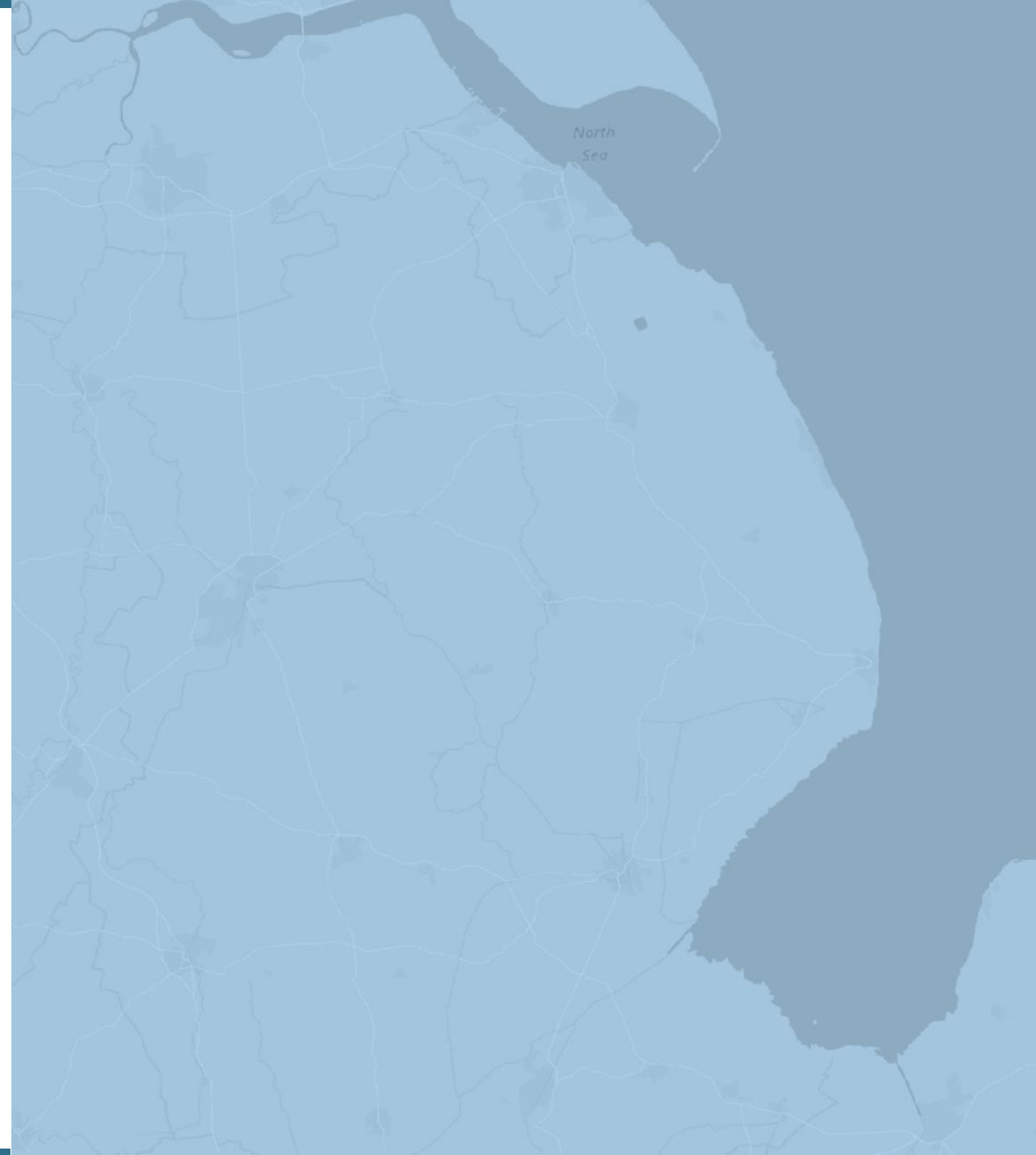


Innovation in Greater Lincolnshire

**Metro Dynamics: Rapid Evidence
Review**



About this evidence pack

Metro Dynamics have been commissioned by the Greater Lincolnshire LEP and the University of Lincoln to develop an Action Plan for Innovation in the region, working with the recently assembled Innovation Commission. As an initial step in this process, Metro Dynamics has carried out a rapid review of available evidence on innovation, sectors and productivity within Greater Lincolnshire (for the purposes of this review, we have used the footprint of the emerging Greater Lincolnshire MCCA).

This evidence base builds on and refreshes the analysis previously conducted by Metro Dynamics on behalf of the University of Lincoln, who commissioned a study of Innovation in Greater Lincolnshire in 2021. It should not be viewed as a comprehensive assessment of innovative activity within Greater Lincolnshire, but is intended to provide some common ground and understanding across and between partners within the region.

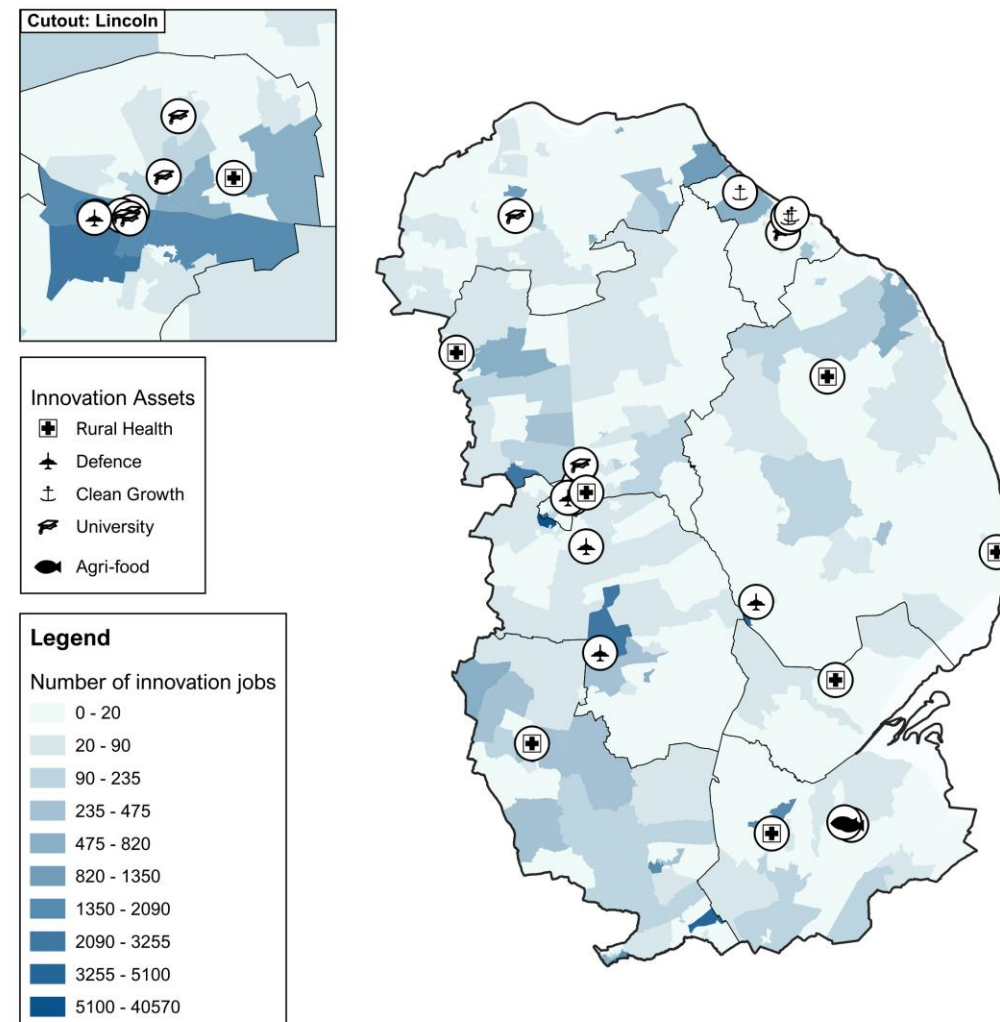
Innovation in Greater Lincolnshire: Overview

Greater Lincolnshire is a **polycentric** and **dispersed economy** with **distinctive economic specialisms**. It is large – spanning from the Humber Bridge to The Wash – and connectivity is a key challenge.

Innovative activity is generally low relative to some other places, but starts from a base of distinctive and identifiable assets. In one sense this makes the development of interventions easier; a practical understanding of innovative activity in Greater Lincolnshire can be driven by an understanding of the needs and capacity of specific sectors, assets and clusters.

Although this pack refreshes analysis previous conducted by Metro Dynamics in 2021, the fundamentals – and the opportunities - have remained largely similar in the years following the pandemic. The challenge is to build on this understanding to develop a **focused, realistic and deliverable action plan**.

Greater Lincolnshire: Innovation jobs and assets*



Headline takeaways from the evidence refresh

This short evidence review has found a few key characteristics of innovative activity in Greater Lincolnshire:

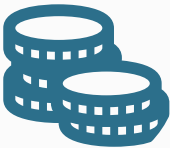
- Greater Lincolnshire's economy has a distinctive structure; it is the **second lowest ranked LEP area (out of 38) for employment in large firms**, who tend to invest more in innovation than smaller firms, and economic complexity is low.
- This is accompanied by general economic challenges around lower wages and low productivity, alongside specific barriers to innovative activity like low skill levels, and low public and private R&D intensity; as a result, innovation jobs represent only **1.8% of total jobs compared to 4.4% nationally**.
- Greater Lincolnshire also has distinctive, specialised and geographically concentrated economic opportunities, in particular around the four sectoral Game-Changers; **Agri-Food, Defence, Clean Growth and the Humber Freeport**.
- The local geography of innovation is also highly concentrated; **3% of Lower Super Output Areas in Greater Lincolnshire represent 60% of Innovation Jobs in the region**.

Given these characteristics, interventions to increase innovative activity, dispersion and absorption may benefit from a focused, spatially-led approach, rooted in distinctive local strengths, assets and clusters.

A light gray map of Greater Lincolnshire, showing a network of white lines for roads and rivers. The map is oriented with North at the top. The title 'Greater Lincolnshire's Economy' is centered over the map. The text 'North Sea' is visible in the upper right corner, indicating the coastline. The map shows the county's boundaries and internal road network.

Greater Lincolnshire's Economy

Greater Lincolnshire's Economy: A Snapshot



GVA

£23.8bn (2021)



Average annual GVA growth

1.3% 10-year CAGR

0.7% 5-year CAGR



GVA per head

£21,019 (2021)



Population

Total population 1,144,471 (2022)

Working age population 682,080 (2022)



Jobs & job density

Total Jobs: 537,000 (2022)

Job density: 0.79 (2022)



Employment rate

Employment: 75.2% (2022)

Economic Inactivity: 23.2% (2022)

Glossary

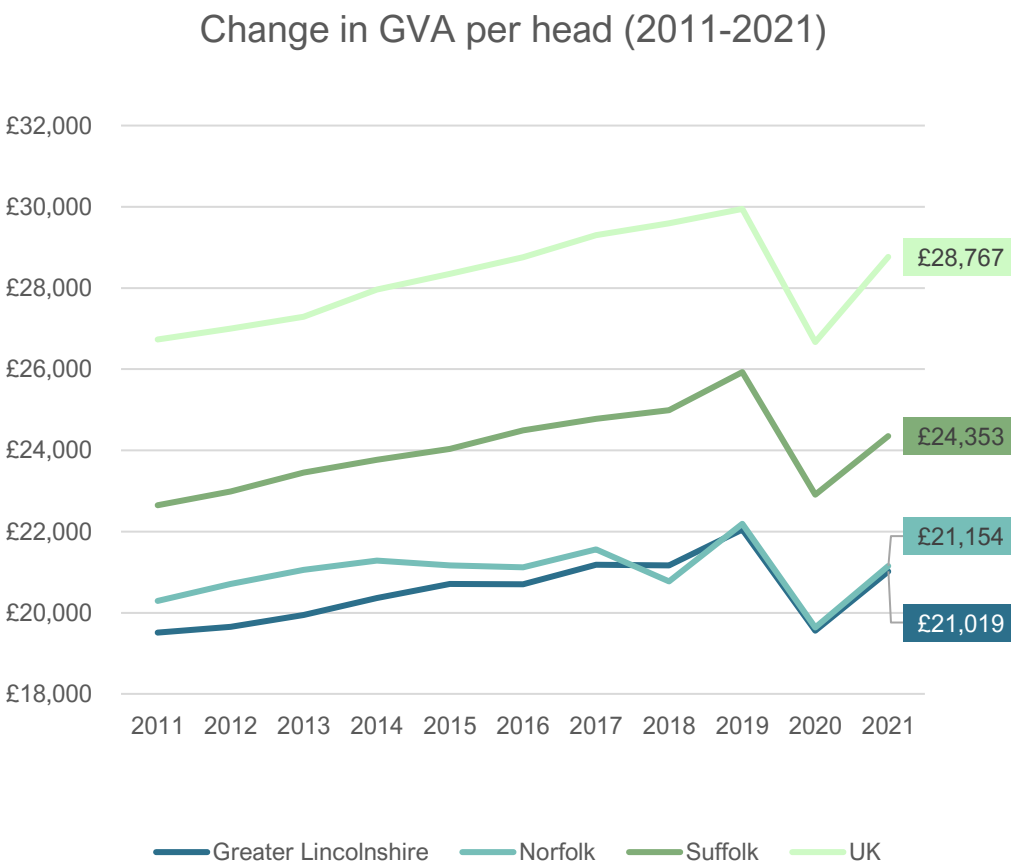
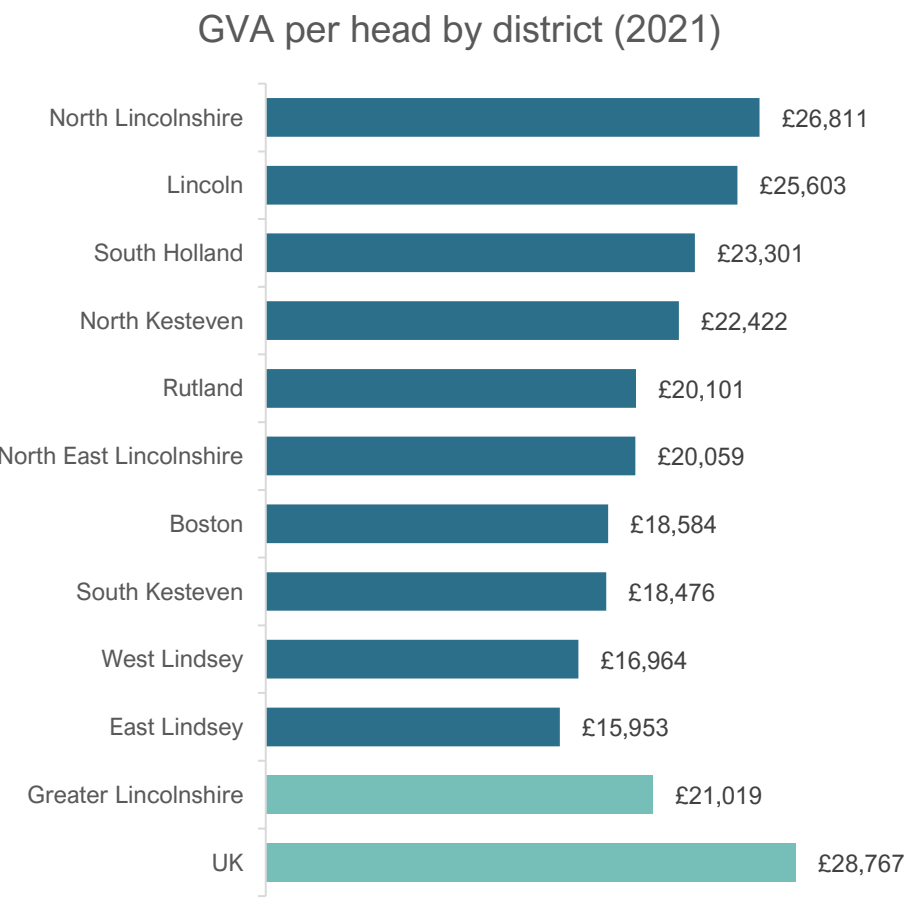
Gross Value Added (GVA): GVA is the value generated by any unit engaged in the production of goods and services. It is used to measure economic output and its growth.

Productivity: Productivity, measured as GVA per hour worked, refers to the contribution to economic output by individual workers. Using GVA per hour allows us to take into account the different work patterns and employment structures such as part-time work.

Location Quotient (LQ): LQ analysis is used to understand specialisation patterns in the sectors in a local economy. In this context, it means the concentration of a specific industry in the local economy relative to the country as a whole.

Productivity in Greater Lincolnshire: GVA per head

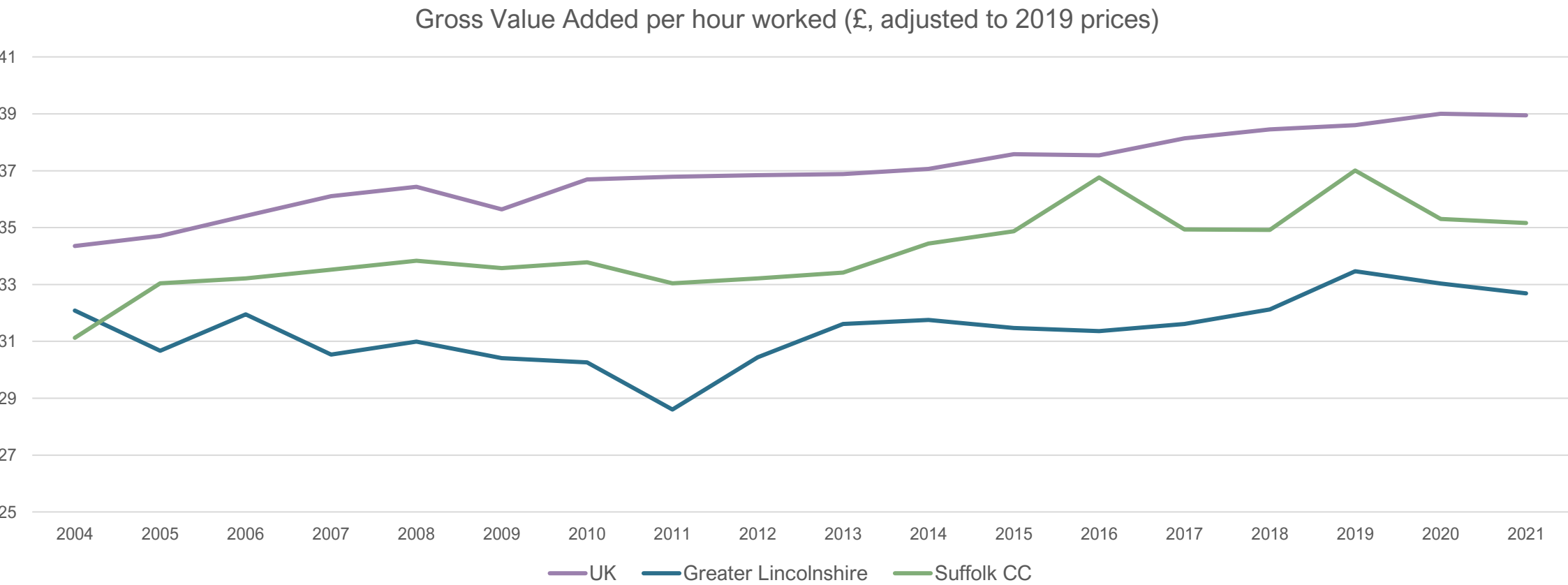
GVA per head – a measure of productivity - varies substantially across Greater Lincolnshire. However, all local authority districts within Greater Lincolnshire remain below the UK average.



ONS, Regional gross value added (balanced) by industry: local authorities by ITL1 region, 2023; ONS, Regional gross value added (balanced) by industry: all ITL regions, 2023; ONS, population estimates for 2021, 2022.

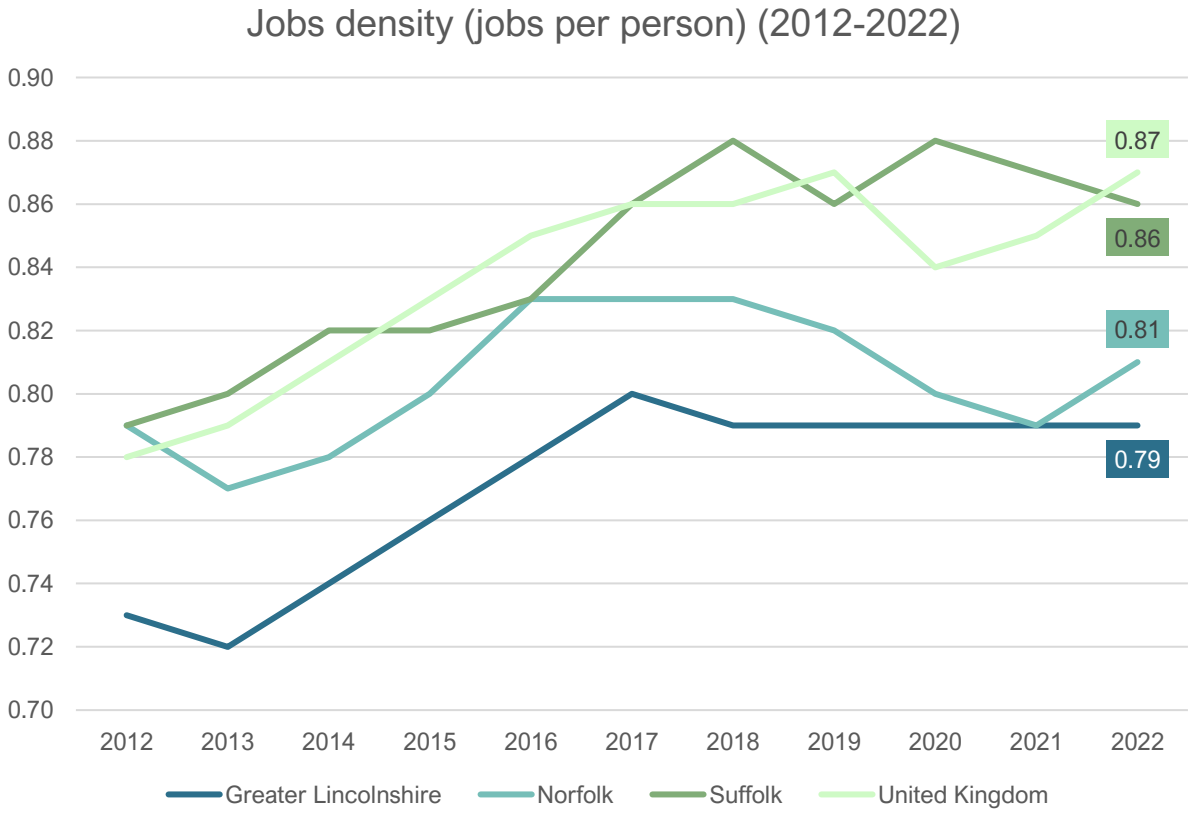
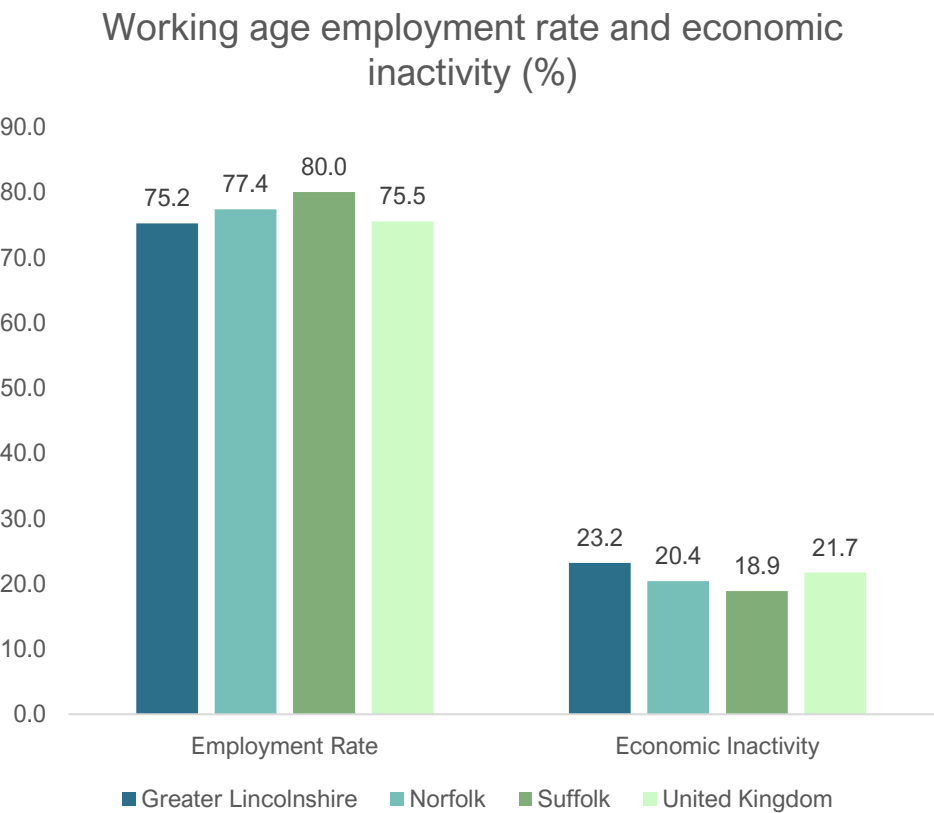
Productivity in Greater Lincolnshire: Labour Productivity

Productivity in Greater Lincolnshire is lower than the national average and regional comparators. However, a substantial decline in productivity across Greater Lincolnshire between 2004 and 2011 has been replaced with incremental growth through the 2010s, although a large gap remains.



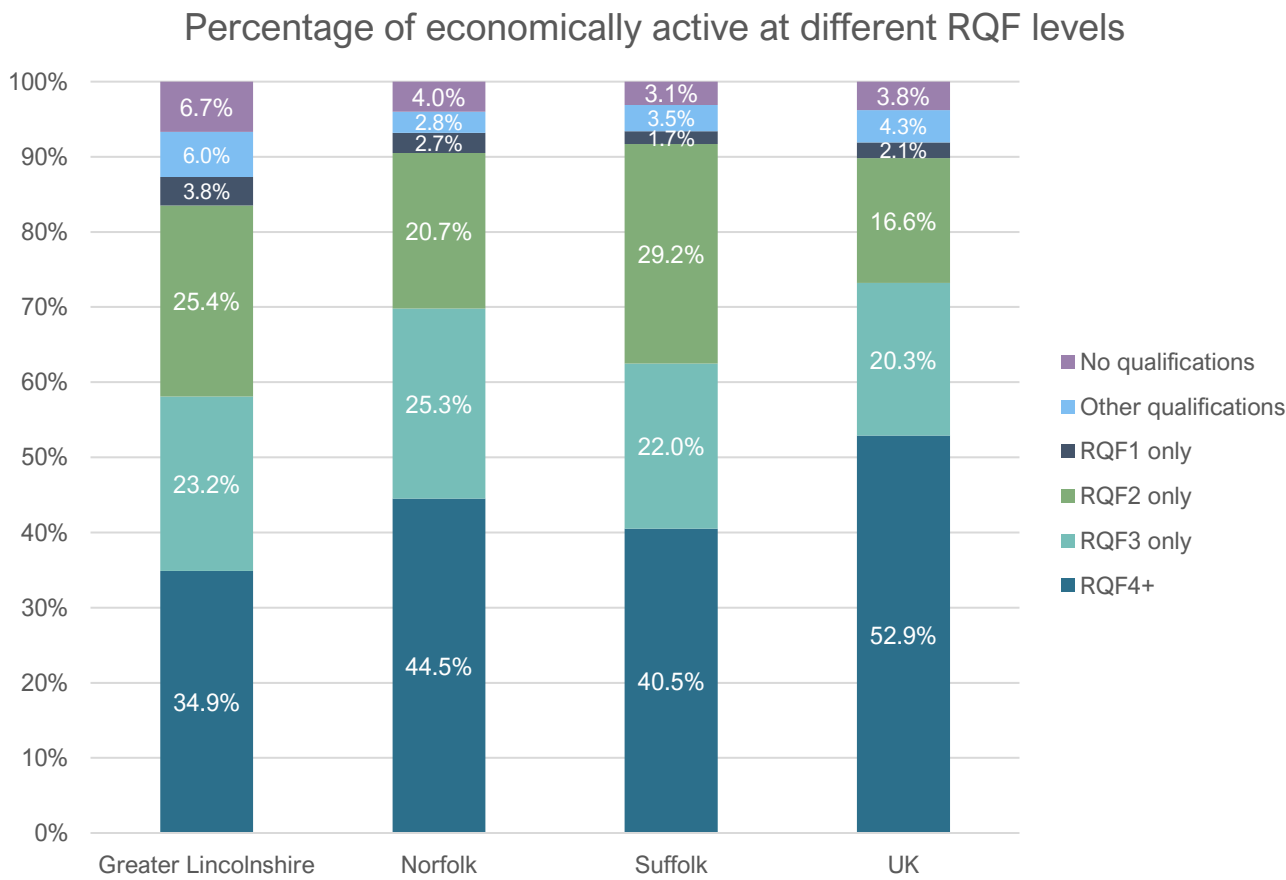
Jobs and work: Employment rates and inactivity

Working age employment rates are lower in Greater Lincolnshire than elsewhere in the UK, and economic inactivity is higher than in the UK and in comparator places. After a period of increase in jobs density in the mid-2010s, jobs density growth has plateaued in recent years.

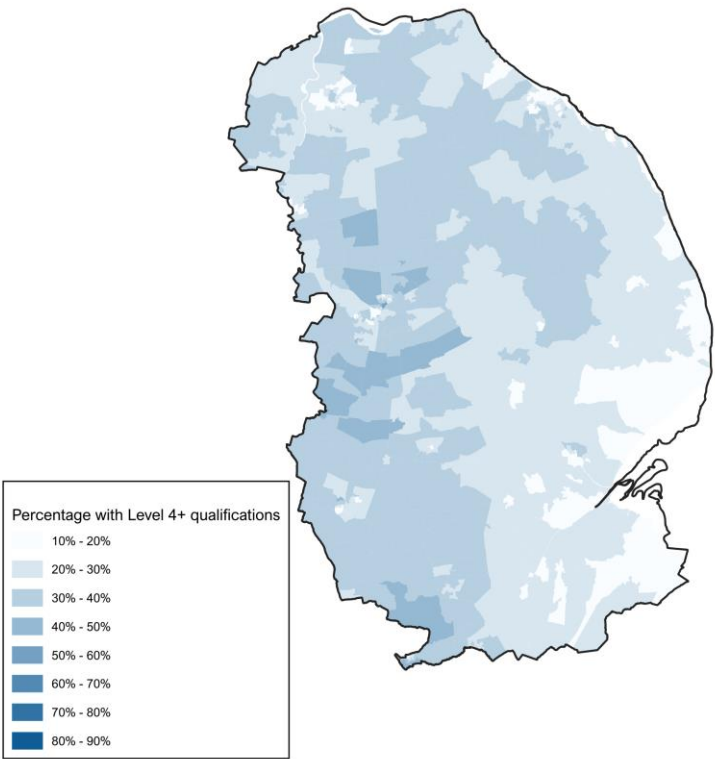


Jobs and work: Employment and skills

Skills and human capital are essential components of innovation. Greater Lincolnshire has a relatively low share of the population with degree-level qualifications and a sharp spatial east-west divide, although this share has been growing continually over recent years.

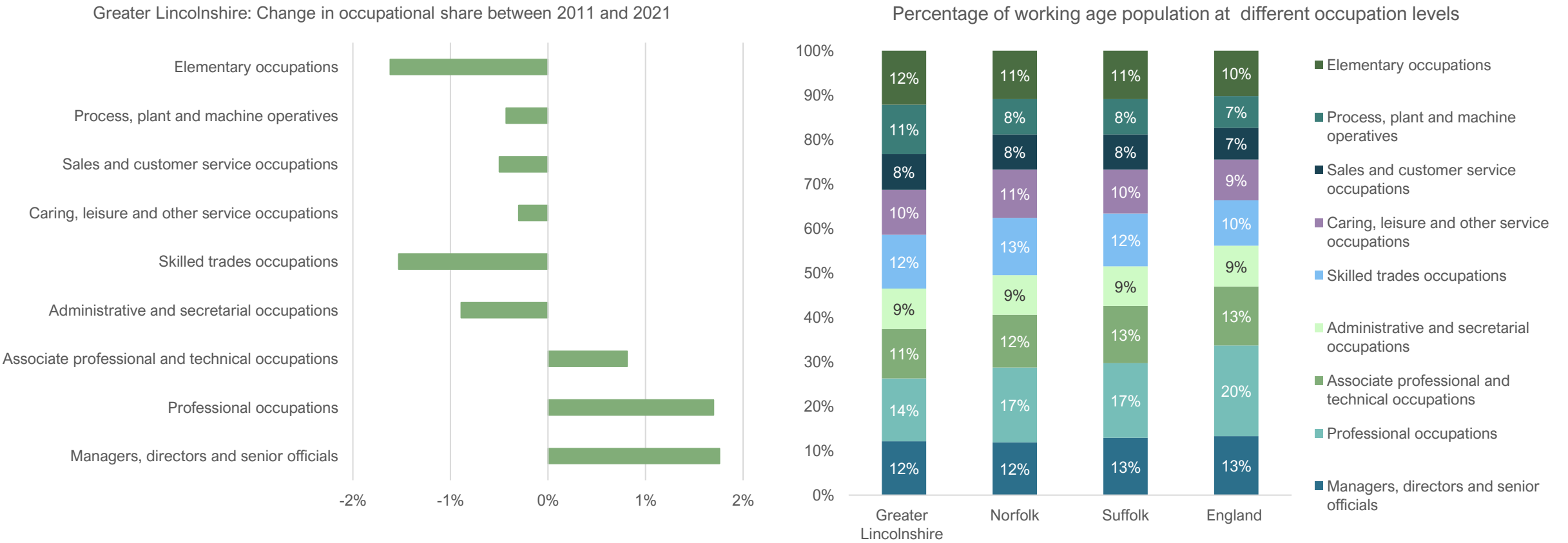


Percentage of individuals aged 16+ with Level 4+ qualifications



Jobs and work: Occupations

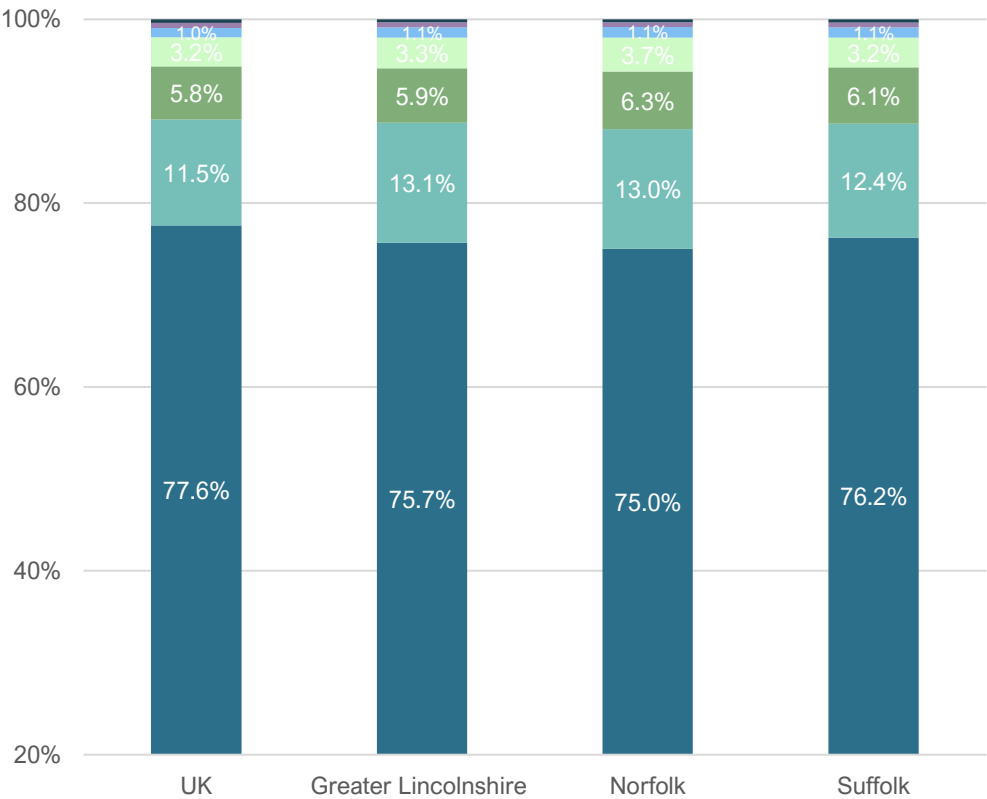
In line with national trends, Greater Lincolnshire has seen an increasing share of occupations in the technical, professional and managerial occupations that tend to drive innovative activity. However, numbers remain substantially below national comparators.



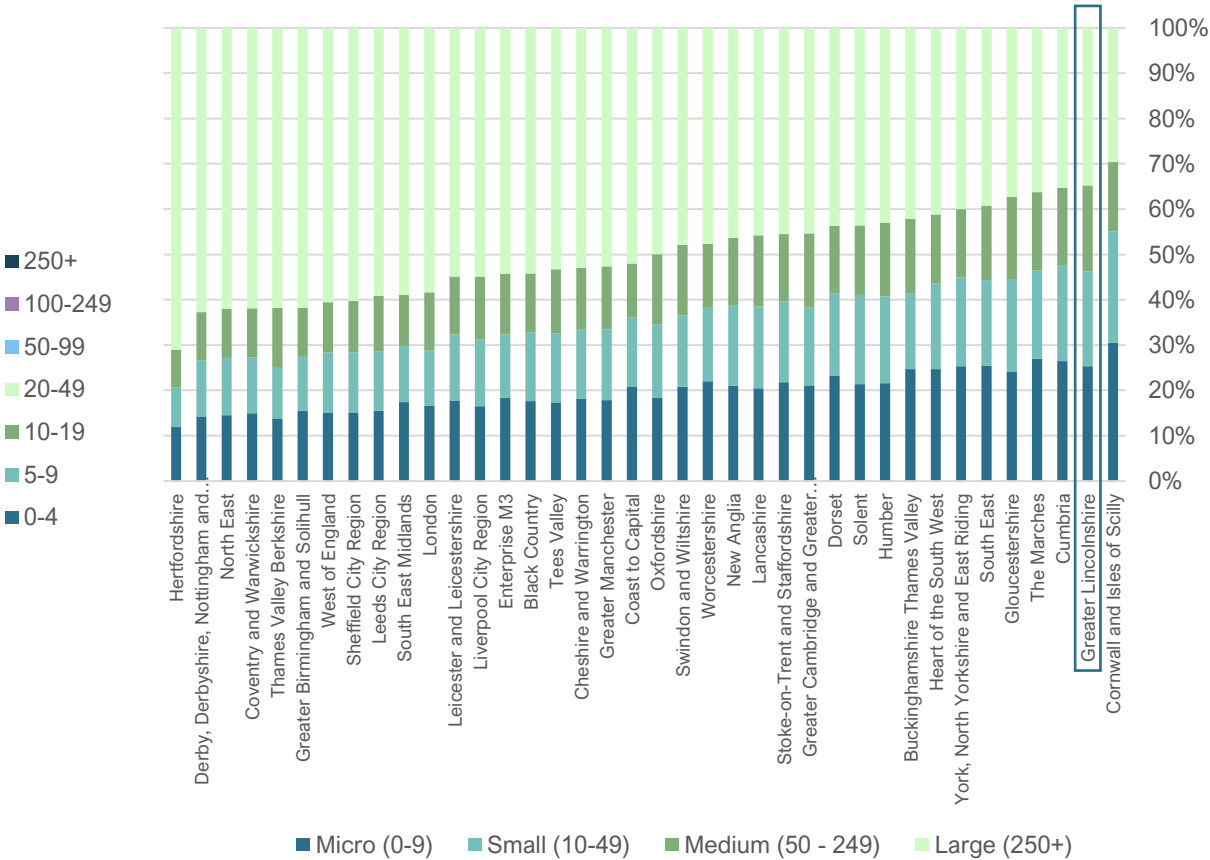
Jobs and work: Business base structure

Greater Lincolnshire’s business base has a high level of smaller businesses – and these businesses also employ a relatively large number of employees in the local economy. Greater Lincolnshire is the second lowest LEP area for employment by large (250+) enterprises.

Proportion of businesses by employment size (2023)



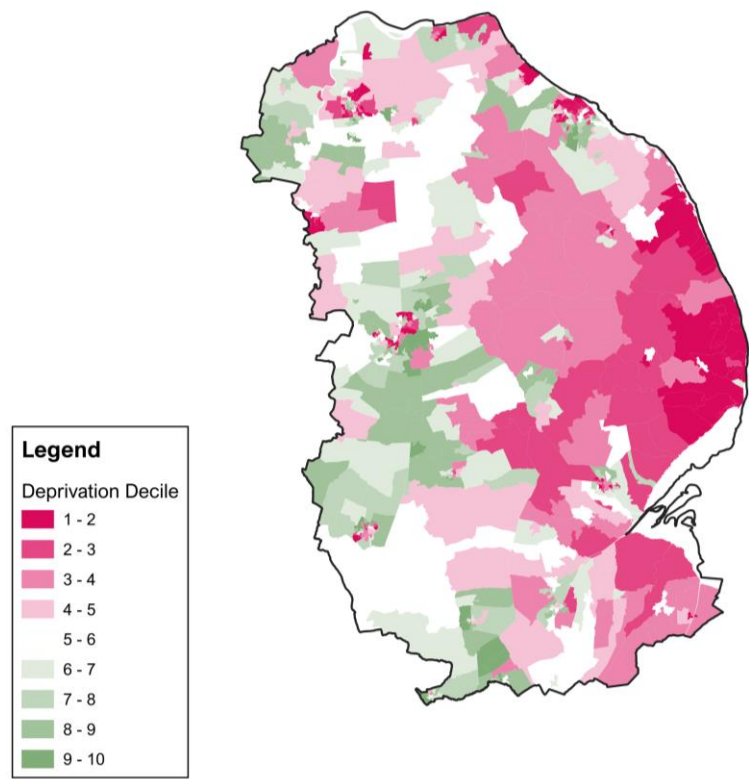
Employment by enterprise size, LEP areas (2022)



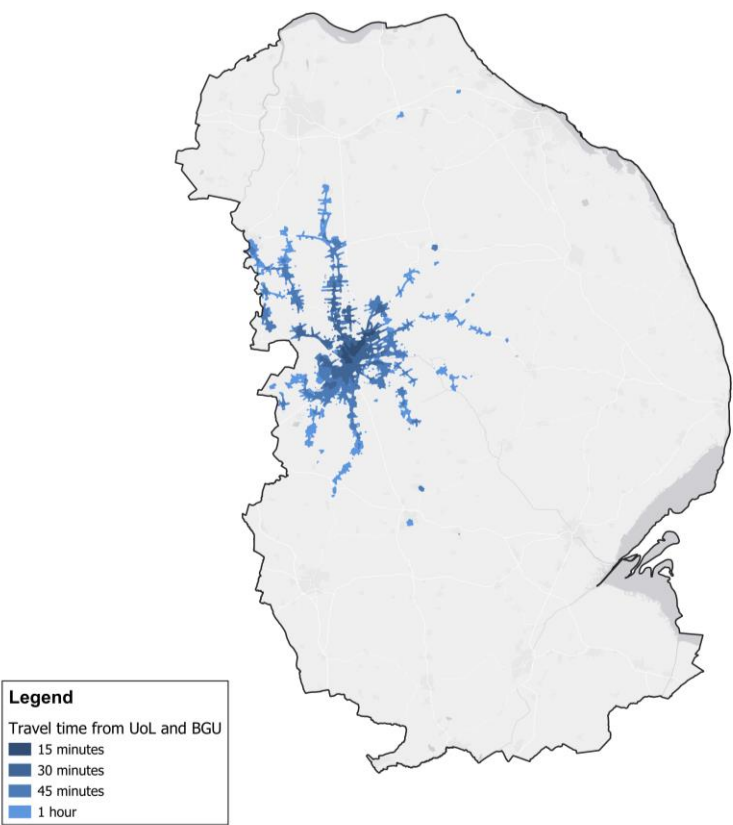
Connectivity and deprivation

Greater Lincolnshire has strong spatial differentiation in deprivation, with some urban areas and areas on the eastern coast in particular seeing some of the UK’s worst socio-economic outcomes. These deprivation challenges include connectivity, with weak public transport links limiting access to key innovation assets like the University of Lincoln.

Deprivation in Greater Lincolnshire



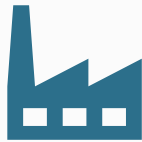
Public transport travel times to University of Lincoln and Bishop Grosseteste



A light gray map of Greater Lincolnshire serves as the background. It shows a network of white lines representing roads and rivers. The eastern edge of the map is bordered by a dark gray area representing the sea. A small label 'North Sea' is visible in the upper right portion of the sea area.

Greater Lincolnshire's Sectors

Greater Lincolnshire's Sectors: A snapshot



Manufacturing

£5.6 bn GVA
67,000 employees



Wholesale and retail

£3.2 bn GVA
80,000 employees



Health

£2.3 bn
60,000 employees



Education

£ 1.5 bn
32,000 employees



Agriculture, mining and related activities

£2.6 bn
25,000 employees

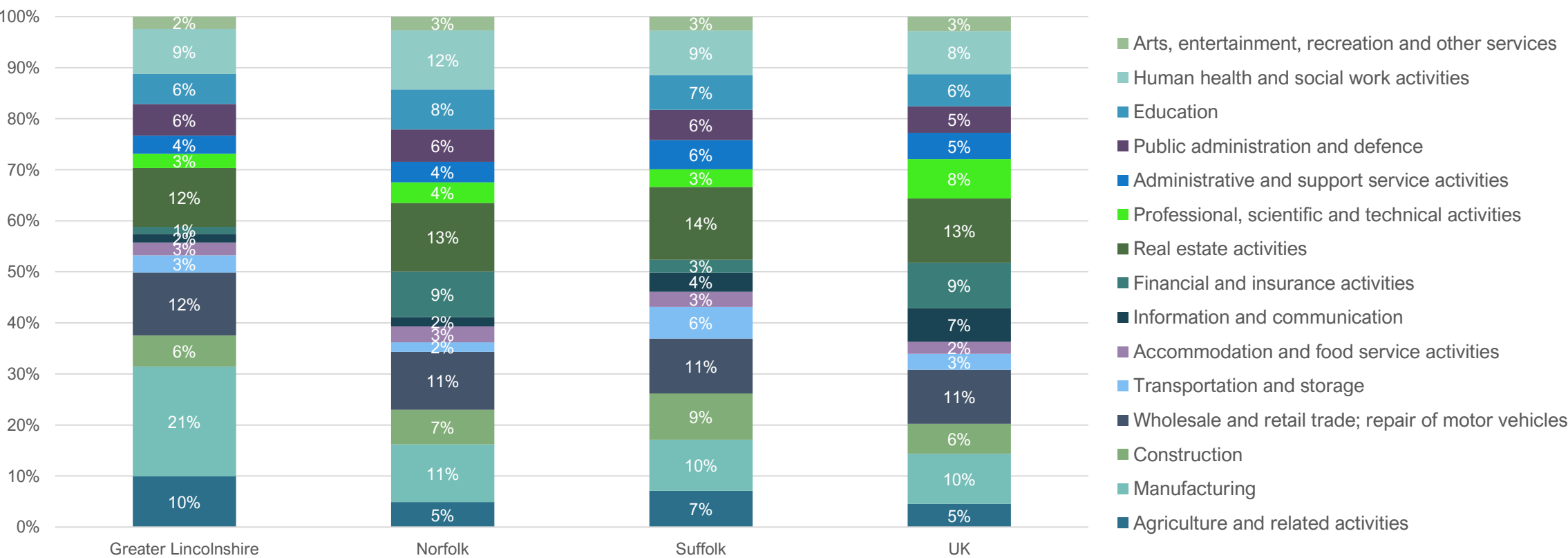


Construction

£1.6 bn
28,000 employees

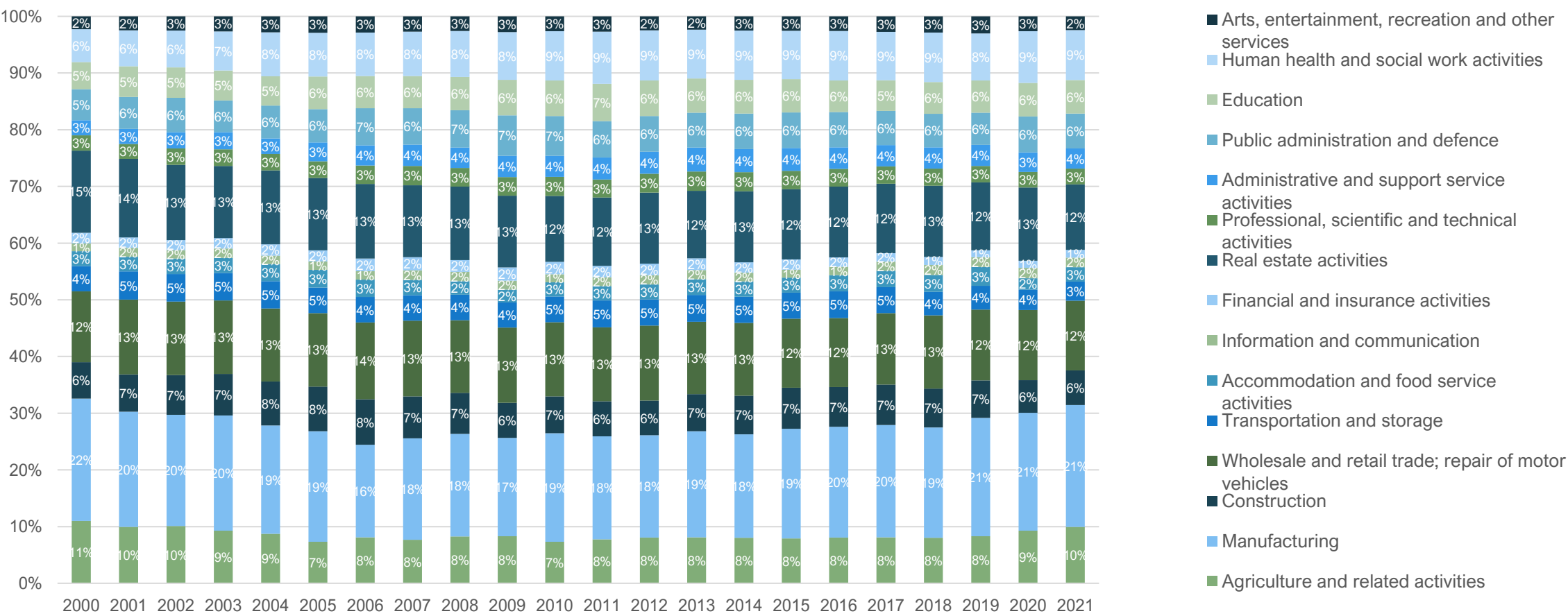
Sectors in Greater Lincolnshire: Sectoral share of economy

Greater Lincolnshire’s economy has a substantially higher share of economic output driven by fundamental economic sectors; agriculture and manufacturing make up almost a third of economic output, compared to 15% in the rest of the UK, with a much lower share driven by knowledge-intensive services.



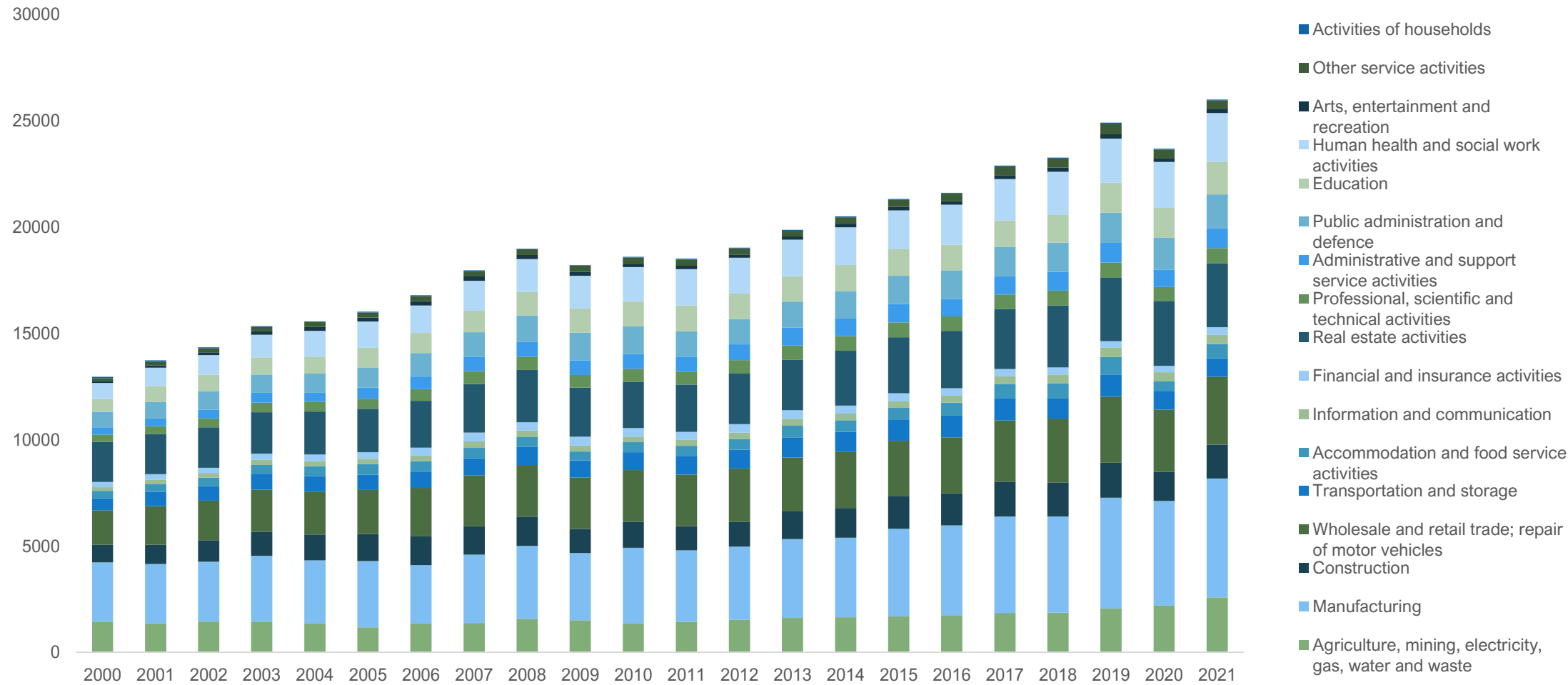
Sectors in Greater Lincolnshire: Change over time

This sectoral pattern has seen limited change over time, with both manufacturing and agriculture having approximately maintained their share of the economy since 2000.



Sectors in Greater Lincolnshire: Change over time

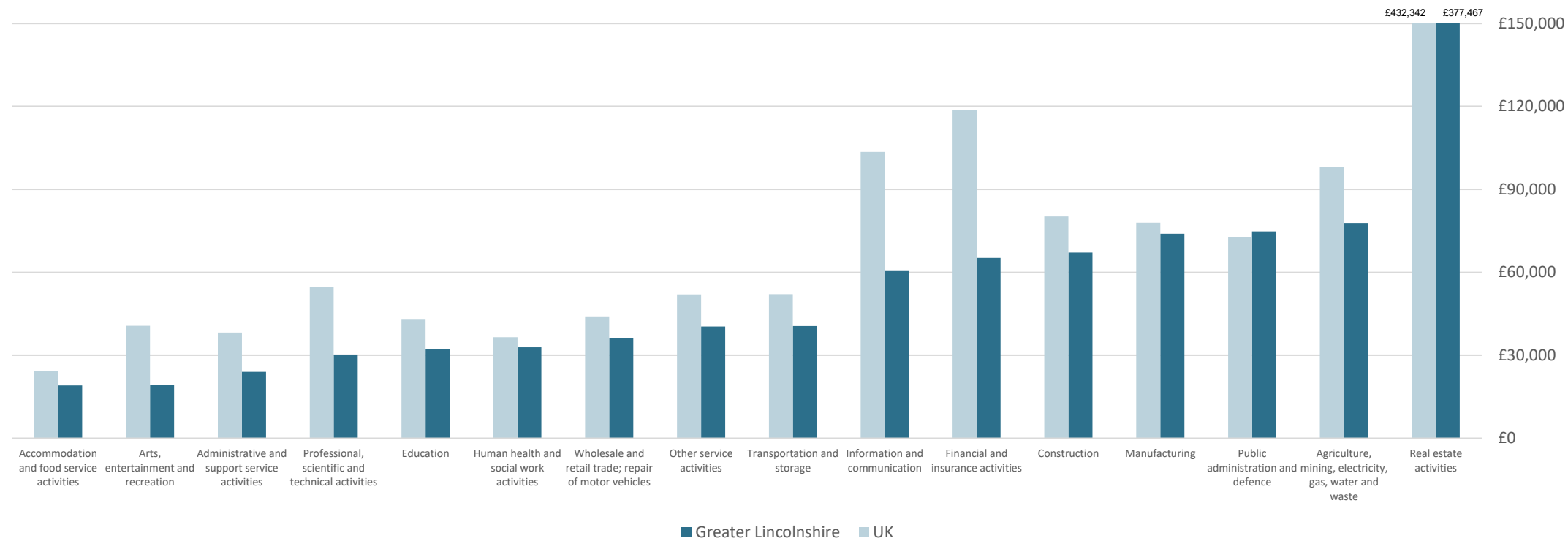
This chart shows the real terms contribution of sectors to growth in the Greater Lincolnshire economy, highlighting the continued importance of sectors like manufacturing, health and agriculture to growth, and the relatively limited importance of sectors like information and communication and professional and scientific activities



Sectors in Greater Lincolnshire: Productivity

Productivity in most sectors in Greater Lincolnshire is below the national average, with particularly large gaps in professional service and technical jobs. However, productivity in certain specialised sectors – such as agriculture, and public administration and defence – are closer to or higher than the national average.

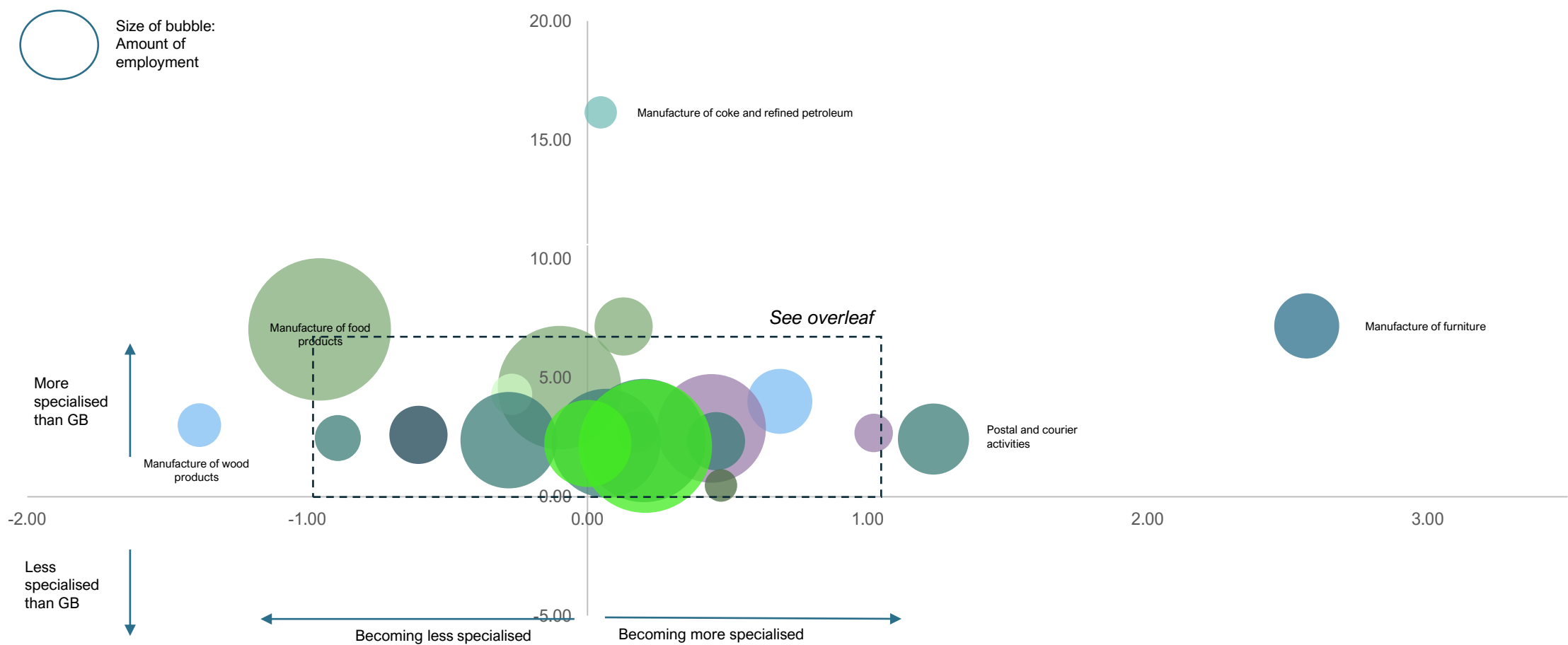
Productivity measures are about inputs and outputs, not about how hard employees work.. They can vary from sector to sector – for example the real estate sector has a very high value of inputs relative to jobs – so it is generally better to compare within sectors and between places.



Metro Dynamics analysis of ONS, sub-regional GVA, 2019 – note, pandemic era data sets show large distortions due to furlough scheme, so we have used pre-pandemic data here

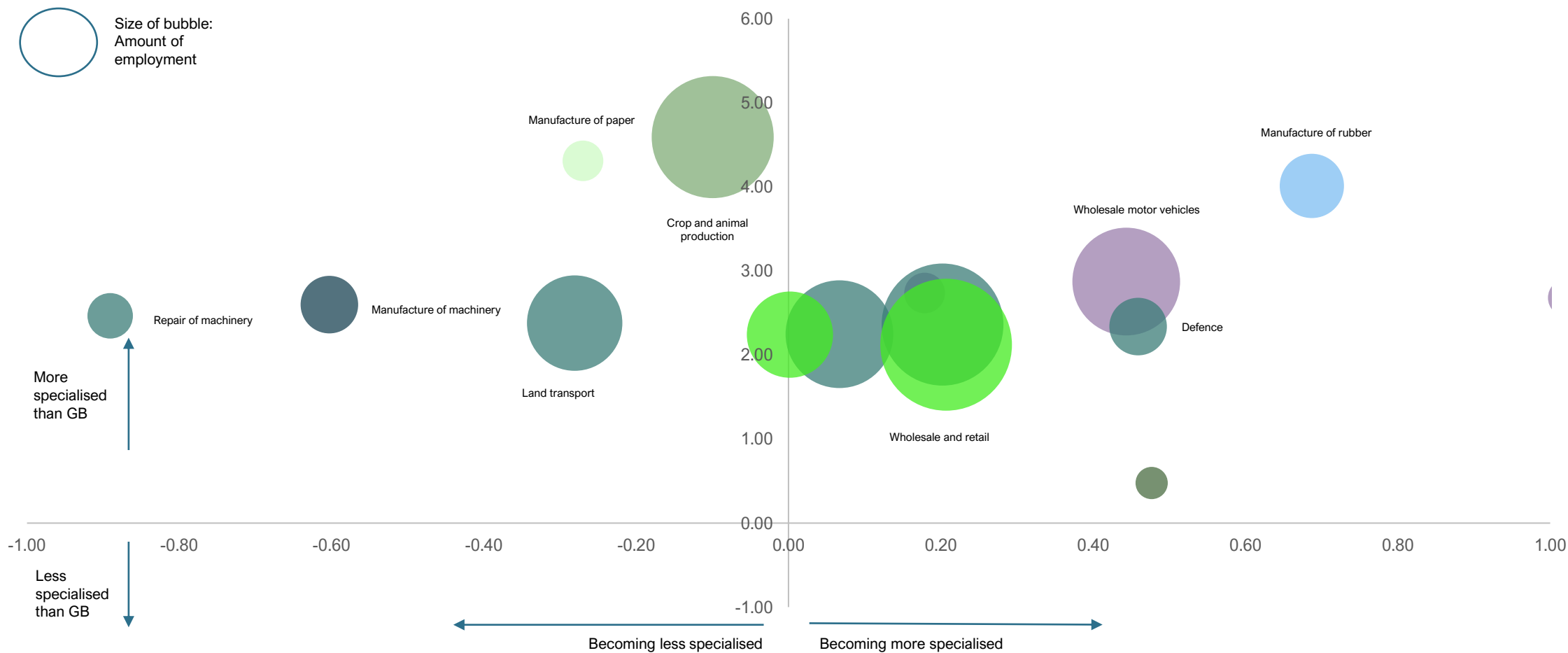
Sectors in Greater Lincolnshire: Specialisation (1/2)

The below shows a Location Quotient analysis for Greater Lincolnshire, showing changes in specialisation from 2018 to 2022.



Sectors in Greater Lincolnshire: Specialisation (2/2)

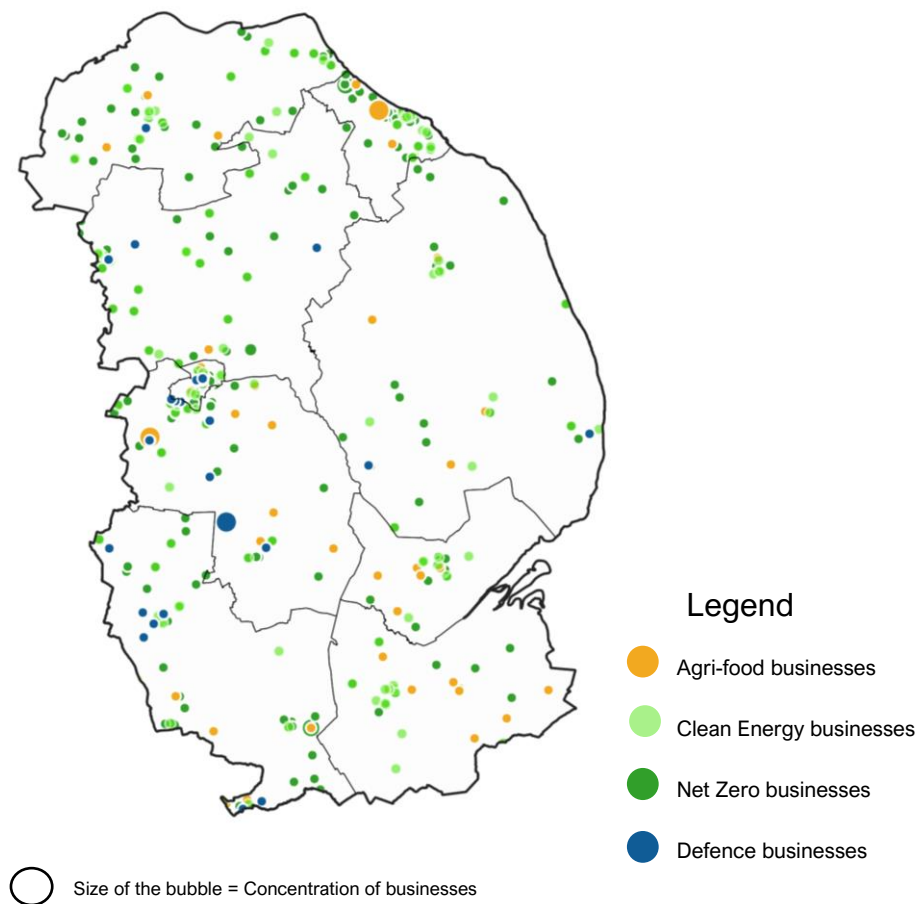
The relative importance of large foundational sectors such as manufacture and agriculture is clear, as is the relative growth of sectors and specialism of smaller but high value sectors such as Defence.



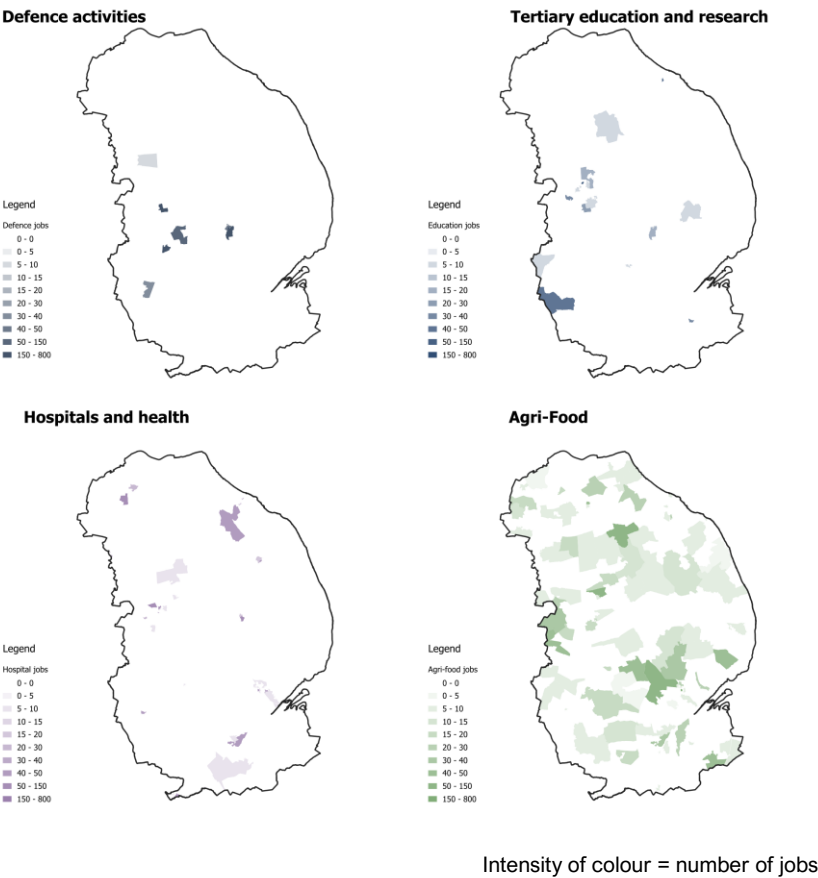
Sectors in Greater Lincolnshire: Spatial Distribution

Analysis of businesses and jobs show strong spatial clustering of sectors, across Greater Lincolnshire’s identified Game Changer sectors, and for key innovation-linked sectors – in particular for defence, education and research, and Net Zero and clean energy.

GL Game Changer Sectors: Businesses and clusters

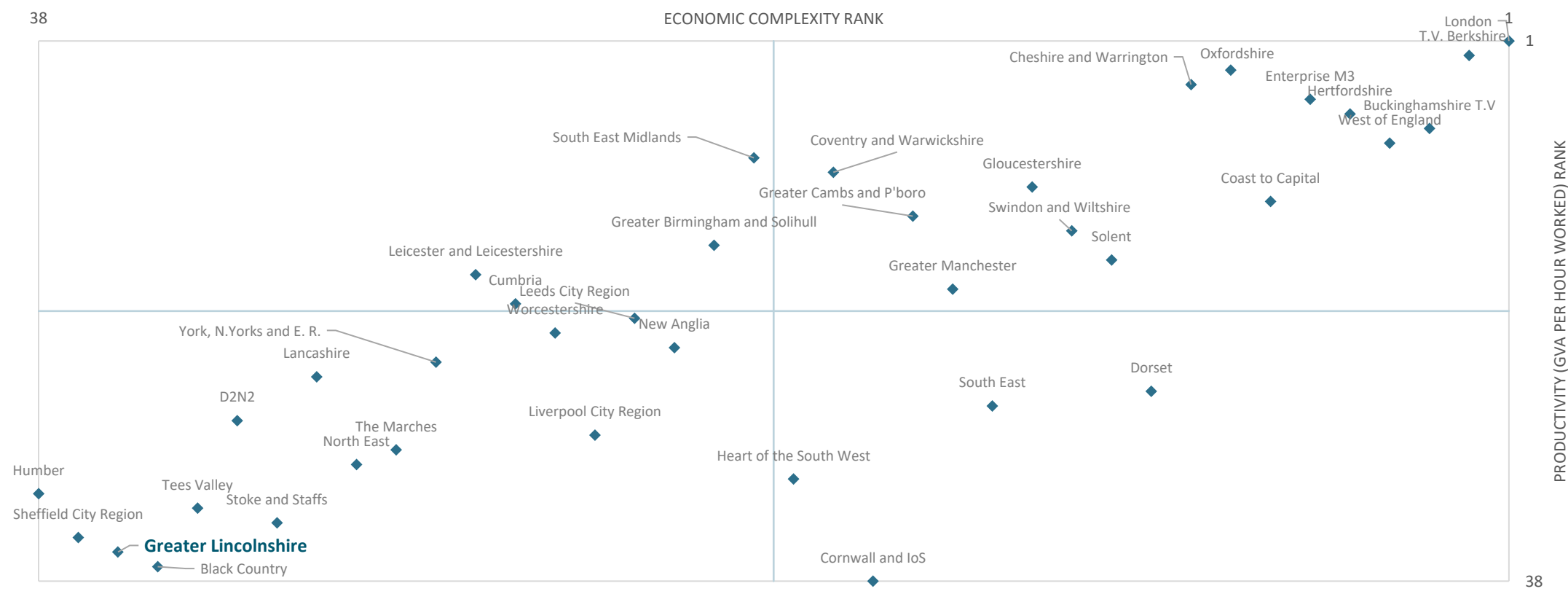


Innovation-linked sectors: jobs and distribution



Economic Complexity in Greater Lincolnshire: Concentrations and clusters

Greater Lincolnshire has low economic complexity, ranking third last among Local Enterprise Partnership Areas. Economic complexity measures the level of knowledge within an economy; more complex economies tend to be higher productivity, as the chart below shows.



Sectors in Greater Lincolnshire: Skills Demand

The key sectors important for future growth require a steady pipeline of relevant skills.

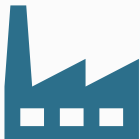
The top soft skills in demand in Greater Lincolnshire are communication, management, customer service, leadership and problem solving, while the in-demand technical skills include finance, sales, mathematics, Microsoft Excel, warehousing and accounting

While soft skill needs are similar across sectors, the technical skills needs of each sector show strong differentiations with implications for aligning the skills and workforce pipeline.



Agriculture and related activities

- Finance
- Mathematics
- Microsoft Excel
- Sales
- Accounting



Manufacturing

- Sales
- Machinery
- Food Safety and Sanitation
- Mathematics
- Auditing



Human health and social work

- Nursing/ Registered Nurse
- Midwifery
- Auditing
- General Data Protection Regulation
- Medication Administration



Education

- English Language
- Mathematics
- Research
- Marketing
- Functional Skills Qualification

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Innovation in Greater Lincolnshire

Innovation snapshot and Game Changers

Regional partners have identified four ‘game changer’ opportunities that can transform the long-term trajectory of the region’s economy

These game-changers can further innovation through collaboration and clustering.



UK Food Valley

- 11,000 jobs
- £2bn of additional GVA by 2030
- The UK Food Valley supports Europe’s largest Agri-food Tech automation and robotics cluster and businesses investing in automation, a test-bed for investors endorsed by the DIT through a High Potential Opportunity (HPO) for Automation in Food Processing.
- It is an opportunity to boost innovation and adoption activities, particularly around decarbonisation, process efficiency and new product development



Humber Freeport

- 7000 new jobs
- Over £2bn of inward investment by 2040 and £650m potential investment into the Humber from the Freeport Status.
- Humber Freeport will accelerate the region as a world-leading hub for renewable energy, clean growth, digital innovation and advanced manufacturing.



Clean Growth Plan

- A focus on plans for decarbonisation, offshore wind and hydrogen including CCUS and opportunities in nuclear.
- £1.2 bn in economic output in 2021 was generated by the energy, decarbonisation and net-zero sector.
- Opportunities for local businesses in the energy supply chain to benefit from improvements in innovation and skills



Growth of the RAF

- Developing a defence and cyber security cluster plan leading to 2500 jobs by 2030
- £6.6bn MoD investment in R&D until 2026
- Greater Lincolnshire is at the heart of Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) in the UK, with a highly innovative cluster of defence organisations.

Innovation: Innovation activity

The below innovation indicators highlight that Greater Lincolnshire has relatively low levels of innovative activity compared to neighbouring areas, and especially relative to the UK as a whole.

Indicator	Greater Lincolnshire	Norfolk & Suffolk	UK
R&D expenditure per full time employee	£353	£4,101	£1,638
Innovation jobs (% of total jobs)	1.8%	2.2%	4.4%
Total Innovate UK grants per business (5-year total 2018/19-2022/23)	£1,284	£669	£3,356
% of university students enrolled in STEM subjects	40%	32%	45%
% of university research impact at REF 3*/4*	61%	92%	87%
% of university graduates in full time employment or study	68.4%	69.2%	68.6%
Total IP revenue of universities per £100k of income	£7	£703	£702

Innovation: Knowledge and research assets

However, Greater Lincolnshire has a strong and defined base of innovation assets to draw on, as mapped below against the number of innovation jobs. These have previously been identified as a series of zones, with distinct sectoral specialisms:

Research & Academic Zone

Greater Lincolnshire's research and academic zone is centred on Lincoln, looking out towards the Midlands Engine.

Key assets are:

- University of Lincoln
- National Centre for Rural Health and Care
- Bishop Grosseteste University
- Lincoln Science and Innovation Park
- Lincoln School of Medicine
- Lincoln Centre for Autonomous Systems Research (L-CAS)
- Lincoln International Institute for Rural Health
- Bishop Burton College Riseholme Campus

There are additional research & academic assets outside of the primary Lincoln zone, including:

- Digital Skills Centre, Stamford
- University of Lincoln Institute of Technology
- Technical, Business Skills and Innovation Hub (TBISH)
- CATCH Training Facility, in North East Lincolnshire

The Clean Growth Innovation Zone

The clean growth zone is focused in North East Lincolnshire, looking out towards the North Bank. Key assets are:

- Humber Freeport
- Offshore Renewable Energy (ORE) Catapult

The Defence Innovation Zone

Greater Lincolnshire's defence zone is located in Central Lincolnshire. Key assets are:

- RAF Waddington
- RAF Cranwell
- RAF Coningsby
- Lincoln Science and Innovation Park

The Rural Health Innovation Zone

The rural health innovation zone is focused in East Lincolnshire. Key assets are:

- Boston E21 Health Hub
- Norton Lea
- Campus for Future Living
- Skegness General Hospital
- County Hospital Louth
- Pilgrim Hospital
- Johnson Community Hospital
- Sleaford Centre

There are additional health assets outside of the primary innovation zone, including:

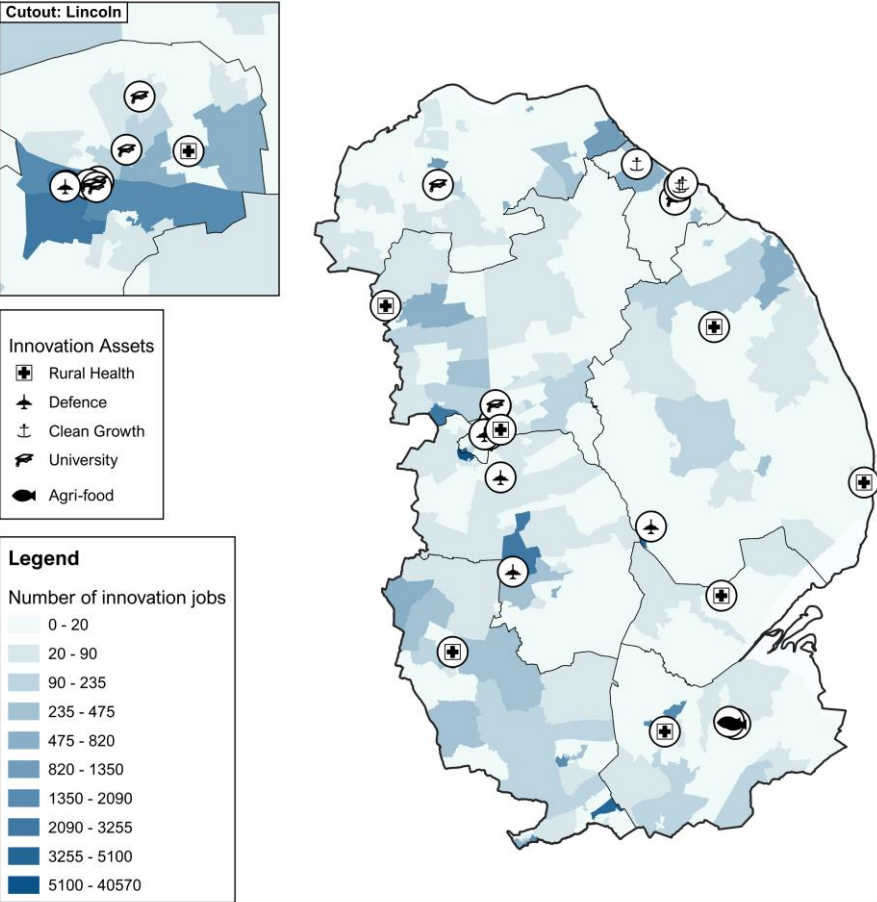
- Grantham and District Hospital
- Lincoln County Hospital
- St George's
- John Coupland Hospital
- International Institute for Rural Health

The Agri-Food Innovation Zone

Greater Lincolnshire's food zone is concentrated in and around South Holland, looking out towards Cambridgeshire & Peterborough and East Anglia. Key assets are:

- National Centre for Food Manufacturing
- Lincoln Institute for Agri-Food Technology (LIAT)
- Holbeach Food Enterprise Zone

Greater Lincolnshire: Innovation jobs and assets



At Metro Dynamics, we **care** about places, our clients, and our colleagues.

We are an **independent** organisation, **curious** about our work, and **collaborative** in our approach. We strive to **make a difference** in all that we do.

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