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The implications for employment of the shift to high-value manufacturing

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The Implications for Employment of the Shift to High-Value Manufacturing

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Executive summary

This paper reviews the evidence on the employment implications of the shift to high-value manufacturing in the UK. Its central proposition is that there is nothing uniquely 'twenty-first century' about this shift and, whilst it is important to consider how the future may differ from the past, the accumulated body of knowledge and experience from recent decades therefore provides the essential starting point.

Since the mid-1960s, UK manufacturing has shed more than 6 million jobs. One of the results is that most low-value low-productivity manufacturing has already disappeared. In the face of competition from low-wage economies such as China, for the vast majority of UK manufacturing there has simply been no alternative to going down the high-value route.

The manufacturing job losses have occurred across all parts of Britain, but the Midlands and North have been hit hardest. In detail, though, the geography of manufacturing job loss is complex, with London among the main losers. Alongside job loss there has been an increase in out-sourcing to sub-contractors in the service sector, and a shift in the occupational composition of the manufacturing workforce, with white-collar jobs growing as a proportion of the total.

Through competition in the labour market, manufacturing job losses impact much more widely than on just the former manufacturing workforce. Worklessness tends to come to rest with the men and women least able or willing to keep a foothold in the labour market – through poor qualifications or skills, low-grade work experience, ill health, disability or age. In the UK since the 1980s, much 'unemployment' has taken unusual forms – a diversion into 'economic inactivity' and, especially, onto disability benefits rather than unemployment benefits.

Regeneration efforts in the places hardest hit by job losses are often long-standing. There is convincing evidence of success, though regeneration is neither quick nor cheap and some initiatives are much more effective than others.

Despite all the years of job losses, the parts of Britain often labelled 'industrial' because of their history continue to have high numbers of jobs in manufacturing. There are notable concentrations in the West Midlands, in the North West and Yorkshire, the North East and central Scotland. If UK manufacturing were to continue to shed jobs as part of the move towards high-value activities it might be expected that these places would be most exposed to job losses. In practice, however; locational trends are unlikely to be so simple.
Looking ahead, if UK manufacturing employment were to continue its historic downward trajectory it is not possible to shed as many jobs as have been lost over the last thirty or forty years. A halving of manufacturing employment by 2050 would mean the loss of around 1.4 million jobs. There are also reasons to suppose that the UK economy may now have reached a 'break point', where future growth will have to be driven by an improvement in the international trading performance of the economy rather than by rising debt. This presents a massive opportunity for manufacturing but it remains unclear whether the UK economy can rise to the challenge of rebalancing.

We should not assume, therefore, that high-value high-productivity manufacturing necessarily means a smaller manufacturing sector. At this point in time, perhaps more

than at any stage during the last fifty years, projections of future employment in manufacturing need to be treated with scepticism.

The paper identifies five main implications for public policy. Regarding **unemployment**, there is every reason to suppose that any future manufacturing job losses will result in higher recorded unemployment. This is partly because welfare reforms will in future limit the diversion onto disability benefits and partly because the era of expanding public sector employment now seems to be at an end. Regarding **labour market policy**, the consequences of manufacturers' hiring and firing extend far beyond just the workers directly affected, which suggests that interventions should not focus exclusively on the men and women working within, or being made redundant by, manufacturing firms. Regarding **industrial policy**, there is probably little scope for 'picking winners'. The sheer force of international competition means that a large part of what is left of UK manufacturing is already 'high-value high-productivity' to a significant extent. Regarding **regeneration**, there is reason to have confidence that areas losing manufacturing jobs can be turned around. And finally, regarding **national economic policy**, there needs to be a clear focus on supporting manufacturing industry, including through a competitive exchange rate.

1. Review scope

There is a widespread view that if UK manufacturing is to have a long-term future it is by focussing on high-value products and processes. Conversely, there is seen to be little future in low-value low-productivity manufacturing employing large numbers of low-skilled workers. This assessment is probably correct but it has important implications for individuals, places, regions and the wider economy.

This paper explores the implications for employment of the shift to high-value manufacturing. It examines how the shift impacts on the manufacturing workforce and on the labour market more generally, and on specific places and regions. This in turn raises issues around the effectiveness of local and regional regeneration policies. The paper synthesises ideas from a range of studies and also brings to bear a number of key statistics on employment.

The central, organising contention in the paper is that the best way to shed light on the future by better understanding what has happened in the past. There is nothing uniquely 'twenty-first century' about the shift to high-value manufacturing and, whilst it is important to consider how the future may differ from the past, the accumulated body of knowledge and experience from recent decades provides the essential starting point.

Section 2 of the paper therefore outlines the scale of the decline in UK manufacturing employment. Section 3 considers the changes in the composition of manufacturing that have accompanied this decline. Section 4 looks at the consequences for manufacturing workers and the wider labour market, and Section 5 at the experience in promoting regeneration. Section 6 then looks ahead by examining the places most at risk from future job losses, and Section 7 considers the extent to which trends in the future might diverge from those in the past. Section 8 draws together the key conclusions and Section 9 considers the implications for public policy.

It is essential to begin, however, by making three points. First, in the UK context **the shift to high-value low-employment manufacturing has largely already happened.** This is a contentious observation, bearing in mind the obvious point that there is still a lot further the UK could go down this route and the likelihood that it will do so in coming years. However, a focus on short-term economic data covering only a few years tends to obscure the enormous longer-term structural changes that have already occurred. In fact, if we take the long term view we can see that manufacturing employment in the UK has already fallen from a peak of more than 9 million in the mid-1960s to below 3 million today. The vast majority of the low-value low-productivity manufacturing jobs that once existed in the UK have already disappeared.

The second point follows from the first. Given that so much of the shift to high value manufacturing has already occurred, **we already know a great deal about the consequences for individuals and communities**. There really is little need to speculate about what might happen as manufacturing strives to become ever more capital and knowledge intensive in order to remain competitive. We already know from the vast experience in coping with the disappearance of so many manufacturing jobs over recent decades, and from the multitude of efforts to regenerate local economies.

The third point is that, in terms of the shift to high-value low-employment manufacturing in the UK, **there is no going back**. Whatever the attraction of a world in which very large

numbers were employed in UK manufacturing – and the merits were considerable in terms of near-full employment and social cohesion – that particular era cannot now be re-created. It has long been known that in developed economies like the UK there is a tendency for productivity to rise faster in manufacturing than in services, mainly because manufacturing lends itself more to mechanisation. The result in the UK and other advanced economies has been a shift in the share of jobs from manufacturing to services. If the increase in manufacturing productivity is faster than the increase in manufacturing output (which has been the case in the UK and many other western economies) the result is also an absolute reduction in manufacturing employment.

Added to the effect of rising productivity there is the overwhelming force of competition from low-wage economies such as China. Put simply, in any manufacturing industry that is exposed to serious international competition there is no possibility that low-productivity high-employment production can be sustained in the context of a relatively high-wage economy such as the UK. Survival for some firms can be based on finding market niches that are relatively insulated from international competition. For the vast majority of UK manufacturing, however; there is simply no alternative to going down the high-value high-productivity route.

2. The long decline of UK manufacturing employment

2.1 National trends

So if the starting point in understanding the likely effects of the shift to high-value manufacturing needs to be what has already happened, let us begin by looking at the reduction in manufacturing employment over the last forty years or so.

Table 1 shows the change in manufacturing employment by industry between 1966 and 2011. 1966 is significant because it was the year UK manufacturing employment attained its all-time peak – just over 9.1 million. The figures in this table (for Great Britain) all come from official sources but over the years there have been changes in the way they are collated, so strictly speaking they are not absolutely comparable. In addition, in official statistics the detailed definition of individual 'industries' has been revised from time to time, which adds a further layer of discontinuity, and out-sourcing means that some jobs have been reclassified from 'manufacturing' to 'services'. The purpose of the table is however to illustrate broad orders of magnitude and the sheer scale of the reduction in manufacturing employment.

The manufacturing employment figures for 1966 point to what now seems to be a long-lost world. Shipbuilding and marine engineering still employed 210,000, textiles 810,000 and clothing and footwear a further 530,000. Mechanical engineering alone employed nearly 1.3m, and electrical engineering 900,000.

Table 1: Manufacturing employment by industry, Great Britain, 1966-2011

	1966	**2011**
Food, drink & tobacco	800,000	460,000
Chemicals, pharmaceuticals, etc.	540,000	190,000
Metal manufacture	630,000	230,000
Mechanical engineering	1,260,000	340,000
Instrument engineering	160,000	130,000
Electrical engineering	910,000	130,000
Shipbuilding & marine engineering	210,000	40,000
Vehicles & transport equipment	850,000	270,000
Other metal goods	590,000	90,000
Textiles, leather, etc.	810,000	70,000
Clothing & footwear	530,000	40,000
Bricks, pottery, glass, cement, etc.	360,000	100,000
Timber, furniture, etc.	310,000	160,000
Paper, printing & publishing	640,000	210,000
Other manufacturing	330,000	270,000
All manufacturing	**8,940,000**	**2,740,000**

Sources: Department for Employment; Business Register Employment Survey; Annual Population Survey Workplace Statistics.

The point here is that the vast majority of these jobs have now disappeared. Sometimes this is because the UK no longer produces these items at all (merchant ships are an example) and sometimes because the UK now produces smaller quantities (e.g. steel) or does so much more efficiently (e.g. motor cars).

The reduction in UK manufacturing employment happened in a number of stages, driven by different factors. In the late 1960s and throughout the 1970s the problem was stuttering growth in the UK market, rising productivity, and competition from other developed economies such as Germany and Japan (Massey and Meegan 1982, Rowthorn and Wells 1987). The early 1980s recession was a cataclysmic experience for UK manufacturing, hammered by a high exchange rate, high interest rates and falling domestic demand. Many companies used the recession as an opportunity to close capacity and reduce employment (Townsend 1983). The early 1990s recession, by comparison, hit UK manufacturing hard but less dramatically.

Since the early 1990s the dominant source of pressure on UK manufacturing employment has been the increase in production in low-wage economies, above all China (Dicken 2011). It has been estimated, for example, that for every extra manufacturing job created as a result of investment in the UK, almost six have been lost as a result of competition from low-wage economies (Rowthorn and Coutts 2004). Sometimes UK companies have transferred all their production abroad, retaining design and marketing in the UK – Dyson vacuum cleaners, Hornby toys and Clarks shoes are examples. Sometimes they retain final assembly in the UK but the manufacture of standard components is sub-contracted abroad. On other occasions, especially in the clothing industry for example, UK companies have simply had to down-size, develop niche products or close altogether because they are unable to compete.

The post-2008 recession, though originating in the banking crisis, followed a familiar pattern in that output and employment in UK manufacturing fell further and faster than in UK services (Bailey and Chapain 2012). The slow and faltering recovery had, by 2013, only made good a portion of the loss in output.

The net effect of these successive rounds of restructuring has been that low-value high-employment activities have disappeared from most of UK manufacturing.

2.2 Regional trends

All the UK regions have seen big reductions in manufacturing employment. Table 2 breaks down Britain into five areas – the North, Midlands and South of England, Scotland and Wales. Changes in regional boundaries over the years make a more detailed breakdown difficult, and again the figures are not absolutely comparable between the two dates: it is the broad picture that matters. The reductions in manufacturing employment are expressed as a percentage of total employment in 1966 in all sectors of the local economy (including services) thereby offering a guide to the impact on the overall regional economy. This table also adds a second part that includes job loss in the mining and energy sectors. These too were once huge employers, drawing on a workforce that was to an extent similar to the one deployed in manufacturing. This gives a better impression of the extent to which different parts of the UK have been affected by the reduction in industrial employment.

Table 2: Employment by region, 1966-2011

	Manufacturing (000s)		Job loss as % of total emp. in 1966	All industry* (000s)		Job loss as a % of total emp. in 1966
	1966	**2011**		**1966**	**2011**	
North	2740	760	-31	3110	870	-35
Midlands	1890	590	-34	2100	670	-38
Southern England	3220	1040	-22	3450	1210	-23
Scotland	750	210	-26	850	290	-26
Wales	330	130	-20	430	160	-28
GB	**8940**	**2740**	**-27**	**9940**	**3200**	**-29**

*Manufacturing plus mining, quarrying and energy
NB Job loss expressed as % of total employment in all sectors (inc. services)
Sources: Department for Employment; Annual Population Survey Workplace Statistics

The Midlands and North have been hit hardest by the reductions in manufacturing and industrial employment. That Southern England escaped lightest from the contraction in industrial employment will probably come as no surprise. This is partly because industry accounted for a smaller proportion of jobs in the South and partly because the industries hit hardest by job losses – coal, steel, shipbuilding and heavy engineering – were predominantly located elsewhere.

Additionally, there is a strong 'spatial division of labour' within companies in the UK, with functions such as R&D and head offices located in and around London and routine production in other regions (Massey 1984). In the early 1980s recession, for example, manufacturing job losses were greatest in regions like the North East not because these places had proved to be uneconomic locations but because they had an especially high share of branch factories undertaking routine production of mature products that, when the crunch came, were essentially expendable (Fothergill and Guy 1991). By contrast, 'core' plants within the same companies, often located in southern England or abroad, undertook a wider range of functions (including for example R&D) and manufactured the cutting-edge products essential for the companies' long-term future.

But to characterise the pattern of manufacturing job loss as simply 'North versus South' would be to miss its complexity. In fact, London has been one of the main losers – its manufacturing employment has dwindled from around one and a half million in the 1950s to just 150,000. This is because overlain on regional trends there has been a powerful tendency for manufacturing to shift from cities to towns and rural areas (Fothergill, Kitson and Monk 1985, Turok and Edge 1999). The roots of this trend are surprisingly mundane: modern manufacturing mostly requires single storey layouts on spacious sites, with room for parking and future expansion, and good road access. Big cities have difficulty providing sites like these, other than perhaps on their periphery (Fothergill, Monk and Perry 1987).

At the local level the geography of job loss is even more complex. For example, steelmaking survives in Port Talbot, Scunthorpe and on Teesside but ended in Motherwell and Newport. Mass manufacturing of motor cars ended at Longbridge in Birmingham and Dagenham in East London but since the 1980s new car plants have opened in Sunderland, Swindon and South Derbyshire. Back in the 1960s or 70s it was not possible to predict these specific outcomes any more than it is possible now to forecast exactly which individual factories and places might be the casualties of industrial restructuring in the next thirty or forty years.

3. New forms of manufacturing

The raw employment figures do however over-state the decline of UK manufacturing. Manufacturing output, for example, has experienced a much less acute reduction. In fact, in value terms (in so far as this can be measured over long periods) UK manufacturing output is currently at least as great as in the mid-1960s.

The extent of job loss is also exaggerated by the increase in 'out-sourcing'. In the mid-60s, large manufacturing companies could be highly self-contained businesses: they employed caterers, cleaners, building maintenance workers, haulage drivers, marketing staff and a host of others who would these days normally be employed by sub-contractors. Even payroll services are sometimes now contracted out. The driving force has been the need to reduce costs. The effect, in statistical terms, has been to transfer jobs from 'manufacturing' to parts of the service sector, and this has been one of the triggers behind the expansion of employment in 'business services' in particular (Merino and Rodriguez 2007).

The nature of 'manufacturing' firms themselves has also changed. High-value producers, in particular, have often diversified away from just the production of goods and components to embrace after-care, training, servicing and systems management (Livesey 2006, Sissons 2011). Thus when Rolls-Royce sells aircraft engines it now sells an accompanying package of real-time monitoring and life-long servicing. IBM sub-contracts production and focuses on generating value from services linked to the product. In the most extreme cases, the physical manufacture of some products has never at any stage taken place in high-wage economies such as the UK even though the product development, the intellectual knowledge and patents are all rooted there. Some of the best known examples come from the United States: US-based Apple Computers, for instance, undertakes nearly all its production in China, while Nike has made a practice of out-sourcing all its production to low-wage economies. In computing and in bioscience, for example, it is now not unusual for ideas developed in the UK to lead to production elsewhere. The UK benefits from royalties and profits, but not from the manufacturing jobs themselves. The distinction between 'manufacturing' and 'services' is therefore becoming blurred, and manufacturing firms can in practice account for a substantial share of export value of what are classed as services (Brinkley 2009). This trend seems likely to continue.

Taking the long term view, further change in the global demand for manufactured goods is inevitable. The drivers will be rising incomes, higher environmental standards, demographic and lifestyle change, technological progress and the growth in emerging markets (BIS 2010).

The shift to high-value manufacturing also changes the composition of the workforce (Davis et al 2012). The factory of the mid-twentieth century was typically characterised by row upon row of workers at machines, each undertaking a simple mechanical task. Now, the mechanical tasks themselves are likely to be mechanised and the role of the worker is to programme and maintain the machines, to ensure they are fed with components and to organise the distribution of the finished product. White-collar office jobs, for example in design, have also risen as a proportion of the total. These changes in the composition and skill requirements of the manufacturing workforce are mostly gradual and on-going so they are less likely in themselves to result in redundancy, especially if the employer is willing to invest in re-skilling.

Table 3 shows the changing occupational structure within manufacturing between 1991 and 2012. The striking feature is the rise in the share of professional and technical staff, to the point where they now match the number in manual skilled trades. As recently as 1991, the numbers in manual skilled trades still outnumbered professional and technical staff by three-to-one.

Table 3: Occupational structure of GB manufacturing, 1991-2012

	% of all jobs 1991	% of all jobs 2012
Managers, directors	14	11
Professional, associate professional & technical	10	25
Administrative, secretarial/clerical	11	9
Skilled trades	31	23
Service trades	4	3
Process, plant and machine operatives	26	21
Elementary occupations	4	8

Sources: Census of Population, Annual Population Survey Workplace Statistics

4. The consequences for workers and the labour market

4.1 Redundant workers

It would be wrong to assume that the job losses arising from the shift to high-value manufacturing necessarily take the form of redundancy. In practice, firms can down-size their workforce in a number of ways – through retirements, failure to replace staff leaving, and recruitment freezes for example (Greenhalgh, Lawrence and Sutton 1988). In these cases the impact of job loss falls on the men and women who lose the opportunity to apply for the vacancies that would otherwise have arisen. Often, the impact of down-sizing in manufacturing is therefore felt by school-leavers and new graduates who have never worked in the sector.

Indeed, compared to the 1980s in particular (Fothergill and Guy 1991) mass redundancies now appear less frequent. This may be partly because manufacturing workforces are much smaller but it also seems to reflect a shift in attitude among employers. This was especially noticeable during the post-2008 recession when the fall in UK economic output was greater than the fall in employment, suggesting that these days firms are keener to hang on to workers (Hurley and Finn 2009). That said, there are still recent cases – in the motor industry in the West Midlands for example – where closures or large-scale redundancies have a major impact.

Where large-scale redundancies do occur – for example from the shipbuilding industry (Hinde 1994, Shuttleworth et all 2005), the clothing industry (Blyton and Jenkins 2012) or the motor industry (Bailey et al 2012) – we have a fairly good picture of how the redundant workers themselves are affected. What studies typically demonstrate is that a substantial proportion of the redundant workforce does subsequently finds alternative employment, but often at lower wage levels. The context also matters, in that it is easier to find alternative work in the context of national and regional economic growth, and assistance with re-training also delivers positive outcomes (Armstrong et al 2008).

The employment outcomes for the 6,300 workers made redundant in 2005 by the closure of the MG Rover car plant at Longbridge in Birmingham provide a good example. Three years after the closure, a sample survey (Bailey et al 2012) found that nearly three-quarters were back in full-time employment and a further 15 per cent were either in part-time work or were self-employed. But average salaries, adjusted for inflation, were almost a quarter lower than they had been at the car plant.

4.2 The impact on local labour markets

If a redundant worker finds alternative employment, even at the same or higher wages, this does not necessarily mean that there has been successful labour market adjustment. In practice, the redundant worker may have found new employment at the expense of another jobseeker. It is worth bearing in mind, for example, that many manufacturing employees have always had working lives that straddle several firms, sectors and (to some extent) occupations (Burgess 2009).

Indeed, the most important point about the consequences of manufacturing job loss is that they do not fall exclusively – or necessarily even predominantly – on the manufacturing workforce itself. This is because the manufacturing workforce is an integral part of the wider labour market and, through normal competition for jobs; unemployment is often transmitted from one individual to another and from one place to the next. The evidence from job losses over the last thirty years or so is however that the biggest consequences are not those that might be expected.

First, though, it is important to dispel a myth. This is that in a market economy, adjustments in wage levels bring the demand and supply for labour back into balance and that, after a short while, a surplus of labour released by manufacturing will be re-absorbed into the economy. The abundant evidence, not least the persistence of high levels of worklessness in Britain's weakest local economies (Beatty and Fothergill 2011), points to the failure of this adjustment mechanism. Over the long run, wages in weaker local economies do tend to slide relative to more prosperous areas, and this is evident in a widening gap in earnings between UK regions over recent decades, but the adjustments are neither large enough nor swift enough to avert unemployment.

But in the UK the form of 'unemployment' can be unconventional. By and large, the principal long-term response to job loss in the UK has not been an increase in claimant unemployment – that is, the numbers out of work claiming Jobseeker's Allowance or its predecessor Unemployment Benefit. The number of claimant unemployed does rise in recessions but in the UK over the last twenty to thirty years the main form of labour market adjustment has been a *rise in economic inactivity* – that is a withdrawal from the labour market of working age men and women (Green 1997, Green and Owen 1998). In turn, this primarily reflects a diversion from unemployment onto disability benefits (Mackay 1999, Webster 2002, Beatty and Fothergill 2005).

The classic example here is from the coal industry, where the loss of 250,000 jobs from the early 1980s onwards led to little or no increase in claimant unemployment in mining areas. The biggest labour market adjustment was a withdrawal of men from the labour market, principally onto disability benefits (Fieldhouse and Hollywood 1999, Beatty, Fothergill and Powell 2007).

Barrow in Furness in North West England provides an example arising from manufacturing job losses. In Barrow, the end of the Trident submarine building programme in the early 1990s led to 8-9,000 job losses from the local shipyard, in a relatively small, geographically isolated community. The main labour market effect was a surge in the numbers claiming disability benefits (Beatty and Fothergill 2002).

In the coalfields and in Barrow, and in countless other towns affected by industrial job losses, the increase in disability claimant numbers did not represent an increase in fraudulent claims. Rather, what was happening was that unemployed men and women with health problems or disabilities were finding that they were able to qualify for disability benefits instead of unemployment benefits, and that they were financially better off in doing so. The effect was to hide unemployment on a massive scale (Beatty and Fothergill 2005, McVicar 2011).

The *enormity* of this diversion onto disability benefits is worth emphasising. Even in 2013, in the wake of recession, UK claimant unemployment (on JSA) stands at only 1.5 million. In contrast, 2.5 million men and women of working age are out-of-work on disability benefits (mainly Incapacity Benefit and its successor Employment and Support

Allowance). The present number of disability claimants of working age is roughly four times greater than in the 1970s, and the increase stands in stark contrast to the gradual improvement in the health of the working age population that has occurred in the intervening years.

The *persistence* of high numbers on disability benefits is also worth noting. By and large, the generation of redundant men (and to a lesser extent women) who made up the surge in disability claimants in the 1980s and 90s (Alcock et al 2003) has now passed out of the figures as they have reached state pension age. But reflecting the continuing imbalances between demand and supply in local labour markets, the high disability claimant rates have persisted, an older generation of men with musculoskeletal problems being replaced by a new generation of both men and women often with stress, depression and mental health problems (Beatty et al 2009).

If we make an allowance for the diversion from unemployment to disability benefits, the scale of unemployment is far greater than official figures suggest. Estimates from Sheffield Hallam University, published periodically since 1997, put the 'real level of unemployment' at around one million higher than the highest official estimates (from the Labour Force Survey) and up to two million higher than the claimant count. The most recent estimates, for April 2012, put the GB figure at over 3.4 million (Beatty, Fothergill and Gore 2012). Moreover, the hidden unemployment, especially on disability benefits, is disproportionately concentrated in the weakest local economies. Indeed, it is in many of the places where massive numbers of mining and manufacturing jobs have disappeared over the years that the real rate of unemployment is estimated to be highest.
There is evidence that similar diversions onto disability benefits occurred in some other European countries (Kemp 2006) and in the United States (Autor and Duggan 2003), even if not always on the same scale as in the UK.

The scale of disability benefit claims may seem a long way removed from the shift to high-value manufacturing but a failure to link the two would miss the principal way in which local labour markets in the UK have adjusted to industrial job loss. Disability benefits are at the heart of the narrative. Disability claimant numbers, and their distribution around the country, destroy any lingering myths that the adjustment to manufacturing job loss has been anything other than deeply painful and wasteful of human resources.

4.3 Commuting, migration and displacement

One of the ways workers respond to job loss is by looking for work elsewhere, either within commuting distance or by moving completely out of the area. In the UK context these labour market adjustments have generally been smaller than the diversion onto benefits but they do occur (Turok and Edge 1999, Gore et al 2007). It comes as no surprise, for example, that in the wake of its shipyard job losses Barrow was the English local authority with the largest fall in population between 2001 and 2011 (ONS 2012). Men and women with marketable skills have left the area to find work elsewhere. However, in circumstances other than full or near-full employment, when there may be hard-to-fill vacancies, commuting or migration is simply likely to transmit worklessness from one location to another: when the commuter or migrant fills a vacancy they are likely to displace a local jobseeker.

More generally, the normal process of competition in the labour market ensures that unemployment (in whatever form it takes) is ultimately transmitted to those least able or least willing to retain a foothold in paid employment.
Barrow in Furness provides a good example. We have already noted that the biggest single consequence of job loss from Barrow's shipyard was an increase in disability claimants. When this group of claimants was first surveyed, in 1999, it was dominated by skilled ex-shipyard workers, often with a desire to return to work if at all possible. When Barrow's disability claimants were surveyed for a second time, in 2007, the headline numbers had barely changed but the composition of the group had altered radically. The shipyard workers were far less in evidence – indeed many had reached state pension age – but they had been replaced by disability claimants with poor qualifications, patchy work histories, low-grade work experience and flagging motivation to return to work (Beatty and Fothergill 2007).

The trends among benefit claimants in Barrow illustrate the point that, in a competitive labour market, worklessness comes to rest disproportionately with those who are least attractive to employers – the low-skilled, less healthy or able-bodied, with mainly low-grade manual experience, long periods out-of-work and (since there is ageism in the labour market) those towards the back end of their working lives.

4.4 The impact on women

The normal competition in the labour market also explains another apparent riddle: that the job loss from mining and manufacturing, which initially disproportionately affected men, has also resulted in higher benefit claimant rates among women in the same places.

Manufacturing job losses have not impacted solely on men of course. The textiles and clothing sectors, which have together shed over a million jobs in the UK since the 1960s, were once huge employers of women. But many other parts of manufacturing were traditionally male-dominated. Steel, shipbuilding, heavy engineering and the motor industry are good examples. Additionally, as the proportion of white-collar jobs in manufacturing has risen, it is arguably the male manual worker that has been squeezed most by declining job opportunities. However, in the parts of Britain where unemployment is highest – often older industrial areas – high levels of worklessness tend to affect both men and women (Beatty and Fothergill 2011).

The explanation lies in the fact that far fewer jobs are now seen as exclusively 'male' or 'female'. So while the men made redundant a generation ago from industries like steel and shipbuilding might have shunned what they saw as 'women's work', their sons have rarely had the same luxury. The old industries have often gone, the requirement to look for work as a condition of benefit receipt and the impact of government schemes such as the Work Programme mean that it is not easy to remain on Jobseeker's Allowance for extended periods. So a younger group of men who a generation ago would have found jobs in manufacturing have instead taken up employment in shops, hotels, catering, hospitals and offices, often in roles that once might have been filled by women. In doing so they have made the labour market in the places they live more difficult for women. Many of the women who fail to find work have then ended up claiming benefits, including disability benefits, in the same way as their male counterparts. In this way unemployment is transmitted from men to women in the places where there are not enough jobs for everyone (Beatty et al 2009).

Compounding the competitive pressures, there has been a substantial increase in labour force participation among women. This is rooted in long-term social change but also in the breakdown of the ‘male bread-winner’ model that itself owed much to the prevalence of reasonably well-paid jobs in manufacturing (Bradley 1989, Green 1994, Guitierrez-Domenech and Bell 2004).

Once more, the point is that it is not necessarily the manufacturing workforce itself which ultimately bears the burden of job loss. Competitive forces in the labour market mean that in the places where there are not enough jobs to satisfy the potential labour supply, worklessness gravitates to the men and women least attractive to employers – those with low skills, poor health, low-grade experience, long periods out-of-work and advancing years.

5. The experience of regeneration

Just as manufacturing job loss in recent decades offers a guide to the possible consequences in future, there is also a great deal of experience to draw on in trying to regenerate the worst affected places.

The UK has a long history of regional economic policy, extending back to at least the 1930s. The intensity of efforts to promote economic growth in less prosperous parts of the country has varied. The late 1940s, the 1960s and 70s, and the first decade of the present century probably represent, in their different ways, the peaks in the intensity of effort. However, the fact that much the same regions and local areas are the problematic ones today as in the 1930s often prompts the suggestion that regional policy doesn't work.

This conclusion is wrong. The key to understanding the policy impact lies in estimating *what would have happened in the absence of regional policy*. The difference between what actually happened, and what would have happened in the absence of policy, is the proper measure of the policy effect.

Reflecting the long history of UK regional policy, studies of its impact date back at least to the 1960s. By the early 1970s a tried and tested method for measuring the policy impact had been developed and was generating results that were consistent with evidence on the location and scale of inward investment. The crowning achievement amongst this research was undoubtedly the study by Moore, Rhodes and Tyler (1986) for what was then the DTI. This provided estimates of the impact of regional economic policy that were based on plausible estimates of what would have happened in the absence of regional policy, rooted in comparisons of employment trends in periods of 'strong' and 'weak' regional policy. Their study concluded that from 1960 onwards regional policy had in total diverted 600,000 manufacturing jobs to the four main assisted regions (the North, Scotland, Wales and Northern Ireland), of which 450,000 jobs still survived in the early 1980s. These estimates commanded wide academic credibility. So it became safe to conclude that regional economic policy did indeed work.

What we also learned from this classic evidence is that some types of regional support are more cost-effective than others. Discretionary grants are cheaper, in terms of the Exchequer cost per job, than automatic financial incentives, and blanket labour cost subsidies are the least cost-effective of all. The most cost-effective tools are administrative controls (present-day planning controls would fall into this category) but these run the risk of stifling investment altogether or diverting it abroad.

From this point onwards the evidence base began to deteriorate. This is mainly because the technical challenge of disentangling a 'policy effect' becomes much harder, for example because regional policy itself becomes more complex (with major contributions from the EU as well as the UK government) and because it becomes harder to establish a plausible 'policy off' scenario. The net effect is that the simple, overarching analysis of the impact of policy has become a thing of the past. It has been replaced by programme-by-programme and agency-by-agency evaluations.

There is good reason to be sceptical about the real value of most of these studies. Apart from the old difficulty of establishing 'what would have happened in the absence of policy', by looking at the component parts of regional policy such studies tend to overlook

the fact that successful job creation often arises from the simultaneous actions of several different players. There is, as a result, a tendency towards 'over-counting', as the same job gets counted more than once by different players. In some evaluations, the vested interest of sponsors probably also taints the published results. The net impact of regional policy cannot therefore be estimated simply by adding together the published estimated impacts of individual programmes or agencies.

That said, in just about all these evaluations a positive policy impact is usually identified. One of the better examples is the evaluation of the recent impact of regional investment grants (Hart et al 2008). A positive impact is also confirmed by local studies. The evidence from the former coalfields, for example, is that by the middle of the last decade rather more than half the jobs lost from the coal industry since the early 1980s had been replaced by new jobs for men in the same areas (Beatty, Fothergill and Powell 2007). A study by the Audit Commission (2008) confirms that up to the onset of the 2008 recession the former coalfields were gaining employment.

Investment in infrastructure is part of the regeneration jigsaw. Compared to the Britain of the 1960s, few places now lack decent road access, and basic utilities (including broadband) are available more or less everywhere even if there is room for improvement. Land and property can be more of a practical constraint on growth if for no other reason that the availability of suitable space is a prerequisite for development. In the coalfields and in many manufacturing towns the clearance of former industrial sites has therefore been a first step in allowing the development of new economic activity. The redevelopment of Sheffield's Lower Don Valley and of London's Docklands – both achieved with the assistance of government funded development corporations – are two examples (Dabinett 1991, Brownhill 1999). The successful Enterprise Zones of the 1980s and 90s were also essentially property-led (PA Cambridge Economic Consultants 1995).

So we might cautiously conclude that economic regeneration does work, even if it has not yet solved the UK's regional problems. The nagging worry is that manufacturing industry itself remains the focus of so much regeneration effort, yet it is manufacturing that has been shedding so many jobs. This is perhaps less of a contradiction than first appears. Local and regional economies are best thought of as comprising two elements: one which trades with the rest of the country or world and therefore brings income into the area, and the other which depends on local spending or, in the case of public sector jobs like schools and hospitals, is tied to the local population. It is the former – activities that bring income to an area – that ultimately drive local and regional economic growth, and most manufacturing falls squarely into this category. But manufacturing is not alone. Tourism, higher education, call centres, distribution depots, central government offices and a fair swathe of business services, for example, also act as drivers of local economic growth. If there is a criticism of contemporary regional policy it is perhaps that more reliance is placed on manufacturing than it can reasonably be expected to deliver.

Additionally, experience tells us that it is easier to regenerate some places than others. This is perhaps best illustrated by the contrasting fortunes of the Welsh Valleys and South Yorkshire (Gore et al 2007, Fothergill 2008). Both areas suffered appalling job losses from what were once their main industries – not just coalmining but also steel and manufacturing more generally. During the 1990s and 2000s both areas were eligible for the highest level of EU regional aid and could also offer the highest rates of financial assistance in the UK to potential investors. They were also both targeted by a range of initiatives run by the governments in Cardiff and Westminster. While South Yorkshire's recovery is not complete the area has unquestionably made progress, measured by

rising GDP and employment (at least up to 2008). The Welsh Valleys, in contrast, remain mired in difficulty, with GDP per head still at a level that qualifies the area for the highest EU aid through to 2020.

The contrast between the Welsh Valleys and South Yorkshire illustrates the power of underlying locational influences. South Yorkshire is centrally located within Britain, ringed by motorways, and has plenty of flat developable land. It comes as no surprise therefore that it has been able to attract numerous distribution depots – not the best-paying jobs perhaps, but jobs nonetheless. The Welsh Valleys, off the beaten track and with a difficult topography, missed out on this wave of investment. Call centres too have opted for South Yorkshire, where they can draw on a large labour market, whereas in Wales the labour supply is segmented between individual valleys.

6. The places at risk

Figures 1 and 2 show the distribution of manufacturing employment by district across England, Scotland and Wales. The local figures presented here, from the government's business survey (BRES), have all been adjusted to bring them into line with the national headline total for manufacturing employment (2.74m for GB in 2011). It is worth bearing in mind that although the figures here accurately reflect where manufacturing jobs are located, the workforce will generally be drawn from a wider geographical area. Supply chains, too, will extend further afield.

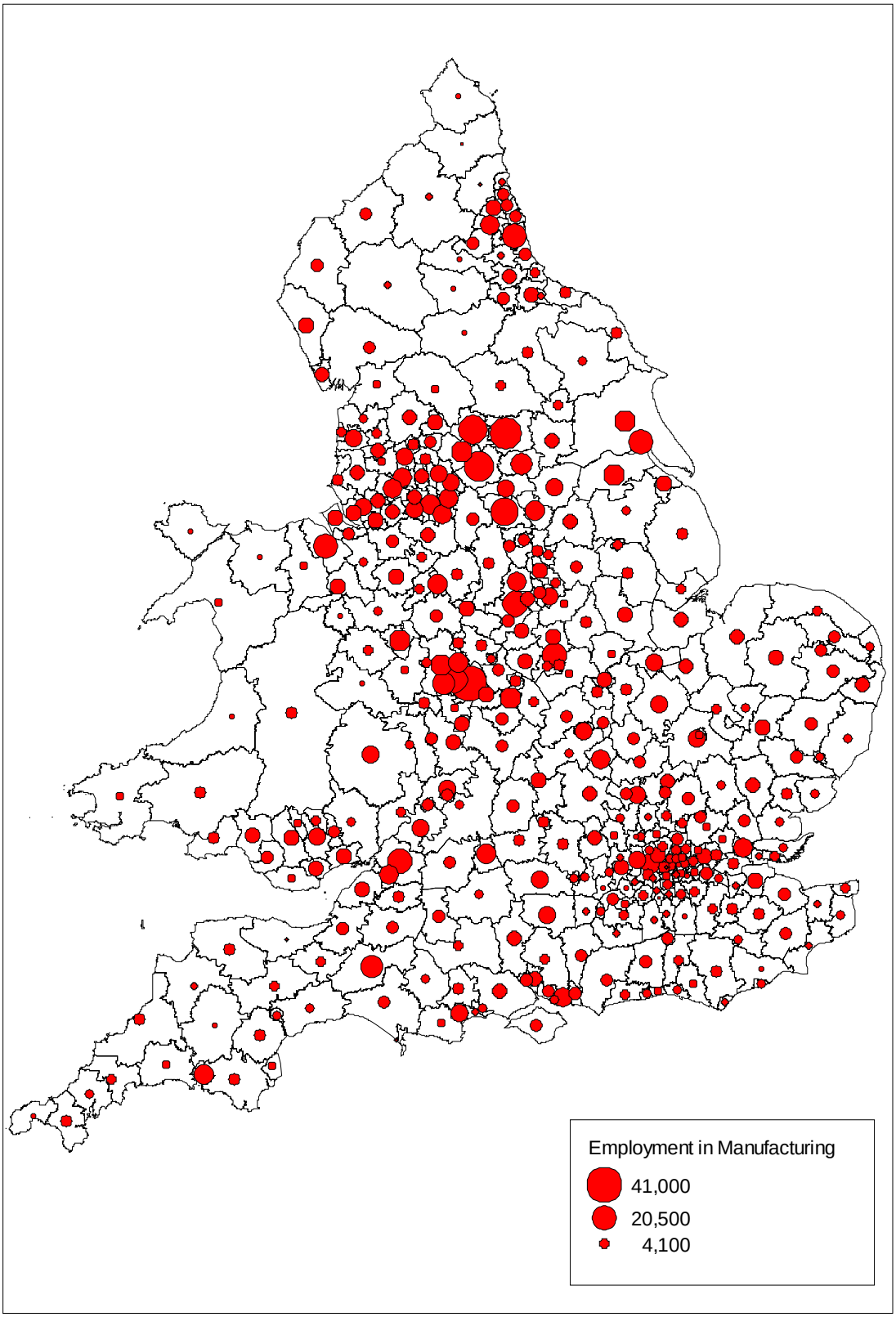
The maps illustrate the extent to which many of the areas that are often labelled 'industrial' because of their history continue to have a high number of jobs in manufacturing. There are notable concentrations in the West Midlands, in the North West and Yorkshire, the North East and central Scotland. In effect, years of industrial job loss have not altered some aspects of the geography of Britain.

Birmingham has the largest single concentration of manufacturing jobs – 40,000 in all – and nearby Sandwell (24,000), Dudley (19,000), Wolverhampton (17,000), Coventry (16,000) and Walsall (15,000) also have large numbers. In West Yorkshire, Leeds has 34,000 manufacturing jobs and there are also substantial numbers in nearby Kirklees (30,000), Bradford (29,000), Wakefield (18,000) and Calderdale (15,000). A few miles south, Sheffield has 27,000 manufacturing jobs, and there are 23,000 in Derby and 22,000 in Leicester. The London boroughs with the largest number of manufacturing jobs are Ealing with 15,000 followed by Hillingdon, Brent and Barking and Dagenham, each with 10,000. In Scotland the biggest concentration is in Glasgow (23,000), and in Wales in Flintshire (19,000).

By contrast, 183 districts out of the GB total of just over 400 have fewer than 5,000 manufacturing jobs. This includes 25 out of 32 London boroughs. A number of historic cities have modest numbers – Edinburgh (just 8,000), Oxford (5,000), York (4,500) and Cambridge (3,000).

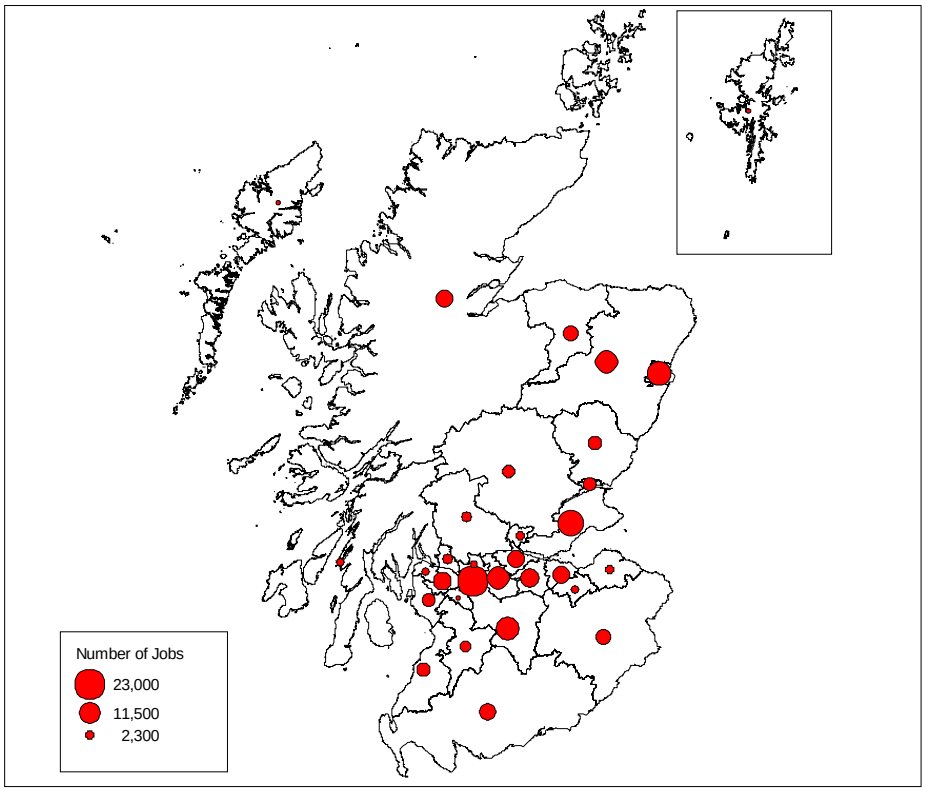
Figures 3 and 4 look at the same information but from a different angle. These show manufacturing's share of all the jobs located in each district. The share varies a great deal – at the extremes from 33 per cent of all jobs in Copeland in West Cumbria to less than 1 per cent in the London boroughs of Westminster and Kensington and Chelsea. The pattern is also complex.

Figure 1: Number of manufacturing jobs by local authority district, England and Wales, 2011



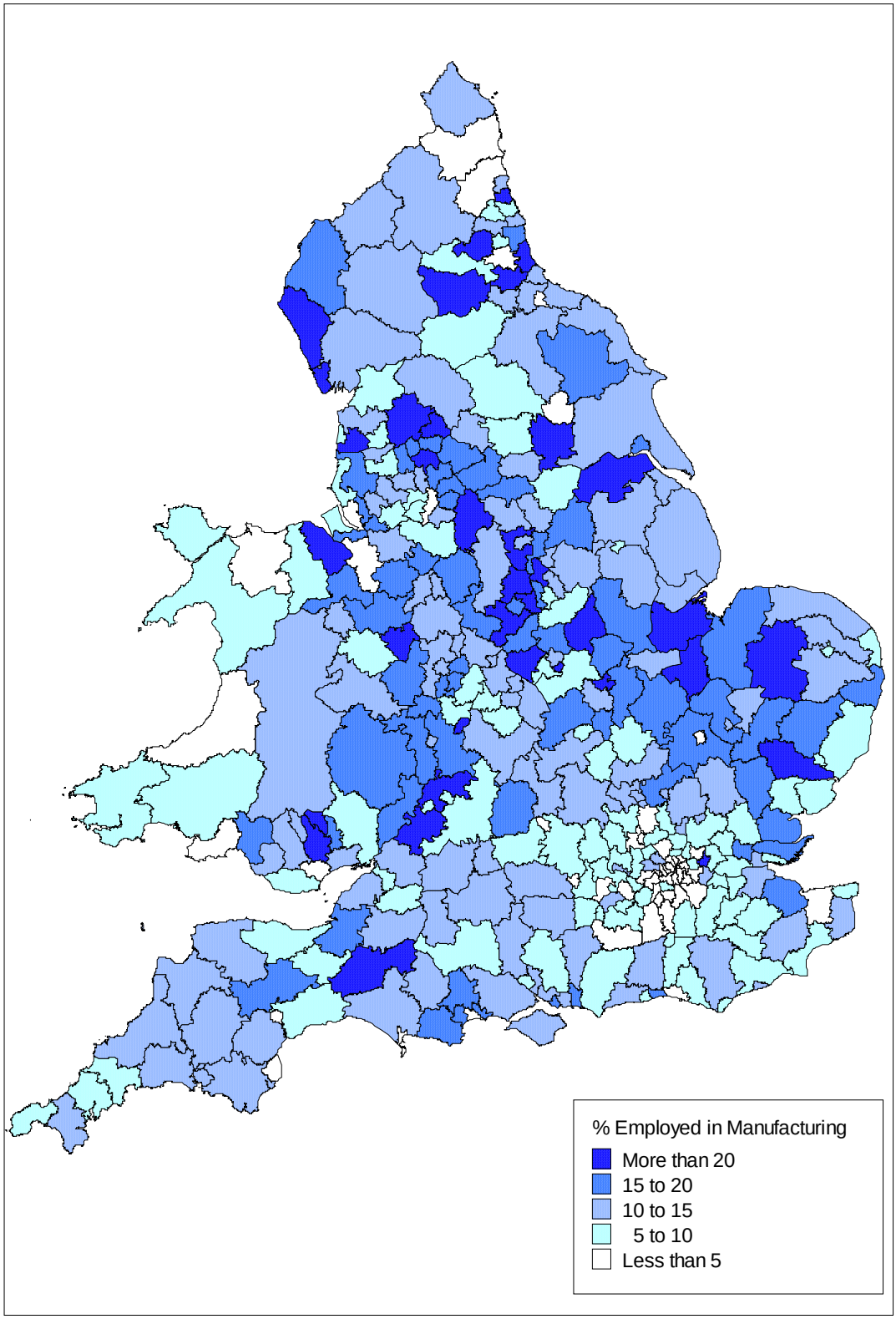
Sources: BRES, Annual Population Survey Workplace Statistics

Figure 2: Number of manufacturing jobs by local authority, Scotland, 2011



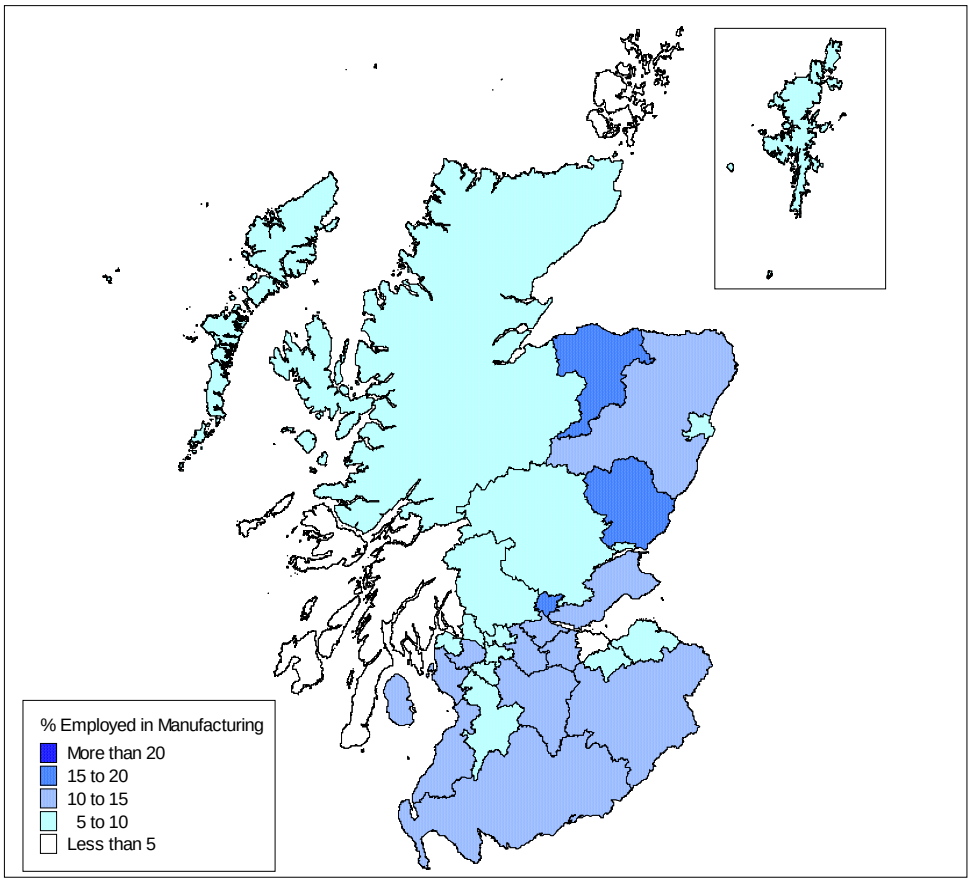
Sources: BRES, Annual Population Survey Workplace Statistics

Figure 3: Share of manufacturing in total employment, by local authority district, England and Wales, 2011



Source: BRES

Figure 4: Share of manufacturing in total employment, by local authority, Scotland, 2011



Source: BRES

Manufacturing continues to be important in a number of places because of the relative weakness of other sectors of the local economy. By and large, the second and third-tier towns that make up much of industrial Britain have not been the preferred locations for financial and business services, which have gravitated to the big cities. The major cities have also become the main centres for retailing and leisure. Government offices, universities and major hospitals also tend to be located in the big cities, diluting the local share of jobs in manufacturing.

So although Birmingham has Britain's largest concentration of manufacturing jobs, the sector only accounts for 8 per cent of all jobs in the city. In Leeds the proportion is also 8 per cent, in Newcastle 5 per cent and in Manchester just 4.5 per cent. By contrast, the proportion exceeds 20 per cent in several districts in Durham, Lancashire and Derbyshire.

London and its commuting hinterland stands out as an area where the share of jobs in manufacturing is almost consistently very low.

The effect of what Fothergill and Gudgin (1982) labelled the 'urban-rural shift' in manufacturing location is also evident in these maps. A number of essentially rural districts have a share of jobs in manufacturing that is well above the national average. Often these rural districts are also beyond the commuting hinterland of the big cities. Sometimes the high proportion reflects concentrations of food processing related to the local agricultural base (in Fenland in East Anglia for example). In other cases it reflects

the presence of large manufacturing plants unrelated to agriculture (for example pharmaceuticals in Teesdale in North East England and aerospace in South Somerset). More generally, the high proportion in manufacturing in a number of districts can be attributed primarily to specific large plants. In Copeland, in West Cumbria, the Sellafield nuclear complex is the dominant employer. In neighbouring Barrow in Furness it is the shipyard. In Fylde in Lancashire it is BAE Systems' aircraft plant at Warton. In North Lincolnshire it is Tata Steel at Scunthorpe. There are several other examples.

In several of these places manufacturing approaches or exceeds 30 per cent of all jobs (compared to less than 10 per cent nationally) and a single large manufacturing plant accounts for two-thirds or more of the total. There is an inherent vulnerability to local economies in this reliance on a single employer but it cannot be assumed that these particular plants are liable to shed jobs or close. Indeed, a number of the large aerospace and pharmaceuticals plants, for example, might reasonably be described as precisely the sort of high-value manufacturing in which the UK should look to specialise. Nevertheless, if UK manufacturing industry were to continue to shed jobs as part of the move towards high-value high-productivity activities it might be expected that the places with a high number of jobs in manufacturing would be exposed to job losses. Since many of these are places where worklessness (which is a lot wider than just 'unemployment' as we explained) is already relatively high, the consequences could be expected to be a widening of the gap in prosperity between the best and worst parts of Britain.

In practice, locational trends are unlikely to be so simple. One of the complications is that some places are arguably more efficient locations for industry than others. In particular, in recent times there has been a strong revival of academic and policy interest in 'agglomeration economies' – the idea that firms operate more productively if they are located close to other firms like themselves, so that they can benefit from a pool of skilled labour, specialised suppliers, customers and local knowledge that supports their activities (Porter 1990, Krugman 1995).

A variant on the agglomeration theme is the idea that successful high-value manufacturing needs to be located close to universities and research centres where new products and processes are developed and from where highly-qualified engineers and scientists can be recruited (Huggins and Johnston 2009). Concentrations of expertise of this kind can generate spin-off new businesses that sometimes grow to substantial enterprises. The best-known example in the UK is the growth of high-tech employment around Cambridge but there are other examples. It has been argued, for example, that one of the long-term effects of the concentration of so much government-funded defence research in the counties to the south west of London has underpinned their strength in civilian high-tech jobs (Hall et al 1987).

More generally, there is evidence that manufacturing firms flourish best when they are embedded in 'regional innovation systems' (Cooke et al 2000, Asheim et al 2003, Boschma 2005). These are geographically distinct clusters of industrial activity, backed by regionally-based institutions and networks that facilitate collaborations between firms and with knowledge-creating and diffusing organisations such as universities, training organisations and R&D institutes. These provide a culture that is supportive of innovation and allow both firms and networks to evolve over time. The potential relevance of regional innovation systems to the evolution of high-value manufacturing is clear; what is less certain is that such systems can be easily engineered where they do not exist at present.

Conversely, there is a long tradition in manufacturing of carrying out R&D and production in separate establishments and different places, or even different countries. The shift in some firms' routine production to China alongside the retention of product development in the UK provides a telling illustration. More generally, the older industrial areas of the North, Scotland and Wales have often provided a base for branch factories undertaking the mass manufacture of mature products. This can make a lot of sense: older industrial Britain is usually able to offer a large potential workforce and plentiful development sites. It would also be wrong to assume that just because an industry's product is somehow 'traditional' that the production processes themselves – and thus the vulnerability to competition from low-wage economies – are also low-productivity or low-technology. The realities are actually far more complex. In Stoke-on-Trent's pottery industry, for example, firms that manufacture traditional products with traditional methods have flourished where they have integrated leading-edge design into their products, enabling them to sell into higher-value markets.

There is therefore little merit in trying to map the distribution of vulnerable employers and jobs. The specific industry in which a manufacturing plant operates is a poor guide to its survival chances. The last couple of years, for example, have seen the closure of a major pharmaceutical plant at Sandwich in East Kent (by Pfizer) but plans to open another in Ulverston in Cumbria (by Glaxo Smith Kline). Likewise, the train manufacturing plant operated by Bombardier in Derby has experienced major job losses and remains vulnerable but a new train manufacturing facility is being built by Hitachi in Newton Aycliffe in County Durham.

7. More of the same… or a break in trend?

What should be clear from the discussion so far is that possible job losses as a result of a shift towards high-value high-productivity manufacturing would not represent anything new, and that there is plenty to learn from past experience. But there are at least two reasons for supposing that the future will not be a simple replication of the past.

One is a question of arithmetic. If UK manufacturing employment continues its historic downward trajectory it is simply not possible to shed as many jobs as have been lost over the last thirty or forty years. A halving of manufacturing employment by 2050 – which would not be out of line with historic trends – would mean the loss of around 1.4 million jobs. By comparison, UK manufacturing shed more than 6 million jobs between 1966 and 2011. The manufacturing sector is simply so much smaller, in terms of employment, than was once the case that it is no longer possible for manufacturing job losses to cause as much damage and distress as in recent decades.

The other reason why the future may be different is a question of macroeconomics. Arguably, the future prosperity of the UK as a whole now depends on drawing a line under the long period of manufacturing decline. This would involve learning, once more, to sell goods (and services) to the rest of the world. The recession that began in 2008 marked the demise of the model of economic growth in which rising consumption in the UK was financed by rising debt. Spending ran ahead of incomes, and the corollary was a large trade deficit with the rest of the world. If there are now limits to the extent to which growth can in future be fuelled by rising debt, either in the public or private sector, the emphasis needs to shift to raising incomes, which in turn means an improvement in the trading position of the UK economy. As well as buying goods from China, for example, the UK needs to sell goods and services back to the Chinese.

The urgent need for economic rebalancing of this sort provides a massive opportunity for UK manufacturing. Manufacturing industry cannot provide the only boost to UK trade – services such as tourism, finance, the media, design and higher education also have a vital role to play – but because manufacturing still accounts for half of all UK exports it is uniquely well placed to make a key contribution. A recent government report, for example, identifies three sectors of advanced manufacturing – aerospace, automotive and life sciences – as able to make a particularly significant contribution to future economic growth (BIS 2012).

There is at least a hint, too, that there could be a modest ‘reshoring’ of manufacturing production back to western economies such as the United States and UK (*Economist* 2013). As wages and costs rise in China, in particular, the balance of advantage shifts back in favour of the UK. A UK production base also reduces the time that it takes to get a product to market – important in the fashion industry for example – and ties up less capital in goods in transit.

The point here is that we should not assume that high-value high-productivity manufacturing necessarily means a smaller manufacturing sector. Nor should we assume that its employment would necessarily be a great deal lower than at present. The challenge is in many respects to move into a period when manufacturing output grows *faster* than the growth of the UK economy as a whole, and possibly even faster than the growth in labour productivity, which would imply rising rather than falling employment.

At this point in time, perhaps more than at any stage during the last fifty years, projections of future employment in manufacturing therefore need to be treated with scepticism. We simply do not know whether the UK economy can rise to the challenge of rebalancing. That said, we can be fairly certain that within any given total for manufacturing employment there will be further shifts between occupations. There will also be a need to replace workers who leave, for example because of retirement.

A recent study for the government's Commission for Employment and Skills (Wilson 2012) is useful here. In *food and drink* the Commission's projections suggest relatively stable employment levels. Over half the jobs would remain in process, plant & machine operative and elementary categories, though this share might be expected to fall as managerial, professional and technical jobs increased. Net replacement demand for staff by 2020 was estimated at 160,000, with recruitment favouring those with intermediate and higher level qualifications.

In *engineering* the Commission's projections suggest fairly rapid productivity gains and further technological innovation in a sector that in its view is already relatively lean. With engineering products in demand, however, the Commission forecasts a slow-down in job loss. The job losses are expected to fall disproportionally on skilled manual workers and plant and machinery operatives. Even so the sector was still expected to recruit 70,000 by 2020 to meet replacement demand.

In the *rest of manufacturing* the Commission's projections suggest steady output growth coupled with continued or even more rapid productivity gains, leading to a net loss of jobs. Workers with higher level qualifications are expected to grow as a proportion of the workforce, and those with low or no formal qualifications are expected to account for a declining share. Replacement demand for labour was nevertheless estimated at 650,000 by 2020, mostly in skilled manual and plant & machine operative occupations but also in managerial, professional and technical jobs.

8. Key conclusions from the evidence

Let us now summarise the key conclusions emerging from this review. There are six main points:

- Most of the job loss arising from the shift to high-value low-employment manufacturing has already happened. UK manufacturing has shed six million jobs since the 1960s, leaving fewer than three million in 2012. Even if there are further job losses as the shift to high-value high-productivity activities continues, they cannot match the scale of the job losses over the last thirty or forty years.
- The loss of manufacturing jobs has resulted in large-scale worklessness and an immense waste of productive potential, but much of the resulting unemployment has been hidden from view. In particular, there has been a huge diversion onto disability benefits in the areas affected by industrial job losses.
- The loss of manufacturing jobs impacts widely on local labour markets, beyond just the redundant manufacturing workers themselves. In a competitive labour market, worklessness comes to rest with those least able or least willing to maintain a foothold in paid employment – the men and women with few qualifications, poor heath or disability, low-grade work experience and advancing years.
- Efforts to regenerate the areas affected by manufacturing job losses do work – but regeneration is neither quick nor cheap.
- Looking ahead, it is not possible to predict exactly which plants are likely to close or shed workers, but the continuing concentration of manufacturing jobs in Britain's traditional industrial areas, especially in the Midlands and North, indicates that these places remain most exposed to job losses.
- The UK's current economic predicament does however suggest that the economy may be at an historic 'break point' and that the manufacturing sector will in future have to make a bigger contribution to economic growth.

9. The implications for public policy

9.1 Implications for unemployment

In the years of economic growth prior to the 2008 recession it was perhaps easy to believe that the huge reduction in UK manufacturing employment was being absorbed relatively painlessly. Claimant unemployment was, after all, below one million. As we have explained, in fact this view was always wrong. What happened was that the benefits system hid much of the resulting unemployment from the official figures. What also happened was that expanding public sector employment absorbed a lot of the labour market slack.

Looking ahead, there is every reason to suppose that **any future manufacturing job losses will result in higher recorded unemployment**. One reason is that in the context of present-day welfare reforms fewer people are likely to claim disability benefits instead of unemployment benefits. The medical hurdles governing access to disability benefits have been raised, and the financial incentives to claim disability benefits rather than unemployment benefits are being reduced.

The other reason why higher unemployment is likely is that the era of expanding public sector employment now seems to be at an end. This is not simply because of the pressure to constrain public sector budget deficits. There is also recognition that a particular model of UK growth has had its day, and that economic rebalancing is essential and unavoidable.

If the shift to high-value high-productivity manufacturing proves to be a net destroyer of jobs then, other things being equal, we should therefore expect to see a rise in recorded unemployment. The good news is that a net loss of jobs should not be regarded as inevitable, and even if it were to occur it could not match the scale of job destruction in recent decades.

9.2 Implications for labour market policy

A central conclusion of the evidence set out here is that the labour market adjustments following a move to high-value manufacturing are not just a concern for the manufacturing workforce. Manufacturing firms are embedded in wider local labour markets, and the consequences of their hiring and firing extend far beyond just the workers directly affected.

This suggests that whatever the concern about manufacturing jobs, **interventions should not focus exclusively on the men and women working within manufacturing**.

Manufacturing employees are a legitimate target for support, especially to help ease the transition to high-value products and processes and to higher skills, but when significant job losses do occur – as they inevitably will from time to time – it is not just the redundant workers on whom the impact falls.

Thus the ‘Task Force’ model, which has been popular as a response to major job losses, in which the redundant workforce is given special help with retraining and finding work,

addresses only part of the problem. Out of any given workforce, some will find new jobs quickly without help and others with only modest assistance. But the job is not really finished when most of the redundant workforce is back in work again. The unfortunate fact is that, in an economy characterised by a shortfall in job opportunities, the redundant worker will mainly find new work at the expense of another jobseeker. The unemployment is thereby passed from one individual to another.

In industrial areas this points to the need for policies that boost the demand for labour, above all by strong growth in the national economy and by regional policies that promote investment and jobs in the less prosperous parts of the country. To be fully effective, a rising demand for labour needs to be linked to interventions that support a wide range of individuals, especially those likely to be disadvantaged in the competition for jobs, to up-grade their skills and stay engaged with the labour market.

9.3 Implications for industrial policy

Let us assume here that government would wish to use various powers to support the move to high-value manufacturing.

What the evidence suggests is that there is probably **little scope for attempting to pick winners**. Just about all manufacturing industries have experienced very substantial job loss over the last thirty or forty years, and a large part of what is left is already probably 'high-value high-productivity' to a significant extent. The sheer force of international competition, especially from China, has simply not allowed the survival of inefficient industries or firms. There is therefore little reason to restrict support to manufacturing businesses to a narrow range of sectors.

What this means in practice is that the tax regime needs to encourage investment in plant, machinery, R&D and skills. Over and above this, there needs to be a range of additional incentives, operated on a discretionary basis, to support individual investment projects. Some of these might also be targeted at specific places. Manufacturing needs to be the key target but in principle the parts of the service sector that sell to wider national and international markets also have a legitimate role to play.

The Regional Growth Fund (RGF), which currently operates in England, comes close to ticking the right boxes. It provides substantial funding, mainly to support manufacturing investment in weaker local economies, and is fully compatible with EU State Aid rules. But the RGF needs to provide greater certainty to potential bidders. In principle, an investment project that met all the relevant criteria ought to be guaranteed support, which was the situation in England prior to the introduction of the RGF in 2010 and continues to be the case in Scotland and Wales.

9.4 Implications for regeneration policy

The need for regeneration is rooted more in the damage already caused to local economies by thirty or more years of industrial job loss than in the prospect of further job losses caused by the shift to high-value manufacturing. As we noted, future job losses could not match the scale of what has already happened.
The good news from the evidence is that **regeneration policy works**. There is no need to assume that because an area has lost manufacturing jobs it cannot be turned around. Success in regeneration depends partly on inherent locational attributes but also on

resources and effort. It also depends on putting the right package of measures in place because there is clear evidence, from historical experience, that some measures are substantially more effective (and sometimes cheaper as well) than others. There is a pressing need to learn more about 'what works', from experience and evidence, and how the best approaches vary from place to place. That said, there should be no presumption that successful regeneration comes cheap or quickly.

There should in theory be a lot of overlap between 'industrial' policy and 'regeneration' policy. Most financial support to industry – investment grants in particular – is attached to a specific location. If the support given under the banner of industrial policy goes to the places most in need of regeneration, two policy objectives can be supported at once. What is clear is that if industrial policy and regeneration policy were more closely aligned it should be possible to increase the overall financial support to companies to a level where it is likely to make a real difference to the scale and location of their activities.

9.5 Implications for national economic policy

Finally, there are the implications for national economic policy. Here it is worth emphasising once more that there is no real choice between high-value manufacturing and a sector based on low-value, low-productivity and high employment. In an open economy such as the UK, exposed to competition from low-wage economies, the choice is simply illusory. Equally, in the UK's present economic predicament there is little long-run alternative to improving the balance of trade, which will require a huge contribution from manufacturing.

These imperatives indicate that **national economic policy should be explicitly tailored to support manufacturing industry**. This implies rather more than just seeking a re-balancing of the economy between the public and private sectors: it is specific parts of the private sector – above all manufacturing but also the other elements that contribute to an improvement in net trade – that need support.

A supportive national economic policy means more than just funding for industrial policy, adjustments to the tax regime or investment in training and education. Crucially, it means a low exchange rate that allows UK businesses to compete in international and domestic markets. More generally, UK manufacturing needs an institutional framework of banks, investors and shareholders that enables companies to take the long view and invest in the skills, products and machinery that will deliver a high-value high-productivity sector.

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