Institute for Public Policy Research

SMEs AND PRODUCTIVITY IN THE NORTHERN POWERHOUSE

INTERIM REPORT

Anna Round, **Jack Hunter**
and **Sarah Longlands**

February 2019

ABOUT IPPR NORTH

IPPR North is the dedicated think tank for the north of England, with bases in Manchester and Newcastle.

IPPR, the Institute for Public Policy Research, is the UK's leading progressive think tank. We are an independent charitable organisation with our main office in London. IPPR Scotland is based in Edinburgh.

IPPR's purpose is to conduct and promote research into, and the education of the public in, the economic, social and political sciences, science and technology, the voluntary sector and social enterprise, public services, and industry and commerce.

20th Floor
City Tower
Piccadilly Plaza
Manchester
M1 4BT
T: +44 (0)161 694 9680
E: north@ippr.org
www.ippr.org/north

Registered charity no: 800065 (England and Wales),
SC046557 (Scotland)

This paper was first published in February 2019.

The progressive policy think tank

CONTENTS

ABOUT THE AUTHOR

Anna Round is a senior research fellow at IPPR North.

Jack Hunter is a research fellow at IPPR North.

Sarah Longlands is director of IPPR North.

ACKNOWLEDGEMENTS

This project was funded by CYBG. CYBG PLC is an independent banking group that includes the Clydesdale Bank, Yorkshire Bank and Virgin Money brands. The authors would like to thank Jamie Maxton, Sean Eames and Georgia Jamieson at CYBG for their support with this project. At IPPR North we would like to thank our colleagues Rosie Corrigan, Abi Hynes, Richard Maclean and Luke Raikes.

Download
This document is available to download as a free PDF and in other formats at:
http://www.ippr.org/research/publications/smes-and-productivity-in-the-northern-powerhouse

Citation
If you are using this document in your own writing, our preferred citation is:
Round A, Hunter J and Longlands S (2019) *SMEs and productivity in the Northern Powerhouse: Interim report*, IPPR North. http://www.ippr.org/research/publications/smes-and-productivity-in-the-northern-powerhouse

SUMMARY

Productivity is a measure of how effectively an economy uses the resources at its disposal (including the labour of its workforce, different aspects of capital such as machinery and technology, and other infrastructure investment). Raising the level of output per hour worked offers a route to improved wages and higher living standards. It is no surprise that improving productivity is central to the UK government's 2018 industrial strategy.

Since the 2008 financial crisis, productivity in the UK has grown at a slower rate than in other developed countries. Within the UK, productivity rates in London and the South East are above the OECD and EU averages. However, productivity is markedly lower in the North and the Midlands, with further sharp divergences between sub-regions.

Raising the productivity of small businesses will play an important role in boosting the northern economy. In the north of England, 99.8 per cent of all businesses have fewer than 250 employees, 21 per cent employ between one and nine people, and 74 per cent are 'sole traders'. Like small and medium-sized enterprises (SMEs) across the UK, these businesses tend to have lower rates of productivity than larger firms; companies that employ fewer than 10 people lag behind the national average rate of productivity by between 15 and 27 per cent. More productive SMEs are essential if the North is to achieve a dynamic and inclusive economy across the region.

The drivers of productivity include better skills for a range of business activities, from key processes through digital development and management, investment and innovation, and the health and wellbeing of workers. SMEs need good-quality business advice to work out how to harness these in the ways that best suit their requirements, contexts and aspirations.

In the next phase of this project we will work with SME leaders across the north of England to explore their views on productivity, and the opportunities and challenges for small businesses in the region. Our final report will present a vision and a set of practical recommendations to support SMEs to fulfil their potential and contribute to the economic and social wellbeing of the North.

1. THE CHALLENGE AND THE OPPORTUNITY

> ***"Productivity isn't everything, but in the long run it is almost everything."***
> Krugman (1994)

1.1 PRODUCTIVITY IN NATIONAL AND REGIONAL ECONOMIES

Productivity matters. In recent years it has become one of the most widely used measures of the economic performance of a country, region or area (ONS 2018a), and productivity measures have become an increasingly important political objective. The central aim of the government's industrial strategy is to boost productivity (HM Government 2018), and the Northern Powerhouse Strategy states that the government's key priority is 'tackling major barriers to productivity' in the North (HM Government 2016). Productivity is also important to policymakers as a measure of economic dynamism, as discussed in chapter 4. And it is important to the people who live and work in an economy; who run businesses, use public services, and build community and family lives.

Productivity represents:

> ***"...the relationships between inputs and outputs in the production process. As a practical concept, productivity helps define both the scope for raising living standards and the competitiveness of an economy."***
> ONS (2016)

Essentially productivity is a measure of how much value is generated by each unit of input into the process that produces goods and services. It indicates how efficiently an employee, a business, or a regional or national economy uses the resources at its disposal. Because an increase in productivity represents an increase in *output* without a corresponding increase in *input*, it is vital to building resources to improve living standards, not least by driving up pay.

How is productivity calculated?

Productivity is defined as the *output* of a production process in relation to *input*s. A wide variety of inputs contribute to most production processes so methods for calculating productivity vary depending on which inputs are considered.

Productivity = Outputs / Inputs

It is not possible to observe productivity directly, so most productivity measures are derived statistics, using different measures of inputs and outputs. Commonly used measures include:

- Total output – the value of goods and services produced.
- Gross value added (GVA) – the difference between the value of goods and services produced (total output) and the cost of raw materials and other inputs that are used up in production (intermediate consumption).

- Gross domestic product (GDP) – total economic activity; this may be measured as *production* (the sum of all the gross value added by all producers in the economy), *income* (total income generated through this productive activity) or *expenditure* (total expenditure on goods and services produced).

Because the key input into the production process is *labour*, many accounts of productivity refer to *labour productivity*, or the quantity of goods and services produced per unit of labour input. Labour input can be measured as the number of *jobs*, the number of *workers* or the number of *hours worked* (Based on ONS 2016).

Multifactor productivity is calculated using estimates for all inputs, including labour, capital, physical elements such as machinery or equipment, and intermediate inputs (OECD 2001).

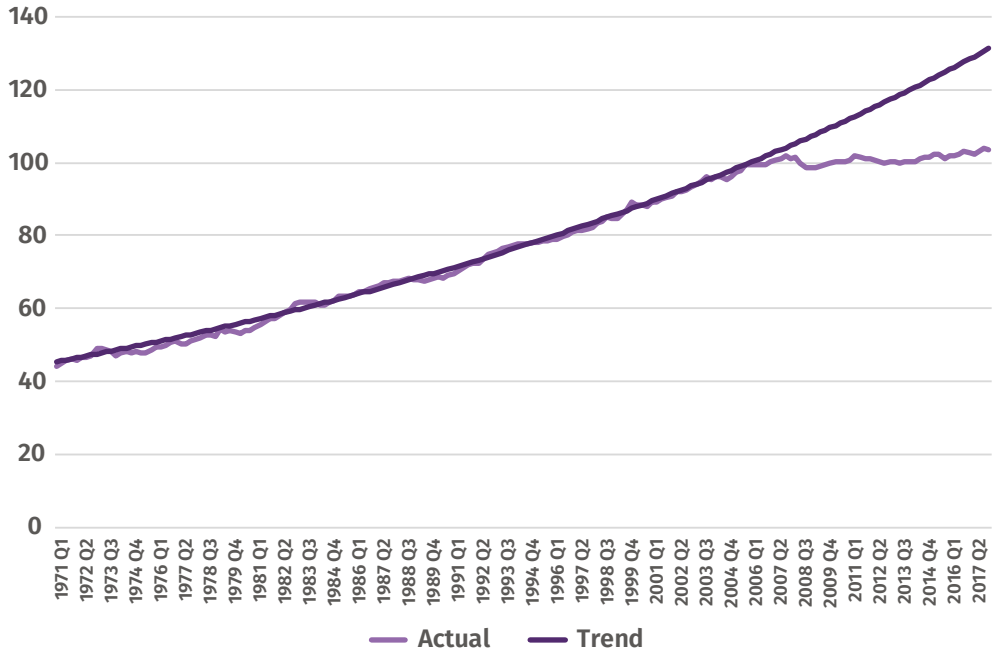
Because regional data for the UK is largely calculated in terms of *labour productivity*, this is the measure used here unless otherwise stated. In general where other measures are used this is because labour productivity data is not available for the selected issues/geographies. However, in general, patterns will be broadly similar because of the importance of labour as an input factor.

1.2 THE PRODUCTIVITY CHALLENGE FOR THE UK AND THE NORTH

Productivity is important, yet the UK has a 'productivity problem'. Productivity growth in the UK has stalled since the financial crisis (figure 1.1). This is against the previous long-term trend, and has occurred across all sectors (McCann 2018).

FIGURE 1.1

UK productivity growth since the 2007–08 financial crisis

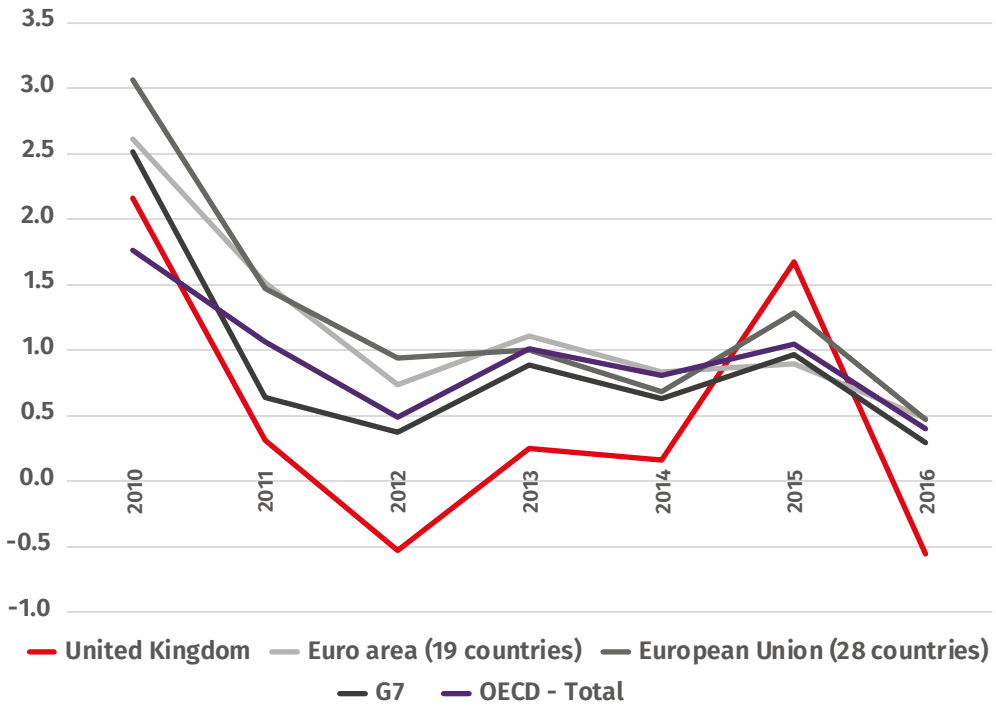


Source: IPPR analysis of ONS (2018d)

Overall, productivity is lower in the UK than in the majority of developed countries. Since the 2008 financial crisis, year-on-year productivity growth has generally been lower in the UK than across the EU, the G7 and the OECD (figure 1.2), and in 2017 it was lower than in Finland, France, Germany, Norway, Denmark, the Netherlands or Spain. In 2017, UK GDP per hour was around 17 per cent below the G7 average (Valero and Roland 2015).

FIGURE 1.2

Annual growth in GDP per hour worked, 2010–16, UK and EU, OECD and G7



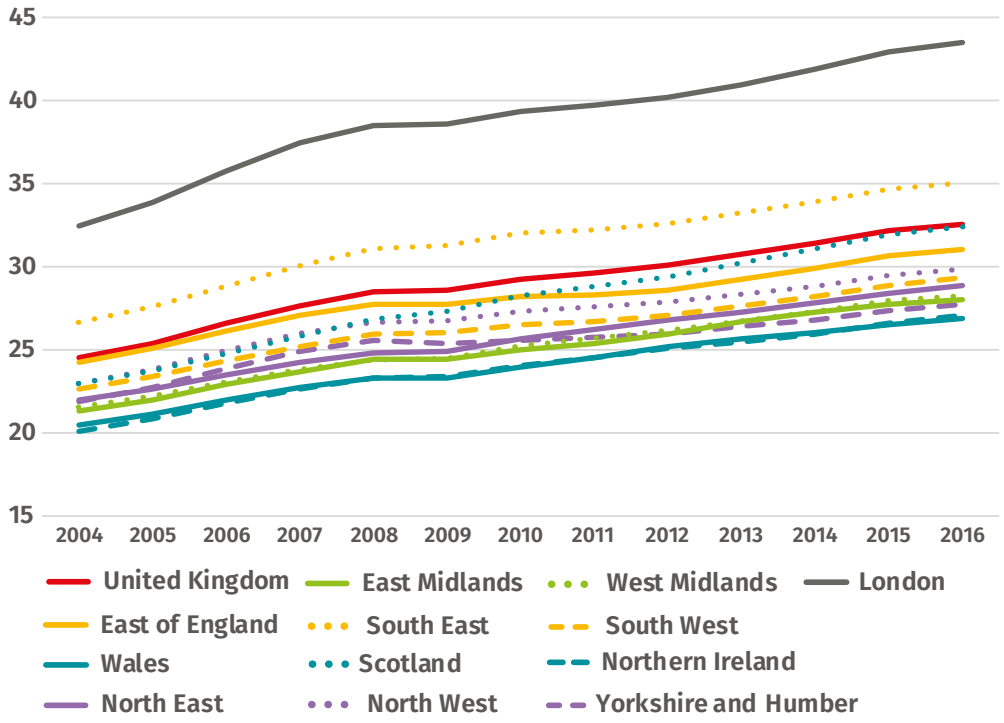
Source: OECD (2018), latest figures available for these groupings

Within the UK, an equally alarming gap in rates of productivity exists between regions. London and the South East in fact outperform the OECD and EU averages, but other regions in the UK underperform these same averages by a very similar margin (McCann 2018). This matters; inequality associated with poor productivity places pressures on social cohesion, longevity and health (Buchan et al 2017).

Figure 1.3 shows GVA per hour worked for the UK, the English regions and the devolved nations. Rates of productivity in the North and the Midlands are well below the national average, and below those for the South and East of England. Among the devolved nations, Scotland also performs relatively strongly but Northern Ireland and Wales are some way behind the rest of the UK.

FIGURE 1.3

Nominal (smoothed) GVA per hour worked (£); UK, English regions and devolved nations, 2004–16



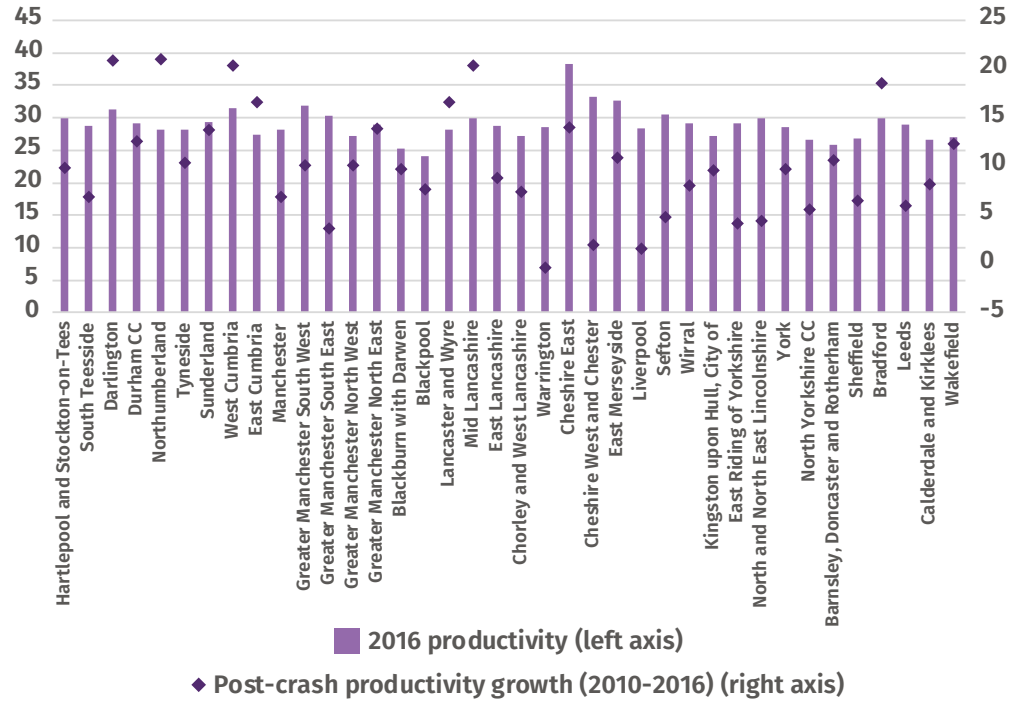
Source: ONS (2018a)

However, these regional figures obscure considerable variation in productivity rates within the North. Figure 1.4 shows labour productivity figures for 2016 across northern NUTS3[1] regions. For example, Blackpool and Barnsley have low rates even by comparison with their neighbours, while Cheshire West outperforms the average for the South East of England.

1 The NUTS (Nomenclature of territorial units for statistics) classification system has been developed to divide up the economic territory of the EU for socio-economic analysis of regional statistics. NUTS3 regions are the smallest units, and in the case of the UK most comprise one or two County or Metropolitan areas. A full definition and a list of all NUTS regions, with their corresponding domestic boundaries, is given at https://ec.europa.eu/eurostat/web/nuts/background

FIGURE 1.4

Nominal (smoothed) GVA per hour worked (£); UK, English regions and devolved nations, 2016, and post-crash growth for this measure

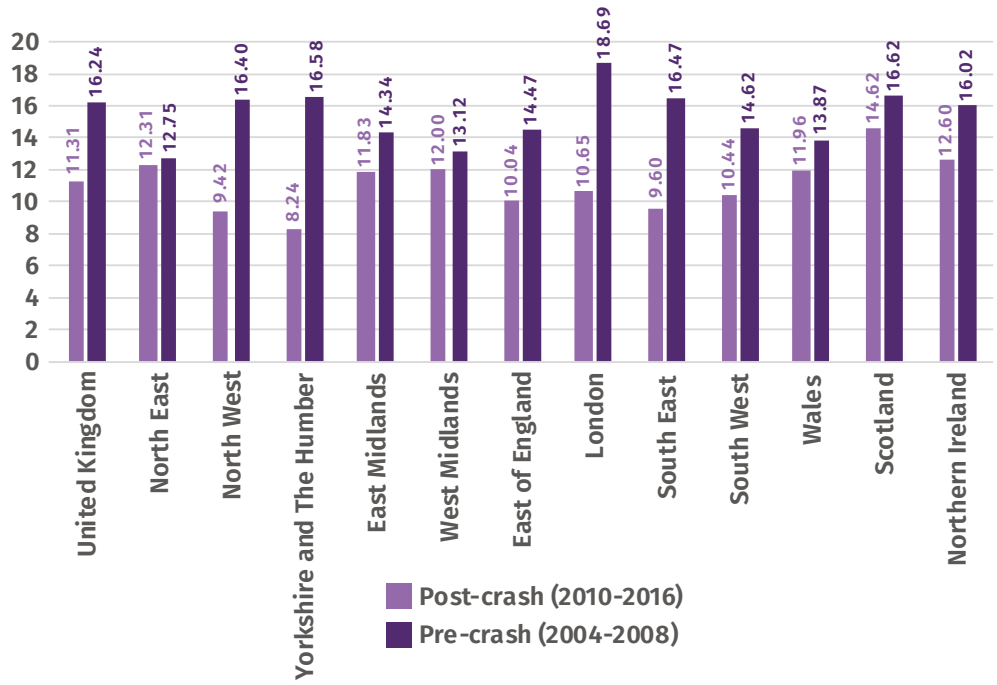


Source: ONS (2018a), author's calculations

These figures demonstrate that there is the potential for high productivity within the region. And when post-crash productivity growth is considered, the North also does comparatively well (figure 1.5). The North East has the highest rate of post-crash productivity growth in England, and some sub-regions (Bradford, Cumbria, Darlington and Northumberland, for example) show strong performance as well. This is despite the existence of a 'clear structural break' in UK productivity between pre- and post-recession rates (ONS 2018b).

FIGURE 1.5

Percentage change in nominal (smoothed) GVA per hour worked (£); UK, English regions and devolved nations, 2004–16 (data only available from 2004 onwards)



Source: ONS (2018a), author's calculations

Raising productivity therefore presents a challenge for the UK and also for the north of England – but it also offers an opportunity. Raising productivity across the region will both help to improve the UK's productivity performance (McCann 2016) and provide greater resources within the North to raise living standards and increase investment. This is especially important in the context of the 'inclusive growth' agenda, as a potential driver of higher wages, reduced carbon emissions and better living standards.

The northern economy includes a high proportion of small businesses (see chapter 2 for a detailed breakdown), therefore their productivity performance is key to improving rates across the region. The current picture is examined in greater detail in chapter 2.

Limitations to the use of productivity as a measure of economic performance

Despite the concentration on productivity figures, some problems with their use as an indicator of economic performance have been identified. For example:

- Labour productivity can grow through the more effective use of labour inputs, but an increase in labour productivity will also be seen in the statistics if unemployment rises and outputs remain relatively stable. This can produce positive economic statistics accompanied by negative social outcomes such as increased worklessness and possibly also some reductions in aspects of work quality (if workers are subjected to greater stress or the demand to work unpaid hours).
- The increase in technology use and automation, which can exacerbate the previous point. Potentially an increase in automation could increase productivity by reducing the requirement for (human) labour inputs (for example, Frey and Osborne 2017).
- Some measurement challenges – in particular those associated with the changing nature of goods, services and business processes – which mean that current approaches to deriving productivity figures may not fully capture the performance of the contemporary economy. Examples include price estimations in services and new technological sectors (Bean 2016; Abdirahman 2017), and the importance of 'intangible' investments such as design, training, branding and marketing, and changing business processes (Haskel and Westlake 2017; ONS 2018c).
- The increase in multinational corporations, resulting in a disparity between where activity happens and where it is reported for tax purposes (Blakeley 2018).

For these reasons, and because productivity data is calculated on the basis of a relatively small number of factors, it should be regarded as a statistic that tells us about just one thing. For example, while productivity growth offers the potential for better living standards, this measure does *not* indicate whether living standards are actually rising. This task demands a broader range of measures – such as how rewards are distributed, rates of poverty and poverty reduction, and environmental sustainability – along with an acceptance of their importance as indicators of economic success.

> ***"To understand whether the economy is delivering for its citizens, we need a new suite of outcome indicators. Simply tracking GDP and a small number of production statistics is not sufficient; it may even undermine progress towards a more just economy, as it distracts attention from the issues that really matter."***
>
> **Colebrook (2018)**

In this project, we use data that follows standard modelling practice to produce productivity statistics based on the relationship between inputs and outputs. However, we aim to accompany this with a narrative account that is mindful of the limitations discussed here. For example, we will:

- explore how the issue of 'productivity' relates to the everyday experiences of SMEs in the North, and how key stakeholders view the productivity narrative,
- consider how SME leaders believe improved productivity can support both their workforces and the communities where they are based,
- consider how actions to raise productivity can be designed in ways that maximise social benefits and inclusive economic growth, and
- consider the long-term social and economic impacts of developments such as digitisation and automation.

2.
SMEs IN THE NORTH OF ENGLAND: A PROFILE

2.1 SMEs IN THE NORTHERN BUSINESS POPULATION

Small and medium-sized enterprises (SMEs) are the heart of the Northern Powerhouse. On most measures, companies of this size make up the greater part of the northern economy.

What is an SME?

The term 'small and medium-sized enterprise' (or SME) is generally used to refer to companies with fewer than 250 employees. Because the experiences of businesses at different points on this scale vary quite considerably, SMEs are sometimes broken down further into:

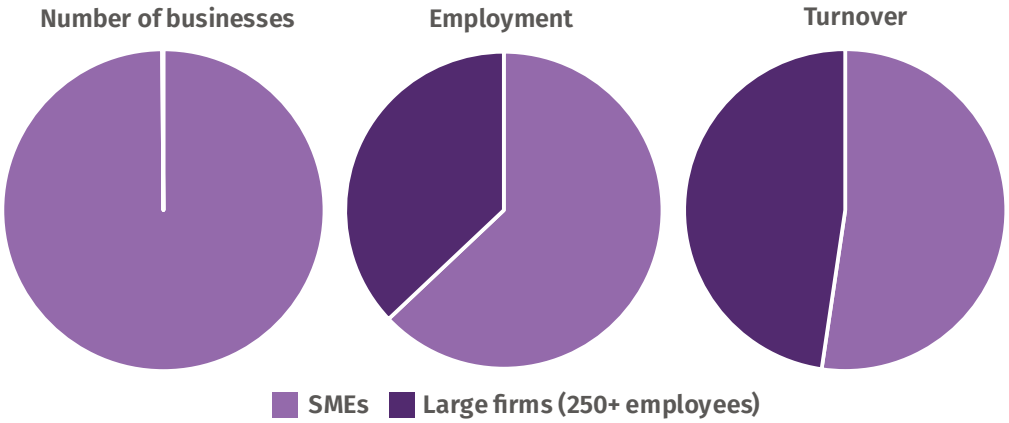
- Micro enterprises with 0 to nine employees
- Small enterprises with 10 to 49 employees
- Medium-sized enterprises with 50 to 249 employees

There is some overlap between the category of 'micro enterprises', sole traders and the self-employed. Distinctions between these groups are not relevant to the main discussions in this report. For the most part we focus on the needs of entrepreneurs who elect to manage their work as a business rather than a freelance endeavour. In addition, the position of people who are technically self-employed but whose working life in many ways resembles that of an employee (BEIS 2017) is not explored in this project.

For example, the vast majority of private sector businesses in the north of England (99.8 per cent) are SMEs. Taken together, they employ over 3.3 million people – just under two-thirds (62.7 per cent) of all employees – and account for £335 billion in revenue every year, over half (52.4 per cent) of all private sector turnover in the region (figure 2.1).

FIGURE 2.1

SMEs as a proportion of the northern economy



Source: BEIS (2018a)

Within this large population – not surprisingly – there is considerable variation. The majority of northern SMEs (74 per cent of all businesses) are 'sole traders' with no employees, or no employees other than their owner(s). A further 21 per cent have between one and nine employees, meaning that a total of 95 per cent of all private sector businesses in the North are so-called 'micro businesses'.

Most SMEs are family owned. Including sole traders, just under 90 per cent of all businesses in the North are majority owned by members of the same family (IFB Research Foundation and Oxford Economics 2017).

2.2 SECTORAL BREAKDOWN

Table 2.1 shows a sectoral breakdown of SMEs in the north of England. Within this population, the largest sectors are professional, scientific and technical (15 per cent), construction (12 per cent) and retail (9 per cent).

The profile of medium-sized firms (those with 50 to 249 employees) is very different from that of smaller firms. By contrast to the SME population as a whole, the largest sectors among medium-sized enterprises are manufacturing (19 per cent of firms), health (13 per cent) and education (8 per cent).

TABLE 2.1

Sectoral breakdown of the northern SME population, by SITC (Standard International Trade Classification) and firm size

Industry	All SMEs	Micro (0 to 9)	Small (10 to 49)	Medium-sized (50 to 249)
1: Agriculture, forestry & fishing (A)	5%	6%	1%	1%
2: Mining, quarrying & utilities (B,D and E)	1%	0%	1%	1%
3: Manufacturing (C)	6%	5%	12%	19%
4: Construction (F)	12%	13%	8%	6%
5: Motor trades (Part G)	3%	3%	2%	2%
6: Wholesale (Part G)	4%	4%	7%	7%
7: Retail (Part G)	9%	9%	8%	4%
8: Transport & storage (inc postal) (H)	5%	6%	4%	4%
9: Accommodation & food services (I)	7%	6%	15%	7%
10: Information & communication (J)	5%	6%	3%	2%
11: Financial & insurance (K)	2%	2%	1%	2%
12: Property (L)	3%	4%	2%	1%
13: Professional, scientific & technical (M)	15%	16%	9%	8%
14: Business administration & support services (N)	8%	8%	6%	9%
15: Public administration & defence (O)	0%	0%	0%	0%
16: Education (P)	2%	1%	3%	8%
17: Health (Q)	4%	3%	12%	13%
18: Arts, entertainment, recreation & other services (R,S,T and U)	6%	6%	6%	4%

Source: IPPR analysis of BEIS (2018a)

2.3 SME OWNERS: GENDER AND ETHNICITY

Across the UK, just 19 per cent of SMEs with employees were majority led by women, defined as being controlled by a single woman or having a management team of which a majority are women. Women-led businesses were most common in the health, education and other services sectors (52 per cent, 50 per cent and 26 per cent were women-led, respectively). Women-led businesses were less common in information & communication, primary industries, construction and manufacturing sectors (10 per cent, 11 per cent and 12 per cent, respectively) (BEIS 2018b).

Nationally, just 4 per cent of SMEs with employees were led by people from a minority ethnic group (in other words, they had a person from an ethnic minority in sole control of the business or having a management team, at least half of whom are from an ethnic minority). Businesses led by someone from an ethnic minority were more common in information & communication (8 per cent) and administrative services (7 per cent). They were least common in primary industries (none in 2017) and construction (2 per cent) (ibid).

2.4 KEY THEMES FOR SMEs IN THE NORTH

This short section explores the health and strength of the SME population in the North, exploring variations across the region as a whole, and comparisons to other parts of England.

SME density

Compared to London and the South, the north of England has far fewer SMEs than might be expected. As shown in table 2.2, SME density (which measures the number of businesses relative to the size of the working-age population) in the North, and the North East in particular, is lower than anywhere else in England.

Density figures for London are likely to be artificially high because of the large number of shell companies based there. However the high figures for the East, South East and South West suggest that this explanation alone is not sufficient to account for the regional differences.

TABLE 2.2

SME density, English regions

	Working-age population 16–64	SME count (including sole traders, unregistered businesses)	SME density (businesses per 1,000 people aged 16–64)
North East	1,658,564	162,592	98
North West	4,538,815	544,220	120
Yorkshire and the Humber	3,409,554	399,849	117
East Midlands	2,976,631	367,357	123
West Midlands	3,636,636	447,707	123
East	3,779,374	564,210	149
London	5,973,028	1,094,999	183
South East	5,607,526	872,721	156
South West	3,370,820	545,709	162

Source: IPPR analysis of ONS (2018e) and BEIS (2018a)

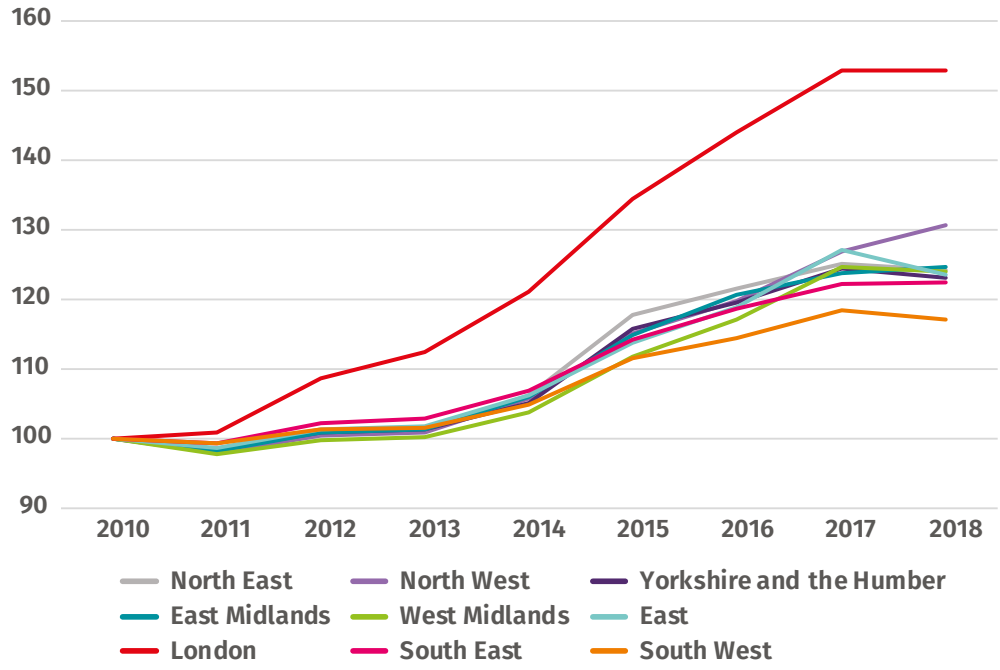
SME growth

Since 2010 there are nearly 30 per cent more SMEs in England, accounting for almost all growth in the overall number of private sector firms.

This growth has been concentrated in London. There were 53 per cent more SMEs in the capital in 2018 compared to 2010, whereas other regions have seen growth rates between 19 per cent and 32 per cent. The growth rate in the North as a whole has been roughly similar to that of other regions outside London. There were an estimated additional 216,000 SMEs in the North in 2018 than in 2010, representing an increase of 24 per cent (figure 2.2).

FIGURE 2.2

SME population indices, England, London and the North, 2010–18



Source: IPPR analysis of BEIS (2018a)

Both nationally and in the North, the growth in the overall numbers of SMEs has been primarily driven by substantial increases in the numbers of sole traders. This is likely to have been driven at least partly by the recent rise in precarious employment, where changes in company structures and employment practices mean that workers are increasingly likely to register as self-employed. As such, the rise in sole traders is more likely to reflect corporate measures to cut costs rather than an increase in entrepreneurship (BEIS 2017).

If we consider only SMEs with employees, the numbers are far more modest, and the discrepancy between London and the North more pronounced. Excluding sole traders, there were 36 per cent more SMEs in London in 2018 than in 2010. The increase is 10 per cent in the North – over 3.5 times smaller.

Within the north of England, there has been significant variation in the rates of SME growth (table 2.3). Areas such as Lancashire, Humber and, in particular, Cumbria have seen low levels of growth, while others (Greater Manchester, Liverpool City Region, Cheshire and Warrington, and Tees Valley, for example) have all seen disproportionately large increases since 2010. Greater Manchester in particular

has seen a very substantial growth in the numbers of SMEs – the city region accounts for 40 per cent of the total SME growth since 2015 across the entire north of England. Most of this is concentrated in the local authority areas of Bury, Manchester, Rochdale and Salford). The reasons behind this will be explored in our final report.

TABLE 2.3

Change in total number of SMEs, northern LEP areas

Region	Local Enterprise Partnership	Change in total number of SMEs*	
		Since 2010	Since 2017
North West	Cheshire and Warrington	32%	5%
	Cumbria	9%	-1%
	Greater Manchester	45%	5%
	Lancashire	15%	1%
	Liverpool City Region	36%	2%
North East	North East	22%	0%
	Tees Valley	31%	-2%
Yorkshire and Humber	Humber	14%	-2%
	Leeds City Region	27%	0%
	Sheffield City Region	23%	-3%
	York, North Yorkshire and East Riding	15%	-1%
North of England	**Total**	**26%**	**1%**

Source: ONS (2018f)

Note: *Not including sole traders

There is also some evidence of a reduction in the SME population over the past year – which could be linked to the risks and uncertainties associated with Brexit.

This shrinking has been uneven across the North. As shown in table 2.3, between 2017 and 2018 the number of SMEs fell in Sheffield City Region (down 3 per cent), Tees Valley (down 2 per cent) and Humber (down 2 per cent). By contrast, the number of SMEs rose in Greater Manchester and Cheshire and Warrington (both up 5 per cent since 2017) and Liverpool City Region (up 2 per cent).

Business birth and survival rates

Rates of business birth and death are often used as an indicator of the overall vitality of the local business environment. Higher rates of 'churn' in the SME population are usually associated with a more dynamic and productive economy.

Regional-level data shows considerable variation. However, unlike the data for density, the main split appears to be between London and the rest of the country.

London has a high rate of both business births (15.2 per cent) and deaths (14.2 per cent). Both figures are substantially higher than in most other regions, which have birth rates between 10.6 per cent and 13.4 per cent, and death rates between 10.8 per cent and 12.8 per cent.

The rates for the north of England are generally comparable to the rest of the country outside the capital. The North West, however, has a business birth rate (15.9 per cent) that is actually higher than the London rate (see table 2.4).

TABLE 2.4

Business birth and death rates, English regions (2017)

	Active	Births		Deaths	
	Count	Count	Rate (%)	Count	Rate (%)
North East	76	10	12.6	9	12.0
North West	298	47	15.9	36	12.2
Yorkshire and the Humber	198	23	11.4	24	12.1
East Midlands	190	23	11.9	23	12.0
West Midlands	230	31	13.4	26	11.4
East	295	37	12.5	38	12.8
London	608	92	15.2	86	14.2
South East	447	52	11.6	48	10.8
South West	239	25	10.6	30	12.6

Source: ONS (2018g)

Note: *Not including sole traders

2.5 SMEs AND PRODUCTIVITY

In recent years, SMEs in the UK have generally performed well. There have been significant increases in the overall numbers of businesses and employees, as well as increases in turnover. These trends have been reflected in the north of England, although certain areas have seen much slower rates of growth.

As discussed in chapter 1, productivity has stagnated across the private sector as a whole and is lower in the North than in the South of England. In addition, the national (GB) average is more pronounced for SMEs than it is for larger firms.

Across the North, average SME productivity lags behind that of local units of larger firms[2] (see below). This is true across the country as a whole;[3] however there is some evidence that the difference in productivity between SMEs in the North and the national average is more pronounced than it is for larger firms.

Table 2.5 provides evidence of this. Analysis of firms in the non-financial economy finds that, although the average productivity in local plants is lower in each northern region than the national average across almost all firm size bands, the difference between the firms in the North and the rest of the country is more marked for SMEs than for large firms. Greater focus on productivity across the economy has

2 Analysing output according to local units means that output is allocated according to the site of each local plant or site (unit) operated by an enterprise, rather than simply allocating output to the location of the head office of the enterprise or to its reporting unit. According to ONS, from whom these figures are derived, the local unit version of the dataset should therefore provide better geographical accuracy for analysis. https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2018/regionalfirmlevelproductivityanalysisforthenonfinancialbusinesseconomygreatbritainapril2018

3 However the relationship between size and productivity is not linear. Micro firms (one to nine employees) have relatively high median productivity levels – a fact which can be explained partly by their heavier representation in the knowledge-intensive services sectors (ONS 2018).

brought SME productivity under scrutiny; it was the subject of a BEIS Committee report late last year (House of Commons 2018).

This is most pronounced in the North East. Here, local units of large firms are 11 per cent less productive than the national average (roughly in line with the figure for the North West, although better than Yorkshire and the Humber). However, SMEs lag substantially further behind. Those with 50 to 99 employees in particular are on average 33 per cent less productive than the national average for firms of this size.

There is a similar pattern in the North West, albeit less pronounced. North West firms (local plants) with more than 250 employees are on average 10 per cent less productive than the national average, but micro businesses (0 to nine employees) are on average 17 per cent less productive.

Yorkshire and the Humber, however, bucks this trend. Although SMEs in the region are, on average, much less productive than the national rate (17 per cent lower for those with 100 to 249 employees), in this region the productivity of large firms is significantly worse (23 per cent lower than the national average).

Contrary to what might be expected, analysis by the ONS suggests that, in the non-financial economy at least, variation between regions is only marginally due to differences in industry structure. Instead, it is the differences between average firms' productivity *within* industries that primarily drives these regional differences (ONS 2018h).

TABLE 2.5

Productivity by firm size, northern LEP areas

Region	Firm size (employees)	Mean productivity (GVA per worker across local plants, non-financial business economy, £1,000s)	Difference between average local plant productivity and GB average
North West	250+	52.54	-10%
	100 to 249	49.71	1%
	50 to 99	41.85	-10%
	10 to 49	37.47	-11%
	1 to 9	40.20	-17%
North East	250+	52.17	-11%
	100 to 249	36.87	-25%
	50 to 99	31.12	-33%
	10 to 49	31.62	-25%
	1 to 9	35.36	-27%
Yorkshire and the Humber	250+	45.04	-23%
	100 to 249	41.20	-17%
	50 to 99	41.58	-10%
	10 to 49	39.66	-6%
	1 to 9	40.98	-15%

Source: ONS (2018h), IPPR North analysis

Using these estimates, and employment statistics for SMEs in the North, we estimate that if the productivity of SMEs in the North matched the national (GB) average, the increase in output would be worth approximately £23 billion to the North's economy every year. This would represent a 7.5 per cent increase in the Northern Powerhouse GVA.

The sheer size of the North's SME population as a proportion of the Northern Powerhouse economy means that efforts to raise their productivity should be central to wider efforts to boost northern prosperity and provide a firm footing for more inclusive growth across the region.

The North has fewer SMEs per head of population, and has seen low levels of business growth and lower than average levels of productivity. On one hand, this represents an additional challenge to policymakers, however, on the other, it underlines the North's potential. In the next chapter, we explore some of the drivers of productivity and the ways in which these apply to SMEs.

3.
DRIVERS OF PRODUCTIVITY AND THEIR IMPLICATIONS FOR SMEs

3.1 THE 'PRODUCTIVITY PUZZLE': WHAT DRIVES PRODUCTIVITY?

The UK is often described as having a 'productivity puzzle', partly due to the complex distribution of productivity patterns across sectors, firm sizes and places; the diversity described in chapter 2 in relation to SMEs is replicated across the economy. But it is also due to an interplay of multiple human capital, investment, management and technological issues. This chapter provides a brief overview of the drivers of productivity.

Skills and education

Skills and education levels are identified by many studies as a key factor in driving productivity, both through increasing the capabilities of workers and supporting other changes such as digitisation and innovation (Rincon-Aznar et al 2015). Both 'general' and specific vocational skills are important, as well as emerging skillsets such as digital. Skills improvements are thought to account directly for around a fifth of average labour productivity growth in the UK over recent decades (ibid).

A well-qualified workforce is important, but 'sectoral cognitive skills', or the actual skills of a workforce needed for the work they are doing, are strongly related to productivity, and may be more important than qualification levels (Sasso and Ritzen 2017). Training provides a strong return on investment in terms of improved productivity (Dickinson and Lloyd 2010; Konings and Vanormelingen 2010). And matching skills to working practice is associated with improved productivity: "adult learning policies that make skills complementary to technical progress can support inclusive productivity growth by better matching skills to jobs" (OECD 2015).

By contrast, low employer demand for skills and poor skills utilisation are associated with low productivity (Dromey and McNeil 2017). Promoting increased skills utilisation 'requires a new response at the local level... [including] working more directly with employers to look at issues related to work organisation, job design and human resource development practices', through partnerships between employment services, training policy, economic development and innovation programmes (OECD/ILO 2017).

A related observation relates to the importance of management skills, which can have an impact on productivity similar to that of major changes in labour force or investment capital (BIS 2012). This may be a particular challenge for SMEs, which can benefit greatly from 'practical and effective business education' through formal and peer-to-peer channels (Hart and Roper 2015) and development opportunities tailored to the needs of entrepreneurs (Huxtable-Thomas and Hannon 2017).

Skills investment is low across the UK economy, and investment per employee is generally higher in larger firms than in smaller ones (Dromey and McNeil 2017). This is not surprising, given that the resource implications of either training staff or hiring people with more specialist skillsets may represent a considerably greater burden for companies with smaller staff numbers overall.

A useful focus for investment to drive SME productivity could be around skills. Some examples of successful 'upskilling' programmes include short courses that allow employees to improve their skillsets in key areas such as digital, or that offer short placements of skilled staff within a small business[4]. Overall take-up of digital in SMEs has been relatively limited, presenting a risk to their future prosperity and productivity (Price 2018). SMEs' use of digital is related to levels of digital skills in their workforces, as well as to the quality and availability of infrastructure, including access to superfast Broadband and adequate mobile phone connectivity (Hunter and Longlands 2016).

Investment and innovation

There is general agreement among scholars that investment in a business – to boost skills, physical capital (such as machinery), innovation and digitisation – is an important input to productivity (IPPR 2018). Investment is associated with increases in productivity over the long term and firms that start from a lower base often see the greatest gains, suggesting that investment can overcome prior weaknesses (Benkovskis et al 2018).

Yet overall:

> ***"...the UK's per capital levels of technology, R&D, skills training and advanced capital are all low by OECD standards... and the UK also displays only moderate to average levels of knowledge-investing and innovation dynamism by EU and OECD standards."***
> McCann (2018)

A lack of investment and innovation also explains some of the firm-level differences in productivity that are observed in the UK. For example, Haldane (2018) analyses the differences between firms with rates of productivity that compare well to other countries and those that make up the 'tail' of unproductive organisations. The former benefit considerably from innovation and from a large and buoyant venture capital sector to invest in it, while the latter suffer from poor diffusion of technological advances and benefits.

Digital innovation in particular has a transformative effect on businesses right across the economy (Longlands et al 2018). It is associated with productivity growth for many firms where it is accompanied by a set of key conditions: good leadership, appropriate skills development, 'ecosystem thinking' within value chains, effective data use and management, and readiness for new tech infrastructure such as security, cloud storage and compatibility between systems (WEF 2018). All of these, of course, require investment – and a long-term vision of the potential benefits of investing.

Access to finance is a perennial issue for SMEs (FSB 2017). This was exacerbated by the financial crisis and the subsequent economic situation, including 'weak competition, short termism and bad debts in the banking sector', a situation which has been particularly problematic for innovative small firms (Valero and Roland 2015). On the other hand, some practitioners suggest that demand for finance may be relatively low among SMEs partly due to a lack of information about what is available and how to take up opportunities.

Worker health and wellbeing

A wealth of studies indicate that worker health supports improved firm-level productivity. For example, both long-term conditions (such as musculoskeletal disorders) and 'everyday' illnesses such as the common cold have been found

4 For example, in Italy the 'Crescere in Digitale' initiative trains jobseekers in digital skills and funds a number of its graduates to take up three-month placements with small businesses. The aim of these placements is to transform the host company's use of digital and disseminate digital in the SME community (Round 2018).

to lower productivity (Dall et al 2013; Lang et al 2012; Leijten et al 2014; Bubonya et al 2017). Absenteeism is a key factor, but working while sick may have even more serious impacts: 'output loss... due to presenteeism (lower productivity) is immense – several times greater than losses associated with absenteeism' (De Vol and Bedroussian 2007). Mitigating actions on the part of businesses include supporting good workplace health, but also making changes to aspects of the office environment such as air quality and ergonomics (Fisk 2002; Gupta et al 2018).

What all of these issues have in common is a need to understand how investment of time and resources in changing the way a business works can pay off over the long term. Essentially this demands a level of knowledge and learning among SME owners and managers. Yet this will *not* necessarily come to them as a result of simply starting their own business – or through the experience of doing so, under a diverse range of practical and financial pressures. Many will benefit from external support.

3.2 BUSINESS ADVICE AND SUPPORT

Many of the issues discussed in section 3.1 will translate to SMEs in the north of England through high-quality business advice that is easily accessible and that can be effectively tailored to the needs of businesses in particular places.

Business support could could include options such as direct coaching or a signposting service, and could offer assistance with:

- the development of management and leadership skills
- help with business strategy
- access to affordable and targeted training (including digital skills development)
- advice on HR policies and support for workers, workplace health and staff retention (including retention of older workers)
- export opportunities and new markets
- access to finance
- advice on using digital technologies and enhancing business practices through digital
- support for innovation.

But to make the best of business support, SMEs need to know that it is there, and to trust that it represents a good return on the resources of time and money that they put into getting it.

Government-funded business support in the UK has undergone substantial reform over the past two decades, most notably with the scrapping of the popular Business Link service and the Regional Development Agencies. These changes have left 'no shortage of business support initiatives', but the system is relatively fragmented and poorly structured, with over 900 schemes (public and private, national and local), more than 10 government departments and non-governmental bodies in charge of different initiatives, and no overall business support infrastructure (Centre for Cities 2013).

This complexity, fragmentation and lack of overall infrastructure may explain the relatively poor take-up of business support by SMEs. LEPs (local enterprise partnerships) and Growth Hubs provide important services identified by Thompson (2014). However, many small businesses in the North do *not* consider these organisations as primary sources of support when they require business help or advice, and 'many are not even aware of their existence' (FSB 2017). Both highly tailored and local services, and some specialised support delivered at the regional level, could be of great value – as could better publicity and liaison with the small business community.

Business support policy is highly focused on 'intensive growth coaching aimed at a small number of self-selecting businesses with high growth ambitions', while all other companies must use far less bespoke services or pay the full costs of external advice (Thompson 2014). While growth will be the priority for many SMEs, others will have different aims which are nevertheless of economic or social value; for example serving a community or focusing on innovation. The expense of more tailored alternatives or the generic nature of the government offer may be factors in the relatively low rates of take-up (ibid).

The full report of this project will examine in depth the business support infrastructure of the north of England, and the aspirations of small businesses for development through using business support.

3.3 PERSPECTIVES ON SME PRODUCTIVITY

In this project, two key questions are: first, what productivity issues are especially important for SMEs and, second, what kinds of support might help SMEs increase their productivity? The following summary identifies some central issues that will be examined in more detail in the full report of this project.

While productivity is high on the agenda for policymakers, some evidence suggests that this may not be the case for many SME owners. In a study cited by the House of Commons in 2018, around 15 per cent of SMEs did not know what productivity was, 29 per cent did not know how to measure it and 37 per cent did not measure it because of time pressures (House of Commons 2018).

The productivity potential of SMEs that fall into the 'high growth' and/or innovative categories is not in doubt (Hart and Roper 2015). However, one strand of argument (see Centre for Cities 2018) regarding productivity and SMEs suggests that 'not all businesses are capable of large increases in productivity gains'. This group includes 'local service businesses' such as personal services, leisure and catering providers, which dominate a 'long tail' of unproductive businesses in the UK economy. Initiatives to raise productivity should focus instead on businesses that sell beyond their local markets, especially in regions where many 'exporters' underperform (ibid).

An alternative view (see IPPR 2018) is that the UK's productivity problem can only be addressed by developing measures that work for all businesses whose productivity lags. The problem isn't that not all businesses are capable of productivity, but that not all businesses need the same kind of support to achieve it. This position observes that many businesses in the 'everyday economy' (including many SMEs and 'local service' providers) have lower productivity rates and productivity growth than equivalent businesses in other developed countries. These businesses in particular can benefit from a boost to their skills and technological capacities (ibid). The recent BEIS Committee report (House of Commons 2018) examines in detail the factors that may impact on SME productivity and potential actions to mitigate negative impacts; we will examine these topics in greater detail in the full report'

They may also benefit from a higher degree of local control and engagement. The evidence suggests that policies to improve productivity should be designed not only to meet the needs of diverse types of firm, but also those of diverse places. A more devolved approach to agendas such as planning, education and skills, and investment would help to reduce regional productivity gaps (Gal and Egeland 2018; McCann 2016).

The next chapter explores how SME productivity is handled in current policy frameworks, identifying opportunities, challenges and gaps.

4.
NEXT STEPS

4.1 THE INDUSTRIAL STRATEGY

SMEs are crucial to the economy and communities of northern England. Overcoming their productivity challenges will support inclusive growth and regional prosperity; it will also help to improve the UK's overall productivity issues.

Productivity is high on both the national and regional economic agenda. The 2018 industrial strategy (HM Government 2018) stresses the need to improve productivity and proposes a range of actions to achieve this. These include investment in skills, infrastructure, innovation and business development.

A number of initiatives focused specifically on SMEs and their needs are also set out. A Scale-up Taskforce was established in 2017, alongside the appointment of a business minister as a Scale-up Champion. The taskforce will prioritise four key areas.

1. Better use of government and privately held business data to identify and target growing businesses that may benefit from additional support.
2. Improvements in leadership and management skills, and access to talent.
3. Increasing awareness and take-up of equity finance and capital for investment in business growth.
4. Improved access to markets through international trade, better procurement opportunities and supply chain support.

Regionally focused proposals include the following.

- The Centre for Small and Medium Enterprises Development at the University of Central Lancashire (supported by the Higher Education Innovation Fund); this will deliver almost £10 million-worth of business support projects, reaching almost 1,000 SMEs across the region.
- An investment fund for university spin-outs in the North.
- A range of ways in which universities can support their local SMEs to innovate, and to create spin-out businesses.

National strategies that are of specific relevance to SMEs include the following.

- Improvements to procurement tools to make public-sector contracts more accessible for smaller firms.
- Alignment of the Small Business Research Initiative (SBRI) with the industrial strategy grand challenges, and a GovTech Catalyst, funded up to £20 million over three years, which will use SBRI to help government departments procure innovative solutions.
- Collaboration between LEPs, Growth Hubs, universities and business to support high-growth potential businesses to scale up.
- A review of the evidence for actions that could help SMEs to grow and to improve their productivity, include those in the 'long tail' of less productive firms.
- Exploration of how to open up Ordnance Survey MasterMap data to UK-based small businesses, to boost the digital economy and encourage innovation.

The industrial strategy also includes an announcement of government funding (£13 million over three years) and support for several initiatives established by the Productivity Leadership Group of senior business leaders. Through its Be The Business campaign, it will help businesses to benchmark and raise their productivity. This includes the following.

- The Productivity Through People programme, which encourages large national and multinational corporations to engage with SMEs in their supply chains through a year-long co-funded development programme. This will aim to boost productivity through improved management practices.
- A collaboration between the government and Be The Business will explore how SMEs can raise productivity by enhancing management practices and skills levels.
- A new Business Basics programme to support the adoption of modern business practices, such as technological and software innovations for business processes.

Although not related specifically to productivity, a small business commissioner was appointed in 2017 to help small businesses resolve disputes and payments issues, and also to source advice.

SMEs and their productivity potential have rarely enjoyed such prominence. The full report of this project will bring together voices from across the sector to identify ways in which this can be harnessed to best effect for the northern economy.

4.2 NEXT STEPS FOR THIS PROJECT

In the first three chapters of this interim report we have set out the context for SMEs in the north of England, and some of the issues that may impact on their productivity.

In the next phase of our research, we will work directly with SME leaders in the north of England to explore how these factors affect the day-to-day activity of small businesses in the region. We will consider:

- how SMEs view the issue of 'productivity', and its prominence in policy
- the growth and productivity ambitions of business owners of SMEs in the North
- the actions that they have taken to improve productivity, and their opinions on what support could benefit northern SMEs
- their wider reflections on the northern economy, its challenges and opportunities.

This will include an online survey of SMEs in the North, and a series of focus groups and roundtables with business owners and other experts to understand the opportunities and challenges in relation to SME productivity in the region. We will review additional relevant literature, including international comparisons and case studies where these provide valuable insights.

Our final report will set out a vision and a set of practical recommendations to support SMEs to fulfil their potential and contribute to the economic and social wellbeing of the north of England.

REFERENCES

Abdirahman M (2017) A Comparison of Approaches to Deflating Telecom Services Output, Economic Statistics Centre of Excellence. https://www.escoe.ac.uk/wp-content/uploads/2017/02/ESCoE-DP-2017-04.pdf

Bean C (2016) Independent Review of UK Economic Statistics. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/507081/2904936_Bean_Review_Web_Accessible.pdf

Benkovskis K, Tkacevs O and Yashiro N (2018) *Do EU Funds Boost Productivity and Employment? Firm level analysis for Latvia*, in OECD Economics Department Working Papers No 1525

BEIS (2017) Good Work: The Taylor review of modern working practices. https://www.gov.uk/government/publications/good-work-the-taylor-review-of-modern-working-practices

BEIS (2018a) Business Population Estimates for the UK and Regions 2018. https://www.gov.uk/government/statistics/business-population-estimates-2018

BEIS (2018b) Small Business Survey 2017: Businesses with employees. https://www.gov.uk/government/statistics/small-business-survey-2017-businesses-with-employees

BIS (2012) Leadership and Management in the UK – the Key to Sustainable Growth: A summary of the evidence for the value of investing in leadership and management development. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32327/12-923-leadership-management-key-to-sustainable-growth-evidence.pdf

Blakeley G (2018) *Fair Dues: Rebalancing business taxation in the UK*, Institute for Public Policy Research. https://www.ippr.org/research/publications/fair-dues

Bubonya M, Cobb-Clark D and Wooden M (2017) Mental Health and Productivity at Work: Does what you do matter?, IZA

Buchan I, Kontopantelis E, Sperrin M, Chandola T and Doran T (2017) *North-South Disparities in English Mortality: 1965–2015: Longitudinal Study*, in Journal of Epidemiology and Community Health. http://jech.bmj.com/content/71/9/928

Centre for Cities (2013) *Support for Growing Businesses: A policy briefing*

Centre for Cities (2018) *The Wrong Tail: Why Britain's 'long tail' is not the cause of its productivity problems*. https://www.centreforcities.org/wp-content/uploads/2018/05/2018-06-05-The-wrong-tail.pdf

Colebrook C (2018) *Measuring what Matters: Improving the indicators of economic performance*, Institute for Public Policy Research. https://www.ippr.org/publications/measuring-what-matters

Dall T, Gallo P, Koenig L, Gu Q and Ruiz D (2013) *Modeling the Indirect Economic Implications of Musculoskeletal Disorders and Treatment*, in Cost Effectiveness and Resource Allocation, 11(5) doi: 10.1186/1478-7547-11-5

De Vol R and Bedroussian A (2007) *An Unhealthy America: The economic burden of chronic disease, charting a new course to save lives and increase productivity and economic growth*, Milken Institute

Dickinson P and Lloyd R (2010) European Social Fund Support for In-Work Training, DWP Research Report No. 666. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214437/rrep666.pdf

Dromey J and McNeil C (2017) Skills 2030: Why the adult skills system is failing to build an economy that works for everyone, Institute for Public Policy Research. https://www.ippr.org/publications/skills-2030-why-the-adult-skills-system-is-failing

Fisk W (2002) *How IEQ Affects Health, Productivity*, in ASHRE Journal 44(5): 56-60

Frey C and Osborne M (2017) *The Future of Employment: How susceptible are jobs to computerisation?*, in Technological Forecasting and Social Change 114: 254–280

FSB (2017) *An Entrepreneurial North: Helping small businesses and entrepreneurship to thrive in the North of England*, research paper, Federation of Small Businesses. https://www.fsb.org.uk/docs/default-source/fsb-org-uk/an-entrepreneurial-north-final---15-nov-2017c5062ebd4fa86562a286ff0000dc48fe.pdf?sfvrsn=0

Gal P and Egeland J (2018) *Reducing Regional Disparities in Productivities in the United Kingdom*, OECD Economics Department Working Papers No 1456

Gupta R, O'Brien J, Howard A and Cudmore T (2018) *Improving Productivity in the Workplace: Lessons learnt and insights from the Whole Life Performance Project*, Oxford Brookes University/LCMB/Constructing Excellence

Haldane A (2018) *The UK's Productivity Problem: Hub No Spokes*, Academy of Social Sciences Annual Lecture, London, 28 June 2018

Hart M and Roper S (2015) *Unlocking UK Productivity*, Enterprise Research Centre, Warwick University

Haskel J and Westlake S (2017) Capitalism Without Capital: The rise of the intangible economy, Princeton University Press

HM Government (2016) *Northern Powerhouse Strategy*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/571562/NPH_strategy_web.pdf

HM Government (2018) *Industrial Strategy: Building a Britain fit for the future*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf

House of Commons (2018) *Small businesses and productivity: Fifteenth report of session 2017-2019*, Business Energy and Industrial Strategy Committee. https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/807/807.pdf

Hunter J and Longlands S (2016) *Unbuffering Business: The role of SMEs in building a digital* powerhouse, Institute for Public Policy Research. https://www.ippr.org/publications/unbuffering-business

Huxtable-Thomas L and Hannon P (2017) *The Role of Entrepreneurial Leadership in City Region Economies: A case of developing small firm leaders*, in James J, Preece J and Valdés-Cotera R (eds) *Entrepreneurial Learning City Regions: Developing on the UNESCO 2013 Beijing Declaration on Building Learning Cities*, Springer, 155-179

IFB Research Foundation and Oxford Economics (2017) The State of the Nation: The UK Family Business Sector 2017–18. https://www.oxfordeconomics.com/recent-releases/f060a8ac-a09d-4175-867e-fab8b368931a

IPPR (2018) *Prosperity and Justice: A plan for the new economy*, Final report of the IPPR Commission on Economic Justice. https://www.ippr.org/research/publications/prosperity-and-justice

Konings J and Vanormelingen S (2010) *The Impact of Training on Productivity and Wages: Firm level evidence*, IZA Discussion Papers No. 4731, Institute for the Study of Labor. https://www.econstor.eu/bitstream/10419/36232/1/620398248.pdf

Krugman P (1994) *The Age of Diminishing Expectations*, MIT Press

Lang J, Ochsmann E, Kraus T and Lang J (2012) *Psychosocial Work Stressors as Antecedents of Musculoskeletal Problems: A systematic review and meta-analysis of stability-adjusted longitudinal studies*, in Social Science & Medicine 75(7): 1163–1174

Leijten F, Van der Heuvel S, Ybema J, van der Beek A, Robroek S and Burdorf A (2014) *The Influence of Chronic Health Problems on Work Ability and Productivity at Work: A longitudinal study among older employees*, in Scandinavian Journal of Work and Environmental Health 40(5): 473-482

Longlands S, Round A and Kibasi T (2018) *Charting a Course for the Future: How London's startup scene can survive and thrive in the age of Brexit,* Institute for Public Policy Research. https://www.ippr.org/research/publications/charting-a-course-for-the-future

McCann P (2016) *The UK Regional-National Economic Problem: Geography, Globalisation and Governance*, Routledge

McCann P (2018) *Productivity Perspectives Synthesis*, in Evidence Review, PIN-07, Productivity Insights Network, Economic and Social Research Council

OECD (2001) *Measuring Productivity: OECD Manual, Measurement of aggregate and industrial-level productivity growth*, Organisation for Economic Co-Operation and Development. http://www.oecd.org/sdd/productivity-stats/2352458.pdf

OECD (2015) The Future of Productivity, Joint Economics Department and the Directorate for Science, Technology and Innovation Policy Note, July 2015. https://www.oecd.org/eco/growth/The-future-of-productivity-policy-note-July-2015.pdf

OECD (2018) Growth in GDP per capita, Productivity and ULC, Dataset, OECD.stat. https://stats.oecd.org/viewhtml.aspx?datasetcode=PDB_GR&lang=en

OECD/ILO (2017) Better Use of Skills in the Workplace: Why it matters for productivity and local jobs, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264281394-en

ONS (2016) Productivity Handbook, Office for National Statistics. https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/methodologies/productivityhandbook

ONS (2018a) Regional and Sub-regional Productivity in the UK: February 2018, Experimental statistics for sub-regions of the UK for several measures of labour productivity (gross value added (GVA) per hour worked, GVA per filled job), Statistical release and briefing, Office for National Statistics

ONS (2018b) Output per Worker, dataset. https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/timeseries/a4ym/prdy

ONS (2018c) Experimental Estimates of Investment in Intangible Assets in the UK: 2015. https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/articles/experimentalestimatesofinvestmentinintangibleassetsintheuk2015/2018-02-07

ONS (2018d) UK Whole Economy: Output per hour worked SA. https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/timeseries/lzvb/prdy

ONS (2018e) Population Estimates – Local Authority Based by Single Year of Age

ONS (2018f) UK Business: Activity, size and location. https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/datasets/ukbusinessactivitysizeandlocation

ONS (2018g) Business Demography, UK. https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/datasets/businessdemographyreferencetable

ONS (2018h) Regional firm-level productivity analysis for the non-financial business economy, Great Britain: April 2018. https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2018/regionalfirmlevelproductivityanalysisforthenonfinancialbusinesseconomygreatbritainapril2018

Price C (2018) Smaller Firms Lag Behind When it Comes to Digital Innovation, in *The Daily Telegraph,* 5 October 2018. https://www.telegraph.co.uk/business/ready-and-enabled/smaller-firms-lag-behind-on-innovation/

Rincon-Aznar A, Forth J, Mason G, O'Mahony M and Bernini M (2015) *UK Skills and Productivity in an International Context*, BIS Research Paper Number 262, Department for Business, Innovation and Skills

Round A (2018) *Building the Workforce of the Future: Learning from Grow with Google,* Institute for Public Policy Research. https://www.ippr.org/research/publications/building-the-workforce-of-the-future

Sasso S and Ritzen J (2017) Sectoral Cognitive Skills, R&D, and Productivity: A cross-country cross-sector analysis, Education Economics, OECD, DOI: 10.1080/09645292.2018.1515309

Thompson S (2014) *Small Firms, Giant Leaps: Small businesses and the path to full employment*, Institute for Public Policy Research. https://www.ippr.org/publications/small-firms-giant-leaps-small-businesses-and-the-road-to-full-employment

Valero A and Roland I (2015) *Productivity and Business Policies*, in CEP 2015 Election Analysis Series, Centre for Economic Performance, LSE

WEF (2018) *Digital Transformation Initiative: Maximising the return on digital investments*, System Initiative on Shaping the Future of Digital Economy and Society, World Economic Forum

Institute for Public Policy Research

GET IN TOUCH

For more information about IPPR North,
please go to www.ippr.org/north

You can also call us on +44 (0)161 694 9680,
e-mail north@ippr.org or tweet us @ipprnorth

Institute for Public Policy Research
Registered Charity no. 800065 (England & Wales),
SC046557 (Scotland), Company no, 2292601 (England & Wales)

The progressive policy think tank