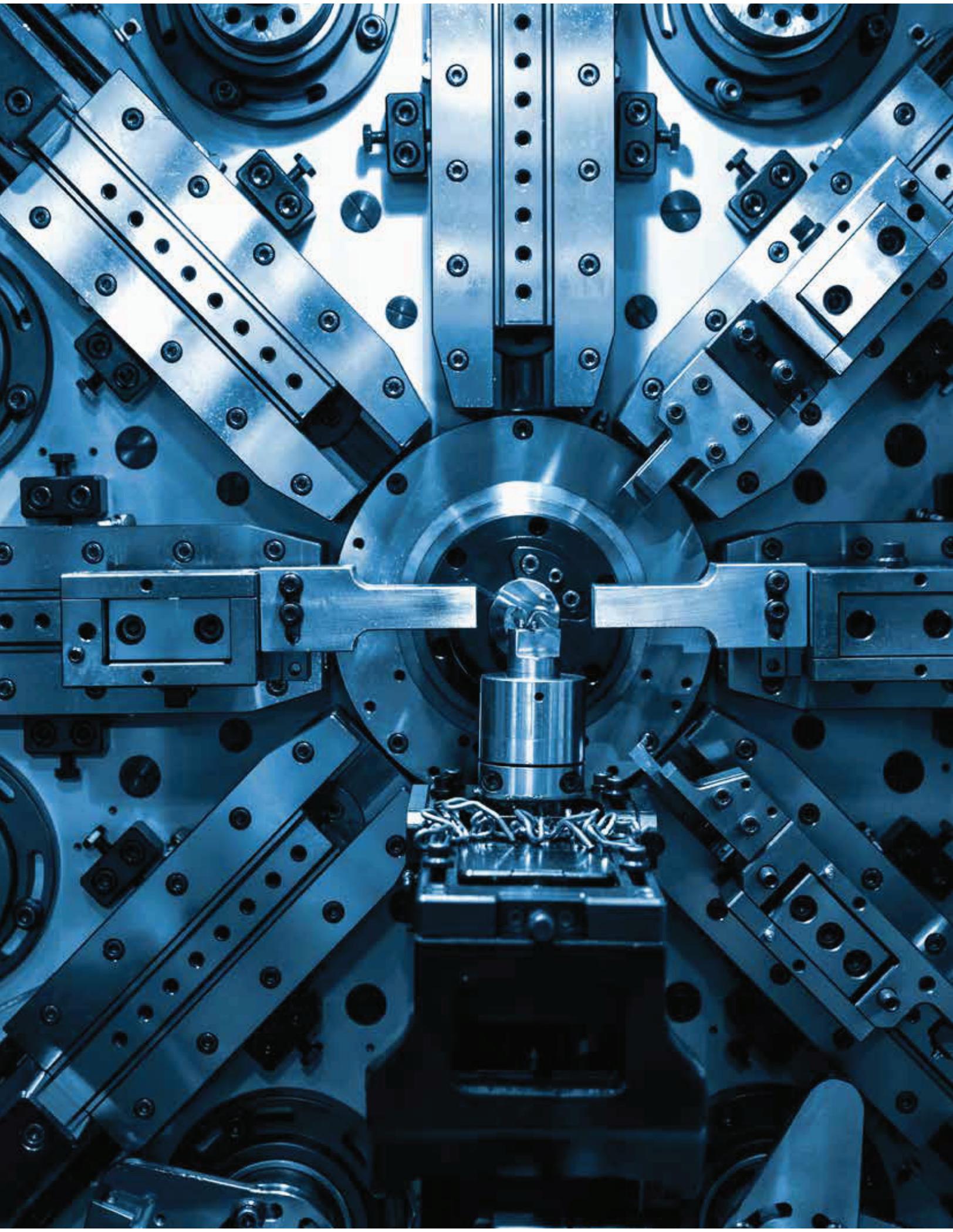


Cities Outlook 2018







1. Urban Britain is faced by stark political divides



More than half of voters in cities in the Greater South East chose to remain in the EU, but in the rest of the UK, the reverse was true



2. These divides are mirrored in the economy



Cities outside the Greater South East tend to be less productive, have a lower average wage and a lower employment rate than cities within it



£42k GVA per worker

Doncaster



£424 average weekly wage

Huddersfield



64% employment rate

Dundee

£82k GVA per worker

Slough



£655 average weekly wage

Reading

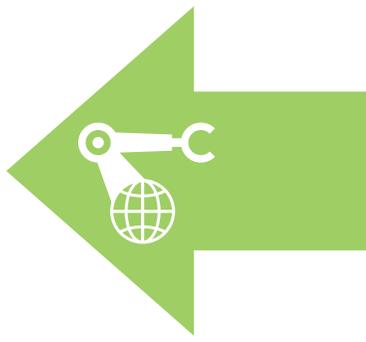


87% employment rate

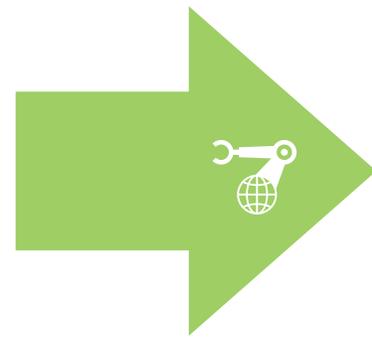
Crawley



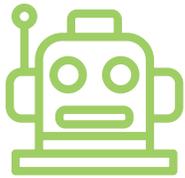
Source: Electoral Commission; ONS 2017, Annual Population Survey, residents analysis, July 2015 - June 2016 and July 2016 - June 2017; DETINI 2017, District Council Area Statistics for Belfast, January 2017; ONS 2017, Annual Survey of Hours and Earnings (ASHE), average gross weekly workplace-based earnings, 2017 data. Own calculations for PUA-level weighted by number of jobs, CPI inflation adjusted (2015=100). ONS 2017, Employment Survey, 2016 data; Nesta 2017, The future of skills: employment in 2030, London; Nesta; ONS 2017, Business Register of Employment Survey; Census 2011.



3. Automation & globalisation may compound these divides



Cities outside the Greater South East are more at risk of losing jobs to automation and globalisation than those within it



29% of jobs at risk by 2030 in Mansfield

13% of jobs at risk by 2030 in Oxford



To reunite urban Britain, policy needs to give both cities and people the tools to succeed

Empower cities

City leaders need the powers and a direct democratic mandate to tackle the specific challenges in their place



Empower people

Both young people about to enter work, and older people at risk of losing their jobs need the relevant skills to succeed in a changing world



“As the pace of technological change rapidly accelerates, Cities Outlook 2018 couldn’t be more relevant. The future of work in UK Cities is a subject that will dominate local and national level policy making and is of huge importance in Wakefield and the Key Cities. This report is essential reading for city leaders on what the impact of these changes could mean, as well as for understanding the opportunities and challenges that cities will face going ahead.

“This year the Centre for Cities has done an outstanding job in highlighting how at the policy level cities can continue to attract job growth so to ensure that they remain at the heart of a strong national economy.”

Cllr Peter Box, Leader, Wakefield Council

“Ways of working in our cities have been changing dramatically. For example: co-working spaces are no longer the reserve of Shoreditch startups but have sprung up in every city from London to Belfast; flexible working is becoming the rule rather than the exception; and young industries like the tech sector are growing at twice the rate of the wider economy.

“We need to prepare for this change. Reskilling and upskilling must become the norm, and it’s essential that we equip young people to face the future of work. As this report highlights, the opportunity is a big one; the UK’s digital economy is worth \$100bn. Resources like the Digital Business Academy already provide free digital skills training solutions. Now we just need the ambition. We’ve built Tech City. Now let’s build Tech Nation.”

Gerard Grech, Chief Executive Officer, Tech City UK

“*Cities Outlook 2018* gives insight into the future of the UK workforce, to understand the potential opportunities and risk from the rise of robotics, artificial intelligence and the other methods of job automation. Bristol and other cities across the UK can use the advances in technology and globalisation to help raise their productivity, improve job quality, diversify employment and drive inclusive economic growth.

“This year’s Outlook will be a vital tool for those policy makers who recognise that the key to facing the national economic challenges ahead is to build upon the strength and potential of our cities.”

Marvin Rees, Mayor of Bristol



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01

Cities Outlook 2018

The State of Urban Britain





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The state of urban Britain in 2018

Urban Britain is a divided entity, both in terms of politics and economics. *Cities Outlook 2018* shows the extent of these divides, and the implications they have for the future.

Mansfield has broadcast some very clear messages via the ballot box in the last two years. It polled the highest percentage of votes to leave the European Union of any UK city in the EU referendum. And it returned its first non-Labour MP since 1923 in the form of Conservative Ben Bradley in last year's general election.

There is clearly dissatisfaction among the residents, and the city's economic performance suggests why this might be the case. In 2017, resident wages were 19 per cent below the national average, while employment rates were lower than the national average too. In much of the recent discussion around 'left behind' places, Mansfield is a leading example.

The picture looks very different in Reading where its residents voted to remain in the EU. Resident wages were 18 per cent above the national average, and it saw a swing towards Labour in the last election. And in 2016/17, welfare payments were £1,100 lower for every resident living in Reading compared to Mansfield.

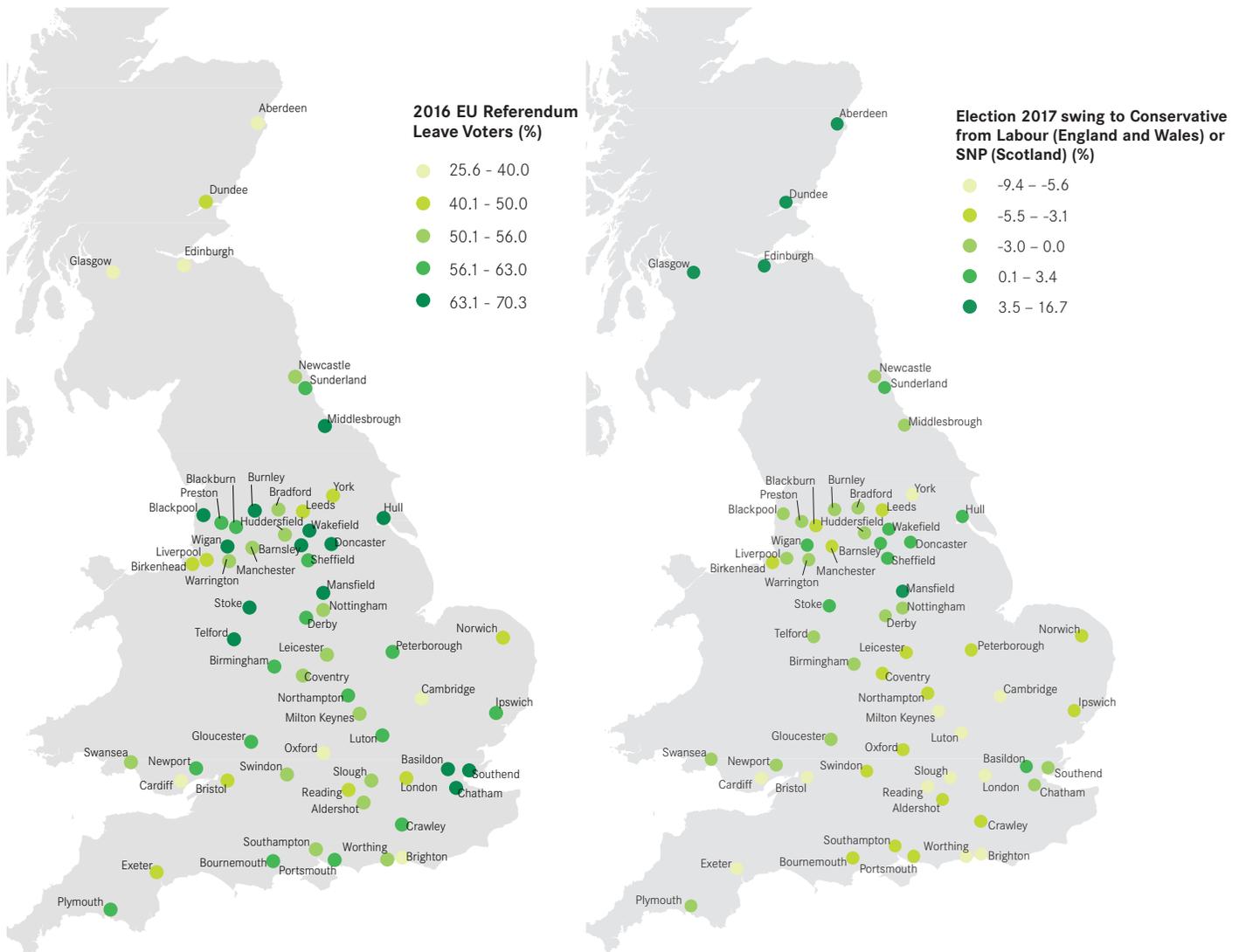
This is a story seen across urban Britain, which is divided both politically and economically. In terms of politics, this can be seen both in the outcomes of the EU referendum and the most recent general election (as shown in Figure 1). In the referendum small and medium sized cities on the coast (such as Southend and Chatham) or in the midlands or the north of England (such as Mansfield and Doncaster) tended to poll a greater share of votes for leave.

A similar geography is seen when looking at the swing towards or away from the Conservative party at the election. The majority of Britain's cities returned Labour MPs once again. But the swing towards the Conservatives was surprising – cities such as Stoke and Hull, long considered Labour heartlands, saw shifts towards the

Tories. And while many northern cities did see a swing towards Labour, this was smaller than the swing the party enjoyed at the national level.

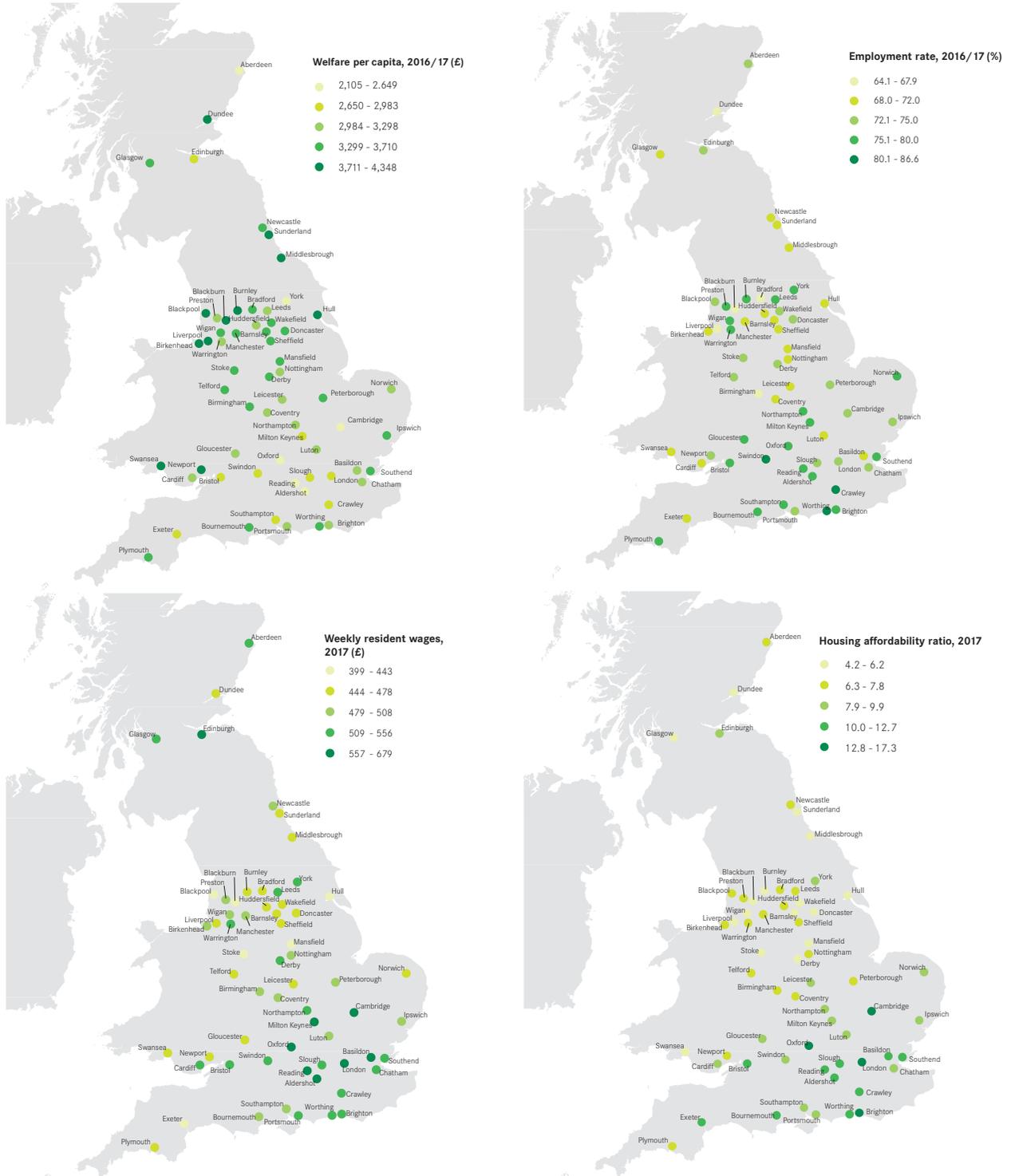
The economic divides across urban Britain map closely to the political ones (see Figure 2). In terms of wages, welfare spend per capita and employment rates, the patterns tell a story of winners and losers, with southern cities in general being the relative winners. This has come at a cost though (for renters at least, if not homeowners), with housing being much less affordable in southern cities than elsewhere.

Figure 1:
The political divides across urban Britain



Source: The Electoral Commission 2017

Figure 2:
The economic divides across urban Britain



Source: ONS 2017, Annual Survey of Hours and Earnings (ASHE); NOMIS 2017, Annual Population Survey; Land Registry 2017, Market Trend Data, Price Paid, 2017 data. Simple average used. Scottish neighbourhood statistics 2016, Mean House prices; DWP 2017; HMRC 2017; DCLG 2017; Welsh Government 2017; Scottish Government 2017; NOMIS 2017, Population estimates; ONS 2017, Birth summary tables; National Registers of Scotland 2017, Births by sex, year and council area.

Why economic divides exist across the country

One of the main reasons for these differences in economic outcomes is the differing productivity – the average output of each worker – across the country. While the UK's productivity woes have been subject to a great deal of comment and analysis in recent years, there has been much less consideration of how this plays out across the country and the implications for the national picture.

Centre for Cities analysis¹ has shown that the country's productivity problems are the result of the underperformance of many cities outside the Greater South East of England. While cities such as London and Reading are among the most productive in Europe, cities such as Leicester and Sheffield perform well below the European average.² This means that a big part of improving the productivity of the UK as a whole will need to address the poor productivity in these cities.

How well politicians do this will depend in part on how well they use the tools made available to them in the most recent Budget and the Industrial Strategy. Both unveiled a number of helpful place-based initiatives, including new devolution and growth deals and funds designed to tackle the challenges that different cities face, such as the Transforming Cities Fund for local transport. The six metro mayors were also given extra tools and funding to support their economies.

But neither the Budget nor the Industrial Strategy set out with enough clarity the overarching role of place in explaining the UK's productivity challenges. The productivity divergence seen across the country is the result of the different advantages that cities offer to businesses. Those cities that struggle economically tend to offer many lower-skilled workers and cheap land to businesses, but they don't offer access to a large number of higher-skilled workers or a network of higher-skilled businesses. The result is that while many have been successful at attracting investment from call centres and distribution warehouses, for example, they have struggled over a long period of time to attract investment from more productive, innovation-focused firms.

¹ Swinney P & Breach A (2017) *The role of place in the UK's productivity problem*, London: Centre for Cities

² Bessis H (2016) *Competing with the Continent: How UK cities compare with their European counterparts*, London: Centre for Cities

Without this clear overarching strategy, there is a lack of coherence to the many initiatives announced. This makes tackling the underperformance of a number of cities, and the impact this has on national productivity, a much more difficult task.

That said, the commitment within the national strategy to create local industrial strategies offers a chance to address this. The ability of the local industrial strategies to set out a coordinated set of actions to deal with the challenges and opportunities their areas face will make or break the success of the national strategy overall.

A successful local industrial strategy will be one that is able to change a city's offer to businesses across a range of sectors, with the result being an increase in higher paid, more productive jobs in that city.

Devolution and local leadership

Over the last 12 months there has been increased variation in the way England is governed. Last May six metro mayors took office for the first time, with some powers over skills, planning and transport in particular. Along with the Mayor of London, they now have a mandate which covers one third of England's population. And while their powers are limited, they are already expanding.

A number of announcements in the last Budget and Industrial Strategy showed a clear preferencing of metro mayors, for example the direct allocations of money to the mayors from the Transforming Cities Fund (while other cities will have to compete for money) and the invitation to Greater Manchester to be the first place to agree a local industrial strategy.

This once again shows that the original devolution deals that the Government struck with particular areas are likely to be the first of many, and have opened the door to further rounds of devolution and access to national funding. This means that those big cities that have not been able to agree an initial deal, such as Leeds and Nottingham, are increasingly being left behind.

A key achievement for national and local policymakers in 2018 would be to secure devolution deals for the remaining big cities that do not have one in place. Cities have long been restricted by the centralised nature of the UK,

and this has limited their ability to tailor policy to respond to the ongoing changes seen in the national and global economies. The variation seen across the country (as shown in the maps above) reduces the effectiveness of blanket national policies which invariably fail to address the different challenges that places face. But those places with a metro mayor now have the ability to tailor policy to do just this.

Urban Britain in 2018 is one characterised by its divides, and as we show in the next chapter, these divides are likely to widen without sufficient policy intervention. Variation in outcomes across cities requires variation in policy. This requires the recognition of the crucial role that place plays in this, be that through national policies such as the Industrial Strategy delivered locally, or more local control through greater devolution.

Box 1: Defining cities

The analysis undertaken in Cities Outlook compares Primary Urban Areas (PUAs) – a measure of the built-up areas of a city, rather than individual local authority districts or combined authorities. A PUA is the city-level definition first used in the Department for Communities and Local Government’s State of the Cities report. The definition was created by Newcastle University and updated in 2016 to reflect changes from the 2011 Census.

The PUA provides a consistent measure to compare concentrations of economic activity across the UK. This makes PUAs distinct from city region or combined authority geographies. You can find the full definitions table and a methodological note on the recent PUA update at this page: www.centreforcities.org/puas.

02

The future of work in cities

Which cities stand to lose
or gain?





The future of work in UK cities

Artificial intelligence, automation and other technological changes are among the biggest economic issues of our age. They featured in the opening remarks of the Chancellor's recent Budget speech and are identified as one of the 'Grand Challenges' in the Government's new Industrial Strategy.

"The world is on the brink of a technological revolution. One that will change the way we work and live and transform our living standards for generations to come. And we face a choice: either we embrace the future, seize the opportunities which lie within our grasp and build on Britain's great global success story, or reject change and turn inwards to the failed and irrelevant dogmas of the past."

Philip Hammond, Budget speech 2017

In contrast to the Chancellor's bullish tone, much of the focus of the debate around automation and technological change to date has been on the potential job losses these trends are likely to cause. Yet much less work has been done on the impact of current technological and non-technological trends on different places across the country and their potential to create jobs for the future.

By 2030, technological advancements - combined with globalisation and changes to the make-up of the country's population - will have brought significant changes into the labour market, with big implications for policy-makers. However, a point that is often missed is that this change is not new, but an ongoing process. Indeed change has been a good thing, bringing with it innovations and improvements in standards of living.

But as this chapter will show, the problem with the policy response to change in recent decades is that it has not effectively supported all cities to adapt to this ongoing evolution. This means that some people and places have benefited more from this evolution than others.

To inform discussions at the national and local level, this chapter looks at the likely impact of automation and other trends on cities across Great Britain, identifying where job losses are most likely and which places are best placed to see growth in new areas.

Box 2: Methodology

This work builds on the research undertaken by researchers at the National Endowment for Science, Technology and the Arts (Nesta) and Oxford Martin.

In *The future of skills: employment in 2030* report, Nesta used an innovative mixed-methods approach, combining expert human judgement with machine learning to estimate how technological and non-technological trends will affect the demand for different bundles of skills, and so employment in the future.

The probabilities estimated by Nesta of the likely increase in demand for minor occupation groups (SOC 3 digits) were then combined with labour market information for each city, to make estimates about jobs likely to increase and decrease in different parts of the country.

The composition of the labour market in each city was built using data from the 2011 Census and the Business Register of Employment Survey (BRES). Data from the Census provides a detailed breakdown of minor occupation groups that is not available in BRES. In order to have the most recent data possible, estimates on the 2016 workforce in each minor occupation group were created by combining data in the Census with the most updated information on broad occupation groups available in BRES.

Cities and the risk of job losses

The job market will look very different in 2030. As Nesta identifies in *The future of skills: employment in 2030*, a number of factors, such as technological changes, globalisation and demographic changes will affect employment, reducing demand for some occupations and increasing it for others. Generally, those jobs that are made up of routine tasks are at a greater risk of decline, whereas those occupations requiring interpersonal and cognitive skills are well placed to grow.

Nesta's study looks at the likely impact for the UK as a whole and finds that there are likely to be more jobs nationally in 2030 than today. But this is likely to play out differently across the country. In what follows, Nesta's estimates are applied to Britain's cities to see how these impacts are likely to be felt in different places. Box 2 outlines the methodology used.

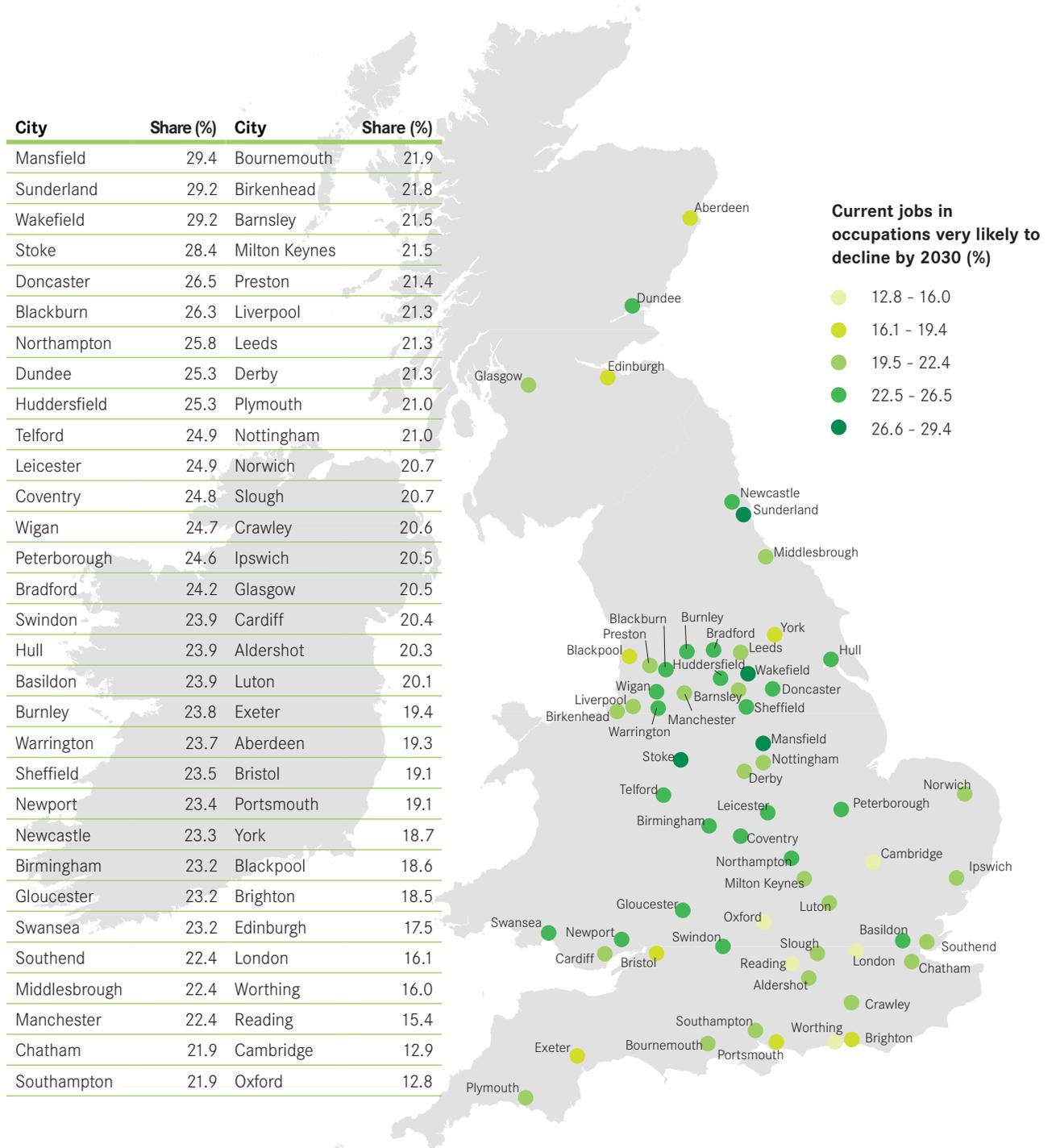
Overall, one in five jobs in cities across Great Britain is in an occupation that is very likely to shrink. This amounts to approximately 3.6 million jobs, or 20.2 per cent of the current workforce in cities.

However, the risk is not evenly spread across the country, and cities outside the south of England are more exposed to job losses. In places like Mansfield, Sunderland, Wakefield and Stoke almost 30 per cent of the current workforce is in an occupation very likely to shrink by 2030. This contrasts with cities such as Cambridge and Oxford where less than 15 per cent of jobs are at risk (see Figure 3).

Box 3: Displacement in big cities

While big cities are relatively less exposed to occupations likely to shrink, they are likely to see a great deal of disruption. For example, London and Worthing have a similar share of jobs likely to see a decrease in demand (16.1 per cent in London, 16.0 per cent in Worthing), but this translates to around 908,000 jobs in London – 25 per cent of all jobs at risk in cities across Great Britain – and only 8,400 jobs in Worthing, which is just 0.2 per cent of all jobs at risk in cities.

Figure 3:
Share of jobs in occupations likely to shrink



Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011.

Box 4: What types of jobs are at risk?

The majority of jobs at risk are in a handful of occupations. Nesta identified 36 minor occupation groups likely to shrink in the future, but 53 per cent of all jobs at risk in cities are just in five occupations (see Figure 4).

Figure 4:

Occupations representing the majority of all jobs at risk of displacement

	Minor occupation group	Share of all jobs at risk in cities (%)
1.	Sales assistants and retail cashiers	19.5
2.	Other administrative occupations	11.0
3.	Customer service occupations	9.0
4.	Administrative occupations: finance	7.0
5.	Elementary storage occupations	6.6

Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011.

Sales assistants and retail cashiers is the occupation group most at risk – as a whole, one in five urban jobs in this occupation is deemed at risk of displacement. And it is the most at risk occupation in all but three cities, with only Exeter (where 21.2 per cent of jobs at risk are in customer services occupations) and Milton Keynes and Wakefield (where the biggest share of jobs at risk is in elementary storage occupations – 16.9 per cent and 17.9 per cent respectively – reflecting their large distribution sectors) proving the exceptions.

Other at-risk occupations are also notable in a handful of other cities. In Oxford and Swindon, assemblers and routine operatives make up a significant share of all jobs at risk (respectively 10.4 per cent and 9.8 per cent). In Aberdeen, plant and machine operatives account for 7.4 per cent of all jobs likely to see a decrease in demand and in Huddersfield, process operatives represent 10.7 per cent of all jobs at risk.

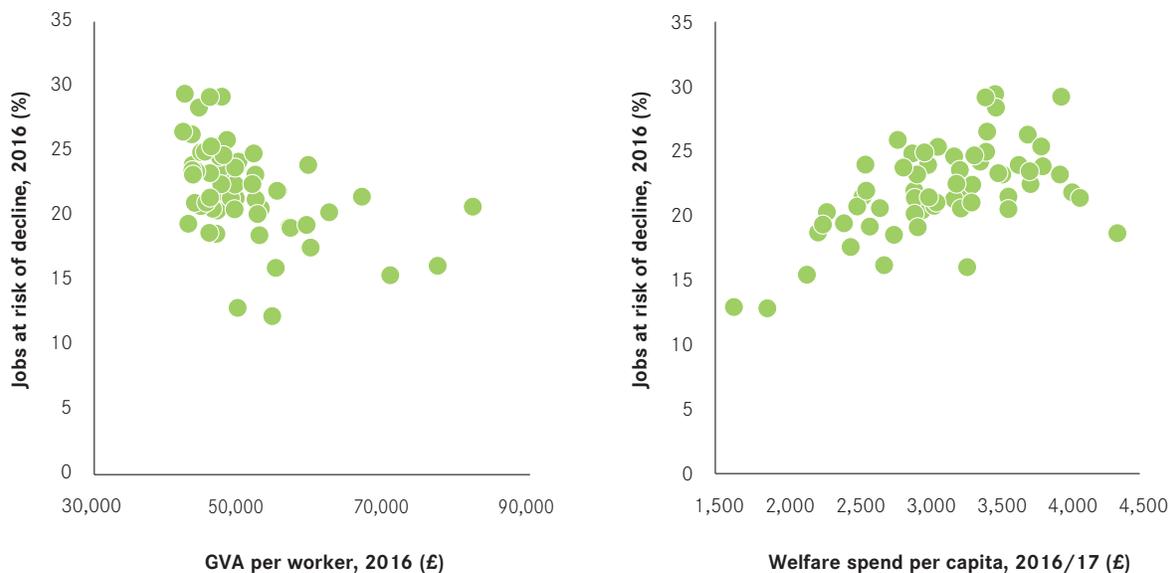
Overall though, in most cities, jobs at risk are concentrated in a small number of occupations. 70.2 per cent of all jobs at risk in Worthing are in just five occupations, and even in Aberdeen – the city where the top five occupations make up the lowest share of jobs at risk – they still represent 44.1 per cent of all jobs at risk.

Today's weakest performing cities are also those most exposed to the risk of job losses in the future. Mansfield, Stoke, Doncaster and Blackburn not only feature among the top 10 cities where jobs are most at risk, but they are also among the bottom 10 cities in terms of productivity (GVA per worker). In contrast, Oxford, London and Reading, the three cities with the lowest share of jobs likely to shrink, are among the most productive cities of Great Britain (see Figure 5).

Cities with a higher risk of job losses also tend to have a higher welfare spend per capita (see Figure 5), a lower share of jobs in knowledge intensive business services (KIBS) and a lower share of high-skilled workers.

Figure 5:

The relationship between jobs at risk of decline, productivity per worker (left) and welfare spend per capita (right)



Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011; ONS, Regional Gross Value Added (Income Approach) NUTS3 Tables; NOMIS, Mid-year population estimates, Centre for Cities calculations; DWP; HMRC; DCLG; Welsh Government; Scottish Government; NOMIS, Population estimates, ONS, Birth summary tables; National Registers of Scotland, Births by sex, year and council area.

Cities and past trends in the labour market

While the potential job losses set out will pose a challenge, history shows that cities were exposed to a similar risk of job losses a hundred years ago resulting from both automation and globalisation. Despite this, most have been able to bounce back and grow.

Automation has a long history of reshaping the way people work.

The impact of automation and the political reaction to it stretch back to the nineteenth century with the Luddite protests against the introduction of machines into the textile industry.

Cities are no more at risk of automation today than they were a hundred years ago. Data from 1911 suggests that, in aggregate, a number of occupations that employed many people a century ago have almost disappeared as a result of machines. For example, laundry workers have mostly been replaced by washing machines and demand for domestic servants has fallen with the rise of electrical domestic appliances. Automation and innovation have also changed the way people shop, and the creation of large supermarkets means that street sellers in city centres or milk floats gliding down residential streets at dawn are a rare sight today.

By picking out a selection of these occupations (see Box 5), it emerges that the current challenges faced by cities are not so different from those faced a century ago. As an illustration, these occupations alone (listed in Figure 6) used to employ around 12.4 per cent of the total English and Welsh workforce in 1911. Given that this is just a subset of affected occupations, the total share of jobs affected by automation is likely to have been even higher.

Interestingly, as Figure 7 shows, it was southern cities that were most exposed to automation of these sectors. In Bournemouth, Oxford and Brighton the share of the workforce affected by those changes was above 20 per cent. In contrast, that share was less than 5 per cent in Burnley, Blackburn and Preston.

Globalisation also had a big impact on the labour market, and on mining and manufacturing in particular. Unlike the pattern for automation, it was cities further north that were more exposed to this (see Figure 7). In 1911, 60 per cent of jobs in Barnsley were in mining and manufacturing, while in Coventry it was 61 per cent. A century later it was 13 and 11 per cent respectively.

Box 5: The rise and fall of occupations in the last century

In 1911, approximately 10 per cent of the workforce in cities in England and Wales was employed as a domestic servant or laundry worker. However, the advent of electrical appliances such as washing machines and vacuum cleaners helped make these occupations less and less relevant throughout the century.

Within just 50 years, the share of workers employed in these jobs decreased dramatically. The number of laundry workers decreased by 34 per cent between 1911 and 1951, and the number of domestic servants fell by 67 per cent. Nowadays, these occupations only play a very marginal role in terms of employment.

The shift away from these two occupations affected a larger share of workers in Bournemouth, Oxford, Southend and Cambridge than elsewhere. In these places, more than 15 per cent of the 1911 workforce was involved in these occupations. In contrast, the decline of laundry workers and domestic servants had a minimal impact on Burnley, Blackburn and Preston, as less than 3 per cent of the whole workforce in these cities was employed in those occupations.

Figure 6:

Jobs that have mostly been replaced by automation

Occupations	Number of workers, 1911	Share of all jobs, 1911 (%)
Other Domestic Indoor Servants	1,314,020	8.1
Messengers, Porters, Watchmen (not Railway or Government)	231,750	1.4
Laundry Workers; Washers, Ironers, Mangles, etc.	179,520	1.1
Costermongers, Hawkers, Street Sellers	69,350	0.4
Domestic - Coachmen, Grooms	67,230	0.4
Milk sellers, Dairymen	56,970	0.3
Horse keepers, Grooms, Stablemen (not Domestic)	45,520	0.3
Bargemen, Lighter men, Watermen	28,200	0.2
Telegraph, Telephone - Service (not Government)	17,090	0.1
News - Boys, Vendors (Street or undefined)	16,440	0.1

Source: Census 1911 (England and Wales only).

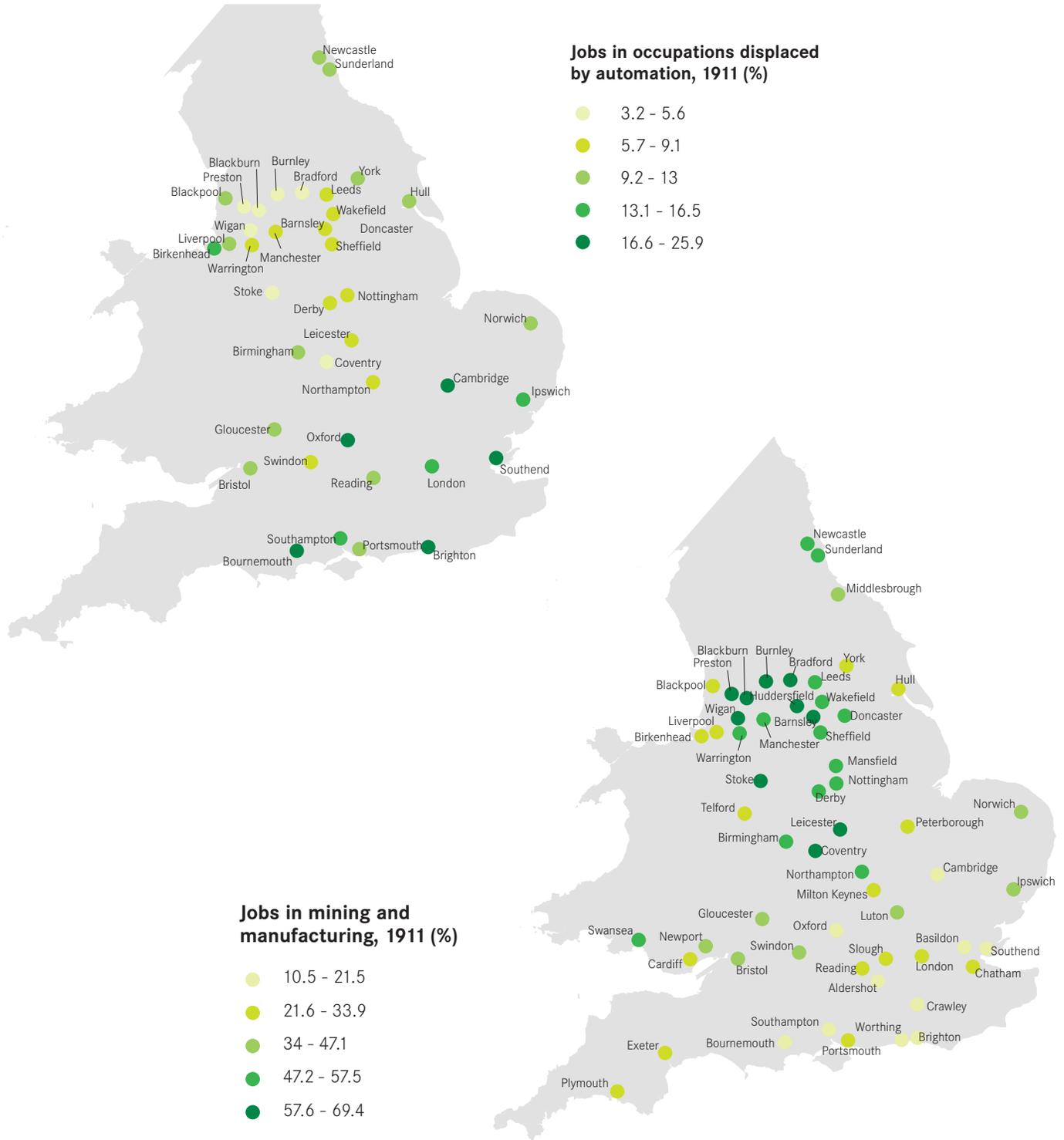
Box 6: Defining occupations in 1911

The 1911 Census has detailed data on occupations for administrative areas with populations over 5,000. To understand how history has affected the performance of modern cities, this data was matched to current Primary Urban Area boundaries. In most instances, data is available for the core urban authority only, while some cities have no data available. In total, it was possible to look at 40 cities across England.

But crucially, despite the pressures of automation and globalisation, most cities have seen jobs growth over the last century (see Figure 8). 52 cities have more jobs now than they used to in 1911; and 27 cities more than doubled their workforce. Meanwhile seven cities have seen a decline in jobs over time.³ There is a clear geography to this, with southern cities growing more than cities in the north.

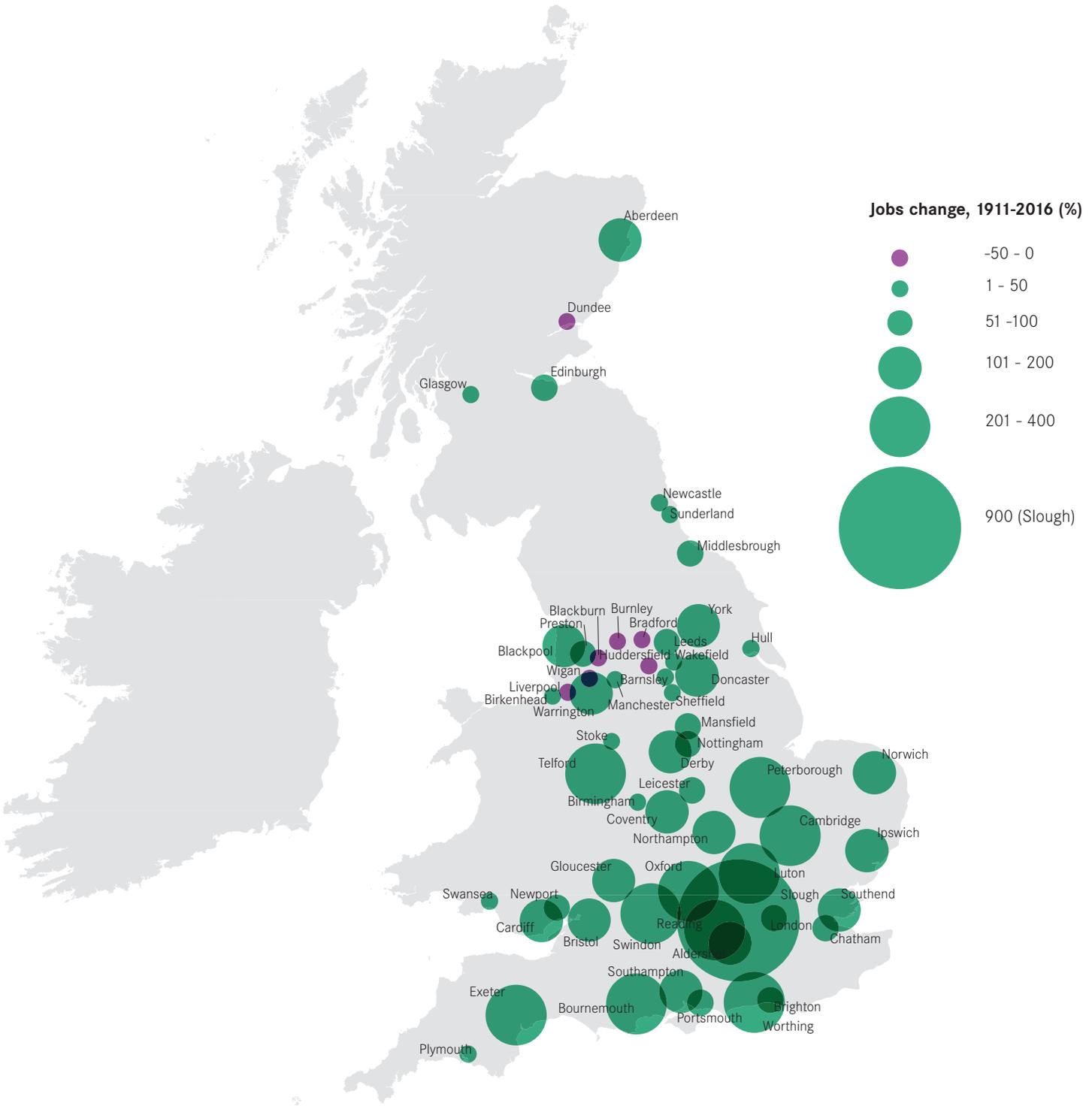
³ The new towns of Crawley, Basildon and Milton Keynes have been excluded from the analysis as they had a very small number of jobs to start with in 1911.

Figure 7:
Share of all jobs at risk because of automation and globalisation 1911



Source: Census 1911 (England and Wales only); University of Portsmouth, *A Vision of Britain Through Time*

Figure 8:
Growth in jobs, 1911-2016



Source: University of Portsmouth, *A Vision of Britain Through Time*; NOMIS, Business Register of Employment Survey. Note: Basildon, Crawley and Milton Keynes have been excluded from this map because they are new towns.

Cities and jobs likely to see an increase in demand to 2030

As has happened over the last century, the labour market will continue to evolve - new occupations will arise and some occupations that already exist will become increasingly important.

It is hard to anticipate what the jobs of the future will look like and where in the country they will be created. However, what can be observed is where the jobs likely to experience an increase in demand are currently located, showing how successful cities have been at attracting these jobs to date, with implications for their ability to continue to do so in the future.

All cities are likely to see job creation to 2030

Looking at the locations of jobs that Nesta predicts will grow in the future shows that these occupations are currently more evenly spread across the country than those at risk of decline. With the exceptions of Oxford, Cambridge and Brighton, where the share of jobs likely to grow is slightly higher, these occupations currently account for between 5 and 10 per cent of all jobs. And there is no particular geography to these figures. This suggests that all are well placed to see job creation occur in their economies in the future.

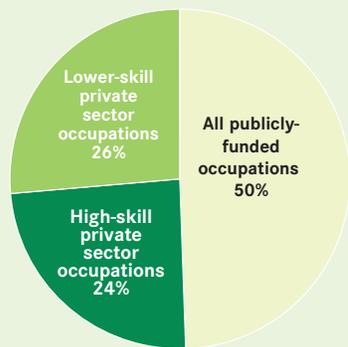
Box 7: The current composition of jobs likely to grow in the future

Half of the jobs very likely to experience an increase in demand according to Nesta's estimations are currently in publicly-funded occupations, whereas the remaining fifty per cent is almost evenly divided into high-skilled and lower-skilled private sector occupations (see Figure 9).

Growing demand for publicly-funded activities in the future is driven by demographic shifts and expectations around increased demand for lifelong learning, with an impact on higher-skilled public sector occupations.

Demand will not just grow for high-skilled jobs though - some non-routine lower-skilled jobs in the private sector are also expected to grow as a result of increased demand for services in areas such as sports and fitness.

Figure 9:

Occupational breakdown for existing jobs likely to grow to 2030

Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011. Breakdown of occupations likely to grow in the private sector. High skilled occupations: 122, Managers and proprietors in hospitality and leisure services; 211 Natural and social science professionals; 212, Engineering professionals; 247, Media professionals; 341, Artistic, Literary and Media occupations. Lower skilled occupations: 344, Sports and Fitness Occupations; 524, Electrical and electronic trades; 543, Food preparation and hospitality trades; 927, Other elementary services occupations.

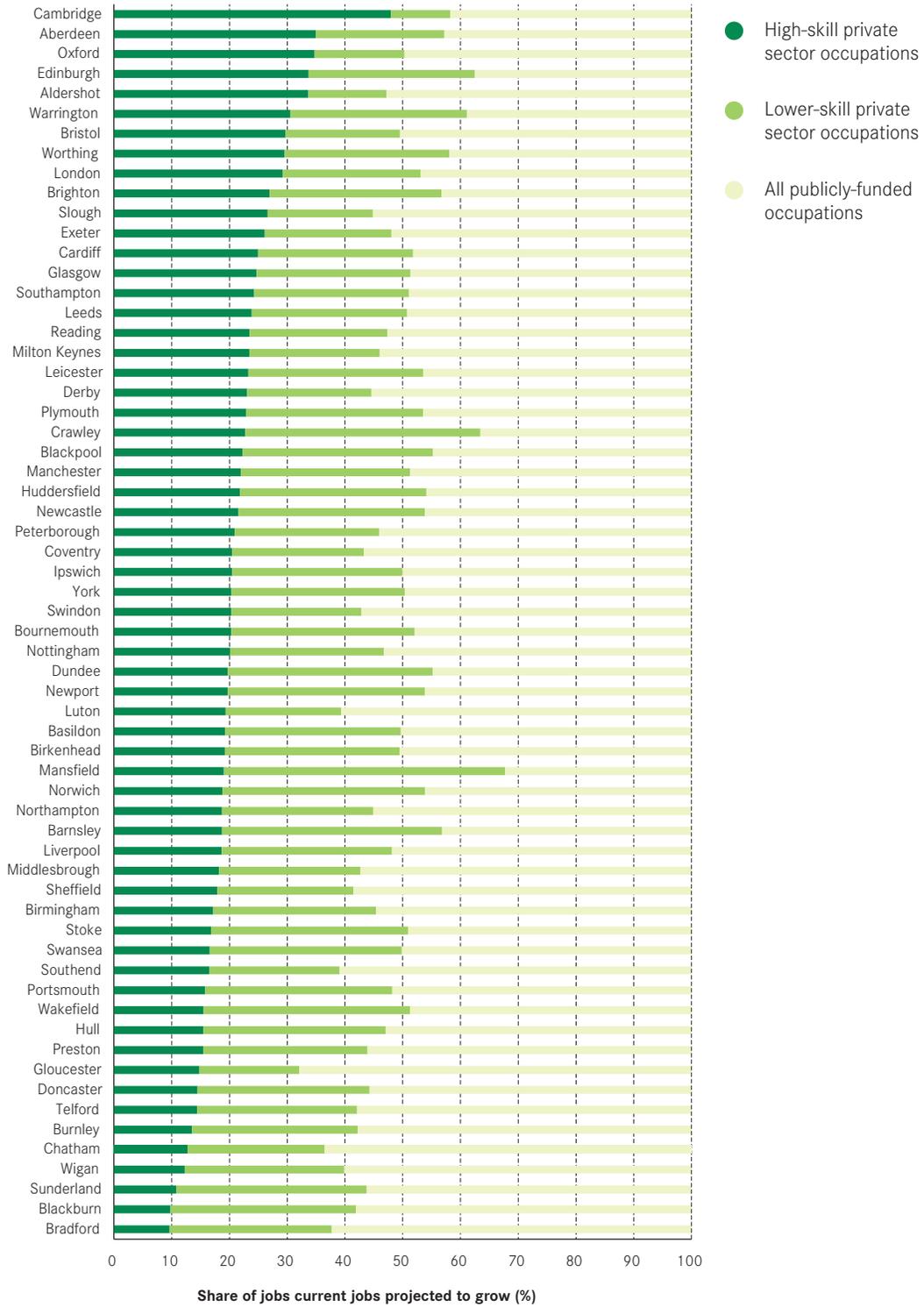
But while these jobs are fairly evenly spread as a whole, the composition of these jobs across cities looks very different (see Figure 10). There are three points to note. Firstly, publicly-funded activities⁴ (e.g. in health and welfare) currently account for a large share of jobs projected to grow (see Box 7). Ongoing demographic changes suggest that publicly-funded jobs will continue to play an important role in future job creation.

Secondly, variation is greater between higher and lower-skilled jobs in the private sector. In Cambridge, close to half of all jobs expected to see an increase in demand are currently in high-skilled occupations, such as natural science professionals, while in Aldershot this figure is one in three. This stands in stark contrast with a number of cities further north. In Blackburn, Sunderland and Bradford, around one in 10 of these jobs is currently in higher-skilled private sector occupations, with lower-skilled jobs in the private sector, such as in food preparation and hospitality, having a much larger share (see Figure 10).

Thirdly, those cities that currently have a larger share of high-skilled private sector jobs that are likely to grow are also likely to be more insulated from job declines (see Figure 11).

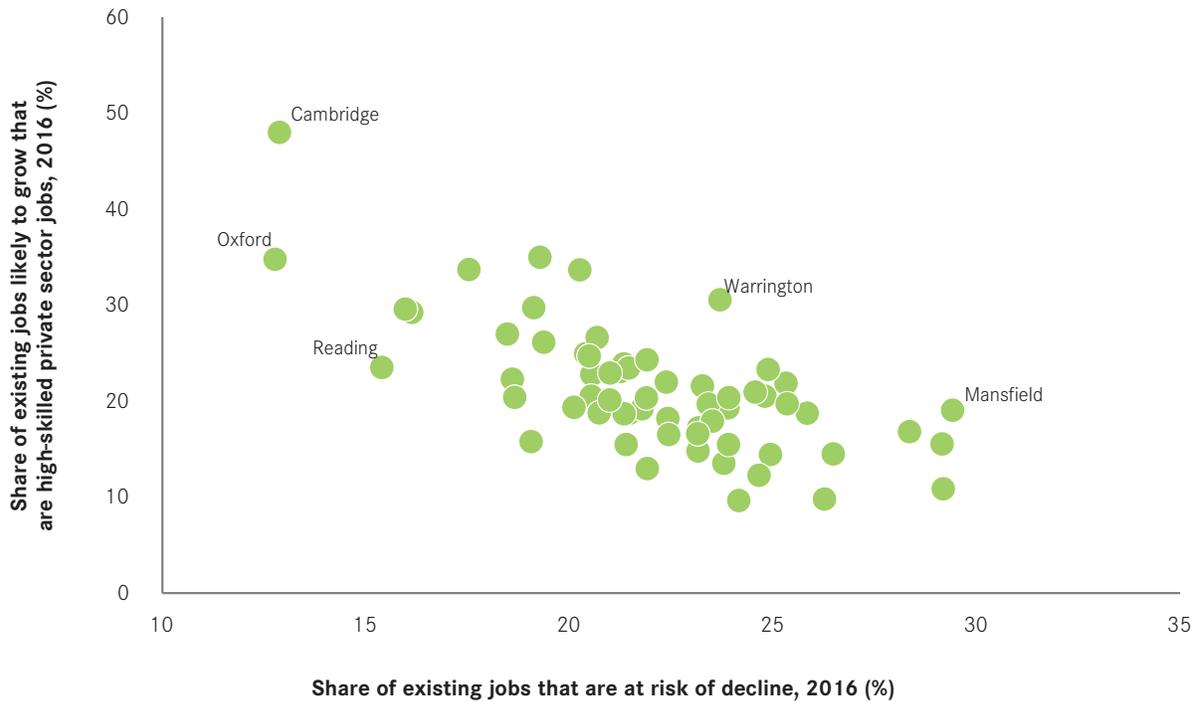
⁴ Defined as Public administration, Education and Health.

Figure 10:
Breakdown of the type of jobs likely to grow in each city to 2030



Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011.

Figure 11:
Jobs likely to decline and the composition of jobs likely to increase



Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011.

While once again it is difficult to predict how exactly these three categories of jobs will grow in the future, the past does give us some indication as to what may happen.

Since 1951, the public sector has played an ever larger role in the national economy, driven by changing demographics, healthcare provision and rising demand for education. Between 1951 and 2011, the share of jobs in publicly-funded activities rose from 13 per cent to 29 per cent.

But there has been a great deal of variation around this figure across cities. Those places where the increase in publicly-funded jobs has been the highest are among the weakest performers today. In 29 out of 62 cities across Britain – mostly concentrated in the north and midlands – the share of jobs accounted for by publicly-funded sectors has increased by more than 20 percentage points in the last 60 years. In Blackburn it increased by 27 percentage points, and in Dundee it increased by 30. Increasingly the public sector has compensated for the sluggish performance of the private sector in these

places. And where private sector jobs have been created they have tended to be lower skilled, and thereby lower paid.

In contrast, cities in the Greater South East in particular have mostly experienced a smaller shift towards publicly-funded jobs,⁵ and a greater share of their private sector jobs growth has been in high-skilled, knowledge-intensive occupations, some of which have been created as a result of innovations in technology. For example, IT professionals and technicians, occupations that did not exist 60 years ago, are mostly concentrated in and around cities in the Greater South East. Similar patterns are seen for jobs in fund management, advertising and market research.

Over the last 100 years, the evolution of the economy has meant that the ability to access and use knowledge has become increasingly important for businesses, people and cities. Those cities that have best been able to provide access to knowledge are the ones that have best been able to deal with change over the last century.⁶

These patterns have occurred because of the relative advantages that different cities offer. The location decisions made by businesses are based on the trade-off between the availability of skilled workers, access to knowledge and cost of land.

As noted in the first chapter, high-skilled businesses look for locations that offer them access to knowledge – both through the availability of highly-skilled workers and, for services businesses in particular,⁷ a network of high-skilled businesses. Cities such as Reading and London offer both of these advantages, and this is reflected in the types of jobs they have attracted in spite of the higher cost of commercial space in these cities.⁸

Businesses undertaking lower-skilled, more-routinised activities (such as in call centres or warehousing) look for different attributes, namely access to a lower-skilled workforce and cheaper land. Cities such as Barnsley and Swansea offer

5 In Aldershot and Portsmouth the share of publicly-funded jobs declined in the last 60 years. This is likely due to the fall in jobs in the military.

6 Swinney P & Thomas E (2014) *Century of Cities: Urban economic change since 1911*, London: Centre for Cities

7 Graham D (2007) *Agglomeration Economies and Transport Investment*, Journal of Transport Economics and Policy 41

8 Swinney P (2017) *Why don't we see growth up and down the country?* London: Centre for Cities

these types of benefits, making them more appealing to lower-skilled businesses than higher-skilled ones. The result is that the business investment they have attracted in recent years has tended to create lower-skilled work. And the analysis above shows that these cities are more at risk of job losses due to changes in the labour market.

Without any change to the benefits that places offer to businesses, then it is likely that job creation in the future will match that seen in recent decades. This will mean that while most places will likely see jobs growth, some will replace routinised jobs lost due to changes in the labour market with more lower-skilled jobs. These tend to be less productive and less innovative, putting them at continued risk over the longer term.

Policy has not focused on helping people and places to adapt

As well as the public sector playing an ever larger role in job creation in weaker economies, it has also compensated those people who have seen their jobs disappear as a result of automation and globalisation. As Figure 12 shows, there is a positive relationship between the change in share of jobs accounted for by publicly-funded activities and the share of working-age people on long-term incapacity benefit.

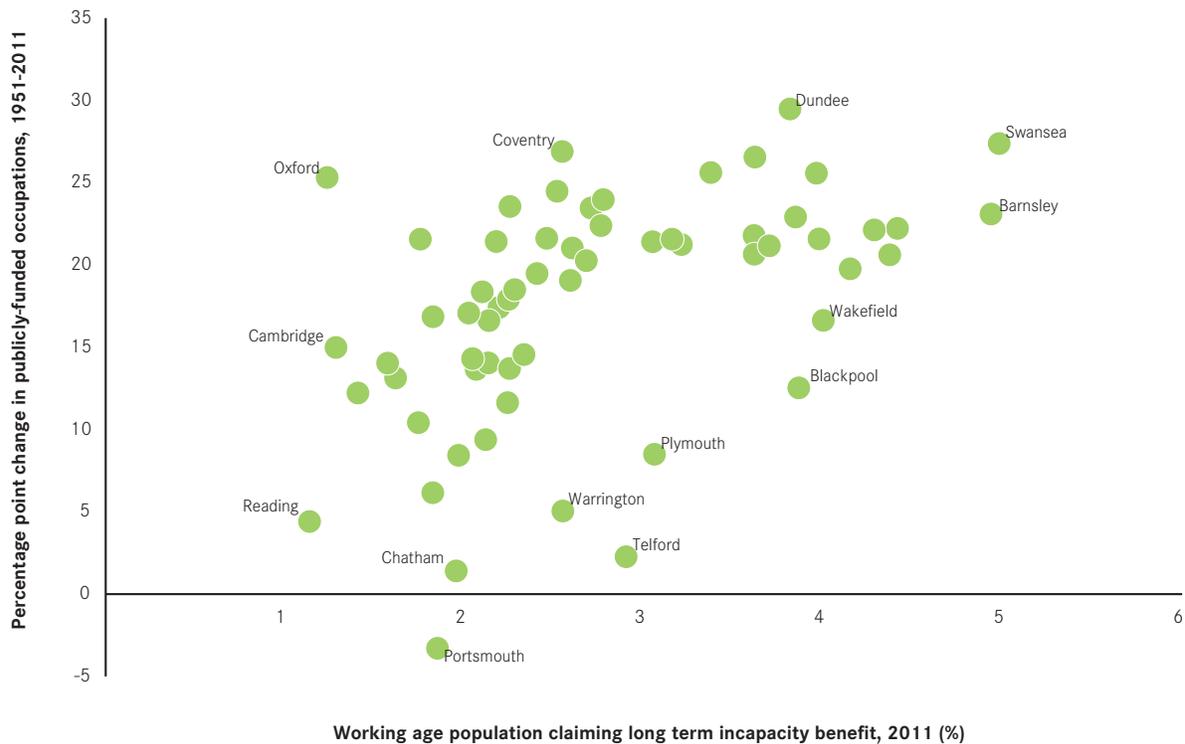
These policy choices have helped cushion the impact of substantial changes in city economies, and the creation of publicly-funded jobs has no doubt been a good thing in terms of increasing employment opportunities available in weaker labour markets.

But what they have not done is help people and places adapt to changes in demand for workers. This has had an impact on the relevance of skills available in these cities, especially among workers that have been affected by previous waves of change, with a knock-on impact on how attractive a city is to investment from higher-skilled business activities. Looking at the qualifications levels of those aged between 50-64 in 2016 shows that a much higher share of this age group tend to have no formal qualifications at all in cities in the North. Liverpool leads this list, with 26 per cent of 50-64 year olds having no formal qualifications, followed by Stoke and Birmingham (both 22 per cent). In contrast this figure is just 6 per cent in Swindon, and 7 per cent in Bristol (see Figure 13).

The outcome of this difference in skills across cities is that while jobs have increased across the country, in weaker economies this has meant an increasing reliance on public sector and lower-skilled jobs in the private sector (e.g. administration or food preparation). This has led to a divergence in standards of living across the country, entrenching economic divides, as summarised in Figure 14.

The increasing economic divides explain at least in part the recent political divides that have opened up across the country. One of the most common explanations put forward for the EU Referendum result was that it was a protest by people in ‘left behind’ places who felt that they had been ignored by politicians. Figure 15 shows a negative relationship between the referendum result and the share of jobs projected to grow which are high-skilled. The implication is that if patterns of job creation in the future reflect those of the past then the political divide illustrated by the referendum result will likely grow wider.

Figure 12:
The relationship between incapacity benefits and publicly-funded jobs



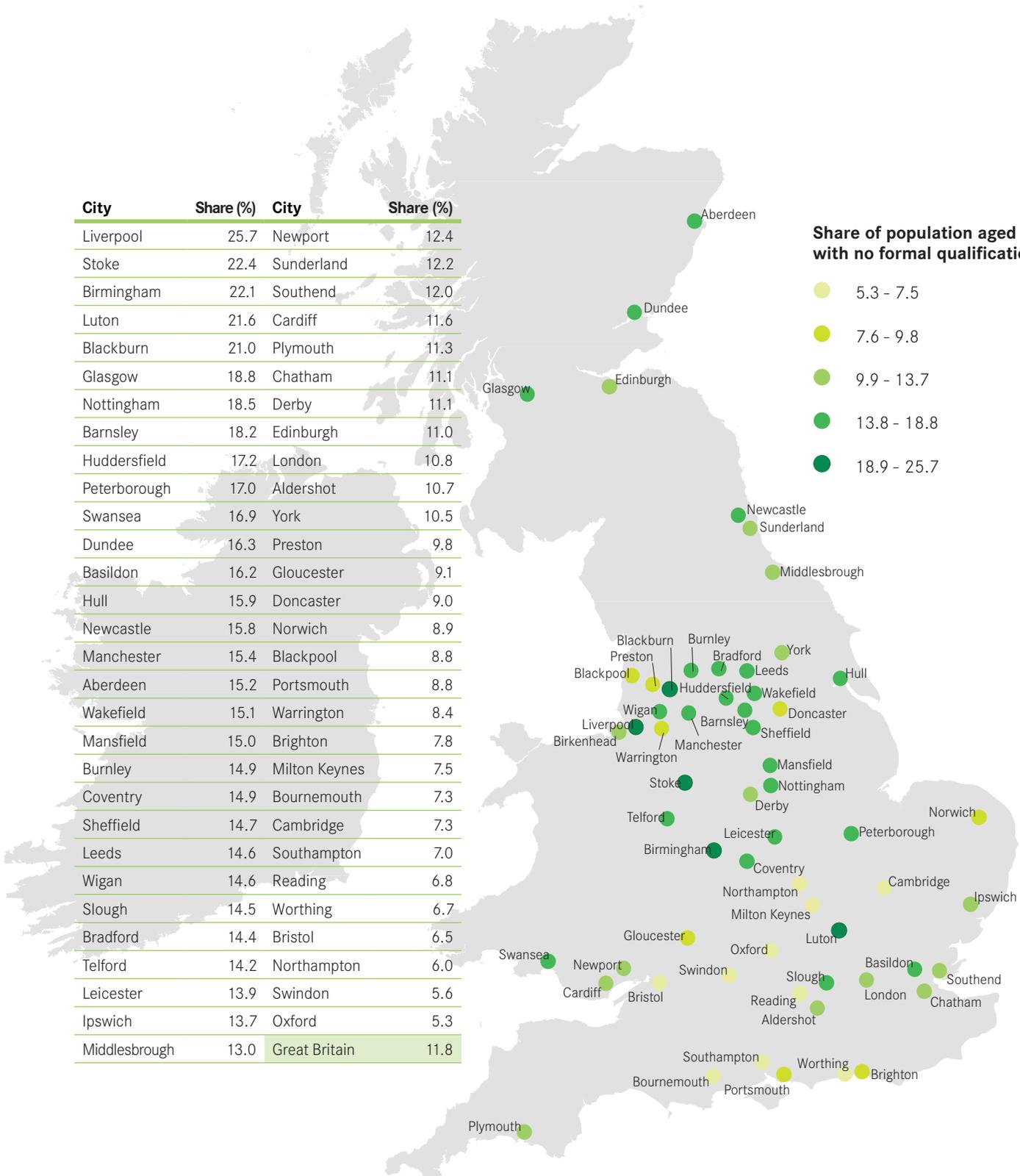
Source: NOMIS, Work and Pensions Longitudinal Study; NOMIS, Population Estimates/Projections; University of Portsmouth, *A Vision of Britain Through Time*

Figure 13:
Share of 50-64 year olds with no formal qualifications

City	Share (%)	City	Share (%)
Liverpool	25.7	Newport	12.4
Stoke	22.4	Sunderland	12.2
Birmingham	22.1	Southend	12.0
Luton	21.6	Cardiff	11.6
Blackburn	21.0	Plymouth	11.3
Glasgow	18.8	Chatham	11.1
Nottingham	18.5	Derby	11.1
Barnsley	18.2	Edinburgh	11.0
Huddersfield	17.2	London	10.8
Peterborough	17.0	Aldershot	10.7
Swansea	16.9	York	10.5
Dundee	16.3	Preston	9.8
Basildon	16.2	Gloucester	9.1
Hull	15.9	Doncaster	9.0
Newcastle	15.8	Norwich	8.9
Manchester	15.4	Blackpool	8.8
Aberdeen	15.2	Portsmouth	8.8
Wakefield	15.1	Warrington	8.4
Mansfield	15.0	Brighton	7.8
Burnley	14.9	Milton Keynes	7.5
Coventry	14.9	Bournemouth	7.3
Sheffield	14.7	Cambridge	7.3
Leeds	14.6	Southampton	7.0
Wigan	14.6	Reading	6.8
Slough	14.5	Worthing	6.7
Bradford	14.4	Bristol	6.5
Telford	14.2	Northampton	6.0
Leicester	13.9	Swindon	5.6
Ipswich	13.7	Oxford	5.3
Middlesbrough	13.0	Great Britain	11.8

Share of population aged 50-64 with no formal qualifications, 2016 (%)

- 5.3 - 7.5
- 7.6 - 9.8
- 9.9 - 13.7
- 13.8 - 18.8
- 18.9 - 25.7

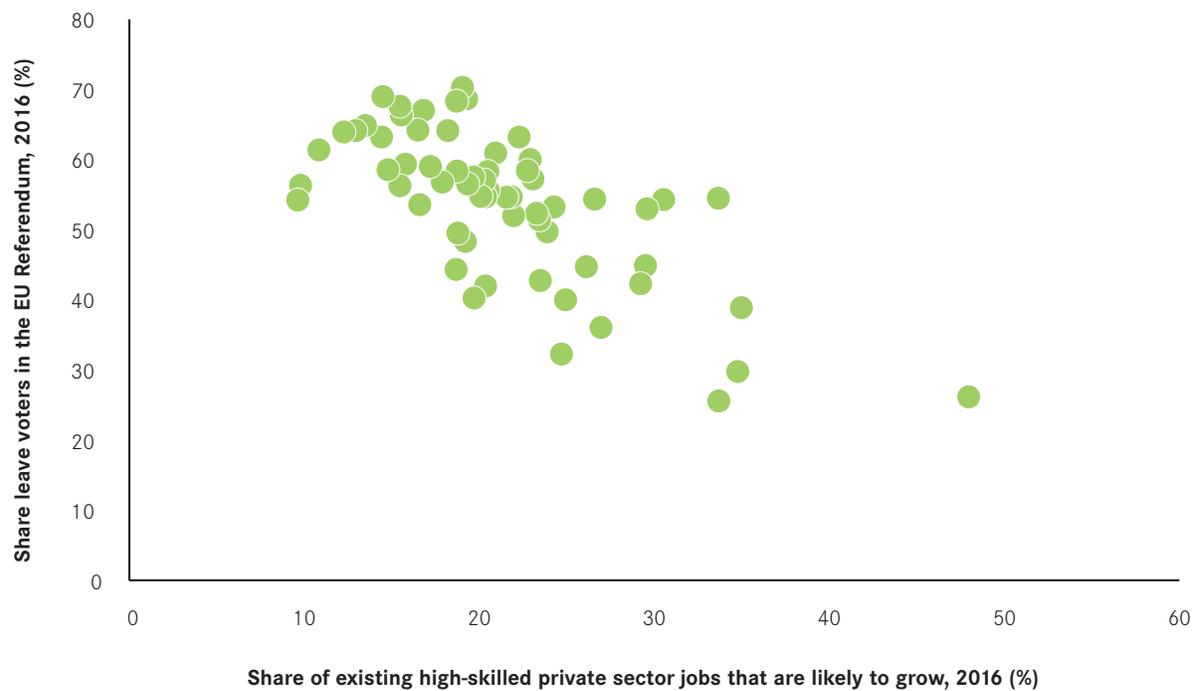


Source: NOMIS, Annual Population Survey. Note: Data not available for Crawley and Exeter.

Figure 14:**Differences in economic outcomes between cities in the South and cities elsewhere in Britain**

Economic outcome	Cities in the South	Cities elsewhere in Britain
Growth in jobs, 1911-2016 (%)	99	33
Percentage point change in the share of jobs in publicly-funded activities, 1951-2011	12.4	21.4
DWP working-age benefit claimant rate, Nov 2016 (%)	10	15
Weekly workplace wages, 2017 (£)	656	505

Source: University of Portsmouth, *A Vision of Britain Through Time*; NOMIS, DWP Benefit Claimants – Working Age Client Group; DWP; ONS, Annual Survey of Hours and Earnings

Figure 15:**The EU Referendum result and share of jobs likely to grow that are in higher-skilled private sector activities**

Source: Bakhshi et al. 2017, *Future of Skills: Employment in 2030*, London: Nesta and Pearson; ONS 2017, Business Register of Employment Survey; Census 2011; Electoral Commission

Policy implications

The policy response to the changing nature of work in recent decades has not prepared those people and places most affected by these changes to adapt to them. Policy has not sufficiently understood why businesses locate where they do and so has not focused on giving people the skills required to fill the non-routine occupations that have become increasingly common in an ever-evolving world of work. And policy has not helped places to create the environments that are attractive to higher-skilled firms.

So as cities across the country prepare to deal with the latest wave of change brought about by automation, globalisation and changing demographics, there must be a shift in the policy response on both fronts to this change.

For struggling cities in particular, policy needs to create the conditions that support the development of knowledge, and the use and exchange of it. A key element of this will be to provide their residents with the skills they need to be successful in a labour market that is likely to be ever more dominated by non-routine work.

This should take three main approaches:

Prepare:

Give younger generations entering the labour market the right set of skills and knowledge to succeed in the jobs of the future.

The basis for the estimation for which occupations will become more or less important is founded on the expectation that interpersonal skills, cognitive skills (such as originality and fluency of ideas) and judgment and decision making will become ever more important. This will require teaching both in schools and at further education colleges to adjust to help their students develop such skills.

A major related concern is that schools in a number of areas are failing to provide quality education based on today's curriculum, even before further improvements to what is taught are considered. Weaker economies such as Hull and Middlesbrough have very few schools deemed as high performing

according to the Education Policy Institute,⁹ meaning pupils in these places face the dual challenge of not being given the core skills required to get a high-skilled job as they enter a labour market where higher-skilled opportunities are limited.

Adjust:

The current workforce should be given adequate resources to adjust to changes in the labour market.

People currently in the labour market need to be able to adapt as the demand for skills changes. This will require continuous training and upskilling.

The unveiling of the National Retraining Scheme in the most recent Industrial Strategy suggests a move in this direction. At this stage the policy applies only to digital and construction jobs, but as such a scheme is rolled out there should be a shift towards developing the idea of lifelong learning. One way to do this would be to allocate each worker a number of hours a year to devote to training, to encourage workers to further their skillset in light of an ever changing labour market. This would require greater funding of the further education sector.

Compensate:

Individuals least able to adapt need to be given adequate compensation for their job loss but should also be given retraining.

As part of any wave of change, not everyone will be better off, at least in the short-term. This means that there will still be a requirement to provide a safety net for people if their job disappears.

But this should be done in conjunction with improved access to and requirement for training, to give individuals the ability to continue to work, as well as helping to shift the skills base of a city to improve its chances of attracting in higher-skilled business investment. Cities and the national government must ensure people who are worse off as a result of future job losses receive adequate support. But unlike the past, this support cannot only come in the form of welfare payments.

⁹ Andrews J & Perera N (2017) *Access to high performing schools in England*, London: Education Policy Institute