Making a comeback

How a manufacturing renaissance can level up the country

Will Holloway | James Blagden

LEVELLING UP TASKFORCE

ONWARD

About Onward

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Our goal is to address the needs of the whole country: young as well as old; urban as well as rural; and for all parts of the UK – particularly places that feel neglected or ignored in Westminster. We will achieve this by developing practical policies that work. Our team has worked both at a high level in government and for successful thinktanks. We know how to produce big ideas that resonate with policymakers, the media and the public. We will engage ordinary people across the country and work with them to make our ideas a reality.

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Summary of the argument

Why might policymakers want to focus on and particularly promote the growth of manufacturing? And what would that mean in practice?

There are two sets of reasons.

Raising national productivity

First, productivity growth in manufacturing has been higher than most of the economy. This has been true over long periods of time in the UK, and indeed right across the world.

- In the UK, between 1979 and 2019, output per job grew an average of 0.36% a quarter across the economy as a whole, but 0.64% in manufacturing.[1]
- Out of 26 OECD countries only one (Australia) didn't see faster growth in value added per hour in manufacturing than in the wider economy over the period 1996-2017.
- For example, the UK and Euro area saw GVA per hour worked growing 1.6% and 1.2% a year on average across the whole economy, but 2.3% and 2.6% a year in manufacturing.[2] Between 1988 and 2019 the US saw 2% a year hourly productivity growth overall but 2.5% growth in manufacturing.[3]

The reasons for this are clear. Much of the UK economy consists of people-intensive local services. While there is potential for productivity growth in cafes, pubs, gyms, leisure activities and so on, there are limits to how dynamic such non-traded sectors can be. A café is much like it was 50 years ago. In contrast there are no theoretical upper limits to how atoms can be arranged in new and more productive ways; and physical goods can be exported in a way that haircuts can't, so they can be traded in a more dynamic global market with stronger competition and more transmission of knowledge.

Levelling up

Second, manufacturing has a crucial role to play in the levelling up agenda – providing well-paid and highly skilled jobs in places that are less well off today. As analysis for this report shows:

- Productivity is higher in manufacturing in poorer parts of the UK. In 2018, output per hour for the UK outside London was 20% higher in manufacturing than the economy as a whole. Reflecting this, wages are also higher in manufacturing than the economy as a whole outside London.

- The wage premium is over a pound an hour for the UK as a whole – and has been stable over time. In 2018 median earners in manufacturing earned more than the average: equating to a premium of 7% in Scotland, rising to 22% in the North East, and an average of around 9%.
- This earnings premium appears to apply across qualification levels, suggesting it is not just driven by a greater proportion of employees in manufacturing having higher qualifications.
- The largest manufacturing wage premium is seen for those with intermediate qualifications and those in the low-to-middle part of the earnings distribution. For example, those with A-level equivalent qualifications see a 20% hourly earning premium.
- Though people in manufacturing earn more, paradoxically manufacturing is a larger share of the economy in places that are poorer overall. Places that have deindustrialised tend to be poorer, and the remaining manufacturing jobs are likely to be pushing up average wages in these poorer places.
- While a relatively small share of total employment (9% of hours worked), manufacturing accounts for a larger share of employment and a much larger share of productivity *growth* in poorer regions of the UK – accounting for around 40% of productivity growth between 1997 and 2017 in places like the West Midlands, Wales and the North West.

As the UK economy has deindustrialised and shifted to services, higher productivity jobs have tended to be in professional services, and these new jobs tend to cluster in city centre locations. Across Europe, capital cities have grown faster than the rest of the country.[4]

In the UK, between 2002 and 2018, productivity growth per worker was somewhat slower in non-urban areas. Productivity grew 54% in England's large cities and 49% in the rest of England outside London. It grew 76% in Glasgow and Edinburgh and 62% in the rest of Scotland. In Cardiff and Swansea, it grew 59% compared to 47% in the rest of Wales. And in Belfast it grew 72% compared to 49% in the rest of Northern Ireland.[5]

Manufacturing is space-intensive and more likely to locate economic activity in town and rural settings, which are in disproportionate need of levelling up. It is therefore one high-productivity activity in which the non-urban areas may have a natural advantage, reflected in the fact that manufacturing is a larger share of the economy outside the larger cities.

This may be one reason why the rise and fall in manufacturing as a share of the economy since the second world war has been mirrored by a fall and then rise in interregional differences in productivity: the shift to services has caused the richest region, London, to forge ahead, while deindustrialisation has seen poorer regions fall back.

Manufacturing sees a particularly large wage premium outside our large cities. New ONS data generated for this paper shows that the weekly wage premium is highest in:

- West Cumbria, £201
- York, £184
- Bromley, £183
- Bridgend and Neath Port Talbot, £172
- Cheshire West and Chester, £154

This suggests that manufacturing may have an important part to play in raising productivity growth in lagging places, particularly in non-city centre locations which have not benefited from the turn towards more office-based jobs and the growth of higher education. Outside London we see lower productivity growth in these non-city locations, which also have a larger proportion of their local economy in the manufacturing sector.

The distribution of manufacturing

Although there is significant variation between regions and nations, this analysis shows that the low- and middle-income earners are the main beneficiaries of the manufacturing wage premium.

In terms of the political geography, looking at parliamentary constituencies, seats gained in 2019 by the Conservatives tend to have a higher manufacturing share than either Labour seats or existing Conservative seats. Nationally about eight percent of jobs are in manufacturing, but in the Conservative gains this rises to one in eight (12.2%).[6] After the 2019 General Election, manufacturing jobs are now more likely to be a feature of Conservative-held constituencies than Labour-held constituencies.

While incumbent Conservative seats also had a higher share of manufacturing jobs than Labour seats (almost 16% higher), Conservative gains at the 2019 General Election had an average share of manufacturing employment that was over a third higher (37% higher) than Labour held seats.

Policy options

To ministers' credit, through mechanisms like the High-Value Manufacturing Catapult and the Made Smarter programme, the Government has recognised the importance of manufacturing. However, government support to date has been limited compared to comparable economies with a much broader and ambitious approach.

Most of the UK's competitors have pro-manufacturing policies: the US, "National Plan for Advanced Manufacturing"; Ireland's "Making it In Ireland"; Australia's, "Modern Manufacturing initiative"; Germany's, "High-Tech Industry Strategy 2020"; and equivalents in emerging economies like "Make in India" and "Made in China 2025."

If policy is able to promote manufacturing, particularly advanced manufacturing, this analysis shows that some of the places most in need of levelling would benefit the most.

For these reasons, we argue that Ministers should set out a bold ambition to halt and then reverse the long-term decline in UK-based manufacturing and some recommendations to achieve that goal. A bold target would send a clear signal to the market, while boosting workers' wages and local productivity. The analysis shows that the Government would reap political rewards as well - given the realigned representation of constituencies where manufacturing is located. Targeting manufacturing would benefit left-behind areas.

There's no single silver bullet to level up the country. It is a systemic challenge. There is a common thread, but it affects communities differently. This analysis shows that targeting manufacturing can significantly boost what is continuously identified as the biggest domestic policy priority - *levelling up*.

Summary of recommendations

Problem	Solution
The UK has deindustrialised faster and further than other advanced economies, which impacted communities across the country. Deindustrialisation played a contributing factor in exacerbating regional disparities in the long-term, in some ways helping to create left-behind places.	The Government should set out a bold ambition to increase manufacturing as a share of the economy, within a National Manufacturing Plan to reverse the decline of manufacturing. This Plan should: 1. Recognise the importance of key sectors and disproportionately beneficial to the UK economy. Ministers should incentivise manufacturing in critical industries. 2. Reduce the operating costs of manufacturing compared to other sectors, and to signal to the market that the UK will remain a competitive place to make products in the long term. 3. Broaden access to finance for manufacturing firms, particularly for SMEs, to match the dedicated funding streams and mechanisms for research and innovation and infrastructure. 4. Support the industrial rollout of physical or digital infrastructure, like 5G deployment, to facilitate the growth in advanced manufacturing. 5. Commit long-term funding to support the growth of key anchor institutions that would support the growth of manufacturing.
Investment in manufacturing in the UK lags behind our competitor economies elsewhere in the world, which limits the growth of the sector. Our tax system favours sectors which are light on capital investment over manufacturing.	Maintain the current Super-Deduction capital allowance beyond its current end date of 2023 for plant and machinery The Government should reform content and procurement rules to boost supply chain firms in the UK.

The potential of manufacturing

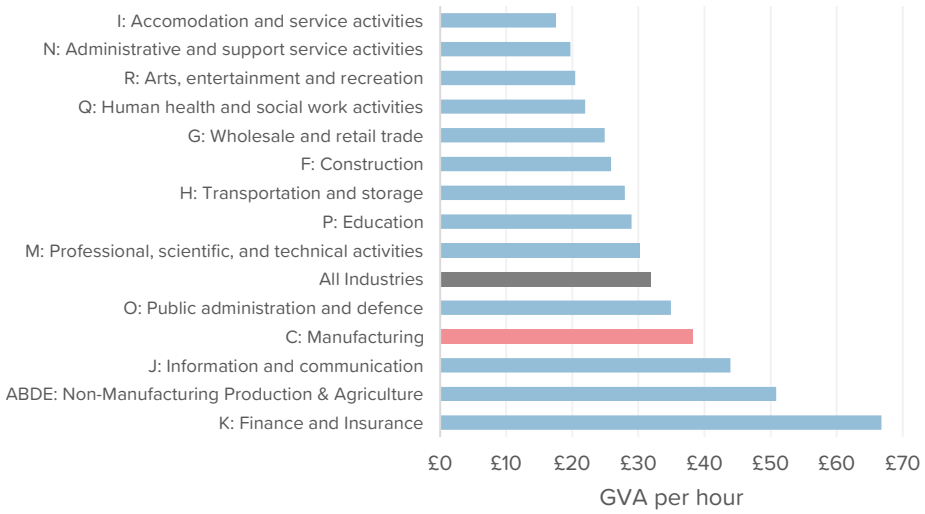
Does manufacturing matter? In a modern, predominantly service-based economy, the importance of manufacturing is often underestimated. This section explores the impacts of manufacturing jobs both on the fundamental drivers of the economy (output, productivity) but also some of the main differences on an individual level (wages, hours worked).

Even though we sometimes think of policies as spatially blind, businesses and the potential to create them vary between regions. Policies to promote manufacturing are often focussed on specific sectors instead. This is not to say that approach is wrong. Investments made, and accelerated, in domestic vaccine manufacturing capacity have paid dividends over the last eighteen months. But where manufacturing plants are located could bring additional benefits, one key element that this section will explore is the place-based impact of manufacturing.

How does manufacturing affect productivity?

Looking at broad industrial groups in 2017, manufacturing is around 20% more productive than average, measured as GVA per hour worked. This is only exceeded by information and communications at 38%, non-manufacturing production (including oil and mining) at 59% and finance and insurance at 109%.

Figure 1: GVA per hour worked, by industry, 2017 (excluding real estate)
Source: ONS



Labour productivity growth has generally been higher in manufacturing over the longer term. Figures are available on a per job basis back to the 1970s or on an hourly basis since the mid-1990s. In the UK, between 1979 and 2019 output per job grew an average of 0.36% a quarter across the economy as a whole, but 0.64% in manufacturing. This outperformance is clearer in earlier years than over the last decade.

On an hourly basis, figures are available from the mid-1990s, and the pattern is similar. Quarterly productivity growth for the UK as a whole averaged 1.2% between 1995 and Q3 2020, while for manufacturing it was 2%. Productivity growth has been slower since the financial crisis than before: productivity growth grew 0.3% for the whole economy since Q1 2008 and 0.6% for manufacturing.

This shows both that manufacturing is more productive than the national average and that growth in this sector tends to outstrip the average growth rate.

Figure 2: Quarterly productivity growth per job, four quarter average
Source: ONS

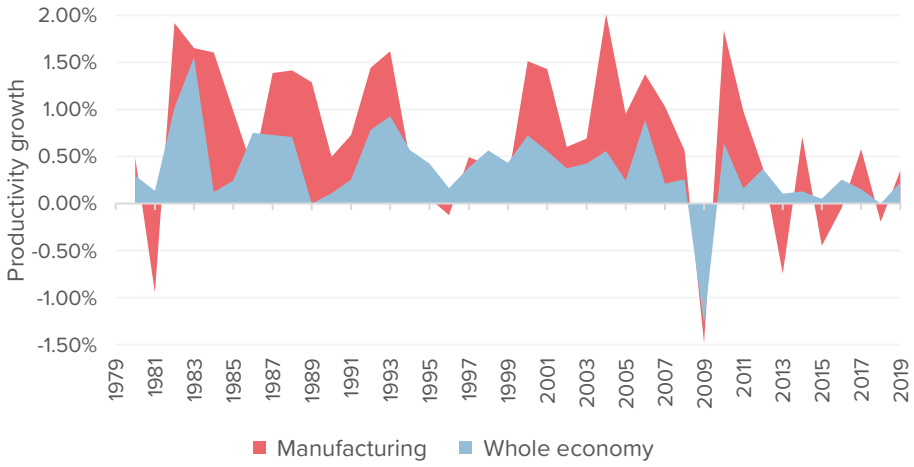
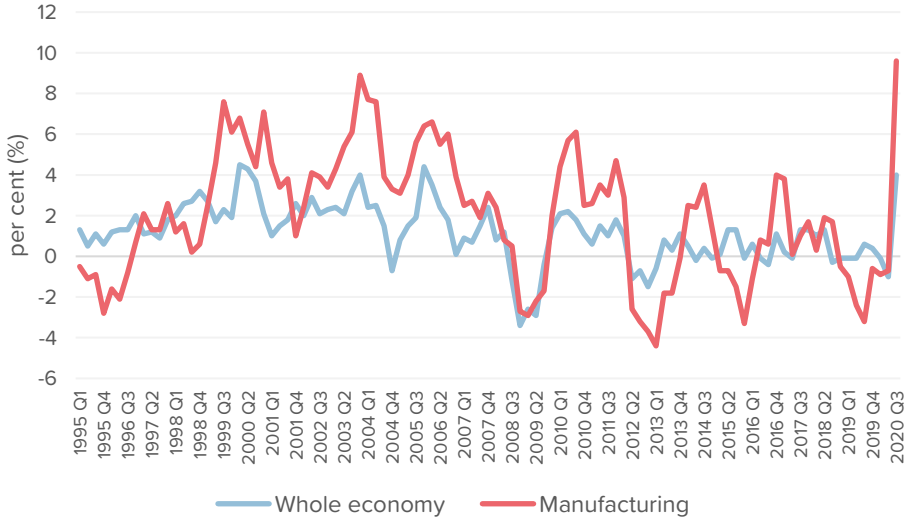


Figure 3: Hourly productivity growth in the UK
Source: ONS



How does manufacturing affect wages?

This higher level of productivity is reflected in higher wages, in all regions except London. In 2018 median hourly wages were 9% or £1.11 higher in manufacturing than the economy as a whole.

The manufacturing earnings premium appears to apply right across qualification levels, suggesting it is not only driven by a greater proportion of employees with higher qualifications.

As highlighted below in Table 1, even though the lowest paid, workers in manufacturing firms without any qualifications receive a premium of 22% higher than workers without qualifications in other sectors. Theoretically this would mean that workers in training are paid higher wages in manufacturing than other comparable workers.

The largest difference to the national average is found among those with intermediate level qualifications (by 42% for workers with higher education level qualifications), echoing the role that many technicians play in manufacturing firms.

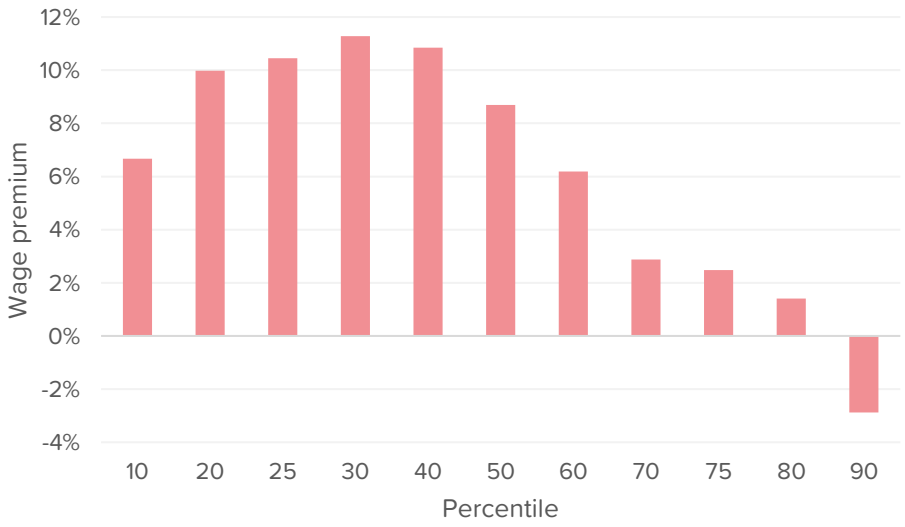
Table 1: Manufacturing pay premium by qualification level, 2018-19[7]
Source: ONS, Annual Population Survey

	All industries		Manufacturing		Difference	
	Weekly pay	Hourly pay	Weekly pay	Hourly pay	Weekly pay	Hourly pay
Degree or equivalent	615	17.26	738	19.23	20%	11%
Higher education	462	13.00	654	15.83	42%	22%
GCE A level or equivalent	394	10.69	538	12.88	37%	20%
GCSE grades A*-C or equivalent	346	9.83	455	11.53	32%	17%
Other qualification	365	9.53	400	9.92	10%	4%
No qualification	300	8.66	365	9.11	22%	5%
All	451	12.16	519	12.89	15%	6%

The premium was substantially higher for people in the low-to-middle part of the earnings distribution. Manufacturing wages were 11% higher at the 30th and 40th percentile, as shown below in Figure 4.

Figure 4: Hourly manufacturing wage premium across the earnings distribution, 2018

Source: ONS, Annual Survey of Hours and Earnings (ASHE)



This shows that manufacturing generates a wage premium for workers across the qualification spectrum, and is particularly clustered amongst low- and middle-income earners. This would suggest that policies targeted at supporting manufacturing in the UK would principally benefit these groups as well.

How could manufacturing productivity support levelling up?

Although manufacturing is a comparatively small share of the economy, at around 10%, there is significant local variation. Manufacturing comprises less than 2% of GVA in central London but over 30% in East Lancashire, Cheshire, Flintshire & Wrexham, and West Cumbria. Looking at figures 5 and 6 below, manufacturing still accounts for a significant share of the local economy but also jobs in some areas in the North, Midlands and Wales.

If we look at value added as a share of the total, city centre locations Manchester, Leeds, Bristol, Swansea, Cardiff and Edinburgh have low shares of manufacturing. There are pockets of more manufacturing-heavy economies in Hertfordshire, Suffolk and Gloucestershire.

If we look at where people's workplaces are, quite a large proportion of jobs in the outer parts of large conurbations like Greater Manchester, West Yorkshire and the West Midlands are still in manufacturing.

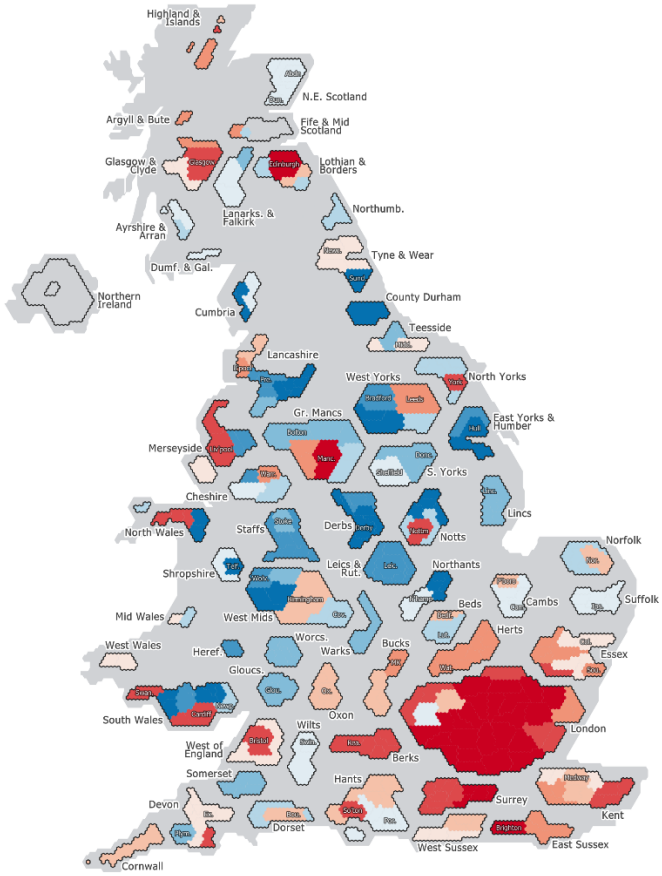
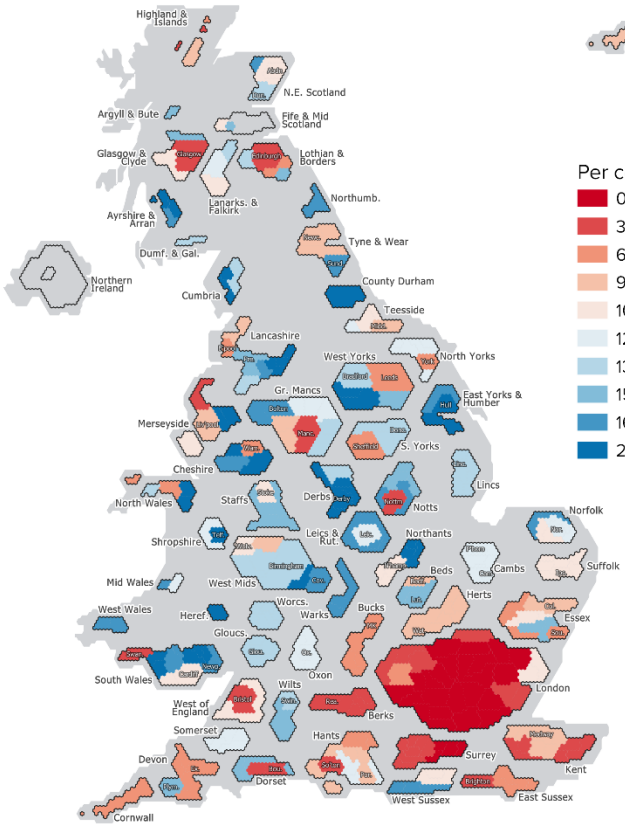


Figure 5: Manufacturing jobs as a share of the local workforce, by NUTS3 region

Source: ONS

Per cent (%)

- 0 - 3.34
- 3.34 - 5.4
- 5.4 - 6.26
- 6.26 - 7.6
- 7.6 - 8.22
- 8.22 - 9.78
- 9.78 - 11.52
- 11.52 - 12.49
- 12.49 - 13.75
- 13.75 - 23.58



Per cent (%)

- 0 - 3.4
- 3.4 - 6.6
- 6.6 - 9.3
- 9.3 - 10.5
- 10.5 - 12.2
- 12.2 - 13.7
- 13.7 - 15.4
- 15.4 - 16.5
- 16.5 - 21
- 21 - 36.9

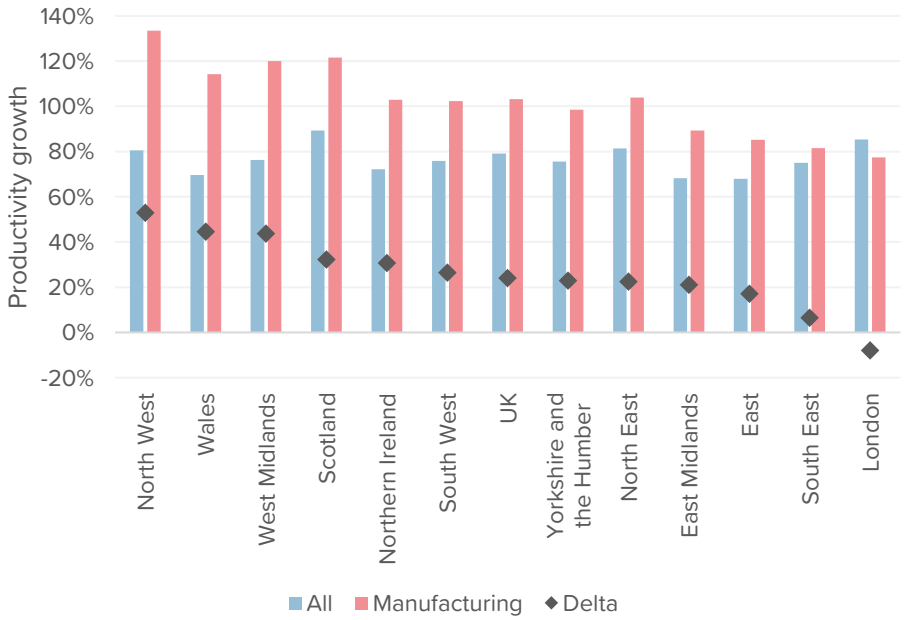
Figure 6: Value added in manufacturing as a share of the total by local authority

Source: ONS

Even though it is not a large share of employment, manufacturing accounts for a large share of productivity growth in Wales, Scotland, the North and Midlands. As shown below in Figure 7, productivity growth in manufacturing was more than 40 percentage points higher than overall productivity growth in the North West, West Midlands and Wales in the two decades since 1998. Productivity growth in manufacturing was uniformly higher in all regions and nations of the UK in the last two decades except in London. In London, manufacturing growth was 8 points lower over the same period.

Figure 7: Productivity growth in manufacturing versus total productivity growth, 1998-2017, by region, current prices

Source: ONS



Given its contribution to the regional economies of places like the North West and West Midlands, being far smaller than the services sector, manufacturing is driving a lot of the increase in productivity. This mostly comes through large reductions in hours worked alongside increasing in GVA.

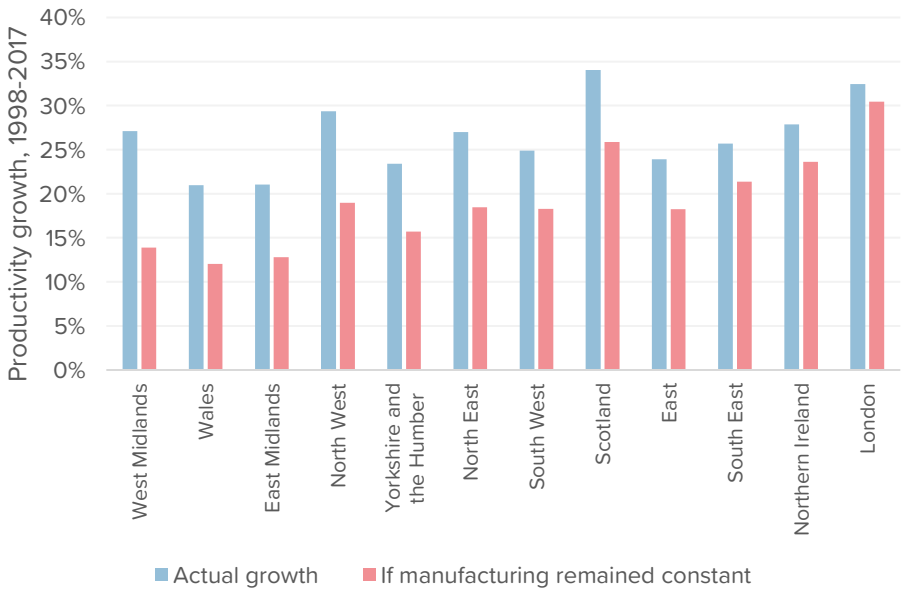
In the North West, total hours worked fell by 7.5 million in manufacturing, whereas the rest of the economy increased hours worked by a total of 19.4 million. But manufacturing also accounts for 9% of GVA growth in the region. So there are far fewer hours worked, and more value is being produced per hour.

Another way we can show the sector's contribution to overall productivity growth is to imagine productivity in manufacturing remaining constant between 1998 and 2017. The delta tells us how important growth in the manufacturing sector is to the overall growth rate.

For example, in the North West, if manufacturing had remained as productive (in real terms) as it was in 1998, growth in the region would have been 10 percentage points lower - a fall from 29% real-terms growth to just 19% growth. Figure 8, below, shows this for all NUTS1 regions of the UK. In the West Midlands, the overall growth rate would have been half as fast if manufacturing had seen no real-terms improvement. But at the other end of the spectrum is London, where growth is hardly affected at all.

Figure 8: Overall productivity growth and growth if we hold manufacturing constant (in real terms)

Source: ONS

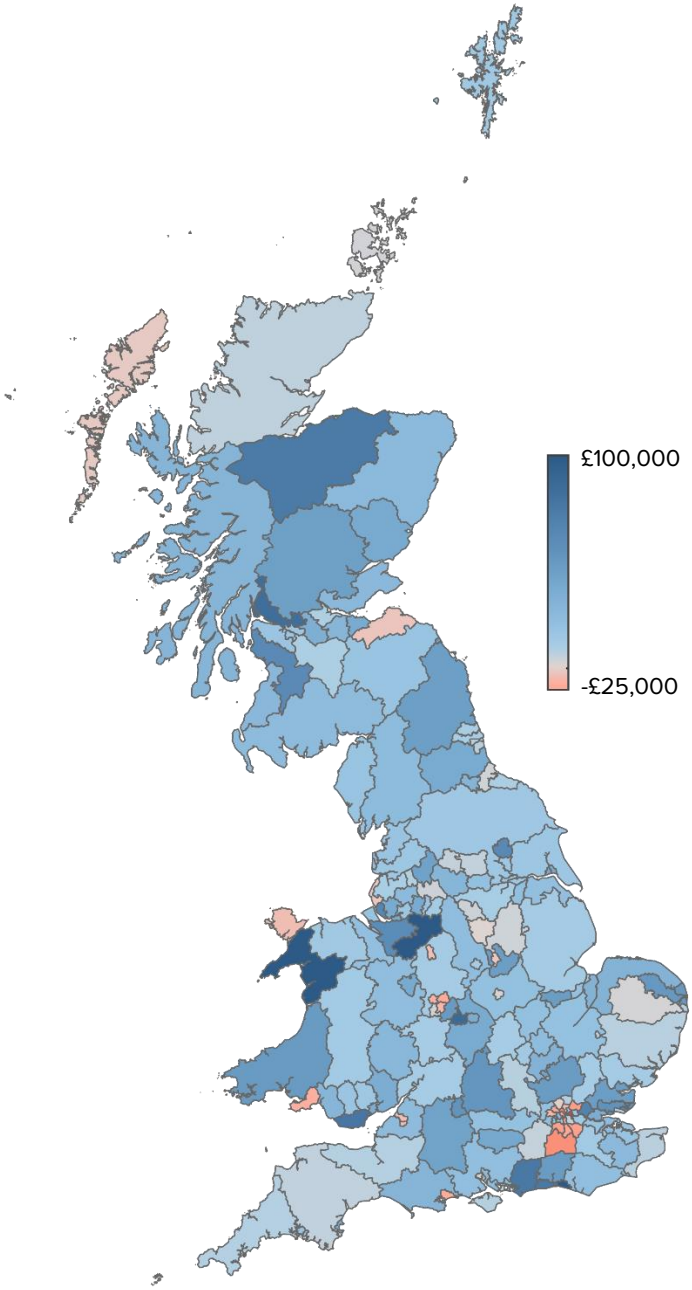


Productivity by industry is not routinely published for areas smaller than NUTS1 regions. To estimate this ourselves, we can simply take manufacturing GVA for NUTS3 areas and divide this by the number of jobs in manufacturing (as per the Business Register and Employment Survey). This gives us a decent measure of output per job. We can then calculate the difference between manufacturing productivity and overall productivity.

This shows that manufacturing is more productive than average in almost every NUTS3 region, especially in Cheshire, Gwynedd, Dunbartonshire and Solihull. The areas where manufacturing is less productive are more likely to be cities, although

there are some remote rural areas that have a lower productivity premium - such as the Western Isles or the Isle of Anglesey. A majority of London as well as cities like Edinburgh, Birmingham and Liverpool fall into this category. This suggests that manufacturing growth could disproportionately benefit workers and businesses in left behind areas outside the major urban centres.

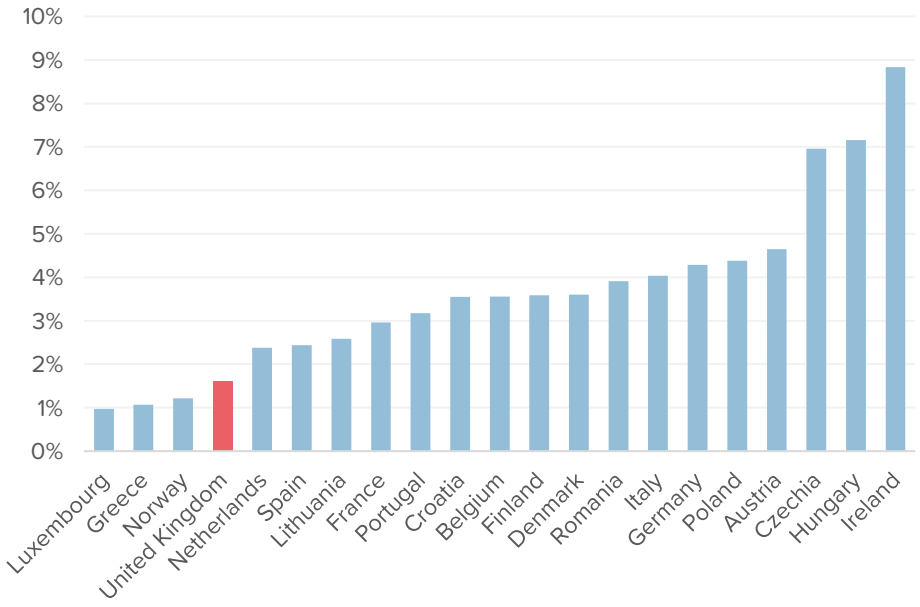
Figure 9: The manufacturing productivity premium by NUTS3 region
Source: ONS



Box 1. Investment

As things currently stand, UK manufacturing is not particularly investment-intensive in relation to other countries. By looking at average gross fixed capital formation (GFCF) between 2000 and 2018 compared to average gross value added over the same period, Figure 10 below, we see that the UK ranks very low compared to our European neighbours.

Figure 10: Manufacturing GFCF as a proportion of manufacturing GVA
Source: Eurostat



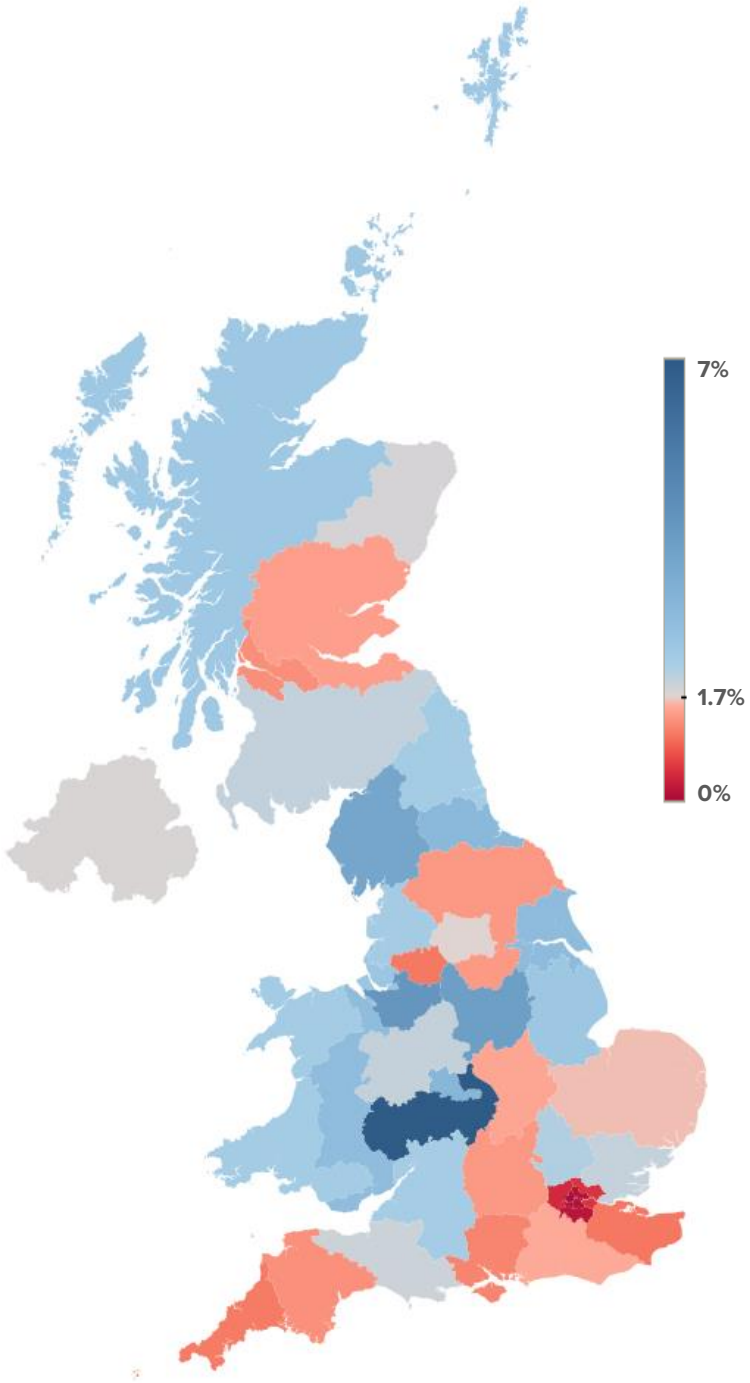
Looking at the sub-national level in the UK, investment in manufacturing is high relative to total GVA in the Midlands and Wales as well as in much of the North, while in London, the South and Greater Manchester it is lower.

The area including Herefordshire, Worcestershire and Warwickshire has the highest level of manufacturing capital investment. This is likely due to the automotive industry. Cheshire, Derbyshire, Nottinghamshire, the West Midlands, Teesside, East Yorkshire, Northern Lincolnshire and Cumbria also have high rates.

This suggests that increasing certain capital allowances, particularly those within categories like plant and machinery or industrial buildings, would be likely to have the largest benefits in these areas.

Figure 11: Manufacturing GFCF as a share of total GVA

Source: ONS



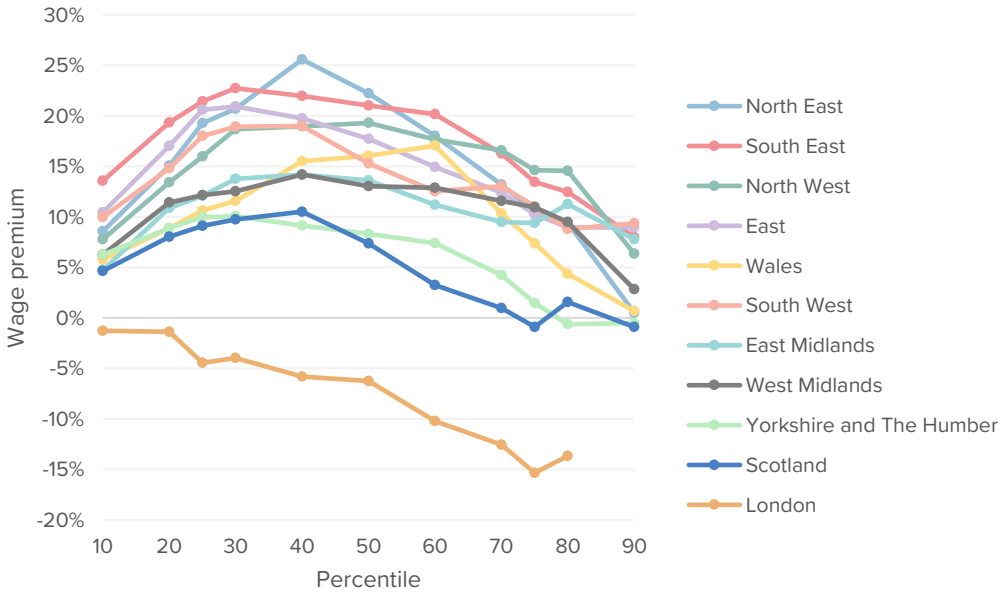
Boosting levelling up with the manufacturing wage premium

This higher level of productivity is reflected in higher wages, again in all regions except London. Previous sections showed that manufacturing delivers a wage premium regardless of qualification level, albeit to varying degrees, with the benefits concentrated around low- and middle-income earners. The sub-national picture reinforces those findings - the premium is higher at the lower end of the spectrum and diminishes further up the income spectrum. However, the wage premium is even higher in some of the less wealthy regions.

The wage premium for the median worker is over 15% in the South West and South East, in Wales, the East of England, and in the North West and North East. Within these trends, there is significant variation in the range by region and nation. In the North East, the wage premium is highest for workers in the 40th earnings percentile (26% higher) while falling towards the higher end of the income spectrum. The wage premium in Wales peaks at the 60th percentile.

Figure 12: Hourly manufacturing wage premium across the earnings distribution by region, 2018

Source: ONS



We can also look at a more granular level. The table below shows the top and bottom ten NUTS3 regions by wage premium in manufacturing. Although there is undoubtedly a headquarters effect at play in some of the data, notably Bromley and Hounslow, there is a clear variation in the wage premium at the local level.

Table 2: Median weekly wage premium for full-time workers, by NUTS3 region
Source: ONS, ASHE

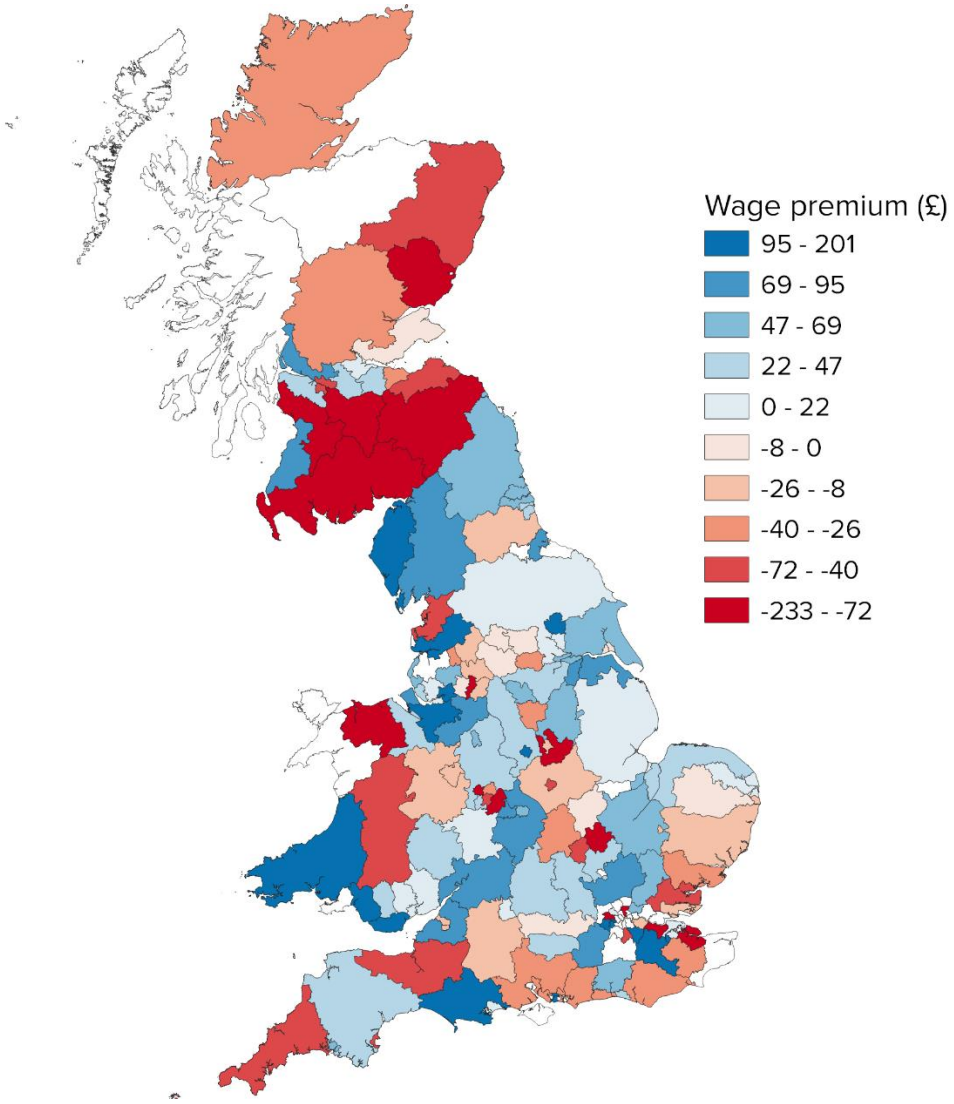
Area	Absolute premium	Relative premium	Area	Absolute premium	Relative premium
West Cumbria	£201	30.0%	East Ayrshire and North Ayrshire mainland	-£233	-38%
York	£184	32.0%	Haringey and Islington	-£226	-31%
Bromley	£183	30.0%	Dumfries & Galloway	-£133	-26%
Bridgend and Neath Port Talbot	£172	33.2%	South Nottinghamshire	-£117	-21%
Hounslow and Richmond upon Thames	£165	24.6%	Birmingham	-£110	-18%
Cheshire West and Chester	£154	27.8%	Scottish Borders	-£84	-17%
Portsmouth	£135	22.8%	Conwy and Denbighshire	-£89	-16%
Mid Lancashire	£133	22.4%	Ealing	-£98	-16%
Warrington	£131	22.0%	South Lanarkshire	-£82	-14%
Derby	£126	16.1%	Wolverhampton	-£81	-14%

The map below, in Figure 13, shows the manufacturing wage premium in those areas for which we have data. The estimates from ASHE are not completely reliable, and for 33 NUTS3 regions the values have been suppressed due to small sample sizes. Our analysis is restricted to the remaining 135 areas.

Some rural areas and parts of London are missing from this map. But, from what remains, there is a slight regional skew towards the North of England and Wales. In general, cities do not fare much better or worse than other areas. In Newcastle, York, Sheffield, Derby, Stoke, Coventry, Cardiff, Portsmouth, and Plymouth, wages in manufacturing are higher than across all sectors. But the opposite is true in Glasgow, Edinburgh, Manchester, Leeds, Bradford, Nottingham, Leicester, Birmingham (and the Black Country), and Bristol. London is simultaneously a mix of high-scoring areas like Bromley and Hounslow and negative premium areas like Haringey and Islington.

Figure 13: Manufacturing median weekly wage premium for full-time workers, by NUTS3 area

Source: ONS, ASHE, Onward analysis



But this brings us to another drawback of this subregional data: the headquarter effect. Hounslow contains the head office of GlaxoSmithKline and a number of other large manufacturing firms, which operate across the country, but base their HQ in London. Unfortunately, we are unable to break this down by occupation (in addition to industry and small areas), so the London figures will be biased by people who work in high income office-based roles.

This suggests that manufacturing may have an important part to play in raising productivity growth in poorer places, particularly in non-city centre locations which have not benefited from the turn towards more office-based jobs and the growth of higher education. Outside London we see lower productivity growth in these non-city locations, which also have a larger proportion of their local economy in the manufacturing sector. If policy was able to promote the growth of manufacturing, particularly advanced manufacturing, that is likely to benefit some of the places most in need of levelling up.

The distribution of manufacturing

While earlier sections have considered the wage and productivity impact of manufacturing, this section considers the distributional and political implications.

Breaking down the average share of manufacturing jobs by political party following the 2019 General Election, we can see that the Conservative Party is more representative of manufacturing areas than Labour. Seats gained by the Conservative Party at the 2019 General Election have the highest average share of manufacturing jobs, with 12.2% overall compared to 7.8% for Labour constituencies.

Once Conservative-held constituencies are split into gains and incumbents, the difference becomes more pronounced - as shown in Figure 14 below. Conservative gains at the 2019 General Election had an average share of manufacturing employment that was over a third higher (37% higher) than Labour held seats.

Incumbent Conservative seats also had a higher share of manufacturing jobs than Labour seats (almost 16% higher), albeit to a lesser degree than Conservative gains. As we can see, Labour held seats have a lower share of manufacturing employment (with far more constituencies employing less than 5% of the local workforce) - as shown in Figure 15.

Alternatively, this also illustrates a political challenge for the Government. Seats gained by the Conservative Party at the 2019 General Election, and delivered it into majority government, have the highest proportion of manufacturing jobs in employment. Given Conservative constituencies have a higher average share of manufacturing jobs than Labour constituencies, the continued decline of manufacturing is more likely to threaten jobs and livelihoods in Conservative seats than Labour seats.

Figure 14: Proportion of jobs in manufacturing by 2019 General Election outcome

Source: ONS, House of Commons Library

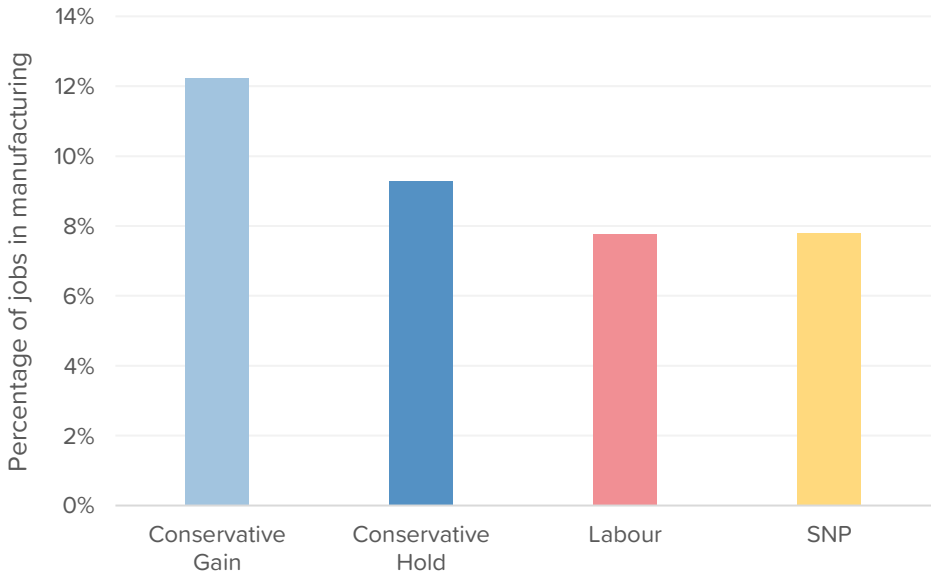
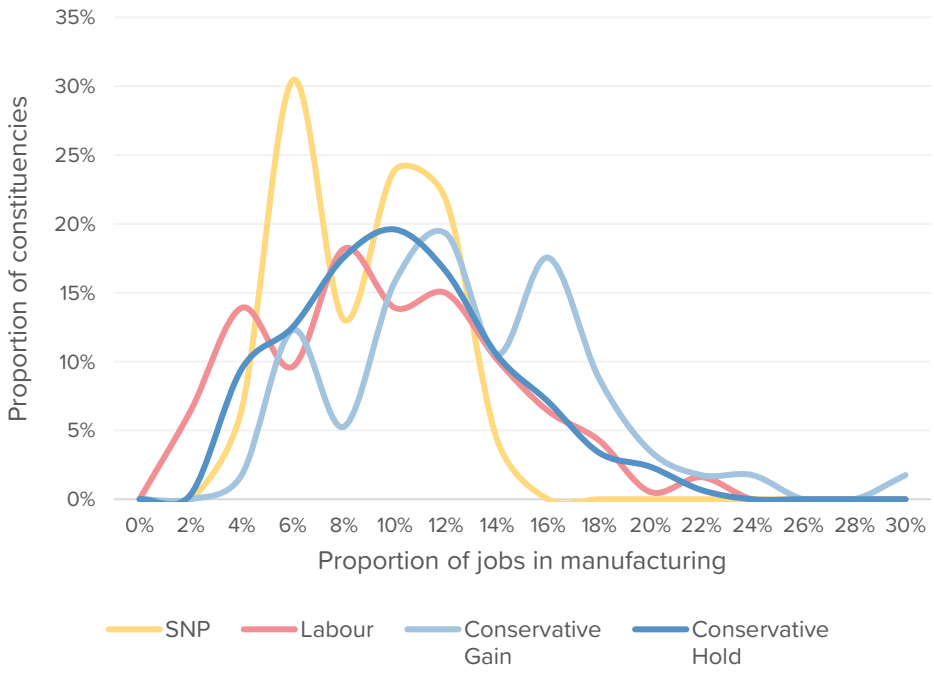


Figure 15: Proportion of jobs in manufacturing by parliamentary constituency and 2019 General Election outcome

Source: ONS, Onward Analysis



The march of deindustrialisation

We know that manufacturing jobs, especially in certain places, can lead to productivity and wage benefits. The benefits are not uniform across the country. As shown above, the manufacturing wage premium varies significantly. But we have also shown that although manufacturing is a comparatively small section of the economy nationally, there is localised variation. However, what we do not know is how the UK got there, and whether the trend was felt uniformly across the country?

The section uses a new dataset to look at the composition of the economy and the labour market over time, the effect that these changes have had across the country, and the impact of the decline of manufacturing. This new dataset, provided by Robert Calvert Jump of Greenwich University, estimates consistent jobs data by industry group at a local authority level (unitary and district), going back to 1981.

The pace and scale of deindustrialisation

In the post war decades, the UK industrialised. Manufacturing reached its largest ever share of UK GDP in the 1960s and 1970s, just at the point that regional productivity differences were smallest.

While many richer countries have deindustrialised since the 1970s, almost none has done so as much as the UK. In 1970 the UK had the sixth largest share of manufacturing in the economy in the G20. Today it is second from bottom. Countries as diverse as South Korea and Ireland have caught up or overtaken our living standards while *growing* the share of manufacturing in their economy. Rising countries like India and China have grown their share. While many other rich countries have deindustrialised far less: manufacturing is about 10% GDP in the UK but about 22.5% in Germany. This may be because the majority of members of the G20 have tried much harder to maintain an industrial base and introduced policies to increase the share of modern manufacturing in their economies. As shown below in Figure 16.

This may be a coincidence, but it is likely industrialisation and then deindustrialisation tended to compress and then expand regional differences. It is unlikely this is the sole factor, as other factors such as regional policy and attempts to shift population out of London to the wider south east through the new towns programme, may have also had a role.

Figure 16: Manufacturing share of GDP

Source: UNCTAD

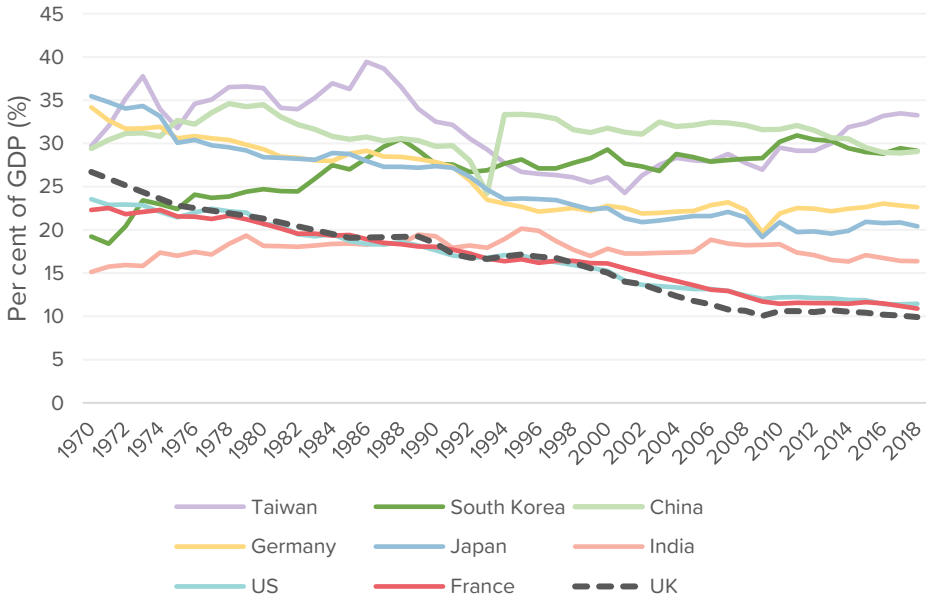
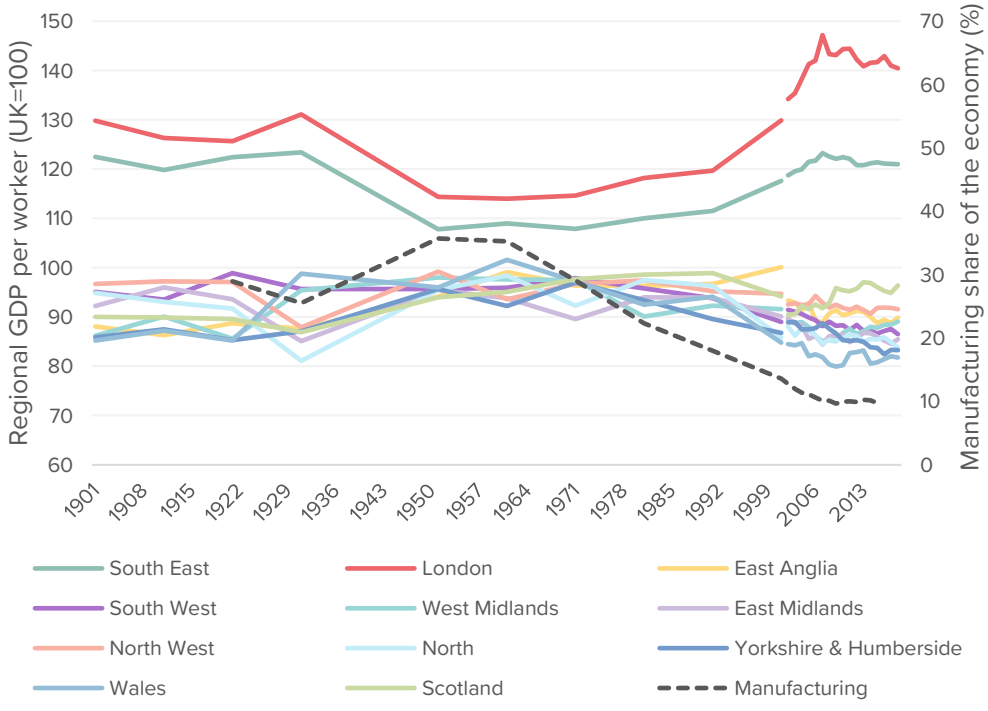


Figure 17: Regional disparity in productivity and manufacturing share of the economy

Source: Adapted from Industrial Strategy Commission, 2019; manufacturing data from Broadberry and Leunig, 2013

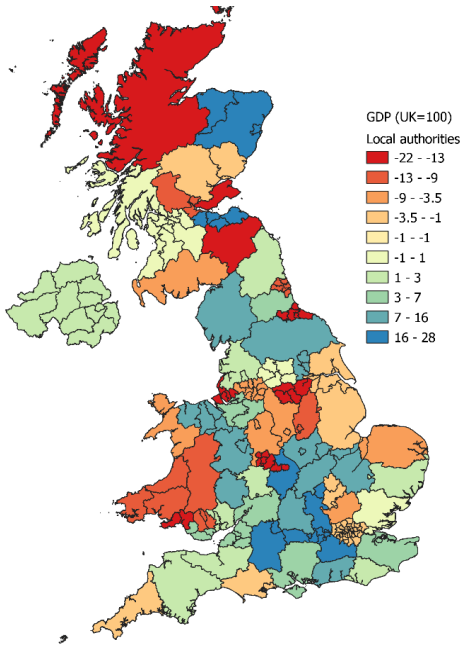


If we look at changes within regions over time, we can roughly divide recent history into two periods. From the 1970s to the mid-1990s, we saw dramatic relative declines in GDP per capita in areas hit by deindustrialisation: this decline covered much of the country outside the south, and was most acute in Merseyside, South Yorkshire, Teesside and South Wales. This was combined with relative improvement in the performance of the south outside London, particularly along the M4 corridor. London's relative position didn't change, remaining substantially above the UK average.

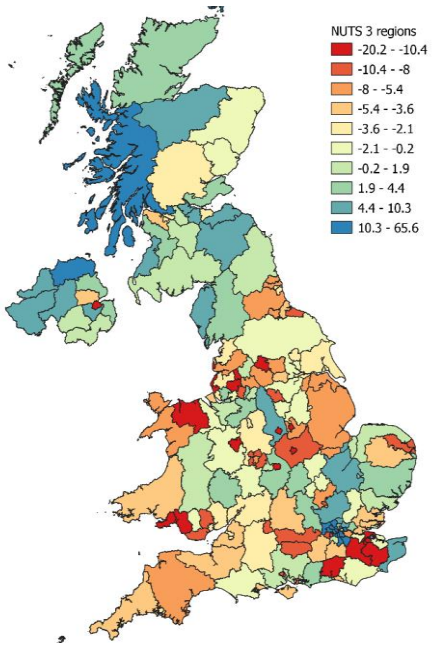
Since the late 1990s the pattern has been different in some ways. Areas hit by deindustrialisation continued their relative decline in many cases. But in this period London has pulled away from the rest, including parts of the south east, with only a small number of places keeping pace. Scotland and Northern Ireland improved their relative performance.

Figure 18: Change in GDP per capita (1977-1995) and GDHI per capita (1997-2018)
Source: ONS

GDP per capita, change relative to UK (average=100) - 1977-95



GDHI per capita, change relative to UK (average=100) – 1997-2018



Sources: ONS, historic GDP data for counties, and ONS, Gross disposable household income for NUTS3 regions

Local variations in the decline of manufacturing

In 1981, manufacturing accounted for 23.4% of employment. Before the onset of the Coronavirus pandemic, this figure had fallen to 8.1%. For comparison, over the same period, the share of jobs in non-financial tertiary industries (the service sector excluding financial services) rose from 63% to 82%.

Table 3: Changing composition of UK employment, 1981-2018
Source: Robert Calvert Jump, University of Greenwich

	1981	2018	Percentage point change	Percentage change
Tertiary: non-financial	62.7%	81.6%	18.9%	67.6%
Tertiary: financial	3.6%	3.5%	-0.2%	22.8%
Secondary: non-manufacturing	7.3%	6.0%	-1.4%	4.5%
Secondary: manufacturing	23.4%	8.1%	-15.3%	-55.5%
Primary: mining, quarrying and other extractive	1.5%	0.2%	-1.3%	-85.3%
Primary: agriculture, hunting, forestry and fishing	1.4%	0.7%	-0.7%	-37.1%

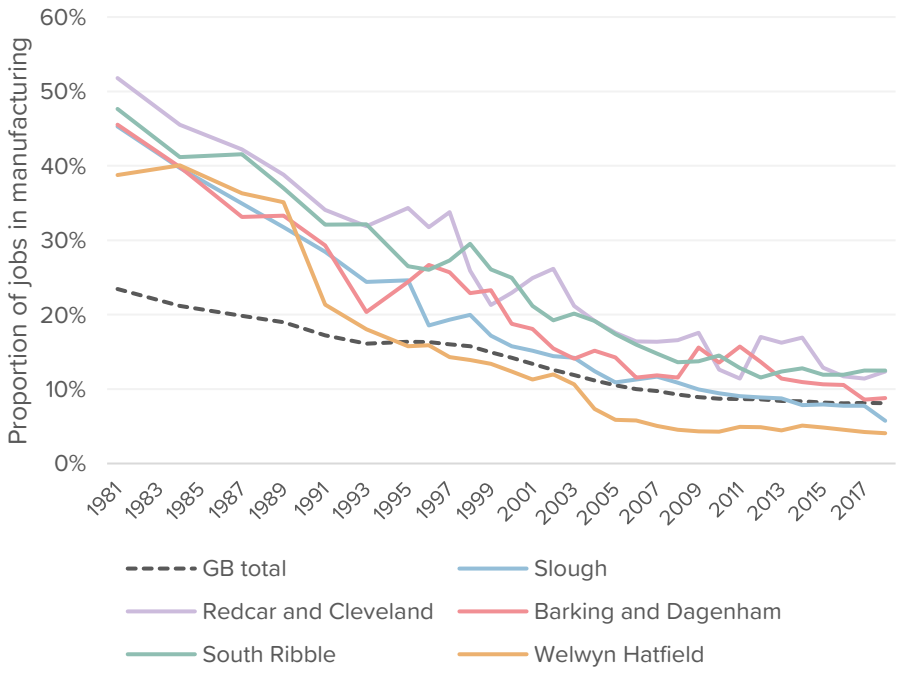
This data also shows us which local authority districts have deindustrialised the most since 1981. Figure 19 illustrates this below. We see particularly large declines across the Midlands, especially the Black Country and Leicestershire, as well as Lancashire, the North East around the Tyne and the Tees, and the Clyde.

London shows up a fair bit in the data, with Dagenham and Slough in particular standing out. The former is likely to be due in large part to the decline of the Ford plant. The latter was also a centre of manufacturing, but has since successfully transitioned to an information-based economy and now plays host to several major IT companies.

The graph below is illustrative rather than exhaustive, but it shows that in 1981 some areas relied on manufacturing for around half of all employment, such as Redcar and Cleveland and South Ribble, but have seen it decline to less than 15% of jobs locally.

Figure 19: Decline of manufacturing employment in the UK and the 5 areas that have seen the fastest decline

Source: Robert Calvert Jump, University of Greenwich

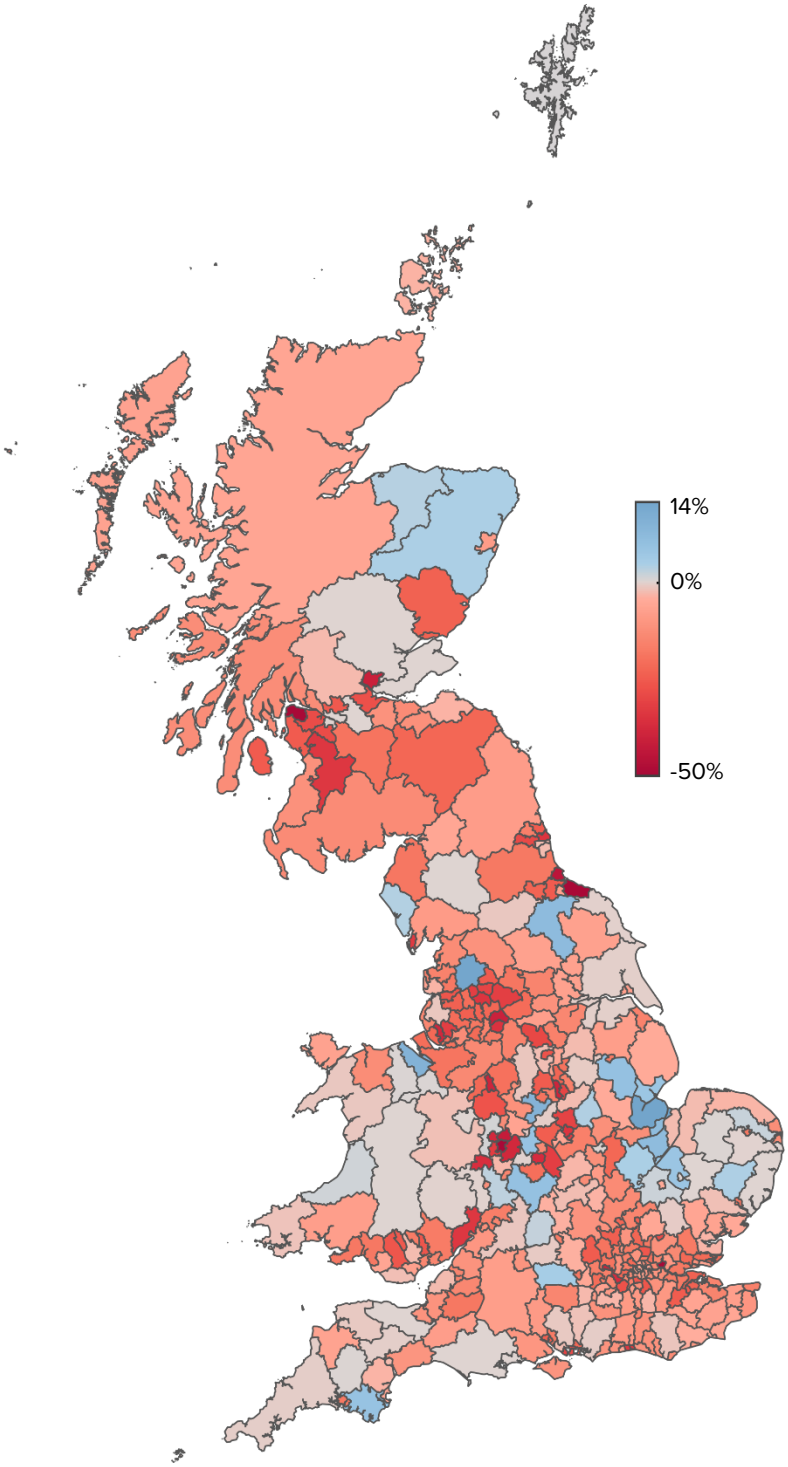


Deindustrialisation didn't just affect the rest of the country outside the South East of England: it affected London and the area around it too. The loss of manufacturing jobs, expressed as a share of all jobs there today, was often large. The difference was that for areas in and around the capital the combined effects of commuting or the growth of new jobs offset this.

The same is true to some extent for city centre authorities outside the south east: they experienced serious deindustrialisation but have (more recently) found alternatives in the growth of the services sector. Non-city locations have struggled to do this.

Figure 20: Change in manufacturing jobs by local authority, 1981-2018

Source: Robert Calvert Jump, University of Greenwich

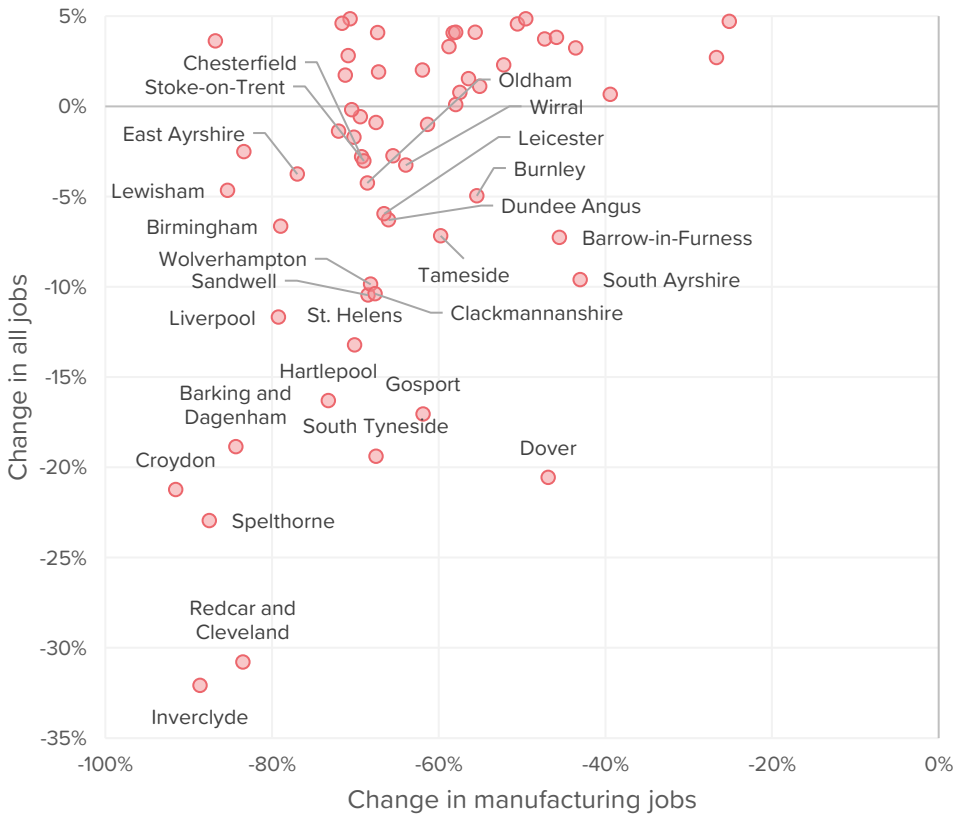


If we look at the change over time in jobs, just 37 out of 375 local authorities have seen the number of jobs in manufacturing rise since 1981. A handful of local authorities have even seen the proportion of jobs in manufacturing grow since 1981, including Ribble Valley, South Holland, Hambleton, Fenland, South Derbyshire and Boston.

But most places have seen the number of jobs in manufacturing shrink while other jobs grow. The average local authority lost 43% of its manufacturing jobs but grew the number of jobs overall 39%. Some areas have seen the number of manufacturing jobs grow while the total number of jobs increases faster, including much of Cambridgeshire. In contrast the 36 local authorities which have lost jobs overall have tended to see particularly large decreases in manufacturing jobs.

In some of these cases, the loss of local jobs has been cushioned to some extent by the proximity of commutable jobs – including for places like Dagenham or Croydon. But this has not been the case for places like Inverclyde, Redcar, Hartlepool, Barrow, or South Ayrshire.

Figure 21: Change in manufacturing jobs, compared to all jobs (1981-2018)
Source: Robert Calvert Jump, University of Greenwich



We can categorise local authorities according to the House of Commons Library's City & Town Classification. Below we show the average decline in manufacturing employment as a share of total employment for the six types of area. Deindustrialisation obviously affected rural areas less. Places classified as medium towns saw an average decline of 18 percentage points between 1981 and 2018. Core City areas declined by 14.4 points and villages and other sparsely populated communities saw manufacturing decline by just 8.5 percentage points.

Table 4: Decline in manufacturing as a share of total employment
Source: Robert Calvert Jump, University of Greenwich

	Average percentage point change	Standard deviation
Core City	-14.4%	6.4%
Core City (exc. London)	-17.0%	5.5%
Other City	-16.0%	6.8%
Large Town	-17.2%	7.3%
Medium Town	-18.0%	7.5%
Small Town	-15.9%	8.7%
Village or smaller	-8.5%	7.1%

The variation within these groups is far greater than variation between them. To illustrate, Boston and Redcar and Cleveland are both classified as medium towns. The former saw manufacturing's share of employment grow marginally by 1 percentage point; manufacturing fell by 39 percentage points in the latter.

We see similarly-sized variation within other groups. The scale of deindustrialisation and pattern of changing industrial composition is also very varied among small towns. At one end are Rossendale and Tewkesbury, where manufacturing employment has declined by 29 percentage points since 1981. But Fenland and Flintshire have seen no change in the proportion of jobs in manufacturing.

Comparing percentage change in manufacturing jobs to change in total jobs also reveals different experiences of deindustrialisation across non-city areas.

- Some places have seen strong overall job growth despite significant declines in manufacturing, and many are large or medium sized towns. These include: Wokingham, Watford, Harborough, Three Rivers.

- The areas in which manufacturing has grown alongside total employment are mostly in sparsely populated areas, classified as 'village or smaller'. These include: South Holland, North Warwickshire, Ribble Valley.
- Finally, consider those areas that have seen large declines in manufacturing employment in conjunction with a decrease in overall employment. Some of these tend to be located on the edge of cities, such as Inverclyde, South Tyneside and St. Helens. But we also see other large or medium towns like Redcar and Cleveland, Spelthorne, Hartlepool and Dover.

Figure 22: Change in manufacturing and overall employment in non-city areas, 1981-2018

Source: Robert Calvert Jump, University of Greenwich

International comparisons

What do other countries do to support manufacturing?

Even as the developed world has deindustrialised, many countries have developed plans to attract, establish and grow advanced manufacturing companies within their countries, using a combination of tax breaks, pull through procurement and incentive programmes. This section explores how other countries have responded to the declining power of manufacturing and considers how the UK should respond.

Several major countries have placed a high premium on retaining or growing the role of manufacturing within their future economies in the last decade. For example:

- In 2011, the Indian Government announced their "Make in India" campaign and published the National Manufacturing Policy which aimed to increase manufacturing to 25% of GDP by 2025, increasing employment by 100 million.
- In 2012, the United States launched the National Plan for Advanced Manufacturing to accelerate advanced manufacturing investment and research and development spending.
- In 2013, Ireland launched "Making it in Ireland", which set out an ambition to have 43,000 more people directly employed in manufacturing by 2020.
- In 2019, the South Korean government published I-KOREA 4.0, aiming to boost advanced manufacturing and automation. Turkey has committed to "becoming the design and manufacture base of medium-high and high-tech products in Afro-Eurasia", and raising manufacturing (as a share of the economy) to 21% of GDP by 2023.

Since the onset of the pandemic, some countries are boosting their efforts to reshore supply chains and grow domestic manufacturing capacity. Although these efforts were mostly cash grants (France, Germany and Australia) to promote the relocation of new businesses and industries, in some countries (namely India) efforts took a blended approach involving both grants and tax incentives.

The UK Government has undertaken some efforts to support manufacturing, including through the commitment to the High-Value Manufacturing Catapult Centre and the Made Smarter Programme. However, these efforts have largely been focused on improving the productivity of manufacturing already based in the UK. Our competitors are also trying to grow their manufacturing base further.

Table 5: An overview of policies to support manufacturing in advanced economies

Source: Onward

Country	Manufacturing as a share of value added		Policy
	Rate of change (2010-2019)	Pre-Covid 2020 projection	
Australia	-3.3%	6%	**Modern Manufacturing Initiative**: Launched in 2020, a $1.3 billion Fund, to be invested to support manufacturers scale, commercialise R&D, and connect to international markets. First wave of $48.3 million in grants were distributed across 200 projects. The second round, worth $52.8 million, focused on national priorities (i.e., medical products, clean energy). **Supply Chain Resilience Initiative**: A $107.2 million fund to identify and address vulnerabilities in the supply chain for key products.
Brazil	-3.1%	11%	**Plano Brazil Major**: Launched in 2011, the plan aimed to boost competitiveness through technical innovation and R&D, to market access for Brazilian companies. This was achieved through different mechanisms: • **Tax Relief**: Exporters were able to reimburse federal taxes in the production chain, and the value was determined by applying the percentage of 3% on the revenue resulting from the export. • **Procurement**: Government procurement was guided to domestic firms, provided they do not cost more than 25% more than imported ones and that they meet technical requirements. • **Financing**: Through Brazil's development bank, an investment maintenance programme was established to provide loans with lower rates.
Canada	-0.1%	11%	**Tax Relief:** The Accelerated Investment Incentive allows businesses that acquire capital property (acquired after a point in time) a 100% write-off of the cost of equipment to manufacture and process goods used in Canada for a fixed period. **Incentives**: In 2018, a $250 million Strategic Innovation Fund was announced to promote the competitiveness of Canadian manufacturers, better integrate the Canadian supply chain of steel and aluminium.

China	-1.2%	28%	**Made in China 2025:** strategic plan to develop the Chinese manufacturing sector. Intention is to move away from being the world's factory and towards technological intensive manufacturing ability, less reliance on foreign suppliers and focus on the core sectors (for example: semiconductors). Instruments include: • **Procurement**: Government procurement has been observed to favour domestic producers, clearly seen in information technologies. • **Subsidies**: From central government via non-commercial rate loans or local governments not applying environmental standards. • **Financing:** Government-backed investment funds support priority businesses (as identified in CM2025). • **Technology-seeking**: Investment abroad enables the Chinese state and firms to access technology, brands and management expertise that they would not otherwise have been able to acquire.
France	-0.6%	11%	**France Reboot Project**: A €100 billion stimulus package over two years, from 2020, intended to create 160,000 jobs (it is a reaction to coronavirus) and reduce reliance on carbon-intensive manufacturing. €30 billion earmarked for environmental energy policies, €2 billion to develop hydrogen infrastructure
Germany	0.8%	21%	**Industry 4.0**: part of the 'High-Tech Industry Strategy 2020 Action Plan,' receiving €200 million in funding. €40 million to advance the technologies assisting digitisation of industrial production. €5 million technology transfer project to support SMEs. **Automotive Technology Investment**: €1 billion, from 2020-21, to fund investment in new technologies, processes, and equipment for vehicle manufacturers and supply industries.
Ireland	5.8%	35%	**Making it in Ireland:** Launched in 2013, set out an ambition to have 43,000 more people directly employed in manufacturing by 2020. As well as identifying sectors to focus on, the plan also outlined pillars to build these sectors. **Ireland's Industry 4.0**: Launched in 2019, as well as announcing a new group (Future Manufacturing Ireland) to work with IDA Ireland, it announced €23.5 million in grants to boost advanced manufacturing.
India	-1%	16%	**The National Manufacturing Policy**: Introduced in 2011, it aimed for the manufacturing sector to grow to 25% of GDP by 2025 and an increase of 100 million jobs. **Make in India**: Launched in 2014, the plan intends to build manufacturing infrastructure in India. Mechanisms include: • **Tax incentives**: domestic corporate tax rate at 17.6% for new manufacturing companies. Deduction of 30% for the additional cost of new employees (for 3 years). Exports are tax free and imports of capital goods used in manufacturing are exempt from duty.

			• **Fiscal incentive**s: Reimbursement of state-level goods and services tax through refunds/exemption. Refund/exemption of stamp duty. Employment generation/training subsidy. • **Non-fiscal incentives**: Concessional rates for power supplies, land at reduced prices, and most preferred status for the grant of industrial licences. **Incentives:** The 2021-22 Budget announced for 'Production-linked incentive' schemes for 13 key sectors, including mobile manufacturing and pharmaceutical manufacturing. As well as restructuring the Customs Duty to eliminate 80 exemptions to promote domestic manufacturing.
Indonesia	-2.2%	12%	**Tax Incentives**: • **Tax holiday**: A 50% or 100% Corporate Income Tax reduction is available for 5 to 20 years from the beginning of production, depending on the value of the planned investment. Half of the reduction is available for the subsequent 2 years. • **Tax Allowance**: A reduction in net income of 30% of investments in tangible fixed assets and land, prorated over six years of commercial production. A reduced 10% withholding tax (WHT) rate (or lower treaty rate) on dividends distributed to non-residents. An extended tax loss carry forward period of greater than five years but no longer than 10 years under certain conditions. These tax allowances are available to certain sectors and locations. • **Import Duty Exemption**: Capital goods, materials, and raw materials that used in the production of finished goods or in the provision of services are exempt from import duties for a period of 2 years. For companies that use machinery that is at least 30% locally manufactured, the period of exemption is up to four years. **Temporary Tax Incentives and Credit for Business**: A 2020 policy amounting to **Rp 120.61 trillion**, to limit the impact of coronavirus. Workers earning below Rp 200 million exempted from income tax for 6 months. Impart tax payment deferred for 6 months in 19 manufacturing sectors, VAT refund accelerated for 19 manufacturing sectors, corporate income tax reduced from 25% to 22% and debt payment were delayed by 6 months for micro-loans received by businesses affected by the pandemic.
Italy	0.9%	17%	**The National Industry 4.0 plan**, launched in 2017 included fiscal (in the form of grants and loans) and tax incentives: • **Hyper (120%) and Super (250%) Depreciation**: Incentivising companies that invest in new capital goods, tangible assets and intangible assets (software and IT systems) for the technological and digital transformation of their production processes. • **Tax Breaks for Investment in Startups**: Up to 30% break on personal income tax for investments up to €1 million. In case of failure there is an exemption from

			normal bankruptcy regulation and in the case of success the scale-up to 'innovative SME' status retains startup benefits. • **Italia Startup Visa**: a priority visa for innovative entrepreneurs from all over the world. • **Guaranteed fund for Micro and SMEs**: Granting of a public guarantee, covering up to a maximum of 80% of the loan, for short and medium- to long-term loans both as a source of cash and for investment purposes. The Fund guarantees that each business or professional will be provided a maximum of €2.5 million. • **Innovation Agreements**: Projects concerning industrial research and experimental development (for instance in advanced manufacturing) will receive subsidised financing and a subsidised loan of up to 20% of eligible costs.
South Korea	0.2%	28%	**I-KOREA 4.0**: Incentivise the creation of smart factories through incentives and new funding (grants and loans). Manufacturing robots to make factory more inclusive to women and people with disabilities. Servitisation of manufacturing, breaking away from production-centred manufacturing to encourage the development of a new service model through smart technologies. UAVs, 10-year road map of innovation to support the creation of 6 original drones technologies. Automisation, encouraging early commercialisation and the creation of 'core parts' to create a world leading base in Korea. **The Korean New Deal**: Announced in Korean on July 14, plans to invest 160 trillion won to create 1,901,000 jobs by 2025 based on two main policies – the Digital New Deal and Green New Deal. **KICOX**: The Korea Export Industrial Corporation (KICOX) has been aiming to promote an industrial complex-based clusters programme to boost industrial competitiveness. Since 2005, it has established and operated 65 mini-clusters (academic/industry research labs) to raise the productivity and boost R&D.
Mexico	1.5%	19%	**Maquiladora**: A manufacturing service where a Mexican factory acquires raw and/or semi-finished materials from a foreign principal and manufactures or assembles a finished product, which will then be exported back to the principal. The owner – the maquiladora principal – is usually located in the United States. Maquiladora does not constitute a PE for Mexican tax purposes, and corporate income taxes are essentially based on a small percentage of the production capital.

Russia	-0.9%	13%	**Guarantees**: Introduced in late 2014, the law introduced special investment contracts. Investing companies that undertake to modernise existing industrial production or to create new one. • SPIC 1.0: To set up/modernise industrial manufacturing, with an investment above 750 million rubles, receives a 0% tax rate while regional authorities can reduce property tax. • SPIC 2.0: To create or introduce modern technologies for mass industrial manufacturing. A competitive selection criterion, the contract lasts for 15 years with investments below or equal to RUB 50 billion and 20 years with investments exceeding RUB 50 billion. **Incentives**: Financial support in the form of various subsidies (for R&D expenditures and development of industrial infrastructure) to be granted on the basis of tenders, prioritising those involving 'best available technologies.'
Saudi Arabia	1.7%	13%	**The Saudi Industrial Development Fund**: aims to restructure and diversify Saudi's economy. In 2019, it approved SR 12.5 billion for new and expansionary projects, creating around 8775 jobs and raising demand for locally sourced raw materials. **Financing Programs**: • Afraq, stimulates SMEs. SR 96.4 million • Tanafusya for energy efficiency investment and the development of industry 4.0. SR 92.4 million • Tawteen, motivating local and foreign investment. SR 38.6 million • Mutajadeda, enabling the manufacture of energy components to meet local demand and consultancy services to facilitate supply chains inside and between industrial cities.
South Africa	-1.2%	13%	**Manufacturing Competitiveness Enhancement Programme**: A 1 Billion R fund to assist manufacturing companies with working capital. **The 12I Tax Incentive**: For greenfield and brown field investment, this incentive offers support for capital investment and training.
Turkey	1.9%	21%	**Towards EU Membership**: 2011-14, Turkey's aim to become the manufacturing base of Eurasia. While the 2nd edition aimed to become "the design and manufacture base of medium-high and high-tech products in Afro-Eurasia".

United States	-0.7%	11%	**National Plan for Advanced Manufacturing**: Created in 2012 to: accelerate investment in advanced manufacturing tech through SMEs; achieved through 'fostering effective use of federal capabilities and facilities'; upskilling and educating the workforce for incoming technologies; expand public-private, academic-industry-government relationships on a regional and national level. Optimise federal investment in advanced manufacturing via a portfolio perspective. Increase US public-private investment in advanced R&D. **National Network for Manufacturing Innovation (NNMI)**: 2014, the act allowed the Dept of Commerce to hold 'open topic; competitions for manufacturing innovation institutes in order for manufacturers to propose key topics key topics of interests. As of 2016 there were 16 Manufacturing USA institutes. Federal agencies (except the DOD) are allowed to finance the planning, establishment or provide support for initiatives. Initiatives are required to conduct research, development and demonstration of projects to reduce costs; develop roadmaps for utilisation of technology; and conduct research/engagement with SME, disadvantaged business owners. Awards ranged from $56 million to $110 million.

What has the UK done to promote manufacturing?

Successive UK governments have attempted to support manufacturing, albeit to a lesser degree than our competitors. The Plan for Growth, published alongside the Budget, identified the need to support UK manufacturing as part of the transition to Net Zero emissions and committed £1 billion to support the development and manufacture of EV batteries. In 2017, the Government published the Made Smarter Review which quantified the benefits of industrial digitisation for UK manufacturing as £455 billion over the space of a decade.

The Government subsequently launched the Made Smarter programme, as part of the Industry Strategy. Since 2011, the High Value Manufacturing catapult has generated over £500 million investment into small and medium sized companies, with around £16 billion gross value added expected to be generated over the next decade.

However, given the benefits identified earlier in this paper, targeted policies to boost manufacturing in lagging regions would reap rewards. As we recover from the pandemic, with certainty over our future trading relationship with the European Union, the question for Ministers is how to effectively boost manufacturing.

Solutions

Can we fix it? Yes, we can

If anyone doubted that manufacturing remains an important component of the UK economy before the pandemic, they do not do so after it. The ability to mass-produce ventilators, vaccines and PPE domestically has proven critical throughout the last eighteen months.

But in comparison to both other sectors of the economy and to other countries, the UK's manufacturing base is small. In just over ten years, the UK has fallen from the 6th largest manufacturing country in the world to the 9th.[8] Since 1970, the UK has deindustrialised faster than any other major competitor. Simultaneously, manufacturing firms and jobs have become geographically concentrated, meaning the benefits illustrated earlier in this paper, namely higher productivity and wages, have become more thinly spread.

In the UK we often act as if this is a foregone conclusion; a natural by-product of economic development. But as this paper shows, many countries have become richer without relying less on manufacturing. In some cases, quite the opposite: manufacturing has been the driver of economic growth.

This experience suggests that, with the right policies, manufacturing firms could provide even more well-paid jobs, across the qualification spectrum, in lagging parts of the UK. Earlier sections of this paper have shown the benefits, particularly in contributing towards wider policy objectives like achieving net zero emissions, supporting the Government's National Shipbuilding Strategy or growing businesses' spending on research and development. According to the latest data, manufacturing sectors spent £16.5 billion out of a total £26 billion of business R&D spending. Therefore, a larger manufacturing sector in the UK would be an important component in meeting the Government's target to spend 2.4% of GDP on R&D.

The question is therefore how to achieve it.

We believe there are three principal ways. First, the Government should set out a bold ambition to reverse the declining share of manufacturing within the UK economy since 1997. Second, to help achieve this, ministers should extend the super deduction capital allowance beyond its current end date for manufacturing investments in lagging regions. Third, the Government should incentivise growth of domestic supply chains.

1. Publish a National Manufacturing Plan with an ambition to reverse the decline of manufacturing as a share of the economy over the last two decades

Aggregate manufacturing output has risen but manufacturing as a share of the UK economy has fallen from just over 16% in 1997 to 8% of GDP before the onset of the pandemic. This fall has disproportionately hurt less productive regions,

particularly given the wage and productivity premia outlined in earlier chapters, while the growth of service jobs has disproportionately benefited London and the South East.

Other countries demonstrate that, with the right policies, this decline is not inevitable and can in fact be reversed. Some countries have published sectoral strategies like Japan and South Korea (who published electric vehicle manufacturing strategies), while others like Ireland, India and South Korea published cross-sector plans to act as signals and give certainty to investors. The UK has historically been reluctant to consider sectoral policies to achieve similar ends.

This should change. The UK Government should publish a National Plan for Manufacturing with the ambition of reversing the declining share of manufacturing within the UK economy to 1997 levels within ten years. This manufacturing plan should focus on the key drivers of sectoral growth:

1.1. Strategically important investments. The Government should recognise that there are a number of major investments which are disproportionately beneficial to the growth of the UK manufacturing base. Examples include the location of gigafactories or the development of mRNA vaccine manufacturing capability. These investments not only bring jobs and growth on their own but they support domestic supply chains, spill over technology and intellectual capital, and create critical mass in key innovation sectors. They therefore warrant greater attention by ministers and a willingness to be more muscular and directive than ministers may naturally be elsewhere. Ministers have already made commitments to incentivise manufacturing in critical industries through the medicines and diagnostics manufacturing transformation fund.[9] This is the right approach. But in comparison to other measures being adopted by competitors, it seems underpowered. For example, the United States introduced the Manufacturing Tax Credit in 2009, which provided a 30% investment tax credit to 183 domestic clean energy manufacturing facilities.[10] The National Plan for Manufacturing would therefore set out a more ambitious approach to attracting and supporting such investments in the UK, particularly in regions that are currently less productive.

1.2. Operating costs. Manufacturers' core costs in the UK are composed of six components: commodities, labour, energy, transportation, property tax and corporation tax. The Government has set out policies to temporarily reduce the effective tax rate facing manufacturers through the super deduction. Meanwhile there is little the Government can effectively do to determine the commodity price for raw materials – nor should it, the price is rightly determined by the marketplace. Labour costs in the UK remain competitive internationally. However, in relation to the energy and transportation costs as well as property taxes, the Government should consider ways to reduce these operating costs in the long term, to reduce the marginal costs of manufacturing compared to other sectors,

and to signal to the market that the UK will remain a competitive place to make products in the long term.

For example, some energy costs for manufacturers can be prohibitively expensive. While industrial gas prices are below the International Energy Agency (IEA) median cost (11.4% below in 2019), overall industrial gas prices have risen on average 2.1% since 2009-10. The majority of this seems to be commodity cost as the average annual change excluding taxes since 2009-10 has been 12.1%. However, industrial electricity prices are significantly above the IEA median (48.8% above the median cost in 2019). The Government should set out policies to guarantee low electricity costs for UK productive industries during the transition to net zero, as Onward called for in the *Greening the Giants* report.[11]

1.3. Access to finance. Following on from the establishment, and launch, of the National Infrastructure Bank, the Government should boost access to finance for manufacturing firms. Access to finance has been highlighted as a particular issue for SMEs.[12] While there are dedicated funding streams and mechanisms for research and innovation and infrastructure, a dedicated policy lever to support the growth of manufacturing businesses could tackle access to finance. Depending on the level of Ministerial ambition, this could be a newly capitalised Industrial Bank or a hypothecated element within UK Export Finance – given UK-based manufacturing firms comprise the 10th largest exporter globally – or a government-backed revolving credit facility.[13]

1.4. Infrastructure. The UK is one of the most developed markets in Europe in terms of 5G deployments. However, at present, 5G testbeds have been launched in the major cities and are largely focused on consumers. This is in spite of the potential industrial benefits from 5G. One study estimated the potential return on investment of 5G technologies to manufacturing as 10 to 20 times over five years.[14] The National Plan for Manufacturing should outline support for the industrial rollout of digital and physical infrastructure, such as 5G deployment, to facilitate the growth in advanced manufacturing. This might include match funded support to roll out 5G to industrial settings or additional support for programmes such as Made Smarter to increase adoption of digital practices in manufacturing.

1.5. Sustainability. As part of the Spending Review, the Government should commit long-term funding for key anchor institutions that would support the growth of manufacturing, such as catapult centres, mission-orientated translational research centres and initiatives such as the Made Smarter programme. This would echo similar moves made in other countries. In the United States, the Innovation and Competition Act 2021 increased the funding for the Manufacturing Extension Partnerships (MEP) threefold.[15] A further significant increase after its funding was doubled under the Obama Administration.[16] Since the MEP was launched by President George HW Bush, the network of (match-funded) public-private partnership centres has grown. It advises manufacturing SMEs to help improve

processes and productivity; expand their capacity; and help them adopt new technologies and management practices. The network states that, for one dollar of federal investment, MEP centres generate: $33.80 in new sales growth and $32.20 in new client investment. While in the 2020-21 financial year, it helped create or retain 105,748 jobs. Although this is a decrease on the previous financial year (2019-20) which saw 114,650 manufacturing jobs created or retained, given the federal budget for the network in the 2020 financial year was $146 million would suggest a 'cost' per employee retained or created of $1,380. Since the 1980s, the MEP has worked with 111,343 manufacturers, leading to $132 billion in new sales and $22 billion in cost savings, and it has helped create and retain more than 1,221,996 jobs.[17]

2. Maintain the Super-Deduction beyond 2023 for plant and machinery investment

This paper has already demonstrated the benefits of manufacturing investment, both at a national level and a more localised level (see figures X and X), in terms of additional value added. However, we have also shown that the UK is below the average level of investment in manufacturing for Western European countries. Only one NUTS2 area in the UK – Herefordshire, Worcestershire and Warwickshire – exceeds the West European average. So how can the Government increase investment into manufacturing? One immediate route would be to increase public sector investment in manufacturing, as many other countries do globally (listed above). However, another method would be to stimulate private sector investment.

We recommend that the Government retain the Super Deduction capital allowance, announced in the 2021 Budget, beyond its current end date for manufacturing plant and machinery. At present, the Super Deduction is available to any company between April 2021 and March 2023. Up until that point, companies are able to claim 130% of the capital costs of qualifying assets against their Corporation Tax bill. This ensures that the UK regime for capital allowances is one of the most competitive in the world, but it is temporary.

This should disproportionately benefit manufacturing as a whole, and disproportionately boost productivity and wages in less productive regions in particular. In a survey of manufacturers after the Budget, 22.6% of respondents said that they would increase investment as a result of the Super Deduction policy while 28.1% said that they would bring forward investment.[18] The OBR estimates that it would boost company investment across the country by 10%.

3. Reform procurement and content rules to boost the domestic supply chain

While large firms and investments generate the most headlines and political attention, the UK will not develop a thriving manufacturing base without a deep and diverse supply chain. That means growing the number of manufacturing SMEs. To a degree, existing Government policies like Freeports will already support this aim. However, while freeports could support the development of cross-border supply chains in specific industries, they would only do so in tightly confined geographic areas. The priority must be to support the growth of broad supply chains in larger geographic areas. One mechanism to achieve would be through procurement policy. We recommend:

3.1. Introduce new procurement rules to take into account the benefit to UK supply chains. The Treasury's framework for public spending, Managing Public Money, defines value for money as: "*ensuring that the organisation's procurement, projects and processes are systematically evaluated to provide confidence about suitability, effectiveness, prudence, quality, good value judged for the Exchequer as a whole, not just for the accounting officer's organisation*".[19] This definition clearly outlines that cost to the Department is not the sole driver in the awarding of funds, but that value for money should be defined for the Exchequer as a whole. This is relevant for manufacturing because, as the Government Office for Science stated "Government purchasing is potentially important". Although likely not the silver bullet to maintain productive capacity, GO Science highlights the role that government procurement has had in supporting the pharmaceutical and defence industries in the UK.[20] Therefore, for contracts that support UK-based supply chains but are not the lowest cost, we recommend that the development of UK supply chains is also taken into account when awarding contracts. The Government should reinforce this advice beyond Whitehall departments to all public bodies, including Arm's Length Bodies.

3.2. Consider where it is appropriate to introduce UK content requirements to boost the number of products made in Britain. The other option to support the growth of manufacturing firms would be to introduce and formalise domestic content requirements in public sector awards. This type of mechanism already exists in some areas, namely the Offshore Wind Sector Deal that outlined a UK content requirement for 60% by 2030,[21] an increase of 10 percentage points from publication in 2019. This will not be sensible in every circumstance and we should be careful not to introduce perverse incentives which simply drive up costs for taxpayers or consumers, but there may be other areas where such requirements are sensible. For example, in the manufacture of UK defence equipment, or transport infrastructure, where investment is expected to increase in the coming years.

Conclusion

Manufacturing is often thought to be dragging down poorer areas. In reality it often provides a lot of the productivity growth, and more of the better paid jobs in poorer areas. The paradox is that areas with a larger share of their economy in manufacturing are generally poorer, but that within these areas manufacturing is playing an important role in improving their overall performance. In essence, if we had less manufacturing the Government would have even further to level up.

The UK has deindustrialised to an unusual extent and thus has played a role in increasing regional imbalances. Manufacturing may have a particularly important part to play in raising productivity growth in non-city centre locations which have not benefited from the turn towards more office-based jobs and the growth of HE. Outside London we see lower productivity growth in these non-city locations, which also have a larger proportion of their local economy in the manufacturing sector.

This suggests that if policy was able to promote the growth of manufacturing, particularly advanced manufacturing, that would be likely to benefit some of the places most in need of levelling up. This suggests that the government should think seriously about the role that sector policies for manufacturing could potentially play in levelling up.

Endnotes

[1] ONS, Labour Productivity, Q3 2020
[2] OECD, Dataset: Productivity and ULC by main economic activity
[3] FRED, St Louis Fed, Manufacturing Sector Labor Productivity & Private Business Sector Labor Productivity
[4] Rosés & Wolf, The Return of regional inequality, March 2018, https://voxeu.org/article/return-regional-inequality-europe-1900-today
[5] ONS, Subregional Productivity, NUTS 3 regions. Large English cities = Metropolitan counties of Tyne & Wear, Merseyside, Greater Manchester, West Yorkshire, South Yorkshire, West Midlands, plus Nottingham, Derby, Leicester, Portsmouth & Southampton and Bristol
[6] ONS, Annual Population Survey, 2019
[7] The data in Table X differs slightly from measures of the wage premium elsewhere in this report. The figures are calculated from the Annual Population Survey, rather than ASHE, for the period October 2018 to September 2019.
[8] https://www.makeuk.org/insights/publications/uk-manufacturing-the-facts-2020-21; https://publications.parliament.uk/pa/cm200708/cmselect/cmberr/212/212.pdf
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[16] O'Sullivan E et al (2013) What is new in the new industrial policy? A manufacturing systems perspective, link
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