

Powering the Midlands Engine



How to build a local Industrial Strategy

Jonathan Dupont

Foreword by Lord Bilimoria



Powering the Midlands Engine

How to build a local Industrial Strategy

Jonathan Dupont

Foreword by Lord Bilimoria



Policy Exchange is the UK's leading think tank. We are an independent, non-partisan educational charity whose mission is to develop and promote new policy ideas that will deliver better public services, a stronger society and a more dynamic economy.

Policy Exchange is committed to an evidence-based approach to policy development and retains copyright and full editorial control over all its written research. We work in partnership with academics and other experts and commission major studies involving thorough empirical research of alternative policy outcomes. We believe that the policy experience of other countries offers important lessons for government in the UK. We also believe that government has much to learn from business and the voluntary sector.

Registered charity no: 1096300.

Trustees

Diana Berry, Alexander Downer, Andrew Feldman, Candida Gertler, Greta Jones, Edward Lee, Charlotte Metcalf, Roger Orf, Andrew Roberts, George Robinson, Robert Rosenkranz, Peter Wall, Nigel Wright.

About the Author

Jonathan Dupont has worked as a Research Fellow in Policy Exchange's Economics & Social Policy Unit, and is now Director of Research & Policy at Public First. He has co-written multiple books on public policy, including *A Time for Choosing* for Palgrave Macmillan and *Gridlock Nation* for Biteback Publishing.

Acknowledgements

Policy Exchange would like to thank the Midlands Engine for their generous support of this project, and everyone who generously took the time to give their input, thoughts and feedback. The views and errors in this report are entirely those of the author.

© Policy Exchange 2018

Published by
Policy Exchange, 8 – 10 Great George Street, Westminster, London SW1P 3AE

www.policyexchange.org.uk

ISBN: 978-1-910812-59-4

Contents

About the Author	2
Acknowledgements	3
Foreword	5
Executive Summary	7
Origins	7
Diagnosis	9
Strategy	10
Policy	11
Origins	13
Britain's first tech hub	13
The Laws of Geography	17
The End of Local?	21
The Midlands and the Fourth Industrial Revolution	23
Diagnosis	28
The Midlands Compared	28
Skills: Is the Midlands suffering a graduate brain drain?	38
Connectivity	44
Innovation, Entrepreneurship and Scale-Ups	47
Diffusion	52
Planning	55
Labour Market	58
Strategy	62
1 Manufacturing: Develop the world's most innovative hub for advanced manufacturing	62
2 Cities: Unleash the potential of the region's agglomerations	63
3 Devolution: Experiment and Iterate	64
Policy	69
Ideas: The Midlands should seek to become a world leader in innovation-focussed advanced manufacturing	70
People: Reducing employment disparities should be as important a priority as productivity	71
Infrastructure: The Midlands Engine should explore how it can take better advantage of its cities	72
Business Environment: The Midlands Engine should focus on scale-ups and the long tail over regional champions	73
Place: The Midlands Engine should not be afraid to experiment – and, if necessary, fail	75

Foreword

By Lord Bilimoria

I am proud to have a long and close relationship with Birmingham and the Midlands. My maternal grandfather, Squadron Leader J.D Italia, graduated at the University of Birmingham in Commerce in 1931 and while a graduate, he learned how to fly. On graduation, he returned to India and joined the Royal Indian Air Force, serving until the end of World War II. This is particularly pertinent, given the centenary of the RAF this year. My mother followed her father to the University of Birmingham, as did her brother. For the past nine years, I have been a proud manufacturer in the region, producing Cobra Beer with my joint venture partners Molson Coors, at their state-of-the-art brewery in the Midlands. I am proud to say that Cobra has been awarded 101 Monde Selection Gold Medals, the vast majority awarded relating to Cobra Beer produced here in the UK.

Through this experience, I have seen firsthand that the gulf between London and the rest of the UK, in terms of its prosperity and productivity, is one of the great challenges in public policy today. This is not a new problem – London has been dominant for centuries – but political events such as the Brexit vote have brought the disparity into much sharper focus. Even if I have disagreed with some of the Government's decisions since June 2016, I am encouraged by the renewed vigour that is now being placed on building a shared prosperity across the country.

With that in mind, I welcome this important report from Policy Exchange. The report pinpoints the issues that hamper economic growth in the Midlands – for instance, a low skills base and a restrictive planning system – and puts forward innovative policy solutions to remedy them. I hope it is read widely across the region, not least by civic leaders in charge of writing local strategies, but also by business leaders too.

The Midlands has a world-famous history of success in manufacturing, including in the automobile sector, where it was dominant worldwide in the past, as the report highlights. The report suggests that the Midlands should focus on its comparative advantages – building its strategy around its three key strengths – manufacturing, cities, and devolution, including becoming a world leader in innovation focused advanced manufacturing.

The truth is more firms need to recognise their role in building a more prosperous society. In the Midlands, we are rightly proud of our industrial heritage. Figures like George Cadbury and Josiah Wedgwood stand testament to the ingenuity and sense of fairness that were pioneered in our corner of the world. But, today, such a spirit and commitment seem all too rare. Sadly, often firms have reduced their fiduciary role to a box-ticking 'Corporate Social Responsibility', unlike giants such as

the Cadburys – you just have to drive through Bournville to see their amazing foresight and legacy.

We also need regional leaders to take a bigger role in economic matters. When I speak to municipal government on issues of business, I should have the confidence that a decision will follow and they will be empowered to take action. This requires the Government to entrust places like the Midlands with greater powers and responsibilities. But it also requires civic leaders to step up and make decisions that reform industrial strategy in their area, much like Joseph Chamberlain, the great entrepreneur and politician, did for the region over a century ago. In that regard, I am encouraged by the work of Andy Street, the Mayor of West Midlands, and the Midlands Engine.

It is on all of us to think about what can be done differently to deliver greater prosperity. The analysis and recommendations in this report show how we can begin to achieve that.

Lord Bilimoria is founder and chairman of Cobra Beer, a joint venture with Molson Coors, and an Independent Cross-Bench peer in the House of Lords

Executive Summary

- Most countries have an unequal distribution of economic activity geographically, but Britain is unusual in how large this disparity is. This is not simply driven by the relative success of London. Unlike most countries, the majority of our cities underperform national average productivity. Productivity across the Midlands is 15 per cent below the national average, and the region has a long tail of underperforming firms.
- A central goal of the Government's Industrial Strategy is to use increased local control as a lever to reduce this disparity, letting local communities decide for themselves how they can best boost their productivity performance.
- In this report, we use the Midlands region as a case study of the different approaches a Local Industrial Strategy might take in tackling its productivity challenges. While every area is different, the same tensions and common themes are likely to reoccur across the UK.
- In particular, we look at:
 - Why is there such a large variation in economic productivity across the UK? Why has the Midlands fallen behind London?
 - What are the strengths and weaknesses of the Midlands economy? Is it being held back by a lack of investment, or are other factors equally to blame?
 - How should Local Industrial Strategies focus on new opportunities and the comparative advantage of their region?
 - What policy steps should be taken in the Midlands with regard to advancing the Government's five foundations of productivity in the region: ideas, people, infrastructure, business and place?

Origins

- In the nineteenth century, the Midlands was at the cutting edge of innovation as one of the key hubs for the emerging Industrial Revolution. Organisations such as the Lunar Society and innovators like Matthew Boulton, James Watt, and Josiah Wedgwood helped bring about the modern era of economic growth. Over the course of the century, the population of Birmingham increased eight times over.
- Economic geography is largely driven by three forces: comparative advantage, the costs of distance and agglomeration effects. Industries that share a business model and benefit from a shared

pool of workers, skills and supply chains locate together. Many of the most important global hubs, from finance in London to films in LA, are decades if not centuries old. Where technological hubs emerge is often relatively random. One reason Silicon Valley is located in North California, for example, is because William Shockley, inventor of the transistor, moved there to look after his ill mother.

- Agglomeration effects were amplified in the second half of the twentieth century: the structural shift towards a services economy, wider cultural changes and new communications technologies helped bring about a global revival of the city. These effects were especially evident in the UK, where the economy increasingly concentrated on its advantage in services while manufacturing became more concentrated in Germany or emerging economies.
- Many traditional manufacturing hubs struggled with the transition to services. However, while some cities such as Chicago eventually made the jump to being a services powerhouse – albeit losing a quarter of its population in the process – British cities like Birmingham struggled to make the same transition. Post-war attempts at urban regeneration were largely a failure. Britain's restrictive planning system and traditional weaknesses at commercialisation made it difficult for new industries to emerge.
- Over the last few decades, the combination of globalisation, the container revolution and digital networks have further reduced the costs of distance and increased the importance of being the best in the world at what you do. Maintaining control of local distribution used to be a viable route to capturing economic value and generating a thriving local economy – but this is increasingly less the case in the digital economy. **In short, technology looks to be increasing the concentration of economic activity, making the challenge of reducing imbalances in economic productivity even more challenging.**
- Unlike some areas of the UK, the Midlands is fortunate because it retains many world leading brands such as Rolls Royce, JCB and JLR. However, it also contains a long tail of underperforming firms and workers that lowers average productivity and ultimately constrains living standards. Over the last decade, there has been an increasing concern that new innovations in business processes or technology are not diffusing out to the rest of the economy.
- There are good reasons to be optimistic about the potential of the Midlands moving forward. While technological improvements in the last few decades were largely digital and intangible, the next wave looks set to be increasingly concentrated in the physical world: autonomous vehicles, the Internet of Things, new forms of energy, additive manufacturing etc. These technologies will require actual physical space to develop, putting expensive cities like London at a disadvantage. The Midlands has already made a

strong start in many areas, from autonomous vehicles to med tech, and will prosper if it can succeed in turning these early signs of innovation into globally significant businesses.

Diagnosis

- The Midlands is made up of many economies: two core cities, one Mayoral Combined Authority, 9 Local Enterprise Partnerships (LEPs), and many travel to work areas. However, these are united by their overlapping focus on advanced manufacturing and their unique geographical position at the core of the country.
- The Government's Midlands Engine Strategy identifies multiple significant strengths: world-leading firms, 20 universities, and 92 per cent of the UK population able to reach the Midlands in under four hours. While most attention focuses on the region's unique strengths in manufacturing, the region also makes up a significant part of the UK services economy, with Birmingham in recent years building momentum as a hub for professional services.
- The Strategy also points to three key weaknesses: a shortage of skilled workers, fragmented connectivity and a lack of entrepreneurship. However, while these are real weaknesses, it is also important to understand the root causes lying behind them such as weak diffusion of best practice, a restrictive planning system and high unemployment.
- Starting with skills, the Midlands struggles both to retain and to attract graduates. 76% of students who move to Birmingham to study leave the city afterwards. However, evidence suggests that graduates follow jobs, suggesting this is more a symptom than a cause. A bigger problem is the skills base at the bottom of the labour market, where the West Midlands is particularly weak.
- Connectivity matters, even if it is not a silver bullet and cannot by itself explain the Midlands' weak productivity. Short of radical technological change, the Midlands will always be too large to form a single agglomeration. However, there are significant marginal improvements to be had from exploiting the new links between Birmingham and London on the back of HS2, fixing current bottlenecks and easing constraints on the growth of the region's major cities.
- The Midlands has a low level of business start-ups, but equally significant is the rate at which these scale up into larger firms. If you exclude the outlier of Stoke and Staffordshire, the Midlands share of high growth 'scale-ups' is near the national average - around 1 per 8,000 people - although still significantly lower than the rate in the Thames Valley or the number in London.
- As important as new business models is the wider diffusion of innovation through the rest of the economy. Many UK businesses are slow to adopt new technologies, suffer from poor management

and operate in uncompetitive markets. Improving the productivity of the ‘long tail’ of underperforming UK companies would largely close our overall gap with France or Germany.

- By far the biggest omission from the Government’s Midlands Strategy is the distorting effect of the planning system. Restrictive planning law has not just prevented a gradual evolution of economic geography, but still reduces competitive pressure, weakening the incentives for higher productivity and better management.
- Unemployment in the Midlands core cities is among the highest in the UK, or even the G7. Compared to other cities, the region has not succeeded in improving the employment performance of low activity or vulnerable groups such as the low skilled, young, elderly, disabled or ethnic minorities. Looking forward, there is a risk that nationally determined prices exceed local productivity. The current bite of the National Living Wage – the ratio of the Living Wage to the hourly median wage – is around 20 percentage points higher in the Midlands than in London, and by 2020 a significant proportion of jobs will have their wage rates set directly by central Government.

Strategy

- The Midlands is fortunate. Unlike some areas of the UK, many of the fundamentals are in its favour, from technological developments in manufacturing to the region’s geography and close connection to London.
- Moving forward, it should focus on its comparative advantages, building its Industrial Strategy around three key strengths:
 - **Manufacturing.** The Midlands is the region best placed in Britain to become a hub for advanced manufacturing – and catalyse on Britain’s global strengths in machine learning, life sciences and flexible regulation. In the past, offering more flexible and innovation friendly regulation has proved one of the best routes to gaining a first mover advantage in new sectors.
 - **Cities.** Many of the region’s cities have significant potential to expand, build up new strengths in services and increase employment. Birmingham should be bigger – but it is already underperforming for a city of its size. Understanding why is crucial to solving the region’s wider problems with economic productivity.
 - **Devolution.** In many cases, we simply do not know what works and what does not in local economic growth. New local policies should enable policy experimentation and prevent national investment being unfairly tilted to the South East. This necessitates a clear framework of leadership, governance and accountability, particularly in parts of the Midlands which are

not a member of the West Midlands Combined Authority.

Policy

- The recent White Paper for the Government's new Industrial Strategy set out five foundations of productivity: ideas, people, infrastructure, business environment and place. How should this apply to the Midlands?
- 1 **Ideas: The Midlands should seek to become a world leader in innovation focussed advanced manufacturing**
 - **The primary purpose of the Midlands Engine should be monitoring the region's progress in developing industries based upon new and emerging technologies.** Wherever possible, the Midlands should benchmark itself against global competitors rather than just other regions or industries in the UK.
 - **The Midlands Engine should look to take a national leadership role in designing and developing Britain's strategy for advanced manufacturing.** The Midlands has a strong argument to be the home for the challenge-based elements of UKRI and should work with BEIS and local companies to identify post-Brexit opportunities for liberalisation of regulation, developing its own shortlist of important societal challenges or auditing demand for high skill workers.
 - 2 **People: Reducing employment disparities should be as important a priority as productivity**
 - **Working with local job centres and the Work and Health Programme, Local Industrial Strategies in the Midlands should set out how they will improve employment in their region and close the disability employment gap.**
 - **The Government should commission an independent consultation into the impact of national pay bargaining on local economies and public services.** This would need to consider wider labour market factors, such as national immigration policy, and the role that a uniform national framework of transfer and welfare payments has on influencing local labour markets. The commission should make recommendations on whether we should transition to policies for public sector pay and transfer payments that better reflect local circumstance – and how that might be managed over ten years.
 - 3 **Infrastructure: The Midlands should explore how it can take better advantage of its leading cities**
 - **The West Midlands Combined Authority should develop its**

own speculative infrastructure pipeline, and consider what it would take to substantially increase the size of Birmingham. The Midlands Engine should commission an independent review exploring what it would take to grow the city 20 per cent by 2040 and the potential barriers to this growth.

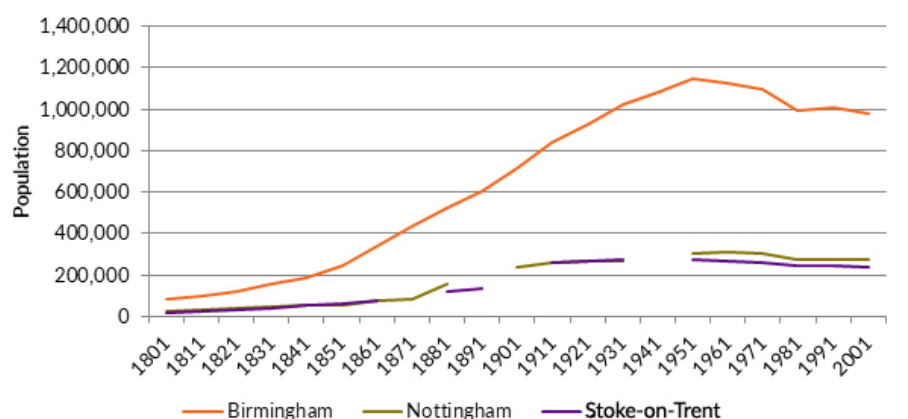
- **Government should merge the Shared Prosperity Fund, its replacement of European Structural Funds after 2020, with Local Growth funds into a unified Local Investment Fund.** This should be allocated on a per capita basis, with a top-up allocated on a needs-basis, taking inspiration from the national funding formula and pupil premium in education.
- 4 Business Environment: The Midlands Engine should focus on scale-ups and the long tail over regional champions**
- **The Midlands should aim to match the scale-up density of the South East by 2030.** The Midlands Engine should develop an individual and business facing website, acting as a portal to anyone in the region who wants to start, scale or invest in a business. The Midlands Engine Observatory should work to monitor underlying competitiveness indicators, developing a regional version of the World Economic Forum's Global Competitiveness Indicators.
 - **The West Midlands Combined Authority, LEPs, County Councils and Local Authorities should share best practice on their progress in tackling the long tail of low productivity firms in a forum led by the Midlands Engine.** We suggest that the Midlands Engine work with an LEP partner to pilot a localised version of the Productivity Commission's tool including workshops, free consultations and locally tailored advice.
- 5 Place: The Midlands Engine should not be afraid to experiment**
- **The Government should introduce new Super Enterprise Zones to boost deprived regions and allow more radical experimentations with local policy.** The Government should create a ring-fenced pot for local authorities, LEPs and Combined Authorities to bid into, providing match funding for local prototypes and pilots of policy innovation. The Midlands Engine should work with the What Works centres to build central capacity to support evidence-by-default culture in the region.
 - **The Midlands Engine should commission an independent review in 2022 to assess whether it is aligned with the right economic geography.** This would help ensure that the organisation is acting as a complement to other layers of Government.

Origins

Britain's first tech hub

In the latter half of the eighteenth century, the Midlands was the heart of British economic growth. Meeting at Birmingham's Lunar Society, figures like James Watt, Matthew Boulton, Josiah Wedgwood, Josiah Priestly and Erasmus Darwin helped merge the emerging scientific and technological revolutions into a Midlands enlightenment. Building on its historic artisan skill base and its position as a crossroads for the new canal network, Birmingham turned itself into the famed workshop of the world. Within fifty years, the city would triple in size from 24,000 people in 1750 to 74,000 by 1800 – and then increase to 840,000 by 1911. Over the course of the nineteenth century, Birmingham produced three times more patents than any other city in the world.¹

Figure 1: Historic City Populations



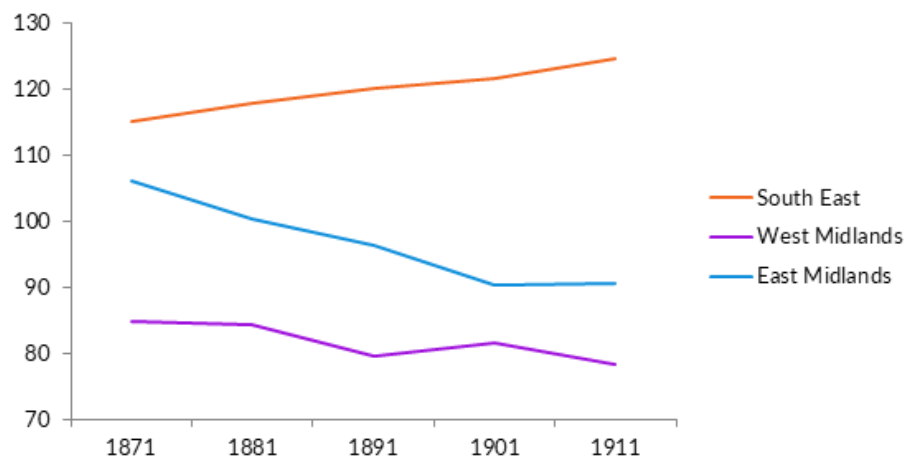
UK Census

While the Midlands was at the heart of the first Industrial Revolution, its role in the second told a more complex story. Although population growth initially continued to keep pace with London, by 1870 the rate of increase was slowing and productivity was starting to fall behind. Overall, the UK continued to keep pace with America and Germany, but the legacy of its past was starting to develop into problems for the future. The UK's high level of family-run firms and reliance on high skilled workers saw it come late to the structural disruption that was brought about by Henry Ford's assembly line. For now, however, the region was thriving: launching a wide variety of new products from the Austin motor car to Cadbury's

1. <http://www.jll.co.uk/united-kingdom/en-gb/Documents/Greater%20Birmingham%20An%20economic%20renaissance.pdf>

Dairy Milk. The first half of the twentieth century saw resurgence in the local economy, more than halving the productivity gap with London.

Figure 2: Historic GVA per Head in the Second Industrial Revolution



UK = 100, Nicholas Crafts

It was not until the post-war period that the Midlands really fell behind. Up until the 1960s, the UK was still the second largest producer of cars in the world.²

In the aftermath of the war, counterproductive Government policies sought to limit the growth of Britain's cities – and succeeded all too well. Under the 1945 Distribution of Industry Act, private industries were forbidden from opening or expanding in the area without government permission. Birmingham, once 'the city of a thousand trades', became increasingly dependent on an industrial monoculture in the car industry. In 1950, 20 per cent of the entire West Midlands workforce was involved in some way in the motor industry.³

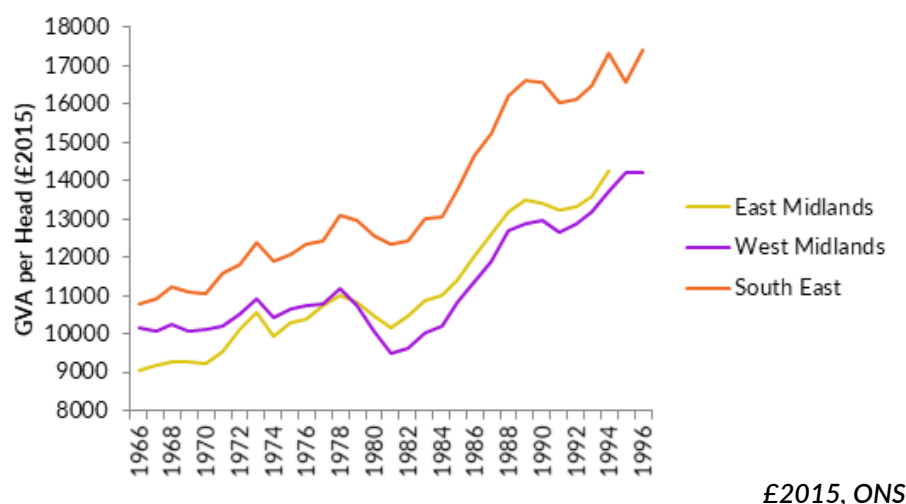
As the car industry declined, the city and the wider region declined too. In the decades following the war, the industry increasingly struggled with issues of poor management and trade union disputes. Nationalisation of part of British Leyland failed to turn performance around. Between 1971 and 1984 employment in manufacturing in Birmingham halved.⁴ While much of this was inevitable as part of the structural shift away from manufacturing, the region failed to develop the new industries or services that could keep it at the global cutting edge.

2. <http://pers-www.wlv.ac.uk/~le1958/PDF/West%20Midlands08.pdf>

3. <http://pers-www.wlv.ac.uk/~le1958/PDF/West%20Midlands08.pdf>

4. <http://pers-www.wlv.ac.uk/~le1958/PDF/West%20Midlands08.pdf>

Figure 3: Post War Historic GVA per Head



The story of the Midlands is the story of the rest of Britain – and for that matter, much of the West, from Detroit in the US to Lille in France. Services thrive, manufacturing declines. The challenges of every area differ in their details, but the big story remains remarkably consistent. Outside London and the South East, too many areas have not seen the old industries of the past replaced by new industries of the future.

Even today, productivity in the Midlands is half that seen in London – and over the last twenty years, the gap has been widening. Over seventy years central Government has attempted to slow or reverse this trend with little to no success. In many cases, it has made the problem worse.

What should we do about Britain's great regional divide?

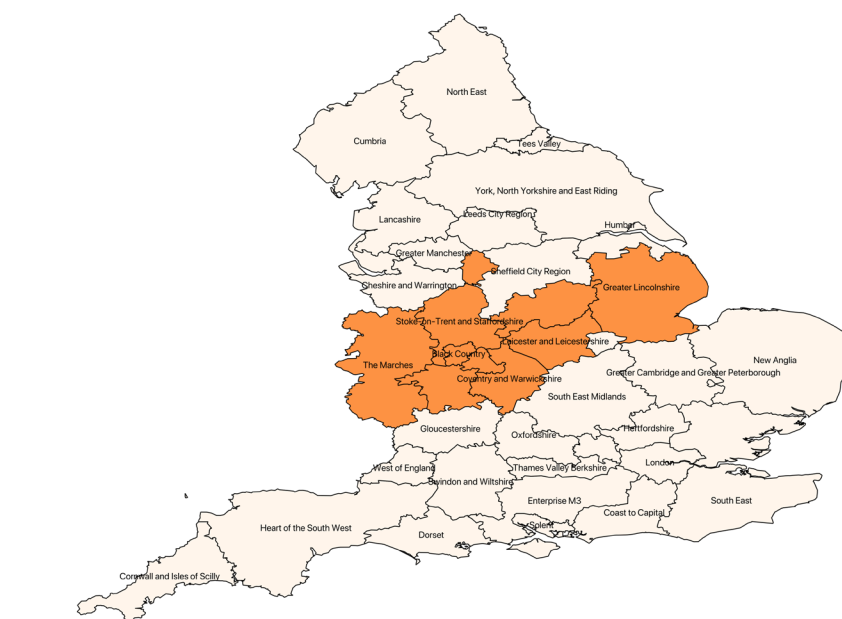
The Government's new Industrial Strategy describes its central objective as "to improve living standards and economic growth by increasing productivity and driving growth across the whole country."

Many worry that these two objectives are in conflict. Some say that ultimately, it is people we care about, not places. What if it turns out that national growth is a fundamentally zero sum game? Yes, we could increase the productivity of the regions by redistributing graduates, investment and government departments away from the South East – but at the cost of undermining the agglomeration economies of scale that have turned London into Europe's most successful city, or Oxford and Cambridge into its best universities.

This is too pessimistic. While we cannot reverse the course of economic history, we do not have to repeat avoidable mistakes of the post-war period. Britain stands out among advanced economies for the poor productivity performance of its second cities, suggesting that this is not the result of a law of nature. Regional decline has been as much a result of political mistakes as economic destiny. Looking forward, London is not the only, or even necessarily, the best placed area to take advantage of future economic trends, from the digitalisation of the physical economy to the continued rise of cities.

The Midlands will be at the centre of any attempt to revitalise the UK's regions.⁵ As part of the 'Midlands Engine', nine LEPs have joined together to improve their regional economy, turning the area into a "growth region for the whole UK."⁶

Figure 4: The Midlands Engine



In this paper, we want to use the Midlands Engine as a prototype for the delivery of a place-based Industrial Strategy, looking at the issues that affect regions across the UK:

- Why do we have such an imbalance in economic activity across the country? Why have areas outside London struggled to develop new globally competitive sectors?
- What are the root causes of low productivity? Are the regions outside the South East being held back by imbalances in public investment?
- What do we know and what don't we know about local economic productivity? What scenarios are there for the future evolution of the economy?
- How should a place based Industrial Strategy interact with a sectoral or national Industrial Strategy? What level of Government should be responsible for which set of policies?

To start, we need to understand in more detail why post industrial cities have declined – and why there might be more hope for the future.

5. In this report we include a large amount of quantitative analysis about the Midlands region. In some cases we use a Midlands Engine geography, including all areas a part of the organisation, and in others we use a Midlands geography, spanning the East Midlands and West Midlands. The geographies we use have been restricted by data availability and are marked up accordingly.

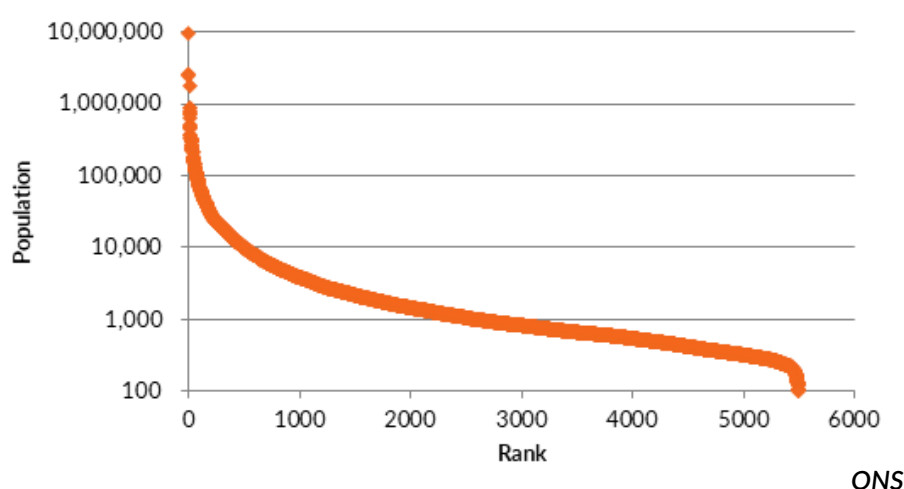
6. Government has recently published a review of the organisation and structures of LEPs. Among a number of recommendations made in the review, instances where LEPs overlap will need to be removed. This impacts several LEPs in the Midlands so the number and composition of LEPs which make up the Midlands Engine is liable to change. This does not affect the analysis or recommendations made in this report.

The Laws of Geography

The most important fact about economic geography is that it is rarely equal. On average, the second largest city in an OECD country is half the size of the first, the third only 70% of the second, and the fourth 70% of third. Right the way down to the smallest villages, the distribution of urban areas seems to follow a power law distribution, with order of magnitude jumps.

At six times the size of the next in line (Birmingham), London is unusual in its dominance, but by no means a complete outlier. Similar gaps are seen in Austria between Vienna and Graz, in France between Paris and Lyon or in South Korea between Seoul and Busan.

Figure 5: Zipf's Law for UK Built up Areas

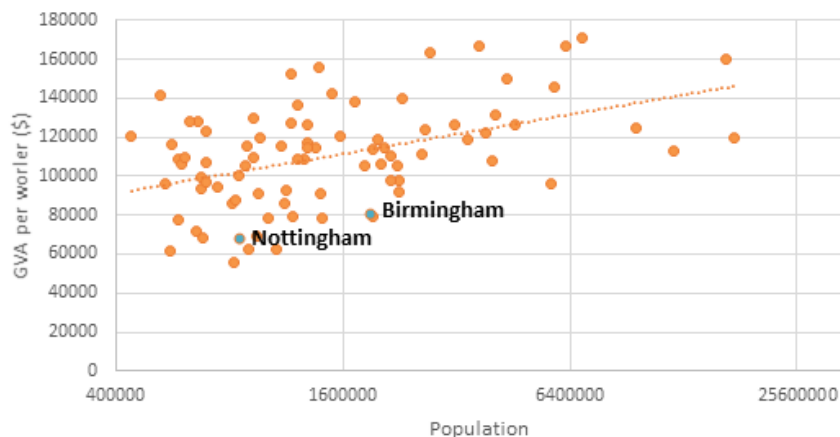


What explains this massive variance? Why is city size not more closely bunched, normally distributed like height or IQ scores? Or to put it another way, given that larger cities tend to be more crowded and expensive, why don't companies and workers expand to where the space is?

The most convincing explanation for this is the existence of substantial agglomeration effects. By locating close together, workers, businesses and families can access a common pool of ideas, skills and people, creating a city that is greater than the sum of its parts. Every doubling in size is associated with a rough 3-8% improvement in productivity.⁷

7. https://spiral.imperial.ac.uk/bitstream/10044/1/14133/2/Regional%20Science%20and%20Urban%20Economics_39_3_2009.pdf

Figure 6: Agglomeration effects in G7 cities

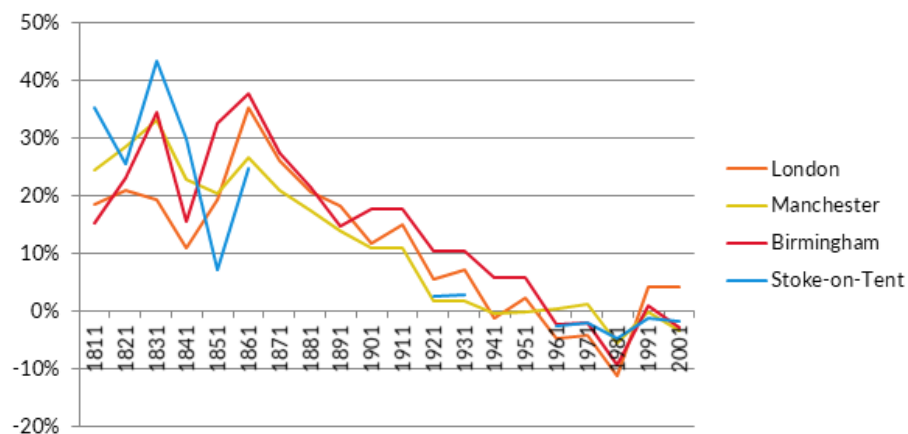


OECD

While agglomeration effects might explain why cities grow large and why they tend to stay that way, it does little to explain where they come from in the first place.

The relative ranking of cities is incredibly static – much more so than for companies. London has had the largest population in Britain since Roman times. The most striking thing about city growth rates is that they tend to cluster closely together. When one city rises or declines, they all tend to. There is little sign of convergence.

Figure 7: Population growth rates



Census

Nevertheless, new cities do sometimes emerge, and the balance between them can slowly shift.

Ultimately, there seems to be three main origins for cities:

- As a centre of **political or administrative power** concentrating government resources and encouraging the private sector to follow. Changes in political power bring about changes in the power of cities. For example, London, Washington DC, Tokyo.

- As a **trading crossroads** bringing together merchants, consumers and workers. New types of technology bring about different types of trading, from the canals in Birmingham to the railroads in Chicago. For example, Liverpool, Hong Kong, Dubai.
- As a **sector hub** for a new industry providing economic opportunity and attracting workers. As sectors gain or lose their competitive advantage, the cities around them rise or fall too. For example, Detroit, San Francisco, Shenzhen.

The basics of physical geography and political power can stay the same for centuries, or even millennia.

London and Paris have dominated their respective geographies for at least a thousand years. England, in particular, has always been a highly centralised country. By contrast, Germany, Italy, Canada and Australia were not even unified nations until the end of nineteenth century, and the US was both highly federalised and so large that the nation's elites could never congregate in a single place.

By contrast, the majority of today's leading cities built upon sectorial or industrial strength.

In 1800 none of Manchester, Birmingham, Nottingham, Seattle, Detroit, Los Angeles or Sydney had a population larger than 100,000, while London already hosted more than 1 million residents. In each case, they saw rapid growth on the back of a particular industry. Manchester was the centre of cotton, Birmingham manufacturing, Nottingham lace, Seattle lumber, Detroit cars, Los Angeles entertainment and Sydney gold.

Over the course of the twentieth century, structural advances in technology shifted the sectoral balance of economies. If the archetypal technology of the first half of the twentieth century was the assembly line, in the second half it was the personal computer – and that required a very different kind of geography.

'Routine' processes that could easily be automated shrank as a proportion of the economy, while less easily structured activities grew to take their place. The opening up of world economies and the coming of globalisation further accelerated trends that were already under way, with the result that every major economy including France, Germany, Japan, the US and the UK saw a major fall in manufacturing employment from 1970 onward.

At the same time, the shift to services and new communications technologies all increased the value of living in dense concentrations of skilled people. Across the world, cities that were once declining started to make a comeback.

If successful cities are home to successful sectors, what in turn is the origin of sectors?

In many other cases, the location for an industry is more or less random. In the nineteenth century, Seattle started as a gateway for the lumber trade, before one local manufacturer – William Boeing – decided to branch out into the aviation industry. Two generations later, Bill Gates and Paul Allen started Microsoft in the same city largely because that's where their

parents were born, while Jeff Bezos followed suit with Amazon to poach from their pool of talent – and because it happened to be close to one of the country's largest book distribution centres. Seattle has been lucky, succeeding in reinventing itself.

Other cities have been similarly fortunate, discovering new advantages as the old ones faded away. Over the course of the last few centuries, Boston transitioned itself from a hub of maritime skills to a manufacturing powerhouse to a centre for professional services.⁸ Similarly, Chicago, once a hub for manufacturing and industrial agriculture, is now an international centre for finance. In the UK, however, northern manufacturing cities have proved much less successful at completing the shift – partly as we will see for reasons out of their control and partly as a result of bad policy.

In order to maintain a global lead, the most successful sectors have normally had to enjoy at least one structural comparative advantage:

- **Technology.** Gaining a head start in a technological niche can allow an area to build the economies of scale necessary to dominate the future industry. As we have seen, the geographical pattern of technology development is often little more than random. One reason Silicon Valley is located in California is that William Shockley, the inventor of the transistor, moved there to be close to his ill mother.
- **Disruption.** Not all advantages come from new technology however – and indeed technology is only likely to lead to significant opportunities for start-ups if it threatens the business model of incumbents. In the 1980s, the Japanese car industry outcompeted its Western rivals not through developing new technology, but instead through its 'lean manufacturing' system of organisation.
- **Education.** Cambridge and Boston are the centre of industries such as pharmaceuticals or electronics that thrive on spinouts and collaboration with world leading universities.
- **Regulation.** As well as the internal challenges of overcoming incumbency, new start-ups have often been constrained by over zealous regulation – while more flexible areas have been able to see faster growth. In the early twentieth century, cinema moved from New Jersey to Los Angeles to escape Thomas Edison's restrictive patents, while today London's FinTech scene is increasingly benefiting from responsive regulators.
- **Talent.** From John Neumann to Steve Jobs, Sergey Brin to Demis Hassabis, many of the most important innovators have come from immigrants or their children – and cities that have attracted the world's best talent have prospered accordingly. Equally, cities like Boston or Cambridge have thrived on the back of world class universities.
- **Cost.** Significantly lower labour or energy costs can create powerful advantages in the short to medium term and have been the route out of poverty for many Asian nations over the last forty years.

8. Reinventing Boston: 1630 -2003, Edward Glaeser, 2004

The original rise of the Midlands economy came on the back of many of these advantages. Birmingham's lack of a royal charter prevented guilds from monopolising local trades, attracting migrant talent from across the country and turning it into a centre for skilled artisans. In the nineteenth century, combined with new technologies like the steam engine, this was to provide a powerful platform for powering a new Industrial Revolution.

But what if you don't have one of those advantages?

The End of Local?

Most cities, like most companies, are not the best in the world. For much of economic history, they have instead relied on a much easier comparative advantage: the power of local.

Instead of a single, frictionless market, the world was decidedly non-flat. Even today, world businesses still trade far more with businesses inside their own borders than outside. The magnitude of this 'border effect' is far larger than can be explained by economic fundamentals such as tariffs or transportation costs. In 1995 the economist John McCallum estimated that Canadian provinces traded 22 times more with each other than with US states,⁹ and similar results since have been found internationally and even across internal border lines, such as states.

Traditionally, there have been many structural reasons why local companies have more than held their own:

- **Transport.** It is much cheaper to manufacture bulky goods close to market, while goods which require a fast turn-around, from food to fashion, need to be produced locally. Even today, it can still take many weeks for goods that are shipped from China to arrive.
- **Tariffs.** The historical role of tariffs in the development of Germany and the Industrial Revolution remains controversial. Whatever their wider costs to overall productivity or consumer living standards, tariffs set high enough can protect a local industry in the short term.
- **Non tariff barriers.** Other barriers, from differing regulatory standards to local technological standards, have been just as important as financial tariffs in allowing local companies to thrive. There was no good reason for the US to use NTSC, France SECAM and the UK PAL for television broadcasts – but it probably helped prop up local electronics manufacturers.
- **Culture.** Different cultures have different tastes. Beyond the obvious home field advantage in areas like food, fashion or music, the consumer taste for authenticity and diversity can turn home specialities into valuable exports. There is only one country that has the ability to make truly Scottish whisky or an Italian car.
- **Distribution.** For many goods and services, there are clear economies of scale from building up a local network for distribution – and whoever controls that network can capture much of the value from their suppliers.

9. http://www.jstor.org/stable/2118191?seq=1#page_scan_tab_contents

Between 1960 and 1990 world trade accelerated drastically – increasing seven times over in real terms.¹⁰

Part of the story of globalisation is of cheap labour outweighing local advantages for commodity goods. The deeper trend, however, is a reversal of the factors above:

- The container revolution has radically increased productivity and lowered the costs of shipping goods. One recent estimate suggested that by itself containerisation was responsible for a 700 per cent increase in North-North trade, more than all world trade agreements put together.¹¹
- The persistent work of GATT/WTO and others has seen average world tariffs gradually fall from an interwar high of 22 per cent to less than 5 per cent today.¹²
- The gradual digitalisation of the economy and the Internet's nature as a global network has forced the unification of technological standards. Nobody wants to buy a word processor that can't open Word files, or a web browser that can't read HTML. It is not a coincidence that international cinema releases, once months apart, are now often simultaneous.
- As important, the Internet has revolutionised and replaced distribution in many industries from retail to the media to transport.¹³ Whereas once every city could have its own newspaper and every country its own supermarkets, we are today increasingly using the same brands globally. No matter which country they live in, millennials rely on Google for searching, Amazon for shopping, Netflix for media or Uber for transport.

One way to see the change is in the difference between the products of the second and the third Industrial Revolution. While Henry Ford took an early lead, every major European economy from France to Germany to Italy to the UK was able to develop their own domestic industry. By contrast, Europe struggled to develop its own personal computer industry – and so far, has been a near insignificant player in the commercial Internet.

Simply being a local distributor or producer is an increasingly unreliable method for capturing value. The value in modern economies goes to the scarce owners of networks or intellectual property – while distribution and production are increasingly a commodity market. Despite being manufactured in China, only around 2 per cent of the value of an iPhone is captured by Chinese workers compared to 60 per cent returning to Apple in California.¹⁴ This effect is only likely to become more exaggerated as further automation continues to drive out human workers from the factory. The rise of AI and 3D printing may bring about reshoring of physical factories from East to West – but by itself, it is unlikely to bring a large uptake in employment or profit at the same time.

The UK has always been at the forefront of structural shifts in the world economy – and this case is no different.

10. https://economics.fiu.edu/events/2013/seminar-daniel-bernhofen/bek_container_feb-3-2013.pdf

11. https://economics.fiu.edu/events/2013/seminar-daniel-bernhofen/bek_container_feb-3-2013.pdf

12. <http://dipeco.uniroma3.it/public/pdf/WP110.pdf>

13. <https://stratechery.com/2015/aggregation-theory/>

14. http://pcic.merage.uci.edu/papers/2011/value_ipad_iphone.pdf

Combined with our compact geography and centralised politics, London has generated an unusually large gravitational force compared to other world capitals, dragging industries, workers and capital to it. While Procter and Gamble is still based in Ohio, as long ago as 1921, Unilever moved to London to “reflect [the] growing internationalisation of business”.

In short, in the future local economies are unlikely to close the productivity gap with national or global rivals simply by copying best practice. Many forces in the global economy are pushing increasingly towards a dynamic where the rich-get-richer, with the effects seen everywhere from the rise of superstar workers in the labour market (“the 1 per cent”), to increasing dispersion among the performance of firms. If nothing changes, today’s inequalities are likely to get worse.

To counter this, individual cities and regions are going to have to develop their own unique comparative advantages – to do, in fact, what the Midlands did in the nineteenth century, and find what it is they can be best at in the world.

The Midlands and the Fourth Industrial Revolution

Software, in the phrase of venture capitalist Marc Andreessen, is eating the world. Over the last fifty years, average computing power has increased by a factor of at least a million, while by some estimates IT is now responsible for around two thirds of all productivity growth.¹⁵ From cameras, to TVs, to hotels, to taxis industry after industry has seen itself digitalised, turned from a specialist device or service to one more app on your home screen.

Over the coming decades, most experts expect the expansion of software to continue - but this time, it will be the physical as much as the digital world that is conquered.

Over the very long term, many technologies follow reasonably forecastable roadmaps, from Moore’s Law for computer power to the declining cost of solar power.¹⁶ In recent years, three structural trends have been particularly notable:

- **Machine learning.** In recent years, AI has achieved better-than-human levels of performance or exponential improvement in chess, Go, classic computer games, image recognition, speech recognition and translation.¹⁷ This has allowed the digital revolution to move beyond the structured world of a computer or factory into a much more chaotic physical world, unlocking new opportunities in transport, automation and diagnosis.
- **Energy sustainability.** Instead of ever climbing prices as we passed ‘peak oil’, world oil prices instead have fallen to around \$50/barrel, with potential to fall further. While solar module prices have dropped by 95 per cent over the last thirty years, once you have taken into account intermittency and slower rates of improvement in batteries, today’s renewables are still not cost effective enough to achieve the needed 80 per cent decarbonisation by 2050 – with substantial further R&D needed. At the same time,

15. <https://www.oecd.org/eco/growth/ICT-investments-and-productivity-measuring-the-contribution-of-ICTS-to-growth.pdf>

16. <https://arxiv.org/pdf/1502.05274.pdf>

17. <https://srconstantin.wordpress.com/2017/01/28/performance-trends-in-ai/>

the zero marginal costs implicit in renewable forms of energy threaten to radically transform energy markets, requiring the creation of a new type of smart grid.

- **Health.** On current trajectories, future health demand looks set to bankrupt Western welfare states. The OBR forecasts that if current cost pressures don't fall, NHS spending will increase over the next fifty years from 7 per cent to 18 per cent of GDP.¹⁸ The good news is that the combination of automated diagnosis and new gene editing technologies has the potential to unlock a new era of personalised, preventative and cheaper medicine.

In the nineteenth century, the Midlands became a world leader on the back of the Industrial Revolution, manufacturing and the steam engine. Today, many expect we are on the verge of a 'Fourth Industrial Revolution', driven by the coming together of data, machine learning and new forms of advanced manufacturing. Will this present a new opportunity for the Midlands to once more rise in world prominence?

Many of the structural trends that were working against the Midlands in the last forty years have now come to an end:

- While the personal computer IT revolution largely benefitted workers in concentrated city offices, the value from the digitalisation of the physical economy will have a much more even geographic spread. Cities will remain key – but it is unlikely ever to be economic to locate a major factory in the middle of Manhattan or Chelsea.
- The world economy is unlikely to see the emergence of a new competitor on the scale of a China or India in the near future – and by contrast, emerging economies will increasingly develop into the new global middle class, adding demand for UK goods. The possibility for near complete automation of the assembly line is starting to undermine the cost advantage of cheaper labour overseas, creating the possibility for reshoring.
- The centralisation of the UK political system is finally going into reverse, with substantial levels of economic and political control devolved back to local authorities, LEPs and a new generation of Mayors.

How well placed is the Midlands to benefit from these trends?

The 2016 Science and Innovation Audit identified three existing 'enabling competencies' possessed by the region:

- **Advanced manufacturing and engineering.** The area has sectoral strengths in advanced manufacturing, cars, ceramics, medtech and food processing, as well as significant R&D assets such as the High Value Manufacturing Catapult.
- **Digital technologies and data.** The area has strengths in cyber

18. FSR

security, games development, High Performance Computing, satellites and sensors.

- **Systems integration.** Combining the above two strengths could create more sophisticated and integrated systems, such as smart cities, power grids or automated transport systems.

This, the Audit believed, would allow the Midlands to grow on the back of four future ‘market driven priorities’:

- **Next generation transport.** The Midlands is by far the UK’s leading region for transport manufacturing and is well placed to take advantage of the move towards automated, integrated and increasingly electric transport.
- **Future food processing.** The UK is second only to America in launching new food products, and the Midlands boasts significant strengths from agriculture to food processing.
- **Medical technology and pharmaceuticals.** In particular, diagnostic devices and software maintain the region’s current pharmaceutical strengths.
- **Energy and low carbon.** These include geo energy, thermal energy systems, nuclear systems design or waste management, energy storage and smart integrated energy systems.

However, while the Midlands does look reasonably well placed to prosper in these areas, it is probably fair to say that at present both the UK and the Midlands Engine are far from being world leaders:

- **Next generation transport.** In 2016 the Midlands was responsible for a strong 22 per cent of UK exports in machinery and transport – but this is relative to a small base. Currently, the UK does not have a revealed comparative advantage (RCA) in cars, ships or rail. While the car industry has seen a revival since the 1980s, it remains a long way behind world leaders. In 2016 car production in the UK was only 13th in the world – producing only around a sixth of the production of America and less than a third that of Germany.¹⁹ The UK does better in components for aircraft – with an RCA of 1.4 – but this is probably the area of transport with fewest opportunities for technological disruption in the medium term. Looking forward, the leading transport start-ups such as Tesla, SpaceX, Uber, Waymo or Boom are overwhelmingly located in California – while the German car companies are investing heavily to try and prevent themselves from being disrupted. While there are other sectors such as FinTech or digital health, where the UK has a strong claim to be at the world’s forefront, it is notable that the most recent lists of the hottest British start-ups do not include a single transport company.²⁰
- **Medical technology and pharmaceuticals.** Since 2002, the

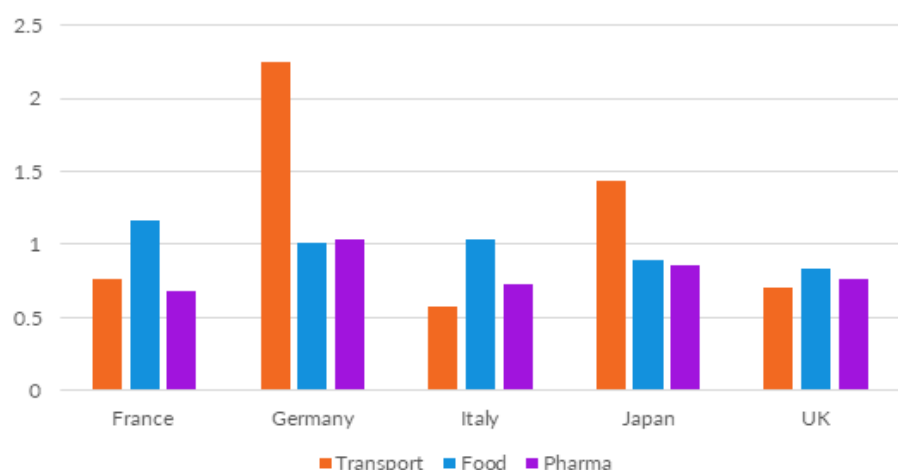
19. https://en.wikipedia.org/wiki/List_of_countries_by_motor_vehicle_production

20. For example, <http://www.cityam.com/252808/meet-hottest-50-uk-tech-startups-which-now-scale-ups>, <http://startups.co.uk/startups-100/> (ride-link)

number of pharmaceutical patents issued by the Midlands has more than halved in absolute terms. The Midlands remains a relatively small player on the international scene. In 2013 the entire Midlands issued 31.6 patents in pharmaceuticals—behind the much smaller UK leaders in Inner London West (55.1), Cambridgeshire (46.2) and Oxfordshire (42.5), and utterly dwarfed by Boston (802.3), New York (651.5) or San Francisco (528.8). The Midlands does better in medical technology, with areas like Warwickshire (40.5) or Worcestershire (24.6) competitive with Cambridgeshire (53.1) and Inner London West (26.7). Nevertheless, the industry remains tiny compared to Tokyo (947.6), San Francisco (894), Los Angeles (620.4) or Boston (596.4). Fundamentally, health innovation faces two structural challenges in the UK, which have made it difficult to compete with the US. First introduced in 2004, the European Clinical Trials Directive has significantly inflated the costs of clinical trials, with knock-on effects for the European pharmaceutical industry. Beyond this, the structure of the NHS has traditionally created significant barriers to entry for new health innovators, making it hard to develop a sustainable business model.²¹

- **Energy and low carbon.** Given its physical geography, the Midlands is unlikely to ever be a world leader in coal, oil, gas, solar or wind. It has no nuclear power stations and does not look likely to build one soon. Achieving international competitiveness in batteries or renewables requires building on a massive scale to drive down costs, making it hard for the Midlands to compete with current world leaders like China or the US.

Figure 8: Relative size of industries



Population adjusted, US = 1, OECD

Of course, the Midlands does not have to dominate a whole sector to be considered a success. Nevertheless, to really capture value in the twenty-first century, it should aim to be a global leader in its own niches – and this will have to be built on the back of a structural comparative advantage:

21. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/565072/AAR_final.pdf

- **Localism.** Can the Midlands take advantage of local market power in distribution, or serve as the UK base for global trends?
- **Cost.** Is the Midlands significantly cheaper compared to potential rivals domestically or internationally?
- **Competitiveness.** Does the Midlands enjoy significantly higher quality skills, infrastructure or R&D than its rivals?
- **Technology.** Does the Midlands enjoy a unique advantage or head start in a specific technological niche?
- **Regulation.** Does the Midlands enjoy significantly more flexible or responsive regulation?
- **Talent.** Can the Midlands attract the best workers domestically or internationally?

In short, the Midlands has the potential for a bright future – but it also has significant structural challenges to overcome. Manufacturing shrinking as a proportion of the local economy was almost certainly unavoidable, but that does not mean the region could not have been developing more successful services companies. In order to best understand the region's future challenges, we need to look more closely at why the region has failed to develop world leading sectors in the past.

Diagnosis

The Midlands Compared

The Midlands is middle England - in more ways than one. If you take out London, productivity in the region as measured by GVA by head is close to the UK average of £22,000. Unemployment is low in absolute terms, but the region's labour market suffers from low numbers of graduates and high numbers with low skills or no qualifications whatsoever.

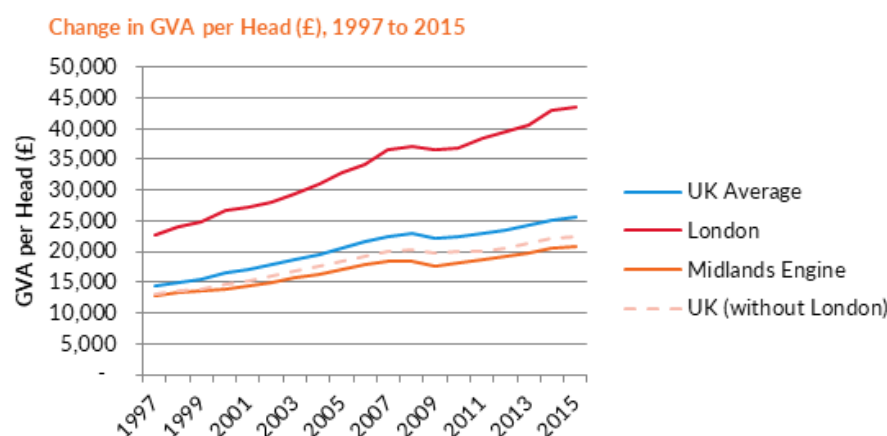
Over recent decades, both the region and much of the rest of the UK have been falling further and further behind London. In 1997 GVA per head in the Midlands was 56 per cent of the London average and near identical to the UK without London (97 per cent). By 2015 it had fallen to 48 per cent of the London average and 92 per cent of the rest of the UK.

Figure 9: The Midlands Engine compared to the UK

	UK	London	East Midlands	West Midlands
Population (2016)	66,040,229	8,825,001	4,771,666	5,860,706
GVA per Head (income approach), (2016)	£26,584	£45,046	£21,502	£22,144
Unemployment rate (16+), May to July 2018	4	4.7	4.1	4.6
Working age population with NVQ4+ (%), 2017	38.4	51.8	32.1	31.8
Working age population with no qualifications (%), 2017	8.0	6.8	8.2	10.4

ONS Population Estimates, APS, ONS GVA reference tables

Figure 10: Change in GVA per Head (£), 1997 to 2015



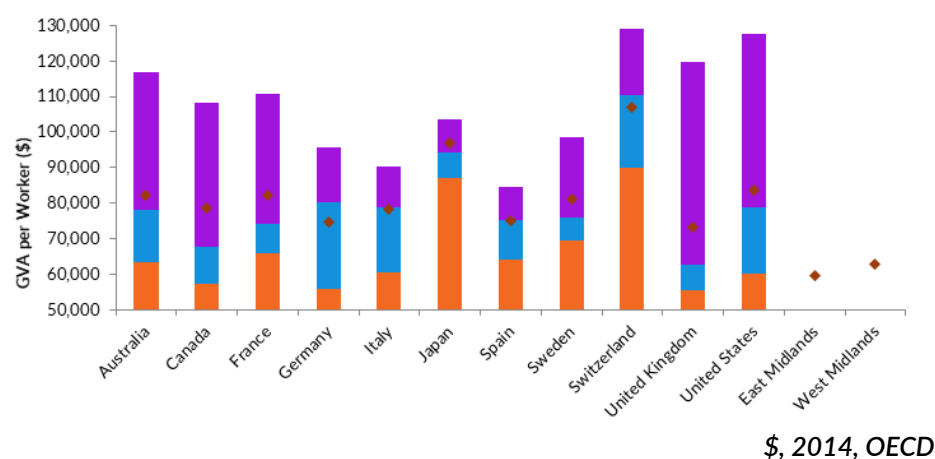
Author's calculations from ONS

The comparison becomes even more striking if you compare the Midlands to other regional economies internationally.

Almost every advanced economy has a large distribution between its most and least successful regional economies. If you look at figure 11 below, the median region as represented by the divide in the orange is generally below the mean (the red diamond). This pattern is more pronounced if you break the data down on a more granular level, with the UK experiencing by far the largest dispersion in the European Union. West Inner London has a GDP per inhabitant 539 per cent the EU average, while the equivalent proportion for West Wales and the Valleys is just 69 per cent.

Nevertheless, however the figures are broken down, the Midlands is doing badly on pure absolute terms. In the East Midlands the productivity rate in 2014 was \$60,000 per worker. In the West Midlands it was \$63,000 per worker. If transplanted to almost any other major economy, both would be deep in the bottom half of productivity.

Figure 11: Regional GVA per worker, 2014



In terms of industrial breakdown, the Midlands is similar to the rest of the UK with a few important exceptions: notably, the high proportion of manufacturing in the economy, but relatively low levels of ICT or finance and insurance.

Figure 12: Industries in the Midlands Engine compared to UK/GB

Industry	GVA (£, balanced)					
	UK	%	East Midlands	%	West Midlands	%
Agriculture, forestry & fishing (A)	10,528	1%	922	1%	895	1%
Mining, quarrying & utilities (BDE)	67,417	4%	4,293	4%	4,607	4%
Manufacturing (C)	176,996	10%	16,577	17%	19,791	16%
Construction (F)	108,124	6%	6,843	7%	7,718	6%
Retail, wholesale, motor trades, transport & storage, accommodation & food services (GHI)	321,587	18%	21,229	21%	26,092	21%
Information & communication (J)	106,740	6%	2,932	3%	4,957	4%
Financial and insurance activities (K)	115,280	7%	2,454	2%	5,472	4%
Real estate activities (L)	242,789	14%	11,586	12%	15,891	13%
Professional, scientific & technical; business administration & support services (MN)	215,312	12%	9,776	10%	12,481	10%
Public administration, defence, education, health (OPQ)	309,922	18%	19,377	19%	23,012	18%
Arts, entertainment, recreation & other services (RSTU)	72,952	4%	4,096	4%	5,673	4%
Total	1,747,647	100%	100,087	100%	126,589	100%

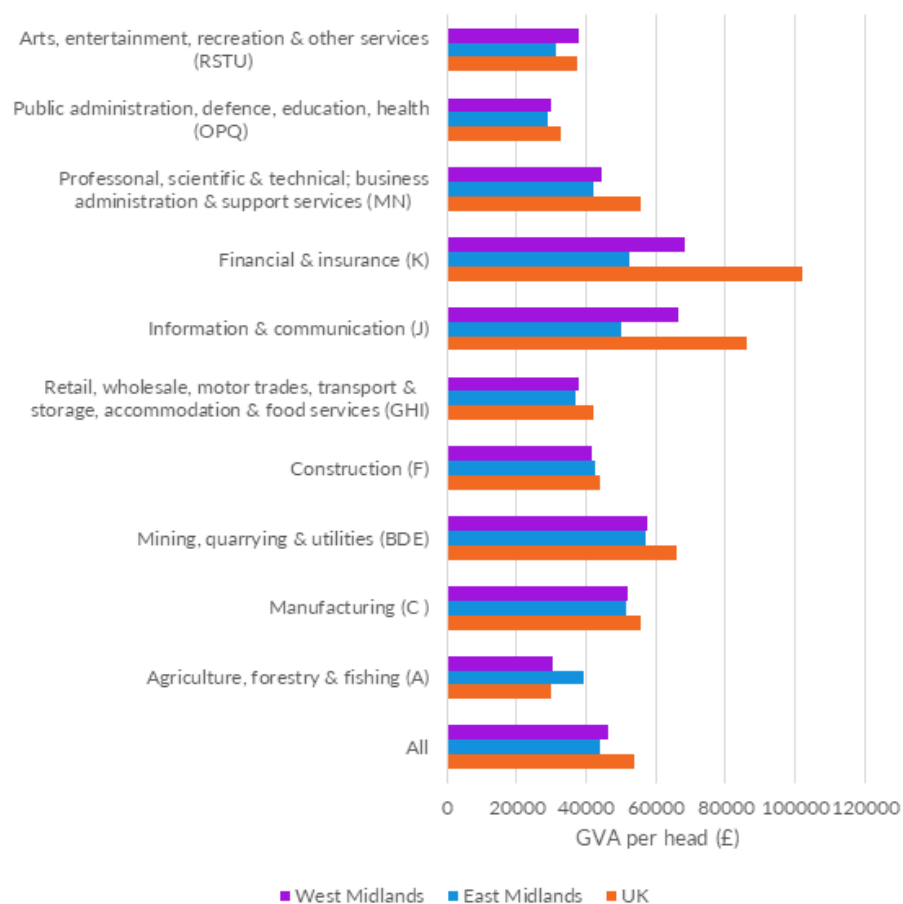
ONS, 2017

Industry	Employees					
	UK	%	East Midlands	%	West Midlands	%
Agriculture, forestry & fishing (A)	215,000	1%	21,000	1%	21,000	1%
Mining, quarrying & utilities (BDE)	389,000	1%	37,000	2%	36,000	1%
Manufacturing (C)	2,406,000	8%	286,000	14%	297,000	12%
Construction (F)	1,420,000	5%	90,000	4%	111,000	4%
Retail, wholesale, motor trades, transport & storage, accommodation & food services (GHI)	8,041,000	27%	589,000	28%	744,000	29%
Information & communication (J)	1,281,000	4%	58,000	3%	68,000	3%
Financial and insurance activities (K)	1,027,000	3%	36,000	2%	56,000	2%
Real estate activities (L)	486,000	2%	24,000	1%	49,000	2%
Professional, scientific & technical; business administration & support services (MN)	5,147,000	17%	336,000	16%	401,000	16%
Public administration, defence, education, health (OPQ)	7,800,000	26%	537,000	26%	674,000	26%
Arts, entertainment, recreation & other services (RSTU)	1,338,000	5%	74,000	4%	119,000	5%
Total	29,550,000	100%	2,088,000	100%	2,579,000	100%

ONS, 2017

Across almost every sector, both the East and West Midlands tend to see productivity lower than the UK average. This is especially notable in services such as finance & insurance, ICT and other professional services. Even in manufacturing, however, both regions are behind the rest of the UK.

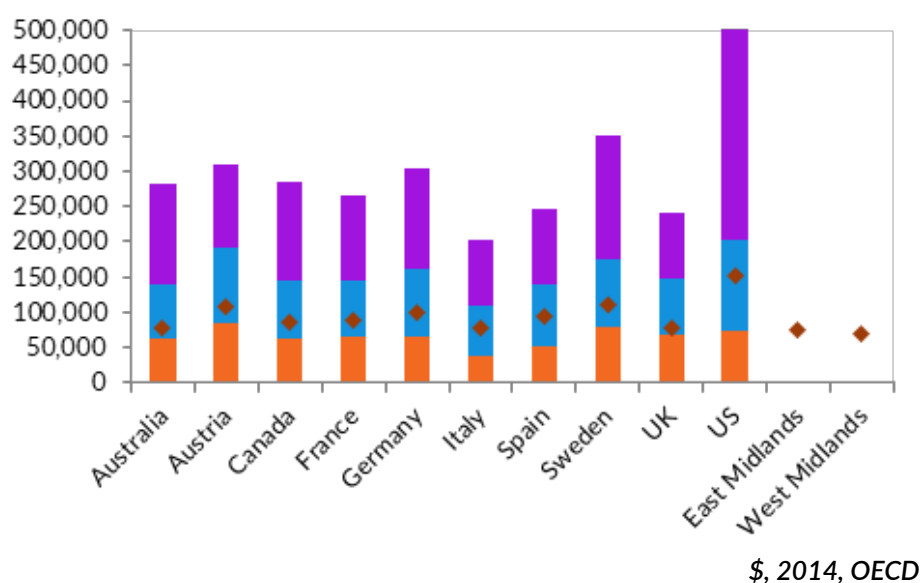
Figure 13: Productivity by Sector



ONS

Again, however, it is the international comparisons that really drive this home. Manufacturing may be the strength of the Midlands, but in terms of productivity it remains a long way below the average seen in other major economies – let alone compared to their best performers.

Figure 14: International Manufacturing GVA by worker



The economy isn't everything. When compared internationally the Midlands does rather poorly in terms of productivity – as does the UK, for that matter – but there are many other comparisons that are more flattering. Compared to the G7 average, the Midlands has low unemployment, low air pollution, good digital connectivity, low inequality and high levels of social capital.

Figure 15: The Midlands compared to the G7

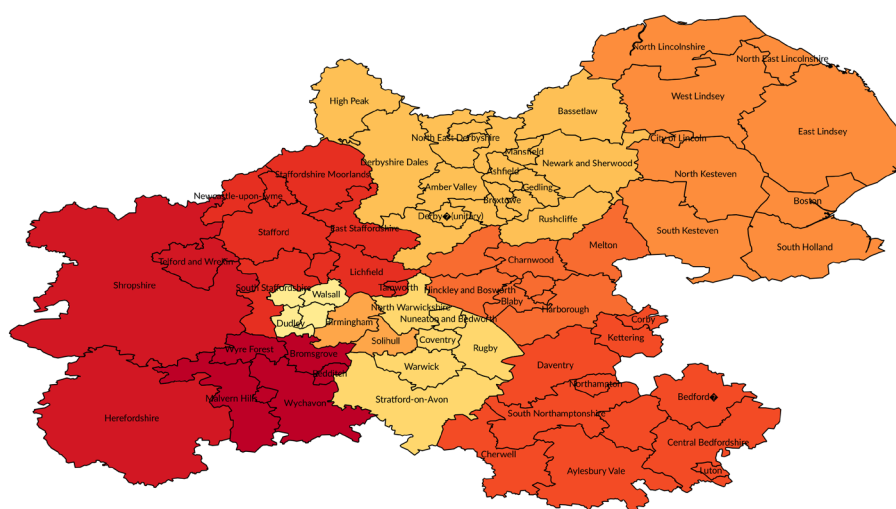
	G7 Average	UK	East Midlands	West Midlands
Disposable income per capita	£23,454	£20,950	£19,656	£19,231
Employment rate	69.8	73	74.3	70.7
Unemployment rate	7.1	5.6	5.6	6.8
Number of rooms per person	2.0	1.9	2.1	2.1
Share of labour force with at least secondary education	83.4%	81.8%	79.7%	77.3%
Life expectancy at birth	81.5	81.1	81.2	80.8
Standardised mortality rate	7.3	7.8	7.8	8
Air pollution, level of PM2.5	11.1	9.2	7.4	7.8
Homicide rate	1.6	1	1	1
Voter turnout in general election	69.0%	66.1%	66.6%	63.5%

	G7 Average	UK	East Midlands	West Midlands
Share of households with internet broadband access	80.0%	88%	89%	85%
Perceived social network support	92.3%	94.8%	95%	95.3%
Self-evaluation of life satisfaction (/10)	6.8	6.9	6.9	6.8
Perception of corruption (index score 1-100)	61.3	45.9	49.7	51.8
Gini (at disposable income, after taxes and transfers)	0.3	0.322	0.292	0.293
Poverty rate after taxes and transfers, Poverty line 60%	0.1	0.2	0.187	0.22

What is more, in truth the Midlands is not one, but many economies, including:

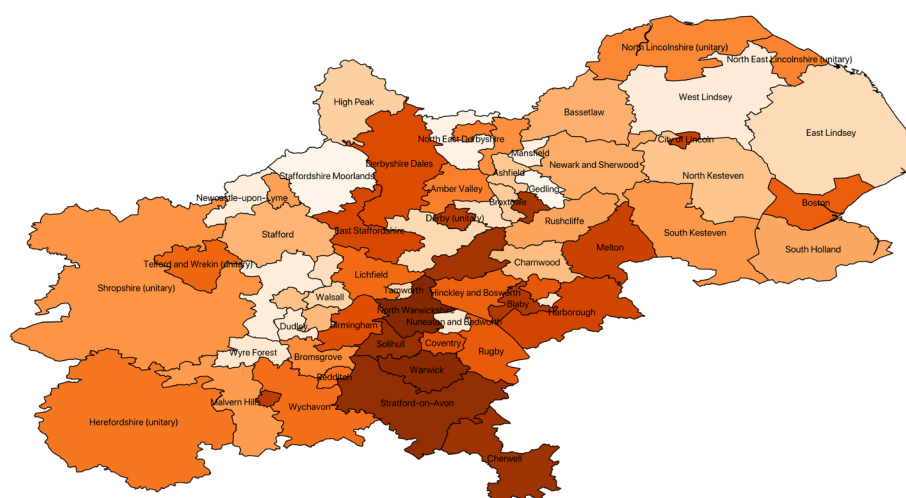
- One Mayoral Combined Authority
- 9 local enterprise partnerships
- 66 local authorities
- 20 universities

Figure 16: Local Authorities in the Midlands Engine



Many of these local areas, such as Solihull or Stratford-upon-Avon, have a GVA per head well above the national average of £25,600. Others, however, such as Gedling or Staffordshire Moorlands lie in the bottom 10 per cent. Over the last twenty years, there is little evidence of any closing of the gap between the best and worst performers, with no correlation between GVA per capita in 1997 and how fast they have grown since.

Figure 17: GVA per capita by Local Authority



GVA per capita, £				
Top 10			Bottom 10	
1	Warwickshire: North Warwickshire	35,493	Nottinghamshire: Gedling	14,441
2	Warwickshire: Warwick	33,660	Staffordshire: Staffordshire Moorlands	14,896
3	Warwickshire: Stratford-on-Avon	32,578	Derbyshire: North East Derbyshire	14,926
4	West Midlands (part): Solihull	31,705	Nottinghamshire: Mansfield	14,986
5	Leicestershire: North West Leicestershire	30,204	Staffordshire: Newcastle-upon-Lyme	15,027
6	Nottingham (unitary)	27,645	Staffordshire: South Staffordshire	15,042
7	Leicestershire: Blaby	27,350	Lincolnshire: West Lindsey	15,558
8	Derby (unitary)	27,266	West Midlands (part): Dudley,	15,762
9	Worcestershire: Worcester	25,103	Worcestershire: Wyre Forest	15,783
10	Lincolnshire: City of Lincoln	24,708	Warwickshire: Nuneaton and Bedworth	15,830

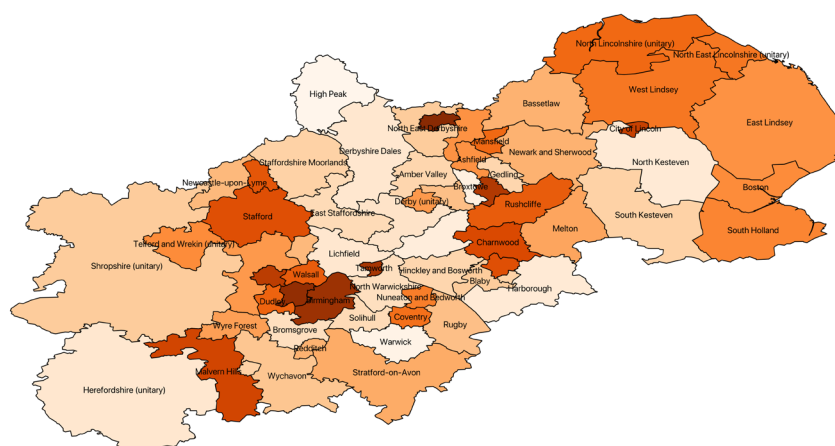
Change 1997-2015				
Top 10			Bottom 10	
1	Lincolnshire: North Kesteven	85.6%	Derbyshire: Chesterfield	47.3%
2	North Lincolnshire (unitary)	83.5%	Derbyshire: Bolsover	49.8%
3	Derbyshire: South Derbyshire	74.6%	Warwickshire: Stratford-on-Avon	50.0%
4	Staffordshire: East Staffordshire	74.2%	Worcestershire: Bromsgrove	52.8%

Change 1997–2015				
Top 10			Bottom 10	
5	Telford and Wrekin (unitary)	72.7%	Worcestershire: Wyre Forest	53.2%
6	Staffordshire: Stafford	70.6%	Leicestershire: Blaby	53.4%
7	West Midlands (part): Dudley,	70.2%	Worcestershire: Malvern Hills	53.6%
8	Staffordshire: Staffordshire Moorlands	69.8%	Worcestershire: Worcester	54.3%
9	Leicestershire: Melton	69.6%	Derbyshire: North East Derbyshire	54.7%
10	West Midlands (part): Sandwell	69.3%	West Midlands (part): Solihull	55.0%

ONS

Similarly, there is a large dispersion in employment outcomes – with high unemployment particularly notable in the cities of Birmingham, Nottingham and Wolverhampton. This phenomenon is not completely unique to the Midlands, with relatively high unemployment also seen in other major cities such as Manchester (8.2%), Liverpool (7.1%) and even London (5.7%).

Figure 18: Unemployment by Local Authority



Unemployment (%)				
Top 10			Bottom 10	
1	Derbyshire: High Peak	1.8	Derbyshire: Chesterfield	8.9
2	Warwickshire: Warwick	1.9	West Midlands (part): Sandwell	8.4
3	Nottinghamshire: Broxtowe	2.1	West Midlands (part): Birmingham	8.3
4	Leicestershire: North West Leicestershire	2.5	Staffordshire: Tamworth	8
5	Leicestershire: Harborough	2.6	Nottingham (unitary)	7.9
6	Leicestershire: Harborough	2.6	West Midlands (part): Wolverhampton	7.8

Unemployment (%)				
Top 10			Bottom 10	
7	Derbyshire: Derbyshire Dales	2.7	Lincolnshire: City of Lincoln	6.7
8	Herefordshire (unitary)	2.7	Worcestershire: Malvern Hills	6.5
9	Staffordshire (part): Lichfield	2.7	Leicestershire: Charnwood	6.1
10	Derbyshire: South Derbyshire	2.8	Leicester (unitary)	6

ONS, 2016

Why is Midlands productivity so poor internationally speaking? What are its genuine strengths that it can build on in the future?

The Government's recently published Midlands Engine strategy identified three major economic strengths:

- **Geographical position.** 92 per cent of the UK's population can reach the Midlands in under four hours.
- **Globally significant businesses.** The area is home to internationally recognised brands such as Jaguar Land Rover, JCB and Rolls Royce.
- **Strong services base.** HS2 will cut the travel time between London and Birmingham to just 49 minutes, helping further fuel the city's growth.

However, set against these it picked out three largely horizontal weaknesses:

- **Skills.** Too many university graduates leave the region at the end of their studies, and relatively high numbers in the labour market have no qualifications.
- **Connectivity.** Transport connections are often congested and slow, fragmenting the area and undermining agglomeration effects.
- **Entrepreneurship and economic dynamism.** The rate of business creation is less than half the rate seen in London.

In response, the Midlands Engine published its own Vision for Growth, promising to Connect the Midlands; Invest in Strategic Infrastructure; Grow International Trade and Investment; Increase Innovation and Enterprise; and Shape Great Places ("Promote the Midlands as a great place to live, visit, learn and work").

No strategy can do everything. In order to have the biggest impact, we need to focus on where the biggest opportunities or gaps are.

In the rest of this chapter, we will consider three major questions based around the weaknesses identified by the Government:

- **Skills.** Is the region suffering from a graduate brain drain, and if so, why?
- **Connectivity.** Has the region been held back by the disproportionate

focus of national investment on the South East?

- **Innovation.** Why do the region's start-ups fail to scale-up into larger enterprises?

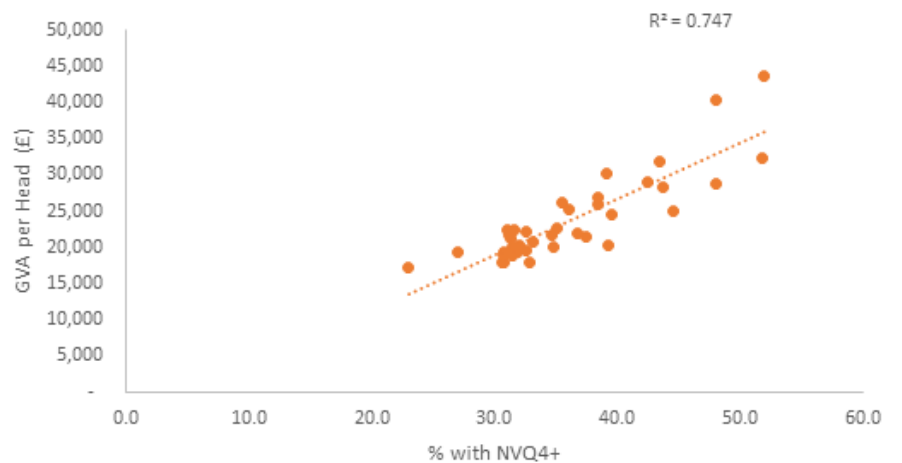
But we will also address three other deeper factors that might lie behind the area's economic performance:

- **Diffusion.** Why is there a long tail of underperforming companies not adopting best practice in management or technology?
- **Planning.** What impact has the region's planning system or Green Belt had on holding back the growth of the area's cities or the emergence of a services industry?
- **Employment.** Why is unemployment so high in many of the region's cities?

Skills: Is the Midlands suffering a graduate brain drain?

At both an international and a local level, there is a correlation between economic productivity and the average level of education of the population. Over the long run, a 1% rise in the share of the workforce with a university education is estimated to increase productivity by 0.2-0.5 per cent.²² On average, since 1990, improving labour quality is estimated to have increased growth by 0.4 percentage points a year.²³

Figure 19: LEPS by GVA per head and graduates



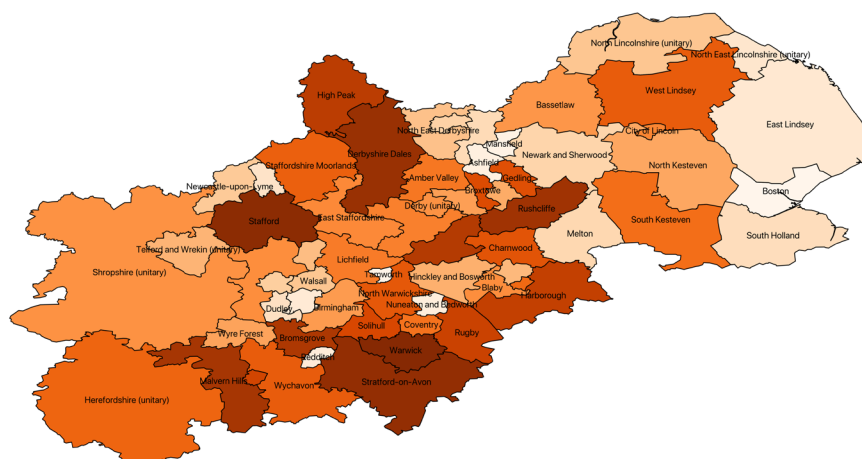
ONS

At 32 per cent, the Midlands Engine workforce has on average a significantly lower proportion of graduates (NVQ4+) than high productivity areas such as London (52%) or the Thames Valley (48%). In fact, besides Warwick no local authority exceeds a 50 per cent share, while the Black Country has the lowest proportion (23%) of any LEP in the country.

22. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486500/BIS-15-704-UK-skills-and-productivity-in-an-international-context.pdf

23. Author calculation from Total Economy Database, The Conference Board

Figure 20: Local Authorities by proportion with NVQ4+

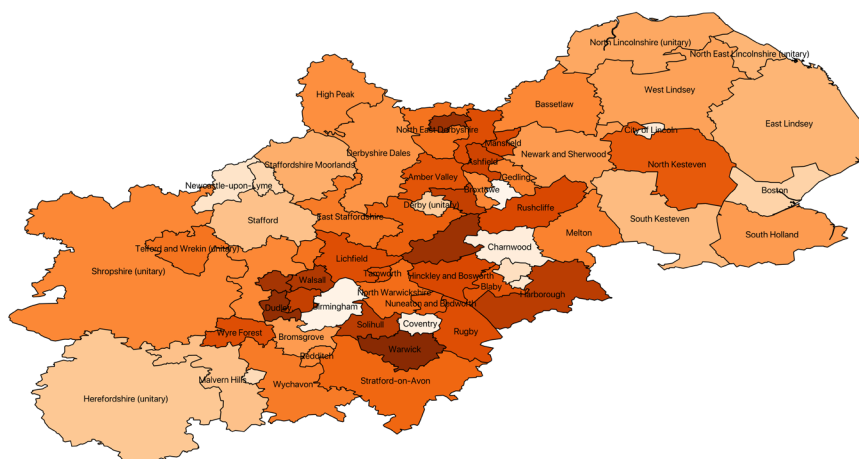


Proportion of population with NVQ4+ (%)					
Top 10			Bottom 10		
1	Warwickshire: Warwick	53.6	Lincolnshire: Boston	11.8	
2	Staffordshire: Stafford	49.9	Ashfield	15.9	
3	Warwickshire: Stratford-on-Avon	47.9	East Lindsey	17.5	
4	Derbyshire: Derbyshire Dales	47.4	Sandwell	17.9	
5	Nottinghamshire: Rushcliffe	46	Mansfield	18.1	
6	Worcestershire: Malvern Hills	45.9	South Holland	21	
7	Worcestershire: Bromsgrove	45	City of Stoke-on-Trent	21.3	
8	Leicestershire: North West Leicestershire	43.5	Corby	21.4	
9	Derbyshire: High Peak	43	Bolsover	22	
10	Leicestershire: Harborough	42.8	North East Lincolnshire (unitary)	23.4	

ONS

With 20 universities in total and attracting 1 in 5 English students, the Midlands has a reasonable academic base, including four of the UK's largest 20 universities. Many of these students, however, immediately move on upon graduation, with Nottingham, Birmingham and Coventry seeing a large annual exodus of those aged 20-24 – many of whom are heading for London.

Figure 21: Internal migration, age 20-24

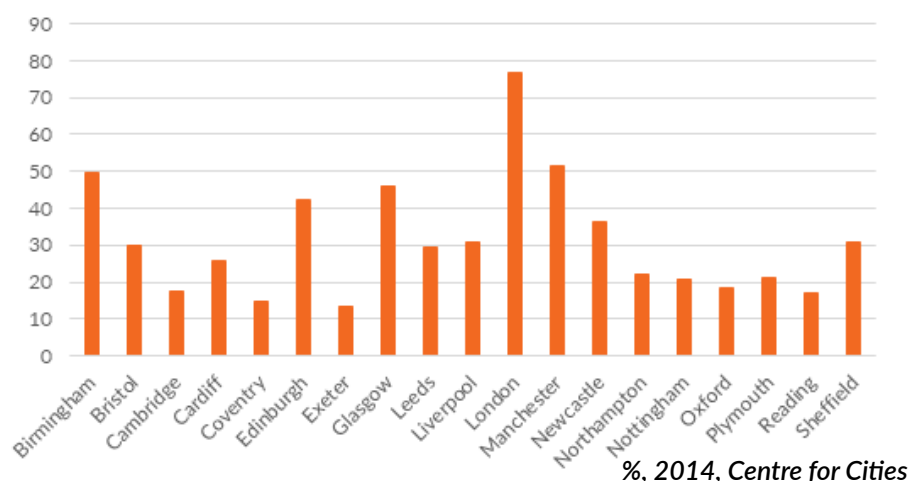


Internal Migration (Age 20-24)				
Top 10 Exporters			Top 10 Importers	
1	Nottingham (unitary)	-3880	Warwickshire: Warwick	320
2	West Midlands (part): Birmingham	-1540	West Midlands (part): Dudley,	300
3	West Midlands (part): Coventry	-1450	Derbyshire: Chesterfield	240
4	Leicestershire: Charnwood	-1030	Leicestershire: North West Leicestershire	240
5	Lincolnshire: City of Lincoln	-890	West Midlands (part): Wolverhampton	190
6	Leicestershire: Oadby and Wigston	-860	West Midlands (part): Walsall	170
7	Staffordshire: Newcastle-upon-Lyme	-630	Leicestershire: Harborough	140
8	Leicester (unitary)	-430	West Midlands (part): Solihull	140
9	Worcestershire: Worcester	-250	Derbyshire: Erewash	130
10	Staffordshire: City of Stoke-on-Trent	-210	West Midlands (part): Sandwell	130

ONS

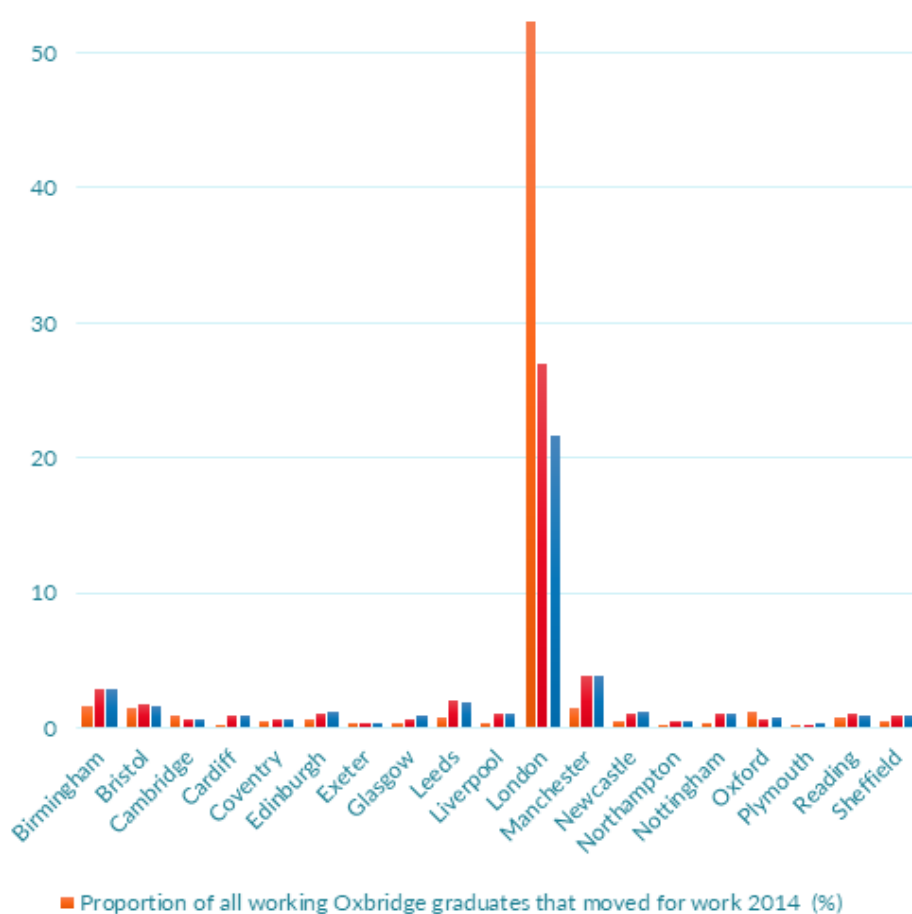
Birmingham only retains around 50% of its students, losing 76 per cent of those who moved specifically to study. By contrast, London retains 77 per cent of its graduates, and draws in 22 per cent of other graduates.

Figure 22: Graduate retention rate



Birmingham and Nottingham attract just 2.9 per cent and 1.1 per cent of moving graduates respectively - and the divide is still more stark if you look solely at Russell Group graduates. London attracts a staggering 32 times more Oxbridge graduates than Birmingham.²⁴

Figure 23: Graduate attraction



%, 2014, Centre for Cities

24. <http://www.centreforcities.org/wp-content/uploads/2016/11/16-11-18-The-Great-British-Brain-Drain.pdf>

Over time, the inability to retain workers can have a significant impact. One paper by Gregory Clark and Neil Cummins, using historical data on surnames and migration going back to 1800, finds that the north-south divide is almost entirely explained by migration within the UK – with the north struggling to hold onto many of its most talented or skilled workers.²⁵

Why do cities outside London struggle so much to attract graduates? Are there policy actions that cities and regions could take to attract a greater proportion of talented workers?

For decades, economists have debated the great chicken-or-egg question of urban economics: which comes first, good jobs or good workers? In 2002, Richard Florida famously argued that cities could thrive by building cultural amenities to attract a high skilled ‘creative class’ of knowledge workers who would then go on to seed wider growth. Other economists have pointed to the growth of industry in the US in the ‘Sun Belt’ as the development of air conditioning made it more pleasant to live in. It is probably not a coincidence that California has a pleasant climate, and many thriving industries.

Historically speaking however, the relocation of industry to the Sun Belt, actually seems to pre-date the adoption of air conditioning.²⁶ While workers may desire to retire in Florida or Cornwall, they are much more likely to choose New York or London for their career. Most evidence suggests that while climate or cultural amenities can make a difference at the margin, it is of secondary importance to the existence of good jobs being available.²⁷

In short, increasing the Midlands’ low proportion of graduates is unlikely to happen without first increasing the economic opportunities available to young people – it is a proximate, not ultimate cause of low productivity.

Most evidence suggests that attempts to shortcut this through better amenities such as new sporting or cultural facilities are unlikely to provide value for money. As part of their evidence survey, the Government’s What Works Centre for Local Economic Growth considered over 550 evaluations of similar interventions and found that, “the overall measurable effects of projects on a local economy tend not to be large and are more often zero.”²⁸

25. <https://www.kcl.ac.uk/sspp/departments/political-economy/newsevents/Research-Seminars/The-Big-Sort-paper.pdf>

26. Keys to the City

27. <http://journals.sagepub.com/doi/abs/10.1068/a42432?journalCode=epna>, <http://isiarticles.com/bundles/Article/pre/pdf/1519.pdf>, <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9663.2009.00530.x/pdf>

28. <http://www.whatworksgrowth.org/policy-reviews/sports-and-culture/>

Case Study: Coventry

Coventry has a long history of reinventing itself. First rising to prominence in medieval England as a centre for weaving and dying wool, by the seventeenth century silk had taken over as the lead industry. The arrival of cheap foreign competition in the nineteenth century threatened silk, but Coventry developed specialisms such as clock making and bicycle manufacturing, which in turn led to Coventry taking an early lead in the car industry. The first British car was built in Coventry, and for much of the first half of the twentieth century, the city was effectively the ‘British Detroit.’

Unfortunately, the city has not yet done so well at recovering from the decline of the car industries in the 1970s and 1980s. While doing better than many other Midlands or manufacturing-intensive cities, since 2005 productivity has diverged from the rest of the UK, and remains at 86 per cent of the UK average. While unemployment is above the UK average, the region’s Strategic Economic Plan points out that it is also the lowest level compared to other production-intensive LEPs.

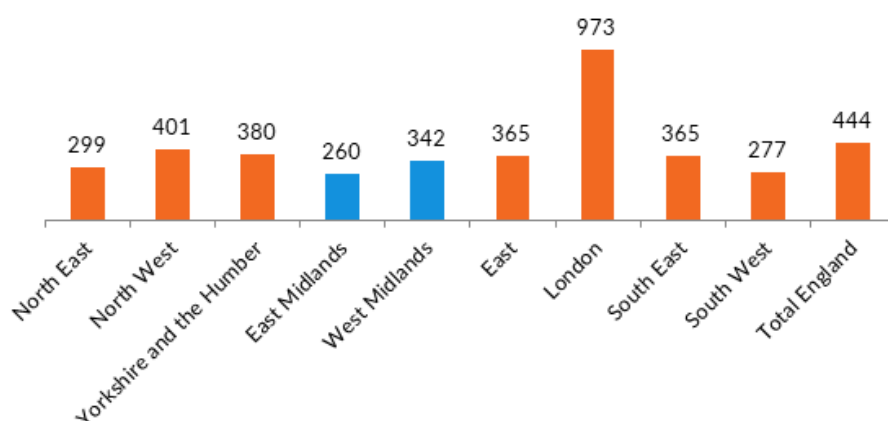
The region retains two world-class universities in Warwick and Coventry, many leading car manufacturers such as Aston Martin, JLR and TATA, and good transport links into London or Birmingham. At the same time, it is also growing new specialisms such as ‘Silicon Spa’, one of the UK’s leading hubs for computer games development. The region hopes that in the future it will be able to take advantage of new technologies such as driverless vehicles and is set to be the UK City of Culture in 2021.

	UK / GB	Coventry
GVA per head (2015, UK)	£25,878	£22,165
Gross Weekly Pay (GB)	£552.7	£535.70
Unemployment (GB)	4.40%	5.20%
Graduate workforce (% NVQ4+, GB)	38.60%	34.70%
Low Skills (% no qualification, GB)	7.70%	9.70%
Index of Multiple Deprivation (Rank of 109 towns and cities in England)	N/A	46

Connectivity

In 2015-16 the UK Government spent more than three times per person on infrastructure in London than it did in the Midlands. The current National Infrastructure Pipeline has £2.1 bn in transport projects for the East Midlands and £2.8 bn for the West Midlands, but £43 bn for London.

Figure 24: Regional spending on transport per capita



£, 2015/6, HM Treasury

Does this matter? Many have complained that the current cost-benefit methodology for transport projects has created a self-fulfilling the-rich-get-richer dynamic, where regions with high average wages are always deemed higher priorities for more investment.²⁹

There is no doubt that investment in transport infrastructure is important. Over the next few decades, road traffic is estimated to increase by between 19% and 55%, rail journeys by 40% and air passengers by 2 per cent a year.³⁰ As both the Government's Midlands Engine Strategy and past work by Policy Exchange have argued,³¹ the state of the transport connections both within and across many commuting zones in the Midlands remains poor. The arrival of HS2 provides a significant opportunity to reshape the area's regional connections. At the same time, increasing international connections can encourage greater foreign investment and competition – one of the most well-established drivers of local productivity improvement.

Nevertheless, while investment in transport matters, it does not necessarily explain the relative pattern of productivity we see across the country – or that abandoning careful cost-benefit analysis is not likely to lead to significant waste.

In the eighteenth and nineteenth century, the development of canals, turnpike roads and the railways played a significant role in shaping Britain's economic geography, boosting the prosperity of particular areas and unleashing growth. Today, however, Britain's transport infrastructure is relatively mature, suggesting much smaller marginal impacts. Most transport projects only create minor improvements to economic efficiency; for example, the development of the motorway network, the most significant investment in the twentieth century, has had little impact on growth.³²

29. http://www.ippr.org/files/images/media/files/publication/2011/12/wrong-track_Dec2011%201_8411.pdf?noredirect=1

30. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624990/transport-investment-strategy-web.pdf

31. <https://policyexchange.org.uk/wp-content/uploads/2016/09/on-the-move.pdf>

32. <https://iea.org.uk/blog/infrastructure-investment-and-economic-growth>

The influential 2006 Eddington transport study identified seven mechanisms through which transport could improve growth:

- **Saving time.** Reducing congestion and improving transport speed can reduce costs for businesses and consumers. Eddington estimated that a 5 per cent reduction in business travel time could increase GDP by 0.2 per cent.
- **Unlocking freight economies of scale.** Strengthening bridges, expanding gauges and providing more capacity can allow freight companies to increase loads carried, and create economies of scale.
- **Agglomeration effects.** Transport improvements allow cities to increase in size, and unlock increasing access to a greater scale of workers, firms and clusters.
- **Increasing the efficiency of labour markets.** Expanding the reach of a local labour market increases flexibility, job matching and effective labour supply. Policy Exchange's 2015 report *On the Move* estimated that making it easier for workers to commute 20 minutes further would unlock significant numbers of job opportunities.
- **Competition.** Cutting travel times increases effective competitive power, one of the most powerful drivers of greater productivity we know about.
- **Trade.** Eddington estimates that falling transport costs between 1960 and 2000 increased trade in goods by 10-17.5 per cent in turn increasing GDP by 2.5-4.4 per cent.
- **Attracting globally mobile activity.** Good international links can attract foreign direct investment, creating spill-over productivity effects. The most recent Global Competitiveness Index had the UK only 27th for the quality of its road infrastructure, and 19th for rail.³³

Most public transport infrastructure is justified by its impact on congestion. Like every region, the Midlands has its traffic pinch points, with the Midlands Engine Strategy highlighting an annual six million hours of delays across the Midlands Motorway Hub. Significant levels of congestion exist in both Birmingham and Nottingham – although the same is true around almost every major British city.

33. <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1>

Figure 25: Regional delay on local roads

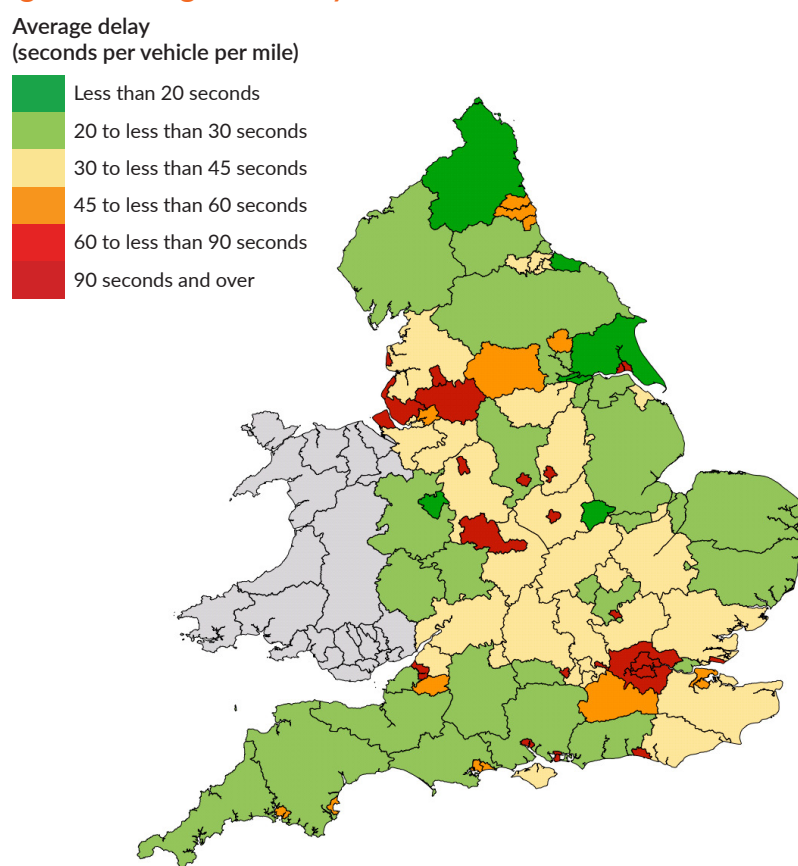


Table CGN0502b, DfT, 2017

Congestion is worth tackling – but plays little role in explaining regional differences in productivity or low productivity overall. Extrapolating from the Eddington estimate, it would take in the order of a 25 per cent reduction in travel times to achieve a one off 1 per cent improvement in GDP. Given today’s technology, the level of investment required to achieve this would be unlikely to pass any reasonable cost benefit test.

For transport to really unlock transformative productivity effects, it has to catalyse structural changes to economic geography, creating new agglomeration effects.

If agglomeration effects imply that bigger is better, what limits the natural size of a city? One answer is that we seem to prefer to commute no more than around a half an hour away from our home. A fixed daily ‘travel time budget’ of sixty to seventy minutes seems to be found everywhere from African villages to global metropolises worldwide³⁴ and in the UK going back at least several hundred years.³⁵ As transport technologies developed, the coming of trains, tubes, elevators, buses, trams and eventually cars helped expand the reach of cities, allowing them to grow.

Short of further radical improvements in transport technology, the Midlands will never be a single agglomeration. (That said, a theoretical Hyperloop could bring Birmingham within 14 minutes of London, 12 minutes of Manchester and 5 minutes of Nottingham.)

Beyond the natural commuting catchment zone, most agglomeration

34. The future mobility of the world population <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=6AA87C1F9EF15FFDC2621D2762FB574B?doi=10.1.1.500.7174&rep=rep1&type=pdf>, https://www.researchgate.net/publication/266742794_Seventy_Minutes_Plus_or_Minus_10_-_A_Review_of_Travel_Time_Budget_Studies

35. <http://www.complexcity.info/files/2013/02/Towards-city-science1.pdf>

effects attenuate very quickly, with Eddington estimating that the value of improvements for travel times above 40 minutes are four times less than those below it – and near zero above 80 minutes. Both Birmingham and Nottingham are less limited by the state of transport technology than they are by the more artificial constraint of their individual Green Belts, limiting urban expansion.

Could we improve the functioning of the agglomerations that already exist? It is noticeable that compared to other G7 cities the productivity of both Birmingham and Nottingham severely underperforms what could be expected from their size alone. Writer Tom Forth has argued that a major reason for this is the poor state of internal connections within Birmingham, making it a fragmented collection of towns rather than a unified urban area.³⁶ While this may be true, it seems unlikely to be solely the result of inadequate public transport. Nobody has ever accused Los Angeles of having a thriving public transport system,³⁷ or of avoiding traffic congestion at peak hour, and yet it still seems to function broadly as an urban area.

In short, improving connectivity is worth doing, but is unlikely to have a transformative effect. The What Works Centre for Local Economic Growth finds evidence that new road projects can create a positive impact on employment and productivity, but no high quality evidence of a positive impact from investment in rail, buses or trams.³⁸ Macro cross-country evidence on the impact of infrastructure and transport is mixed, but suggests overall an elasticity of GDP to investment in developed countries of around 0.15. This implies that it would take as much as a doubling of overall infrastructure capital to raise GDP by 10 per cent.³⁹

As the Midlands Connect strategy itself estimates, improving local transport connectivity and reducing journey times by roughly 20 per cent over the coming two decades could boost economic productivity by £1.6 billion⁴⁰ – worth having, but only closing around 3 per cent of the productivity gap with the rest of the country.

Innovation, Entrepreneurship and Scale-Ups

If the Midlands is ever to close the gap with London and become more competitive internationally, it will have to develop new significant large enterprises. Today, just four of the FTSE 100 are located in the Midlands and zero of the UK's nine unicorns (start-ups now valued at over £1 billion).⁴¹

As the Government's Midlands Engine strategy points out, the birth rate of companies in the Midlands (5.3 per thousand) is less than half the rate seen in London (11.6). There is a reasonable correlation between the birth rate for companies and GVA per head across local authorities – although much of it is driven by the high rate of both in parts of London.

36. <http://www.tomforth.co.uk/birmingham/>

37. <http://www.citymetric.com/transport/los-angeles-metro-great-so-why-aren-t-people-using-it-2742>

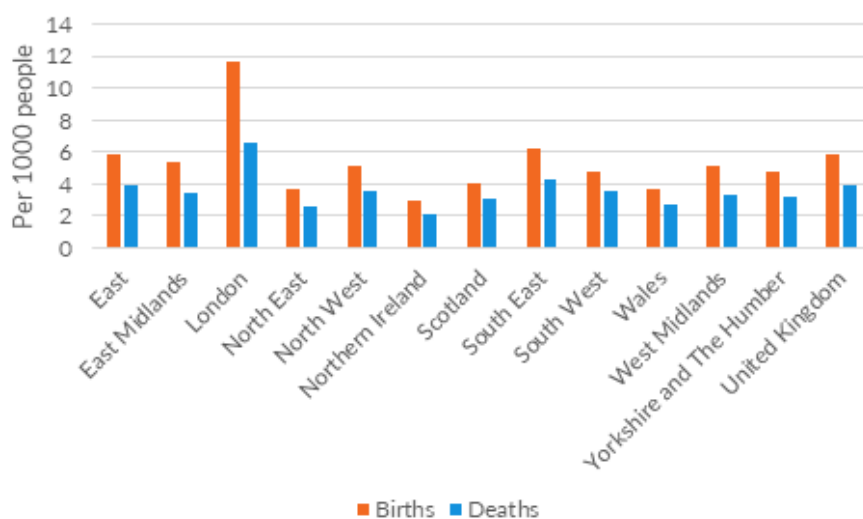
38. http://www.whatworksgrowth.org/public/files/Policy_Reviews/15-07-01-Transport-Review.pdf

39. Infrastructure and Growth, Luis Servén, 2010, <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:22629797~pagePK:64165401~piPK:64165026~theSitePK:469382,00.html>

40. <https://www.midlandsconnect.uk/media/1100/midlands-connect-strategy-march-2017.pdf>

41. <https://www.cbinsights.com/research-unicorn-companies>

Figure 26: Business Demography



2015, ONS

However, recent research also suggests that the absolute quantity of start-ups is often less important than a much smaller proportion of ‘scale-ups’ which are looking to rapidly grow into much larger firms. While there is nothing wrong with a small lifestyle business or one off independent shop, by themselves they are unlikely to create significant numbers of new jobs or boost productivity. In the US, high growth firms are responsible for about 50 per cent of job creation.⁴² In the UK, Nesta calculated that 50 per cent of new jobs between 2002 and 2008 were created by just 6 per cent of UK businesses.⁴³ Guzman and Stern (2016) find that ‘innovation-driven enterprises’ are strongly linked to the future growth of cities – and by contrast, there is no link between the number of start-ups and growth.⁴⁴

Based on survey and interview evidence, in 2014 the Scale-up Institute identified five key challenges for scales-ups, in declining order of importance:

- **Recruiting people with the skills and ambition required for technical and business roles.** By definition, many scale-ups double in size every few years, creating constant pressure to attract high quality talent.
- **Developing business leaders with the ability to manage rapid growth.** There is little formal training for rapid scaling and finding effective mentors can be challenging.
- **Selling to large companies and government, entering new markets and gaining regulatory approval for new products.** Slow approval processes by financial and regulatory authorities has led many scale-ups to relocate their headquarters to the US.
- **Attracting appropriate growth capital.** Traditional financial institutions are often slow to invest in fast-moving scale-ups.
- **Accessing research and development facilities and finding suitable premises.** Restrictive planning laws make it difficult to find new office space or access facilities for R&D.

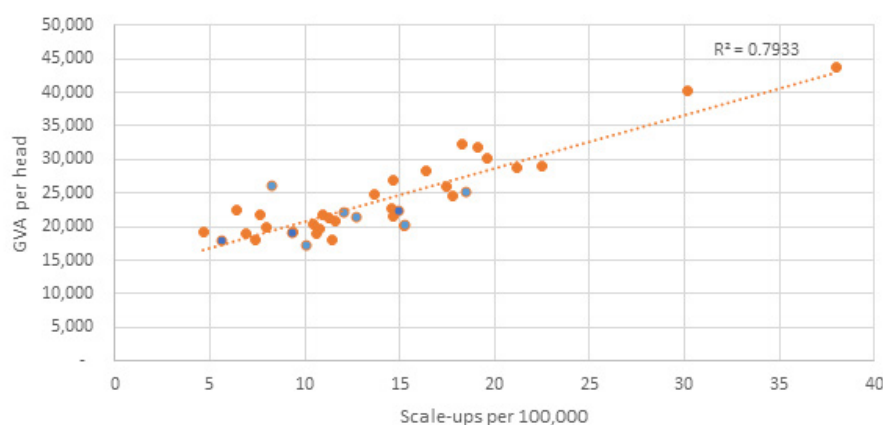
42. http://econweb.umd.edu/~haltiwan/JEP_DHJM.pdf

43. The Vital Six Percent

44. <https://static1.squarespace.com/static/53d52829e4b0d9e21c9a6940/t/56d9a05545bf217588498535/1457102936611/Guzman+Stern+---+State+of+American+Entrepreneurship+FINAL.pdf>

There is a strong relationship between productivity and the density of scale-ups in a LEP area. The Midlands Engine has a scale-up density less than a third of that seen in London. Stoke-on-Trent and Staffordshire has the second lowest density in the country.

Figure 27: Scale-ups and GVA per head per LEP



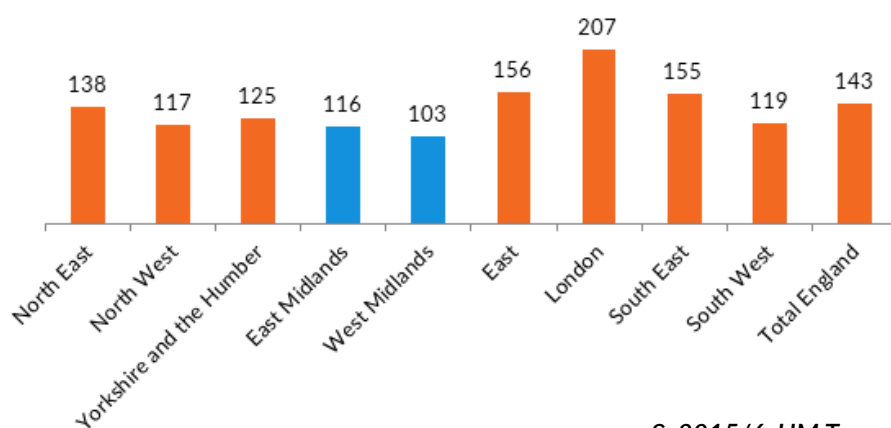
Region	Scale-Ups	Population	Per 100,000
Black Country	117	1,166,400	10.0
Coventry and Warwickshire	166	899,400	18.5
D2N2	226	2,161,400	10.5
Greater Birmingham and Solihull	239	1,996,200	12.0
Greater Lincolnshire	99	1,066,100	9.3
Leicester and Leicestershire	152	1,017,900	14.9
London	3296	8,673,700	38.0
<i>Midlands Engine</i>	1414	12,644,800	11.2
South East Midlands	163	1,974,000	8.3
Stoke-on-Trent and Staffordshire	62	1,114,200	5.6
Thames Valley Berkshire	269	890,600	30.2
The Marches	102	670,600	15.2
UK	10758	65,110,000	16.5
Worcestershire	88	578,600	15.2

While surveys of scale-ups themselves point to practical challenges with finding workers or expanding into new markets, many in the policy community have instead focussed on R&D.

Many worry that the regional imbalance in publicly funded R&D is leading to an over focus on the 'Golden Triangle' of London, Oxford and Cambridge, starving other areas of funding and researchers. While the overall imbalance is not as great as in transport, London still receives more

than its fair share, while the Midlands receives the lowest amount per head in the country. We know that there are significant spillover effects from publicly funded research, allowing it to ‘crowd-in’ private spending in an area. Without significant levels of public funding as a seed, other regions may struggle to attract private R&D that can then go on to be commercialised into start-ups, scale-ups and eventually large enterprises.

Figure 26: Regional public spending on R&D per capita



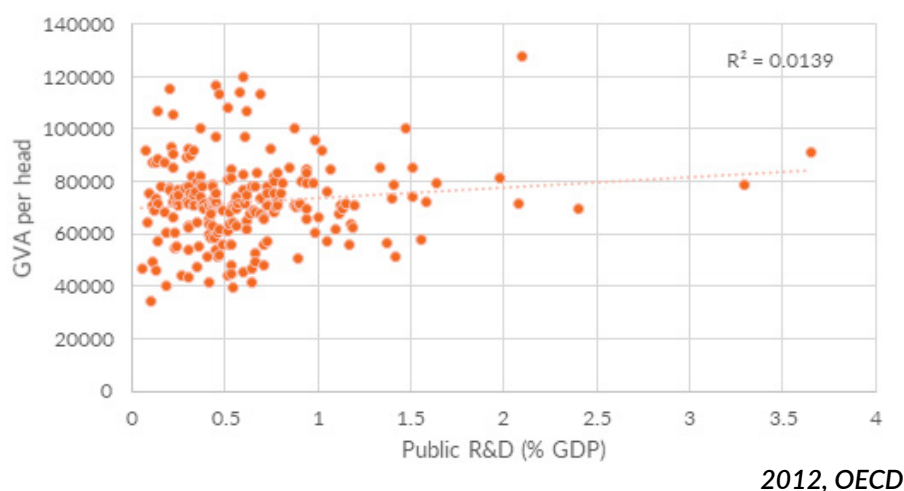
£, 2015/6, HM Treasury

In practice, however, the connection between publicly funded R&D and innovation is likely significantly more complex than this.

The ‘linear view of innovation’, in which basic science is directly translated into commercial innovation, is today widely recognised as misleading. Many innovations originate in the private sector. The original rise of industry in the Midlands was driven more by entrepreneurial experiment than high science, and this remains the pattern for many of the most important economic advances. Recent advances in machine learning, for example, are more the result of cheap data and GPUs driven by social networking and computer games than any academic improvement in algorithms.

In qualitative terms, looking across the OECD by region there is actually no correlation as a percentage of GDP between publicly and privately funded R&D. Neither is there any connection between publicly funded R&D and GVA per head, either on a national or a regional level.

Figure 29: Regional public R&D and GVA per head



That is not to say R&D doesn't matter. There are good reasons to believe that well targeted R&D can create high returns at a regional, national and international level.⁴⁵ In recent decades, the UK probably has underinvested in the more applied kind of development that would particularly suit.

Nevertheless, the distribution of publicly funded R&D likely only plays a very small role in explaining the economic geography of the UK. While London may receive the highest proportion of R&D per head, it is hard to argue that this has played a significant role in the success of its leading sectors such as finance, business services or the media.

45. <http://www.whatworksgrowth.org/policy-reviews/innovation/why-innovation/>

Case Study: Stoke-on-Trent

The favourable geology of the local area - providing ample clay, salt, lead and coal - led the area around Stoke to become a noted centre for the production of pottery as far back as the seventeenth century. The industrialisation of the industry in the eighteenth century, led by local entrepreneurs such as Josiah Wedgwood, saw output and productivity rapidly expand, with the region becoming the world centre for the ceramics industry. The area's prosperity and geography attracted other spillover industries, such as coal, steel and tyres.

In the last decades of the twentieth century, the inability of the industry to remain competitive with cheaper global competition saw the labour force shrink by an order of magnitude. Productivity in Stoke-on-Trent has long significantly lagged behind the rest of the UK, and the area still suffers from a low skills base and significant levels of deprivation. Nevertheless, the region has also enjoyed relatively strong employment growth in recent years, continues to be a base for international businesses such as General Electric or Coors, and has good connectivity via road and rail.

The region's Strategic Economic Plan sets an ambition to build on the region's heritage and develop new specialisms in applied materials, including both ceramics and polymers. At the same time, it also looks to build on the recent strength of the region's rural economy with more development in agri-tech, and take better advantage of natural assets such as the Peak District or Cannock Chase.

	UK / GB	Stoke-on-Trent
GVA per head (2015, UK)	£25,878	£18,926
Gross Weekly Pay (GB)	£552.7	£464.90
Unemployment (GB)	4.40%	5.90%
Graduate workforce (% NVQ4+, GB)	38.60%	23.40%
Low Skills (% no qualification, GB)	7.70%	12.30%
Index of Multiple Deprivation (Rank of 109 towns and cities in England)	N/A	21

Diffusion

As important as new business models is the wider diffusion of innovation out through the rest of the economy. One of the most striking facts about productivity is that firms in the same market niche can differ vastly by a factor of four or five times over.⁴⁶ In a perfectly competitive market, you would expect productivity to converge as laggards either catch up or go out of business – but this does not always seem to happen in practice.

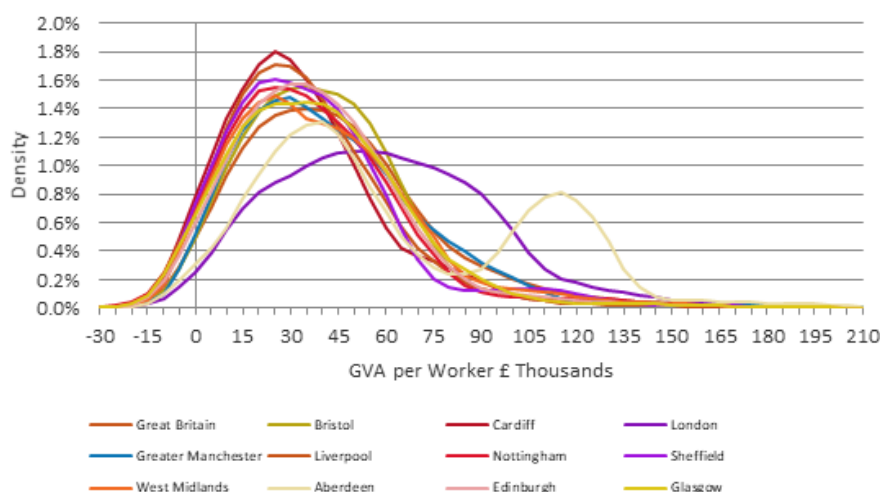
What is more, this puzzle has become more severe over the last decade or so. Since 2000, a frontier group of UK companies have continued to see average productivity growth of 6 per cent on average

46. <http://cep.lse.ac.uk/pubs/download/occasional/op041.pdf>

– but this productivity growth is failing to diffuse out to a long tail of underperforming companies, with a third of UK firms seeing no productivity improvements at all this century.⁴⁷

This is not just a Midlands story. Similar dynamics have been seen across the UK – and for that matter, much of the OECD. Nevertheless, given its contribution to the ongoing stagnation in UK productivity, it is as important as the regional gap in explaining Midlands living standards. Haldane (2017) calculates that if the three bottom quartiles of UK productivity could be boosted to the quartile immediately above, the gap between UK, French and German productivity levels would close almost entirely.⁴⁸ Furthermore, while the causes of the recent dispersion are likely structural and international, many solutions will be best delivered locally.

Figure 30: Distribution of non-financial firm productivity by city region



2014, ONS

What could be causing this? Three inter-related hypotheses seem plausible:

- **Technology.** Digital technologies often create network effects where a winning firm in a particular market can achieve an order of magnitude greater revenue than second place. This not only cuts off non frontier firms from technological diffusion, but, by creating significant barriers to entry, it risks creating new monopolies with lower incentives to innovate. The UK is in a good position to take a lead in the digital sector in future, with good levels of connectivity, significant investment from the leading tech giants and its own home grown strengths in AI or FinTech. 89 per cent of households in the East Midlands and 85% in the West have broadband access, compared to an 80 per cent G7 average. However, the UK is doing less well at digitising back end functions and the supply chain – just 17 per cent of UK businesses use enterprise resource planning software, compared to a 36 per cent EU average and 56 per cent in Germany.⁴⁹ The Lloyds Business Digital Index finds that 67 per

47. <http://www.bankofengland.co.uk/publications/Documents/speeches/2017/speech968.pdf>

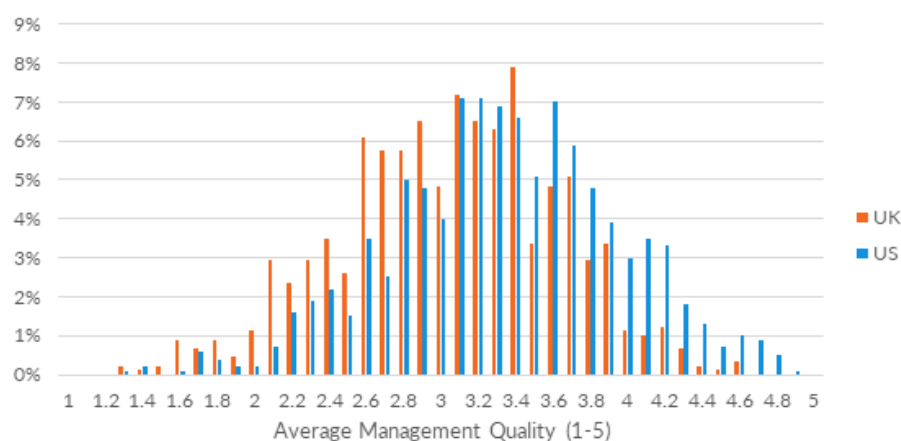
48. <http://www.bankofengland.co.uk/publications/Documents/speeches/2017/speech968.pdf>

49. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_bde15dip&lang=en

cent of small businesses in the Midlands have invested nothing in digital skills.

- **Management.** While good managers ensure their firm adopts the best businesses practices and technology, weak management can see a firm operate far below its productivity potential. Rated on a one to five scale, Bloom, Genakos, Sadun and Van Reenen (2009) find that a one point increase in management quality translates into a 57 per cent increase in labour productivity.⁵⁰ Unfortunately, compared to the US, the UK still suffers from a long tail of badly managed firms, explaining as much as 36 per cent of the whole economy productivity (TFP) gap with the US.⁵¹ While we don't have data for this broken down on a regional level, we do it have by sector for the manufacturing industry. One reason for this is that around a fifth of businesses are still family owned and run—statistically family owned businesses tend to be worse run than professionally managed or foreign-owned businesses.

Figure 31: Management quality in manufacturing firms



World Management Survey

- **Competition.** The most significant cause of weak management is weak competitive pressure. Competition increases productivity in at least three ways: encouraging managers to work harder and adopt the best processes; incentivising greater investment in R&D and innovation; driving out inefficient firms. Of those three, the last is potentially the most powerful. Around 80 per cent of productivity growth is the result of better run and more productive firms expanding, while less productive firms shrink or close down.⁵² Unfortunately, there is no perfect way to measure competitive pressure, but there are reasons to be worried about the level of competition in the UK. The digitalisation of the economy has created new types of market power, while many worry that the financial crisis and continued low interest rates are propping up 'zombie firms' and preventing capital reallocation.

50. <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.24.1.203>

51. <http://economics.mit.edu/files/8663>

52. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443448/Productivity_and_competition_report.pdf

Planning

New industries depend on new scale-ups, and scale-ups in turn rely on cheap property. Ultimately, many of the Midlands' economic flaws originate in a planning system: limiting development and encouraging an industrial monoculture in the post war era; slowing the organic evolution of economic geography and preventing labour mobility; creating significant barriers to entry for new companies looking to expand.

Overall, the frictions and side effects created by the planning system are currently the largest supply side weakness in the UK economy:

- Planning restrictions raise house prices by at least 30 per cent,⁵³ lead Britain to having the smallest houses in the G7,⁵⁴ and significantly increase the volatility of the housing market.⁵⁵
- The scarcity created by planning restrictions leads to the equivalent of additional tax on office developments equal to 400-800 per cent of development costs in London, and 250 per cent in Birmingham – compared to only around 0-50 per cent in New York. While there is less evidence for the impact on manufacturing or wholesale, the scale is likely to be even larger.⁵⁶
- Containment policies like Britain's Green Belt have limited the expansion of its most successful and productive cities including London, Cambridge, Oxford, Bristol and Birmingham.
- By restricting competition, planning reduces the incentives for productivity improvements and diffusion of best practice. One recent estimate suggests that planning rules alone are responsible for 20 per cent lower productivity in a leading supermarket chain.⁵⁷

As discussed in the first chapter, the 1945 Distribution of Industry Act was crucial in undermining the long term health of Birmingham's industrial base, with policy makers explicitly seeking to 'disperse' industry out to more deprived regions. In practice, this amounted to deliberately undermining or limiting the agglomeration economics that make specialist industrial hubs so productive. At its height in 1966, 30 per cent of requests to expand manufacturing activity were refused.⁵⁸

To make matters worse, while policy makers handicapped the region's manufacturing industry with one hand, they prevented the emergence of new strengths in services with the other.

In 1946 the local economic plan sought to reduce population growth by 10 per cent, and as late as 1956 the local council believed a goal of policy should be to "restrain the growth of population and employment potential within the city." In 1965 the reach of the Control of Office Employment Act was extended to Birmingham, effectively ending any further office development for the next twenty years – and bringing to an end the growth of a nascent services industry that in the 50s and 60s had been booming.⁵⁹

53. http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/contributions/lseGC_SERC_planning.pdf

54. <http://shrinkthatfootprint.com/how-big-is-a-house>

55. http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/contributions/lseGC_SERC_planning.pdf

56. http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/contributions/lseGC_SERC_planning.pdf

57. http://www.lse.ac.uk/researchAndExpertise/units/growthCommission/documents/pdf/contributions/lseGC_SERC_planning.pdf

58. <https://www.josharcher.uk/static/files/2013/ep2-government-policy-since-1945.pdf>

59. <http://spatial-economics.blogspot.co.uk/2013/05/booming-birmingham-and-need-for.html>

The map displays the Midlands region of England, with various towns and cities labeled. The color-coding indicates different administrative regions or historical counties. The red areas include Staffordshire, Shropshire, and Herefordshire. The orange areas include Derbyshire, Nottinghamshire, and Lincolnshire. The yellow areas include Warwickshire, Leicestershire, and Northamptonshire. Major cities like Birmingham, Coventry, and Leicester are highlighted. The map also shows the surrounding regions of Yorkshire, Lancashire, and Cheshire.

Figure 33: International Office Rents

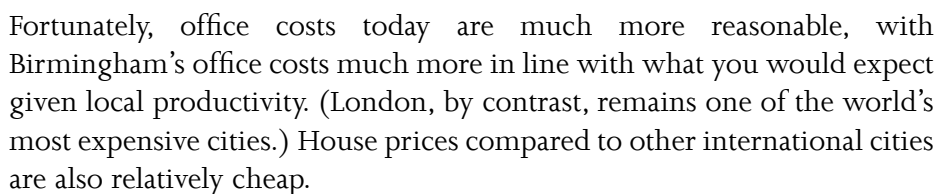
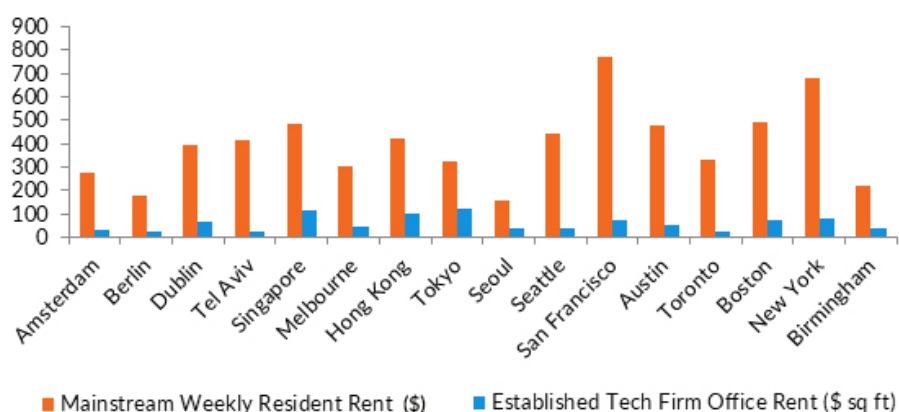
56 | policyexchange.org.uk

Figure 34: Birmingham compared with other cities



Savills

Case Study: Nottingham

While Nottingham has been an important centre for textiles since medieval times, it was the industrialisation and globalisation of lace making that was to see the city really take off in the nineteenth century. At one point, the lace industry employed over 20,000 workers, employing a third of the local population. Nevertheless, the area never depended on lace alone - building on the creation of Boots, it developed a thriving life science industry in the twentieth century - and unlike many other Midlands cities, it has done reasonably well at replacing its traditional manufacturing industry with new services strengths.

Nevertheless, the core city of Nottingham and its residents continue to struggle. Unemployment is nearly twice the national average, and the city is ranked the 6th most deprived in the country. At the same time, the local skills base is relatively weak - it has one of the lowest graduate retention rates of any major city - and average wages are low. While the region used to see levels of productivity significantly above the UK average, since 2005 it has converged.

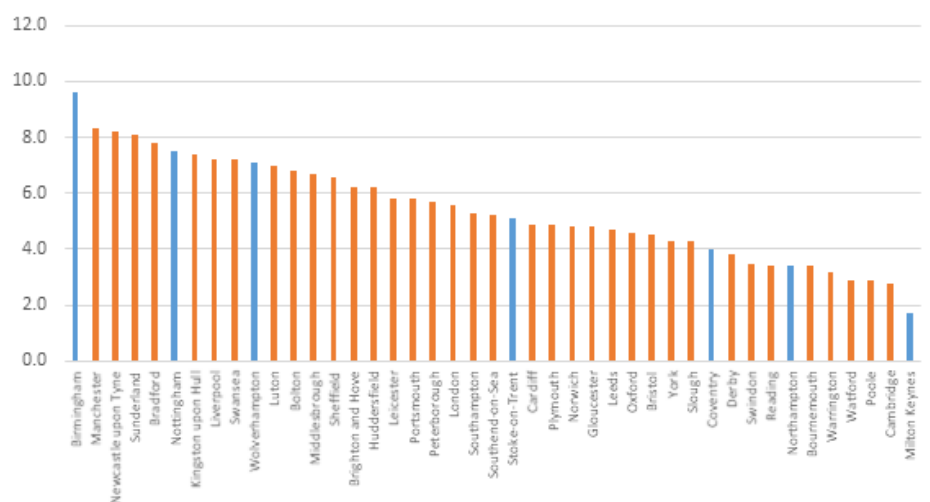
Nevertheless, the city maintains many strengths - and when you take into account the wider economic area and the workers who commute, it does better statistically. The city has a strong business services sector, two high profile universities and a young and growing population. The region's local plan aims to build on these strengths by balancing the area's service sector with new manufacturing specialisms in digital content, life sciences and clean technology.

	UK / GB	Nottingham
GVA per head (2015, UK)	£25,878	£27,645
Gross Weekly Pay (GB)	£552.7	£450.60
Unemployment (GB)	4.40%	8.30%
Graduate workforce (% NVQ4+, GB)	38.60%	20.10%
Low Skills (% no qualification, GB)	7.70%	12.90%
Index of Multiple Deprivation (Rank of 109 towns and cities in England)	N/A	6

Labour Market

Cities worldwide tend to see higher unemployment than rural areas, but even taking this into account, its level is unusually severe in the Midlands. In 2013, for example, the only major G7 cities to have higher unemployment were in Spain and Italy, still suffering the aftermath of the Eurozone crisis. Birmingham, Nottingham and Wolverhampton have among the highest levels of unemployment of any major town or city in the UK.

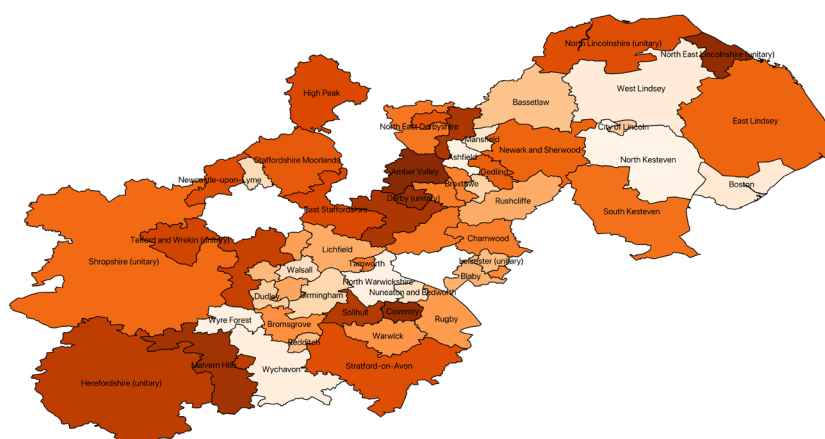
Figure 35: Unemployment rate in major UK towns and cities



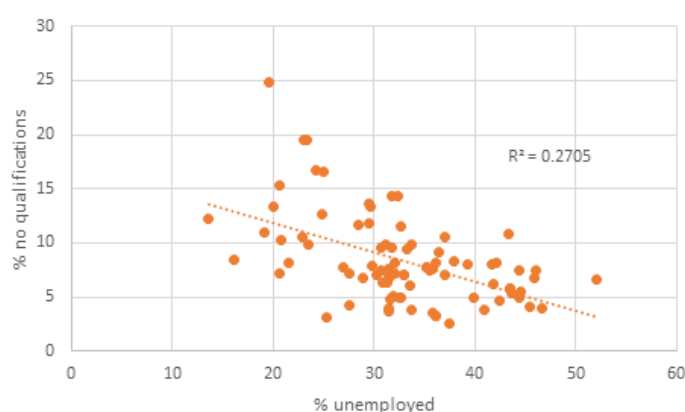
ONS

One reason for this is the high proportion of workers with low or no qualifications, with a reasonable correlation by local authority between this and the depth of unemployment. The region's problem with skills starts young - as the Government's Midlands Engine Strategy stresses, the Midlands suffers from below average primary and secondary schools.

Figure 36: Local Authorities by proportion with low qualifications



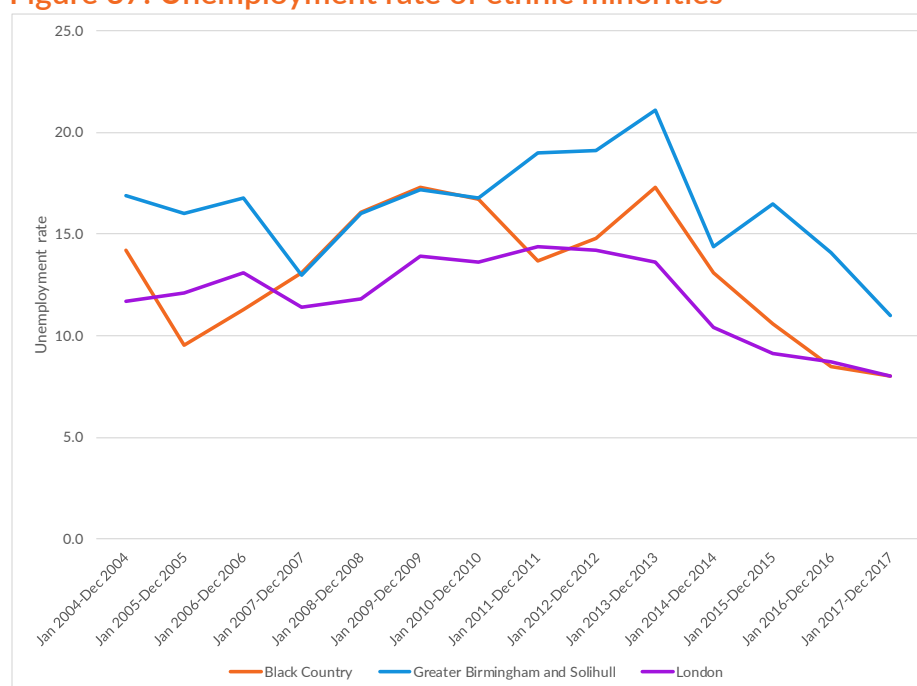
Proportion of workers with low or no qualifications				
Top 10			Bottom 10	
1	West Midlands (part): Sandwell	21%	Lincolnshire: North Kesteven	1.9%
2	West Midlands (part): Wolverhampton	15.6%	Leicestershire: Blaby	2.7%
3	Worcestershire: Redditch	14.7%	Staffordshire (part): Lichfield	2.9%
4	Leicester (unitary)	14.7%	Nottinghamshire: Rushcliffe	2.9%
5	Nottinghamshire: Bas-setlaw	13.8%	Staffordshire: Cannock Chase	3.3%
6	Lincolnshire: City of Lincoln	13.4%	Warwickshire: Rugby	4.4%
7	West Midlands (part): Dudley,	13.3%	Warwickshire: Warwick	4.6%
8	Nottingham (unitary)	12.9%	Worcestershire: Broms-grove	5%
9	West Midlands (part): Birmingham	12.6%	Leicestershire: Oadby and Wigston	5.4%
10	Staffordshire: City of Stoke-on-Trent	12.3%	Nottinghamshire: Brox-towe	5.5%



However, the cities' employment problems likely go beyond poor schools.

While to explain isn't to excuse, statistically the relatively young, old, single parents, ethnic minorities and disabled people are more likely to be out of employment. However, even adjusting for these composition effects only explains for less than half the gap between low employment in the regions and urban areas elsewhere. Within the region, disabled adults have an employment rate of just 4 per cent, ethnic minorities 55 per cent and single parents 51 per cent. The Resolution Foundation calculates that many of these vulnerable 'low activity' groups have seen little improvement in their employment performance over the last decade, with the West Midlands increasingly falling behind other cities.⁶¹

Figure 37: Unemployment rate of ethnic minorities



16+, ONS

Furthermore, there is a significant risk that the already precarious employment position of many vulnerable groups in the Midlands could grow worse in the next three years.

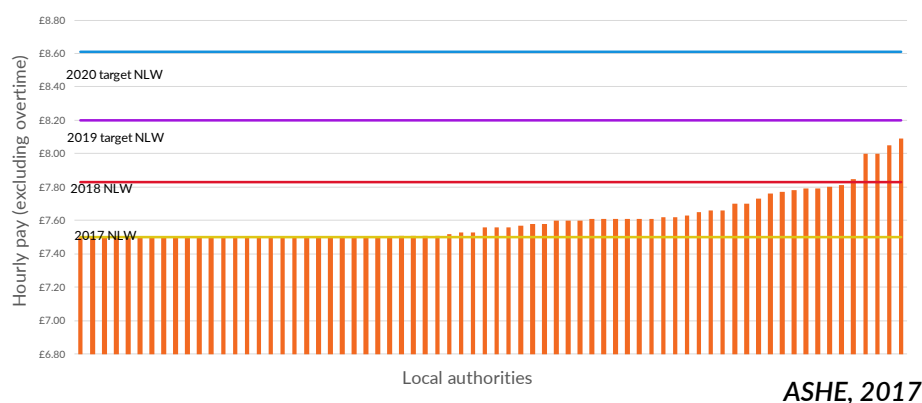
By definition, a National Living Wage is optimised for the conditions of the nation as a whole, not the needs of any one area. The current bite of the National Living Wage is already around 20 percentage points higher in the Midlands than in London.

The Government's ambition is for the National Living Wage to reach 60 per cent of median earnings. The Low Pay Commission, the independent body that advises the Government on the National Living Wage and the National Minimum Wage, have said this will equate to a National Living Wage rate of £8.61 in 2020. The rate has gradually increased, from £7.50 in 2017 to £7.83 in 2018, and is forecast to rise to £8.20 in 2019 before reaching £8.61 in 2020.

61. <http://www.resolutionfoundation.org/app/uploads/2016/12/West-Midlands-Metro.pdf>

The graph below shows these actual and forecast rates compared to the 10 percentile in the 2017 wage distribution of Midlands local authorities. Although this analysis includes data for workers of all ages – including those under the age of 25 who aren't eligible to be paid the National Living Wage – it illustrates the fact that a significant proportion of workers in the Midlands will soon have their wages set by central government.

Figure 38: Hourly pay for ten percentile of all workers in Midlands by local authority compared to NLW actual and target rates



Increasing employment performance among vulnerable groups at the same time as wages are significantly inflating is likely to create substantial challenges. Adult skills programmes have a relatively poor record of success, while improving the region's schools is only likely to create effects in the medium to long term. One easy but counterproductive way to improve average productivity is to lock low productivity workers out of the labour market – and the region will have to monitor the situation carefully to make sure this doesn't happen.

Strategy

The Midlands is fortunate. Unlike some areas of the UK, many of the fundamentals are in its favour, from technological developments in manufacturing to the region's geography and close connection to London. Already, the area is home to globally significant businesses, cities and universities – and it is always easier to build on strengths.

Moving forward, it should focus on its comparative advantages, building its Industrial Strategy around three key strengths:

- **Manufacturing.** The Midlands is the region best placed in Britain to become a hub for advanced manufacturing – and catalyse on Britain's global strengths in machine learning, life sciences and flexible regulation.
- **Cities.** Many of the region's cities have significant potential to expand, build up new strengths in services and increase employment.
- **Devolution.** New local policies should enable policy experimentation and prevent national investment being unfairly tilted to the South East. This necessitates a clear framework of leadership, governance and accountability, particularly in parts of the Midlands which are not a member of the West Midlands Combined Authority.

1 Manufacturing: Develop the world's most innovative hub for advanced manufacturing

The UK does not have the venture capital of a California, the skill base of a Germany, the scale of a Shenzhen, the cheap energy of a Michigan or the low labour costs of a country like Vietnam.

However, what it does have is a growing international reputation for flexible and permissive regulation, making it easier for disruptive innovators to experiment with new technologies. The UK is one of the best places in the world to work on self-driving cars or autonomous drones, experiment with new gene editing technologies or develop a FinTech or digital health business.

On top of this, there are many reasons to be optimistic about the potential for the Midlands moving forward:

- It has some of the world's most innovative manufacturers in Rolls Royce, Jaguar Land Rover and JCB.

- It is well connected to London and Cambridge, arguably the current world leaders in machine learning – but without the physical space for land-intensive manufacturing.
- The Government has committed to substantially raise the proportion of GDP going into R&D, with more of this going into applied development through new initiatives like the Industrial Strategy Challenge Fund.

If the Midlands is to substantially close the productivity gap with the rest of the G7, it will have to develop more world leading technologies of its own – and not just be a local base for production.

The Midlands should aim to be a world leader for innovation in manufacturing. Leaving the European Union will provide further opportunities to liberalise regulation, particularly in the life sciences – and develop a system of science and research funding that better supports applied development.

2 Cities: Unleash the potential of the region's agglomerations

Over the next thirty years, the UN predicts that the world urban population will roughly double, with another three billion people moving into cities.⁶² In a services dominated economy, there is little reason not to bring workers ever closer together to draw on the agglomeration benefits of dense concentrations of ideas, skills and capital. The UK, too, is likely to become still more urban, with the ONS forecasting that London will grow as a percentage of the population – while Birmingham largely will keep pace with population growth, and Nottingham will slightly shrink.

There is no reason why Birmingham shouldn't grow faster than this. Given its population and economy, the UK should be able to support more than one global city. In 1950 both Manchester and Birmingham were among the 30 largest cities in the world – today, neither make the top 100 and are rarely brought up in other lists of global power or influence.⁶³

Growth, of course, is only likely to be sustainable if it is built on the back of a real economic advantage. The evidence from cities that more successfully made the transition from a manufacturing to a services economy is that it is most likely to work if it is organic – evolving from existing advantages, rather than seeking simply to replicate the model of other places. Chicago, for example, built upon the specialised expertise it had developed as a past agro-industrial centre and a highly diversified economy to develop its own specialised niches and offer a different product than could be found in New York – helping it attract large new firms, such as Boeing.⁶⁴ While the core city has seen a fall in population from its industrial hey-day, the wider metropolitan area has continued to grow.

In the past, Birmingham, like many of the cities of the Midlands, suffered from an industrial monoculture that left it vulnerable when that sector suffered a downturn. Looking forward, it should seek to make the

62. <http://world.time.com/2013/12/09/un-number-city-double/>

63. <http://pwc.blogs.com/files/global-city-gdp-rankings-2008-2025.pdf>

64. <http://blogs.lse.ac.uk/usappblog/2013/09/02/detroit-chicago-economy/>

most of its many potential advantages:

- Well connected, both nationally and internationally. HS2 promises to bring the city centre within 49 minutes of London, while the city is well placed to take advantage both of the region's wider manufacturing expertise and emerging and close-by centres for digital technology. Its airport also has extra capacity.
- Office rents are currently 4 times cheaper than in London, one of the world's most expensive cities, making it highly competitive for business activities that don't need to be located within the capital. If the city can continue to offer cheap office and residential space, it could provide a compelling offer for other businesses and start-ups looking to have the space to scale.
- Growing momentum, including HSBC's move of its personal and business arm and Deutsche Bank's recent expansion.

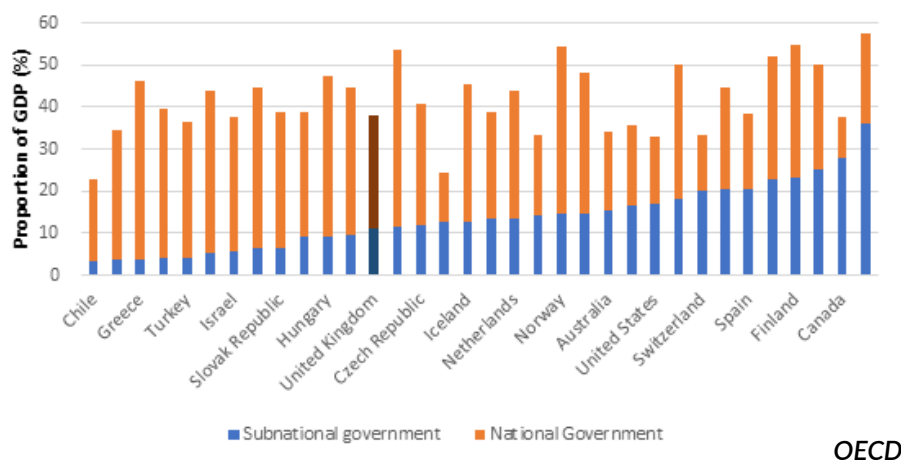
If Birmingham matched the OECD average for the relative size of a second city, it would be almost twice as large, or around 2 million people. By itself, assuming standard agglomeration effects, this might increase productivity by 3-8 per cent, helping close the gap with the South East.

Scale isn't everything, though. For Birmingham to really fulfil its potential, we need to do more to understand why it is underperforming relative to other cities of a similar size. Equally, current levels of employment for disadvantaged groups are not good enough – and we need to ensure that this problem doesn't become worse under a rising National Living Wage.

3 Devolution: Experiment and Iterate

The UK remains a highly centralised country. While this decade is seeing the use of central government grants phased out, the vast majority of policies, taxes, benefits, minimum wages, or public sector pay rates remain controlled at a national level. While the evidence on devolution's impact on growth remains mixed, several studies suggest devolving expenditure power without equivalent control over tax raising powers can prove counterproductive.

Figure 39: National and subnational taxation as a proportion of GDP



Public investment in infrastructure, skills and research remains heavily tilted towards the south east. There are often good reasons for these allocations – the South East remains, after all, the most productive region of the economy – but handing over greater local control would, at minimum, lessen suspicions that all decisions are being taken from a self-benefiting bubble within London. There is no sustainable answer to Britain’s long term problems with restrictive planning and NIMBY protests against development if local residents believe decisions are unilaterally being imposed on them from the top down.

A central challenge with local economic policy is that we simply don’t know very much. Most types of interventions have very little high quality evidence of success – although equally, there is not a huge amount of high quality evidence of failure either. Even when an intervention does well in one area, that is not necessarily a guarantee that it will succeed when transplanted elsewhere.

Given our limited knowledge, perhaps the most important reason for greater devolution is to enable more experimentation. Given its many geographies and local economic conditions, a one-size-fits-all policy is unlikely to be right for the UK – and it is a waste of the chance to try out many different policies in parallel. To really maximise the benefits from experimentation, however, we need to ensure that everyone can learn from them. While new policies can’t always be introduced with the gold standard of a randomised control trial, this should at least be the default assumption. Devolution should be a deal between central and local government: maximum autonomy, but with transparency and credibility in the results reported back. One reason that this is important is that without adequate oversight it is very easy to over estimate the benefits of any local scheme – counting the new economic activity it is creating, without taking account of businesses and jobs displaced from elsewhere.

The grain of Government’s devolution policies suggests economy-related powers and responsibilities will only be transferred to institutions with a strategic function and a clear framework of leadership, governance

and accountability. Achieving this in the parts of the Midlands which are not a member of the West Midlands Combined Authority is therefore a necessity for greater devolution across the whole region.

What do we know about local economic growth?			
<p>The What Works Centre for Local Economic Growth was formed in 2013 as a publicly funded joint collaboration between LSE, the Centre for Cities and Arup. Since its formation, it has aggregated the evidence from thousands of different studies in eleven different policy areas, filtering down the literature to high quality studies with reliable controls.</p>			
Area	WWLEG Summary	No. of Studies Considered	High Quality Studies
Access to finance	"Programmes have a positive effect on firm access to debt finance, but the impact on access to equity finance is mixed. Positive effects on access to finance don't always translate into improved firm performance."	1,450	27
Apprenticeships	"The findings depend on a small number of studies, however the evidence shows that apprenticeships can improve skills levels and stimulate further study in trainees, and apprenticeships can have a positive effect on employment and wages."	1,250	27
Area Based Initiatives	"Enterprise Zones can have a positive impact on employment, but decision makers need to take concerns over displacement from other areas seriously."	2,100	58
Broadband	"Effects are not always positive, are not necessarily large, and may depend on complementary investments by firms. Service industries and skilled workers may benefit more than manufacturing industries and unskilled workers."	1,000	16

What do we know about local economic growth?

Business Advice	“Policy design can influence effectiveness. For example, hands-on managed brokerage may help firms more; although it is also more costly than light touch delivery models.”	700	23
Employment Training	“Policy design can influence effectiveness. For example, short courses and on-the-job training may help improve employment outcomes.”	1,000	71
Estate Renewal	“Overall, the evidence suggests that the measurable economic impacts on local economies (in terms of employment, wages or deprivation) tend not to be large and are often zero. In contrast, projects may have a positive impact on property prices.”	1,050	21
Innovation	“Innovation policies may raise R&D spending but we know much less about whether or how this feeds through to greater innovation, better firm performance or longer term economic growth, particularly at the local level.”	1,700	63
Public Realm	“There is a lack of evaluation evidence on the effect of public realm interventions on the local economy. But there is some evidence that effects might not always be as expected, particularly for existing firms and residents.”		0
Sport and Culture	“Overall, the evidence suggests that the measurable economic effects on local economies tend not to have been large and are often zero. Facilities, however, can have a small positive impact on property prices nearby.”	550	36

What do we know about local economic growth?			
Transport	“Overall, the impact of transport investment on employment is mixed (for road) or unknown (for rail, bus, tram, and cycling). However, there are good reasons to invest in transport infrastructure beyond the impact on local growth .”	2,300	29

Policy

In response to the Government's Midlands Engine Strategy, in September 2017 the Midlands Engine published its own Vision for Growth. This set a core ambition "to close the GVA gap to match or exceed the national average and add £54 billion to the Midlands and UK economies by 2030." Among the policy ideas it suggested were the creation of a new Midlands Economics Observatory to build the evidence base, seeking to become the UK's test-bed for transport innovation or 5G, and exploring the potential of an International Free Trade Zone.

Beyond this, in November 2017 the Government published its long awaited Industrial Strategy, themed around five productivity foundations: Ideas, People, Infrastructure, Business Environment and Places. Its headline announcements on Places were:

- The agreement of Local Industrial Strategies by the Government with Mayoral Combined Authorities and Local Enterprise Partnerships. The Strategies will identify local strengths and challenges, future opportunities and the action needed to boost productivity, earning power and competitiveness.
- The creation of a £1.7 bn new Transforming Cities fund to support intra-city transport, with half of this allocated to the Metro Mayors on a per capita basis – seeking to overcome the perceived imbalance in funding towards the South East.

As the Midlands Engine takes forward its Vision for Growth, and the West Midlands Combined Authority and Local Enterprise Partnerships in the Midlands develop Local Industrial Strategies, there is a solid platform for the delivery of the Industrial Strategy in the Midlands.

What is essential now is that every institution involved in developing and delivering the Industrial Strategy in the Midlands does everything possible to truly catalyse the economy and take full advantage of innovation in advanced manufacturing, the potential of the region's cities and the ability to experiment offered by devolution.

What might such an agenda include?

Ideas: The Midlands should seek to become a world leader in innovation-focussed advanced manufacturing

The primary purpose of the Midlands Engine should be monitoring the region's progress in developing industries based upon new and emerging technologies.

The Midlands Engine has set for itself a goal to close the GVA gap with the UK average by 2030. It is not clear why this target has been chosen, or what its economic significance is supposed to be. If you exclude the outlier of London, the Midlands economy is already at around the national average. A more meaningful benchmark is provided by comparing the Midlands against other similar cities and regions, both domestically and internationally.

The Midlands is currently around 20 per cent below the median G7 regional productivity. While more needs to be done to address the region's underlying weaknesses with skills and infrastructure, the reality is that these are secondary to developing world leading sectors. The Midlands did not become the manufacturing centre of the world in the nineteenth century through better Government infrastructure policy.

While the Midlands already has world leading brands in companies such as Rolls Royce, Jaguar Land Rover or JCB, by themselves they are unlikely to close the global productivity gap. What is more, they too are increasingly exposed to potential disruption from underlying technological shifts, such as the move to electric or self-driving vehicles. The business model that has created value for the Midlands to this point is likely to struggle in future decades.

The public sector only has a limited ability to shape where new industries emerge or take root. However, it can help to honestly monitor the current situation on the ground, identify regulatory barriers and act as a platform to share best practice.

The new Midlands Observatory should commission an annual publication to anonymously survey local, national and international stakeholder opinion on the progress of its strategy and areas of perceived strength. Every organisation is at risk of groupthink or hiding bad news – and this is especially true in areas like Industrial Strategy possessing both fundamental unknowns and political sensitivity. By themselves, neither formal consultations nor productivity data provide enough of a feedback mechanism to ensure the Strategy can remain responsive and evolve. Wherever possible, this publication should seek to benchmark the Midlands against global competitors rather than just other regions in the U.K. At the same time, this document should also seek to actively rank and quantify the drivers behind the region's productivity gap – ensuring focus remains on what is most important.

The Midlands Engine should look to take a national leadership role in designing and developing Britain's strategy for advanced manufacturing.

The Government's Industrial Strategy has followed a deliberately expansive approach, rather than focusing on one particular framework, such as sectors or regions. The downside of this is that there is a danger of overlapping mandates. It is not clear who is really responsible for innovation in manufacturing: BEIS, UKRI, catapult centres, digital innovation centres, Combined Authorities, LEPS, universities or the private sector. The relationship between sectoral, regional and horizontal policy in the Industrial Strategy is not at all clear – and unfortunately, the White Paper did little to clarify further.

Rather than allow the centre to tell it what to do, the Midlands Engine should seek to become a national leader for Britain in manufacturing. This is the clearest unifying interest of the different areas of the region, and the Midlands therefore has a greater interest than any other area in making sure the policy is right.

In our paper *Global Britain, Global Solutions*, Policy Exchange has recommended the creation of a new Innovation Challenge Agency (ICA), working under UKRI. This agency would work to provide a more thorough strategy and evidence based approach to the selection of challenges for public funding, and provide greater coherence between already existing funds such as the Industrial Strategy Challenge Fund and Global Challenges Research Fund. In order to avoid groupthink and the constraints of day-to-day bureaucracy, it would be better if this agency was geographically isolated from the rest of UKRI. **The Midlands has a strong argument to be the home for a new Innovation Challenge Agency, taking inspiration from the DARPA model.**

However, even in the absence of an ICA, the Midlands Engine should still seek to proactively develop policy to accelerate innovation in manufacturing. This could include working with BEIS and local companies to identify post Brexit opportunities for liberalisation of regulation, developing its own shortlist of important societal challenges or auditing demand for high skill workers.

People: Reducing employment disparities should be as important a priority as productivity

Working with local job centres and the Work and Health Programme, Local Industrial Strategies in the Midlands should set out how they will improve employment in their region and close the disability employment gap.

Employment is as important as productivity in securing future growth – and this is particularly true within the Midlands' big cities. There is no point in increasing average worker productivity if this leaves a significant proportion out of work – and there is a danger that focusing on productivity alone creates perverse incentives to de-prioritise finding work for vulnerable populations. Overall, the Government has set out an ambitious goal to halve the current 32 per cent disability employment gap, with fewer than half of disabled workers in employment.⁶⁵

65. <https://www.gov.uk/government/consultations/work-health-and-disability-improving-lives/work-health-and-disability-green-paper-improving-lives>

Every Local Industrial Strategy should include a plan of how it will improve the employment performance of vulnerable workers, such as the disabled, the young, elderly workers, minorities and parents returning to work. Monitoring employment performance is the best way to measure whether policy interventions on skills are working.

The Government should commission an independent consultation into the impact of national pay bargaining on local economies and public services.

The National Living Wage is set to increase the minimum wage floor significantly above current relevant pay levels in the Midlands – without significant improvements in productivity, this is likely to endanger the region's already vulnerable employment market. Beyond its impact on employment, uniform public sector pay also has an impact on the wider economy and public services.

The counterpart of the increased control given by devolution is that local areas should also be prepared to accept increased responsibility. The commission would need to consider wider labour market factors, such as national immigration policy, and the role that a uniform national framework of transfer and welfare payments has on influencing local labour markets. The commission should make recommendations on whether we should transition to policies for public sector pay and transfer payments that better reflect local circumstance – and how that might be managed over ten years.

Infrastructure: The Midlands Engine should explore how it can take better advantage of its cities

The West Midlands Combined Authority should develop its own speculative infrastructure pipeline, and consider what it would take to substantially increase the size of Birmingham.

There is a strong relationship between city size and productivity, but Birmingham is much smaller than its nearest comparators in other countries. Even just looking at its current size, the city is underperforming in productivity, suggesting it may not be operating fully as an agglomeration. On the current ONS population statistics, the city is barely expected to grow – but we know that this is not what booming cities really look like.

Expanding the city will not solve its productivity problems on its own – and especially not if its growth is not the result of organic development. Nevertheless, if the UK is to take full advantage of its second city, we have to ensure local planning rules, infrastructure and politics are not acting as blockers on growth. **The Midlands Engine should commission an independent review exploring what it would take to grow the city 20% by 2040, and what the barriers standing in the way would be.**

One way to expand is outwards. **The city region should be given full devolved control over its green belt, and allowed to make its own decision over the best balance between development and green space. To this end, the West Midlands Combined Authority's Spatial**

Investment and Delivery Plan should be made statutory.

Investment in transport is equally important, bringing existing developments closer together. In the past, the Midlands and Birmingham have struggled due to the difficulty in making a compelling quantitative case for a transformative strategic development and due to the lack of local skills to develop a fully worked business case.

The recently announced Transforming Cities fund will help – but is only equivalent to £250 million in the West Midlands, an order of magnitude less than what is needed to make a truly transformative investment. Rather than wait for the top down National Infrastructure Commission or English National Infrastructure Pipeline, the West Midlands Combined Authority should use some of its Transforming Cities Fund to develop its own speculative pipeline of infrastructure projects. This would allow it to build economies of scale, a local skills base and support the development of projects, while clarifying the potential options and the state of the evidence base.

Government should merge the Shared Prosperity Fund, its replacement of European Structural Funds after 2020, with Local Growth funds into a unified Local Investment Fund.

In the medium term, it would be better if ad hoc funds like the Transforming Cities Fund or Local Growth deals were replaced with a longer term and more coherent system of funding. In addition, the UK currently receives around £2.5 bn a year in European Union Structural and Investment funds, which the Government is expected to maintain until the end of the current spending period in 2020. At the same time, by 2020, the transition to local Government control of local taxation will be largely complete.

Given the Government is currently consulting on the form and conditions of the Shared Prosperity Fund, its replacement for European Structural Funds after 2020, this seems like a good opportunity to design a new and fairer system of regional redistribution for investment. In recent years, many reports – most notably Lord Heseltine’s 2013 “No Stone Unturned in the Pursuit of Growth” – have recommended the creation of a single pot of funding for local bodies to be able to access as they wish.

While the details of a new fund would have to be consulted upon, we suggest that a base element should be allocated on a per capita basis, with a top-up allocated on a needs-basis, taking inspiration from the national funding formula and pupil premium in education. Once allocated, strategic authorities, LEPs and local authorities should be free to invest the money in any manner that supports one of the Government’s five Industrial Strategy pillars: ideas, people, infrastructure, business environment or place.

Business Environment: The Midlands Engine should focus on scale-ups and the long tail over regional champions

The Midlands Engine should aim to match the scale-up density of the South East by 2030.

The region's most famous companies, such as Rolls Royce or JCB, are large and successful enough to take care of themselves. Getting too close to them risks repeating the mistakes of the 'National Champions' era of industrial policy, where protecting large incumbents was prioritised over reducing barriers for the world leaders of tomorrow.

Instead, the overriding focus of the Midlands Engine should be seeking to encourage, identify and nurture fast growing scale-ups. The most important inputs for a scale-up in turn are people, finance, property and mentorship.

The Midlands cannot force graduates to stay after university – but this is likely to take place of its own accord in a virtuous cycle as new jobs emerge.

Instead, the region should focus on filling gaps in capital markets, ensuring an ample supply of cheap commercial space and providing clear signposting to where more support can be found. **The Midlands Engine should develop an individual and business facing website, acting as a portal to anyone in the region who wants to start, scale or invest in a business.** This should include one click information on how to access local business, find new premises or access support for skills and training, as well as dedicated email support, with a response guaranteed in under 24 hours.

At the same time, the Midlands Engine Observatory should work to monitor underlying competitiveness indicators, developing a regional version of the World Economic Forum's Global Competitiveness Indicators. **The Midlands Engine website should publish annual information on productivity trends in key sectors and collate live information on key metrics.** These could include: the number of scale-ups in the region, office rents, employment levels, graduate retention and patents. These should be given both in absolute terms and, where possible, benchmarked against other OECD priorities.

The region could also consider creating its own version of Israel's Yozma scheme, providing a ring-fenced pool of capital to provide match funding and equity capital for local scale-ups.

The West Midlands Combined Authority, LEPs, County Councils and Local Authorities should share best practice on their progress in tackling the long tail of low productivity firms in a forum led by the Midlands Engine.

There is strong evidence that a leading cause of the current productivity stagnation is the failure of new innovations and technologies to diffuse out from 'frontier firms' to the rest of the economy. Unfortunately, there is much less knowledge about how to fix this. The Government's recent Industrial Strategy White Paper was relatively light on this, promising only a review. In the past, the most powerful tool we have found for incentivising better

management is greater competition – but it is unclear what this implies in practise at the level of a small firm. While the UK should continue to work towards lower barriers to entry, reform planning laws and expose its markets to greater foreign competition, this is unlikely to explain the structural change we have seen since the early 2000s.

LEPs should take a lead on identifying the need for the upskilling of small company management in their area. **We suggest that the Midlands Engine work with a LEP partner to pilot a localised version of the Productivity Commission’s tool, including workshops, free consultations and locally tailored advice.**

Place: The Midlands Engine should not be afraid to experiment

The Government should introduce new Super Enterprise Zones to boost deprived regions and allow more radical experimentations with local policy.

In many cases, we simply do not know what will and will not work in local economic policy. As much of the What Works for Local Economic Growth evidence reviews conclude, for many types of intervention the evidence base is just not there.

This is not a proscription for not taking any action. But it does mean we need to be much more modest about what we do and do not know, and allow local areas to experiment with genuinely different policy arrangements, rather than variations on a national theme.

The Government should create a ring-fenced pot for local authorities, county councils, LEPs and combined authorities to bid into, providing match funding for local prototypes and pilots of policy innovation.

In addition, leaving the Single Market and its rules over State Aid could allow the UK to experiment with more ambitious forms of enterprise zones. These could include not only tax incentives, but also allow local areas to opt out of national policy regimes. Local areas could experiment with, for example, radically simplified planning regimes, more flexible labour market rules or different tapers in Universal Credit.

As part of this, local areas could also have the right to request to become Innovation Zones, creating geographically limited areas to experiment with disruptive technologies. The ‘regulatory sandbox’ has played a crucial role in enabling Britain’s pre-eminence in FinTech, and similar mechanisms in the physical world have the potential to support start-ups in advanced manufacturing, particularly in next generation transport.

In return for this greater experimentation, there should be higher expectations over the quality and quantity of data that is returned to the centre, allowing everyone to learn from best practice.

The Midlands Engine should work with the What Works centres to build a central capacity to support evidence-by-default culture in the

region. This could include checklists and consultation for best practice, pre-registration of trials and standardised support for data and cost-benefit analysis.

The ambition should be for every new policy to be accompanied by evidence reaching at least Level 3 on the Maryland Scientific Methods scale.

The Midlands Engine should commission an independent review in 2022 to assess whether it is aligned with the right economic geography.

The Midlands Engine is a slightly artificial creation: much broader than a natural travel-to-work area, and without an obvious common cultural identity or single democratic mandate. While there are some common interests in global trade promotion, manufacturing policy or regional trade links, most of the important policy decisions are best made at a more local or national level.

What is more, there is currently a significant asymmetry built into the current design: while the local authorities in the west have come together to produce a single West Midlands Combined Authority under a single democratically elected Mayor, no such arrangement exists in the east.

Devolution does not necessarily have to take place at the same speed. Given the realities of politics, inevitably it will sometimes be a messy process. Nevertheless, it does not seem sustainable for the current asymmetry to persist indefinitely – and it may ultimately prove better to refocus support around the region's natural agglomerations.

All that said, there are many useful roles the Midlands Engine can provide:

- Act as a single, intuitive brand both on the global stage and for resident individuals and businesses.
- Champion the interests local areas have in common, such as their specialisms in advanced manufacturing.
- Increase transparency, provide support and peer review different local actors as they implement their own Industrial Strategies.

The Midlands Engine should commission an independent review in the medium term to assess whether it is truly providing value added, and acting as a complement rather than a substitute to other layers of Government. Beyond its inherent value, this could act as an important deadline to focus minds on delivering progress.

Most countries have an unequal distribution of economic activity geographically, but Britain is unusual in how large this disparity is. This is not simply driven by the relative success of London. Unlike most countries, the majority of our cities underperform national average productivity. Productivity across the Midlands is 15 per cent below the national average, and the region exhibits a significant long tail of underperforming firms.

A central goal of the Government's Industrial Strategy is to use increased local control as a lever to reduce this disparity, letting local communities decide for themselves how they can best boost their productivity performance.

In this report, we use the Midlands region as a case study of the different approaches a Local Industrial Strategy might take in tackling its productivity challenges. While every area is different, the same tensions and common themes are likely to reoccur across the UK.