff policy would expose manufacturers to higher levels of competition than they currently face, and pointing to <u>research by the Institute for Fiscal Studies</u> that showed that the benefit to consumers would be low compared to the current external EU tariffs (assuming importers reduce prices due to the lower tariffs, consumer prices would drop by around 1%).

This proposal has now been revised, and <u>the announced UK external tariffs</u> from January 1st 2021 will be 0% on around 60% of products. The regime will be simplified compared to the EU one (e.g., many low tariffs, that arguably had minimal impact, will be eliminated). Some sectors, though, will remain protected (e.g., imported cars will incur a 10% tariff). Make UK is much more positive about this proposal, which it feels better balances the interests of various actors – importers, manufacturers, consumers, and others. The announced tariff regime will also give the UK government more leeway in its negotiation with the EU, as it will now have more tariffs to cut in exchange for EU tariff reductions. However, at the time of writing, it remains to be seen whether a trade deal with the EU will be struck.

There are some UK manufacturers that are supportive of Brexit and unconcerned by tariff-free access to the EU. <u>A prime example is Tate & Lyle</u>, the UK's second biggest sugar producer. Tate & Lyle imports raw cane sugar from third countries, which it processes and sells in the UK. Currently, the company claims that EU tariffs and other restrictions on sugar imports increase its raw material costs by around £40m per year. On the other hand, its main competitor, British Sugar, processes sugar beet grown by UK farmers. Since this is a domestic raw material, there are no tariffs to pay, plus the farmers benefit from various EU agricultural subsidies. Tate & Lyle regard Brexit as an opportunity to cut tariffs (and other restrictions) on sugar imports, which should boost its competitive position.

The position will be different for manufacturers in Northern Ireland, which is covered by the arrangements set out in the special protocol in the withdrawal agreement. Northern Irish exporters will be inside the UK customs territory, but will face no tariffs or border checks on their exports to the EU Single Market via the Irish land border. They will, however, face additional bureaucracy in trading with the rest of Great Britain. The <u>UK government's position</u> has recently shifted in accepting that there will be post-Brexit checks on trade – including on manufactured goods – between Great Britain and Northern Ireland. Only goods ultimately entering the Irish Republic or "at clear and substantial risk of doing so" will face tariffs, though the government has not detailed how this 'risk' will be determined. In contrast, the EU starts from a presumption that there will be tariffs on all goods entering NI from Great Britain, with rebates (refunds of paid tariffs) for those goods that stay in NI and do not progress into the Irish Republic.

At the time of writing this has yet to be resolved. A recent European Commission proposal appears to suggest a system that <u>vets different imports</u> depending on whether the UK charges a lower, higher or similar tariff to the EU. Goods would be considered 'at risk' if the UK tariff is significantly lower than the EU one, creating an incentive for smuggling. Where the tariff levels were similar, further checks would still be needed unless importers could demonstrate that the products were only destined for Northern Ireland, in which case they could seek an exemption, but to prove this, they would need to make monthly data submissions to show that goods were reaching their intended destination.

Rules of origin

Free Trade Agreements (FTAs) normally apply only to products produced within the signatory countries, not those imported from third countries and then re-exported to other signatories of the agreement. However, in today's world and for complex products, components are made in a number of countries before being assembled into final products. Consequently, it is rarely easy to determine 'where' a product has been made. If a car is assembled in the UK, but some of its parts are imported from Germany, France, Italy, and numerous other countries, what 'nationality' is that car?

'Rules of origin' are used to determine whether a product assembled in a country should be counted as a product of that country or as an imported product. If the UK and the EU sign a free trade agreement that allows UK goods to be exported tariff-free to the EU, then to qualify for this UK goods would have to contain a certain percentage of 'local content' (in many trade deals this is 55-60%). The same would likely be the case for EU goods being exported to the UK – a certain level of 'local content' from the EU would be required.

This could create a problem for some sectors of UK manufacturing, particularly the UK car industry. Typically, just 20-25% of the overall value of cars produced in the UK originates from the UK – the rest are imported parts. So, even if the UK and the EU were to sign a free trade agreement, if it is typical of EU free trade agreements, the UK car industry would not benefit, as it would not meet the rules of origin requirements. In theory, this could incentivise UK car manufacturers to source more parts from UK suppliers. However, many imported parts are from specialised producers abroad and cannot be sourced easily from within the UK.

One way to <u>solve this</u> would be to negotiate a 'cumulation agreement', in which EU-imported parts used by a UK producer would count as UK parts for the purposes of rules of origin requirements. The arrangement would be reciprocal with EU firms that import parts from the UK counting them as EU parts, when they are exported as final products to the UK. This would be beneficial for the UK car industry, which already imports a large proportion of components from the EU (up to 60% in some cases). However, it is not only uncertain that such a 'cumulation agreement' will be negotiated, but it would also likely require the UK to make concessions elsewhere: a 'cumulation agreement' would be more beneficial for the UK, because the EU market is so much bigger and because EU firms already source more from the EU itself and would have fewer problems meeting local content requirements. In addition, a cumulation agreement would not be sufficient on its own. Ideally it would be complemented by agreements on the mutual recognition of safety and other standards of the traded parts, so that firms trading parts do not have to bear the additional cost of obtaining safety and other approvals in both the UK and the EU (currently approvals for most products are valid EU-wide). This is discussed further in the section on regulatory alignment.

<u>There is a further issue that UK manufacturers might face after Brexit</u>. The UK, as we have seen, is trying to roll over the more than 80 FTA's the EU has signed with third countries. Even if it manages to do so, these agreements would typically require 55-60% of the value of products made in the UK to originate in the UK. In the car industry, at least, this would not be possible. The UK could try to renegotiate the percentage or to allow parts imported from other countries (particularly EU member states) to count as UK parts, but this would both be difficult, might require the UK to make concessions elsewhere, and, ultimately, could benefit producers in countries other than the UK. It is also unlikely that the EU would reciprocate and renegotiate its free trade agreements to allow UK parts to be counted as EU parts. This might force producers in the EU to shift to buying from non-UK firms, damaging UK manufacturing.

Non-tariff barriers

Another issue facing manufacturers are 'non-tariff barriers' (NTBs). These include the various administrative checks carried out when goods are traded across borders. Food, for example, has to undergo various checks related to health and safety, customs declarations need to be completed (even if no tariff is due), countries may want to check vehicles for smuggling and some products may be checked to ensure they meet technical standards.

Countries deploy a large number of NTBs. It is, for example, important to check the safety of imported food. However, checks create delays that can be costly for producers and the processes involved often entail costs in the form of fees. There are no NTBs between EU countries because any checks on goods that enter the common market are carried out only at the EU's external borders. Goods produced within

the EU all meet the same minimum standards, removing the need for checks. However, this will change for the UK after the transition period is over, and NTBs may become an issue for firms trading between the UK and the EU, particularly via Northern Ireland (more on this below).

Fees relating to customs declarations initially seem insignificant, but they can soon mount up. For example, a customs declaration when importing into the UK costs £35. Large manufacturers, such as the auto-component supplier GKN, have said that this would have a significant impact on them. Ford, at least while its Bridgend plant stays open, will have to submit 115,000 customs declarations per year for its imported components. The costs can also be significant for manufacturers exporting to the EU. Make UK estimates that the number of customs declarations that UK firms need to fill out will increase from 55m to 275m, costing some £15 billion per year. The aerospace sector alone would accrue additional costs of around £1.5 billion per year. The Make UK estimates are similar to those of the HMRC, which also put the cost at around £15 billion. In addition, HMRC estimates that fulfilling 'rules of origin' requirements will increase costs by a further £5.5-6 billion per year. This includes both paying for rules of origin certificates (which cost £30 from chambers of commerce) and, for more complex products, the much higher costs of evidencing that the requirements have been met (supply chain audits, legal advice, agent fees, etc.)

Delays due to NTBs create additional costs for manufacturing firms. Firms relying on JIT supply chains would not be able to guarantee delivery times, so would have to hold higher stocks. Alternatively, they could simply accept that production disruptions will be inevitable due to border delays. Both scenarios would increase costs. For example, <u>Honda estimates that a 15-minute delay at the border would add</u> <u>around £850,000 to their costs per year</u> (as compared to pre-tax profits of £9 million in 2016-2017). Aston Martin are concerned that their vehicles may be held up at the border; delaying payments and possibly creating cash-flow problems. In the pharmaceutical sector, there are products that have to be delivered within 24 hours or they become unusable. Of course, all such issues can be resolved and there is extensive manufacturing trade outside of free trade areas but solutions necessarily imply higher costs than currently exist.

If the UK does not initially impose full customs checks (whether under deal or no deal) in order to keep goods flowing, this may only offer temporary relief for manufacturers struggling with the impact of the COVID-19 crisis. However, challenges will still remain around the training of customs agents, the costs of completing declarations and also preparation for exporting.

There is a question as to whether it might be possible to negotiate some sort of <u>Mutual Recognition</u> <u>Agreement</u>, whereby UK bodies are allowed to certify that UK-manufactured goods meet EU standards. The UK has asked for this, citing the fact that it has been agreed as part of the EU's deal with Canada – but the EU has rejected it. Overall, it is likely that NTBs will become an issue for UK and EU manufacturing firms trading across the UK–EU border. This could make life for British manufacturers much more difficult, as products would have to be certified by EU-based authorities before they could be exported to the continent.

In Northern Ireland, in recent weeks, the UK has conceded that there will be post-Brexit checks on trade – including manufactured goods – between Great Britain and Northern Ireland. How exactly the system will work is not yet clear, and this also includes a lack of clarity on mutual recognition of various standards.

Regulatory alignment

Most products are regulated in one way or another. Sometimes, as in the case of pharmaceuticals or food, the production process itself has to meet certain legal requirements (such as those related to hygiene), and in many other cases the products themselves have to conform to technical, safety and other standards. In cross-border trade, countries need to ensure that products entering their markets conform to these requirements. This conformity is checked at borders. In the case of regulatory alignment, the issue is somewhat different – how countries ensure that products meet these requirements in the first place, before they are traded internationally.

If two countries have identical standards, or if both accept that their standards are equivalent in their effects, then they are in 'regulatory alignment'. Countries can also have agreements on how such standards are checked and enforced, that is, agreements on 'governance'. For example, they could mutually recognise approvals given by the relevant institutions in each country. If there is both regulatory alignment and agreement on mutual recognition, then international trade becomes easier and cheaper, as firms are not required to obtain approvals in two different countries if they want to sell their products in both. In some sectors, such as pharmaceuticals, aerospace or automotive, this represents a substantial cost saving, as both fees for various certificates, and the costs and the time required to actually prove that products meet the requirements can be considerable.

Most products manufactured in the EU are regulated at the EU level in terms of the standards that they have to meet. This ensures that anything produced in a particular member state can be sold anywhere in the EU and that any products imported from outside the EU meet the same standards, irrespective of where they first enter the market. With regards to governance, a mix of EU and member state institutions are responsible for ensuring standards are enforced.

There are two key questions for manufacturers when it comes to Brexit and the regulatory framework. First, the UK government has asserted the benefit of being able to diverge on standards (although as of now, there are few details about what divergence they are considering), but how do manufacturers see the pros and cons of regulatory divergence versus continued regulatory alignment? Second, how will checking and enforcement of standards be carried out? The answers to these questions vary by sector.

In the car industry, the EU generally tends to set standards, sometimes adopting those set by UN bodies, but it is authorities in individual member states that check whether cars produced in their countries comply with EU regulations. Once approval is given, cars can then be sold anywhere in the EU. Car producers in the UK can currently apply for approval by the UK Vehicle Certification Agency (VCA). Once this has been received, they can sell their cars anywhere in the EU. Without a post-Brexit agreement on this, UK car producers will have to apply to both the VCA (to sell their cars in the UK) and to the EU member state authorities (for approval to sell within the EU). This would entail both costs and delays. Aston Martin said that the effect would be "semi-catastrophic". With regards to the standards themselves, no company sees any benefit in the UK diverging from the EU. Car companies like Vauxhall will soon have to decide whether to produce their next models in the UK and risk having to make double applications, or move their production to the EU, which is their main market. This decision is even more pressing given that it is not just technical and safety standards where regulatory alignment is important. It also applies to the chemicals used in vehicle components and to end-of-life regulations (such as how easily cars can be recycled).

In aerospace, the issue of regulatory alignment is even more significant. The two main regulatory agencies are the US Federal Aviation Authority (FAA) and the European Aviation Safety Authority (EASA). They are the *de facto* global standard setters, and authorities elsewhere generally replicate their rules. EASA and the FAA also have a mutual agreement on aviation safety, making it easy for producers from the EU and the US to sell into each other's markets. Given the importance of the EU market for airplanes and the acceptance of EU standards across the globe, there has been a pretty much unanimous view in industry that the UK should neither leave EASA nor diverge from its standards. Regulatory divergence would be very damaging, as it would necessitate separate certifications in both the EU and the UK, and – unless the UK were to negotiate separate agreements with aviation safety agencies in other countries - in some third countries as well (including the US, Brazil, Canada and Japan). Formally leaving EASA would also in itself be a bad move according to industry, because the UK is an influential member and has been able to influence the global regulatory landscape through EASA. About a quarter of the safety data that EASA uses originates from the UK. The UK has been at the core of around two thirds of EASA's safety rules, and UK nationals account for around 8% of EASA staff. In addition, the UK has the biggest aerospace sector in the EU, and most of EASA's funding comes from fees and charges to industry, so UK firms, particularly large ones, gain influence through being important customers. Leaving EASA would not stop the UK's influence – particularly as large UK aerospace firms already have (or can open) subsidiaries in the EU and keep interacting with EASA through them – but it would make things more complicated for no apparent competitive or economic gain.

It is therefore a significant concern for the aerospace sector that <u>the UK has announced that it will leave</u> <u>EASA</u>. This is because the UK government has rejected any role for the European Court of Justice (ECJ), which has ultimate jurisdiction over EASA's rulings (although the ECJ has not played any role in EASA's work, and has not yet ruled on an EASA decision since its formation in 2003).

<u>Assuming the UK does leave EASA it has two options</u>. First, for EU firms selling their products in the UK, it could unilaterally recognize EASA's certifications as valid in the UK. It is, however extremely unlikely that the EU would reciporate for UK certifications. Second, the UK and EU could negotiate some sort of cooperation agreement that would mitigate the disruption of leaving EASA. The latter seems the preferred option, although it is not yet clear what the alternative to membership would look like. The industry has said it could take a decade and cost as much as £40m to create a UK safety authority with the expertise of EASA (the <u>UK's current contribution to the European agency is between £1m and £4m annually</u>). In summary, the aerospace industry feels that divergence from European regulations would add cost and complexity to UK manufacturing and threaten exports. Given that, for example, in 2018 the UK exported some £34 billion in aerospace products, this would potentially deal a serious blow to the UK economy.

<u>The UK pharmaceutical sector shares some of these concerns</u>. Pharmaceutical products are regulated by the European Medicines Agency (EMA). Some certifications are only awarded by EMA and others are assigned to individual member state agencies. In the UK, this is the Medical and Healthcare products Regulatory Agency (MHRA). If the UK leaves the EU without a deal on pharmaceutical products, pharmaceutical companies would be required to apply separately to EMA and MHRA to be allowed to sell their products in the EU and the UK. Additionally, any approvals already issued by the MHRA (acting on behalf of the EMA) would no longer be valid in the EU.

This would create significant costs for pharmaceutical companies. Approval for marketing a new

medicine in the UK costs £45,000. Given how much smaller the UK market is than the EU, the extra costs companies would face poses a risk that they will delay putting new medicines on the UK market, prioritising the EU market instead. Moreover, <u>the MHRA does not currently have approval processes in place for those drugs for which only the EMA issues approvals. It would take time to set these up</u>.

Disruptions are likely to happen not just in the approvals of new medicines but in their development as well. As things currently stand, if a company is permitted to undertake clinical trials by the EU, it can do them in any member state. This is particularly important where a large number of patients (sometimes up to 8,000) are needed for trials. Without an agreement (e.g., mutual recognition of clinical trial results) UK companies running clinical trials in the UK would have to obtain separate approval to conduct them in the EU. This would be a lengthy and costly process but could be necessary as there may not be enough patients in the UK for such trials. This is unlikely to be a problem for EU companies, however, given the population of the EU27. An additional loss to the UK could be incurred by the NHS, which is currently estimated to receive £192m of free medicines due to its participation in clinical trials.

The situation is also complicated in <u>the chemicals sector</u>. Since 2007, the main EU regulation for the industry has been the Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (REACH) and the main regulatory body is the European Chemicals Agency (ECHA). Regulation requires that all chemical substances produced in or imported into the EU be registered with ECHA and information on their use and safety provided; without this, they cannot be sold legally. This is termed the 'no data, no market' principle. For imports from outside the EU, the importers are required to provide this information or, alternatively, foreign exporters can open a subsidiary in the EU or appoint so-called 'Only Representatives' within an EU member state to ensure compliance with REACH. ECHA, in consultation with EU institutions and EU member states, then regulates how both EU-produced and imported chemicals can be sold and used. REACH also requires extensive sharing between firms of safety and testing data to avoid unnecessary duplication of costs and testing (particularly testing on animals). In the UK, the Health and Safety Executive (HSE) is the enforcing authority for REACH. British firms currently have nearly 5,000 substances registered under REACH (more than 20% of the EU total).

Under the withdrawal agreement, REACH still fully applies to the UK during the transition period (and it will continue to apply in Northern Ireland thereafter, if no other agreement is reached). However, what happens afterwards depends on the negotiations.

The UK government has said that it will leave REACH and ECHA, although in line with its position on legislative matters and Brexit, it will adopt existing EU legislation directly into UK law when the transition period ends. It passed <u>secondary legislation</u> in March 2019 enabling this specifically for REACH. The UK government's stated intent is that it will keep the same fundamental approach in a future 'UK REACH' regime as the current EU REACH, most importantly the 'no data, no market' principle and the focus on safety. The HSE will become the UK's regulatory authority. The UK government also wants to agree data-sharing arrangements with the EU similar to those that apply to non-EU countries, but so far there have been no further details forthcoming on this from either side. In fact, neither the EU nor the UK have explicitly mentioned REACH in their draft negotiation mandates.

Both the UK and EU chemicals industries are highly concerned about the possibility of a lack of agreement on regulation after the transition period, as presented in <u>a joint position paper</u> by the European Chemicals Industry Council (Cefic) and the UK Chemical Industries Association (CIA), the main chemicals trade bodies in the EU and the UK. Supply chains in the industry are closely integrated, with products often crossing borders several times before being made into final goods. Trade levels are significant – the UK accounts for more than 7% of total EU28 sales and EU sales make up 52% of the UK market. Estimates of the impact of Brexit on the chemicals sector exist from the time of Theresa May's government (although the chemicals sector is combined with other sectors and not treated separately). In a no-deal scenario, the combined UK chemicals, pharmaceuticals, rubber and plastics industry is forecast to suffer a 22% decline. Even with a free-trade agreement the decline is forecast to be 18%, while with an agreement that keeps the UK closely aligned with the EU, including in regulation, the impact was thought to be just -1%. While all such estimates should be treated with caution, they do align with industry expectations. It is important to say that the UK industry seems to be making moves towards preparing for at least some of the potential disruptions that Brexit will cause. Up to mid-August 2019, 52% of UK companies registered with REACH had transferred their registrations to an EU27 entity. A significant number of firms have reported to the CIA that they plan to set up subsidiaries in the EU to make business post-Brexit easier.

Still, we should note here that even if there is regulatory alignment, separate registrations, evaluations, authorisations and restrictions will still have to be completed in the UK and the EU. The <u>industry</u> <u>estimates</u> that this will immediately add over £1 billion of costs to UK and EU chemicals companies; for comparison, the total current cost of using REACH is €10bn. (These estimates are broadly similar to the ones made by <u>the UK Department for Environment, Food & Rural Affairs</u> – Defra – which is working with HSE to establish the successor system.) This is in addition to the fact that, unless there is some agreement on data sharing and mutual recognition of testing, actual testing of chemicals might also have to be duplicated, as it is unlikely to be possible to refer to EU tests when proving safety in the UK and vice versa. The industry seems particularly keen to point out that these costs will bring no additional environmental and safety benefits – they will merely represent additional costs for doing the same administration and potentially the same tests twice in two regulatory jurisdictions.

Furthermore, while the UK is moving ahead with establishing its own regulatory framework and infrastructure (by October 2019 it had invested over £14m in establishing an IT system for a 'UK REACH'), concerns have been raised about the costs of running a UK regulatory system and how quickly it can be set up. ECHA has a budget of €100m a year and also draws on the expertise and resources of member states' regulatory bodies, whereas the HSE currently spends only £2.2m on regulating chemicals, with future estimated running costs rising to £13m. It also took ECHA five years to become fully staffed.

UK companies themselves will have to register with this system and the time frames for this are fairly tight. Producers will have 120 days (importers 180) from the date the transition period ends to register themselves and all the substances they produce or import with HSE, the quantities they produce and so on. Both producers and importers will then have to submit full information to support their registrations within two years from the end of the transition period. The industry is concerned about these time frames, which are short. Additionally, some of the scientific- and test-result data would have to be shared from the EU, and so far there is no detail on future data sharing arrangements. If some tests need to be redone because of this, industry argues that a 2-year time frame is simply not feasible (although the government is open to extending the deadlines if necessary). There are also costs associated with registrations – administrative fees and potentially redoing some tests in the UK.

Some companies will face completely new regulatory requirements and costs. Under the REACH regime,

which will in the first instance be replicated in the UK, importers are required to demonstrate the safety of the chemicals they are importing into the EU. Currently, a UK company importing chemicals from the EU does not have to deal with this. Once the UK leaves the EU, this will no longer be the case, as chemicals coming from the EU will be classified as imports for the purposes of UK REACH.

<u>An additional concern</u> is that leaving REACH will enable UK governments to potentially lower standards (safety, animal welfare in relation to chemicals testing) below EU levels. This might happen in order to reach a trade agreement with the US. Apart from many being concerned about this on animal welfare and safety grounds, a lowering of standards would in itself likely disrupt trade with the EU, as it would become more complicated and costly to deal with a situation where some chemicals meet both UK and EU standards and others do not.

On the broader question of regulatory divergence (regardless of whether it entails the lowering of some standards), the industry is virtually unanimous that there would be no benefits from this. This is not surprising given that incumbent firms have invested heavily to meet current standards, but is similar to industry views in other sectors that have high trade volumes between the UK and the EU and closely integrated supply chains. However, some potential benefits have been noted by Defra. Regulatory decisions within REACH are known to be slow, so there is potential for the UK regime to be more efficient. Moreover, the UK might want to be more rigorous in applying the principle that animal testing only be used as the last resort when no other options are available. However, overall, <u>REACH is not estimated to have a particularly negative impact on the competitiveness of the EU chemicals industry</u> compared to other regulatory regimes – it falls somewhere in the middle in terms of costs to bring a new chemical to market when compared to countries such as the US, Canada, Japan or China. In that sense, although some gains might be made by the UK in this regard, they are unlikely to have a substantial impact on the competitiveness of the UK chemicals industry is not large to begin with.

Geographical Indications

'Geographical indications' (GIs) are another area of regulatory alignment where it is not yet clear how Brexit will play out. GIs govern how producers can protect and use a name or sign that indicates a specific geographical origin for their products. (GIs only relate to agricultural, food and drink products, although extending this protection to other products is under discussion.) Some UK products protected through the GI regulation are Scotch whisky, Welsh lamb and Blue Stilton cheese. In general, only products produced to certain specifications (e.g., using certain production methods or specific ingredients) and in strictly defined regions can use GI protection. For example, only cheeses produced to a certain specification within Leicestershire, Derbyshire and Nottinghamshire can be called 'Blue Stilton'. The level of protection is quite high, and even adding 'like' or 'produced in' to the product name (e.g., 'Blue Stilton-like' cheese or 'wine produced in Bordeaux') is not permitted. This protection is higher than that afforded in international trade by WTO regulations or by other countries' individual regimes. Indeed, there are countries that do not have a GI regime at all, such as Australia.

GI protection can be important for firms, as studies have shown that consumers increasingly wish to know where their products come from and GI-protected products command a price premium over their non-GI counterparts of up to 1.55 times (although for UK producers this is lower, at 1.07 times). For UK producers GI protection is important both for the domestic market (where around 70% of UK GI

products are sold) and for export to the EU (accounting for around 25% of UK GI product sales).

During the transition period, GI regulation continues to apply to the UK, but <u>there are four important</u> <u>questions for when it ends</u>: how will GI protection be continued in the UK after the transition period ends? How will UK GIs be protected in the EU and vice versa? How will UK GIs be protected in countries with which the EU has signed a free trade agreement that includes protections for GIs? And what potential does the UK have to include GIs in any of its own future free trade agreements?

The answer to the first question is fairly straightforward – the EU GI regulation will be transferred into UK law, so initially there should be no changes for UK firms wishing to apply for GI protection of their products. Also, all UK GI products currently registered with the EU scheme will automatically be protected in the new UK regime as well. This has provided important predictability. However, there is less clarity with regards to the other three questions.

There are conflicting interpretations of the withdrawal agreement and about what will happen, if there is no future treaty that covers GIs. The UK government's interpretation is that the withdrawal agreement obliges it to continue protecting all existing EU GIs in the UK after the transition period ends and that UK GIs *should* continue being protected in the EU. (This includes both EU and UK products registered under the EU scheme during the transition period.) However, despite the UK government's commitment to continue the protection of EU GIs in the UK, the EU position is that it may decide to remove the protection of UK GIs in the EU, as the withdrawal agreement does not oblige it to keep them protected. If this were to happen, the UK government will support UK companies in reapplying to the EU scheme. The UK wants to supersede the withdrawal agreement (but has not yet proposed a text), arguing that the withdrawal agreement effectively made the recognition of GIs one-sided. With regards to GIs in the EU's free trade agreements with third countries, unless these agreements are rolled over, the UK will lose the protection of its GIs in the UK.

Finally, when it comes to any potential UK free trade agreements with countries that the EU does not currently have a free trade agreement with, the possibility of including GI protections in them is somewhat limited. This is because the notion of a strong link between a product and its geographical origin is a particularly European phenomenon, and is not afforded equal recognition in most of the rest of the world, particularly in countries that are top targets for UK free trade deals (the US, Australia, New Zealand). It would not be impossible to get such a deal, of course, but, as noted elsewhere, the UK's negotiating clout is lower than that of the EU as a whole. If GIs cannot be included in any future UK free trade agreements, the WTO does provide a basic level of protection, permitting the refusal of trademark applications should they mislead consumers about the geographical origin of a product (in case of wine and spirits, such refusal is obligatory) but the level of protection is much lower than that afforded by the EU GI framework.

Data protection

Apart from sector-specific effects stemming from an end to regulatory alignment, there are also issues that could affect companies across the board. Data protection is perhaps one of the most crucial of these.

The EU's recent General Data Protection Regulation (GDPR) sets strict standards on the handling and safety of personal data (any data that can lead to the identification of a living person, for example, names, payroll details, personal document scans, IP addresses). All organizations in the EU, including manufacturing firms, must comply with GDPR. In addition, there are 13 non-EU countries to which personal data can be sent legally, as the European Commission has deemed their protections adequate.

Currently, during the transition period, UK manufacturers can keep handling personal data as they have been doing thus far, but it is not yet entirely clear what will happen after the transition period ends. On the one hand, there seems to be a certain level of predictability and stability. The UK government has said that <u>it will transfer the entire GDPR regulation into UK law</u>, so there should be no changes for manufacturers in terms of their procedures related to data initially. In addition, <u>12 of the 13 non-EU countries have said that they intend to maintain unrestricted data flows with the UK after the transition period ends</u>. On the other hand, it will be up to the EU to regulate the transfer of personal data from the EU to the UK from January 2021. The EU Commission has stated that it intends to begin an adequacy assessment of UK personal data protection mechanisms as soon as possible, but there is no guarantee about how this will play out, particularly if the UK starts to diverge from GDPR. Critically, standards are higher for 3rd counties on national security data-sharing, so the UK may fall foul of them even though it has implemented GDPR.

Furthermore, data handling can be complex, with different firms and organisations playing different roles; there are data controllers (who determine what personal data will be used for and how) and data processors (who process data on behalf of controllers). The picture becomes more complicated if, for example, a third party gathers the data, a fourth stores it, and so on. There is currently little clarity on how such complex data systems will function after the transition period ends, even if the EU Commission does give a quick positive assessment of the adequacy of UK data protection mechanisms. The bottom line for UK manufacturers is that it may be difficult to transfer data between the UK and the EU.

A particular concern here is the slow progress of British manufacturers in mapping their data flows. An October 2019 <u>Make UK survey</u> showed a mere 3% had done so. This means that nearly all manufacturers do not really know what they need to do to comply with GDPR, if they keep doing business with the EU. Currently, many manufacturers simply hire other companies from the EU (which, for now, still includes companies based in the UK) to handle their data needs, and it is those other companies that deal with data protection. Whether and in what form this will still be possible after Brexit (whether these external companies are based in the UK or EU) is unclear.

State Aid

Most governments provide some sort of support to domestic firms. This can be direct, via money transfers (subsidies), cheap loans, exemptions from certain taxes, financial and other support for R&D, preferential treatment in state procurement and so on. The primary purpose of such aid is to help domestic companies become more competitive against foreign companies.

In the EU, this support is governed by 'state aid rules', which create a level playing field – a set of rules that are the same for all EU countries – to prevent individual EU countries competing with each other by offering aid to their domestic companies. The EU wants to ensure that the UK will abide by these same rules, if it wants full access to EU markets, and is one area where the EU has been insisting on dynamic

alignment (requiring the UK stay in line with the EU regime indefinitely). The EU view is that otherwise, there would be nothing to prevent the UK government giving UK firms an unfair advantage over their EU rivals by offering more support than EU member states are permitted to give their firms. Nor would the UK government want to see EU firms gain a similar unfair advantage over UK firms.

However, while both sides have an interest in rules governing state aid, the UK objects to tying itself to the EU regime and wants to rely on reporting and consultation. The EU has so far rejected this, but it is an area of the negotiations that is still very changeable. After the UK signalled that it could drop the pursuit of a free trade agreement with the EU, if the dynamic alignment requirement were not dropped, <u>Michel Barnier, the EU's chief negotiator, seemed to signal that the EU might be prepared to do so.</u> However, the EU Parliament may veto any deal that does not have the safeguards that they deem <u>necessary to prevent unfair competition</u>, which includes state aid rules. The outcome of all of this is still uncertain.

Another sticking point is enforcement. EU state aid rules are enforced by the EU Commission and the European Court of Justice (ECJ), and as noted the UK government will not agree to the UK being under ECJ jurisdiction. The EU does have trade agreements with other countries (such as Canada) where these other countries do not fall under EU state aid rules and EU legal jurisdiction. However, they do not have the same level of access to the EU market as the UK currently has and this is why the EU wants a tougher regime. EU companies fear unfair competition from the UK and do not want to rely on trade defences, as they do not want lots of disputes.

PM Boris Johnson has made a point of stressing that the UK will be able to <u>develop its own state aid</u> <u>rules</u> after Brexit and will have more scope to support business. This also appeals to the left of the political spectrum in the UK, as current EU state aid rules prevent the kind of state interventions it sees as necessary to revive and transform the UK economy. It should be noted that some feel that the UK has already signed up to some state-aid obligations through the Northern Ireland protocol, although the extent to which they will limit UK options is the subject of dispute between lawyers, who think they will have wide application, and the government, which thinks they will have very limited effect.

In a no-deal scenario, the UK would not be able to do entirely as it pleases, as state aid is regulated by the WTO. <u>However, WTO rules are more lenient than their EU equivalents</u>. Fewer types of aid are forbidden by the WTO, and WTO rules pertain only to goods not services. Furthermore, EU state aid rules require approval of state aid schemes by the European Commission *before* such aid is given, whereas under WTO rules it is only *after* aid has been granted that another state can start a legal case against the perceived offending government. In addition, WTO rules only apply to aid that affects international trade, whereas EU state aid rules apply to domestic competition as well. Moreover, any individual or organisation can lodge a complaint with the EU Commission about state aid, whereas only governments can use WTO mechanisms. Finally, if state aid is found to be illegal, EU state aid rules require that it both be stopped and that the provided aid be recovered, whereas WTO rules merely require the aid to stop or allow it to be offset by countervailing measures by the other side.

All of this would, in principle, enable UK governments to provide more support to UK businesses than is currently possible. It would also be easier without EU state aid rules to, for example, start moving the economy towards different types of ownership, such as cooperative or state-owned enterprises, by offering, cheaper loans or outright subsidies. However, assuming the UK government does not want to make a substantial move away from the UK's current form of capitalism, there is actually significant scope to support UK manufacturers even under current EU state aid rules. First, there are legal exemptions from the rules for certain purposes. These are called 'General Block Exemption Regulations' (GBER) and they relate to support for R&D, promoting small and medium enterprises (SMEs), supporting regions where incomes fall below a certain threshold, support for employment and training, for building infrastructure and for environmental protection. In these cases, there are still rules governing the nature and levels of support that can be provided, but governments do not need prior approval from the EU Commission to grant such aid.

Second, even when a state-aid scheme does need to be approved by the European Commission, it is possible to obtain approval, for example, by showing that markets are not delivering the desired outcome. <u>UK governments have been quite successful in securing approval for their state aid schemes</u>.

Third, many governments within the EU find ways to avoid or bend EU state aid rules. For example, a firm may get a partial subsidy to support its R&D efforts with which it can buy equipment. In certain areas of research (e.g., in the glass industry), the same equipment can actually also be used for ordinary production as well. In other cases, ordinary product improvements can be represented as R&D, again making them eligible for aid. It is also possible to apply EU rules creatively, so as to offer targeted support to specific sectors or even companies (which would normally not be allowed). For example, Germany gives support for environmental R&D and, though this is in theory available to all companies in all sectors, it is clearly irrelevant for the bulk of them but of high benefit to certain high-tech companies. This support played an important role in enabling German solar panel and wind turbine producers to overtake their Danish competitors. Across the EU, there are many such programmes that ostensibly target neither specific sectors nor firms, but are in reality anything but non-targeted.

Finally, in specific cases (such as saving an entire sector from collapse), the EU Commission does have the power to allow a government to take actions that would otherwise contravene state aid rules. It may even temporarily change or lift some of them, as has been done in response to the COVID-19 pandemic; the Commission <u>created a Temporary Framework for State Aid</u>, which recognises the exceptional circumstances and allows for a broad range of support measures to be undertaken. As an example, most recently, the French government has intervened to support the <u>French auto industry</u> during the COVID-19 crisis, including proposed loan guarantees for Renault, in ways that would appear to satisfy state aid rules. There are calls for the UK <u>government to intervene in the same way</u> to support auto and manufacturing.

Overall, through both 'tricks' and simply being more willing to use opportunities that are within the rules, most <u>other EU governments spent more on state aid than the UK</u> (before the coronavirus pandemic) – the UK spends around 0.38% of GDP, while France spends 0.76%, Germany 1.31%, and Denmark as much as 1.56%. Given this very substantial scope to increase support for UK manufacturers (and other firms) even within the current rules, it is not clear whether staying outside EU legal jurisdiction, and thus outside of EU state aid rules, is worth the reduced access to EU markets that this would entail.

Skills

One of the key themes of the Leave campaign was the need to stop the free movement of people between the UK and the EU. This will create employment problems for many UK manufacturers. In the car industry, for instance, between 7% and 10% of the workforce is from an EU27 country, and the same is true in the pharma sector. In aerospace, the number is lower, at 4%. These numbers are much higher for some companies and clusters – climbing to 30% in some parts of the auto sector.

The two main challenges for manufacturers relate to skills shortages and the short-term mobility of labour. It is well established that the UK has a shortage of engineers, but also, for example, of data analysts. Plugging this gap with EU labour is essential for many manufacturers. With regards to short-term labour mobility, this can be of paramount importance for companies operating in multiple countries. Companies in the auto or aerospace industries regularly need workers to move between their UK and EU operations for short periods of time to help set up the production of a new car model or to solve problems, such as equipment breakdowns. The extent of such movement can be substantial – <u>employees at Airbus do around 80,000 business trips per year between the UK and the EU, and the company has around 1,300 UK employees working in the EU and around 600 EU27 employees working in the UK at any one time. A survey by Make UK showed that 35% of manufacturers need their employees to travel to the EU.</u>

However, there are nuances and many manufacturers are not overly concerned about potential difficulties in post-Brexit immigration. <u>A report from the Chartered Institute of Personnel and Development</u> showed (in 2017) that among manufacturing firms, almost 60% believe that the requirement for an EU national to have a job offer before being issued a work permit will have no effect on their companies, though almost 25% think it will have a negative impact (9% think it will have a positive impact, and the rest do not know).

Currently, it does not seem like the labour needs of UK manufacturers will be part of the Brexit negotiations. Free movement of labour will end with the transition period. The government has noted that it wants to help firms with inter-company transfers and to facilitate business trips. As for the long-term need for foreign skilled labour, this will be regulated by the newly announced post-Brexit immigration system. This should in principle allow UK firms and other organisations to hire the skilled foreign workers they need. However, this will differ by sector. The new rules will lower the salary thresholds for sponsoring work visas from those that apply now to non-EEA migrants, which will benefit some sectors (e.g., the NHS and schools). Some sectors (e.g., finance, business services, and higher education) will also likely benefit, but sectors that do not pay even these lowered salary thresholds (e.g., the food industry and construction), are likely to suffer from the reduced flow of migrants from the EU. It is also not yet clear how efficient and non-bureaucratic the system will be. This is important because there are costs associated with controlled immigration, and although larger manufacturers will be able to cover them, smaller manufacturers may struggle, especially those that have never hired non-EEA migrants before. Furthermore, it does not seem that the new scheme will solve manufacturers' short-term labour mobility needs. If the government is committed to helping companies in this regard, it will likely have to come up with an additional mechanism to do it. A particular concern is that manufacturers do not seem to have understood the problems they will face from post-Brexit mobility restrictions.

Finally, we should note one thing that could, of course, offer a solution to the UK skills shortage post-Brexit, namely that manufacturers could train more skilled workers themselves and that the government could provide additional funding and support for this. However, while welcome, it is a long-term solution. It would take years before new training programmes would started making an impact, which would still leave manufacturers with a problem in the interim.

Research & Development

The EU has several mechanisms for funding R&D, including in manufacturing. The current EU programme is 'Horizon 2020', essentially a pot of money for funding research in different scientific areas that firms and universities can apply to. Although UK manufacturers self-finance most of their R&D, they also draw significant sums from the EU. For example, <u>the UK has secured around 15% of the Horizon 2020 funding for research into transport</u> (automotive, aerospace, rail, etc.), which is second only to Germany, while in <u>pharmaceuticals</u>, the figure stands at 13%. The <u>aerospace sector alone receives around £100m per year</u>.

It is not clear what will happen to this funding once the transition period is over. The UK is discussing participating in the successor programme – Horizon Europe; but as a third country it will not be able to take out more than it contributes. In the short term, the UK government has committed to continue financing any projects that have been approved for EU funding prior to Brexit. But longer term there are specific cases where the loss of EU funding might be more damaging. In pharmaceuticals, venture capital is reliant on EU funds, for example from the European Investment Bank (EIB) and the European Investment Fund, and there is no programme to replace that yet. Similarly, EIB funding is particularly important for UK R&D into lower carbon technologies in the automotive sector.

A more significant problem for UK manufacturers is the risk that the UK will not be able to participate in collaborative projects with EU partners after Brexit. Different research groups in different countries, both in the public and the private sectors, specialise in different research areas, all of which may have to come together to develop new technologies. Losing access to collaboration opportunities is a major concern for sectors such as auto, aerospace and pharmaceuticals, but also for public universities. It is particularly concerning in pharmaceuticals, <u>where the UK is one of the world leaders</u>, relying partly on <u>EU-wide collaboration</u> – the UK currently gets the most funding from, and leads the most projects in, the EU Innovative Medicines Initiative, which is the biggest public–private R&D collaboration in the world.

There are also some sector-specific problems. <u>One of those is in the steel industry</u>, which has access to the EU Research Fund for Coal and Steel (RFCS) in addition to standard EU R&D funding. The RFCS is a unique fund, in that it is exempt from EU state aid rules and can offer higher levels of financing than would otherwise be allowed. The withdrawal agreement stipulates that the UK will retain its share of the RFCS funds, but it is not clear whether the UK government will be able (or willing) to use that money to create a new fund to support the sector that will also be exempt from state aid rules. If this does not happen, the level of research funding available to the UK steel industry will decline.

Uncertainty and investment

There are numerous issues affecting UK manufacturers, which might be taken up in the negotiations between the UK and the EU and where the final outcomes are uncertain. However, this uncertainty itself is also creating problems.

Uncertainty is probably the single biggest barrier to new investment, which can have very damaging long-term effects. For example, in the auto industry, plants normally bid to produce new car models, with production runs of up to 7 years. While an auto maker is unlikely to shift production during this period (given issues of the cost of operating two plants simultaneously for a certain period and in lost production during the changeover), it may not assign the next model to the same plant, potentially leading to closures.

As a knock-on effect, suppliers may not be willing to invest either, and they too may end up closing down. We have already seen investment in the automotive sector drop significantly over the last three years, while Vicky Pryce notes a survey by the Society of Motor Manufacturers and Traders (SMMT) suggesting that 20% of auto firms had already lost business due to Brexit uncertainty. Two plant closures are already planned – Honda's Swindon plant and Ford's engine plant in Bridgend (albeit for a mix of factors, not just due to Brexit uncertainty), leading to 3,500 and 1,700 job losses respectively. Peugeot, part of the PSA group, and owner of Vauxhall since 2017, has said that the future of its Ellesmere Port plant is highly dependent on the final outcome of Brexit. Nissan has backtracked on its decision to build the XTrail model in Sunderland and has also cancelled Infiniti model production at the plant, increasing its vulnerability going forward. It has, however, continued to <u>invest in preparing for production of the new Qashqai</u> model. While the firm has stated recently that it wants the plant to be centre of its future European production, it has made clear that its operations would be <u>'unsustainable'</u> under a no-trade deal Brexit and tariffs. The UK also missed the opportunity thus far to attract a 'gigafactory' for the production of car batteries. Without attracting significant investment in EV production, the survival of mass auto assembly in the UK is considered to be <u>at risk</u>.

In many of the cases outlined above, <u>Brexit uncertainty has played or is still playing a role in deterring</u> investment in the auto sector in future production and capacity. The situation is similar in the pharmaceutical sector, where investment projects typically last for 2-5 years. <u>In aerospace</u>, the effects of investment projects last much longer, often for decades. Aerospace companies have already reported that they have cut back on investment, waiting to know with more certainty what the final outcomes of Brexit will be (with a major concern over post-Brexit regulatory alignment as noted earlier). However, they cannot postpone decisions indefinitely, and may start making location decisions now that will not favour the UK. Of course, firms have been dealing with this uncertainty as best as they can – for example, by increasing their stockpiles of parts to counter any trade disruptions – but this both creates additional costs and is not a long-term solution.

Uncertainty has also already affected foreign direct investment (FDI) by UK firms into EU27 countries. Some UK companies, such as AstraZeneca and GSK, have been investing more than before in the EU27, in part so that they can overcome problems that may materialise depending on the outcomes of the trade negotiations. While there is nothing wrong with such investment *per se*, it is investment that potentially could have remained in the UK under different circumstances. It should also be noted that there has been no corresponding increase in investments by EU companies into the UK. In fact, the Brexit referendum is estimated to have reduced EU27 investment into the UK by 11%, amounting to £3.5 billion.

Post-Brexit opportunities for UK manufacturing

Depending on the outcome of the UK–EU negotiations, the UK may be able to pursue its own trade deals with third countries, set its own technical, safety, and other standards, reduce regulation 'red tape' and decide on its own state aid rules (within the limitations set by the WTO). However, the mere possibility of doing these things does not mean that UK manufacturers will necessarily benefit from them. Overall, there is little evidence to suggest that UK manufacturers will have more opportunities outside the EU than they had before Brexit.

Trade deals with third countries are likely to be of limited benefit for UK manufacturers for several reasons. For many products, such as cars or steel, the UK's biggest export market is the EU27, to which the UK will have reduced market access. In other sectors, such as aerospace, much international trade already entails 0% tariffs, so no further gains can be made even with independent trade deals with third countries. It is possible that the UK could independently negotiate some reduction in non-tariff barriers, which would be beneficial. However, as noted the UK may not be in a very strong position in such negotiations; some major economies, such as Japan, are counting on being able to gain further concessions from the UK than they could from the EU.

In addition, in some sectors, such as steel, the UK has zero-tariff access to third countries by virtue of being an EU member benefitting from the EU's free trade agreements. Once the UK leaves the EU, it will lose the benefits of these agreements should the Government not manage to roll them over. There are also very specific situations: tariff-free exports of steel to Turkey (around 8% of total UK steel exports) are based on a special EU–Turkey free trade agreement, which <u>in all likelihood will not be rolled over</u>. As a result, UK steel exports to Turkey will face an average tariff of 15% (and up to 40% for some products) after Brexit.

What all this means is that many manufacturers will almost certainly face at least short-to-medium term disruptions to trade, and it is likely that there will be long-term negative effects as well. It should also be noted that even short-term disruptions can turn into long-term negative impacts, because during the period of disruption, former customers may permanently switch to buying from other companies.

For example, for the steel sector around 75% of its total exports are to the EU. The US is a very distant second trade partner accounting for around 8%. Combined exports to countries with which the EU has free trade agreements are at around 9% of the total (with Turkey accounting for the bulk of this). Until June 2018, 96% of all UK steel exports faced no trade restrictions, by virtue of the UK's EU membership, the EU's free trade agreements with third countries and the fact that, through the WTO, tariffs on most steel products have been reduced to 0% in trade between developed countries. Then, in June 2018, the US introduced a 25% tariff on steel imports from the EU, which may carry over to the UK once the Brexit transition period is over. If the UK leaves the EU without a trade-deal, UK steel producers will also face trade restrictions exporting to the EU. Although it is extremely unlikely that tariffs will be raised, there will still be border checks, customs declarations and so on. In addition, the UK will lose the benefit of the EU's free trade agreements. Putting all this together, the steel sector might end up with 97% of its exports facing some form of trade restrictions after the transition period. Even if this is resolved over the coming years, it may not be possible to undo the damage sustained during that time.

The possibilities for expanding exports to markets that the EU does not have free trade deals with, such as the US or China, are also limited. Negotiating free trade deals with these countries could take years. Japan wants to start new trade deal negotiations instead of rolling over their existing deal with the EU. And in a number of sectors the gains from these potential deals would be fairly low; for example, <u>US tariffs on EU (including British) exports of cars are set at only 2.5%</u> and firms like JLR, Bentley and Rolls Royce already export large number of cars to the US. Although the elimination of even such low tariffs would certainly be welcome, it will hardly provide a boost to UK exports. In this context, we should also note that trade deals may not be as important for exports as other factors. For example, Germany exports 4 to 5 times more in value to China than the UK does, even though it is an EU member, and the EU has no free trade agreement with China. Finally, there is also the question of how world trade will develop after the COVID-19 pandemic ends.

It is also worth noting that there may not be that many products where UK manufacturers can easily expand into new markets by virtue of leaving the EU. The UK does export goods to non-EU countries; more than half of total goods exports are to outside the EU. As an example, luxury and <u>premium cars</u> (such as Bentley, Rolls-Royce, Aston Martin, and JLR models) are already recognised and sold globally, and over the years the companies have expanded the number of markets to which they export. However, these export expansions were not hindered by the UK's EU membership, so there does not seem to be an obvious reason why the UK leaving the EU would provide a further boost to them. Also, although there has already been <u>a non-negligible pro-active reorientation of exports from the EU to non-EU countries</u> by UK SMEs, we do not know if this is a trend that can continue and whether such reorientation is an option for the majority of manufacturing exporters to the EU.

There are also few opportunities with regards to regulatory divergence stemming from the UK's ability to set its own technical, safety, and other standards. The UK may have to sacrifice some of this independence if it wants to strike some trade deals. More importantly, however, as discussed in the section on regulatory alignment, there is almost unanimous consensus among manufacturers that regulatory divergence, particularly in technical standards, would bring no benefits but would cause direct economic damage to them. In theory the UK could set its own technical and safety standards, say in the auto or aviation industry, and try to get other countries to accept them, boosting UK manufacturers in these sectors. In practice, however, there is little or no chance of that happening – while the UK may well be able to influence the global regulatory landscape through the EU, as it has done, for example, in the aviation industry, it is simply not a big enough economy to impose its standards on others in this way.

Despite the above, there are some areas where industry has indicated that regulatory divergence (or at least autonomy in setting regulations) may provide some benefits. In the pharmaceutical sector companies have said that they might benefit if the time it takes to bring new medications to market is reduced or if they were allowed to self-regulate more when it comes to product names, explanations and labelling. In addition, early in the Brexit process, the UK government highlighted the advantages inherent in the UK being able to establish regulations more quickly in new sectors. One potential example for this is driverless cars: the Society of Motor Manufacturers and Traders, the UK's association for the automotive sector, has stressed that the UK is a global leader in creating enabling regulation for commercialising driverless cars, but that its success in introducing such vehicles is highly dependent, among other things, on avoiding a no-deal scenario. We also saw earlier that the automotive sector is highly supportive of the UK maintaining regulatory alignment.

In the pharmaceutical sector, manufacturers have themselves stated that the potential benefits (mentioned above) are small compared to the damage that regulatory divergence would entail. And we should anyway be careful about potential 'benefits' from relaxing regulations. Often there are good reasons why certain regulations are in place – there is no guarantee that, for example, it would be safe to reduce the time to bring new medications to market (even though it would likely be profitable for the companies involved), as has been illustrated by the experience of trying to develop a vaccine for COVID-19 through clinical testing. Similarly, more self-regulation on labelling could potentially benefit consumers, but it might also end up with more misleading labels and explanations that attempt to confuse customers and justify charging higher prices. As an example of how this can play out, in 2015 the British pharmaceutical giant Reckitt Benckiser was ordered by an Australian court to stop selling its Nurofen painkillers that were labelled as being targeted at specific types of pain (back, period, migraine, headache). The labels were deemed to be misleading, as the painkillers were found to be identical to standard Nurofen (but cost almost twice as much). Also, we should note that even if the UK does become the world leader in some regulatory areas, this still does not mean that it will automatically become a manufacturing hub for the products in question. To take the example of driverless cars again, it is not impossible that other countries, and the EU, might end up following the UK regime if it is seen as successful. But while being the world leader in regulation would very likely be advantageous, attracting and developing the production of driverless cars depends much more on a skilled workforce, support for technology development and adoption, schemes to enhance the uptake of driverless cars by consumers, etc. Crucially, according to the industry itself, it also depends on predictability and frictionless trade with the EU.

Finally, there has been some discussion that the UK can make itself more attractive for FDI after it leaves the EU. However, <u>Brexit uncertainty is actually hampering incoming investment</u>. For example, Japanese car producers Toyota and Nissan produce around half of the UK's light vehicle output, with Toyota exporting 53% of its output to the EU and Nissan 90%. What partially attracted them to the UK in the first place was access to EU markets, combined with relatively lax labour rights compared to other EU countries. If the UK loses tariff-free access to the EU, they may well decide to switch their production to the EU, or, <u>as Justin Cox and David Oakley note</u>, even export cars directly from Japan. There are similar examples in other industries. In the pharmaceutical industry, one of the factors attracting investment to the UK is an intellectual property regime aligned with that of the EU. If this is endangered, it would actually make the UK *less* attractive for investment.

The public debates about how Brexit could make the UK more attractive for investment reveal the rather uncomfortable truth that there seem to be relatively few ways in which this could happen. Most of the debates have focused on reducing taxes, environmental and labour standards, setting up special geographical zones or 'freeports' where manufacturers can take more subsidies and the like. It is true that some of these measures would be easier outside the EU (e.g. reducing labour or environmental standards). However, these are the types of measures that primarily benefit investing companies, often to the detriment of workers and wider society, tend to attract simpler investments (e.g., assembly, but no research and design functions) and are usually employed by developing countries that have little else to offer.

Industrial policy after Brexit

Most evidence suggests that Brexit will, overall, have a negative impact on UK manufacturing. How negative it is will depend on the outcomes of the UK–EU negotiations. A no-trade deal implies a loss of preferential access to EU markets and no agreement on tariffs or regulatory alignment in various sectors. Yet, whatever the final outcome, there are actions the UK government could take to mitigate negative effects, as well as long-term measures to promote UK manufacturing.

Industrial policy measures

Cushioning immediate post-Brexit impacts

There are a host of measures that are used by governments to cushion industry from economic shocks (and that have been used in the EU, despite its state aid rules). These have been discussed at some length in a recent report on the effects of Brexit on the automotive, aerospace and rail sectors in the <u>West Midlands</u>. Some measures provide financial support to affected companies, through public loans given at preferential interest rates, temporary wage subsidies (of the sort being used throughout the economy during the COVID-19 crisis), support where governments provide funding to a firm but also take an ownership stake in it, temporary tax reductions, debt write offs, etc.

Other measures can lessen the administrative burden of dealing with cross-border trade. For example, if a company applies for and obtains <u>Authorised Economic Operator</u> approval, it can enjoy simplified customs procedures. The UK government could increase the speed at which such approvals are given (currently, this can take up to 6 months). Tariffs can also be charged away from the border, to reduce border delays.

There are also measures, such as tariff rebates, that may be worth exploring, even though it is not clear whether they are allowable under WTO rules. If a company imports goods (e.g. raw materials) and pays a tariff on them, and then uses those goods to make new products that are then exported, it can get a refund of the tariff that it paid. This could help offset some of the costs that companies will face post-Brexit.

Longer-term industrial policy

More broadly, there are longer-term measures that the UK government could take to help develop the manufacturing base, which might be seen as part of its 'industrial policy'. Some of these measures relate to skills – the government could provide more funding for training and retraining workers. Others relate to infrastructure – increased investment in 5G networks, communication, transport, reclaiming of derelict industrial sites, electric vehicle charging infrastructure, etc. Yet other measures may be used to help innovation. The UK already has some such measures that work well (such as the High Value Manufacturing Catapult network of research centres), but funding for them could be increased. Long-term funding could also be provided via public loans and investment for small firms (this already exists through the British Business Bank, but could be expanded) and bigger loans from a national development bank (the UK is one of the few developed countries that does not have such a bank, although Scotland is in the process of setting up a Scottish National Investment Bank). Finally, there are measures that are

meant to help companies by providing them with relevant information and support – for example help with using new technologies such as 'Industry 4.0', informing them about new market opportunities (particularly in the supply chains of bigger companies), and so on.

Perhaps most importantly, in order to be effective industrial policy measures need to be part of a larger coordinated strategy, with a clear division of roles between central and regional/local governments. It is only in this way that industrial policy can work to full effect. At the moment, the UK has an <u>industrial</u> <u>strategy</u>, but <u>it is underfunded and is</u>, for the most part, focused just on innovation, and lacks strong (and sometimes any) coordination mechanisms between various actors. It also allows only a relatively limited role for sub-national actors and initiatives that focus on specific places (as opposed to specific sectors).

Here it is also important to remember that the UK faces several challenges irrespective of Brexit. First, the need to reduce regional disparities and in that context to restructure regional policies. Second, the need to move to net-zero carbon emissions and environmental sustainability more generally. Finally, of course, the UK will also have to deal with restarting its economy, including manufacturing, after the COVID-19 crisis is over. Industrial policy can play an important role in this regard.

On regional disparities and industrial policy, the UK government is already promoting its 'levelling up' agenda, essentially a drive to help the UK's poorer regions. As it stands, the current industrial strategy's sectoral focus (e.g., pharma, aerospace) and its focus on supporting R&D are such that, on average, richer regions benefit more, as they have more employment and far more R&D in these sectors than the UK's poorer regions. However, industrial policy could be 'done' differently, and could focus some of its measures either directly on poorer regions or on sectors that dominate within these regions, steel, automotive). (Note that this is not in conflict with supporting sectors in the richer regions, as it would require extra funding to do both.) In addition, devolution in England could be strengthened, by providing higher and permanent funding to institutions such as the Local Enterprise Partnerships (LEP) and the Combined Authorities (CA), along with granting them discretionary power to set their own spending priorities. This contrasts with the current situation, in which these institutions mostly have insecure and non-permanent project-based funding and often set their goals according to what money they think they can receive and not according to their regions' needs (the two things can coincide, but there is no guarantee).

It is worth noting here that the UK has experience both with measures to cushion short-term shocks and long-term industrial policy measures. For example, the <u>Rover Task Forces</u> that were set up before and after MG Rover's bankruptcy promoted some of the cushioning measures listed above and also helped to diversify the supply chain, with many positive effects. Together with the later <u>Automotive Council</u>, an advisory body made up of firms and unions in the sector that interacts with the government regularly, they also <u>initiated</u> some longer-term measures centred on upskilling workers or setting technology development goals. Another example is the previous Regional Development Agencies that covered English regions. They had responsibility for economic development, but, unlike the LEPs and CAs, they had much larger and, crucially, long-term and secure funding to pursue their goals. In addition, over the years of their existence (1999-2011) they gained greater discretion over how they could set their priorities and spend their budgets. One of the things this made possible was the establishment of the regionally based Manufacturing Advisory Service (MAS) that provided crucial technical and supply chain advice to manufacturing firms in different regions. It also had a good understanding of the industrial

capabilities that existed in their regions. Institutions such as these could be resurrected and put on a stable financial footing.

Reshaping the UK's industrial strategy and its regional policies becomes even more important in the context of Brexit, the current COVID-19 crisis, and the long-term challenge of ecological sustainability. As discussed, the poorer regions in the UK are likely to experience the negative effects of Brexit on manufacturing more acutely and developing policy mechanisms to support them will become even more crucial. Restarting the economy after the coronavirus lockdown will also certainly present challenges. Having a regional understanding of the different needs, challenges and capabilities of manufacturing firms (the understanding that MASs used to have) will be critical in the recovery. In the context of the pandemic, this would have already proven useful in the drive to have manufacturers retool to produce ventilators (where the High-Value Manufacturing Catapult took a lead) and protective personal equipment.

Finally, with regards to environmental sustainability, to the extent that this depends on manufacturing and technological progress, focusing an industrial strategy on these needs would help meet such goals. We already mentioned that Germany found ways around the EU's state aid rules to support its solar panel and wind turbine industry. It is not inconceivable that some such measures might even be easier for the UK government to take in a post-Brexit scenario (depending on the specific UK–EU agreement, if any, on state aid rules).

Beyond Brexit. Industry 4.0: an opportunity and a challenge for manufacturing – and for industrial policy

Today a range of <u>new technologies</u> are driving a wave of innovation that takes us into a fourth industrial revolution, or 'Industry 4.0'. These technologies include artificial intelligence (AI), automation, 3D printing, sensors and much more, and they are likely to <u>transform</u> how industry – and the wider economy – works, with support for the uptake of Industry 4.0 technologies <u>high on the agenda in the UK</u> and other countries. 'Smart manufacturing' may enable the upgrading and anchoring (securing activities in a place) of manufacturing activities even in advanced and high-cost economies such as the UK's. Enabling manufacturers to access and utilise new technologies will be important, as a number of recent <u>reports</u> have stressed, with a <u>'call to arms' in developing transformational new industrial policies</u> to enable business to properly embrace Industry 4.0.

These policies include those aimed at developing new skills and the need for constant re-skilling and upskilling as Industry 4.0 progresses – this will require a much greater commitment to life-long training as new technologies develop and automation eliminates jobs while creating new ones. Some countries, like Singapore, have already gone a long way in this regard, through its <u>SkillsFuture</u> programme. Significant infrastructure investment is also needed to embrace new technologies (such as 5G). Another policy priority is to enable SMEs to have access to funding and finance so they can embrace digital technologies – as the UK government has started via its '<u>Made Smarter</u>' programme.

Adaptability is also key – policy needs to help recognise and exploit possibilities for firms, industries and regions to reinvent and reposition themselves, as the value-added of manufacturing changes over time. With Industry 4.0, this includes opportunities in offering a service alongside manufacturing in

particular. Policy can, for example, seize re-shoring opportunities as 'relocalisation' opportunities open up – involving policies to rebuild supply chains closer to home.

A crucial point to note is that Industry 4.0 will play out differently across sectors and regions. Because of this, new policies will need to bring together sectors with the emerging technologies, so that what we see as 'traditional' industries can be transformed. A transformative industrial policy is needed to better join up technologies, sectors and places. What this also suggests is that the UK needs a more regional-scale industrial policy beyond Brexit. As noted, the British government's industrial strategy was meant to join up sector policy and place, but so far has largely failed to do so. This needs to be remedied.

It is positive that steps are being taken towards adopting Industry 4.0 developments in the UK. The British government's <u>'Made Smarter' programme</u> being piloted in the North West is aimed at supporting companies in adopting Industry 4.0 technologies, and represents an important first step in beginning to address some of the issues flagged in this report. But, it is just a start and major concerns remain around the lack of scale and uncertainty about the government's commitment. Beyond the pilot, there is only £121m for the whole of UK business to adopt new digital technologies. This is not going to go very far, and will not compensate for the government's scrapping of the Manufacturing Advisory Service a few years ago. It also does not match what other countries are doing – Germany and Sweden have gone much further in embracing Industry 4.0 and in supporting businesses to make the most of the newly emerging opportunities. The UK needs to follow suit. Overall, while Industry 4.0 technologies can indeed offer potentially massive opportunities for manufacturing, manufacturers may well not be able to take advantage of them without more extensive government support for their development and adoption.

Similarly, Industry 4.0 technologies can be a part of the solution to the issues that will likely arise after the transition period ends, but they cannot be the solution itself, particularly if there is no trade deal. Over-optimism was evident at a recent Make UK National Manufacturing Conference, when the political commentator Andrew Neil appeared to <u>suggest that Industry 4.0 could end complicated supply chains</u> by allowing companies to source their parts from the UK easily, or even produce them in-house, among other ways by using 3D printing. This is an unrealistic take on Industry 4.0 and UK manufacturing. 3D printing as a technology is simply not capable of eliminating the need for supply chains. As a technology it is not meant to *replace* other technologies and industrial processes, but rather to *complement* them. Additionally, from the perspective of technology adoption, Industry 4.0 uptake is challenging even in normal circumstances, let alone in a highly disruptive period and with limited government industrial policy. It is worth reiterating that many other countries are already significantly ahead of the UK in Industry 4.0 adoption and that UK manufacturers are often playing catch up.

Simply put, 'reshoring' UK manufacturing (bringing back more supply chains into the UK) faces <u>many</u> <u>barriers</u>. These include access to finance, wage and energy costs, availability of land, etc. Industry 4.0 is not a magic bullet that will make these issues go away, particularly when attracting FDI in such technologies has been affected by Brexit uncertainty. Reshoring would require a much more supportive industrial policy than is currently on offer. Indeed whatever the form of Brexit, it seems that a better funded and more active industrial policy will be needed to boost competitiveness in the UK manufacturing.

Conclusion

This report has presented an overview of the various issues that Brexit raises for UK manufacturing. Manufacturing is a crucial part of the UK economy. Many of its sectors are tightly integrated with those of the EU, and potential disruptions caused by Brexit could result in a sizeable impact on UK economic prosperity.

The report covered ten areas where Brexit will make itself felt for manufacturers: tariffs, rules of origin, non-tariff barriers, regulatory alignment, geographical indications, data protection, state aid, skills, research and development and general business uncertainty. We have surveyed a wide range of research and evidence on the potential effects of Brexit on UK manufacturing – from academics, testimonies by industry leaders, and parliamentary and other reports – and the overall conclusion that is that on balance these will be substantially negative.

It is true that some industry leaders and companies – such as, James Dyson, JCB's chairman Lord Bamford, Tate & Lyle – have argued that Brexit will bring benefits, but these seem to be the exceptions when compared to the much larger number of firms and individuals in the manufacturing sector concerned about the effects of Brexit. Perhaps more important than the number of people arguing for different positions are the types of arguments presented. Specifically, pro-Brexit arguments that offer very concrete benefits that Brexit can bring – such as Tate & Lyle hoping for tariff reductions on sugar imports – are the exception even among Brexit-supporting manufacturers; most other arguments are much more vague about the benefits. This contrasts with the very concrete concerns of the other side about the risks that Brexit can bring to UK manufacturing. Of course, to an extent, this discrepancy is to be expected – pro-Brexit arguments are talking about the future, which is always at least to an extent uncertain, whereas it is easier to identify the negative effects of disruptions to an existing set-up. Still, the discrepancy is large and a larger number of concrete scenarios and proposals about how to exploit the opportunities of Brexit might have been expected. If more such proposals exist, we have been unable to find them.

How negative the effects will be will depend crucially on the outcomes of the Brexit negotiations. From the evidence we have reviewed, by far the biggest consequences would be felt in a no-trade deal scenario, and the bulk of manufacturers want to see this outcome avoided. It is not that UK manufacturing would be obliterated (although some sectors, such as the mass automotive industry, may well come close to this), but it would likely be badly damaged with permanent consequences; crucially there seems to be little in terms of economic gains to counteract this. The ideal outcome for a majority of manufacturers would be for the UK to remain closely linked with the EU, perhaps first and foremost in terms of regulatory alignment and with an EU–UK free trade agreement.

Going forward, the UK government needs to acknowledge that manufacturing will experience a Brexit shock even in the ideal scenario and could come up with a set of measures to mitigate this. It is positive that some measures have already been announced or are even ready to be implemented when the transition period ends – e.g., postponed accounting for VAT, continuation of R&D funding to replace lost EU funding – but much more substantial measures could be considered. These will need to be greater the further from a free trade agreement the UK and EU end up. These measures are not dissimilar to the ones currently deployed in the coronavirus lockdown, such as loans and wage subsidies, but will need to be extended.

Even after the initial impact of Brexit ends, the UK government could pursue a better funded and more holistic industrial policy to promote British manufacturing than currently is the case. It could target certain sectors strategically and combine a host of policies to support them, covering areas such as skills, technology development and adoption support, advisory services and long-term financing. It would also be useful to rethink the English devolution landscape, and to give more, real power to the regional level to set priorities and engage in discretionary spending. If the central government also wants to help 'level up' the UK's poorer regions, it would need to directly incorporate regional concerns into its industrial policies, by targeting sectors in some of the UK's poorer regions or directing investment there.

The need for a much more ambitious industrial policy has been present for a long time, particularly in light of the fact that most other advanced countries offer more support to their manufacturing sectors than the UK. In the current context, this becomes even more pressing. Germany has just announced an ambitious £130billion post-pandemic recovery plan, which will also aim to address some long-term challenges – €50bn will go towards addressing climate change, including the development of green and digital technologies. The country has also doubled its subsidy for buying electric cars to €6,000. Other countries could follow suit with their own plans. An EU post-pandemic recovery plan, worth €750bn, is also currently being considered, and it appears that it too will contain support for green and digital technologies. If the UK does not enact equally ambitious plans, then on top of the 'double whammy' of Brexit and the coronavirus lockdown, UK manufacturing will also have to contend with an even further increase in the gap between the support that it receives and that its foreign competitors receive. In that sense the government might better recognise the needs of manufacturers in not only dealing with the impact of the coronavirus and Brexit but also the strategic need to embrace Industry 4.0 technologies and sustainability.



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