Greater Lincolnshire
Local Enterprise Partnership

Pre-covid Employment and Skills Analysis 2020

The Greater Lincolnshire LEP's Employment and Skills Board commissioned this report as part of its role for the Deparment for Education in identifying priorities and informing the local and national employment and skills agenda. The data underpins the 'People' element of Local Industrial Strategies.

The report is organised into several sections, and there is a useful summary at the end of each main chapter.

It is the intention of the Greater Lincolnshire LEP, in partnership with the Department for Education, to update the data on an annual basis, or as required.

Forward

This report presents the findings of Greater Lincolnshire LEP's Skills Advisory Panel's analysis of Greater Lincolnshire's labour market. The Department for Education (DfE) has asked all LEPs across England to generate an analysis and update on a regular basis.

This analysis was prepared in the second half of 2019 and early 2020: that is to say, before COVID-19 emerged as the largest single crisis in a generation. It has been published 'as is' to provide a baseline for Greater Lincolnshire. The report makes clear that prior to the crisis Greater Lincolnshire's people, businesses and labour markets faced an uncertain future with significant challenges and opportunities on the horizon. But even that uncertain horizon has since been upended by COVID-19.

Work and workplaces have changed. Some of these changes will be permanent. We should expect structurally higher unemployment to endure for some time and for the burden to fall disproportionately on more deprived people and places. Some jobs lost in this crisis will not be restored. Many of those which remain will be different.

Despite the magnitude of the shock it seems fair to say that what we have witnessed so far is less of a revolution in labour markets, and more of an accelerated process of evolution. Changes in the use of digital technology and remote working which were expected to take years have instead happened in weeks. That said, people and businesses are adapting. In many instances, the pace and effectiveness of adaptation has been remarkable and suggests we should be hopeful about our capacity to meet the challenges on the road ahead. And there are many.

The evidence points to the crisis widening economic inequality. The increases in Universal Credit claimants so far across Greater Lincolnshire are disproportionately driven by those aged between 25 and 49. In the coming months the weight of the crisis will fall most heavily on those whose position in the labour market is already precarious: young people, those with the fewest qualifications and those on unstable work contracts.

The next few years will offer fewer avenues into employment for young people. The Institute for Fiscal Studies estimates that one in three British employees aged under 25 work in a sector which has shut down during COVID-19, compared with 13% of those aged over 25. This is particularly the case in the retail sector, which for many young people represents their first foray into the world of work and is Greater Lincolnshire's largest sector by employment. The lockdown has affected traditional retail more than any other sector, meaning that young people as a demographic have been especially affected by the crisis' economic impacts. This comes at a time when retail sector employment is already in structural decline as more processes become automated and sales shift online. It seems

likely that many of the retail jobs lost in this period will not come back, as consumer habits are altered permanently in favour of online sales. With fewer retail jobs on offer, what alternative pathways will there be for young people looking to enter the workforce?

Education, though vital, is not a get out of jail free card either, because the short term shock of the pandemic is expected to leave long term scars. The Resolution Foundation estimates that the pandemic means those who emerge from education this year will be less likely to have jobs in three year's time: the likelihood of being in employment in 2023 would fall by 13% for graduates and 37% for those with the fewest qualifications. As a whole, Greater Lincolnshire's workforce has a lower level of educational attainment than the UK average, although the gap has been closing in recent years. COVID-19 risks reversing these gains and exacerbating the difference in employment outcomes for Greater Lincolnshire's residents and the country as a whole.

Those already in work may find it becomes increasingly precarious. A more cautious outlook among businesses, coupled with more automation, may mean employers are less likely to offer workers permanent positions and instead favour flexibility, making more use of temporary, part-time and zero hour contracts to plug gaps until processes can be automated. These arrangements may further entrench inequality between workers with permanent positions (which tend to be more secure, better paid, and offer other benefits like parental leave) and those without. In the longer term, it is possible that we see a shift to more part-time working, as fewer hours are spread across more workers.

The impacts of the crisis will not be evenly distributed. But even for those workers who find themselves spared from the worst effects of the crisis there will be changes. The SAP identifies 'communication,' 'organisation', 'customer service' and 'team work' as some of the skills Greater Lincolnshire's employers most value. Demand for these skills is unlikely to change, but employers will seek out employees who can demonstrate they can apply these skills to new contexts. Take team work as an example: workers will increasingly need to be able to work well as a team via video and online platforms, and may find techniques and processes which suit face-to-face teamwork don't translate so easily to virtual environments. Management has changed for similar reasons. Managers will need to find new ways of supporting their team and holding them accountable when an increasing amount of work occurs outside traditional settings.

It is true that workplaces were already undergoing transformations because of the 'Industrial Revolution 4.0', which as a trend will do more than any single event to fundamentally shape the world of work in this century. Over the next 15 years nearly 160,000 jobs in Greater Lincolnshire (31% of the total) will be made obsolete or will be changed substantially by the introduction of new technologies. What remains to be seen is how COVID-19 influences this trend, though it seems most likely to hasten its effects as many businesses which were slow to take up digital technology have received the impetus they require to make the change.

One possible upside is what this means for the productivity of the UK's micro and small businesses, which have historically been slow to innovate and make up the bulk of what is sometimes referred to as the UK's 'long tail' of low productivity businesses. 43% of Greater Lincolnshire's employment is in small or micro businesses compared to 34% nationally, so more of these businesses adopting digital technologies and new ways of working could result in an uptick in Greater Lincolnshire's productivity in the medium term.

Recent experience reminds us once more that the future is hard to predict. But as we reach, hopefully, the 'end of the beginning' of COVID-19's impact, peering forward into the future helps us take stock of where we are now and what can be done to support Greater Lincolnshire's workers and workplaces. Of course, there are other issues on the horizon we cannot lose sight of: Brexit threatens to destabilise some labour markets just as they are poised to recover, while mitigating and adapting to climate change will require a complete economic overhaul over a long period of time.

It's not all doom and gloom. With the right policies there are opportunities to build back better. Policy makers may wish to focus on reducing inequality, promoting opportunities for workers to secure meaningful employment, and ensuring workers have the skills businesses need for future success. None of this will be easy. The contents of Greater Lincolnshire's SAP analysis are a good place to start.

The Local Landscape

Economy

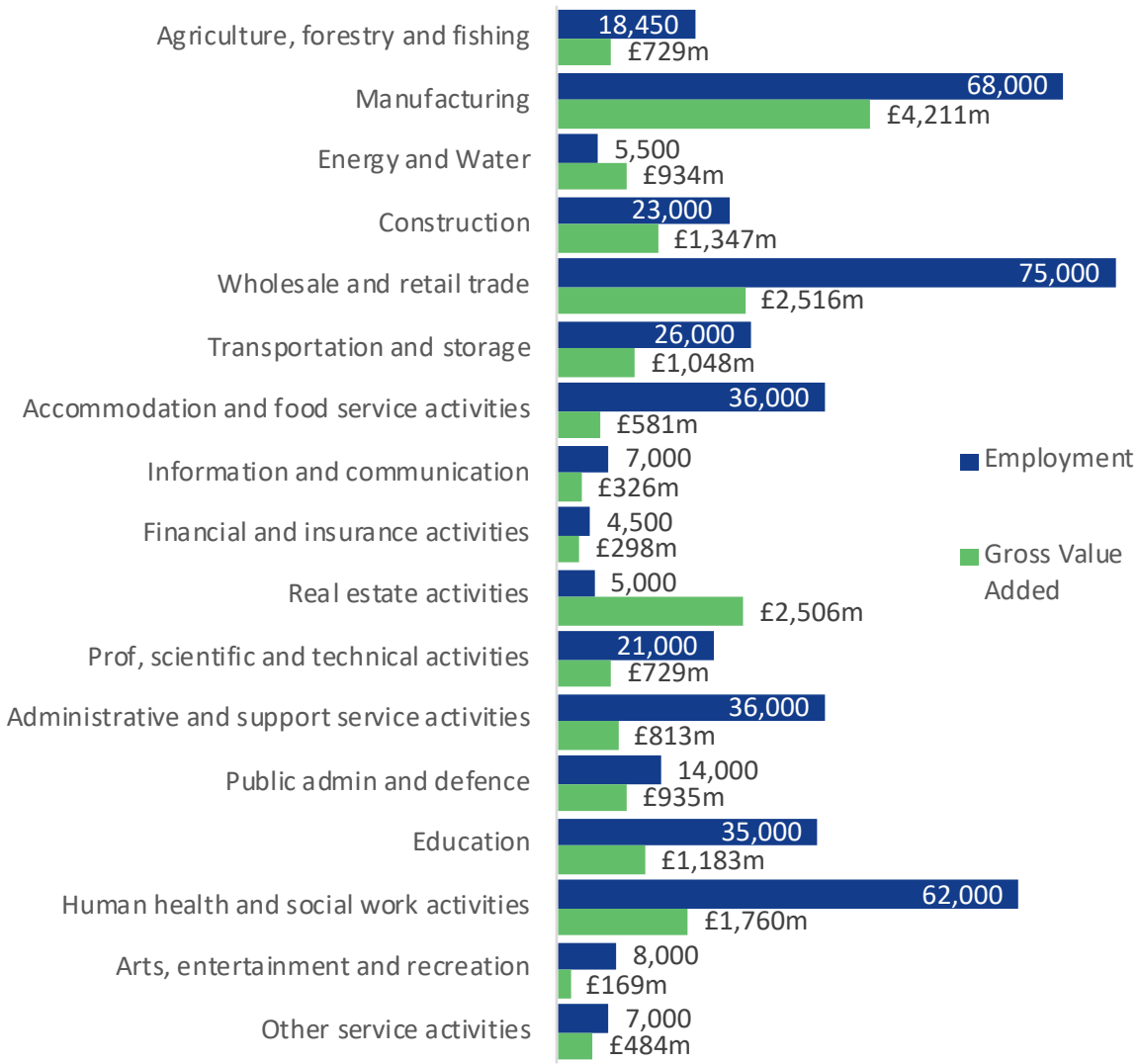
Greater Lincolnshire currently has a population of 1,087,659, supports 516,000 jobs, and is home to 37,650 businesses (enterprises). The local economy in 2017 was worth £20.7bn (based on current prices) as measured in terms of Gross Value Added (GVA).

The area has competitive strengths in a number of industries, notably agriculture and food, engineering and the low carbon/renewables sector. It has a thriving visitor economy and a growing healthcare sector, and with some of the largest and busiest international ports in the UK and its own airport, it is a natural hub for the logistics sector.

Employment is strong in sectors which tend to be labour intensive, relatively lower skilled and lower paid, and produce lower levels of value. As a result (though not the sole reason), Greater Lincolnshire's GVA per head, and levels of productivity (GVA per job, and GVA per hour worked) are lower than the national average, and many of its contemporary LEP areas.

Chart 1: Employment and Gross Value Added by broad sector, 2017

Source: *Office for National Statistics*

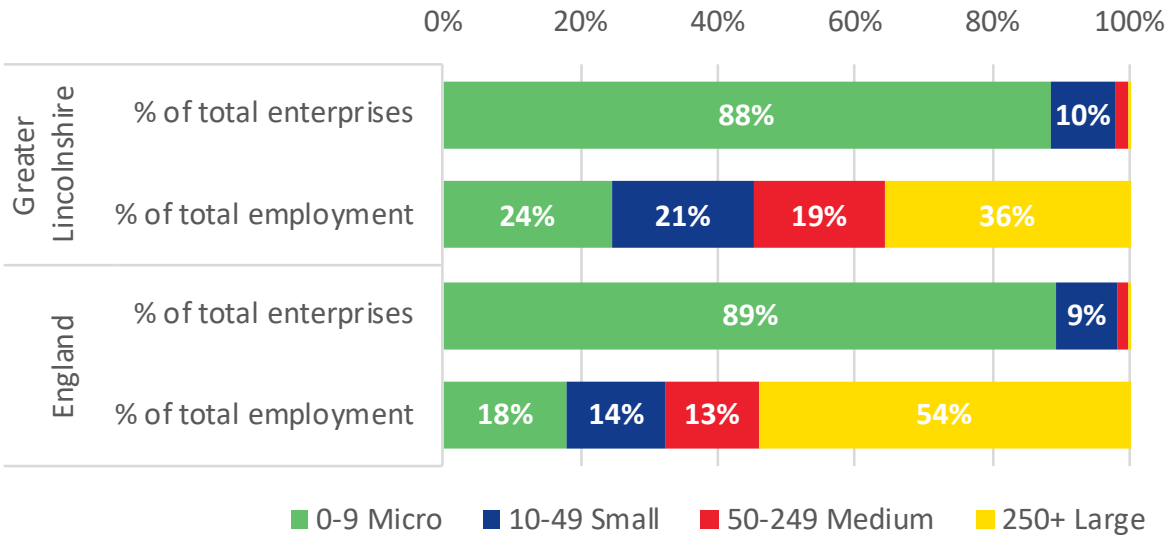


As well as the 37,650 enterprises (businesses) there are an additional 7,350 local units, i.e. local branches of an enterprise. These figures also do not count the estimated 50,500 non VAT/PAYE registered businesses (based on local analysis of the Business Population Estimate methodology) operating in Greater Lincolnshire *(See Appendix A, page 46, for additional explanation).*

Chart 2 shows that the size profile (measured by employee numbers) of Greater Lincolnshire enterprises is very similar to that seen nationally, with the vast majority (98%) being small, employing between 10 and 49 people. **Significant differences arise when we consider the proportion of total employment by enterprise size.** Greater Lincolnshire has 45% of employees (compared to 32% nationally) working in micro and small businesses.

Chart 2: Proportions of enterprises and employment by enterprise employee numbers (size), March 2018

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics



Resident employment locally is more concentrated in occupations such as 'Skilled Trades', 'Machine Operatives', and 'Caring and Leisure', with the share of residents in 'Professional' and 'Associate Professional and Technical' occupations being lower than the national share. The share of employment in 'Professional' and 'Associate Professional and Technical occupations' in Greater Lincolnshire has increased slightly over time, but has not kept up with the national level of change *(See Appendix A, Chart 24, Page 46).*

Place

Greater Lincolnshire is a great place to live, work and learn, offering a mix of beautiful countryside, historic buildings, pretty market towns, miles of sandy beaches and vibrant urban centres. It has two universities, seven further education colleges, a number of independent and community based training providers and two University Technical Colleges. Notable educational and skills facilities include the industry-led CATCH training

facility in the north, supporting energy, engineering and renewable industries, the Joseph Banks Laboratories at the Science and Innovation Park in Lincoln, and the National Centre for Food Manufacturing in the south.

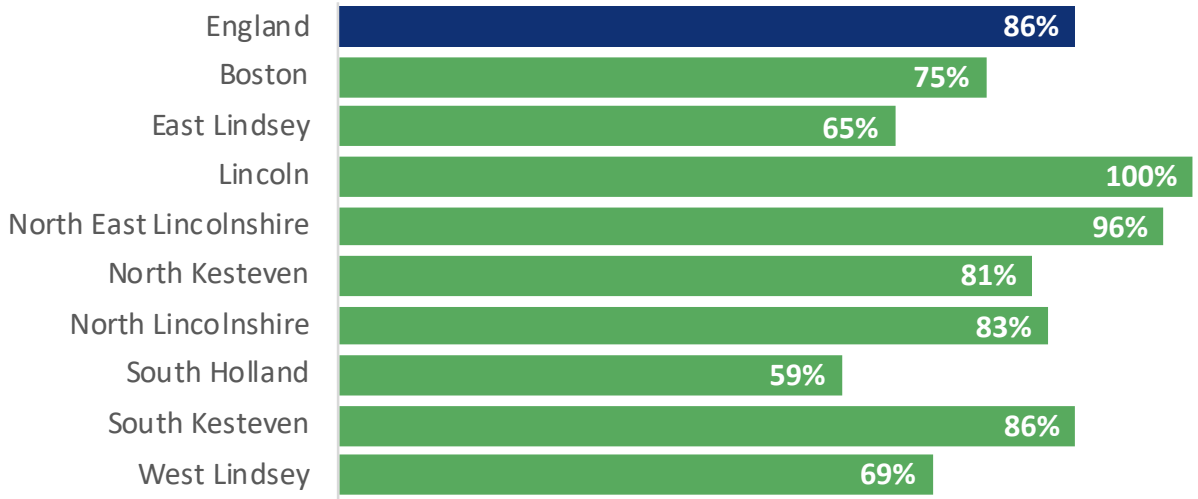
The area provides many quality of life advantages for the people who live and work here (good schools, low crime, clean air, low cost of living etc.) **but its sheer size can cause barriers to employer-led skills training and development.** Both because of a lack of accessible training facilities, and because in a large rural area it is difficult to achieve cohort numbers to make training economically viable.

Greater Lincolnshire is 7,997 sq. km in size (which is more than six times the size of the Greater Manchester City Region) covering some of the most rural and sparsely populated areas in the country. **Greater Lincolnshire has a population density of just 136 people per sq.km compared to 430 nationally, and below that of Cornwall's (158 people per sq.km).** This sparsity means that reaching the critical mass required for service delivery can be difficult, and that some areas are poorly connected by road and public transport infrastructure. A good example of this is travel times to further education institutions.

Chart 3 shows that only three of the district / unitary authority areas that make up the Greater Lincolnshire area (plus Rutland) have a proportion of the relevant aged population within 30 minutes travel time of a FE college or 6th Form via public transport / walking that is in line with or above the national proportion. **Access in East Lindsey, Rutland, South Holland and West Lindsey is well below the national rate.**

Chart 3: Proportion of those aged 16-18 within 30 mins travel time to FE Colleges and School 6th Forms via public transport / walking, 2016

Source: *Journey Time Statistics, Department for Transport*

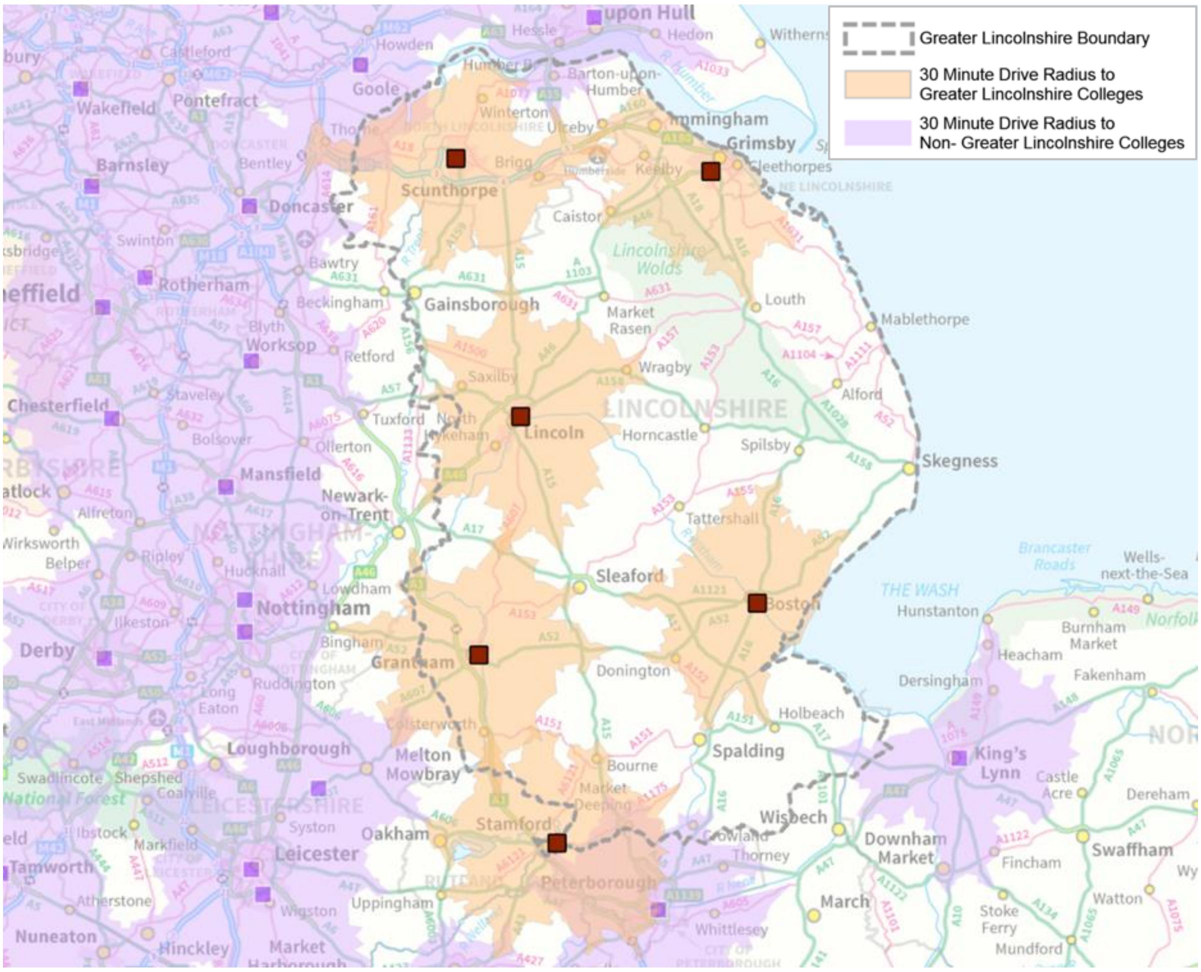


Please note that the statistics above tend to be published as Access to FE Colleges, when in fact the detail shows they refer to both Access to FE Colleges AND school 6th forms. Access to FE Colleges alone is not available.

Map 1 shows how communities in more sparsely populated areas of the country do not have access to the full facilities on offer at a main FE College campus when compared to less rural locations. ***There are so few spaces in-between the 30-minute drive time to Colleges to the left of Greater Lincolnshire that it would be easy to mistake the puple radius around the other 19 FE Colleges as a background colour.*** Locally based independent or community providers, not shown on this map, are often able to support residents in rural areas that others cannot make financially viable to reach They are therefore a vital source of adult and employment provision in their communities. The system for publically funded training and support that favours large 'prime' organisations with no local footprint means that there is a reliance on subcontracted delivery into the area often via these smaller providers.

Map 1: A comparison between Greater Lincolnshire and surrounding areas - A 30 minute drive radius to a Further Education College *Main* Campus

(Excludes FE College satellite locations in Gainsborough, Skegness and Spalding, Independent Training Providers and Universities)

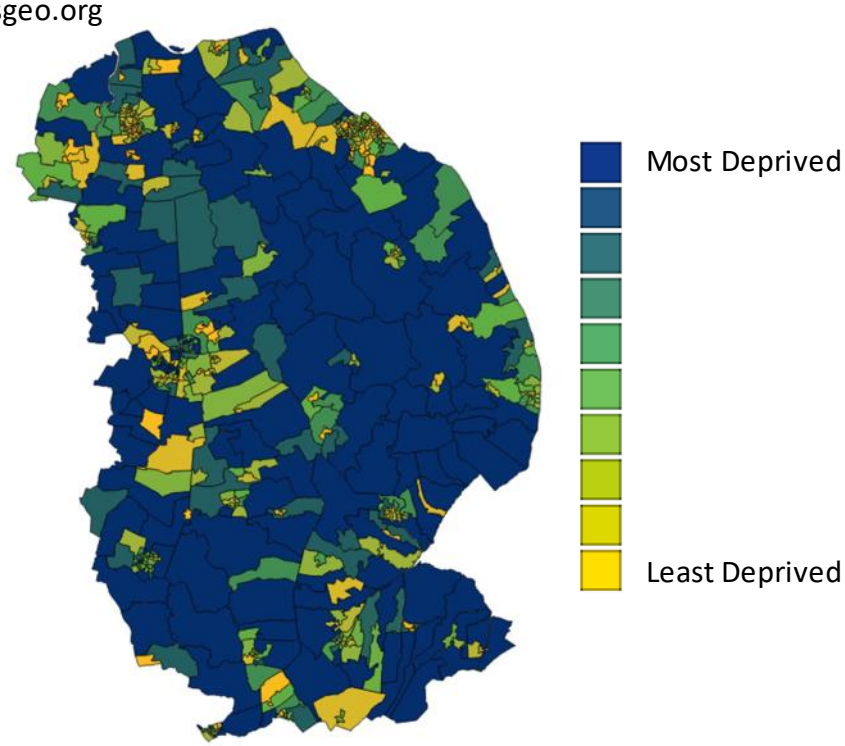


Map 2 demonstrates further the issues of access for Greater Lincolnshire residents using data from the Access to Housing and Services domain of the Index of Multiple Deprivation. This domain measures the physical and financial accessibility of housing and local service s,

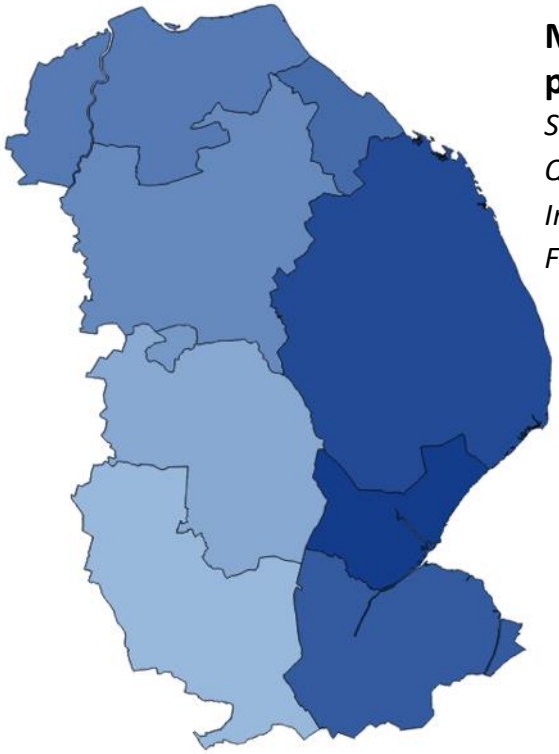
and similar to Map 1, a corridor of patchy access can be seen to stretch from the south east of Greater Lincolnshire, up and around Boston and into a large area in East Lindsey, reaching the coastline in places.

Map 2: Barriers to Housing and Services, 2019 Index of Deprivation

Source: Ministry of Housing, Communities and Local Government; QGIS Development Team (2019). QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org

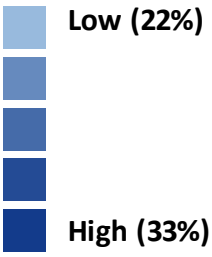


Map 3 below demonstrates further the issue of accessibility (amongst other things), showing a clear East/West divide in terms of residents aged 16 plus with no qualifications.



Map 3: Proportion of all residents aged 16 plus with no qualifications

Source: 2011 Census, Office for National Statistics; QGIS Development Team (2019). QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org



Map 2 also illustrates well another factor arising as a result of Greater Lincolnshire's size and sparsity. When considering issues at a Greater Lincolnshire level, or at unitary / district authority level, issues arising at small geographical levels can be smoothed out and ultimately hidden. So, when considering issues across Greater Lincolnshire, based on average figures then the area may seem to be doing ok, but these averages can hide large disparities in performance and conditions. For example, unemployment (as measured by the claimant count of Job Seekers Allowance and Universal Credit aged 16 plus as a proportion of residents aged 16 plus) in Greater Lincolnshire is currently (August 2019) 3.0%. However, if we were to look at this same figure for Gainsborough South-West ward in West Lindsey, then unemployment is as high as 11.3%.

Another good example of the disparities across Greater Lincolnshire is that of social mobility. The Social Mobility Index identifies the most and the least socially mobile areas of the country by examining, in detail, the chances available to young people from poorer backgrounds in each of the 324 local authority areas in England. Based on this measure, North Kesteven is ranked 29th out of the 324 areas, which means that it is classed as a Hot Spot i.e. young people from disadvantaged backgrounds who live in these areas are far more likely to achieve good educational outcomes and have more opportunities to do well as adults than those in the rest of the country. Conversely, North East Lincolnshire is ranked 309th and is classed as a Cold Spot for social mobility

Sparsity and access (in this case, to markets/customers) is also an issue for local businesses. Greater Lincolnshire has 4.7 enterprises per sq.km compared to 11 nationally. When presented with and asked to rate (from 1 to 10) 12 aspects of doing business in Greater Lincolnshire in 2014, 38% of employers rated 'Transport infrastructure' as between 1 and 4, with a further 16% giving it a rating of 5. 'Transport infrastructure' was also the worst rated of the 12. More recent research with local businesses has revealed that over two fifths (42%) say ease of access to training is either difficult or very difficult.

Greater Lincolnshire is covered by eight travel to work areas (areas where at least 75% of the area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area). These eight travel to work areas are:

- Scunthorpe
- Grimsby
- Lincoln
- Skegness and Louth
- Boston
- Grantham

- Spalding
- Peterborough

Peterborough is the only area outside of Greater Lincolnshire that exerts any significant pull on the Greater Lincolnshire economy through its travel to work area. Similarly, only three of these travel to work areas encapsulate areas outside of the Greater Lincolnshire boundary (Lincoln, Grantham, and Scunthorpe), demonstrating the high level of containment of the area when compared to other LEPs. This is not surprising given Greater Lincolnshire's east coastline and the Humber to the north.

Summary

In summary, the data on the local landscape is telling us that:

- The Greater Lincolnshire economy currently supports 516,000 jobs, is home to 37,650 businesses (enterprises), generates over £20bn in Gross Value Added (GVA).

- Greater Lincolnshire's GVA per head, and levels of productivity (GVA per job, and GVA per hour worked) are lower than the national average.

- Greater Lincolnshire has 45% of employees (compared to 32% nationally) working in micro and small businesses.

- Resident employment locally is more concentrated in occupations such as 'Skilled Trades', 'Machine Operatives', and 'Caring and Leisure', with the share of residents in 'Professional' and 'Associate Professional and Technical' occupations being lower than the national share.

- Greater Lincolnshire has a population density of just 136 people per sq.km compared to 430 nationally (below that of Cornwall's 158 people per sq.km). This level of sparsity means that reaching the critical mass required for service delivery can be difficult, and that some areas are poorly connected by road and public transport infrastructure.

- Levels of sparsity, and as a result, access to markets, customers, training, and potential employees, is also an issue for local businesses.

- Considering issues purely at a Greater Lincolnshire level can have the effect of hiding disparities in performance and conditions at smaller geographical levels.

Economy and Labour Demand

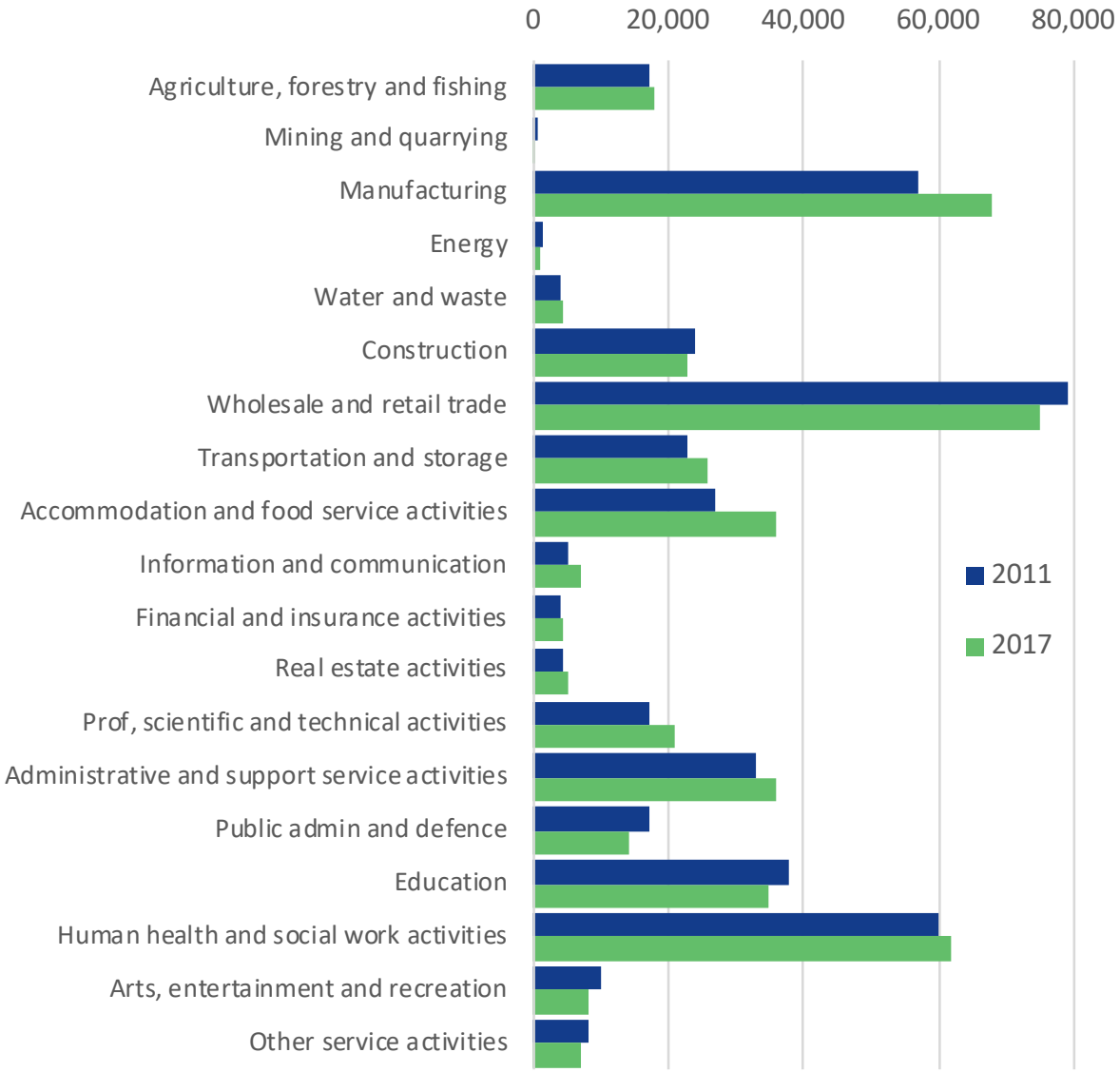
Current Demand

The Greater Lincolnshire economy supported 516,000 full and part time jobs in 2017 (including self-employed, government-supported trainees and HM Forces) and, given its good track record of bringing people and jobs together, has ensured relatively high levels of employment (and low levels of unemployment) against a backdrop of continued population growth. Since 2011, the Greater Lincolnshire population has grown by 4%, but over that same period employment has risen by 9%, the rate of employment for 16-64 year old's rose from 72% to over 74%, whilst the unemployment rate dropped from 7.5% to 4.8%.

Chart 4 shows that growth in employment (and therefore demand for people) can be seen across the majority of sectors between 2011 and 2017, and 'Manufacturing' and 'Accommodation and food service activities' sectors to a greater extent.

Chart 4: Change in employment by sector, 2011 – 2017

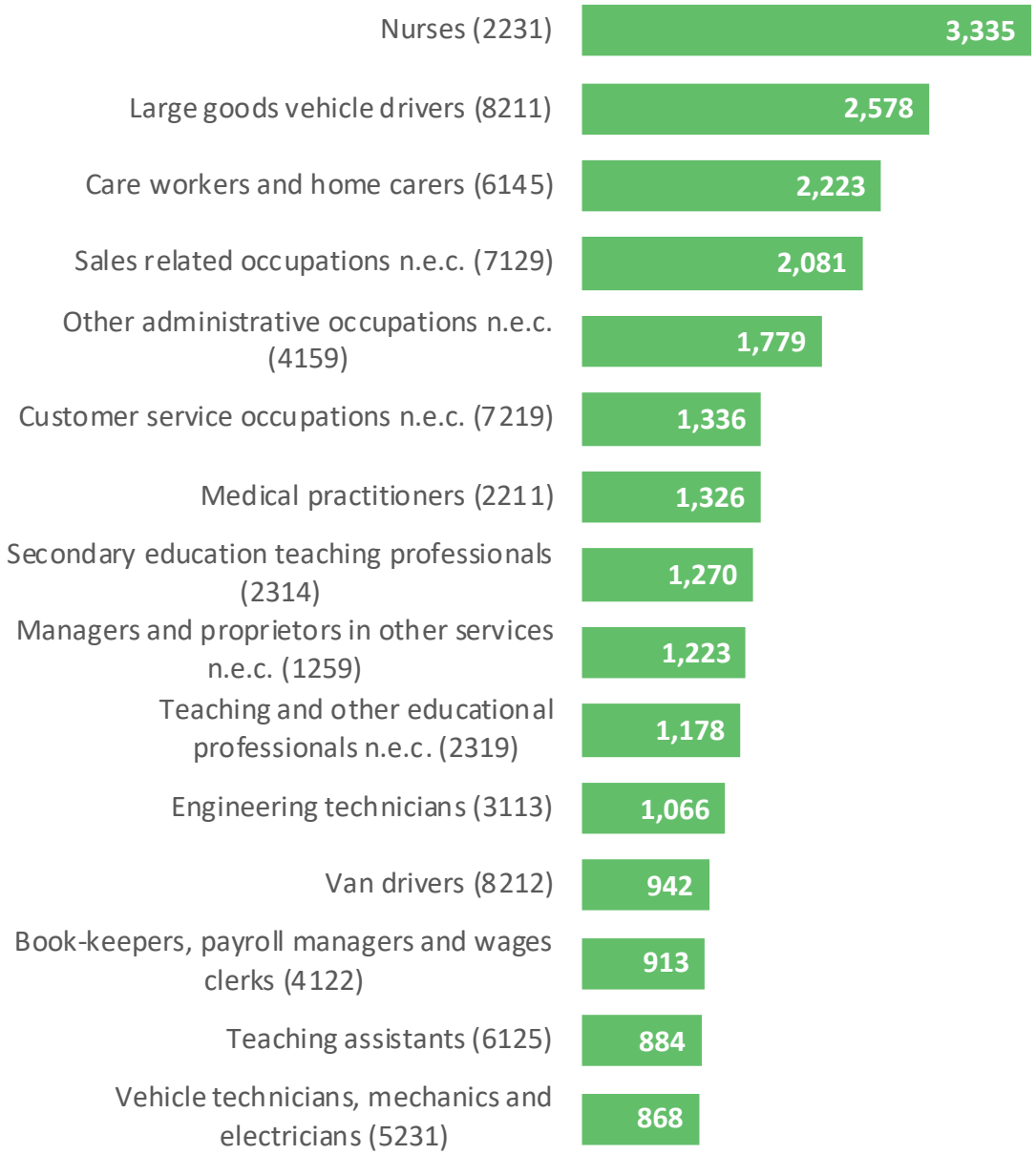
Source: *Business Register and Employment Survey, Office for National Statistics*



This growth in employment is in spite of the aforementioned various challenges relating to size, rurality, place and infrastructure. Despite these challenges, Greater Lincolnshire businesses (and the economy) support and generate demand for a wide variety of job types and skills sets as demonstrated by chart 5.

Chart 5: Top 30 job vacancies by occupation (Standard Occupational Classification code) in Greater Lincolnshire, August 2018 – July 2019 (Part 1)

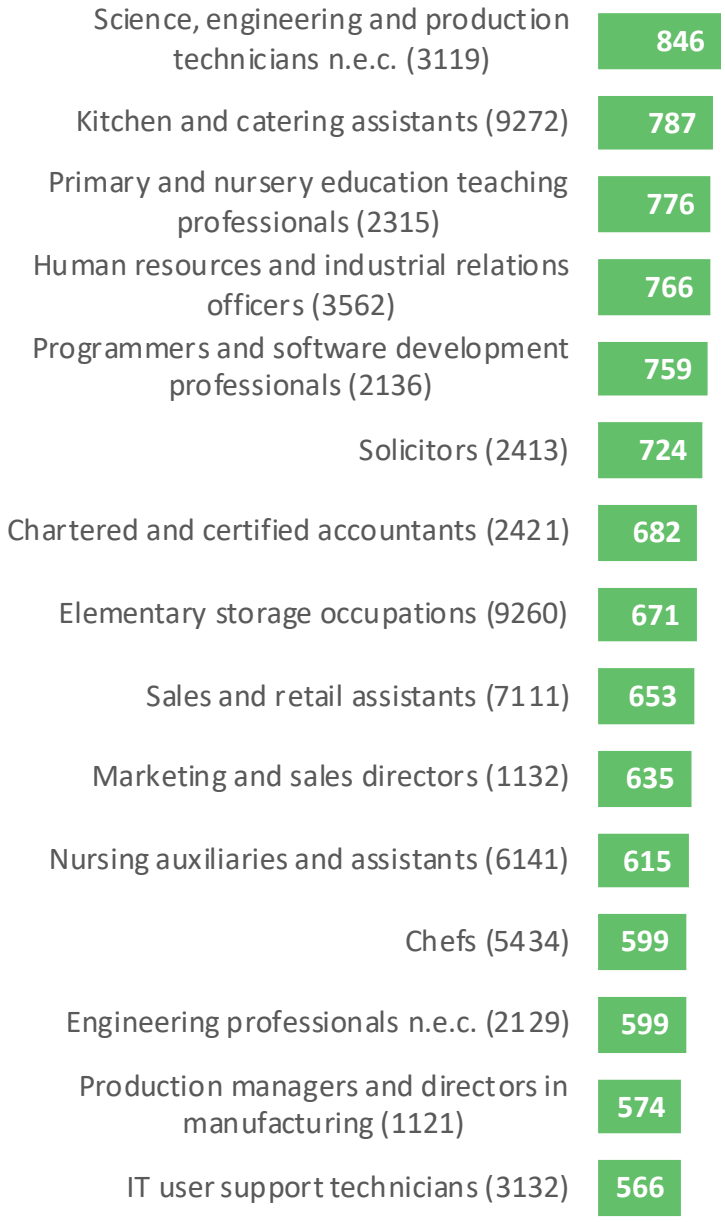
Source: Labour Market Insight, Burning Glass



Note: n.e.c. stands for not elsewhere classified. Examples of these job roles are provided in Appendix B, Table 4 (page 48). The numbers in brackets are the four digit Standard Occupational Classification (SOC) code.

Chart 5: Top 30 job vacancies by occupation (Standard Occupational Classification code) in Greater Lincolnshire, August 2018 – July 2019 (Part 2)

Source: Labour Market Insight, Burning Glass



Note: n.e.c. stands for not elsewhere classified. Examples of these job roles are provided in Appendix B, Table 4 (page 48). The numbers in brackets are the four digit Standard Occupational Classification (SOC) code.

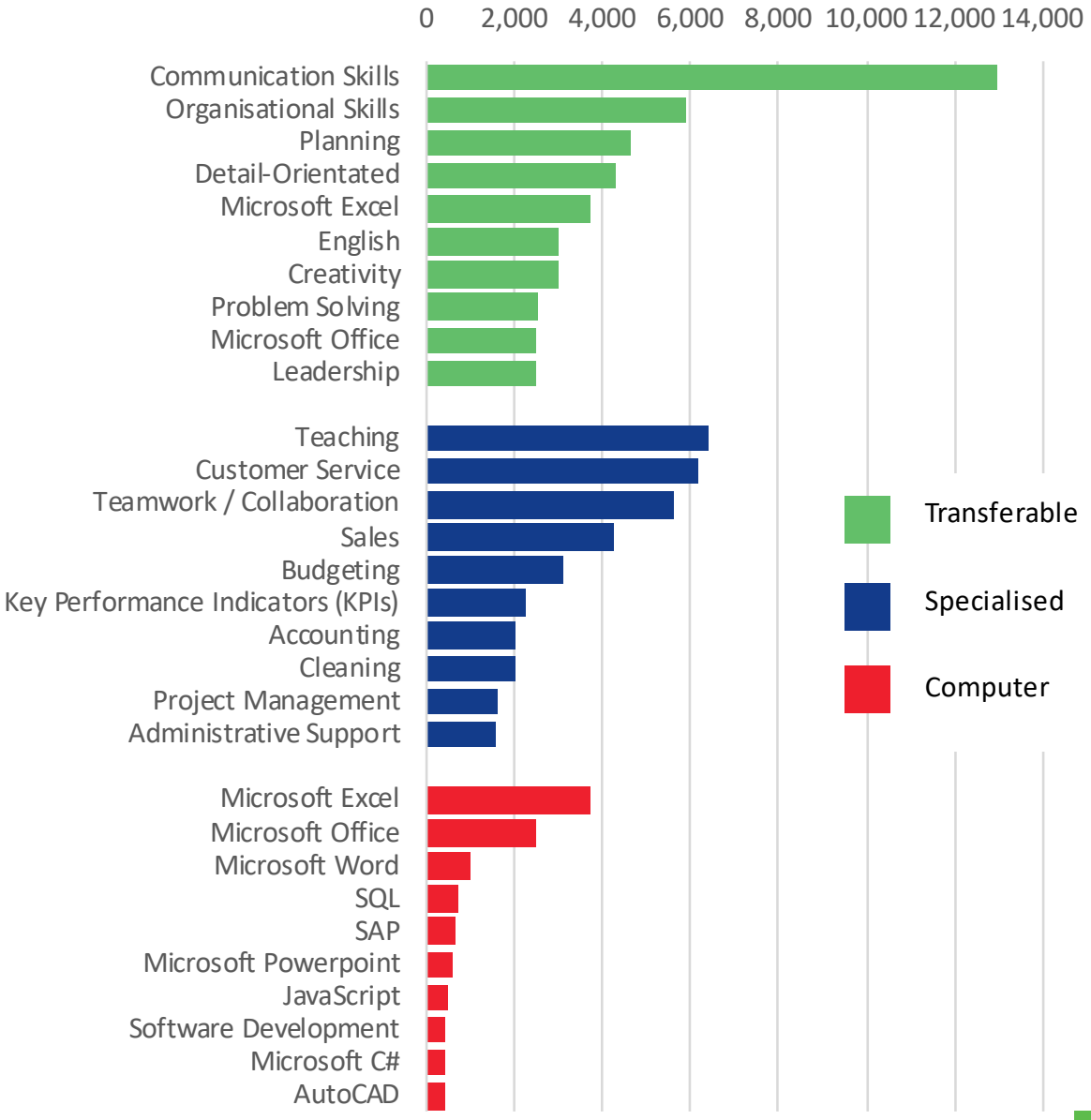
In total 62,232 vacancies were posted across Greater Lincolnshire during the 12 months from August 2018 to July 2019 that were collated and analysed by the Burning Glass Labour Market Analysis system. Estimates from Burning Glass suggest that this is somewhere in the region of 80% of all vacancies advertised. These vacancies cover an assortment of fields and specialisms, from IT and engineering to Health and Social Care. Chart 5 also serves to highlight some of the largest employment sectors (e.g. Health and Care, Education), those

that also have high levels of staff turnover or churn (Retail), and those where recruitment to particular job roles is proving difficult (the Transport & Storage sector in relation to Large goods vehicle drivers). *Charts presenting the top 15 job vacancies in each of the unitary and district authorities in Greater Lincolnshire can be found in Appendix B pages 50-58.*

Grouping the 62 vacancies into broad occupational groups provides a useful insight into the type of roles in demand. It can be argued that technical roles (comprising 'Associate professional and technical occupations', 'Process, plant and machine operatives' and 'Skilled trade occupations') make up the largest number of current vacancies, followed closely by professional occupations *(Appendix B, Chart 34, page 59). Further details on the job roles that these occupations cover are detailed in Appendix B, Table 5 (pages 62-63).* Of those vacancies listed over the last 12 months, just over half (53%) detailed specific skills required which are broken down into three types; Transferable, Specialised, and Computer skills (Chart 6).

Chart 6: Top 10 transferable, specialised, and computer skills, 2018

Source: Labour Market Insight, Burning Glass



The analysis shows how important communication skills, customer service skills and team work is to employers. There has been little change to those top skills requirements in the last 6 years that this data has been available. *Information on 2013 and 2018 skills comparisons are presented in Appendix B, Charts 35-37, pages 60-61.*

Only 20% of adverts in Greater Lincolnshire contain a request for an educational qualification. This is seen in postings across the UK, and is very different to the US where the majority of job adverts contain qualification requirements, according to the company that collates this data. UK employers say this is because they do not wish to deter good candidates who have excellent skills and experience but not the qualification. The requirement changes between sectors (for example nearly 40% of job adverts for engineering professionals stipulate a qualification level). In IT for example, some elements of a degree that a candidate may have achieved two years ago could already be out of date, so an employer will use the space that they have in the advert for skills that they need now, rather than a potentially dated qualification.

Based on 20% of adverts that contain qualification requests, there has been an increase in qualifications at level 4 and above being requested over time. Of this fifth of adverts, 35% required qualifications at level 4 or above in 2013 compared to 40% in 2018.

Another area of the labour market where there is lack of detailed information and data is that of agency/temporary/seasonal workers. This is a particular issue for the Greater Lincolnshire labour market given the over reliance of some sectors (e.g. Agriculture , food manufacturing, and hospitality) on this type of labour. So, whilst this over reliance is mainly as a result of the local indigenous population being either unwilling or unable to do the work on offer (and is therefore filling gaps in the local labour market), it can also have a bearing on the propensity of employers to invest in training amongst other issues.

Over the last fifteen years this type of temporary/seasonal work has increasingly been fulfilled through Eastern European labour (e.g. workers from Poland, Lithuania, and Latvia). More recently there has been a shift towards the recruitment of Romanian and Bulgarian workers, which has both increased language barriers and seen a negative shift in the attitude to work.

Future Demand

Over the ten year period 2014-2024 the Greater Lincolnshire economy is expected to have filled 207,000 jobs. The vast majority (90%, or 186,000) of positions will become available due to people leaving the Greater Lincolnshire workforce, mainly as a result of retirement. The remainder (21,000) are as result of job growth i.e. these are new positions that have been created over the time period in question and require filling. *Please refer to Appendix B (page 64) for important information on the assumptions and confidence related to this data source.* Chart 7 shows where this expansion (new jobs) and replacement demand (job vacancies as a result of retirement and out-migration) is projected to be by sector.

Chart 7: Expansion and replacement demand by sector

Source: Working Futures 2014-2024, UK Commission for Employment and Skills

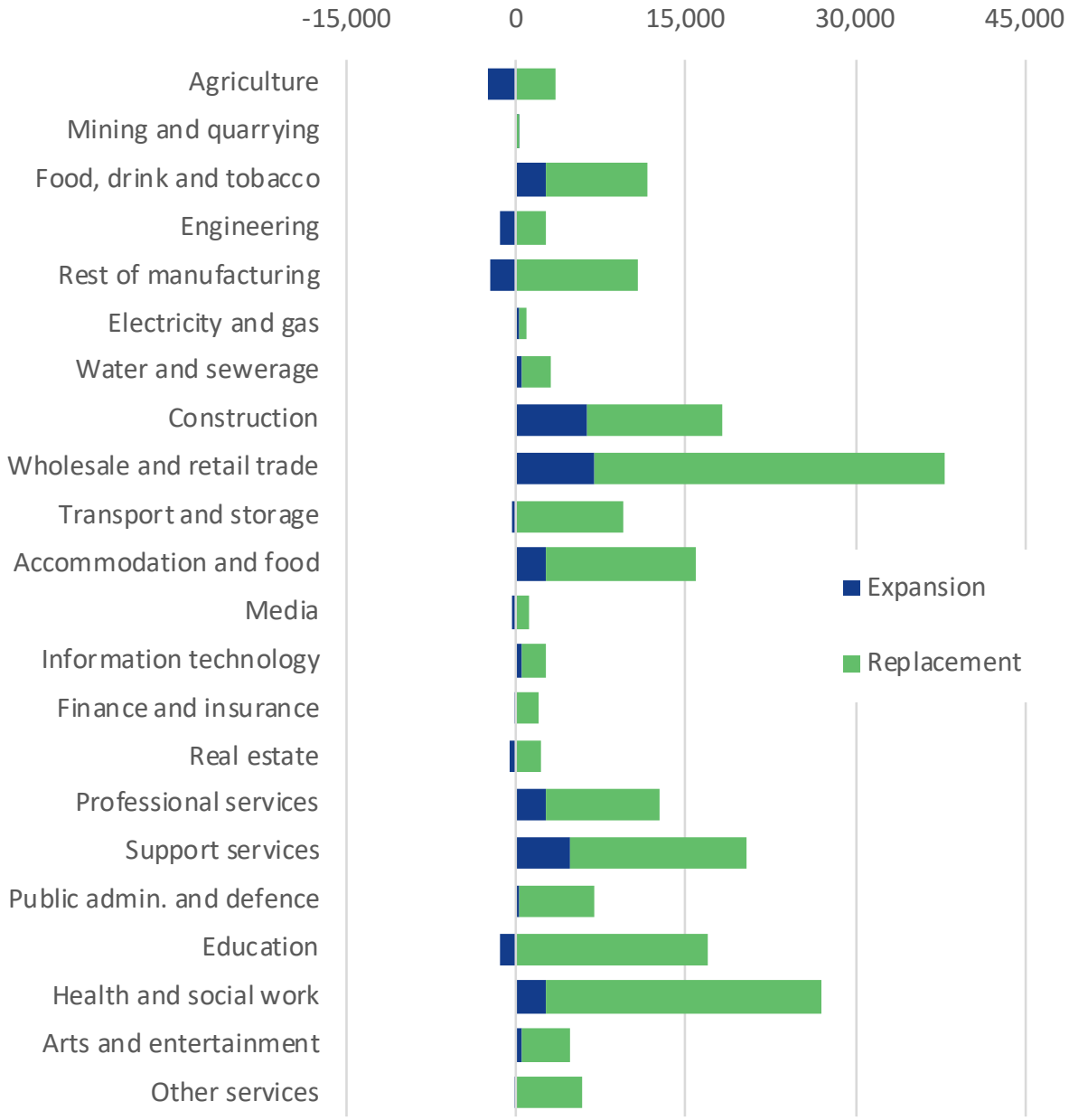


Chart 8 shows that expansion demand (new jobs) is concentrated in 'Professional occupations', 'Caring, leisure and other service' occupations, 'Managers, directors and senior officials' and 'Associate professional and technical' occupations *(see Appendix B, Table 5, pages 62-63, for details of the jobs and industry sectors covered, and Chart 38, page 65, for a more detailed version of chart 8)*. Replacement demand is high across all occupation types.

Chart 8: Expansion and replacement demand by occupation

Source: Working Futures 2014-2024, UK Commission for Employment and Skills

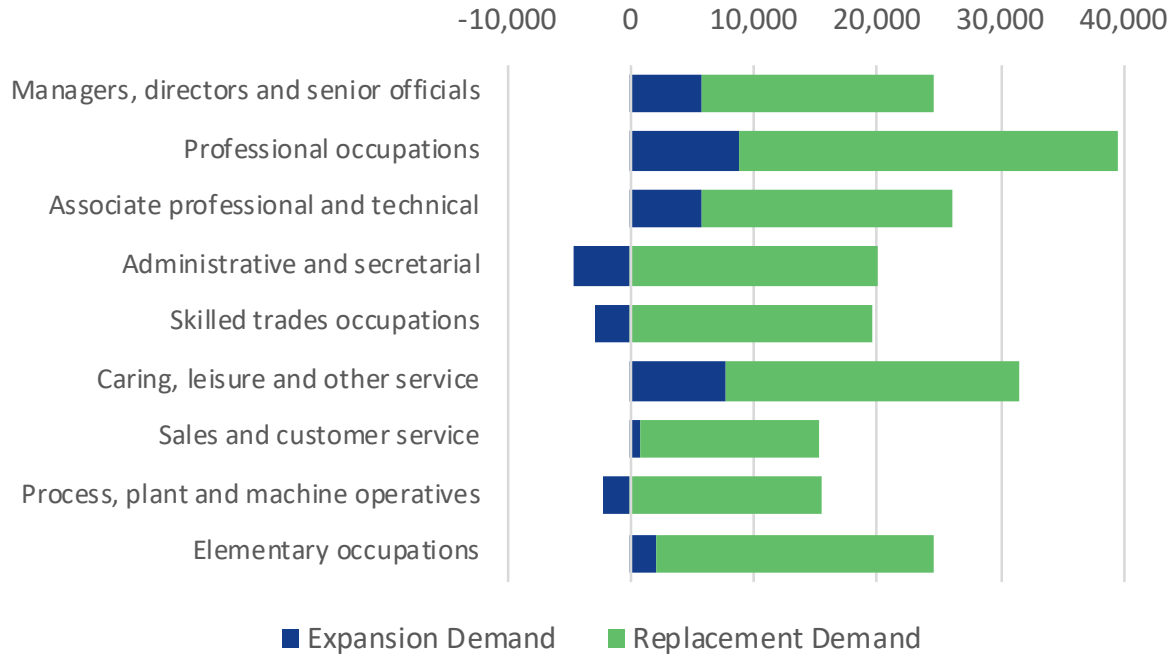
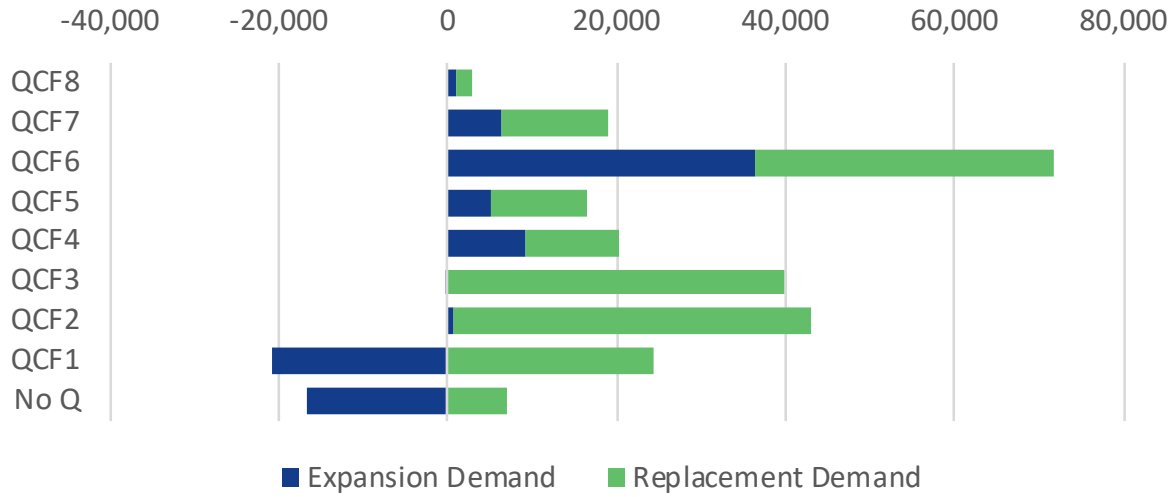


Chart 9 shows projected expansion demand (new jobs) based on qualifications levels confirms what we have seen in Chart 8, that it is positions that require qualifications at level 4 and higher. Replacement demand will ensure that there continues to be a large number of job vacancies for people with level 1 to 3 qualifications. *Further details on these qualification levels and what they cover are provided in Appendix B, page 66.*

Chart 9: Expansion and replacement demand by qualification level

Source: Working Futures 2014-2024, UK Commission for Employment and Skills



It is difficult to compare the replacement and expansion demand elements (i.e. projected growth and decline in number of jobs) across charts 7 to 9, but the overall net affect is the same (i.e. 207,000 jobs need filling by 2024 of which 21,000 will be new jobs).

Charts 7 and 8 show broadly the same levels of positive and negative expansion demand i.e. growth a decline in the forecast of future jobs (given the level of tolerances within the Working Futures data). That is that in the period 2014-2024, around 10,000 jobs will become obsolete, with 31,000 new jobs being created over the same period, the net effect of which is 21,000 new jobs.

Chart 9 shows a very different picture with the fall in expansion demand close to -40,000 (the sum of level 1 qualifications and no qualification). This figure for the fall in expansion demand is much higher when considering qualifications (as opposed to sectors and occupations) as not only does it relate to jobs becoming obsolete, it is also showing the changing levels of qualifications required by both new and existing jobs.

In terms of numbers, then over the period 2014-2024 the Greater Lincolnshire economy will see the requirement for qualifications at level 2 and above grow by nearly 59,000 whilst the demand for level 1 and no qualifications will decline by 38,000.

At the time of writing, as we are already halfway through this period of 2014-2024, then there should be evidence of this from other labour market data sources. Analysis of vacancies shows that the highest levels of growth (in numerical terms) were in 'Professional' and 'Associate professional and technical' occupations between 2012 and 2018 at both local and national levels. These two broad occupational levels, along with 'Directors and Managers' are considered to require higher levels of qualifications when compared with other occupations.

Whilst the Working Futures projections have their limitations, this type and level of analysis remains useful in terms of our understanding where the jobs of the future might be and what qualification levels will be required.

Technological change is ever increasing, and we know that there are jobs that exist today that didn't a decade ago (e.g. social media manager). We are currently going through a fourth industrial revolution, or IR 4.0 in modern terminology. This revolution, in both the workplace and the market place, will be centred around the following advancements:

- Virtual and augmented reality
- Big Data and Analytics
- Additive manufacturing
- Cloud storage
- Cyber security

- Industrial internet and sensors
- Simulation
- Multi-modal integration
- Automation

Automation is perhaps *the* element that gets the most interest and attention, and ultimately will impact the jobs market. Building on research conducted by PriceWaterhouseCooper (PWC), and combining it with longer term job forecasts, our calculations show that over the course of the next 15 years, nearly a third (31%) of Greater Lincolnshire jobs will be impacted by IR 4.0.

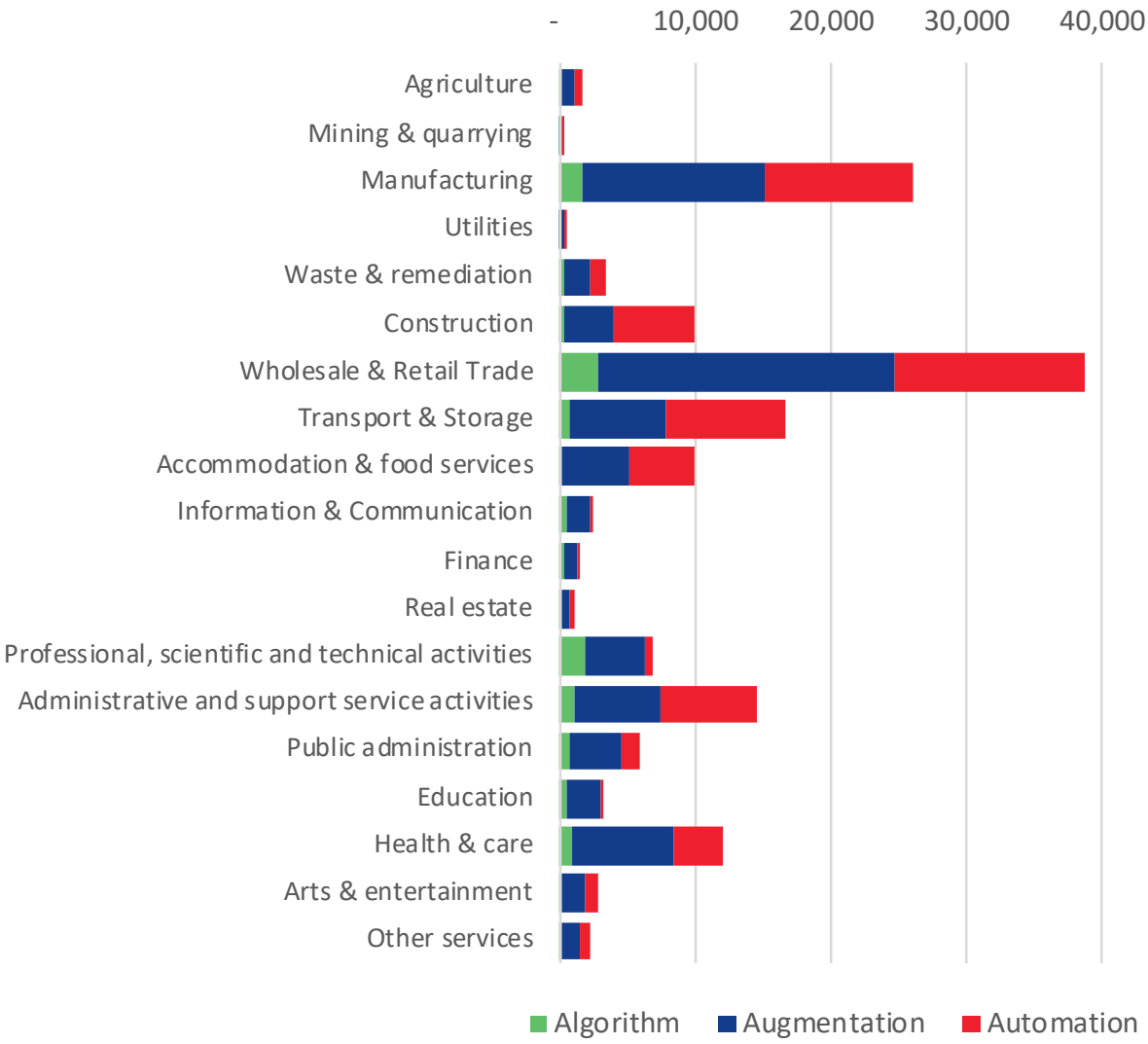
The PWC research ('Will robots really steal our jobs? – An international analysis of the potential long term impact of automation'), highlights that the automation of jobs can be broken down into three phases, or waves:

- Algorithm wave (late 2010s to early 2020s); Automation of simple computational tasks and analysis of structured data, affecting data-driven sectors such as financial services.
- Augmentation wave (early 2020s to late 2020s); Dynamic interaction with technology for clerical support and decision making. Also includes robotic tasks in semi-controlled environments such as moving objects in warehouses.
- Automation wave (late 2020s to mid 2030s); Automation of physical labour and manual dexterity, and problem solving in dynamic real-world situations that require responsive actions, such as in transport and construction.

Chart 10 shows where these jobs are by sector and where within the three phases of automation that they will be affected. The Algorithm wave of impacts has seen and will see around 13,000 jobs effected. The Augmentation wave is going to affect an estimated 85,000, whilst the final Automation wave will impact on 62,000 jobs. In total, this will mean that nearly 160,000 jobs over the next 15 years or so will have been affected in some way through the Industrial Revolution 4.0.

Chart 10: Number of jobs impacted by Industrial Revolution 4.0, by sector

Source: PriceWaterhouseCooper; Local Economy Forecasting Model, Cambridge Econometrics; Codename:Consulting



The sector predicted to undergo the greatest changes in terms of jobs impacted (wholesale and retail trade) is also the same sector that is projected to have the largest elements of expansion and replacement demand (chart 7). This raises an interesting question around how much of that demand will be met by humans.

Summary

In summary, data on the economy and skills demand is telling us that:

- Greater Lincolnshire businesses (and the economy) support and generate demand for a wide variety of job types and skills sets.

- Job vacancies in Greater Lincolnshire cover an assortment of fields and specialisms, from IT and engineering, to Health and Social Care.

- Of the 62,000 job vacancies posted in Greater Lincolnshire during the period August 2018 – July 2019, just over 30% were classed as being 'Technical' i.e. 'Associate professional and technical occupations', 'Process, plant and machine operatives' and 'Skilled trade occupations' can all be combined to form a 'Technical' role classification.

- In terms of skills requirements, employers are still focused on the softer side of skills, with 'communication skills', 'customer service' and 'teamwork / collaboration' featuring prominently.

- In those job vacancies that do stipulate a qualification requirement, there has been an increase in skills at level 4 and above being requested over time with 35% of Greater Lincolnshire employers requiring qualifications at level 4 or above in 2013 compared to 40% in 2018. However, the majority (80%) of job vacancies do not stipulate a qualification requirement.

- Over the ten year period 2014-2024 the Greater Lincolnshire economy is expected to have filled 207,000 jobs. The vast majority (90%, or 186,000) of positions will become available due to people leaving the Greater Lincolnshire workforce, mainly as a result of retirement. The remainder (21,000) are as result of job growth.

- Forecasts for qualification requirements point to a decline in demand for positions to be filled by people with no qualifications and Level 1 qualifications.

- Nearly 160,000 jobs over the next 15 years or so will be affected in some way (either by being made obsolete or the role changing) through the introduction of new technologies as part of Industrial Revolution 4.0.

Skills and Labour Supply

Current Supply

There are nearly 650,000 residents in Greater Lincolnshire aged 16-64 (according to 2018 population estimates) and just over 501,000 of them are economically active. That is, they are working, or seeking work.

Table 1: Labour market indicators, April 2018 – March 2019

Source: Annual Population Survey, Office for National Statistics

	Greater Lincolnshire		UK
Economic activity - aged 16-64	**501,100**	**78.2%**	**78.5%**
Employment - aged 16-64	476,400	74.3%	75.2%
Employees - aged 16-64	415,600	64.8%	64.3%
Self employed - aged 16-64	59,200	9.2%	10.6%
Unemployment - aged 16-64	24,700	4.9%	4.2%
Economically inactive - aged 16-64	**140,100**	**21.8%**	**21.5%**
Economically inactive who want a job	32,600	23.3%	20.6%
Economically inactive who do not want a job	107,500	76.7%	79.4%
Economically inactive - student	28,500	20.3%	26.8%
Economically inactive - looking after family/home	33,600	24.0%	23.6%
Economically inactive - temporary sick	2,900	2.0%	2.0%
Economically inactive - long-term sick	34,500	24.6%	23.1%
Economically inactive - discouraged	>500	0.4%	0.4%
Economically inactive - retired	28,100	20.0%	13.1%
Economically inactive - other	12,100	8.6%	11.1%

As shown in table 1, there are just over 140,000 residents that are of working age, but do not work and are not looking for work. This group includes (amongst other) students, those who are sick, and retirees (noting that the percentage of retirees is considerably higher in Greater Lincolnshire than nationally). It also shows that, according to the national survey *(details on this survey and how it is conducted can be found in Appendix C, page 67)*, there are 32,600 of this group, more people than the UK average, who would like a job.

Greater Lincolnshire's unemployment rate for those aged 16-64 is currently slightly higher than the national rate, 4.9% compared to 4.2% respectively.

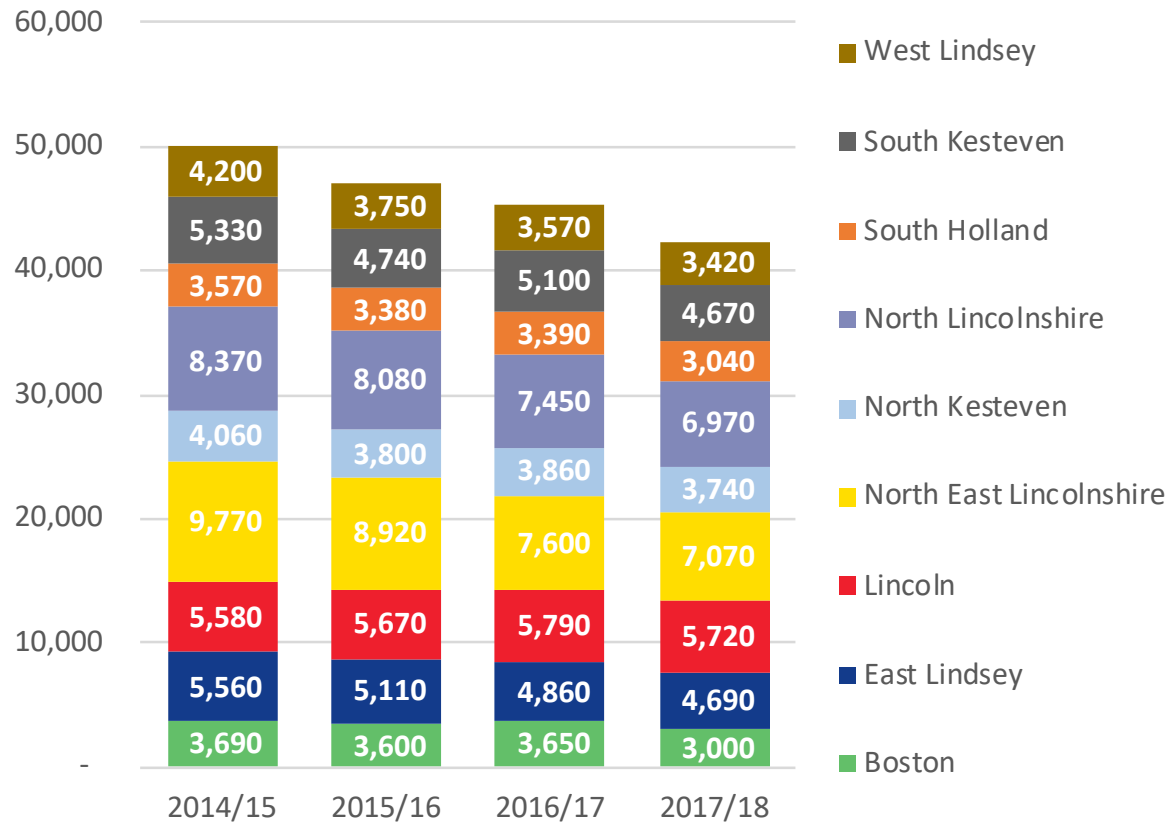
Youth unemployment (as measured by the claimant count which records those aged 16-24 claiming Job Seekers Allowance, and those claiming Universal Credit who are required to seek work) is consistently higher in Greater Lincolnshire than nationally (latest data shows just over 4,000 people aged 16-24 claiming these benefits in Greater Lincolnshire, 3.8% of this age group compared to 3.0% nationally) and despite falling over the last five years is now on the rise.

The proportion of 16 and 17 year olds not in education, employment or training (NEET) or whose activity is not known in February 2019 stood at 5.5% in Lincolnshire, 6.4% in North East Lincolnshire, and 4.9% in North Lincolnshire. The national (England) average was 5.5%.

Data reported for the 2017/18 academic year show there were 2,179,100 learners aged 19 and over participating in government-funded further education nationally, compared to 2,236,800 reported in 2016/17, a decrease of 2.6%. In Greater Lincolnshire, numbers decreased by 6.5% over the same period, from 45,270 to 42,320 (Chart 11).

Chart 11: Adult FE participation over time by local district/unitary authority area

Source: Department for Education

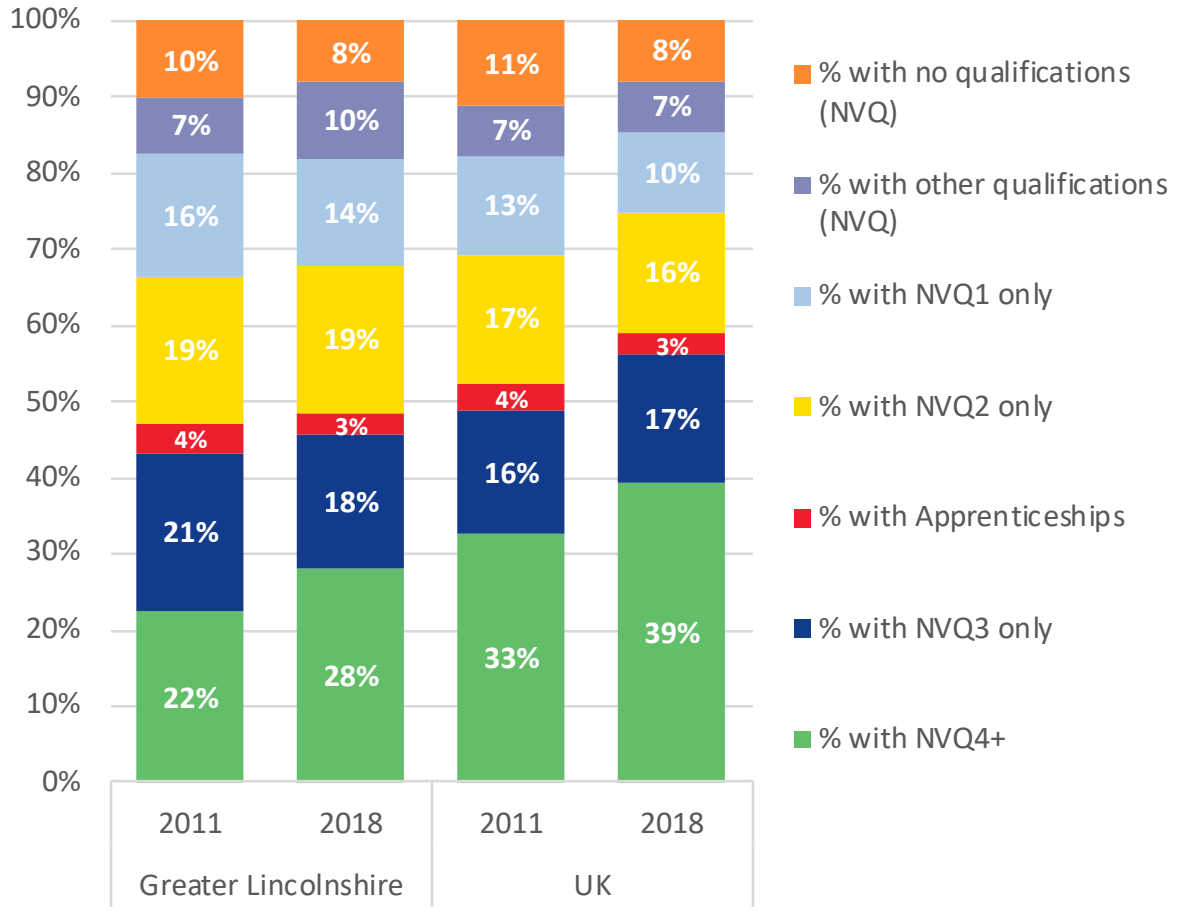


Nationally, almost all forms of adult education are in decline, both in terms of funding and take-up, with adult apprenticeships being the singular exception since 2015/16. Since 2005, there has been a 45 per cent decline in adults (age 19+) participating in FE and skills *(Source: Department for Education, Further Education and Skills 2018 Main Tables, Table 4.1, 2018)*.

Chart 12 shows that Greater Lincolnshire still lags behind the national skills picture with only 28% of the resident population aged 16-64 holding a qualification at level 4 or higher in 2018, compared to 39% nationally. Similarly, just over half (51%) of Greater Lincolnshire's resident population aged 16-64 hold up to level 2 qualifications in 2018 compared to 41% nationally. Chart 12 also shows that qualification levels in Greater Lincolnshire have improved over time, but that this improvement has not closed the gap on national levels.

Chart 12: Highest education qualification held by resident population aged 16-64, 2011 and 2018

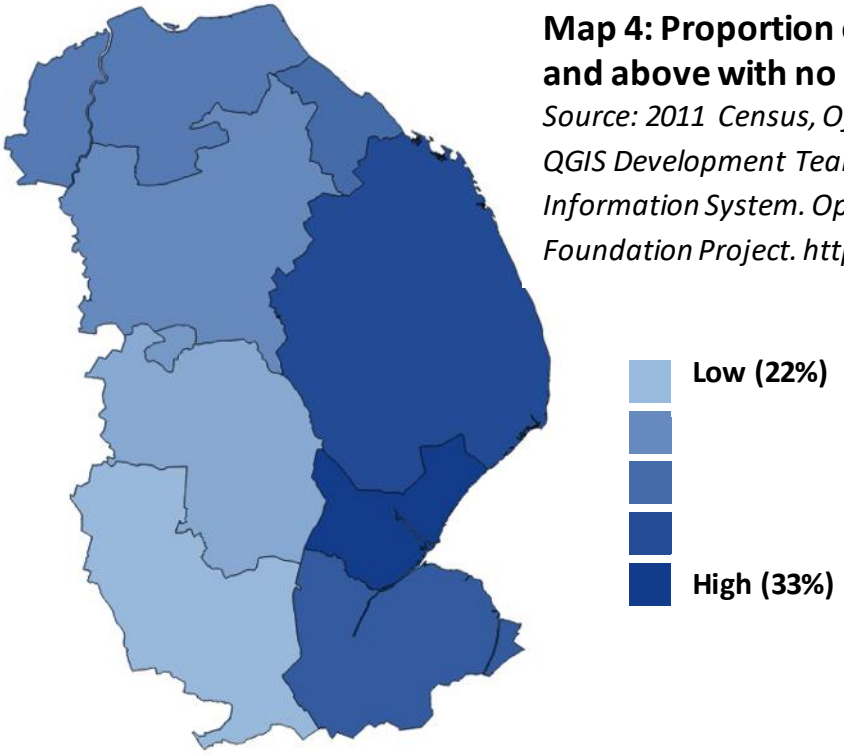
Source: Annual Population Survey, Office for National Statistics



Even if we look to limit this analysis to residents who are economically activity (i.e. in work or seeking work), in Greater Lincolnshire 31% hold a qualification at Level 4 or higher compared to 44% nationally.

The data also shows that there are differences in local and national qualification level according to age band. For example, only 35% of Greater Lincolnshire residents aged 25-39 have a level 4 qualification or above, compared to 48% nationally.

A difference in performance in qualification levels is seen across Greater Lincolnshire. Maps 4 and 5 below show a clear East/West divide in terms of residents aged 16 plus with no qualifications, and those with qualifications at level 4 or above.

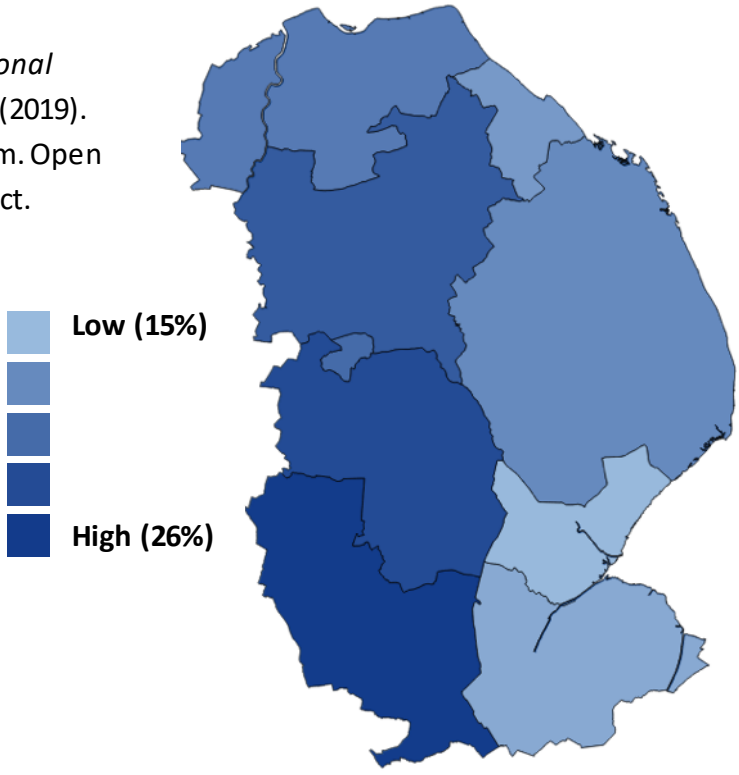


Map 4: Proportion of all residents aged 16 and above with no qualifications

Source: 2011 Census, Office for National Statistics; QGIS Development Team (2019). QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org

Map 5: Proportion of all residents aged 16 and above with level 4 qualifications or above

Source: 2011 Census, Office for National Statistics; QGIS Development Team (2019). QGIS Geographic Information System. Open Source Geospatial Foundation Project. *http://qgis.osgeo.org*



Literacy and numeracy levels in Greater Lincolnshire were also slightly below those seen nationally when the Skills for Life Survey was undertaken by the then Department for Business, Innovation and Skill (BIS) in 2011. Data is not as up to date as we would like, but it is worth noting that around 15% of the 16-65 population in the UK, and Greater Lincolnshire, have literacy levels below a Level 1. That means they are unlikely to be able to read short messages or road signs.

Over half of Greater Lincolnshire residents aged between 16 and 65 have numeracy levels that are at, or below, Entry Level 3, and 24% below Entry Level 3. Adults with numeracy skill levels below Entry Level 3 may not be able to understand price labels or pay household bills *(See Appendix C, Chart 44, page 72)*

Data from the 2011 Skills For Life Survey also shows progress in computer skills. At that time, residents of Greater Lincolnshire were falling behind national averages using word-processing, emails and excel *(See Appendix C, Charts 39-41, page 68).*

Much more recently, data on internet usage (which is a good proxy measure of digital skills) shows that in Greater Lincolnshire in 2019, just over 100,000 people aged 16 plus had either never used the internet or not used it in the last three months. That figures equates to 11.3% of the local population compared to 7.5% across the UK.

Commuting

Greater Lincolnshire's position on the coastline means that it does have higher level of worker containment than most other LEP areas i.e. it has a low amount of commuting generally.

According to the last Census, that shows the qualification levels of residents who commute, Greater Lincolnshire has a net loss of around 13,000 workers with over 6,100 qualified to Level 4 or above *(See Appendix C, Chart 45, page 73).*

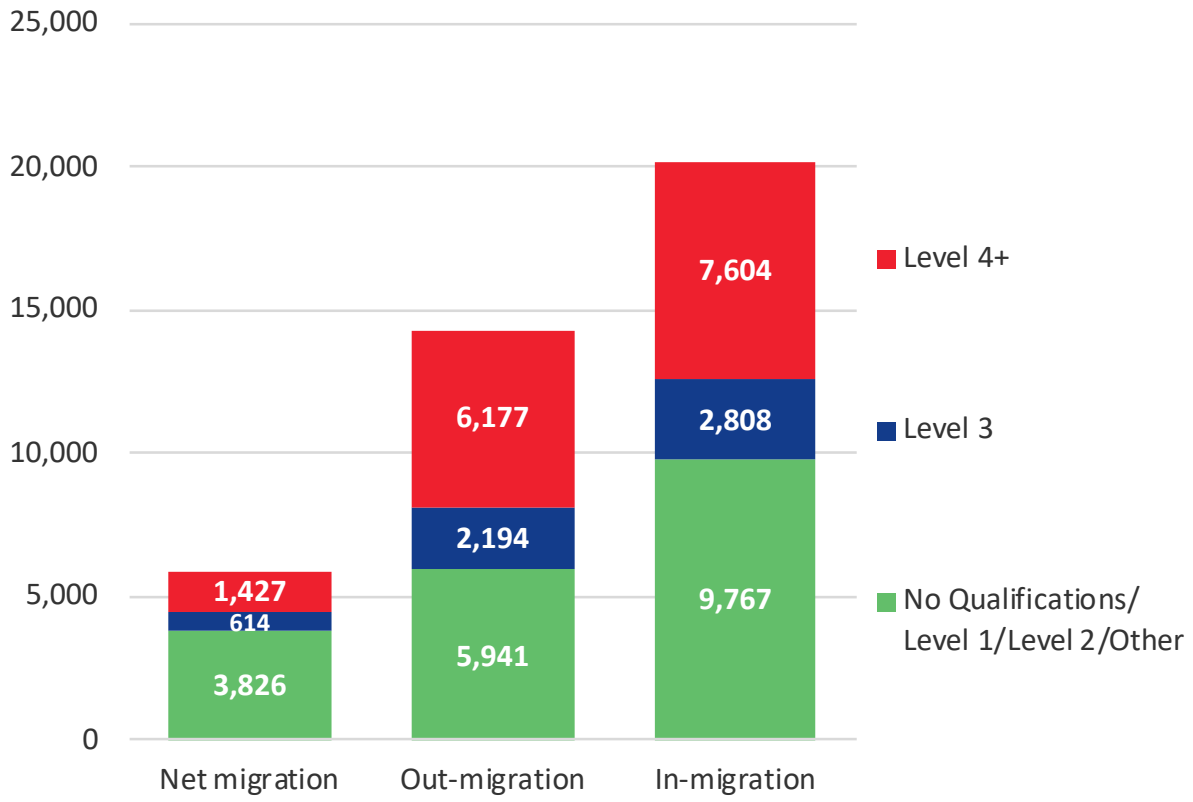
We know that commuting out of the Greater Lincolnshire area had risen slightly between the 2001 and 2011 Censuses and that the net loss of people increased from nearly 20,000 to over 22,000. Given the improvements in local road infrastructure to both the South and the South West of Greater Lincolnshire since the last Census there is every chance that these figures will have continued to increase.

20,179 people aged 22-64 moved into the Greater Lincolnshire area in the year prior to 2011 Census, with 14,312 moving the other way (noting here that we are using the 22-64 age group to avoid confusion by introducing the movement of students). The net effect of these moves is an increase in the population of 5,867 people.

The qualification levels of those people are shown in chart 13, the net affect being that the area gains people at the lower end of the qualification scale at a higher rate than those with higher level qualifications.

Chart 13: Qualifications levels of Greater Lincolnshire migrants aged 22-64

Source: 2011 Census, Office for National Statistics



This data shows that migration during that time period increased the number of higher level skilled people within the Greater Lincolnshire area. However, this same migration increased the number of people who have qualifications at Level 2 (GCSEs including maths and english) and below by nearly twice the amount of higher skilled people.

Apprenticeships

Between 2014/15 and 2017/18, apprenticeship start numbers fell in Greater Lincolnshire from just over 10,000 to 7,870, in part due to changes in the funding mechanism. However, the latest data for 2018/19 shows that apprenticeship start numbers have increased up to 8,255. These trends can also be seen at the national level. Chart 14 shows how those apprenticeship starts in 2018/19 are broken down by age and level.

Chart 14: 2018/19 Apprenticeship starts by age and level

Source: Department for Education; DataCube, Education and Skills Funding Agency

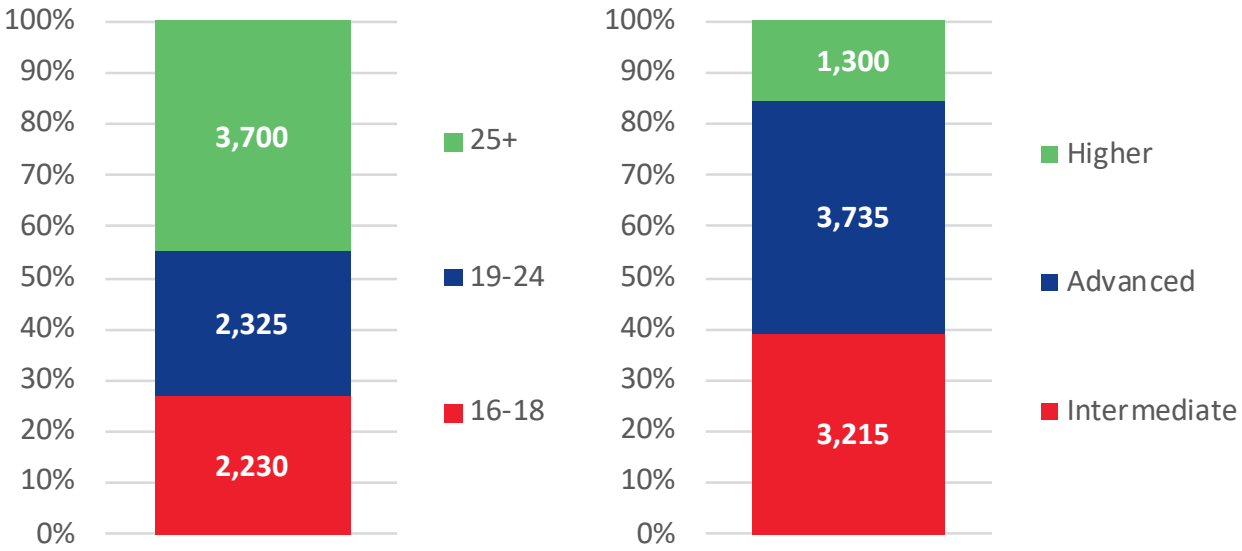


Table 2 provides some additional detail around the data shown in chart 14, including figures for 2015/16 and 2016/17. It shows that there has been a drop in apprenticeship starts in Greater Lincolnshire between 2015/16 and 2017/18 across all age groups, with the most pronounced drop in numbers being seen in those aged 25 plus (falling from 10,560 starts in 2015/16 to 7,859 in 2017/18). This trend is reversed in 2018/19 with apprenticeship starts increasing amongst the 19-24 and 25+ age groups contributing to an overall increase in apprenticeship start numbers. Apprenticeship starts amongst the 16-18 age group continued to decline.

Table 2: 2018/19 Apprenticeship Starts in Greater Lincolnshire by age band

Source: FE Data Library, Department for Education

Age	Intermediate Apprenticeship	Advanced Apprenticeship	Higher Apprenticeship	2018/19 Total	2017/18 Total	2016/17 Total	2015/16 Total
Under 16	<5	0	-	<5	6		
16-18	1,216	961	51	2,228	2,398	2,710	2,750
19-24	886	1,118	322	2,326	2,228	2,920	3,210
25+	1,115	1,658	926	3,699	3,227	4,680	4,600
Total	**3,217**	**3,737**	**1,299**	**8,253**	**7,859**	**10,310**	**10,560**

Chart 15 shows how apprenticeship start numbers in Greater Lincolnshire have changed over time at local authority level. Concentrating first on the change in numbers between 2016/17 and 2017/18 then the largest numerical drop in apprenticeship starts was in North Lincolnshire with 480 fewer apprenticeship starts in 2017/18 when compared with 2016/17. In terms of proportional change then the largest fall in numbers was in East Lindsey, which experienced a 37% drop in apprenticeship starts between 2016/17 and 2017/18. Apprenticeships starts remained at 2017/18 levels or increased across all the Greater Lincolnshire local and unitary authority areas except North Lincolnshire where numbers dropped further, from 1,530 to 1465.

Chart 15: Apprenticeship starts by local district and unitary authority area

Source: Department for Education; DataCube, Education and Skills Funding Agency

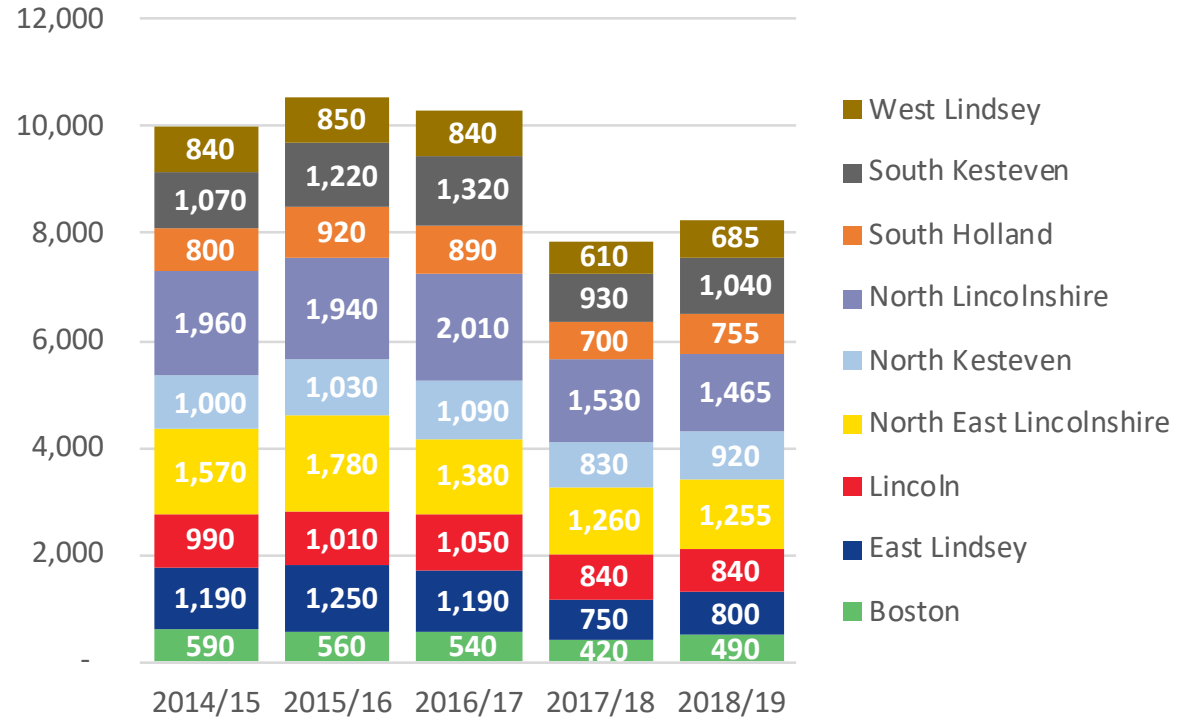


Table 3 provides a further and expanded view of apprenticeship starts over time, including national figures which also show a fall in apprenticeship start numbers between 2015/16 and 2017/18, and a subsequent upturn in 2018/19.

Table 3: Total number of residents starting an apprenticeship

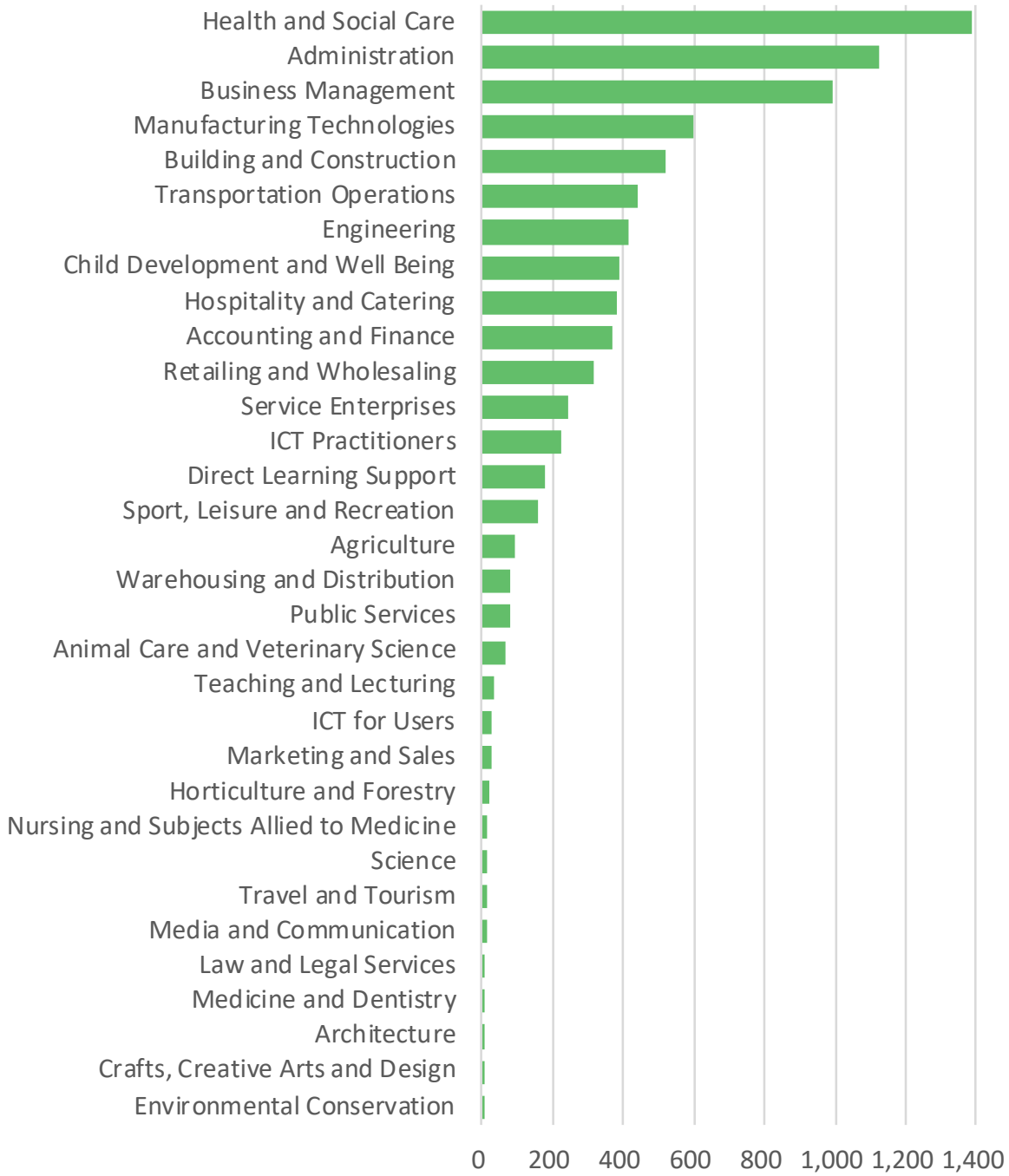
Source: FE Data Library, Department for Education

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Lincolnshire	3,910	6,070	6,920	7,330	5,760	6,480	6,840	6,920	5,073	5,535
North East Lincolnshire	890	1,330	1,660	1,590	1,340	1,570	1,780	1,380	1,250	1,255
North Lincolnshire	930	1,520	1,700	1,820	1,520	1,960	1,940	2,010	1,530	1,465
Greater Lincolnshire	**5,730**	**8,920**	**10,280**	**10,740**	**8,620**	**10,010**	**10,560**	**10,310**	**7,853**	**8,255**
England	276,900	453,000	515,000	504,200	434,600	494,200	503,900	494,880	375,760	393,380

Chart 16 shows the subjects that apprentice training is focused on. In relation to the number of full-time employees within a sector, our analysis shows that we might expect there to be more apprentices in the sectors of 'Agriculture, Forestry and Fishing', 'Manufacturing', 'Storage', 'Accommodation and Food Service Activities', 'Professional, Scientific and Technical Activities', and 'Public Admin'. As a result, further work with these sectors to understand the barriers would be helpful.

Chart 16: 2018/19 Apprenticeship starts by sector subject area

Source: DataCube, Education and Skills Funding Agency



Please note that a number of sector subject areas had no apprenticeship starts against them in the academic year 2018/19. These are listed in full in Appendix C on page 74.

Future Supply

Primary and Secondary Education

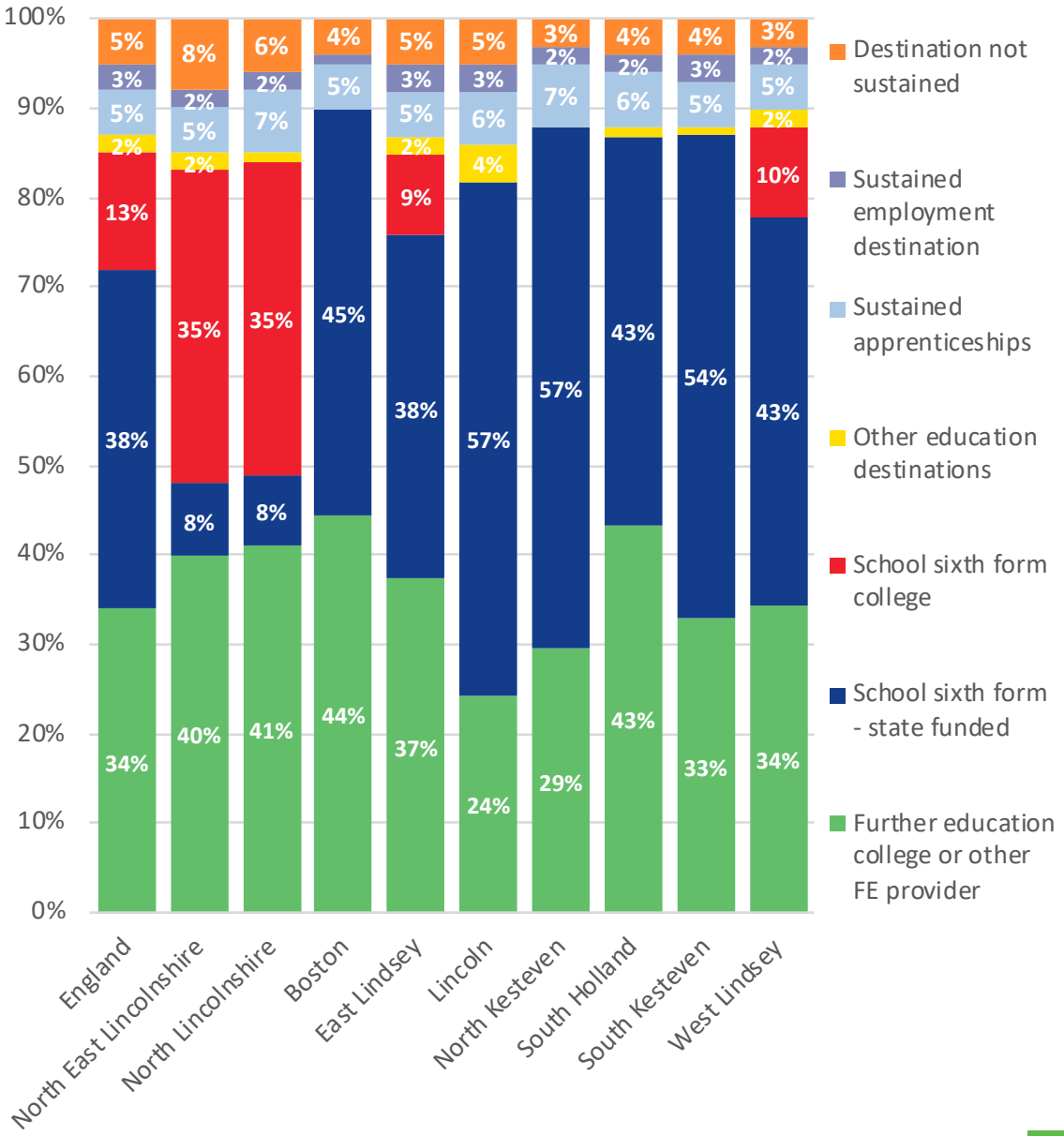
There are 157,000 resident young people aged 5-17 currently at school, and based on current performance we can expect 56% to achieve a full Level 2 (i.e. 5 GCSEs Grade A-C including maths and English), compared to 57% nationally.

Across the state funded education sector nationally only 64.2% of pupils achieve both maths and english GCSE pass (Grade A-C). Lincolnshire and North East Lincolnshire are similar with 63.2% and 63.9% respectively and North East Lincolnshire almost 60%.

Chart 17 shows that there are some large differences across Greater Lincolnshire in terms of further education and employment destinations for pupils leaving school at 16. However, some of these differences are down to the provision in each district and unitary area.

Chart 17: Key stage 4 destinations, 2015/16 cohort

Source: Department for Education



Analysis of Further Education participation numbers over time for 16-18 year olds show that they have fallen by 7% since 2014/15.

The working age population is reducing as a proportion of the total population. Based on current birth and death rates, and levels of migration, and projecting these forwards, by 2041 the working age population will make up just 54% of the total population, compared to 60% now. This trend can also be seen at the national level but it is more pronounced at the local level.

Although the population overall is set to grow by nearly 8% between 2016 and 2041, the working age population is set to decrease from 649,000 to 630,000 over the same period, meaning there will be 19,000 fewer people available within the local labour market.

Recent research produced by the Office for National Statistics ('The probability of automation in England: 2011 to 2017') and our own analysis of the data suggests that rural areas and younger people will be hardest hit in terms of job effects. The impact on rural areas will be due to a current over-reliance on industries (such as Manufacturing) that are more exposed to elements of automation. The impact on younger people will be a result of them being more likely to occupy (at least initially in their careers) the roles which are more exposed to the effects of automation. This is a concern for the future given that analysis shows that eastern coastal towns are already experiencing a net out-migration of young people, with three over-60 year olds arriving for every two 16-24 year olds who leave.

Overall, while automation means that the future labour pool will include robots (and therefore fill gaps left by a reduced workforce), it could also potentially increase the out-migration of younger people from rural to urban areas.

Students

The data tells us that graduates (with degrees from University and FE Colleges) growing up in Greater Lincolnshire are more likely to leave for study and not return when compared with the national average. However, when compared with other LEP areas the picture is an interesting one. In a ranking, 21 LEPs have a higher proportion of undergraduates leaving the area for study than Greater Lincolnshire. Furthermore 58% of graduates working in Greater Lincolnshire studied elsewhere which suggests a reasonable amount of pull, attractiveness or opportunity (when compared to other LEP results) for both graduates who grew up here, and to others who grew up and studied elsewhere. 55% of Greater Lincolnshire graduates came to the area to study, a figure which is higher than Greater Manchester.

Approximately 40% of students studying in Greater Lincolnshire go on to secure employment in Greater Lincolnshire which is reasonably high if we take London results out of that analysis. For comparison 77% of graduates leave the Oxfordshire LEP area for employment elsewhere, and at the other end of the scale 27% of graduates leave London for employment. New Anglia hold on to 55% of their students, but they attract a much smaller proportion from elsewhere when compared to Greater Lincolnshire.

Brexit

Finally, and in terms of future supply, consideration needs to be given to the much more short-term effects of Brexit. The effect that this will have on the labour market will be much sooner and quicker than some of the other future issues that concern us i.e. decline in the working age population, and the effects of automation. The issue here is that there is still vast amount of uncertainty around the form Brexit might take so it is both difficult to reliably estimate and plan for in terms of labour market impacts.

The Office for National Statistics has identified at regional and a detailed sector level the proportion of jobs that are held by overseas workers (including the European Economic Area – EEA). Analysis of these sectors, and the job numbers they support in the Greater Lincolnshire economy, shows that around 12,200 of these jobs are held by workers born in the EEA (excluding the UK), with a further 3,700 held by workers born in any other country. This suggests then that 16,000 jobs could be impacted by new rules around migration, though, given that these figures are based on regional estimates then they are likely to be very conservative.

Locally commissioned analysis ('Greater Lincolnshire LEP – Brexit economic analysis, May 2018', Metro-Dynamics) has concluded that Brexit offers Greater Lincolnshire the opportunity to support people with lower skills levels to enter the labour market, mainly due to lower competition from EU workers in sectors which have up until now relied on a large EU workforce. The economic analysis shows that there will be a net negative effect for Greater Lincolnshire, but the severity of impacts will differ geographically, depending upon the sectoral composition of the local economy. Even within sectors, different firms will be affected in different ways as a result of the specifics of their business model – e.g. the amount of EU labour they employ, and the importance of EU imports and exports in their supply chains. There are also linkages between sectors, that mean that the exposure to Brexit is broader than an analysis of a single sector in isolation might suggest. For example, the food processing industry is exposed to the impacts of Brexit on agriculture and to the impacts of Brexit on the ports and logistics sector (and vice versa).

Food processing is anticipated to have the largest trade impacts of any sector, in part due to the extent of trade between the UK and EU (60.0% exports and 77.1% imports), but also the size of tariff and non-tariff barriers. The potential exposure of the sector to impact on workforce is likely to be high, due to the reliance on EU migrants to fill labour shortages.

Manufacturing (excluding food processing) is highly exposed to Brexit impacts on trade. Trade of manufactured products is very high (over 90% total goods exported and imported) and the EU is an important trading partner (48.0% of exports and 56.8% of imports). EU workers are important across the skills spectrum in manufacturing, due to existing skills shortages. At the lower end of the spectrum, it may become difficult to recruit lower-skilled workers if future migration policies impose skill and salary thresholds.

The **Ports and Logisitics** sector is exposed to the restriction of EU immigration, as EU workers are pivotal to filling labour shortages, particularly in logistics (e.g. HGV drivers and warehouse operatives).

The exposure of the **Visitor Economy** to Brexit is likely to be highest in terms of the implications for the sector's workforce. There is a very high reliance on EU workers in this sector, particularly in some occupations such as waiting staff where 75% of workers are EU migrants. EU workers often work in hard-to-fill vacancies, which are prevalent in the sector.

Summary

In summary, the data on skills and labour supply is telling us that:

- Greater Lincolnshire has a higher proportion of people than nationally (23.3% compared to 20.6% respectively) that are economically inactive but do want to work.

- Apprenticeship start numbers fell in Greater Lincolnshire between 2014/15 and 2017/18, from just over 10,000 to 7,870, but have increased in 2018/19 to 8,255.

- There has been a drop in the numbers of adults participating in further education across all areas of Greater Lincolnshire apart from Lincoln.

- Greater Lincolnshire still lags behind the national skills picture with only 28% of the resident population aged 16-64 holding a qualification at level 4 or higher, compared to 39% nationally.

- Only 35% of Greater Lincolnshire residents aged 25-39 have a level 4 qualification or above, compared to 48% nationally.

- There is clear East/West divide across Greater Lincolnshire in terms of qualification levels.

- A larger proportion of Greater Lincolnshire residents have never used or not used the internet in the last three months; 11.3% of the population compared to 7.5% across the UK.

- It is estimated that on a workday, Greater Lincolnshire area experienced a net loss of around 13,000 workers with qualifications, over 6,000 of which are qualified to level 4 and above.

- As a result of people moving between areas, Greater Lincolnshire gains people at the lower end of the qualification scale at a higher rate than those with higher level qualifications.

- Although the population overall is set to grow by nearly 8% between 2016 and 2041, the working age population is set to decrease from 649,000 to 630,000, meaning there will be 19,000 fewer people available within the local labour market.

Supply Meets Demand

Hard-to-fill Vacancies

In 2017, 29% of vacancies in Greater Lincolnshire were reported by employers as hard-to-fill, and more than two thirds were reported to be due to skills shortages. This compares to 33% hard to fill vacancies nationally, with a lower proportion due to skills shortages. The incidence of hard-to-fill vacancies (as a proportion of all vacancies) has increased between 2011 and 2017 both nationally and at the Greater Lincolnshire level.

Not all employers experience hard-to-fill or skill-shortage vacancies. whilst 29% of all vacancies were hard to fill, only 5% of employers experienced this. Likewise, whilst 21% of vacancies were reported to be due to a skill shortage, this was experienced by 4% of employers. In both instances, these incidence rates were lower than those experienced nationally (8% and 6% respectively).

Further analysis of results from the 2017 Employer Skills Survey *(see Appendix D, Chart 48, page 77)* tells us that 'skilled trade occupations' and 'sales and customer service staff', along with 'Caring, leisure and other services staff', were more likely to be cited by employers as being hard-to-fill.

'Skilled trade occupations' cover job/roles such as farmers, electricians, plasterers, motor mechanics, butchers, and chefs. Examples of 'sales and customer service staff' include call centre agents, telesales, retail cashiers, and customer care operations. 'Caring, leisure and other service staff' cover positions such as care assistants, nursery nurses, hairdressers, and dental nurses. *For full and further details of what these occupational groups cover, please refer to Appendix B, Table 5, page 62.*

Data also shows that incidences of hard-to-fill and skill-shortage vacancies for Greater Lincolnshire employers have both dropped since 2015, though remain higher than levels recorded in 2011. The same cannot be said of national rates which show an upward trend over the same period.

Chart 18 shows that Greater Lincolnshire employers were most likely to cite 'low numbers of applicants with the required skills' for why vacancies were hard-to-fill, although they were much less likely to point to this than employers nationally. Greater Lincolnshire employers were however more likely than nationally to cite reasons of attitude, motivation, and lack of qualifications.

Chart 18: Main causes of having a hard-to-fill vacancy

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills

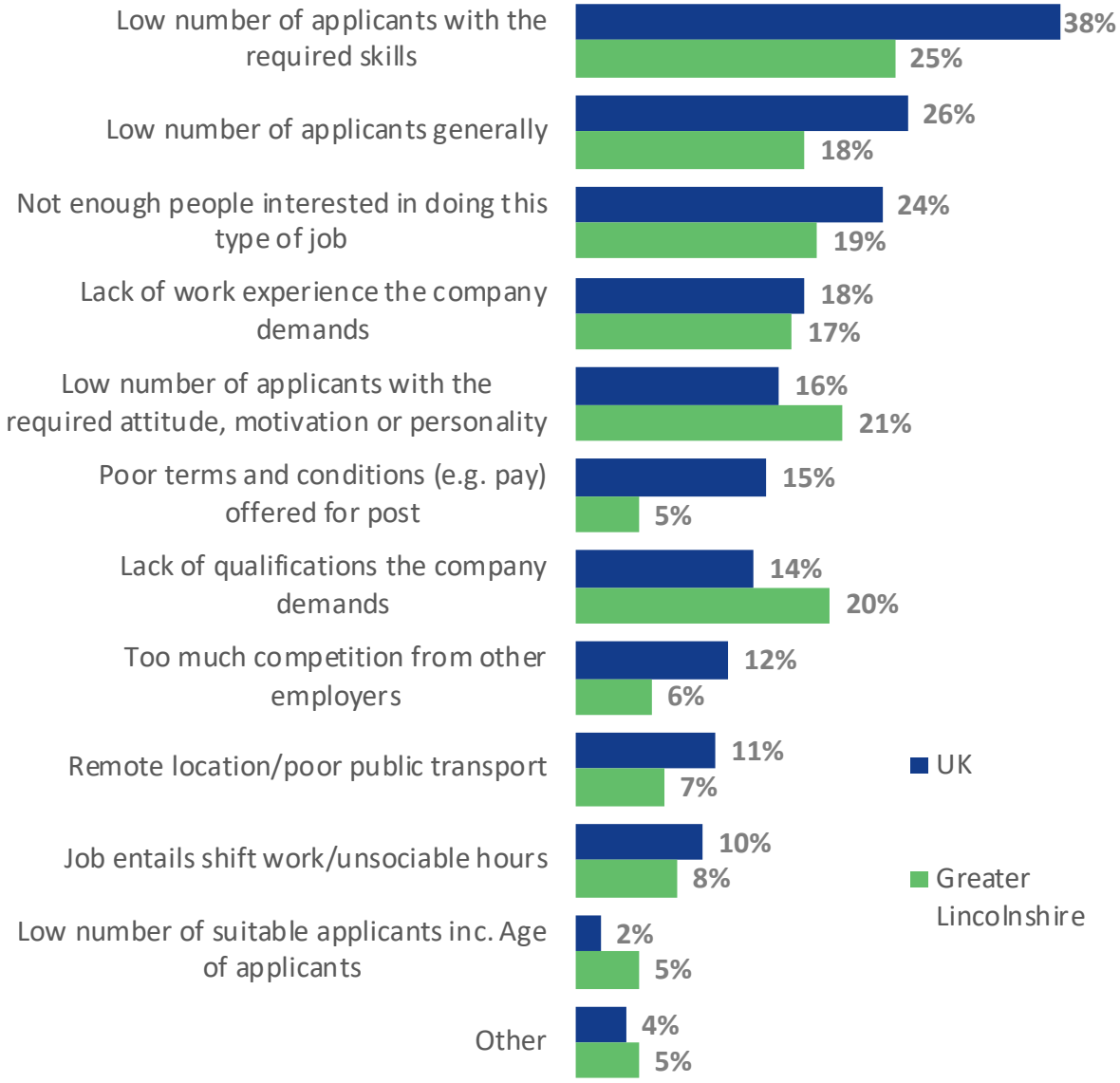


Chart 18 also shows that local employers do not think that low wages or poor terms and conditions are the reason for hard to fill vacancies with only 5% of local employers with hard-to-fill vacancies citing this as a reason compared to 15% nationally. Employers nationally are more likely to think that location and poor public transport is the reason for not filling a vacancy (11% compared to 7% in Greater Lincolnshire) which is a surprise given what we know about the local area.

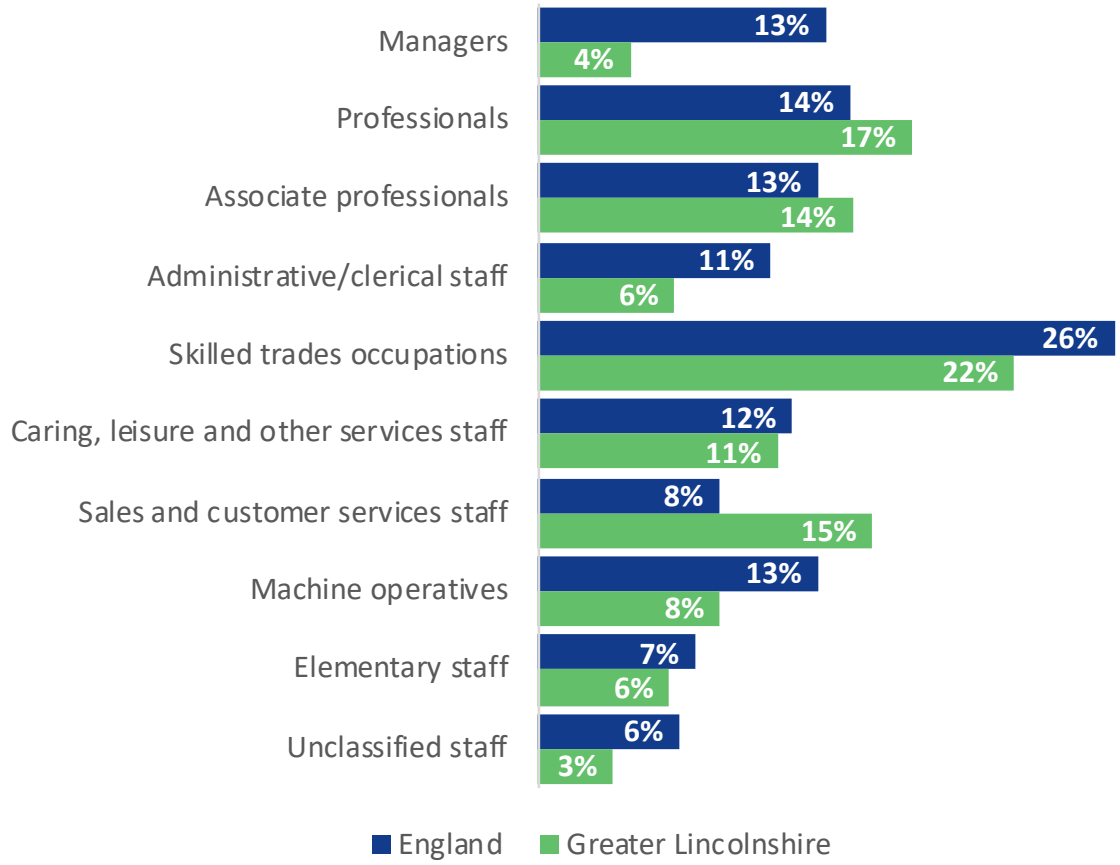
In sectoral terms, employers in the 'Transport and storage' sector were more likely to report having a vacancy that was hard to fill (13% compared to the Greater Lincolnshire average of 5%). *See Appendix D, Chart 49, page 78.*

Skill-shortage vacancies

Employers in the 'Transport and storage' sector (along with those in the sectors of 'Information and communications' and 'Arts and other services') who were more likely to report a skill-shortage vacancy (7% compared to a Greater Lincolnshire average of 4%). *See Appendix D, Chart 50, page 79.*

Chart 19: Skill-shortage vacancies as a % of total vacancies by occupation

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills



If we consider skills shortage vacancies in terms of occupation (rather than sector), and referring to chart 19, 'Skilled trades occupations' are most likely to be a skill-shortage vacancy both locally and nationally. However, it is vacancies for 'Professionals', 'Associate professionals' and 'Sales and customer services staff' that are more likely to be skill-shortage vacancies in Greater Lincolnshire than they are nationally. Managerial skill-shortage vacancies make up only 4% of total managerial vacancies locally compared to 13% nationally.

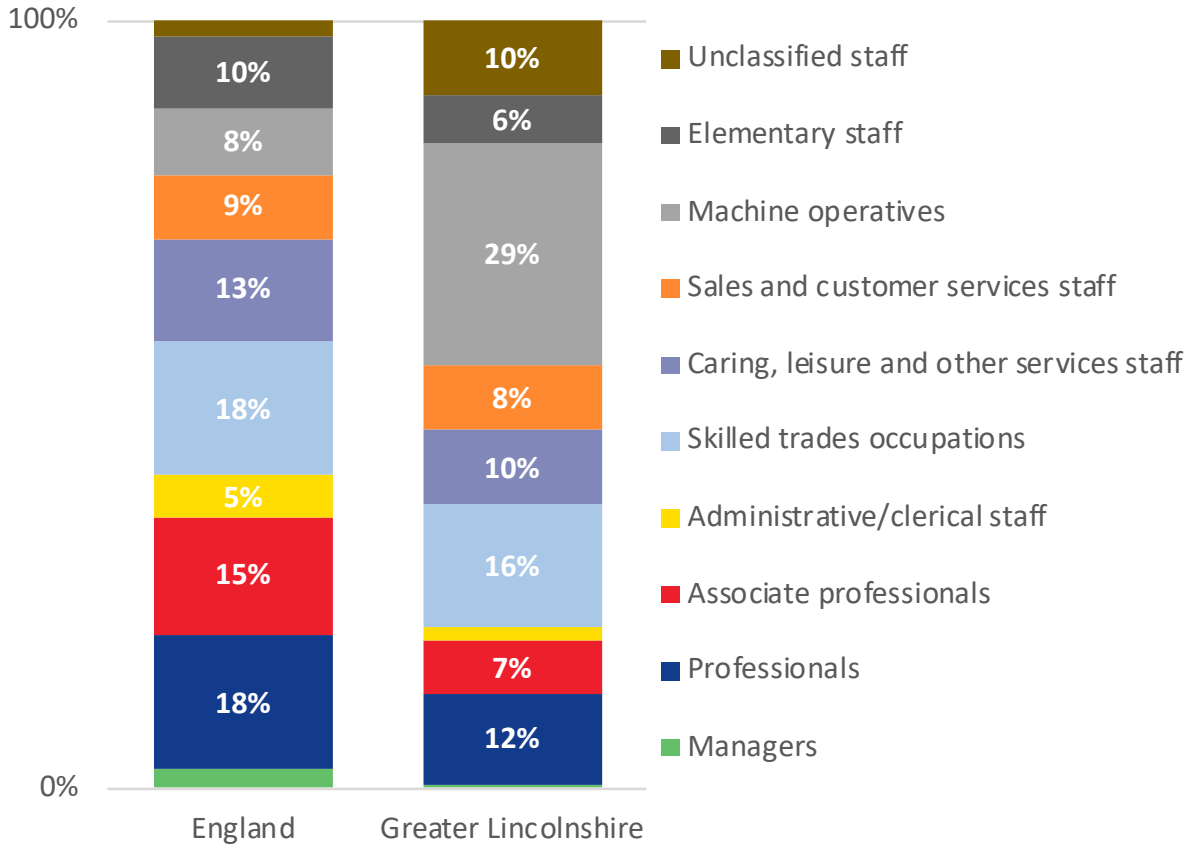
'Professional' roles cover job titles and activities such as engineers, IT and software professionals, nurses, teachers, accountants, doctors, and social workers. 'Associate professional' roles include engineering technicians, finance advisers, adult care workers, analysts, buyers, lab technicians and paramedics. *For full and further details of what these occupational groups cover, please refer to Appendix B, Table 5, page 62.*

Whilst the incidence of skill-shortage vacancies for employers has dropped, and the proportion they make up of total vacancies has dropped, skill-shortage vacancies do make up a greater proportion of all hard-to-fill vacancies in Greater Lincolnshire than nationally, 72% compared to 68% respectively.

Chart 20 groups all of the skill-shortage vacancies together across England and Greater Lincolnshire in 2017 and then breaks them down by occupation. 'Technical' occupations (Associate professionals, Skilled trade occupations, and Machine operatives) make up over half (52%) of all skill-shortage vacancies in Greater Lincolnshire compared to just over two-fifths (41%) nationally. In Greater Lincolnshire, the majority of these technical skill shortage vacancies were for Machine Operatives (for example, HGV and tractor drivers, users of automated tools and 3D printers).

Chart 20: All skill-shortage vacancies by occupation

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills



Again, for full and further details of what the occupational groups in chart 26 cover, please refer to Appendix B, Table 5, page 62.

The UK, through the Home Office, operates a skill-shortage occupation list which is used to help determine the validity of immigration cases in certain circumstances. This list (which is produced in full in Appendix D, pages 80-81) provides a further level of detail when it comes to identifying skill-shortage occupations at the national level.

There are a number of overlaps between the Home Office occupation shortage list and that of the list of specific occupational skills gaps produced by recent research with local employers (*Source: LEP Commissioned ESF Report 'Supporting skills in Greater Lincolnshire: A profile of business engagement, skills needs and skills shortages', July 2019, SkillsReach and Bishop Grosseteste University*).

The full list of local occupational skill shortages is detailed in Appendix D on page 82, but in summary the following occupations (and four digit Standard Occupational Classification code) appear on both sets of lists:

- Engineering professionals not elsewhere classified (2129)
- Nurses (2231)
- Design and development engineers (2126)
- Production and process managers (2127)
- Engineering technicians (3113)
- Chefs (5434)

Wages

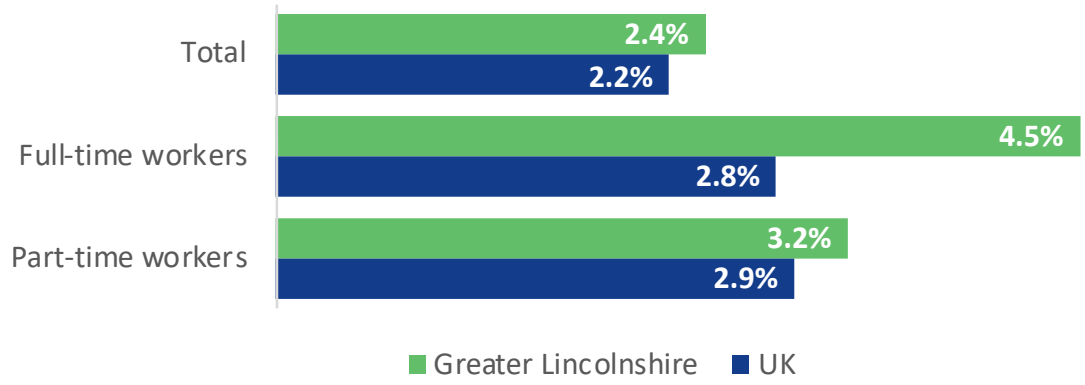
One tool that employers have for attracting more skilled and qualified applicants is wages. Wages rates for all workers in Greater Lincolnshire are on average 86% of the national average, with nearly a third (32%) of workplace jobs pay under the real living wage.

However, the picture across the LEP area is complex. As of 2018, the average (median) wage for full time workers in Greater Lincolnshire was £25,720, compared to £29,574 across the UK. In North Lincolnshire this figure was as high as £28,727, whilst in Boston it was £22,414.

Analysis of advertised salaries for job vacancies shows that locally 40% of job vacancies in the last year had salaries of £30,000 and above, compared to 49% nationally. 2.5% of vacancies locally had salaries of £90,000 and above, close to that seen nationally (2.9%).

Chart 21: Change in workplace based median wage levels, 2017 - 2018

Source: Annual Survey of Hours and Earnings, Office for National Statistics



The picture is starting to change because in the last year Greater Lincolnshire has seen growth in wages faster/higher than the national average (Chart 21), and should continue to

rise if, as projected, jobs that require no qualifications are replaced by jobs that do require qualifications.

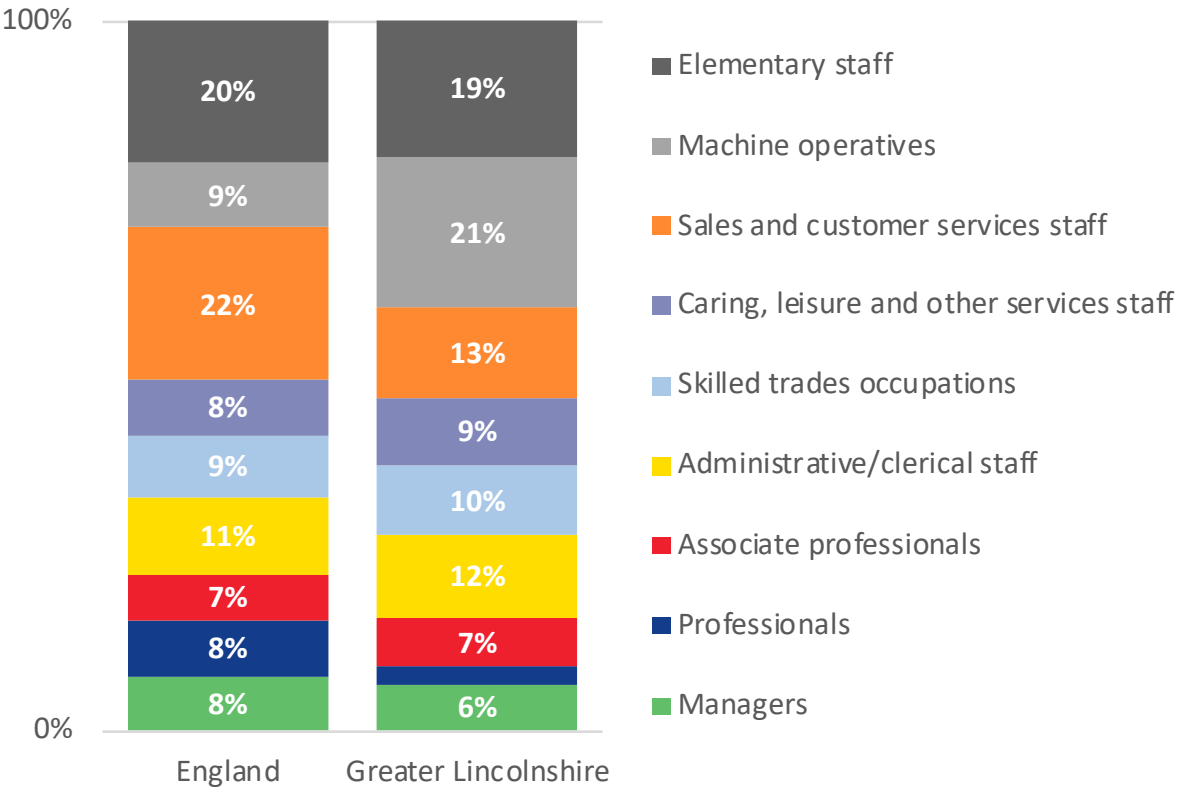
Overall, whilst wage levels locally are lower than the national average, this does not mean that opportunities for much higher wages do not exist. Equally, these relatively lower wages do also need to be considered alongside the higher quality of life and lower cost of living enjoyed by many, but not all, residents.

Workforce

Up until now we have concentrated on those employers who are trying to recruit, but employers can experience skills gaps across their workforce (i.e. they have staff who are not fully proficient). 14% of Greater Lincolnshire employers reported this as an issue, compared to 13% nationally. Chart 22 shows the occupations where these skills gaps are arising with 'Machine operatives' being a particular issue in Greater Lincolnshire when compared to the national picture.

Chart 22: Staff not fully proficient by occupation

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills

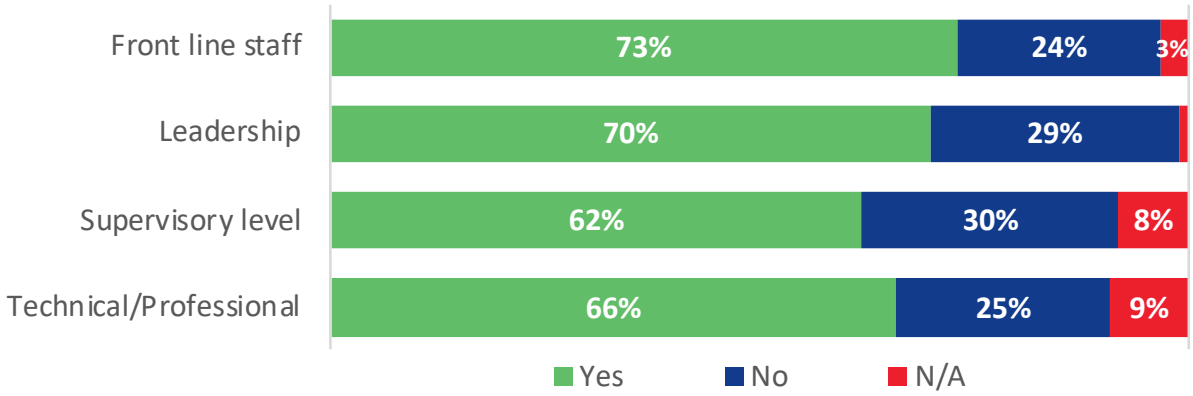


It is worth noting here that, based on charts 20 and 22, it is Machine Operative occupations that make up the majority of skill-shortage vacancies, and also where skills gaps are arising in the current workforce in Greater Lincolnshire. Again, Machine Operative occupations cover such roles as HGV and tractor drivers, and users of automated tools and 3D printers.

Recent local research about skills gaps within the workforce with Greater Lincolnshire employers, has identified challenges across all four key employment categories with the highest reported incidences amongst front line staff (Chart 23).

Chart 23: Skills gaps experienced by Greater Lincolnshire employers with existing staff

Source: LEP Commissioned ESF Report 'Supporting skills in Greater Lincolnshire: A profile of business engagement, skills needs and skills shortages', July 2019, SkillsReach and Bishop Grosseteste University



As well as people lacking the right skills and qualifications, in some cases staff are over-qualified and effectively being underutilised. In 2017, nearly a third (32%) of Greater Lincolnshire employers reported having staff that are under-utilised (i.e. those that have both qualifications and skills that are more advanced than required for their current job role). Nationally, this figure was slightly higher at 34%, and it also worth noting here that employers reporting underutilised staff has fallen from 41% in 2013.

Analysis of employer provided training from the Employer Skills Survey tells us that the number of staff being trained locally is falling over time, from 256,000 in 2013 to 240,000 in 2017. Nationally, this figure increased over the same period. However, it would appear that the training being delivered locally is much more targeted and specific to the trainee. Over this same period, in Greater Lincolnshire both the number of training days per trainee, and training days per staff have increased, whereas nationally they decreased *(See Appendix D, Chart 47, page 76).*

Summary

In summary, the data on issues where supply meets demand is telling us that:

- In 2017, 29% of of vacancies in Greater Lincolnshire were reported by employers as hard-to-fill, and more than two thirds were reported to be due to skills shortages. This compares to 33% hard to fill vacancies nationally, with a lower proportion due to skills shortages.

- The incidence of hard-to-fill vacancies (as a proportion of all vacancies) has increased between 2011 and 2017 both nationally and at the Greater Lincolnshire level.

- Only 5% of Greater Lincolnshire employers experienced hard-to-fill vacancies in 2017, and 4% experienced skill-shortage vacancies. In both instances, these incidence rates were lower than those experienced nationally (8% and 6% respectively).

- 'Skilled trade occupations' and 'sales and customer service staff', along with 'Caring, leisure and other services staff', were more likely to be cited by employers as being hard-to-fill.

- Greater Lincolnshire employers were most likely to cite 'low numbers of applicants with the required skills' for why vacancies were hard-to-fill, although they were much less likely to point to this than employers nationally.

- Greater Lincolnshire employers were however more likely than nationally to cite reasons of attitude, motivation, and lack of qualifications.

- Local employers do not think that low wages or poor terms and conditions are the reason for hard to fill vacancies with only 5% of local employers with hard-to-fill vacancies citing this as a reason compared to 15% nationally.

- Skill-shortage vacancies make up a greater proportion of all hard-to-fill vacancies in Greater Lincolnshire than nationally, 72% compared to 68% respectively.

- 'Skilled trades occupations' are most likely to be a skill-shortage vacancy both locally and nationally. However, it is vacancies for 'Professionals', 'Associate professionals' and 'Sales and customer services staff' that are more likely to be skill-shortage vacancies in Greater Lincolnshire than they are nationally.

- Wages rates for all workers in Greater Lincolnshire are on average 86% of the national average, with nearly a third (32%) of workplace jobs pay under the real living wage.

- 14% of Greater Lincolnshire employers reported experiencing skills gaps across their workforce (i.e. they have staff who are not fully proficient) compared to 13% nationally.

Data Summary and Conclusion

Choosing headlines is not easy in such a data rich report. The main features of the Greater Lincolnshire LEP labour market are shown below.

The Local Landscape

Greater Lincolnshire has 45% of its employees (compared to 32% nationally) working in micro and small businesses.

Greater Lincolnshire has a population density of just 136 people per sq.km compared to 430 nationally. This is below Cornwall's 158 people per sq.km. This level of sparsity means that reaching business and employees is hugely challenging.

Considering issues purely at a Greater Lincolnshire level hides disparities in performance and conditions at smaller geographical levels. Some locations in the LEP area are amongst the upper end of the Social Mobility Index and some amongst the lowest.

Wages rates are approximately 14% lower than the national average however this fact hides a very complex picture across the LEP area and there are rates at very good and very low levels.

Economy and Labour Demand

Of the 62,000 job vacancies posted in Greater Lincolnshire during the period August 2018 – July 2019, just over 30% were classed as being 'Technical'. Employers focus on skills such 'communication skills', 'customer service' and 'teamwork / collaboration', and 80% of advertised job vacancies did not stipulate a qualification requirement.

Over the ten year period 2014-2024 the Greater Lincolnshire economy is expected to have filled 207,000 jobs. The vast majority (90% or 186,000) of positions will become available due to people leaving the Greater Lincolnshire workforce, mainly as a result of retirement.

Forecasts for qualification requirements point to a decline in demand for positions to be filled by people with no qualifications and Level 1 qualifications.

Nearly 160,000 jobs over the next 15 years or so will be affected in some way (either by being made obsolete or the role changing) through the introduction of new technologies as part of Industrial Revolution 4.0.

Skills and Labour Supply

The proportion of residents aged 16 plus with higher level qualifications is growing but not as fast as the national average.

35% of Greater Lincolnshire residents aged 25-39 have a level 4 qualification or above, compared to 48% nationally.

A larger proportion of Greater Lincolnshire residents have never used or not used the internet in the last three months; 11.3% of the population compared to 7.5% across the UK.

There is clear divide across Greater Lincolnshire in terms of qualification levels between many west and east areas.

Supply Meets Demand

In 2017, 29% of vacancies in Greater Lincolnshire were reported by employers as hard-to-fill, and more than two thirds were reported to be due to skills shortages.

In 2017, nearly a third (32%) of Greater Lincolnshire employers reported having staff that are under-utilised, (i.e. those that have both qualifications and skills that are more advanced than required for their current job role).

Greater Lincolnshire employers were most likely to cite 'low numbers of applicants with the required skills' for why vacancies were hard-to-fill, and were however more likely, than nationally, to cite reasons of attitude, motivation, and lack of qualifications.

Local employers do not think that low wages or poor terms and conditions are the reason for hard to fill vacancies with only 5% of local employers with hard-to-fill vacancies citing this as a reason compared to 15% nationally.

14% of Greater Lincolnshire employers reported experiencing skills gaps across their workforce, and gaps are across all types of roles: front line staff, supervisor level, leadership and technical/professional.

Conclusion

The data would suggest on one hand that the Greater Lincolnshire labour market is performing well: unemployment is low, employment is high, reported occurrences of hard-to-fill vacancies are just below the national average, (although high at 29%), and employer reported incidences of both hard-to-fill and skill shortage vacancies is below that seen nationally.

Yet we know that some of our sectors are struggling to find the right skilled labour, plus Greater Lincolnshire's GVA per head and levels of productivity (GVA per job, and GVA per hour worked) are lower than the national average, and many of its contemporary LEP areas.

Qualification levels of the overall population have risen over time but they remain far behind the national average, and have for many years. Wages have increased in the last year, but they remain on average well below national rates, yet employers who are struggling to fill vacancies don't report that wages are the problem.

Employers with hard to fill vacancies are more likely to cite a lack of qualified applicants than the national average and there is a low proportion of adults with Level 4+ qualifications. Add to that decreasing levels of adult participation in Further Education, and a projected decrease in the working age population and ***the conclusion would be that the supply of qualifications, or skills, is not meeting demand***. The likely impact of Brexit and automation will exacerbate that.

Why, in an area that historicially has had such good level 2 qualification results, is there not an equally good supply of level 3 skills and higher? Previous attempts to understand this have not been able to show that it is solely due to young, and qualified people leaving the area for careers elsewhere.

It is possible to come to a conclusion, given the long history of lower level qualifications within the population, combined with a background of traditional industry and small and family businesses, that local employers in the past have simply become accustomed to having a small pool of higher level skills from which to recruit, and they have managed without.

This might explain the observations in previous local skills reports that there is limited demand from employers, (and possibly employees), to grow intermediate and higher level skills. They do not recognise the need because they have managed fairly well without.

The landscape is changing, and the need for different kinds of qualifactions is changing. Many older employees are starting to retire, and business owners cannot find people to replace them. New sectors have developed, new businesses have been established, technology has changed, and automation is displacing lower skilled jobs.

Not only does there need to be an increase in the qualification levels of the local population to satisfy demand in new sectors, there is a requirement for new skills in traditional sectors that are automating. Young people need to be inspired about these new careers on their doorstep so that they remain in the area. Finally there is a need to support smaller businesses to articulate their skills needs so that the local labout market has the qualifications and attitudes that employers say they lack, and support the education and skills sector to deliver them.

Priorities

1. **Work with schools to help inspire and inform our young people about the kinds of businesses and careers available on their doorstep so that fewer leave the LEP area**

2. **Engage with the new National Retraining Scheme when it is rolled out across England in 2020 so that adults are inspired and informed about the kinds of businesses and careers available on their doorstep**

3. **Work with Government to maximise the effectiveness of skills and training schemes so that all employers and residents can benefit:**

    a. Continue to work with ESFA teams to ensure that European Social Funding skills and training programmes are supporting adults across the whole LEP area not just urban areas.

    b. Maximise the effectiveness of the Apprenticeship Levy so that it is working for businesses across the whole LEP area.

    c. Support Government to successfully rollout T Levels in all areas

    d. Raise awareness of the Fuller Working Lives agenda

4. **Work with business to prioritise workforce development, succession planning and recruitment strategies so that they can replace staff that will retire:**

    a. Develop apprenticeship programmes and industry placements.

    b. Work with schools.

    c. Train their staff.

5. **Find ways to support small business owners and self-employed people to re-train or upskill because they make up a good proportion of the population**

6. **Continue to invest in modernising and advancing Further and Higher Education facilities and equipment, making them more relevant to the present working environment and more appealing to young people so that they remain in the area rather than seek better facilities elsewhere, through:**

    a. The Local Growth Fund

    b. The Greater Lincolnshire Institute of Technology

7. **Develop additional local analysis about how the labour market works at local level because the large LEP geography has a relatively high number of travel to work areas.**

8. **Use our existing networks to understand and communicate employers' real skills needs, it is not enough to say that we will upskill our young people and our residents.**

9. **Ensure that adults and young people are not digitally excluded by working with Government to develop Local Digital Skills Partnerships in our market towns**

For further information and relevant policies please see Appendix E, pages 84-86.

Appendix A

The Local Landscape – Additional Data Analysis and Commentary

Enterprises and Businesses

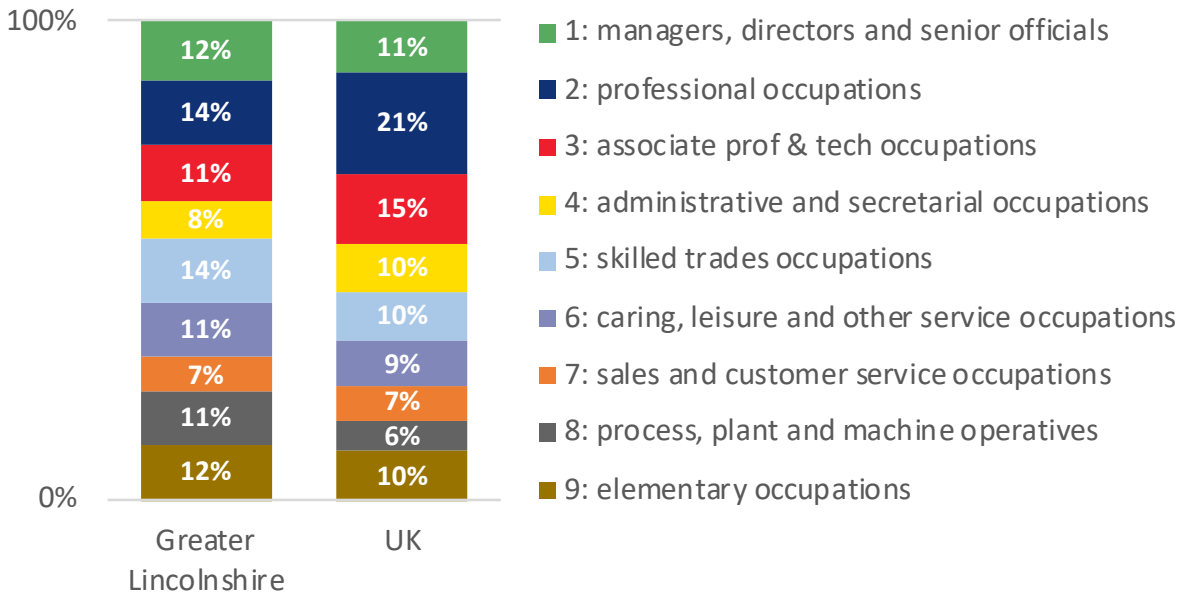
An Enterprise is defined as the overall business, made up of individual sites, workplaces or branches. It is defined as the smallest combination of legal units, generally based on VAT and/or PAYE records, that has a certain degree of autonomy within an enterprise group. An Enterprise may have several, or hundreds of sites. Enterprises, such as supermarket chains, that have their main base outside of Greater Lincolnshire are not included in this count.

Referring to the Business Register and Employment Survey (BRES, Office for National Statistics), there are 427,300 people who are employees in Greater Lincolnshire (in VAT/PAYE businesses).

Employment figures relating to local enterprises places employment at 338,490. On this basis we could assume that the difference of 88,810 people are employed in enterprises not local to the area. These will be mainly large businesses headquartered out of the area.

These figures also do not count the estimated 50,500 non VAT/PAYE registered businesses (based on local analysis of the Business Population Estimate methodology) operating in Greater Lincolnshire.

Chart 24: Resident Employment by Occupation, 2018/19
Source: Annual Population Survey, Office for National Statistics



Greater Lincolnshire Business Demography - Enterprises 2018

		Micro (0 to 9)		Small (10 to 49)		Medium-sized (50 to 249)		Total SME (0 to 249)		Large (250+)	
Industry	**Total**	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
1 : Agriculture, forestry & fishing (	**4,320**	4,085	**94.6%**	215	**5.0%**	20	**0.5%**	4,320	**100.0%**	0	**0.0%**
2 : Mining, quarrying & utilities (B,I	**230**	185	**80.4%**	35	**15.2%**	10	**4.3%**	230	**100.0%**	0	**0.0%**
3 : Manufacturing (C)	**2,225**	1,750	**79.4%**	345	**15.6%**	110	**5.0%**	2,205	**99.1%**	20	**0.9%**
4 : Construction (F)	**5,170**	4,825	**93.4%**	305	**5.9%**	35	**0.7%**	5,165	**99.9%**	5	**0.1%**
5 : Motor trades (Part G)	**1,545**	1,390	**90.0%**	140	**9.1%**	15	**1.0%**	1,545	**100.0%**	0	**0.0%**
6 : Wholesale (Part G)	**1,555**	1,265	**81.6%**	240	**15.5%**	45	**2.9%**	1,550	**99.7%**	5	**0.3%**
7 : Retail (Part G)	**2,980**	2,630	**88.4%**	325	**10.9%**	20	**0.7%**	2,975	**99.8%**	5	**0.2%**
8 : Transport & storage (inc posta	**2,760**	2,500	**90.9%**	205	**7.5%**	45	**1.6%**	2,750	**99.6%**	10	**0.4%**
9 : Accommodation & food servic	**2,495**	1,910	**76.7%**	535	**21.5%**	45	**1.8%**	2,490	**99.8%**	5	**0.2%**
10 : Information & communication	**1,230**	1,175	**95.5%**	45	**3.7%**	10	**0.8%**	1,230	**100.0%**	0	**0.0%**
11 : Financial & insurance (K)	**540**	510	**94.4%**	25	**4.6%**	5	**0.9%**	540	**100.0%**	0	**0.0%**
12 : Property (L)	**1,120**	1,050	**93.8%**	60	**5.4%**	10	**0.9%**	1,120	**100.0%**	0	**0.0%**
13 : Professional, scientific & tech	**4,380**	4,130	**94.4%**	215	**4.9%**	30	**0.7%**	4,375	**99.9%**	5	**0.1%**
14 : Business administration & su	**2,555**	2,245	**88.6%**	230	**9.1%**	60	**2.4%**	2,535	**99.2%**	20	**0.8%**
15 : Public administration & defen	**295**	275	**94.8%**	10	**3.4%**	5	**1.7%**	290	**98.3%**	5	**1.7%**
16 : Education (P)	**645**	425	**68.0%**	120	**19.2%**	80	**12.8%**	625	**96.9%**	20	**3.1%**
17 : Health (Q)	**1,410**	920	**66.2%**	390	**28.1%**	80	**5.8%**	1,390	**98.6%**	20	**1.4%**
18 : Arts, entertainment, recreatio	**2,215**	1,980	**89.6%**	205	**9.3%**	25	**1.1%**	2,210	**99.8%**	5	**0.2%**
Column Total	**37,655**	**33,250**	**88.6%**	**3,640**	**9.7%**	**640**	**1.7%**	**37,530**	**99.7%**	**125**	**0.3%**

Appendix B

Economy and Labour Demand – Additional Data Analysis and Commentary

Table 4: Jobs not elsewhere classified

Standard Occupational Classification (SOC)	Job Title	Jobs related to this code:
1259	Managers and proprietors in other services n.e.c.	- Betting shop manager - Graphic design manager - Library manager - Plant hire manager - Production manager (entertainment)
2129	Engineering professionals n.e.c.	- Acoustician (professional) - Ceramicist - Food technologist - Metallurgist - Patent agent - Project engineer - Scientific consultant - Technical engineer - Technologist - Traffic engineer
2319	Teaching and other educational professionals n.e.c.	- Adult education tutor - Education consultant - Music teacher - Nursery manager (day nursery) - Owner (nursery: childrens) - Private tutor
3119	Science, engineering and production technicians n.e.c	- School technician - Technical assistant - Technician - Textile consultant - Workshop technician
4159	Other administration occupations n.e.c.	- Administrative assistant - Clerical assistant - Clerical officer - Clerk - Office administrator
7129	Sales Related Occupations n.e.c	- Demonstrator - Hire controller - Sales representative (retail trade)

Standard Occupational Classification (SOC)	Job Title	Jobs related to this code:
7219	Customer service occupations n.e.c.	- Customer adviser - Customer service administrator - Customer service adviser - Customer service assistant - Customer services representative

Chart 25: Top 15 Vacancies in Boston, August 2018 – July 2019 *(Total number of vacancies during this period = 4,389)*

Source: Labour Market Insight, Burning Glass

Chart 26: Top 15 Vacancies in East Lindsey, August 2018 – July 2019 ***(Total number of vacancies during this period = 3,540)***

Source: Labour Market Insight, Burning Glass

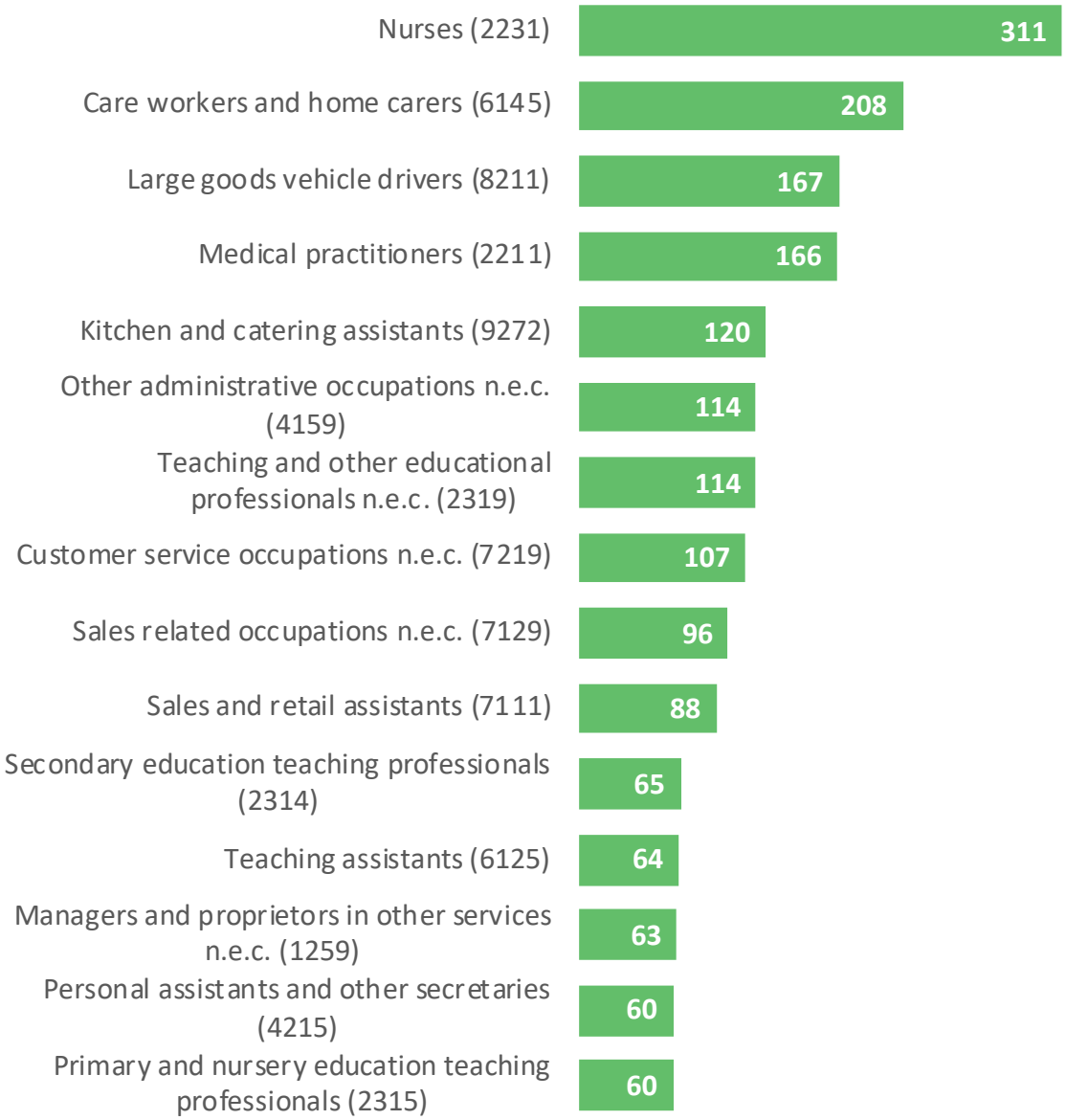


Chart 27: Top 15 Vacancies in Lincoln, August 2018 – July 2019 ***(Total number of vacancies during this period = 14,680)***

Source: Labour Market Insight, Burning Glass

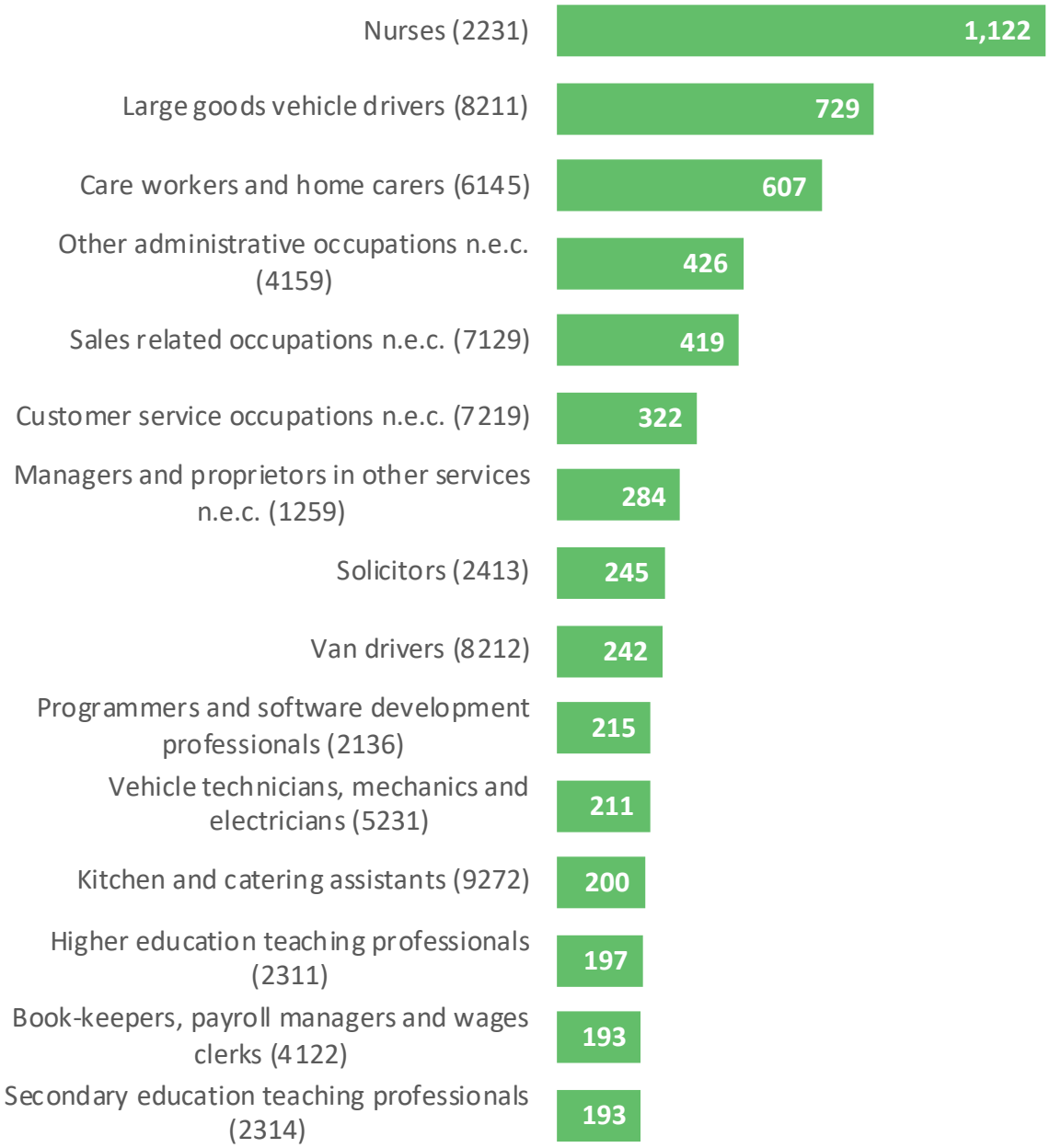


Chart 28: Top 15 Vacancies in North Kesteven, August 2018 – July 2019 ***(Total number of vacancies during this period = 1,339)***

Source: Labour Market Insight, Burning Glass

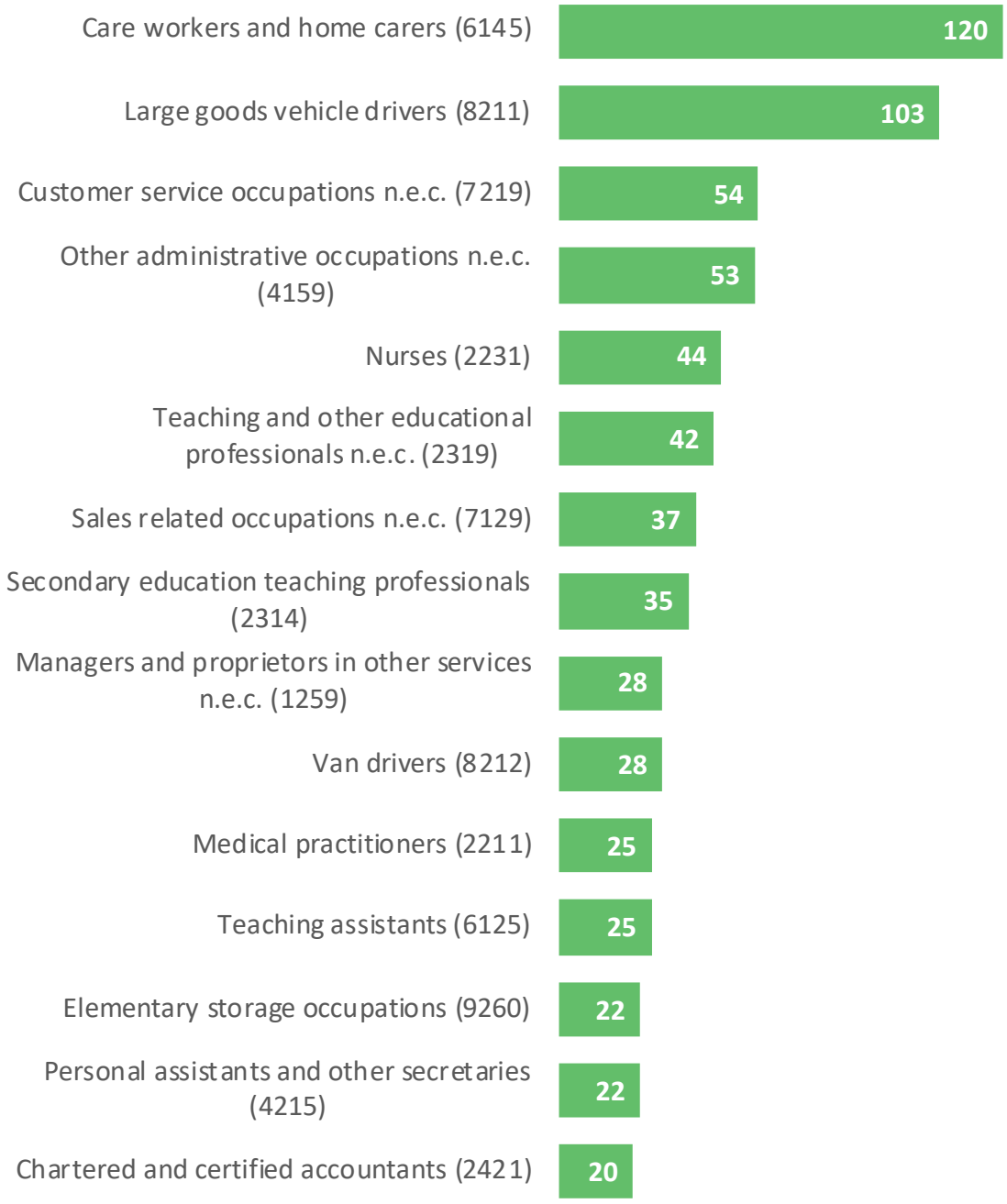


Chart 29: Top 15 Vacancies in South Holland, August 2018 – July 2019 ***(Total number of vacancies during this period = 2,791)***

Source: Labour Market Insight, Burning Glass

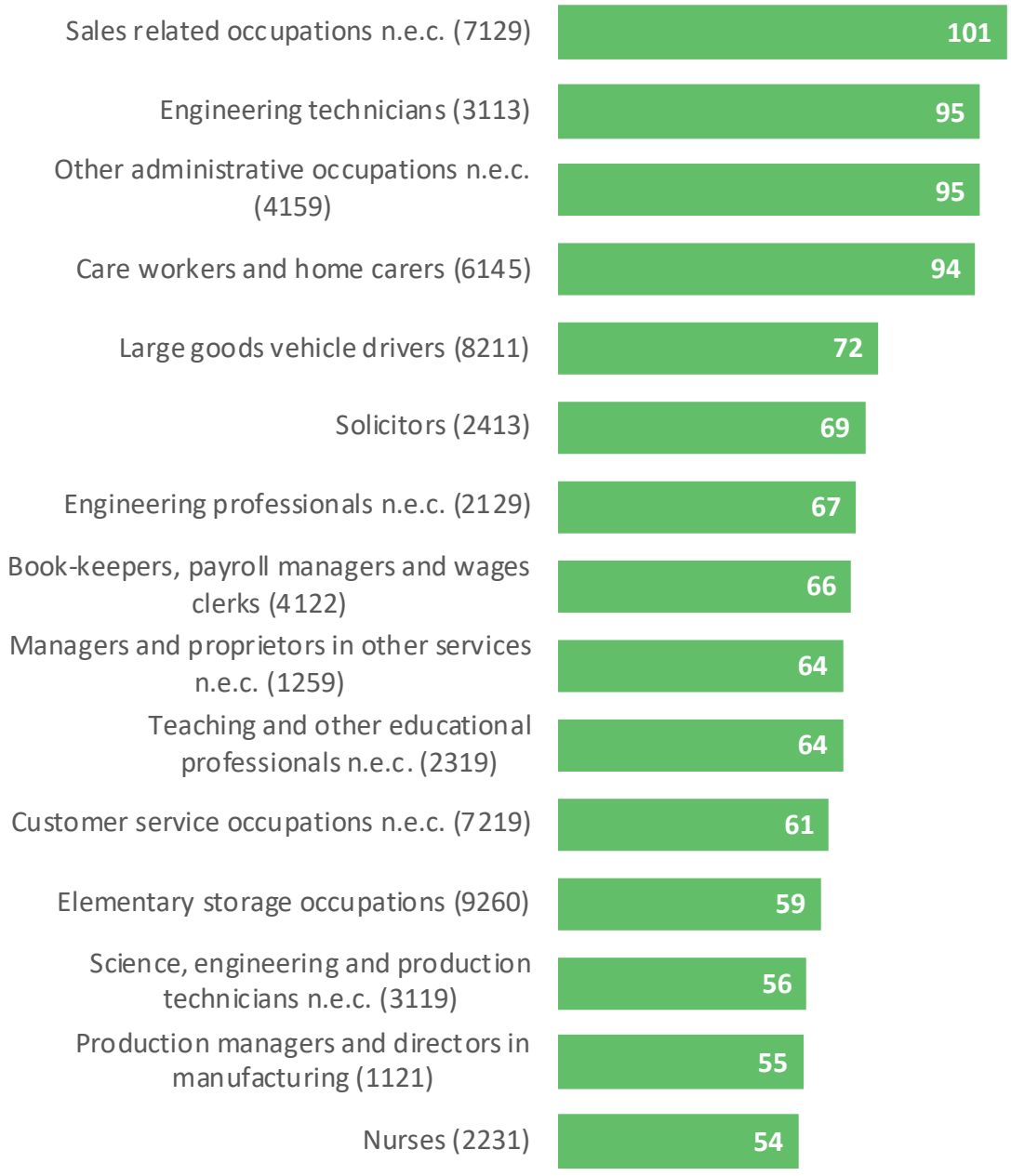


Chart 30: Top 15 Vacancies in South Kesteven, August 2018 – July 2019 ***(Total number of vacancies during this period = 6,995)***

Source: Labour Market Insight, Burning Glass

Chart 31: Top 15 Vacancies in West Lindsey, August 2018 – July 2019 ***(Total number of vacancies during this period = 2,346)***

Source: Labour Market Insight, Burning Glass

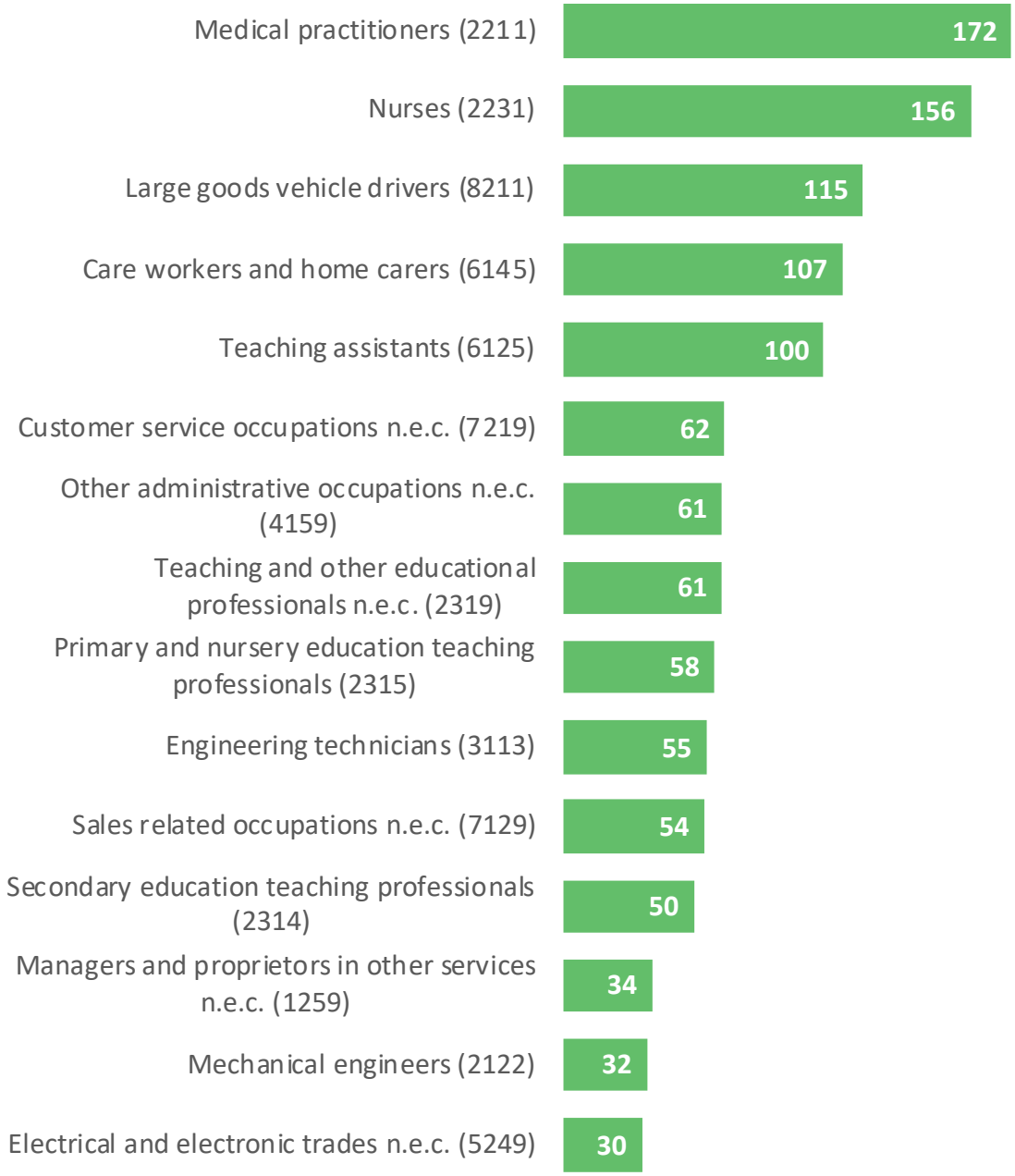


Chart 32: Top 15 Vacancies in North East Lincolnshire, August 2018 – July 2019

(Total number of vacancies during this period = 7,300)

Source: Labour Market Insight, Burning Glass

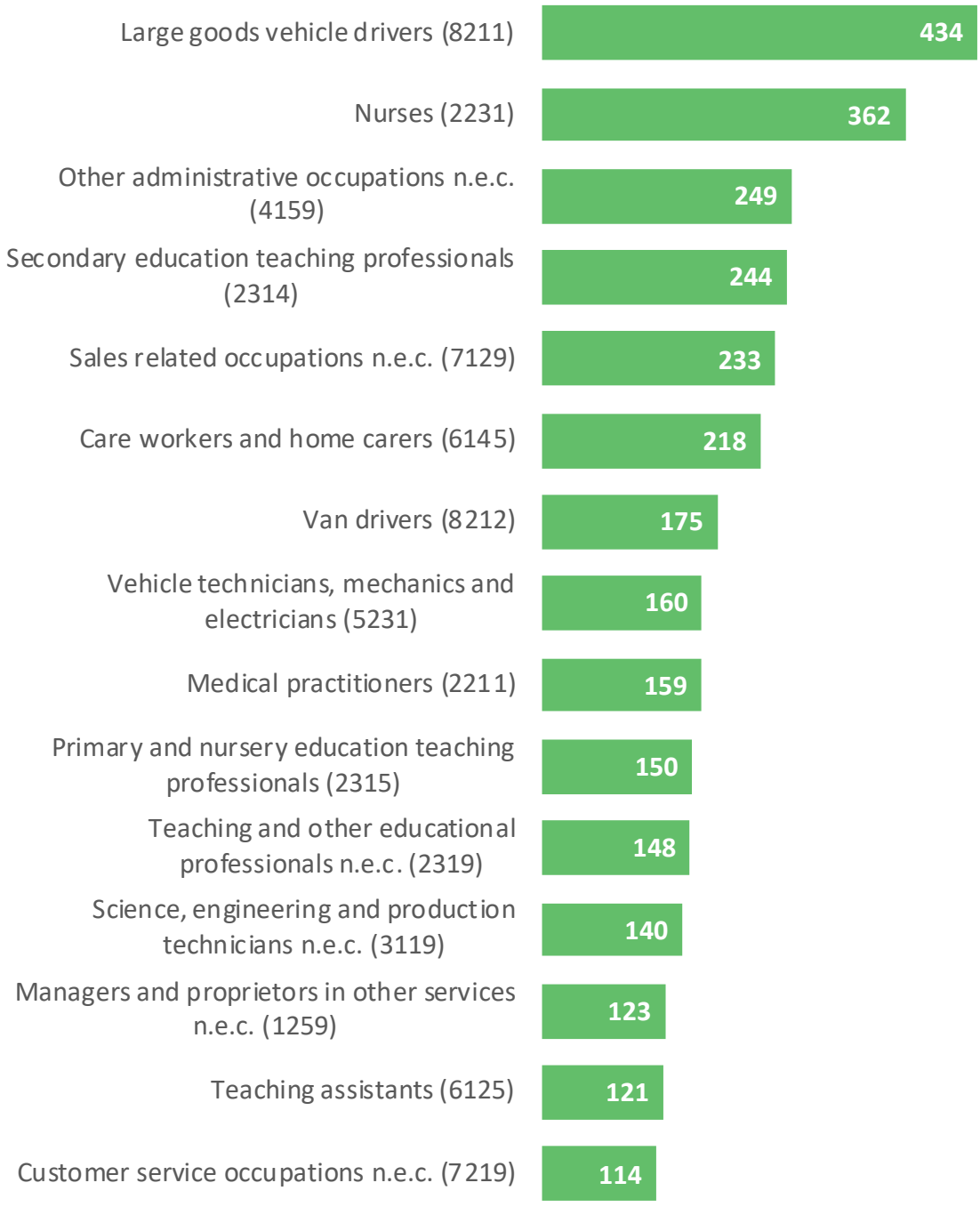


Chart 33: Top 15 Vacancies in North Lincolnshire, August 2018 – July 2019

(Total number of vacancies during this period = 6,782)

Source: Labour Market Insight, Burning Glass

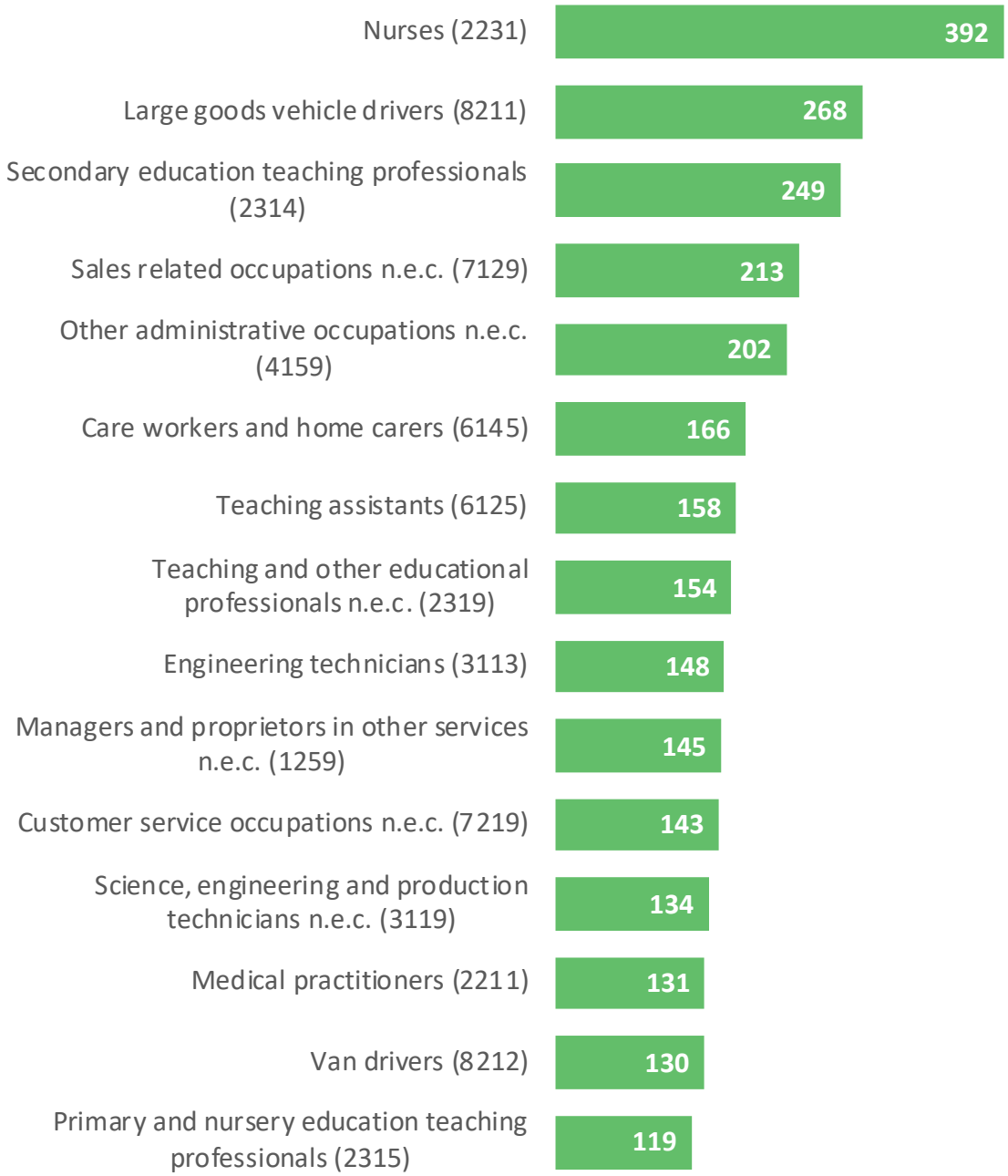


Chart 34: Job vacancies by broad occupation (Standard Occupational Classification code) in Greater Lincolnshire, August 2018 – July 2019

Source: Labour Market Insight, Burning Glass

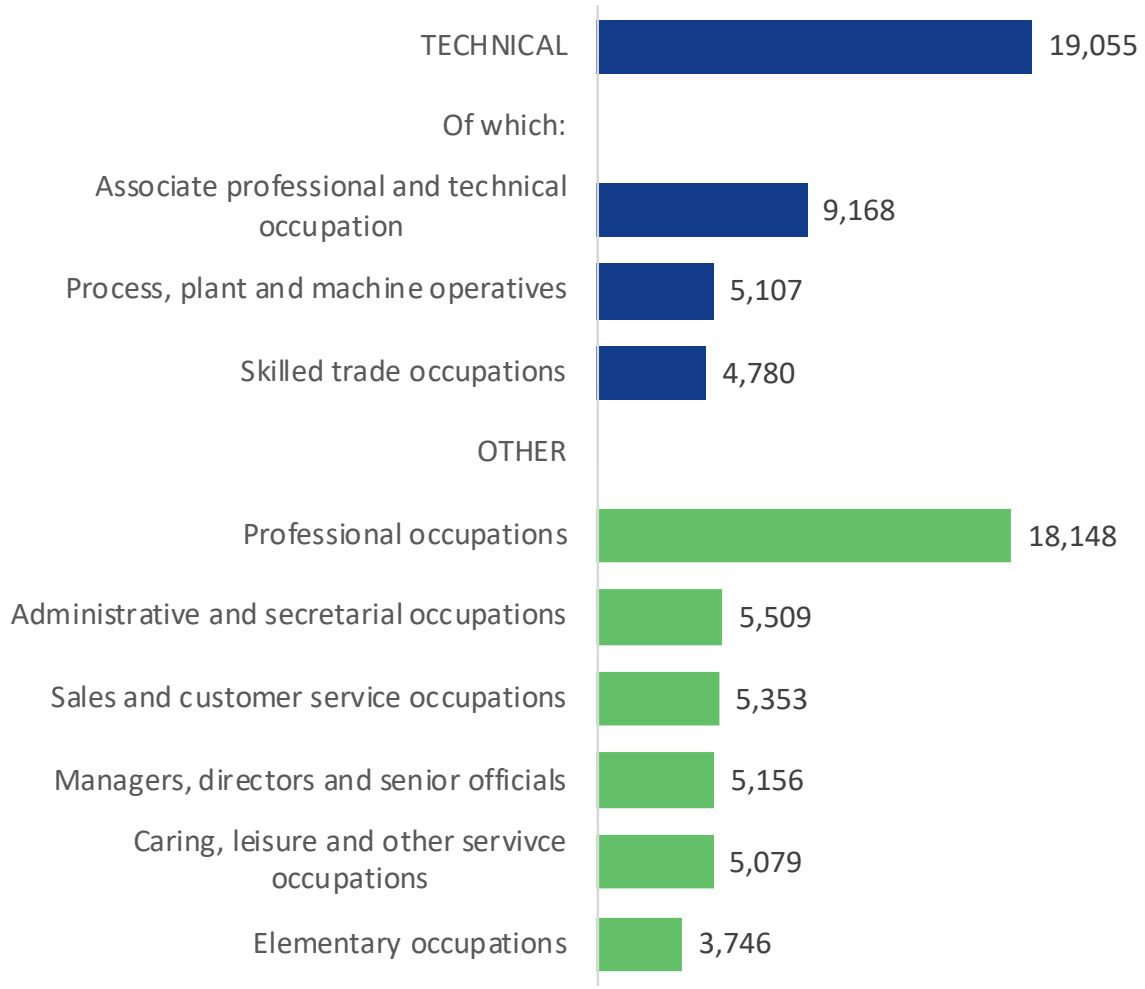


Chart 35: Top 10 Baseline Skills, 2013 and 2018

Source: Labour Market Insight, Burning Glass

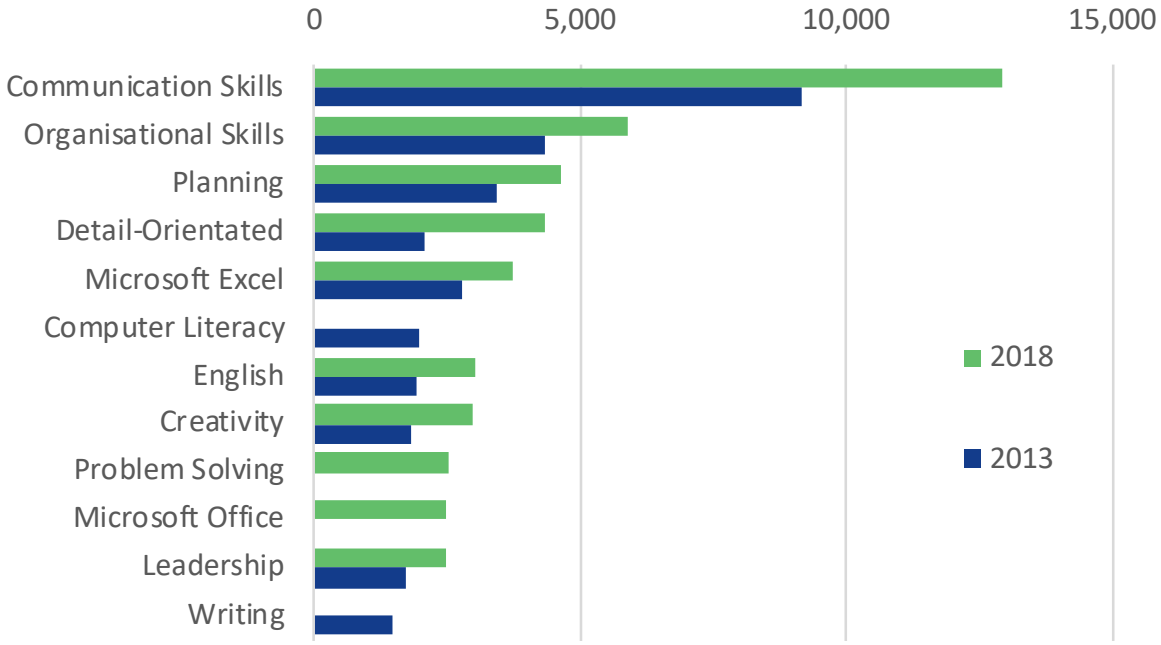


Chart 36: Top 10 Specialised Skills, 2013 and 2018

Source: Labour Market Insight, Burning Glass

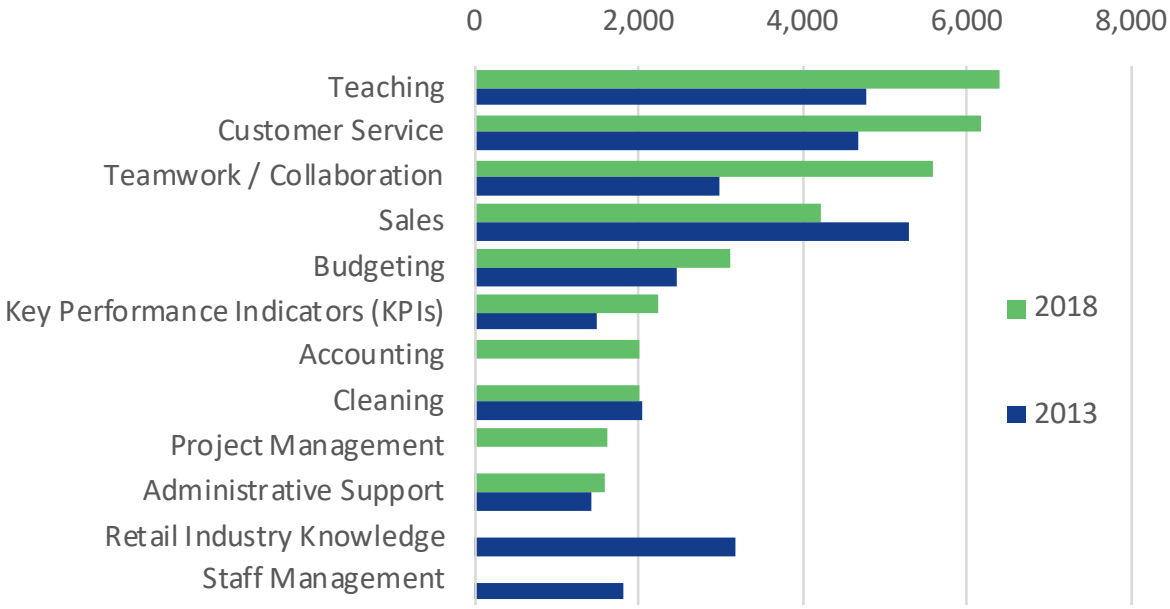


Chart 37: Top 10 Computer Skills, 2013 and 2018

Source: Labour Market Insight, Burning Glass

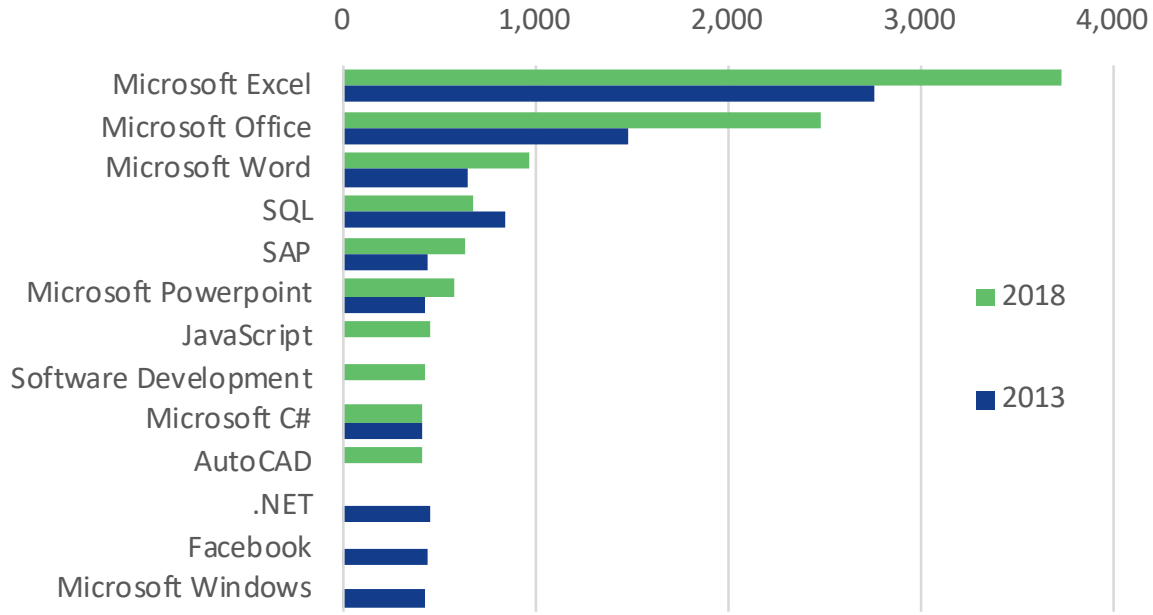


Table 5: Further examples of job types by occupational group and sector

Occupational Group	Primary sectors (Agriculture, Utilities, Manufacturing, Construction)	Service sectors (Retail, Business, Finance, Transport, etc.)	Public sector (Public admin, Health, Education, etc.)
Managers, Directors and Senior Officials	Site managers, department heads, shift managers (not supervisors)	Directors, Managers /Branch/Site managers, shift managers (not supervisors)	Police inspectors and above, department heads, head teachers, senior officials, health/social service managers/directors
Professionals	Professional engineers, software and IT professionals, accountants, chemists, scientific researchers	Solicitors, lawyers, accountants, IT professionals, economists, architects, actuaries	Doctors, nurses, midwives, teachers, social workers, librarians
Associate Professionals	Science and engineering technicians, lab technicians, IT technicians, accounting technicians	Insurance underwriters, finance/investment analysts and advisers, writers/ journalists, buyers, estate agents	Junior police/fire/ prison officers, therapists, paramedics, adult care workers, housing officers
Administrative staff	Secretaries, receptionists, PAs, telephonists, bookkeepers	Secretaries, receptionists, PAs, communication operators, market research interviewers, clerks	Secretaries, receptionists, PAs, local government officers and assistants, office assistants, library and database assistants
Skilled Trades	Farmers, electricians, machine setters / tool makers, carpenters, plasterers	Motor mechanics, printers, TV engineers, butchers	Chefs
Caring, Leisure and Other Service Occupations	Care assistants, nursery nurses	Travel agents, travel assistants, hairdressers, housekeepers	Care assistants, home carers, nursery nurses, ambulance staff, pest control, dental nurses, caretakers

Occupational Group	Primary sectors (Agriculture, Utilities, Manufacturing, Construction)	Service sectors (Retail, Business, Finance, Transport, etc.)	Public sector (Public admin, Health, Education, etc.)
Sales and customer service occupations	Customer facing roles: sales staff and call centre agents	Sales assistants and retail cashiers, telesales, call centre agents	Customer care operations
Process, plant and machine operatives	Routine operatives, drivers, machine operators, sorters and assemblers	HGV, van, fork-lift, bus and taxi drivers	Drivers, vehicle inspectors
Elementary occupations	Labourers, packers, goods handling and storage staff	Bar staff, shelf fillers, catering assistants, waiters/waitresses, cleaners	Labourers, cleaners, road sweepers, traffic wardens, security guards

Working Futures Data – Assumptions and confidence

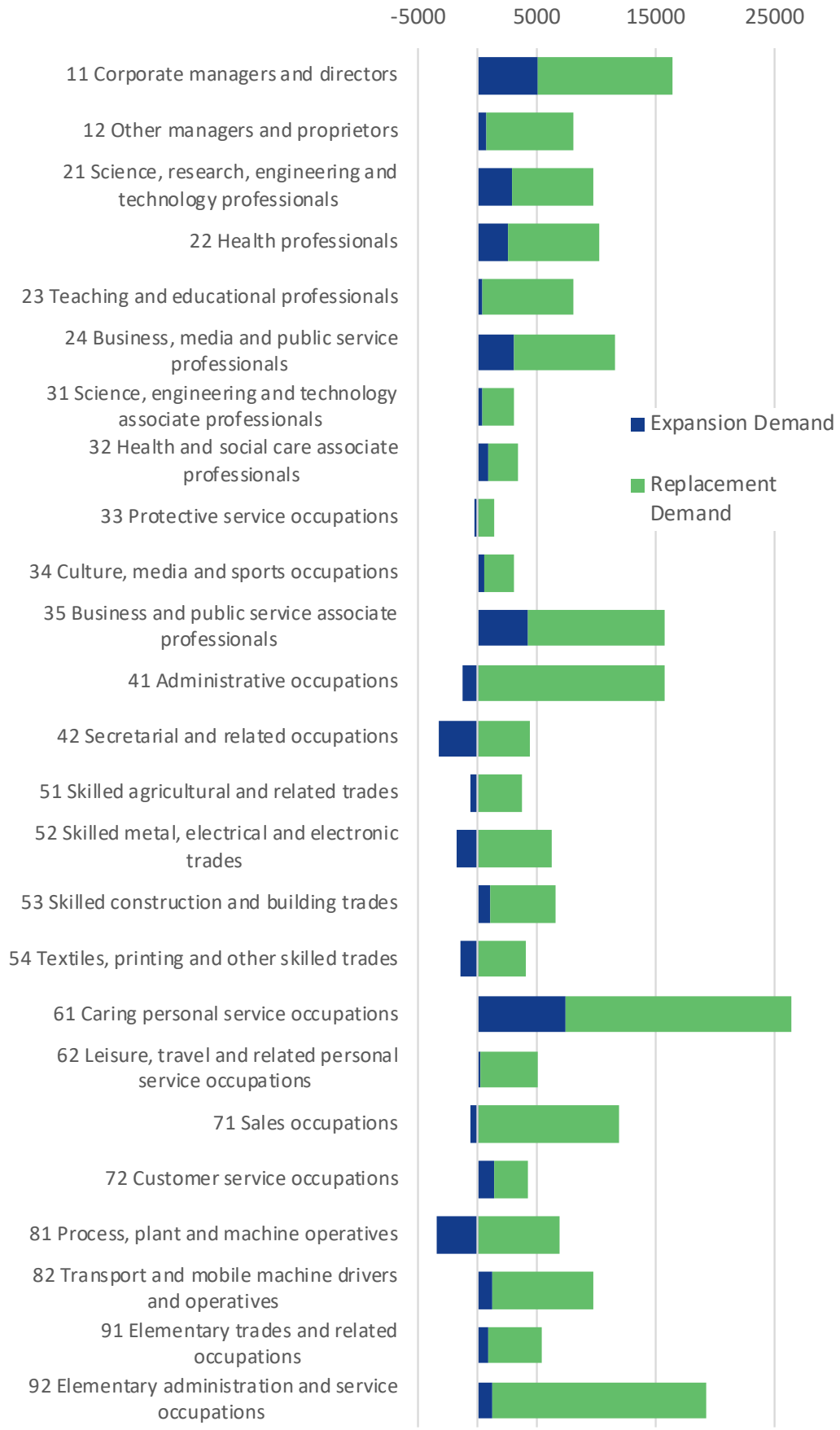
Working Futures is the leading source of information on the potential future jobs market because of its robustness, comprehensiveness, and granularity. The projections are founded on rigorous assumptions about some of the key economic, technological, and social trends. They should not, however, be interpreted as a concrete snapshot of the future. Focus should be on the patterns of employment for industries and occupations.

It is very important to note that industry no longer falls into classifications as neatly as it did when SOC (Standard Occupational Classification) and SIC (Standard Industrial Classification) codes were first developed, and the technological advancements and new roles particularly within the agricultural and food industry and the low carbon / renewables industry are not reflected well. This means that while the forecast overall is robust, growth or replacement demand may not always be reflected in the correct sector. A good example of this is the role of agronomists within the agricultural and food industries. We know locally that many hundreds of the jobs are within consultancies, or specific support services, yet the work that they do is within both the agricultural and food industries.

Local sector specialists have told us that they are puzzled by the decline that is shown in SOC 'Skilled Trades' and 'Process Plant and Machine Operatives'. Whilst there will be jobs in these occupations due to replacement demand the forecasts suggest that the number of people within these occupations will not grow. It is possible that this is an effect of employment agencies. People employed by employment / temping agencies do a variety of jobs (particularly within the agricultural and food sector) and we know that these jobs are recorded in the Administrative and Support Services Activities SIC code, rather than the Agricultural or Food activities SIC codes. It is therefore possible that occupational codes are also wrongly aligned, and as a result caution is advised.

Chart 38: Expansion and replacement demand by detailed occupation

Source: Working Futures 2014-2024, UK Commission for Employment and Skills



Working Futures Qualifications

QCF8 - Doctorate

QCF7 - Other higher degree

QCF6 - First degree

QCF5 - Foundation degree; Nursing; Teaching

QCF4 - HE below degree level

QCF3 - A level & equivalent

QCF2 - GCSE (A-C) & equivalent

QCF1 - GCSE (below grade C) & equivalent

No Q - No Qualification

Appendix C

Skills and Labour Supply – Additional Data Analysis

An Overview of the Annual Population Survey

- the sample size is approximately 320,000 respondents
- has the largest coverage of any household survey and allows the generation of statistics for small geographical areas
- uses data from the Labour Force Survey (LFS)
- the data sets consist of 12 months of survey data and are broken down on a quarterly basis

The Annual Population Survey (APS) is a continuous household survey, covering the UK. The topics covered include employment and unemployment, as well as housing, ethnicity, religion, health and education.

The purpose of the APS is to provide information on important social and socio-economic variables at local levels. The published statistics enable monitoring of estimates between censuses for a range of policy purposes and provide local area information for labour market estimates.

The sample frame for the survey in Great Britain is the Royal Mail Postcode Address File (PAF) and the National Health Service (NHS) communal accommodation list.

The resident population comprises persons who regard the sample address as their main address and also those who have lived in the dwelling for more than 6 consecutive months, even if they do not regard this as their principal dwelling. Persons absent for more than 6 months are not regarded as members of the resident population. A private household comprises one or more persons whose main residence is the same dwelling and/or who share at least one meal per day. Students living in halls of residence are sampled via the private households of their parents.

Interviews are carried out either on a face-to-face basis with the help of laptops, known as Computer Assisted Personal Interviews (CAPI) or on the telephone, known as Computer Assisted Telephone Interviews (CATI).

For further information on the APS, please refer to https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi

Chart 39: Computer skills levels (emails)

Source: 2011 Skills for Life Survey, BIS

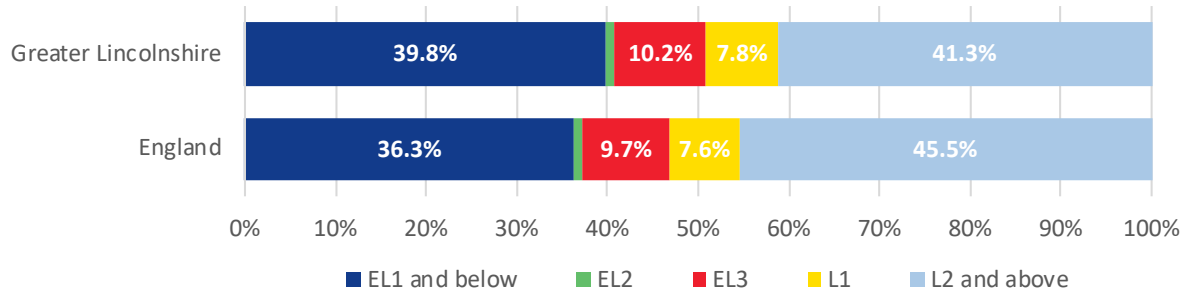


Chart 40: Computer skills levels (Word-processing)

Source: 2011 Skills for Life Survey, BIS

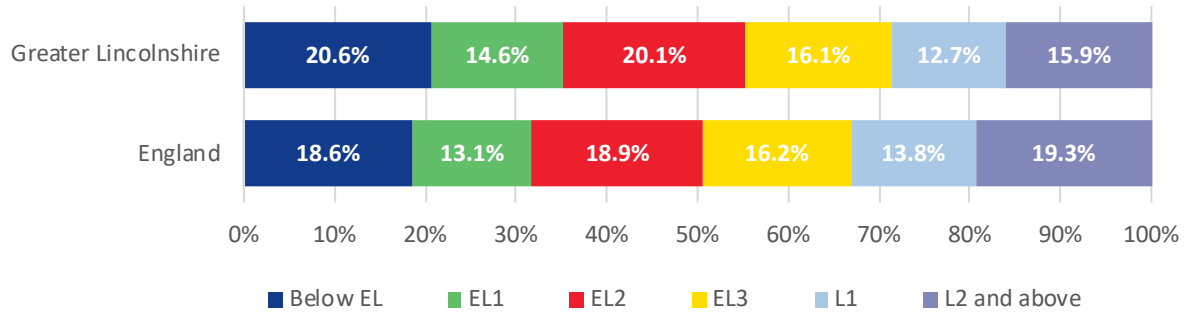


Chart 41: Computer skills levels (Spreadsheets)

Source: 2011 Skills for Life Survey, BIS

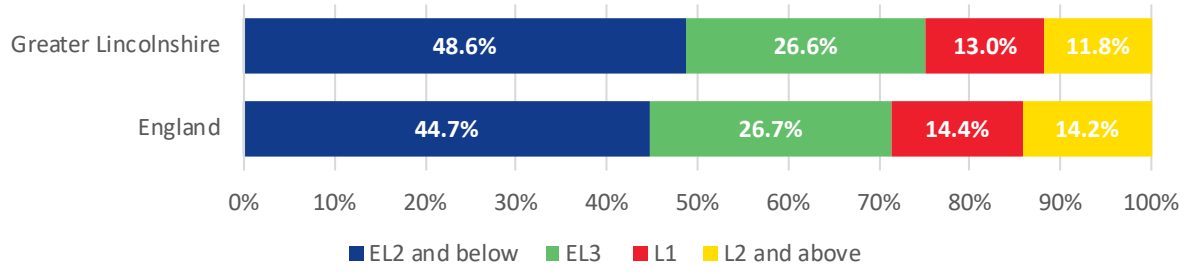


Table 6: GCSE and equivalent entries and achievements of pupils at the end of key stage 4, 2017/18 cohort

Source: Department for Education

	Number of pupils at the end of key stage 4	Average Attainment 8 score per pupil	English and maths GCSEs	
			Percentage of pupils entered for components	Percentage of pupils who achieved a 9-4 pass
Total (state-funded sector)	**521,377**	**46.5**	**97.0**	**64.2**
Lincolnshire	7,268	46.4	97.1	63.2
North East Lincolnshire	1,575	42.8	96.3	59.7
North Lincolnshire	1,685	44.5	97.6	63.9

Note: A 9-4 pass is the equivalent of an A- C grade pass.*

Chart 42: FE course level of Greater Lincolnshire 16-18 year olds, 2017/18

Source: DataCube, Education and Skills Funding Agency

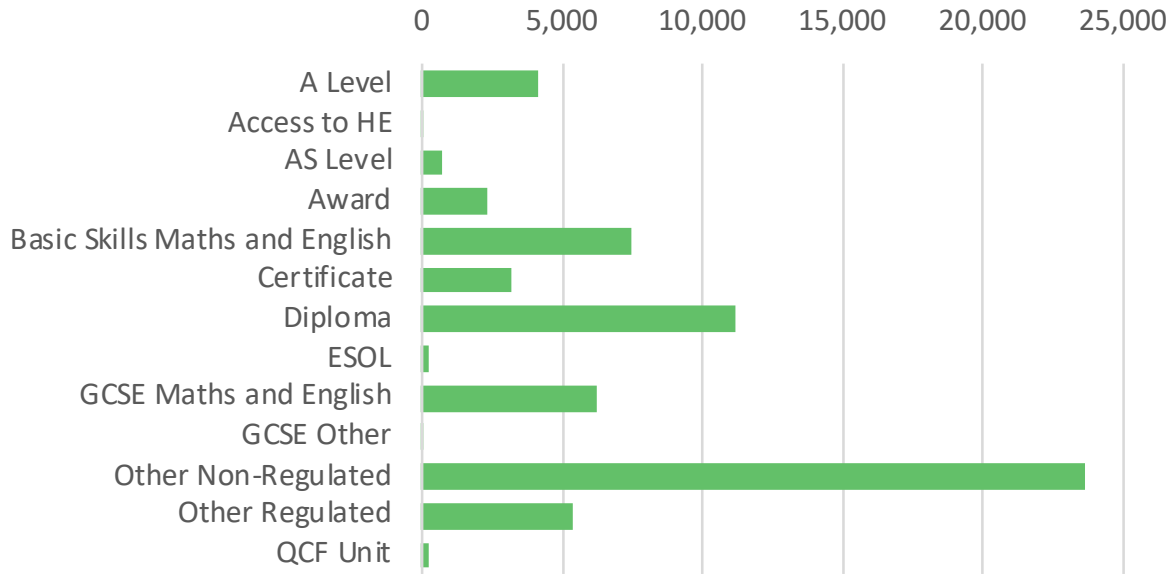
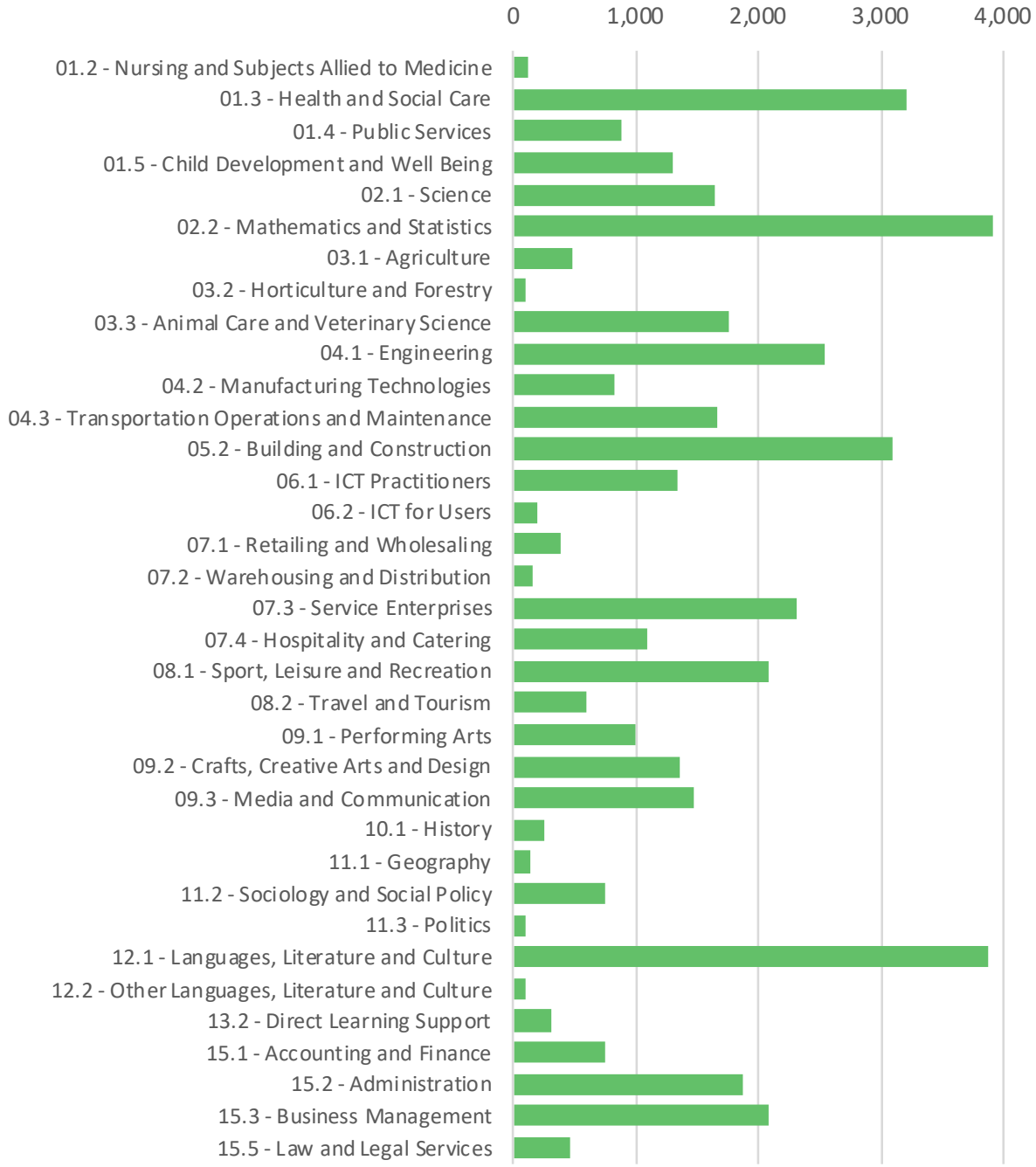


Chart 43: FE Starts by Sector Subject Area in Greater Lincolnshire, 2017/18

Source: DataCube, Education and Skills Funding Agency



Please note that this is a count of the number of Learning Aims and that each student can start more than one Learning Aim.

Please also note that the following select courses, and those with less than 100 starts have been removed from this chart.

Courses removed due to having less than 100 students:

01.1 – Medicine and Dentistry

03.4 – Environmental Conservation

06 – Information and Communication Technology

10 – History, Philosophy and Theology

10.2 – Archaeology and Archaeological Sciences

10.4 – Theology and Religious Studies

11 – Social Sciences

11.4 – Economics

13 – Education and Training

13.1 – Teaching and Lecturing

15.4 – Marketing and Sales

Other courses removed:

14.1 – Foundations for Learning and Life

14.2 – Preparation for Work

Chart 44: Literacy and numeracy skills levels

Source: 2011 Skills for Life Survey, BIS

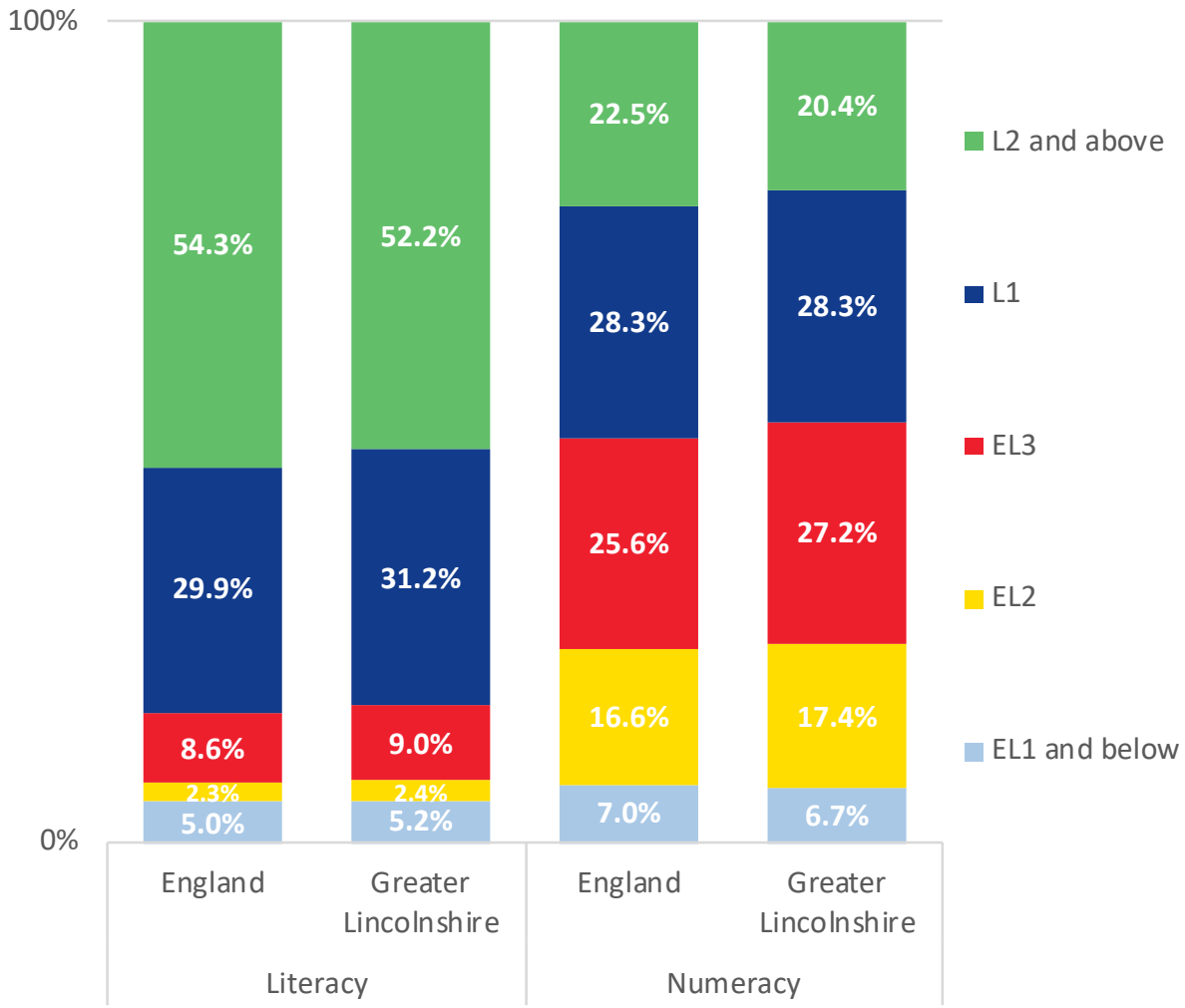
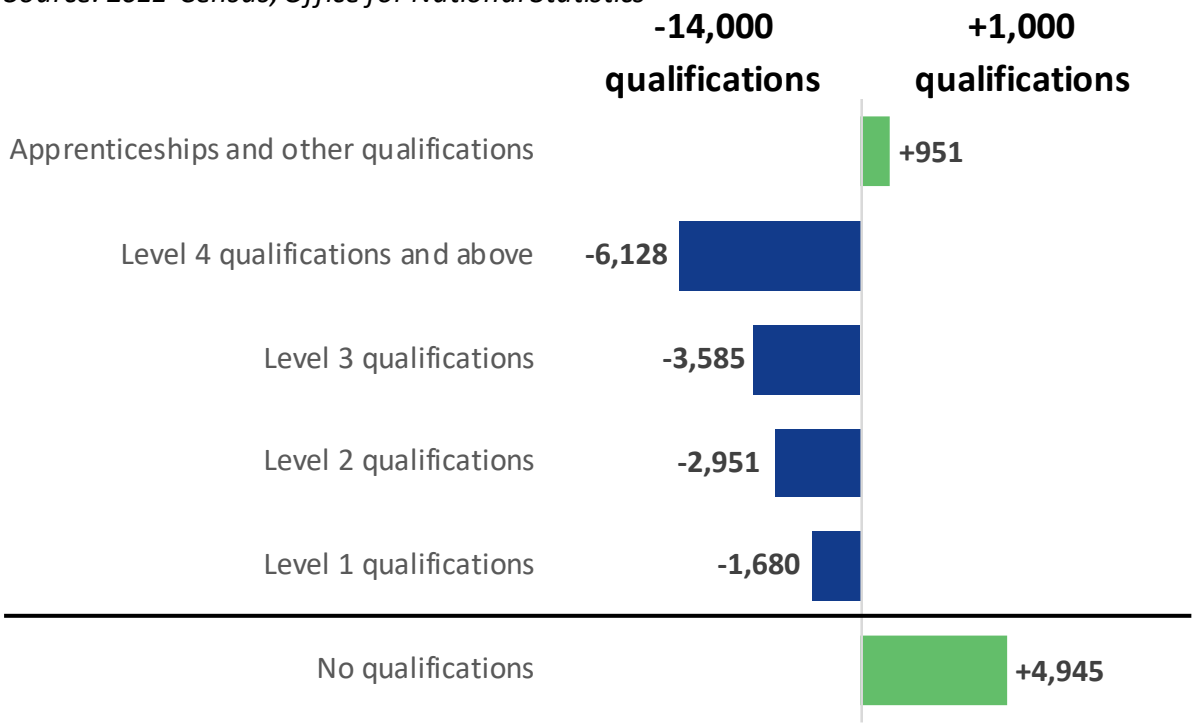


Chart 45: Difference in qualification levels of resident population in employment and workplace-based population on the day of 2011 Census

Source: 2011 Census, Office for National Statistics



Sector Subject Areas with no apprenticeship in the academic year 2018/19

02.2 - Mathematics and Statistics

09.1 - Performing Arts

10.1 - History

10.2 - Archaeology and Archaeological Sciences

10.4 - Theology and Religious Studies

11.1 - Geography

11.2 - Sociology and Social Policy

11.3 - Politics

11.4 - Economics

12.1 - Languages, Literature and Culture of the British Isles

12.2 - Other Languages, Literature and Culture

14.1 - Foundations for Learning and Life

14.2 - Preparation for Work

Appendix D

Supply Meets Demand – Additional Data Analysis

Chart 46: Skill-shortage vacancies and other hard-to-fill vacancies over time

Source: Employer Skills Survey 2011, 2013, 2015, and 2017, UK Commission for Employment and Skills

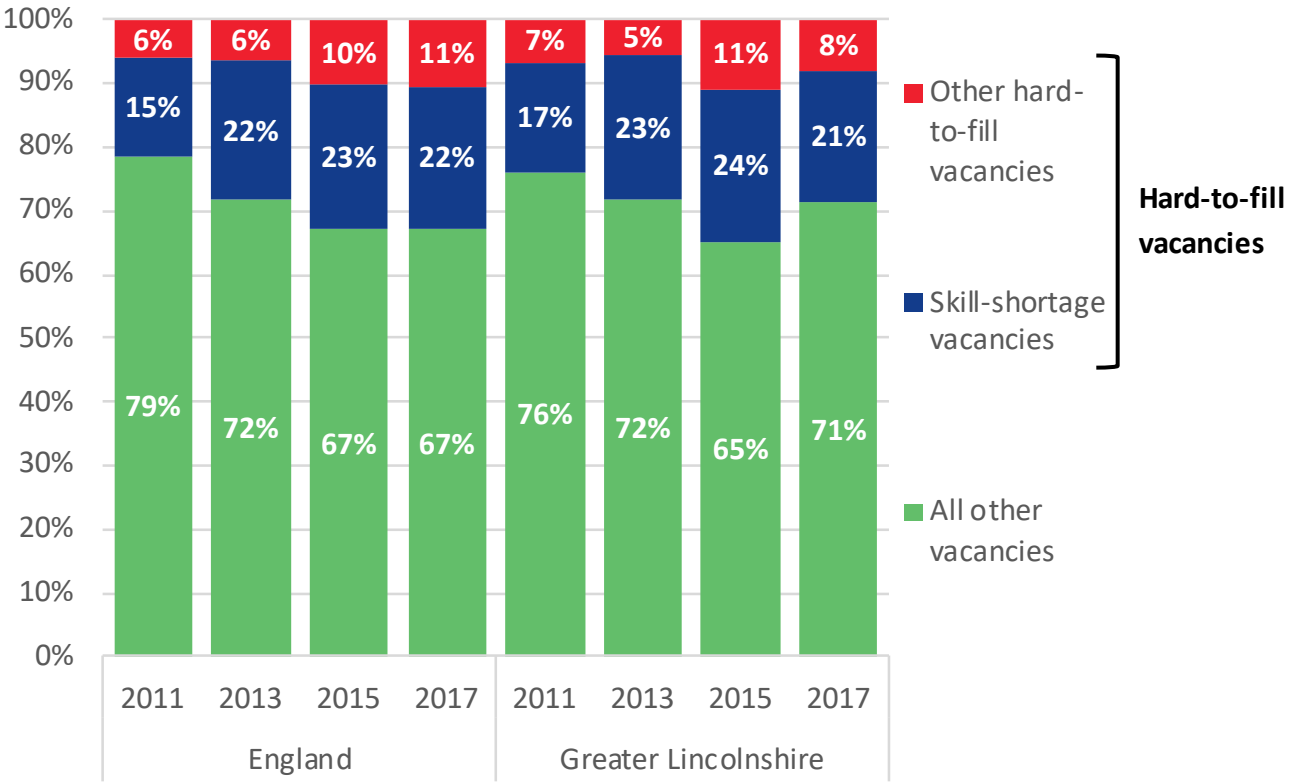


Chart 47: Proportion of employers reporting Hard-to-fill and skill-shortage vacancies over time

Source: Employer Skills Survey 2013, 2015, and 2017, UK Commission for Employment and Skills

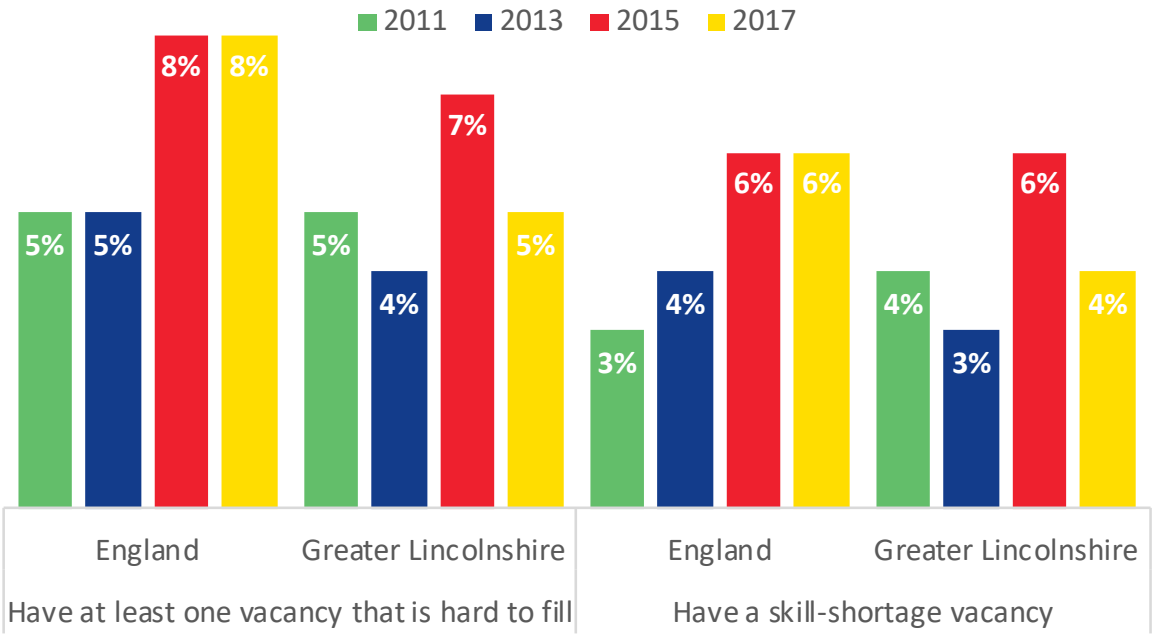


Chart 48: Hard-to-fill vacancies by occupation (Employer Base)

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills

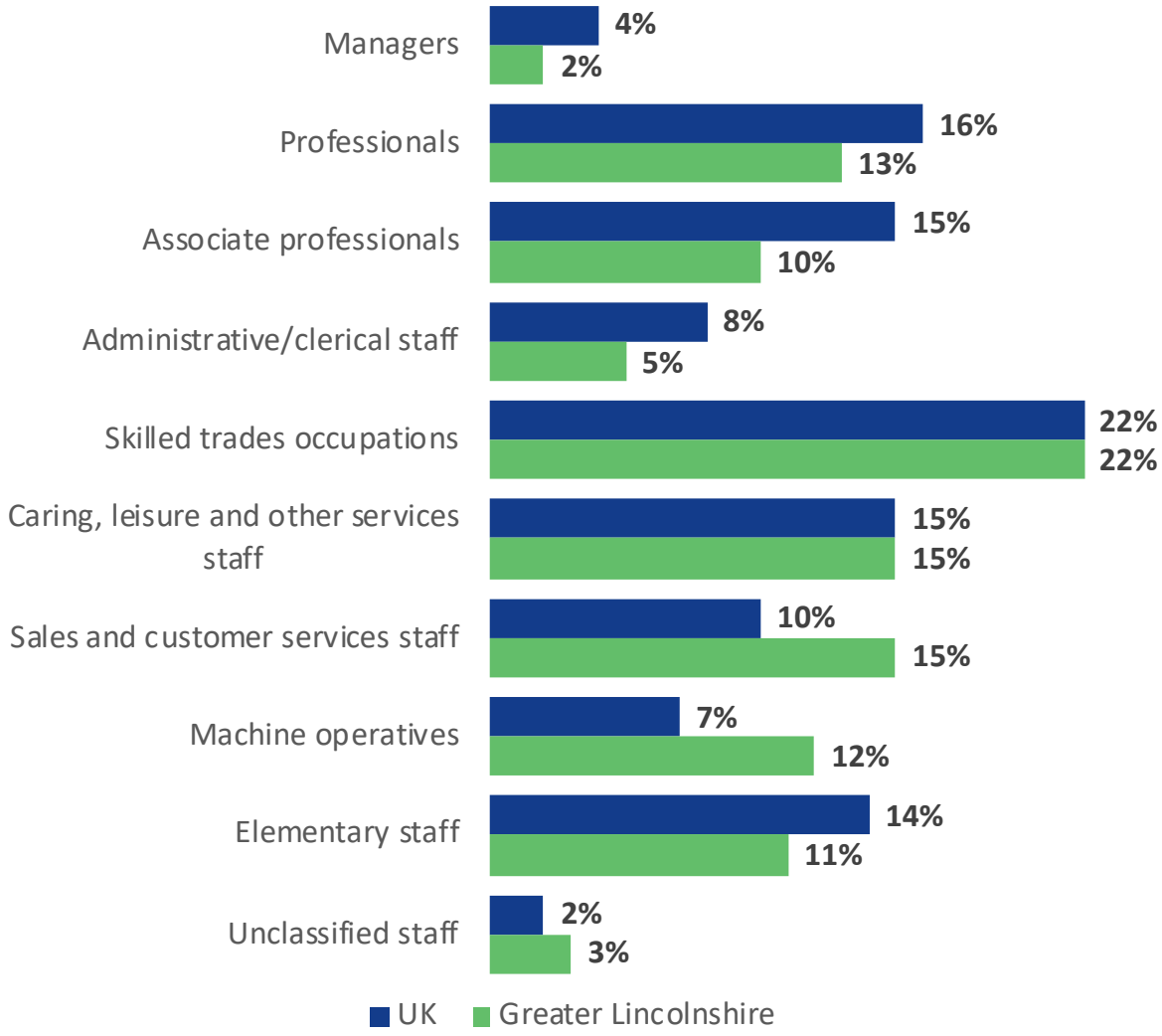


Chart 49: Hard-to-fill vacancies by sector (Employer Base)

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills

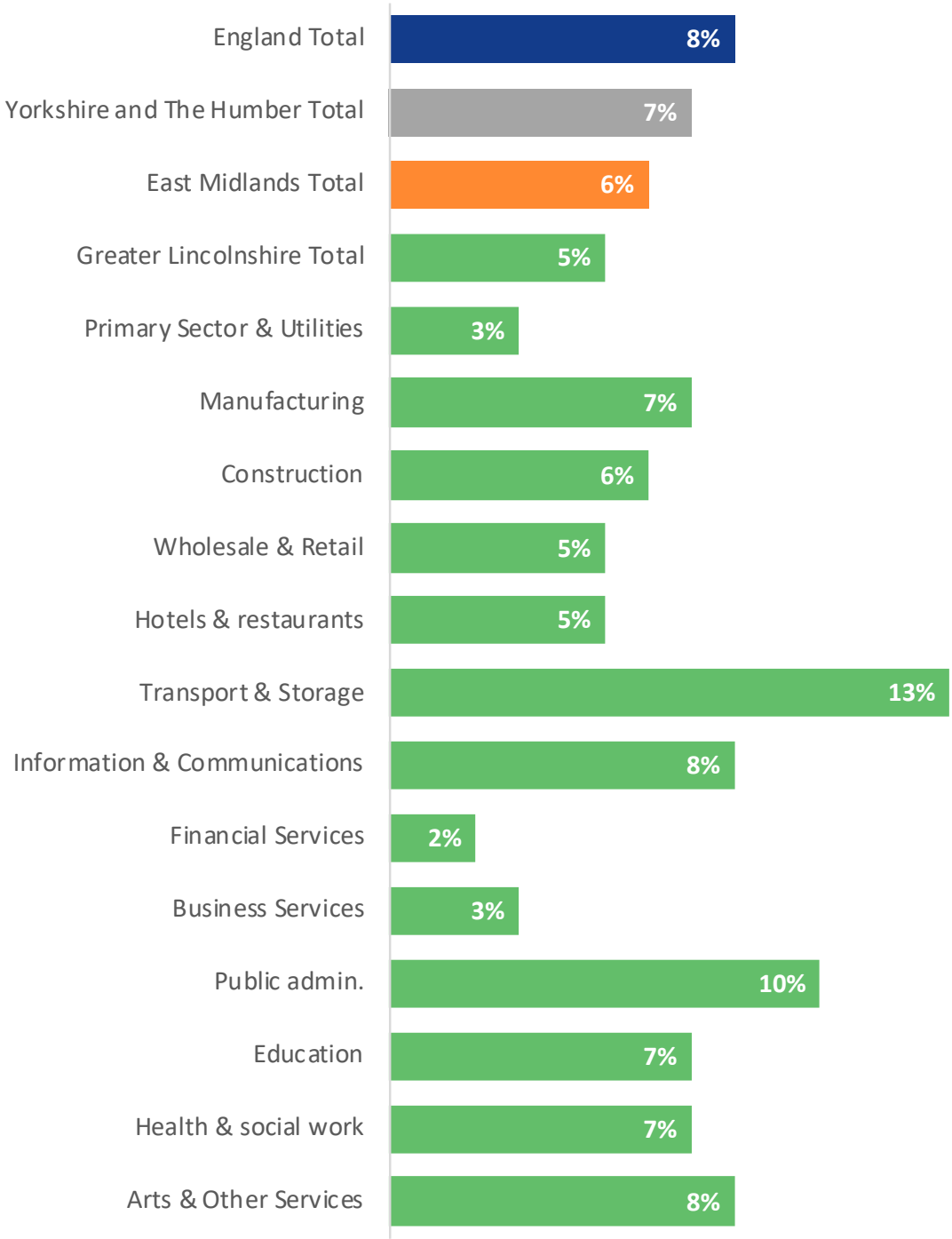
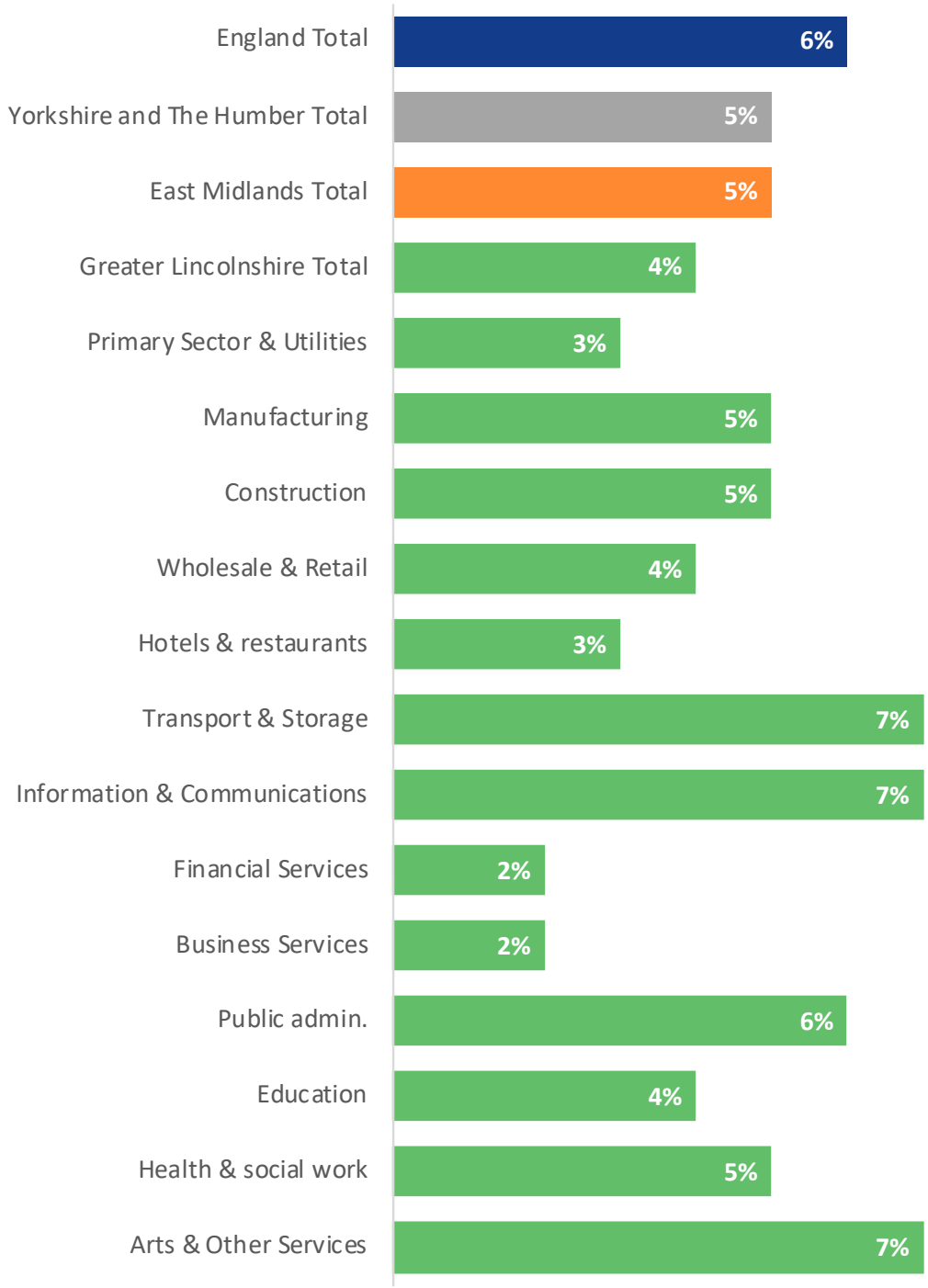

England Total
8%
Yorkshire and The Humber Total
7%
East Midlands Total
6%
Greater Lincolnshire Total
5%
Primary Sector & Utilities
3%
Manufacturing
7%
Construction
6%
Wholesale & Retail
5%
Hotels & restaurants
5%
Transport & Storage
13%
Information & Communications
8%
Financial Services
2%
Business Services
3%
Public admin.
10%
Education
7%
Health & social work
7%
Arts & Other Services
8%

Chart 50: Skill-shortage vacancies by sector (Employer Base)

Source: Employer Skills Survey 2017, UK Commission for Employment and Skills



UK Home Office Shortage Occupation List

Standard Occupational Classification (SOC) code and description

(1123) Production managers and directors in mining and energy

(2113) Physical Scientists

(2121) Civil engineers

(2122) Mechanical engineers

(2123) Electrical engineers

(2124) Electronics Engineers

(2126) Design and development engineers

(2127) Production and process engineers

(2129) Engineering professionals not elsewhere classified

(2133) IT specialist managers

(2135) IT business analysts, architects and systems designers

(2136) Programmers and software development professionals

(2139) Information technology and communications professionals not elsewhere classified

(2142) Environmental Professionals

(2211) Medical practitioners

(2217) Medical Radiographers

(2219) Health professionals not elsewhere classified

(2231) Nurses

(2314) Secondary education teaching professionals

(2425) Actuaries, economists and statisticians

(2442) Social workers

(2461) Quality control and planning engineers

(3113) Engineering technicians

(3213) Paramedics

(3411) Artist

(3414) Dancers and choreographers

(3415) Musicians

(3416) Arts officers, producers and directors

(3421) Graphic designers

(3541) Buyers and purchasing officers

(5215) Welding trades

(5235) Aircraft maintenance and related trades

(5249) Line repairers and cable jointers

(5434) Chefs

For further details on the criteria applied to each of these occupations please refer to https://www.gov.uk/guidance/immigration-rules/immigration-rules-appendix-k-shortage-occupation-list

Identified Skills Shortages in Greater Lincolnshire

Source: 'Supporting skills in Greater Lincolnshire: A profile of business engagement, skills needs and skills shortages', March 2019, SkillsReach and Bishop Grosseteste University

Registered Manager and Residential, Day and Domiciliary Care Managers and Proprietors (SOC Code: 1242)

Design and Development Engineers (SOC Code: 2126)

Production & Process Engineers (SOC Code: 2127)

Engineering Professionals (SOC Code: 2129)

Nurses (SOC Code: 2231)

Engineering Technicians (SOC Code: 3113)

Metal Working Production & Maintenance Fitters (SOC Code: 5223)

Fishmongers & Poultry Dressers (SOC Code: 5433)

Chefs (SOC Code: 5434)

Care Workers (SOC Code: 6145)

Housekeepers & Related Occupations (SOC Code: 6231)

Food, Drink & Tobacco Process Operative (SOC Code: 8111)

Large Goods Vehicle Drivers (SOC Code: 8211)

Van Drivers (SOC Code: 8212)

Elementary Storage Occupations (SOC Code: 9260)

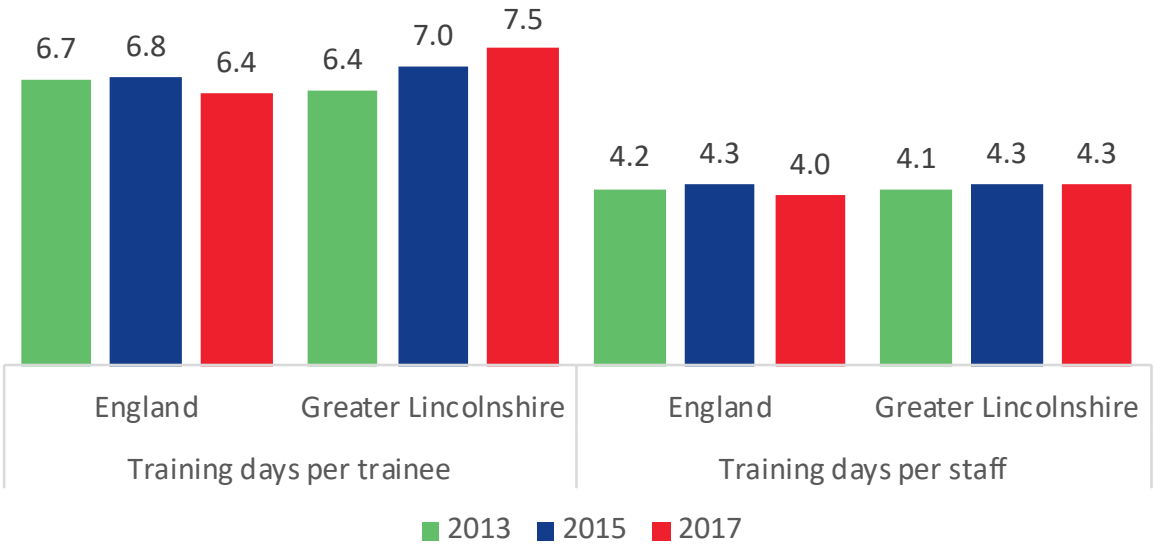
Kitchen & Catering Assistants (SOC Code: 9272)

Waiters and Waitresses (SOC Code: 9273)

Bar Staff (SOC Code: 9274)

Chart 51: Training days delivered over time

Source: Employer Skills Survey 2013, 2015, and 2017, UK Commission for Employment and Skills



Appendix E

Priorities – Further information

Policy Theme	Priority	Activity
Careers	Work with schools to help inspire and inform our young people about the kinds of businesses and careers available on their doorstep so that fewer leave the LEP area	Continue to develop links between businesses and schools through the Enterprise Adviser Network (EAN) and our 'Give an Hour' campaign Continue to support the website www.theworldofwork.co.uk , a platform for local employers to talk about their occupations and skills needs.
ESF **Apprenticeship Levy** **T Levels**	Work with Government to maximise the effectiveness of skills and training schemes so that all employers and residents can benefit and not just those able to access programmes or training providers	- Continue to work with ESFA teams to ensure that European Social Funding skills and training programmes are supporting adults across the whole LEP area not just urban or well-populated areas. - Maximise the effectiveness of the Apprenticeship Levy so that it is working for businesses across the whole LEP area - Support Government to successfully rollout T Levels in all areas
Supporting Business	Work with business to prioritise workforce development, succession planning and recruitment strategies so that they can replace staff that will retire	Through the LEP's Growth Hub, Business Lincolnshire, developing channels to promote and support recruitment strategies (e.g. Recruitment Conference), and linking with support for T Levels and Apprenticeships; Raise awareness of the Fuller Working Lives agenda and Disability Confident Scheme

Policy Theme	Priority	Activity
Supporting Business	Find ways to support small business owners and self-employed people to re-train or upskill because they make up a good proportion of the population	Through the LEPs Growth Hub and FSB and Chamber of Commerce.
National Retraining Scheme	Engage with the new National Retraining Scheme when it is rolled out across England in 2020 so that adults are inspired and informed about the kinds of businesses and careers available on their doorstep	Involvement in the Career Learning Pilot means that we are keen to see adults benefitting from this scheme, particularly in the parts of the LEP where adults have lower qualifications.
Research	Develop additional local analysis about how the labour market works at local level because the large LEP geography has a relatively high number of travel to work areas	Undertake a SAP Analysis at a more local level where possible and relevant
Insight	Understand and communicate employers real skills needs, it is not enough to say that we will upskill our young people and our residents	Use our existing networks and sector Boards to best effect

Policy Theme	Priority	Activity
Infrastructure Investment: Local Growth Funds Institutes of Technology	Continue to invest in modernising and advancing Further and Higher Education facilities and equipment, making them more relevant to the present working environment.	- The Local Growth Fund - The Greater Lincolnshire Institute of Technology
Digital Inclusion	Ensure that adults and young people are not digitally excluded by working with Government to develop Digital Partnerships in our market towns	Work with Department for Culture, Media and Sports to develop local partnership.

More Information

This document was produced by Codename:Consulting in partnership with the Greater Lincolnshire LEP.