

# SHAPING THE FUTURE IN STEM INDUSTRIES

**STEM Demand in Greater Cambridge Greater Peterborough LEP Region**

10 May 2016



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## 1. Economic Context

### 1.1. Summary Economic and Labour Market Data

This section presents key indicators of the state of the economy and labour market within the Local Enterprise Partnership (LEP) area and their comparison with those of the Eastern Region and the UK as a whole. Current issues in local employment, skills and training are presented together with suggested means by which the LEP can address them, either alone or in partnership with other organisations and local employers.

The Greater Cambridge Greater Peterborough (GCGP) LEP area has more people in STEM occupations than the Eastern Region or England and Wales as a whole. This is due to proportionally more people in STEM producing, STEM dependent and STEM supporting occupations. However, the LEP area has proportionally fewer people in STEM using occupations. In terms of sectors the Greater Cambridge Greater Peterborough LEP area has significantly more employment in high-technology sectors, with a particular emphasis on high-tech-knowledge-intensive services.

Generally, the GCGP LEP area parallels the rest of the UK in terms of real GDP per capita, a basic productivity measure. However, GCGP had a slightly higher GDP per capita than the UK before the crisis and now has a slightly lower GDP per capita. Importantly, real GDP per capita in the UK and in the LEP area has not returned to the levels seen before the crash in 2008. The per capita productivities of Greater Cambridge Greater Peterborough LEP region and the Eastern Region economies are 102% and 94% of the UK average. The GCGP economy has greater earnings from manufacturing activity, with lower earnings from financial and insurance activities, compared to the UK norm.

The GCGP area has a slightly higher proportion of its workforce employed in professional jobs than the UK as a whole (21% compared with 20%) but otherwise the occupational profile is similar to that in the Eastern Region and the UK as a whole. There is a higher economic activity rate in the GCGP area compared to the Eastern Region and the UK, possibly reflecting a younger age profile. However, there is a lower self-employment rate in the Greater Cambridge Greater Peterborough area than elsewhere.

The current business birth rates for the GCGP area and the Eastern Region exceed their death rates, as in most of the UK. This is mainly due to high birth rates.

Employers in the GCGP area experience a relatively high level of under-employment, this means people are more qualified than their occupation normally demands. They also report slightly less skills gaps and skills shortage vacancies.

The ten-year forecasts for the Greater Cambridge Greater Peterborough LEP area suggest that employment is projected to decline in agriculture, manufacturing, and public administration, but to grow in all other sectors. Growth is expected in the accommodation and food sector, as well as professional services sector.

Replacement demand for labour will represent 85 per cent of new demand reflecting retirements of existing workers. Managerial, professional and associate professional jobs will constitute 55% of the overall demand, a larger proportion than the UK as a whole (52%). There will be a net loss of jobs in all other occupational groups, with the exception of sales and customer service occupations as well as caring and elementary occupations (but still considerable replacement demand). Demand for all levels of qualification with the exception of Level 4 and above, will be limited to replacement jobs, with the proportion of the workforce qualified at Level 4 and above needing to grow significantly to 60% by 2024.

The LEP can contribute to local economic growth by:

- Economic Opportunity 1:** providing a **curriculum for progression** for those qualified at Levels 2 and 3 to meet the future gap in supply at Level 4+
- Economic Opportunity 2:** extending entry to Level 1 qualifications to **improve access to employment** from NEETs and the youth unemployed
- Economic Opportunity 3:** expanding the provision of employability skills to address worklessness in the **adult long-term unemployed**
- Economic Opportunity 4:** improving the **take-up of apprenticeships** at Levels 3-5, particularly in growth priority sectors
- Economic Opportunity 5:** assisting employers to deliver **up-skilling programmes** to meet replacement demand and reduce adult skills gaps
- Economic Opportunity 6:** working with employers to **address under-employment** by raising the market position of their businesses
- Economic Opportunity 7:** addressing the relatively large numbers of **managers and professionals without level 4** and above qualifications with part-time evening class provision
- Economic Opportunity 8:** developing a strategy for **improving the take-up of training by SMEs**
- Economic Opportunity 9:** providing support for the **construction** sector which is expanding rapidly
- Economic Opportunity 10:** providing support to those entering **self-employment** and establishing them as growing source for **micro firms**

## Appendix A: Local, Regional and National Economic Data

### A.1. Framework

The demand for training and education in STEM subjects provided by further education colleges and training providers in the LEP area is analysed by exploring:

1. The current status of the local economy and labour market
2. Forecasts of key economic indicators for the region and labour market indicators for the local area, based on reports of the UKCES
3. An analysis of economic, employment and skills policies applicable to the local area based on reports from the Greater Cambridge Greater Peterborough LEP region.

Demand on the education and training providers arises from both the demand side of the local labour market, i.e. an employer's requirement for trained, qualified and capable employees, and the supply side of the local labour market, i.e. potential students seeking to equip themselves with qualifications for entry to the labour market or to improve their position within it. To understand the extent of this demand, the Greater Cambridge Greater Peterborough LEP area labour market is examined and its performance benchmarked against the Eastern Region and the UK as a whole. The choice of comparator geography is determined by data availability. Where possible the analysis is extended to the constituent local authorities within the LEP area. As most of the data presented is based on sample surveys, caution should be taken when looking at small values which are based on smaller samples. Unfortunately, this means that values for the constituent local authorities are the least reliable.

The key indicators and relationships within the local economy that determine the performance of the labour market are shown in Figure 1. The LEP plays a critical part in enabling the labour supply to meet demand through its impact on qualifications and skills, and its role in improving the economic participation of the local population.

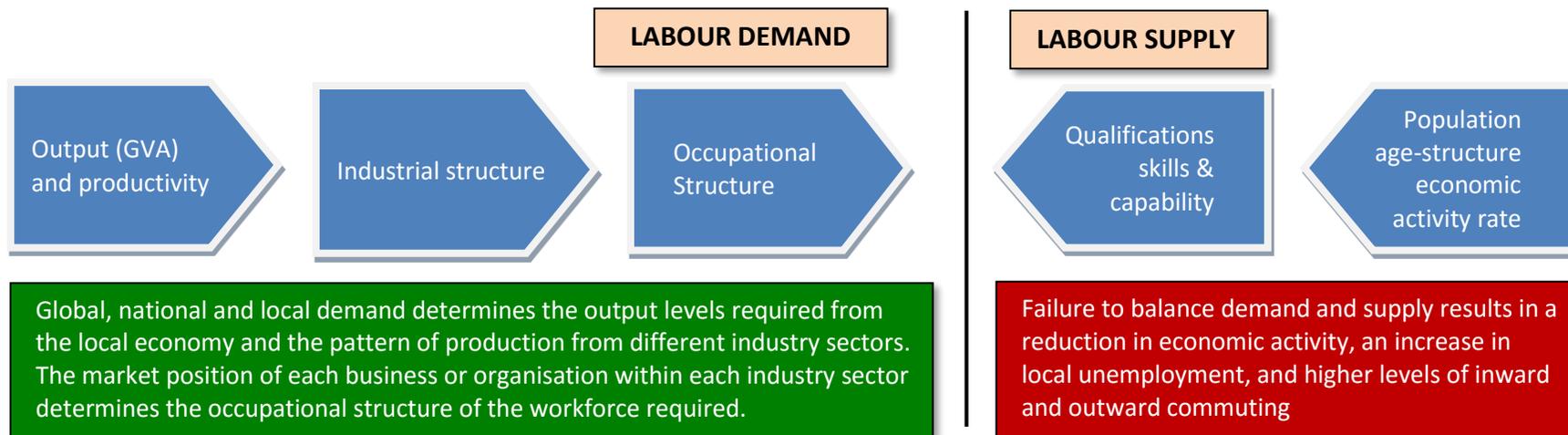


Figure 1: Summary of key indicators with the local economy

## A.2. STEM Occupations in Greater Cambridge Greater Peterborough LEP Region

Much of the debate about Science Technology Engineering and Mathematics (STEM) is around high level skills<sup>1</sup>. However, the impact of STEM is more pervasive. It is not just about the occupations that produce STEM products, such as the scientists, engineers and programmers popularly associated with the term. STEM skills are also important in industries and occupations that are dependent on science and technology such as medicine and the NHS. There are also occupations where STEM knowledge supports STEM activities, such as a wide range of technicians. Finally, there are a range of occupations that use STEM skills.

This produces a four-way classification of STEM occupations:

- STEM Producing: includes scientists, engineers and programmers <sup>1</sup>
- STEM Dependent: includes medical doctors, nurses, teachers, architects and media professionals <sup>2</sup>
- STEM Supporting: includes science and engineering technicians, architectural technicians, as well as conservation associate professionals <sup>3</sup>
- STEM Using: includes agricultural trades, welding trades, metal machining trades, vehicle trades, electrical and electronic trades, and construction trades <sup>4</sup>.

These are all based on Standard Occupational Classification (SOC) codes (detailed in the endnotes) and the most recent data that provides detailed and reliable local data on occupations; the 2011 Census.

It is known that areas with more high level STEM skills are more likely to have experienced recent economic growth<sup>2</sup>. The broader definition used here is more comparable to the definition used in the United States that showed a linkage between STEM education and STEM employment<sup>3</sup>. Figure 2 shows that the Greater Cambridge Greater Peterborough LEP area has more STEM jobs than the Eastern Region as well as England and Wales overall. The chart also shows that roughly a quarter of the workforce in the LEP area, and England and Wales more generally, are to some extent influenced by STEM. The largest proportion in each area are in STEM Dependent occupations. Importantly, the LEP area has a larger proportion of its workforce in STEM producing, STEM dependent and STEM supporting occupations than the rest of the Eastern Region and England and Wales. In part, this reflects the role of Cambridge University at the centre of the LEP area, with more teaching, R&D and high-tech manufacturing as well as more medical and nursing occupations. The STEM producing and dependent occupations also reflect the concentration of higher education and its graduates in the area. The relatively high proportion of the workforce in STEM producing and dependent occupations would suggest a higher proportion of the workforce than is found in STEM supporting

<sup>1</sup> UKCES (2015) Reviewing the requirement for high level STEM skills, UKCES, Wath-upon-Deane

<sup>2</sup> Hasan B, Davies J, Alan Freeman A, Higgs P (2015) The Geography of the UK's Creative and High-Tech Economies, NESTA, London.

<sup>3</sup> Landivar LC (2013) American Community Survey Reports: The Relationship Between Science and Engineering Education and Employment in STEM Occupations, US Census Bureau, Washington DC, <http://www.census.gov/prod/2013pubs/acs-23.pdf>.

occupations. If this relative lack of STEM supporting occupations is a result of unmet demand, as a result of a training deficit, this could represent a training opportunity for the Greater Cambridge Greater Peterborough LEP. Equally, the low numbers of STEM using trades in the area could also represent a training opportunity.

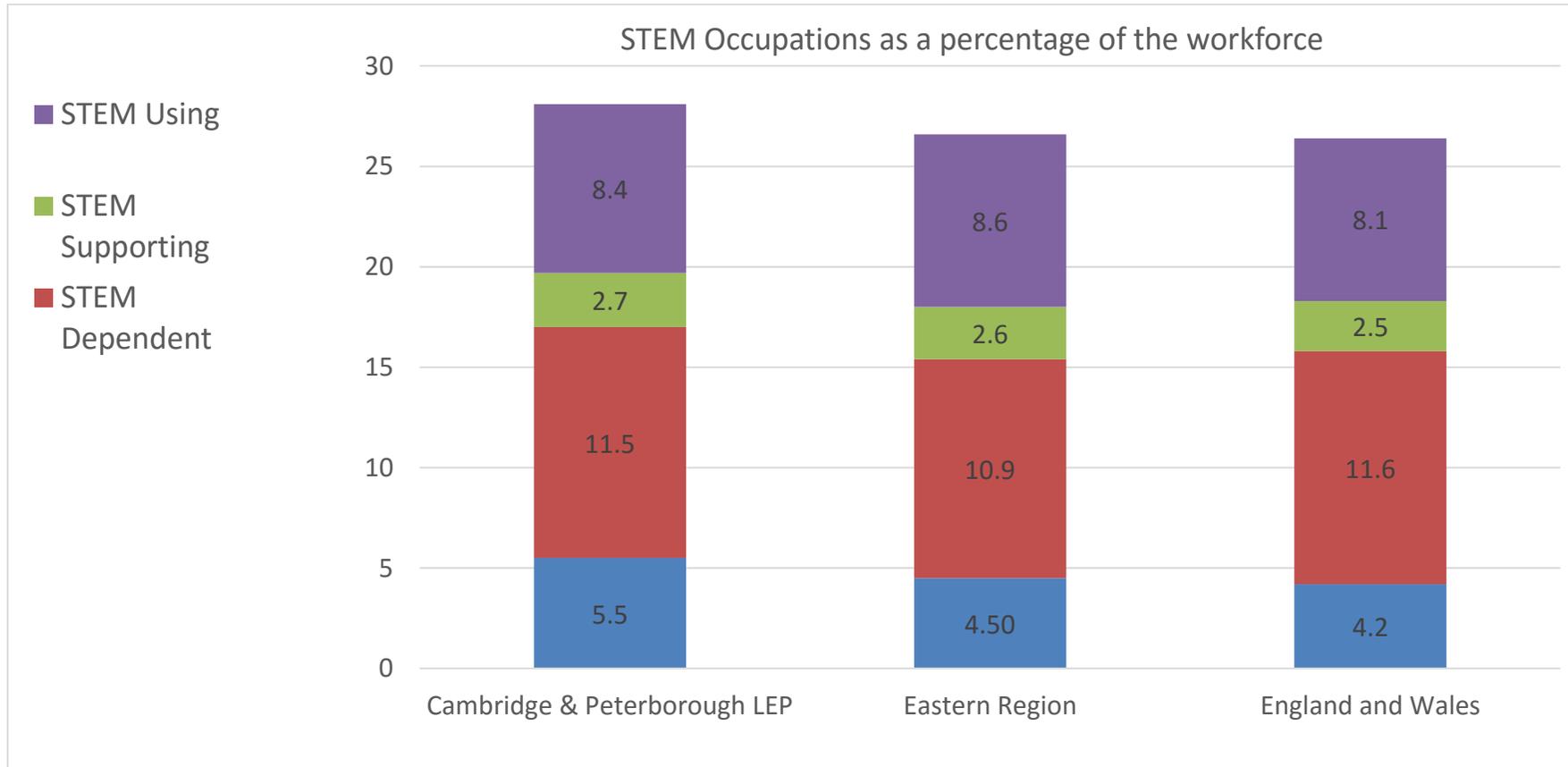


Figure 2: STEM Occupations in Greater Cambridge Greater Peterborough LEP Region, Eastern Region and England and Wales



**Figure 2b: STEM Occupations in Greater Cambridge Greater Peterborough LEP's District Local Authorities**

**Figure 2b** provides a similar breakdown by Local Authority and here the role of Cambridge and South Cambridgeshire becomes more apparent.

### A.3. High Technology Employment in Cambridge and Peterborough

Another way of examining the important of STEM knowledge in the economy is to look at sectors of employment rather than occupations. This section undertakes such an analysis using a classification of sectors developed by Eurostat that looks at high-technology-sectors, medium-high-technology sectors, medium-low-technology sectors and high-tech-knowledge-intensive-services<sup>5</sup>.

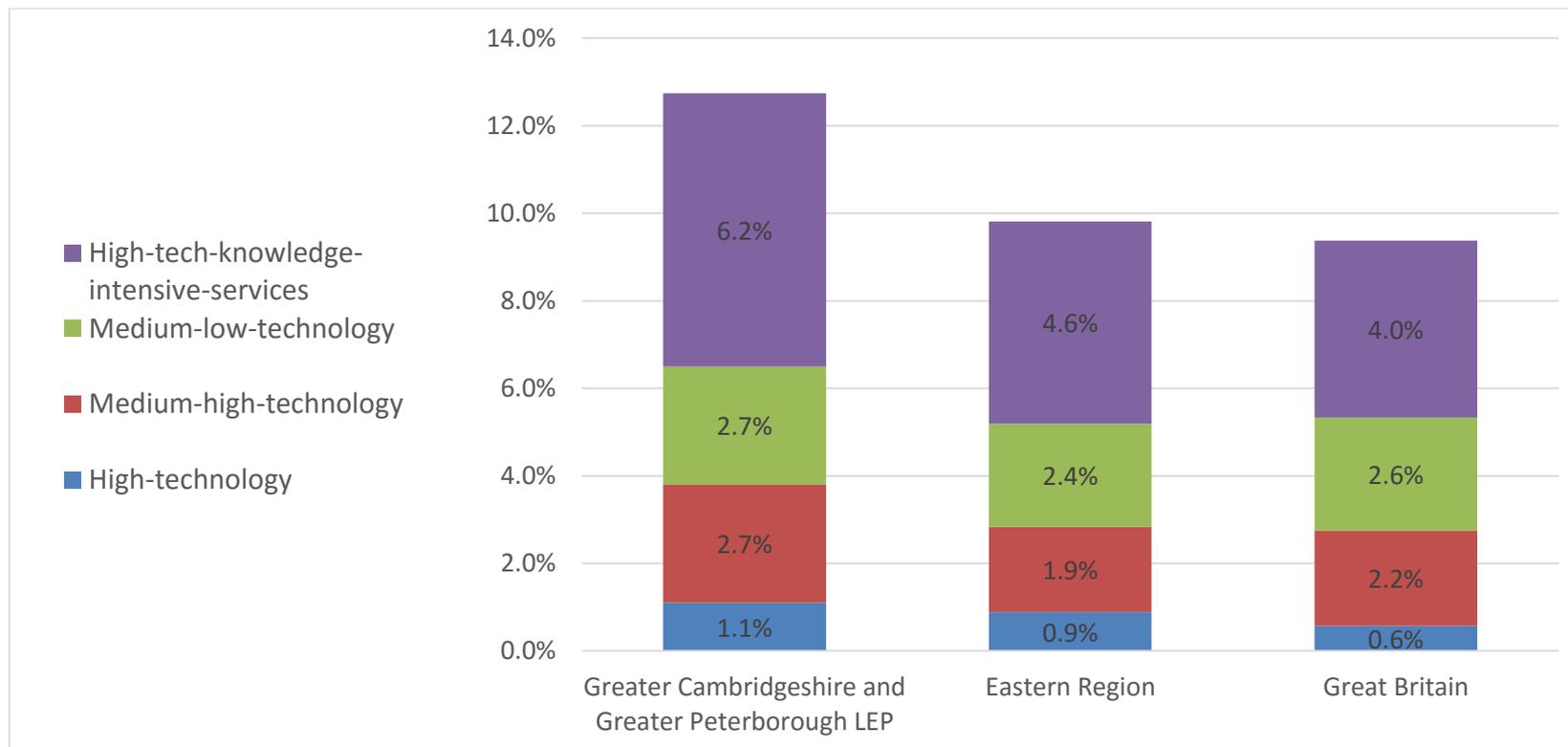


Figure 3: High and Medium Technology Sectors in Greater Cambridge Greater Peterborough LEP, Eastern Region and Great Britain

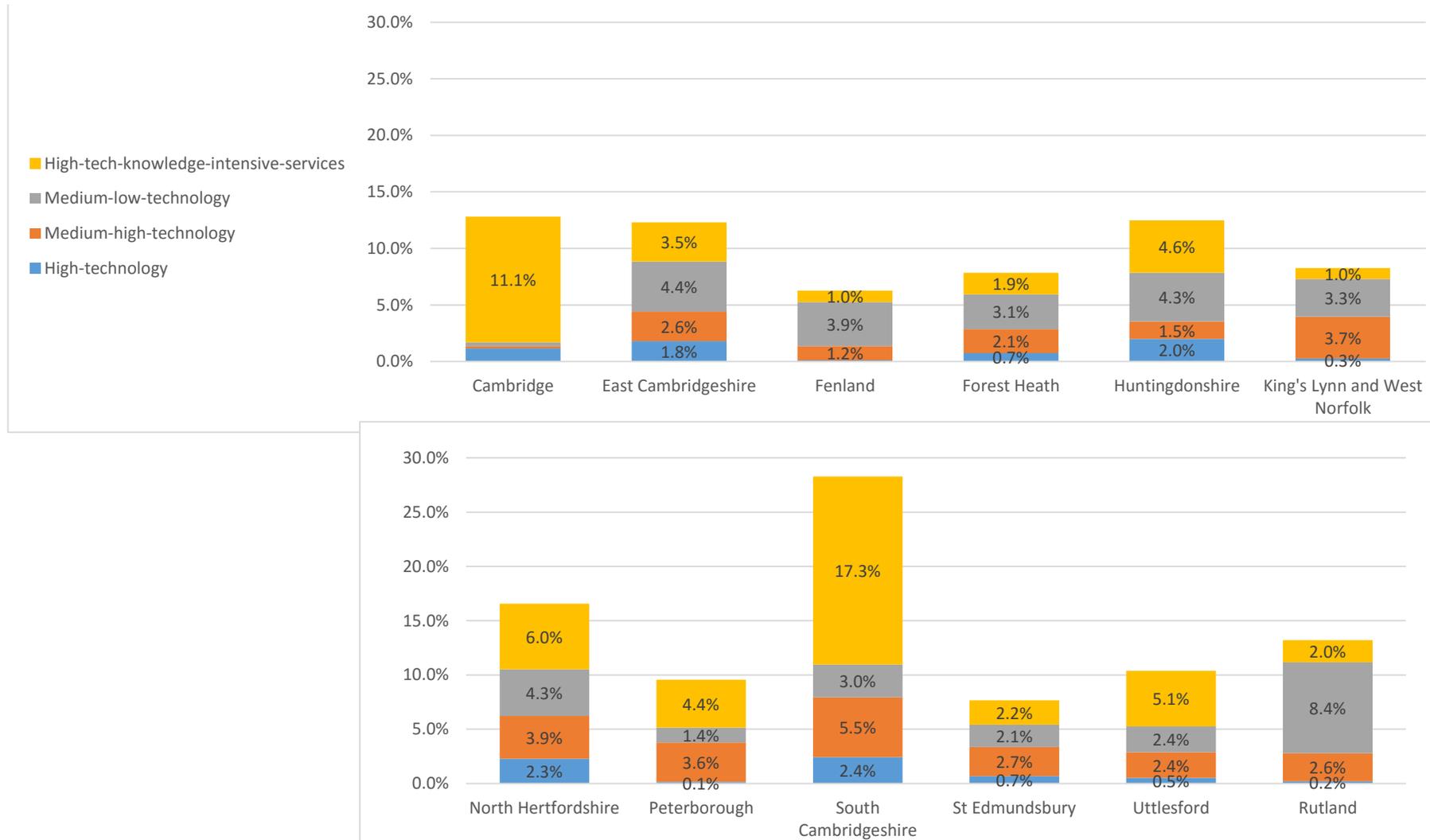


Figure 3b: High and Medium Technology Sectors in Local Authorities in Greater Cambridge Greater Peterborough LEP

**Figures 3 and 3b** provide another way of looking at the role of STEM in the area by examining the proportion of employment in high and medium-high technology manufacturing as well as high-tech knowledge intensive services. These figures show that the Greater Cambridge Greater Peterborough LEP area has significantly more high-technology employment than the Eastern Region or the whole UK. In particular, the LEP area has more high-tech-knowledge -intensive-services employment than in the comparator areas. This pattern reflects the research and development companies that have spun out of Cambridge University. Overall, the LEP area has more employment in all of the high-technology sector categories so this is not just research and development the pattern reflects greater employment in high-technology manufacturing sectors as well.

When the analysis is taken down to the level of the Local Authorities making up the LEP area interesting patterns emerge. The significance of South Cambridgeshire where almost 30 per cent of all employment is in high-technology sectors is clear. South Cambridgeshire and Cambridge itself are both dominated by high-tech-knowledge-intensive-services with 17 and 11 per cent respectively of employment in this category. Outside of this core area medium-low-technology becomes more important with 8.4 per cent of Rutland's employment within these sectors. Fenland has the smallest proportion of its employment in these high-technology sectors with only about 7 per cent overall in these sectors. North Hertfordshire and Huntingdon have an important base in high-technology-manufacturing and could potentially be the basis for wider high-tech clusters.

#### **A.4. Current Economic Status**

##### **A.4.1. Real GDP per Capital Growth**

If STEM occupations are associated with higher productivity, the higher overall proportion of STEM occupations in the LEP area should be associated with lower rates of productivity than England and Wales. The simplest measure of productivity is Gross Domestic Product (GDP) or Gross Value Added (GVA) per capita. This simply divides the economic output of the area by its population. Since time series of GDP per capita are distorted by inflation, it is more usual to present these in real terms or in prices of one year with the effect of inflation stripped out.

In line with the higher levels of STEM producing and dependent occupations, and probably higher levels of investment, **Figure 4** shows that in real terms, for the Greater Cambridge Greater Peterborough LEP area its GDP per capita has been very similar to that of the whole UK and higher than the whole Eastern Region. The difference between the LEP area and the whole UK was £720 in 1997 and £270 in 2007, but the gap closed slightly during the downturn and by 2014 the LEP area was £234 per capita behind the whole of the UK. This meant that although the economies in the UK and the GCGP area were growing slowly from 2009 in terms of basic productivity, it still had not returned to the level of 2005.

Although, GDP per capita does not directly link to the income of people living in the area, it does reflect the productivity in the area and the money available to make investments, pay employees and take profits. There is another measure, Gross Domestic Household Income (GDHI), which measures the amount of money available to households in the area and this is a more accurate measure of the take home incomes in the locality.

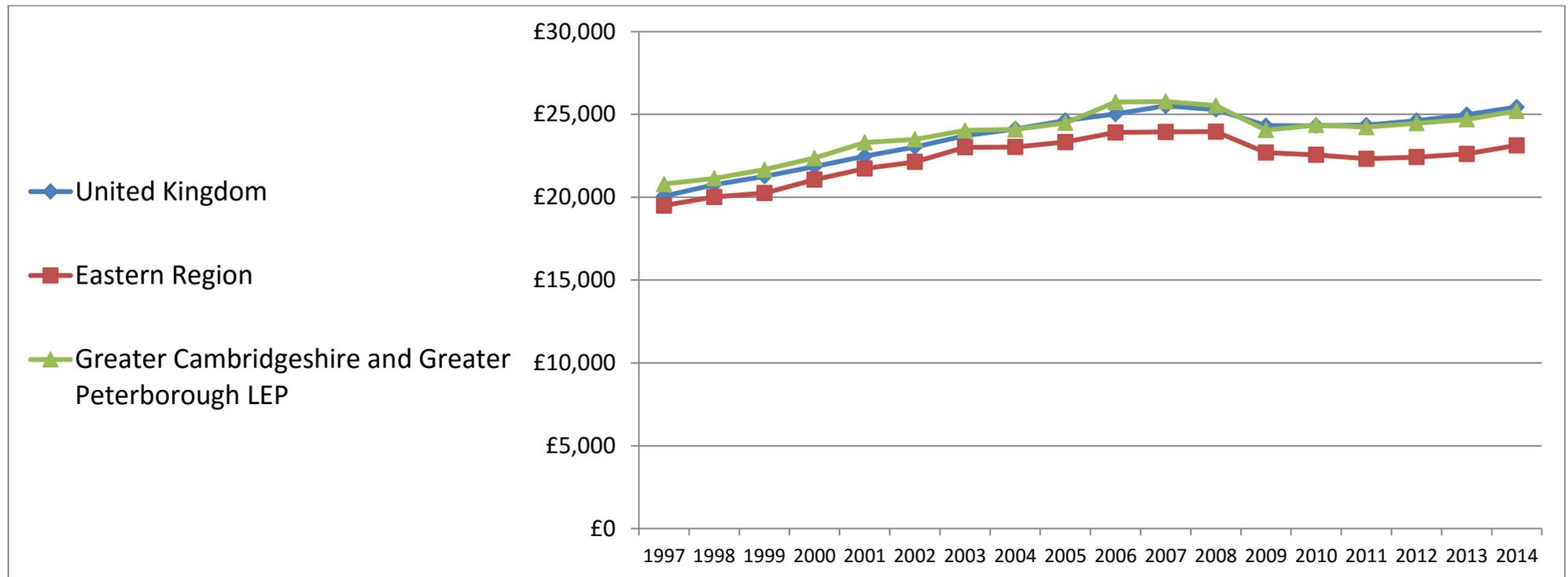


Figure 4: Real GDP per Capita (in 2015 prices) for Greater Cambridge Greater Peterborough LEP, Eastern Region and the UK

A more detailed breakdown of GDP, or its local version of Gross Value Added (GVA), is provided by Table 1, along with other productivity measures such as GVA per hour worked and GVA per filled job.

#### A.4.2. Local Economy

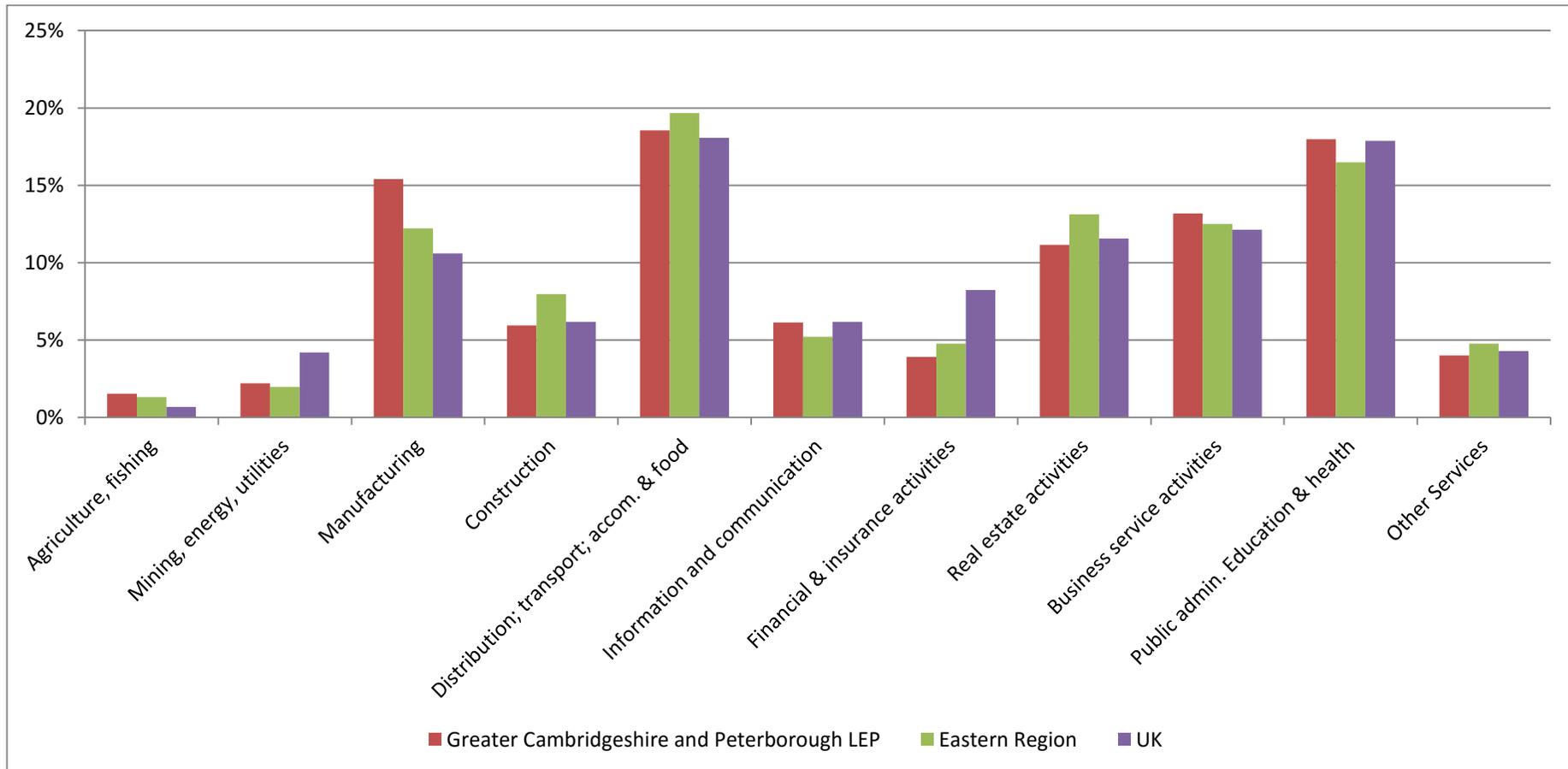
The performance and wealth of the local economy can be assessed using measures based on Gross Value Added (GVA) and a crude measure of local benefits from the economy using GVA per capita, while local productivity can be measured in terms of GVA per filled job or GVA per hour worked.

**Table 1: Summary Indicators of Economic and Household Wealth (Source: ONS)**

	Date	Greater Cambridge Greater Peterborough LEP	Eastern Region	UK
Gross Value Added (million)	2007	£28,854	£115,710	£1,303,492
<b>Workplace based at current basic prices</b>	2014	£35,395	£138,801	£1,590,113
Nominal GVA per hour worked, indexed	2007	99.3	101.0	100.0
	2014	101.3	98.5	100.0
Nominal GVA per filled job, indexed	2007	98.7	99.7	100.0
<b>NB jobs may be full or part-time</b>	2013	99.8	96.9	100.0
GVA per capita	2007	£22,042	£20,467	£21,258
<b>NB This relates workforce output to the residential population</b>	2014	£25,133	£23,063	£24,616
GVA per capita, indexed	2007	103.7	96.3	100.0
	2014	102.1	93.7	100.0
GDHI per capita	2007	£16,011	£15,946	£15,211
	2013	£18,122	£18,523	£17,559

The most effective measure of productivity is the GVA per hour worked. This GVA per hour worked figure is a better measure of productivity than GVA or GDP per capita. The table presents the relative productivity of the GCGP area, and the Eastern Region compared to the UK as a whole by indexing. This shows that the LEP area has improved its GVA per hour worked and per filled job compared to the rest of the Eastern Region and the UK as a whole. In terms of GVA per capita the LEP area has fallen back a bit but was and continues to be more productive than elsewhere. Interestingly, the advantage in terms of GDHI per capita is less obvious and the Eastern Region has performed better than the LEP area and currently has a higher GDHI per capita.

The GVA per capita and the GDHI per capita figures are based on current prices and the increases between 2007 and 2013 do not completely make up for the increases in the cost of living. However, the relative figures give an idea of the money available to households in the GCGP area compared to the Eastern Region and the UK as a whole.



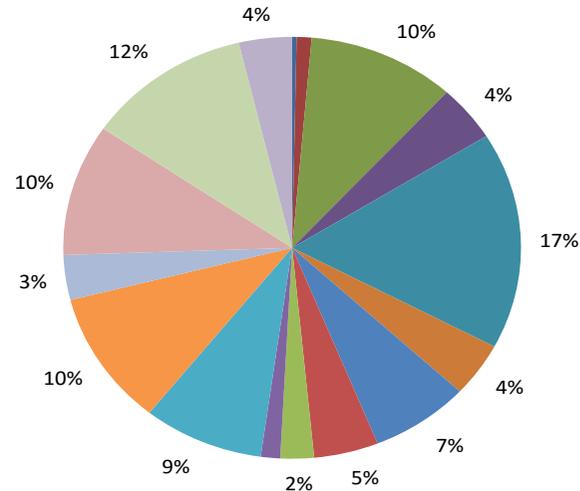
**Figure 5: Proportion of GVA by Industry Sector, 2014 (Source: ONS)**

**Figure 5** provides a profile of output by industry sector. A local economy will be more resilient if its GVA is earned from many sectors and any “spikes” in the profile are associated with the more productive sectors. The Greater Cambridge Greater Peterborough LEP area has a broadly similar profiles to the UK as a whole, with the LEP having significantly more output from Manufacturing than the Eastern Region and the UK as a whole. The LEP area as the Eastern Region has less activity in the Financial and Insurance areas.

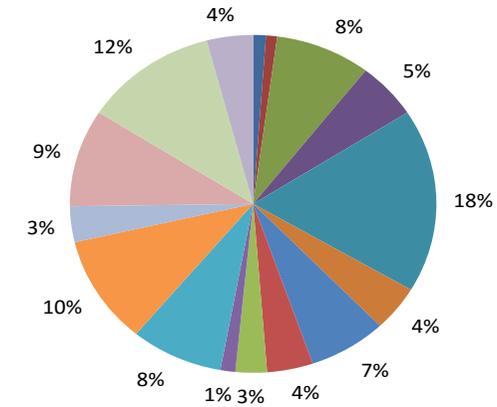
### A.4.3. Labour Demand

- Agriculture, forestry and fishing
- Mining and quarrying, energy, utilities
- Manufacturing
- Construction
- Wholesale, retail and repair of motor vehicles
- Transport and storage
- Accommodation and food services
- Information and communication
- Finance and insurance
- Real estate activities
- Professional scientific and technical
- Business administration and support
- Public administration & defence
- Education
- Health
- Other employment

**Greater Cambridgeshire and Greater Peterborough LEP\***



**Eastern Region\***



**Great Britain**

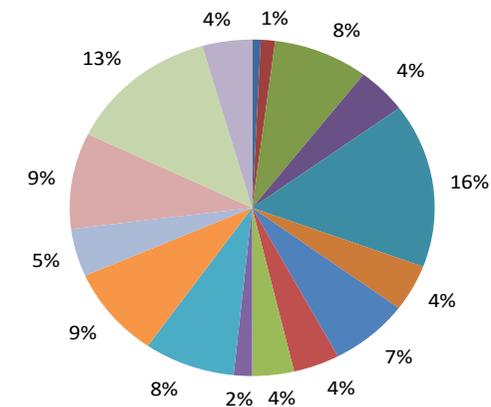


Figure 6: Share of Employment by Broad Industrial Group, 2013 \*note agriculture under-reported (Source: BRES, ONS via NOMIS)

Figure 6 shows that there are major differences between the employment profiles by broad industrial group of Greater Cambridge Greater Peterborough LEP, the Eastern Region and Great Britain as a whole. Figure 6b provides a similar breakdown for the constituent Local Authorities within the LEP.

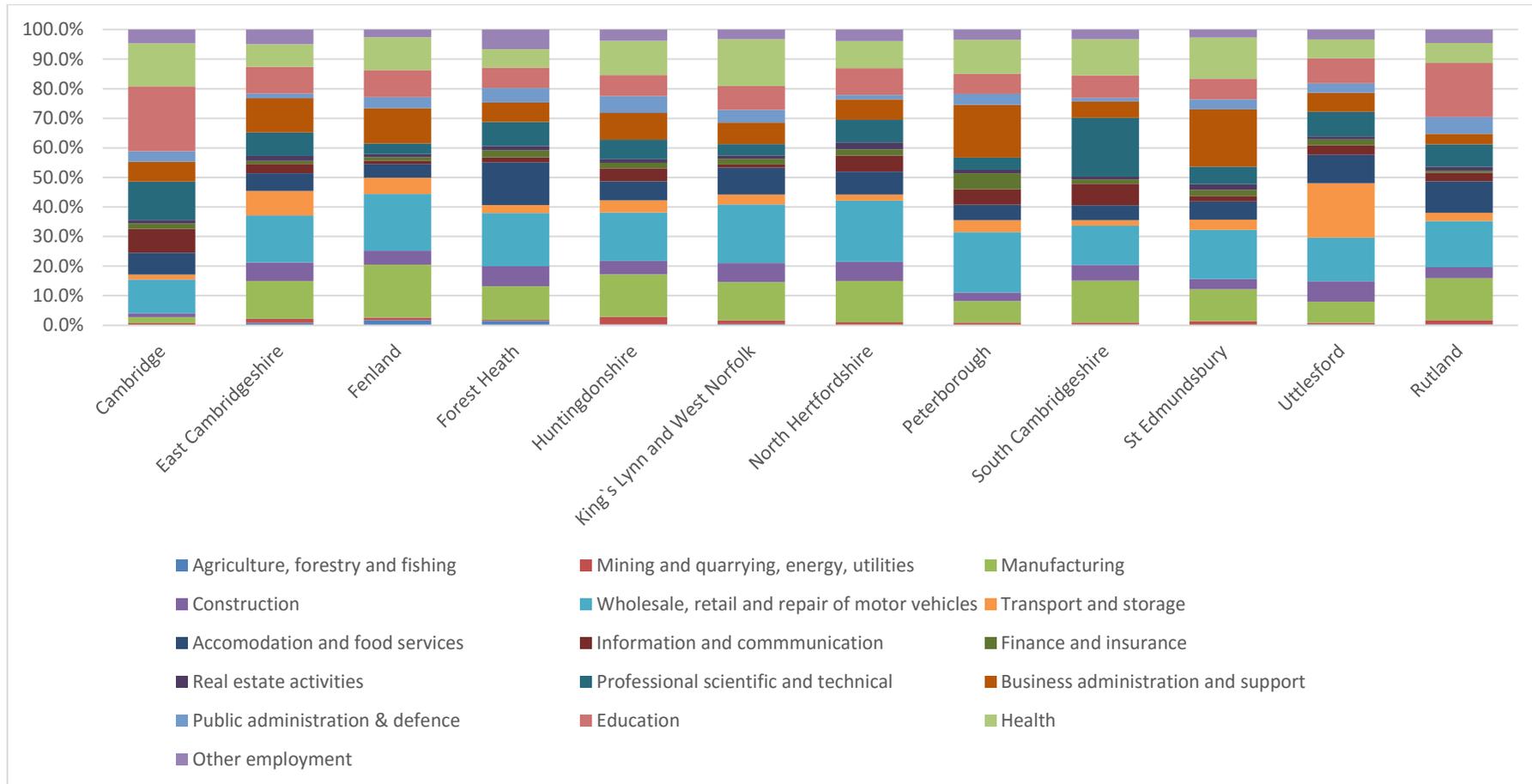


Figure 6b Sectoral Employment Profile for Local Authorities within Greater Cambridge Greater Peterborough LEP (Source: BRES)

#### A.4.4. Labour Supply

Labour supply is best characterised by the occupational and qualifications profiles of the economically active resident population aged 16-64, i.e. those in work or seeking work, and the residents, i.e. labour supply, as these constitute two different markets for the colleges and training providers with the LEP. Any differences will need to be accommodated within the overall curriculum and qualifications strategy.

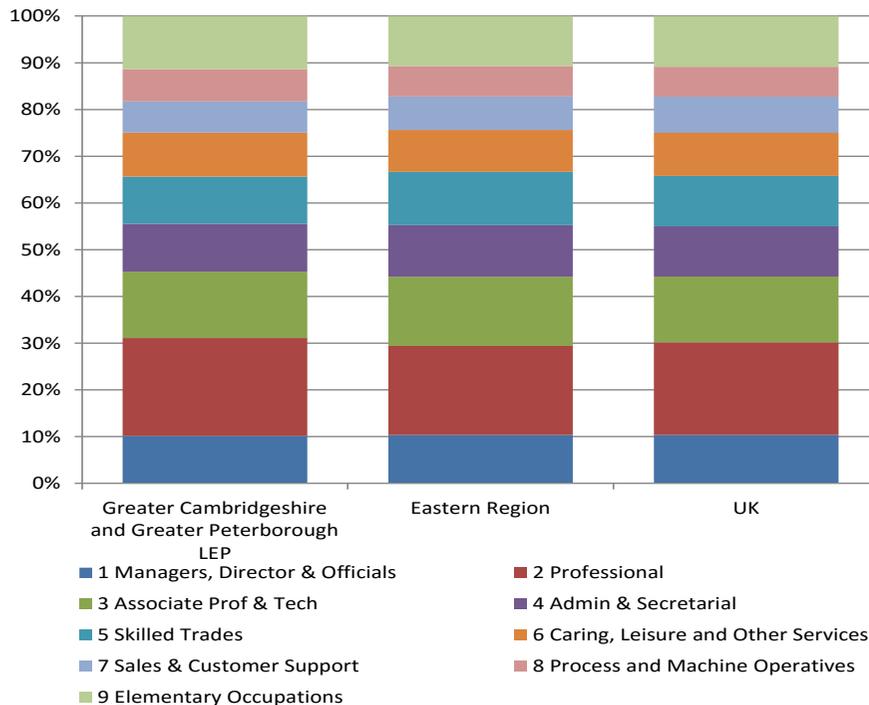


Figure 7: Proportion of Employment by Occupation at Workplace, 2015

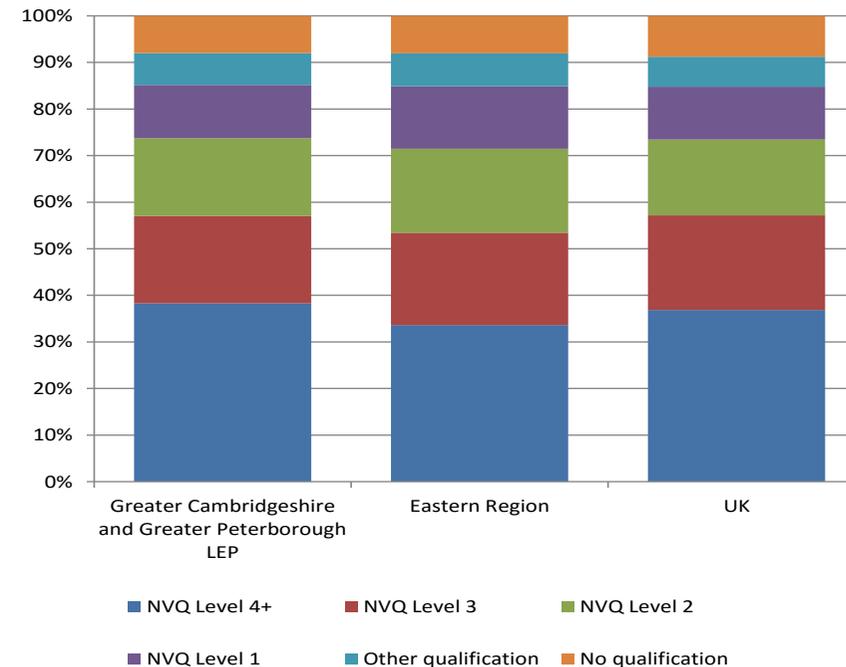


Figure 8: Qualification Structure of Resident Population, 2015 (Source: APS, ONS via NOMIS)

Figure shows the occupational structures of the workforce and should strictly be considered as part of the demand side, although without the inclusion of vacancies this is, in effect, a picture of the temporary equilibrium in the labour market. The LEP area has a remarkably similar occupational profile to the resto of the Eastern Region and the UK as a whole. However, Figure 8 shows that the LEP area has a noticeably better qualified workforce, with 38% with NVQ 4 and above qualifications compared to 34% in the Eastern region as a whole.

**Table 2: Summary Indicators of Labour Supply and Labour Demand**

	Year	CGCP LEP Region	Eastern Region	UK
<b>Economically active (employed or unemployed aged 16-64)</b>	Jan 2015-Dec 2015	719,800	2,982,800	31,621,400
<b>Population in employment, aged 16-64</b>	Jan 2015-Dec 2015	688,200	2,862,100	29,916,700
<b>Employees aged 16-64</b>	Jan 2015-Dec 2015	600,400	2,463,300	25,634,500
<b>Self-employed, aged 16-64</b>	Jan 2015-Dec 2015	84,600	386,100	4,115,800
<b>Economic activity rate (percentage of population aged 16-64)</b>	Jan 2015-Dec 2015	82.6	80.6	77.7
<b>Employment rate (percentage of population aged 16-64)</b>	Jan 2015-Dec 2015	78.9	77.3	73.5
<b>Unemployment rate (percentage of economically active aged 16-64)</b>	Jan 2015-Dec 2015	4.4	4.0	5.4
<b>Self-employment rate (percentage of population aged 16-64)</b>	Jan 2015-Dec 2015	9.7	10.4	10.1

(Source: Labour Force Survey via NOMIS)

**Table 2** brings together the two sides of the labour market, showing how the numbers of those seeking work relate to the jobs available. Economic activity, employment and unemployment rates in Greater Cambridge Greater Peterborough LEP are better than in the Eastern Region and better than the UK norm.

The economically active include those in employment and those unemployed. The higher economically active rates in the GCGP area might reflect a younger than average workforce with fewer ‘discouraged’ older workers. The LEP area’s lower unemployment rates than the UK average probably also reflect a younger population with more new labour market entrants. However, the lower levels of self-employment in Greater Cambridge Greater Peterborough compared with the Eastern Region and the UK in general might reflect a different pattern of employment than elsewhere. The high number of spin-out companies from Cambridge University does not translate into a culture of self-employment.

**Table 3b: Summary Indicators of Labour Supply and Labour Demand for Constituent Local Authorities**

	Economic Activity Rate	Employment Rate	Unemployment Rate	Self-employment Rate
Cambridge	80.3	78.0	2.9	10.2
East Cambridgeshire	82.6	80.0	3.2	11.5
Fenland	81.6	75.9	6.9	9.7
Forest Heath	78.2	75.7	2.7	9.5
Huntingdonshire	85.3	83.0	2.7	9.0
King's Lynn and West Norfolk	83.2	76.3	8.3	12.1
North Hertfordshire	86.0	82.1	4.6	9.7
Peterborough	79.1	74.8	5.4	7.5
South Cambridgeshire	85.7	82.8	3.4	10.3
St Edmunds Bury	84.4	82.0	2.8	7.6
Uttlesford	80.1	76.2	5.0	10.0
Rutland	79.8	76.5	4.2	13.1

(Source: Labour Force Survey via NOMIS)

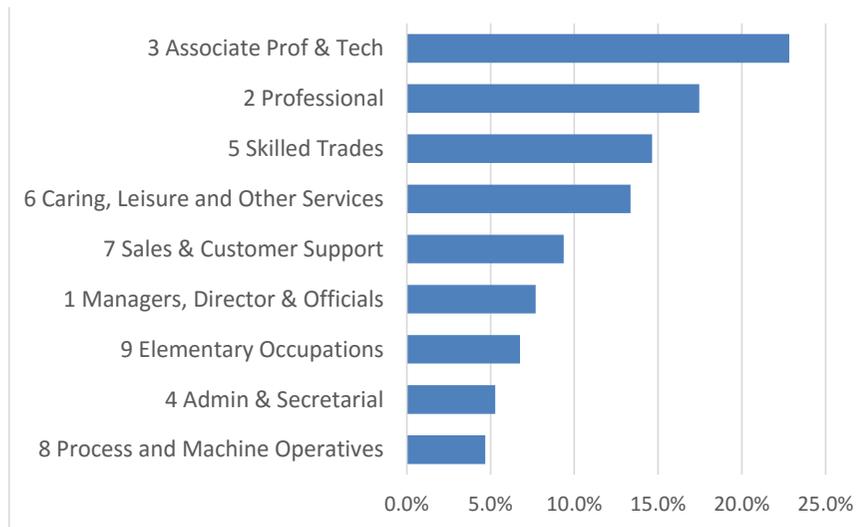
**Table 2b** provides key summary labour market indicators for the Local Authorities within the LEP area. The highest economic activity rates are in South Cambridgeshire and the lowest in Forest Heath. However, there is a higher employment rate in Huntingdonshire with Forest Heath still having the lowest rate within the area. Self-employment is highest in Rutland followed by King's Lynn and West Norfolk and appears to be linked to agricultural areas rather than areas of high employment or high unemployment.

#### A.4.5. Skills Shortages and Skills Gaps

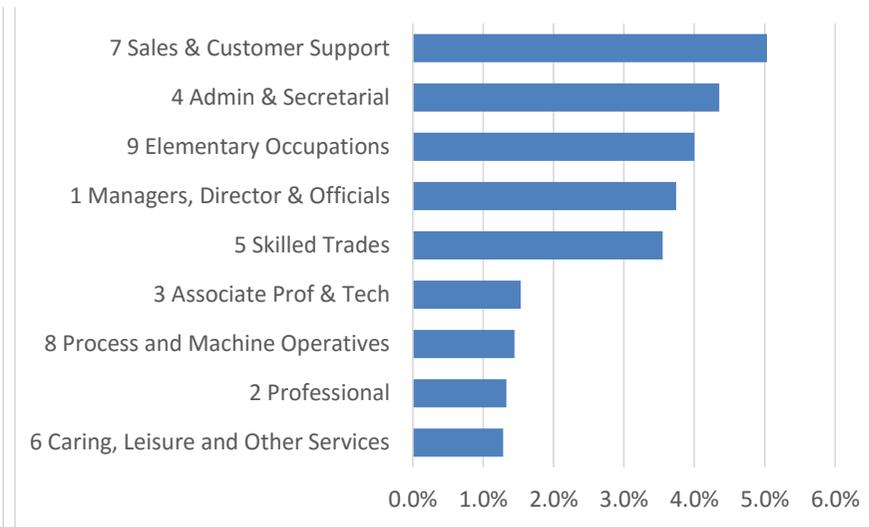
The labour market may hide weaknesses that inhibit improvements in productivity. Vacancies are a normal part of the churn in the labour market and employers will accommodate this by allowing for a margin of surplus jobs that they expect to be vacant at any one time. However, prolonged vacancies of key occupations need to be addressed through improvements to the available labour force.

At the same time, not all of the current workforce may be fully proficient through deficiencies in their qualifications or skills, whilst others may be underemployed, i.e. both over-skilled and over-qualified for the job they undertake. Figure 9 identifies these skills issues in relation to occupations in the Greater Cambridge Greater Peterborough LEP area.

**Figure 9: Skill Shortage Vacancies as a Proportion of All Vacancies**

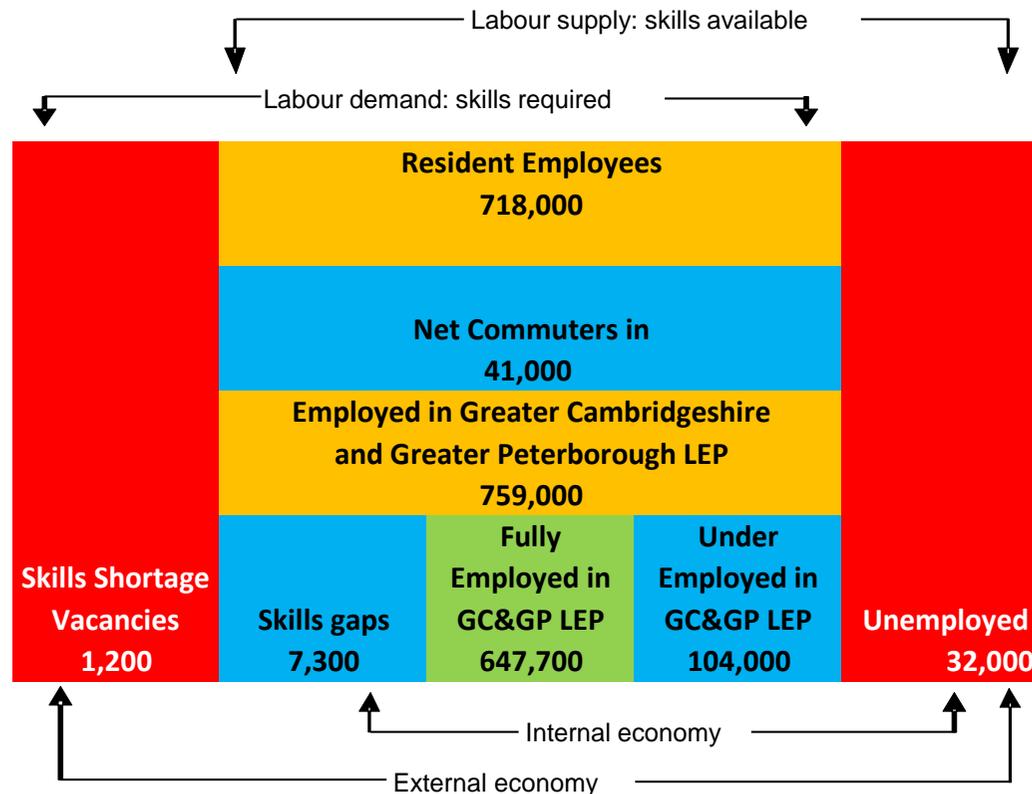


**Proportion of Workforce with a Skills Gap**



The importance of high-technology sectors and STEM occupations within the LEP area is reflected in the occupations with high levels of skill shortage vacancies. Associate professional and technical occupations as well as professional occupations were more likely to be associated with skill shortage vacancies. However, these same occupations were relatively unlikely to be associated with skills gaps.

**Figure 10** shows key summary information regarding the labour market in the Greater Cambridge Greater Peterborough LEP area. This shows that more people are employed in the area than are resident and in employment. This suggests that there is a net inflow of workers to the area of about 41,000 from other areas. This reflects the relatively well paid work available in the area and the problems affording somewhere to live in the area. There are relatively few skill shortage vacancies, but more people with some form of skills gap. Quite a large number of people have better qualifications than their occupational status would suggest, reflecting the high numbers of well qualified people in the area. This leaves a large proportion of those who are in employment in the area that can be considered to be fully employed.



**Figure 10; Labour Market Structure**

## Local Enterprise and Business Units

Two aspects of business enterprises impact on training provision; their number (business stock) and size (in terms of employment). It is also important to understand the level of local entrepreneurship as reflected by the demographic characteristics of local enterprises.

**Table 4: Greater Cambridge Greater Peterborough LEP: Local Business Units by Broad Industrial Groups, 2014**

NUMBER OF LOCAL WORKPLACE UNITS	Employment Size-band						Total
	Broad Industry Groups	0 to 4	5 to 9	10 to 19	20 to 49	Medium-sized (50 to 249)	
1: Agriculture, forestry & fishing (A)	3,665	530	185	75	30	5	4,490
2: Mining, quarrying & utilities (B, D and E)	220	85	40	40	30	5	420
3: Manufacturing (C)	2,165	600	395	330	225	35	3,745
25: Manufacture of fabricated metal products, except machinery and equipment	410	140	75	70	25	0	720
18: Printing and reproduction of recorded media	260	55	35	15	10	0	375
33: Repair and installation of machinery and equipment	275	35	25	10	15	0	365
4: Construction (F)	6,190	730	300	135	60	0	7,415
5: Motor trades (Part G)	1,485	495	180	125	20	5	2,310
6: Wholesale (Part G)	1,900	570	375	205	80	5	3,135
7: Retail (Part G)	3,250	1,415	710	325	135	40	5,875
8: Transport & storage (inc postal) (H)	1,770	275	190	145	100	10	2,490
9: Accommodation & food services (I)	1,615	1,070	665	420	105	5	3,885
10: Information & communication (J)	4,160	340	185	135	75	10	4,900
11: Financial & insurance (K)	825	205	120	55	20	10	1,235
12: Property (L)	1,835	290	135	50	25	5	2,340
13: Professional, scientific & technical (M)	8,790	770	445	250	125	20	10,400
14: Business administration & support services (N)	4,025	665	355	210	160	35	5,445
15: Public administration & defence (O)	425	90	105	85	65	25	800
16: Education (P)	630	245	235	345	305	35	1,795
17: Health (Q)	1,410	640	520	485	215	10	3,280
18: Arts, entertainment, recreation & other services (R, S, T and U)	3,035	780	340	170	80	5	4,410
<b>Total</b>	<b>47,395</b>	<b>9,795</b>	<b>5,480</b>	<b>3,585</b>	<b>1,855</b>	<b>265</b>	<b>68,370</b>

(Source: IDBR, ONS via NOMIS)

**Table 4** identifies the number of employers in each industry sector, together with the three local principal sub-sectors in manufacturing. For the LEP, the significance of this data lies in the difficulty it reveals about establishing effective training opportunities with local businesses in several STEM sectors, particularly construction, ICT, and professional, scientific & technical services where there are significant numbers of small employers. There is little opportunity for units employing less than 5 people, and limited opportunity for those employing less than 50 people, to engage in training other than through initiatives of a local college / training provider. The proportion of workplaces of these sizes is relatively constant across the UK, with 72% of workplaces employing less than 5 people and 97% employing less than 50 people. It is unlikely that any enterprise regarded as an SME will develop its own training programme, but it is the SMEs that will grow new jobs in the local area and provide the innovation and entrepreneurship necessary to grow the local economy. Because of this, the development of appropriate engagement and delivery methods, and the coordinating role of the further education colleges and training providers, will be crucial to sustaining local economic growth.

Business demography analyses the births and deaths over time of PAYE or VAT registered enterprises. In contrast, the local units or workplaces in **Table 4** are where people actually work. The data in **Table 5** relates to where businesses are registered and not necessarily where employment is created.

**Table 5: Business Demography 2014**

		GCGP LEP Region	Eastern Region	UK
Birth of new enterprises	2014	12.2%	12.8%	13.7%
Death rate of enterprises	2014	8.7%	9.3%	9.6%
No of active enterprises	2014	58,840	254,340	2,550,890
Surplus births over deaths	2014	2,005	9,015	104,750
Survival rate of enterprises, 1 year from	2012	91.5%	92.1%	91.2%
	2013	94.3%	94.5%	93.5%

(Source: ONS)

The business birth rates in Greater Cambridge Greater Peterborough LEP exceed their death rates, as in the comparator areas. This appears to be due mainly to high birth rates and lower death rates. However, the GCGP area had a lower enterprise birth rate than the Eastern Region and the whole of the UK, possibly indicating a lower level of entrepreneurship. Sustainability is also important, and as well as a lower birth rate than the Eastern Region the GCGP area also has a lower survival rate. Table 4b provides comparable data for the constituent Local Authorities within the LEP area. This table shows that Cambridge and South Cambridgeshire despite having a lot of high technology employment has lower than average company births and successes.

**Table 4b: Business Demography in LEP Constituent Local Authorities**

	Cambridge	East Cambridgeshire	Fenland	Forest Heath	Huntingdonshire	King's Lynn and West Norfolk
<b>Birth of new enterprises</b>	670	390	340	280	1015	525
<b>Death rate of enterprises</b>	515	325	280	215	645	405
<b>No of active enterprises</b>	5130	3760	3175	2315	7620	4880
<b>Surplus births over deaths</b>	155	65	60	65	370	120
<b>2012 survival rate</b>	90.7%	89.6%	94.8%	92.7%	93.8%	92.4%
<b>2013 survival rate</b>	93.2%	93.6%	92.9%	96.1%	94.3%	94.3%

**Table 4b (continued): Business Demography in LEP Constituent Local Authorities**

	North Hertfordshire	Peterborough	South Cambridgeshire	St Edmundsbury	Uttlesford	Rutland
<b>Birth of new enterprises</b>	790	990	910	420	595	225
<b>Death rate of enterprises</b>	575	620	655	355	385	170
<b>No of active enterprises</b>	6610	6290	7915	4335	5045	1765
<b>Surplus births over deaths</b>	215	370	255	65	210	55
<b>2012 survival rate</b>	91.3%	90.4%	89.4%	92.1%	91.4%	96.8%
<b>2013 survival rate</b>	95.0%	93.7%	95.8%	96.0%	92.9%	91.9%

(Source: ONS)

## A.5. Labour Market Forecasts

Regional forecasts<sup>4</sup> for the Greater Cambridge Greater Peterborough LEP for the UKCES are used to give guidance on the labour market trends to be expected over the period of ten years from 2014.

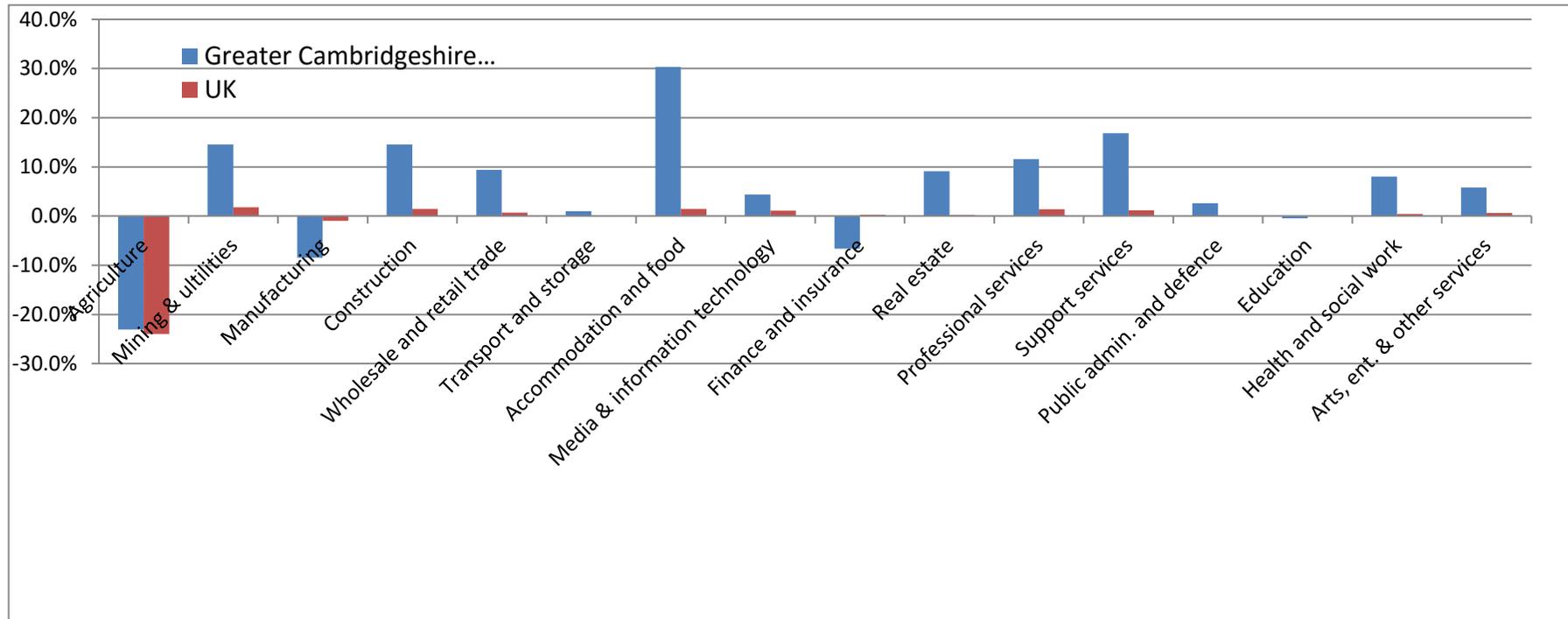
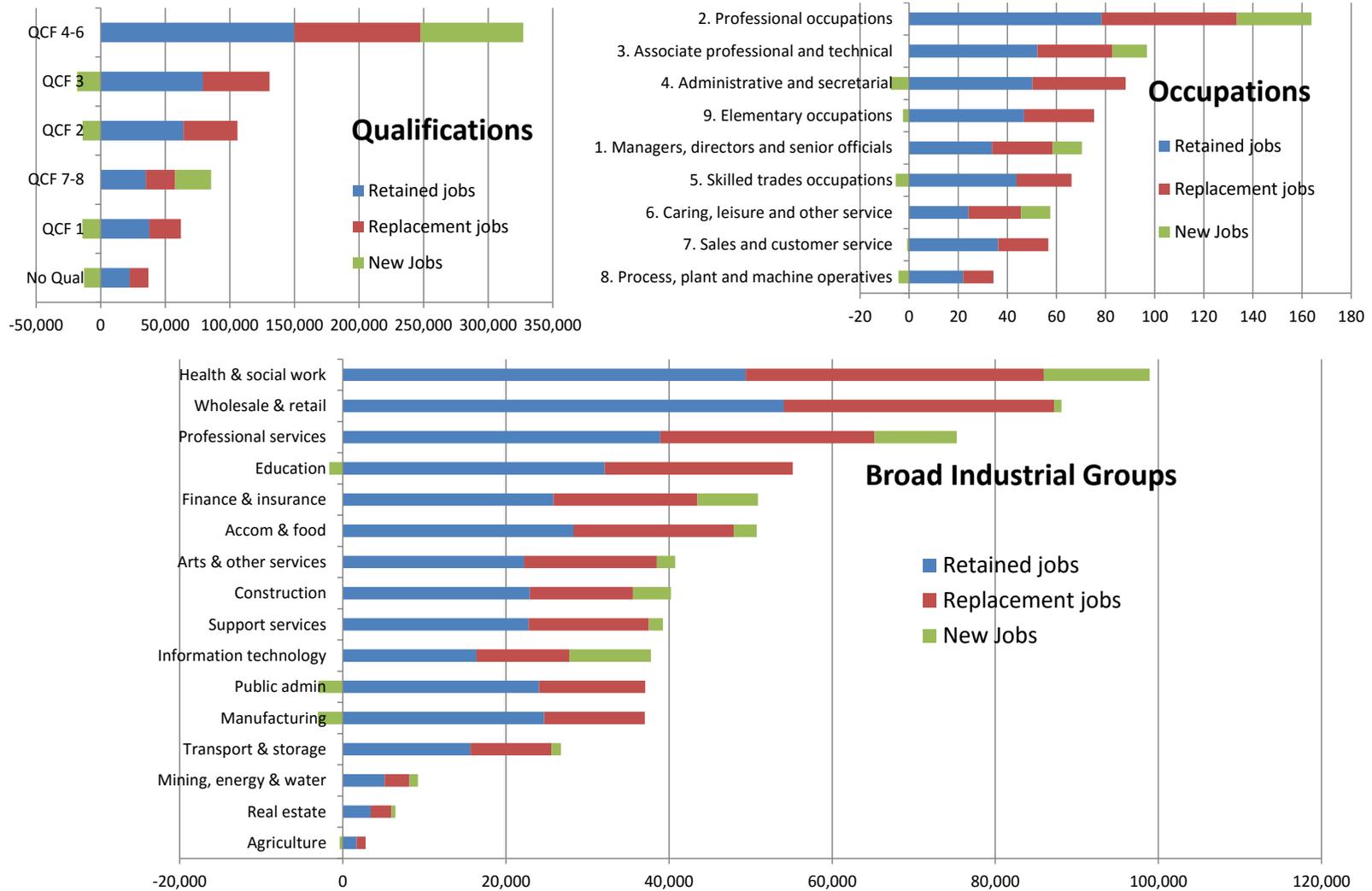


Figure 11: Forecast Change in Employment, Greater Cambridge Greater Peterborough LEP and the UK: 2014-2024

Between 2014 and 2024, employment in the *agriculture, manufacturing and financial* sectors are projected to decline. Employment in other sectors is projected to grow at greater rates than the UK average with particular growth in *accommodation and food, construction, and professional support services* sectors. Projected rates of employment change are similar to those in neighbouring area, in each sector.

<sup>4</sup> Working Futures, 2014-2024, Evidence Report 100, UKCES, April 2016

Figure 12: Forecasts of Total Labour Demand, Greater Cambridge Greater Peterborough LEP Area, 2014-2024



**Figure 12** shows the projected changes in both the industrial structure, the occupational structure, and the qualifications structure of the workforce in the Greater Cambridge Greater Peterborough LEP area using a ‘components of change’ approach. In order to assess the amount of training likely to be required, both the new jobs and the amount of replacement demand need to be estimated. Where there is likely to be a net reduction in the number of jobs, this is shown as a negative value to the left of the vertical axis. It is likely that replacement jobs will account for 85% of total job demand between 2014 and 2024 (88% in the UK overall). The extent to which replacement demand will require new skills is unknown and neither is the source of employees taking up the new or replacement jobs. The problem for the LEP is to be able to meet the overall demand through **a balanced portfolio of training that meets these needs mainly for the re-skilling of workers already in employment and the training of new entrants to the workforce.**

There will be a net decline in the *Education, Public Administration and Manufacturing* sectors. The bulk of the total demand will be accounted for by the *wholesale & retail trade, Professional Services,* and *health & care* sectors. The highest ratios of new jobs to replacement jobs will be in the *information technology* and *financial and insurance services* sectors.

*Managers, directors and senior officials, professionals and associate professionals* (Groups 1-3) will constitute 55% of the overall occupational demand, a larger proportion than in the 52% in the UK as a whole. The relationship between qualifications, the skills they enable, and the jobs accessible to the labour force is not static. There is a continual drift upward in the occupational profile but, within this, the qualifications needed to access the same occupational level keeps rising. The impact on the qualifications profile is that it will be seen to change more dramatically than the occupational profile.

The growth in higher order occupations is reflected by a growth in demand for employees with **QCF Level 4** and above and, particularly, **QCF Level 7**. The proportion of the workforce with Level 4+ qualifications will need to grow significantly from 48% in 2014 to 60% by 2024 but the proportion of those required to have **QCF Levels 2 and 3** will fall from 26% to 20%. The projected decline in the numbers required below **QCF Level 4** and, particularly, with **QCF Level 1** and **no qualifications**, creates an urgent need for upward progression. Care must be taken in interpreting these overall figures because they may hide even greater reductions in demand for Level 3 qualifications in some industries, while others may continue to expand their requirement for technicians with Level 3 qualifications. There will still be employment opportunities for those that achieve qualifications at **QCF levels 2 and 3** which, together, will account for 26% of all replacement demand. Equally, as older, less qualified cohorts retire and younger, more qualified, cohorts enter the labour market this transition will, to an extent, occur anyway.

For the LEP, there is a need to respond to the changing qualifications’ profile by enabling those at lower levels to move upwards, particularly to encourage those with no qualifications to enter the ladder, and to accelerate those with Level 3 qualifications to Level 4, which will dominate future employment in the area. The problem of the reduced demand for the “middle level” will require a mixed strategy that promotes progression, alongside more limited achievement, otherwise many of those with Level 3 qualifications may find themselves underemployed.

Examples of the Replacement Demand to New Jobs ratio (as highlighted in Figure 12)

The four largest job growth areas (highlighted in orange in the box below) will all have good levels of replacement demand, but the high number of new jobs has brought the overall ratio of replacement to new jobs down.

Sectors Showing Job Growth	Ratio of Replacement Job to New Jobs
Health and Social Work	2.5 : 1
Construction	3 : 1
Professional Services	3.2 : 1
IT	1.5 : 1
Transport and Storage	5 : 1
Wholesale and Retail	15 : 1
Finance and Insurance	1.7 : 1
Accommodation & Food	6.6 : 1
Arts and Other Services	6.4 : 1
Support Services	6.5 : 1
Mining, Energy and Water	1.5 : 1
Real Estate	3 : 1

Very high replacement demand to new jobs can be found in Wholesale and Retail, but some of this replacement demand is down to natural churn in the sector. A lot of the new jobs in this sector will be allied to IT and Digital requirements, and replacement jobs in this sector will require aspects such as digital marketing and ecommerce competencies.

## A.6. Regional Economic and Skills Policies

The LEP's Skills Vision<sup>5</sup> includes three ways in which they intend to ensure that local business needs drive skills supply at the local level. These are:

- 1) "By making the potential workforce aware of their local businesses and opportunities so that they aspire to, and are ready for, the careers available locally;
- 2) Businesses need to do their part. We want more businesses to plan and budget for training in order to provide growth through people
- 3) We will use local data and intelligence, highlighting local sectors and geographic differences, to influence publically funded training."

The strategy will be delivered at the local level by:

- 1) Getting the potential workforce, particularly young people, in front of the right local businesses (using innovative ways to enabling interaction);
- 2) Working with key businesses to raise awareness of the importance of having a highly-skilled workforce to growth, and connecting them with the right training opportunities;
- 3) Proactively gathering local intelligence on what skills businesses really need, both in person and via our skills surveys.

The LEP has supported a range of activities in order to achieve their skills vision. These include:

- Providing localised data and intelligence on skills to enable focused work;
- Funding The Skills Service across the north of our LEP area with the intention to cover the whole of GCGP;
- Supporting partners in Huntingdonshire to create a Skills Hub focused around Alconbury Weald Enterprise Campus;
- Working with Greater Cambridge City Deal to ensure a smooth rollout of their own Skills Service;
- Designing the 2014-2020 European Social Fund programme to support our business-led strategy;
- Ensuring that the Government's skills capital element of the Growth Deal is focused on key sectors and objectives;
- Supporting the Cambridge Area Partnership to ensure that their Employer Engagement Project is successful; and,
- Lobbying government around the core elements of our strategy.

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<sup>5</sup> Greater Cambridge Greater Peterborough LEP, *Skills Vision*

A significant piece of work has been the business skills needs survey undertaken by Cambridge Policy Consultants<sup>6</sup>. This study replicated elements of the English Skills survey at the local level and examined the extent and pattern of skills shortages, training and skills gaps within the LEP area.

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- <sup>1</sup> STEM Producing Occupations: SOC 211 - Natural and Social Science Professionals; SOC 212 – Engineering Professionals; SOC 213 – Information Technology and Telecommunications Professionals; SOC 214 – Conservation and Environment Professionals; SOC 215 – Research and Development Managers.
  - <sup>2</sup> STEM Dependent Occupations: SOC 221 – Health Professionals; SOC 222 – Therapy Professionals; SOC 223 – Nursing and Midwifery Professionals; SOC 231 – Teaching and Educational Professionals; SOC 242 – Research and Administrative Professionals; SOC 243 – Architects, Town Planners and Surveyors; SOC 247 – Media Professionals.
  - <sup>3</sup> STEM Supporting Occupations: SOC 311 - Science, Engineering and Production Technicians; SOC 312 – Draughtspersons and Related Architectural Technicians; SOC 313 – Information Technology Technicians; SOC 321 – Health Associate Professionals; SOC 342 – Design Occupations; SOC 355 – Conservation and Environmental Associate Professionals.
  - <sup>4</sup> STEM Using Occupations: SOC 511 – Agricultural and Related Trades; SOC 521 – Metal Forming, Welding and Related Trades; SOC 522 – Metal Machining, Fitting and Instrument Making Trades; SOC 523 – Vehicle Trades; SOC 524 – Electrical and Electronic Trades; SOC 525 – Skilled Metal, Electrical and Electronic Trades Supervisors; SOC 531 – Construction and Building Trades.
  - <sup>5</sup> High-technology: SIC 21 Manufacture of basic pharmaceuticals and pharmaceutical preparations; SIC 26 Manufacture of computer, electronics and optical products. Medium-high-technology; SIC 20 Manufacture of chemicals and chemical products; SOC 27 to 30 Manufacture of electrical equipment; Manufacture of machinery and equipment.; Manufacture of motor vehicles, trailers and semi-trailers; Manufacture of other transport equipment  
Medium-low-technology: SIC 19 Manufacture of coke and refined petroleum products; SIC 22-25 Manufacture of rubber and plastic products; Manufacture of other non-metallic mineral products; Manufacture of basic metals; Manufacture of fabricated metal products, excepts machinery and equipment; SIC 33 Repair and installation of machinery and equipment.  
High-tech-knowledge-intensive-services: SIC 59 to 63 Motion picture, video and television programme productions, sound recording and music publishing activities; Programming and broadcasting activities; Telecommunications; computer programming; consultancy and related activities; Information service activities; SIC 72 Scientific research and development.

STEM Foundation 10 May 2016

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<sup>6</sup> Cambridge Policy Consultants (2014) *Business skill needs in the Greater Cambridge Greater Peterborough LEP Region*