

Greater Cambridge Employment Update April 2024

Growth still continues despite the national economy stalling

Highlights:

Overview

- The current business environment makes it important to have timely data on employment changes. This is the tenth of a series of updates that bring up-to-date information about what is happening to corporate employment in the Greater Cambridge area.
- The April 2024 Update covers accounting year ends between May and December 2023 (the median year end is mid-October 2023). This median period captures the impact of the onset of recession in the second half of 2023. We compare this period with the previous year, which covers the effects of the ongoing conflict in Ukraine on the recovery from Covid.
- This update is obtained by sampling the CBR annual corporate database of all businesses based in the wider Cambridge region. It covers a large sample of companies representing over 67% of corporate employment in Greater Cambridge.

Areas

- The results portray a picture of continued but lower overall employment growth in the Greater Cambridge area. Growth slowed down from 7.7% in 2021-22 to 5.2% in 2022-23, suggesting that the onset of recession in the second half of 2023 has had some impact on business. Nevertheless, the employment performance of the Greater Cambridge corporate economy in the year to mid-October 2023 appears to be far superior to the performance of the national economy in this period (**Figure 2.1, p9**).
- The robust performance of the Greater Cambridge corporate economy was driven by a dynamic KI economy, which saw employment grow by 6.1% in 2022-23 (8.6% in 2021-22) (**Figure 2.1, p9**).
- Overall employment growth also benefited from the continued growth of non-KI sectors. Non-KI employment increased by 4.0% in 2022-23, down from 6.5% in 2021-22. These figures point to continued recovery amongst sectors that had been severely hit by lockdowns and other Covid-related restrictions (**Figure 2.1, p9**).
- Employment grew by over 5% during the most recent year in both Cambridge and South Cambridgeshire. Whilst remarkable considering the challenging macroeconomic backdrop, this growth represents a slowdown from the 7.7% growth in the previous year (**Figure 2.1, p9**).

- The KI sectors showed a higher degree of dynamism than the non-KI sectors in both districts (**Figure 2.1, p9**).
- However, there is variation in these growth rates across both industry sectors and firm sizes.

Sectors

- This is the second time since we started our employment updates work that nearly all sectors have seen positive employment growth in the latest year (**Figure 2.2, p10 & Figure 2.4, p13**).
- 'Knowledge intensive services', one of the four sectors making up the Greater Cambridge KI economy, emerges as the fastest growing sector during 2022-23 (10.5% compared with 5.6% in the previous year) (**Figure 2.2, p10 & Figure 2.4, p13**).
- 'High-tech manufacturing' was the second fastest-growing sector, with employment growth of 7.5% in the year to mid-October 2023 (up from 2.1% one year earlier) (**Figure 2.2, p10 & Figure 2.4, p13**).
- Employment growth in the largest sector, 'Life science and healthcare', was high at 4.5%, down from an exceptional 11.4% in the previous year. The second-largest KI sector in Greater Cambridge, 'Information Technology and Telecoms', saw strong employment growth of 5.8% in 2022-23 (9.2% in 2021-22) (**Figure 2.2, p10 & Figure 2.4, p13**).
- The contribution of 'Life science and healthcare' and 'Information technology and telecoms' to overall employment growth becomes apparent when examined in terms of the number of people employed (**Figure 2.7, p18**).
- All non-KI sectors but the low- and med-low-tech 'Manufacturing' sector achieved positive employment growth in the year to mid-October 2023 (**Figure 2.2, p10 & Figure 2.4, p13**).
- Employment growth was faster last year than it was the previous year in 'Construction and utilities' (4.4% and -2.1%, respectively), 'Transport and travel' (4.6% and 3.3%) and 'Primary' (4.0% and 3.2%). Employment in the 'Other business services' sector continued to grow at a rate close to 9% (**Figure 2.2, p10 & Figure 2.4, p13**).
- By contrast, employment growth slowed down in the other five non-KI sectors. A case in point is the 'Other services' sector, where employment grew by 3.2% in the latest year against 13.8% in the previous year (**Figure 2.2, p10 & Figure 2.4, p13**).

Size groups

- One-person businesses grew by 3.2% in the latest year, a rate that is lower than total employment growth across all size classes. Their small size also means that they have played a minor role in employment growth – only 70 extra employees compared with the addition of 3,715 employees by other businesses.
- Whilst 1-9 employee businesses tend to have been the fastest growing companies in the ‘Education, arts, charities, social care’ sector, 10+ employee businesses exhibited particularly fast growth in ‘Other business services’, ‘Knowledge intensive services’ and ‘High-tech manufacturing’ (**Figure 2.3, p12**).
- The group of 10+ employee businesses tends to dominate employment growth given its large aggregate size. These businesses are significant contributors to the growth achieved by sectors such as ‘Life science and healthcare’, ‘Information technology and telecoms’, ‘Education, arts, charities, social care’ and ‘High-tech manufacturing’ (**Figure 2.3, p12**).
- Employment growth of 1-9 employee businesses increased from 0.4% in 2021-22 to 1.3% in 2022-23. This growth was driven primarily by non-KI sectors, which saw employment grow by about 1.3% in both years. Employment of KI sectors in this size class grew by 1.2% last year, following a 1.9% drop in the previous year (**Figure 2.8, p20**).
- The picture looks different for 10+ employee businesses. Although both KI and non-KI employment increased much faster in this size class than in the 1-9 employee group, 2022-23 growth slowed down compared with 2021-22 in both sectors. As a result, employment growth of 10+ employee businesses was 5.9% last year, down from 9.1% one year earlier (**Figure 2.8, p20**).
- Overall, these results confirm that it is the group of 10+ employee businesses operating in the KI sectors which have been driving growth in the Greater Cambridge area (**Figure 2.8, p20**).

Business and science parks

- This report also includes an analysis of the 37 largest business and science parks in the local area. It shows that these parks have a dominant impact on the performance of the local economy. The growth and R&D spending they generate is exceptional, particularly in life sciences (**Table 3.1, p23, Table 3.2, p25 & Table 3.3, p26**).

Comparison of employment and turnover growth

- We complement the findings from the employment update by examining a sample of 139 companies with accounting year ends between May and December 2023 which have provided both employment and turnover data for the last three years.

- Our results show that turnover growth exceeded employment growth, while KI growth exceeded non-KI growth. There was little change in both employment and turnover growth between last year and the previous year (**Table 4.1, p27**).
- Employment growth for this sample was notably stronger among KI companies, which saw employment increase by 8.4% in 2022-23 (slightly up from 7.5% in 2021-22). Non-KI companies achieved positive but lower growth in each year (4.5% in 2021-22 down slightly to 4.1% in 2022-23). These findings are exceptional by comparison with the performance of the national economy (**Table 4.1, p27**).

Stop press

- We provide a snapshot of the impact of events in the Greater Cambridge corporate economy by considering a small sample of companies with interim results for the six-month periods ending between September 2023 and March 2024. The gain from focusing on interim results for these six-month periods is that the activity reported in the accounts took place in the 2023-24 financial year.
- Within this group of companies (all knowledge intensive), total turnover increased by 18% in their latest six months (2023-24) compared with a growth of 25% in the same period last year (2022-23).
- These findings reinforce those from the employment update sample, while suggesting that the consequences of the flatlining economy in 2023 have been felt even by these successful Greater Cambridge businesses. The perusal of their interim reports also reveals that factors other than general business conditions are more important for these businesses.

Concluding remarks

- Our previous update (October 2023 Update) pointed to continued recovery of the Greater Cambridge corporate economy from the effects of the pandemic into the Autumn of 2022, when the cost of living crisis became more severe as inflation peaked at 11.1% (a 41-year high). The April 2024 Update allows us to examine whether this robust performance of Greater Cambridge-based businesses was disrupted by the onset of recession in the second half of 2023.
- Overall, the results of our April 2024 Update portray a resilient corporate economy in Greater Cambridge against a backdrop of macroeconomic and geopolitical instability. At the same time, there are some signs that the onset of recession in the second half of 2023 was felt by some businesses and sectors, particularly in the non-KI economy. We will further explore the impact of the unfolding recession on Greater Cambridge businesses in our next update.

1. Tracking Greater Cambridge corporate employment – the April 2024 Update

The Centre for Business Research (CBR) at Cambridge University has developed three methods for tracking the employment and turnover of companies based in the wider Cambridge region (for further details see Appendix A4).

The first is the **annual draw** of all companies within the region.¹ It is comprehensive and also examines company births and deaths along with company location changes. This gold standard work does suffer from being less timely. The results of the 2022-23 annual draw were published at the end of March 2024 and examined employment in the accounting years ending from 6th April 2022 to 5th April 2023. Since December and, to a lesser extent, March dominate companies' choice of year ends, the modal year end for the annual draw is early December 2022. For comparison, the ONS Business Register and Employment Survey (BRES) provisional annual employment data published in October 2023 has September 2022 as its latest information (and we will have to wait another year before these are confirmed as final). We hope to be able to compare our figures with BRES in the October update. However, it is worth noting that the BRES data suggest a growth of 24% for employment in the Greater Cambridge area over the decade up until 2022. This compares with a growth of 16% for the whole of the East of England and 14% for Great Britain over the same period.

The second method involves an **update** of companies in the Greater Cambridge area achieved by sampling the annual corporate database in April and October. On each occasion a large sample is drawn (over 40% of the company population on average) of companies that have reported in recent months. This brings more timely information about what is happening to employment, but does not take account of births and deaths or location changes. For example, this April 2024 Update includes companies with a financial year end between May and December 2023 and has a modal year end of mid-October 2023. This median period captures the impact of the onset of recession in the second half of 2023.

We use the update sample to provide estimates of employment for those companies with a year end between May and December 2023 that have not yet reported. We then use this larger sample to compare the performance of this sample of companies in 2022-23 with their performance in 2021-22. The final analysis sample for the April 2024 Update is 5,577 companies representing over 67% of corporate employment in the Greater Cambridge area. A sample of this size, with good coverage of all sectors and company sizes, should give a very accurate picture of what is happening to continuing businesses in the region.

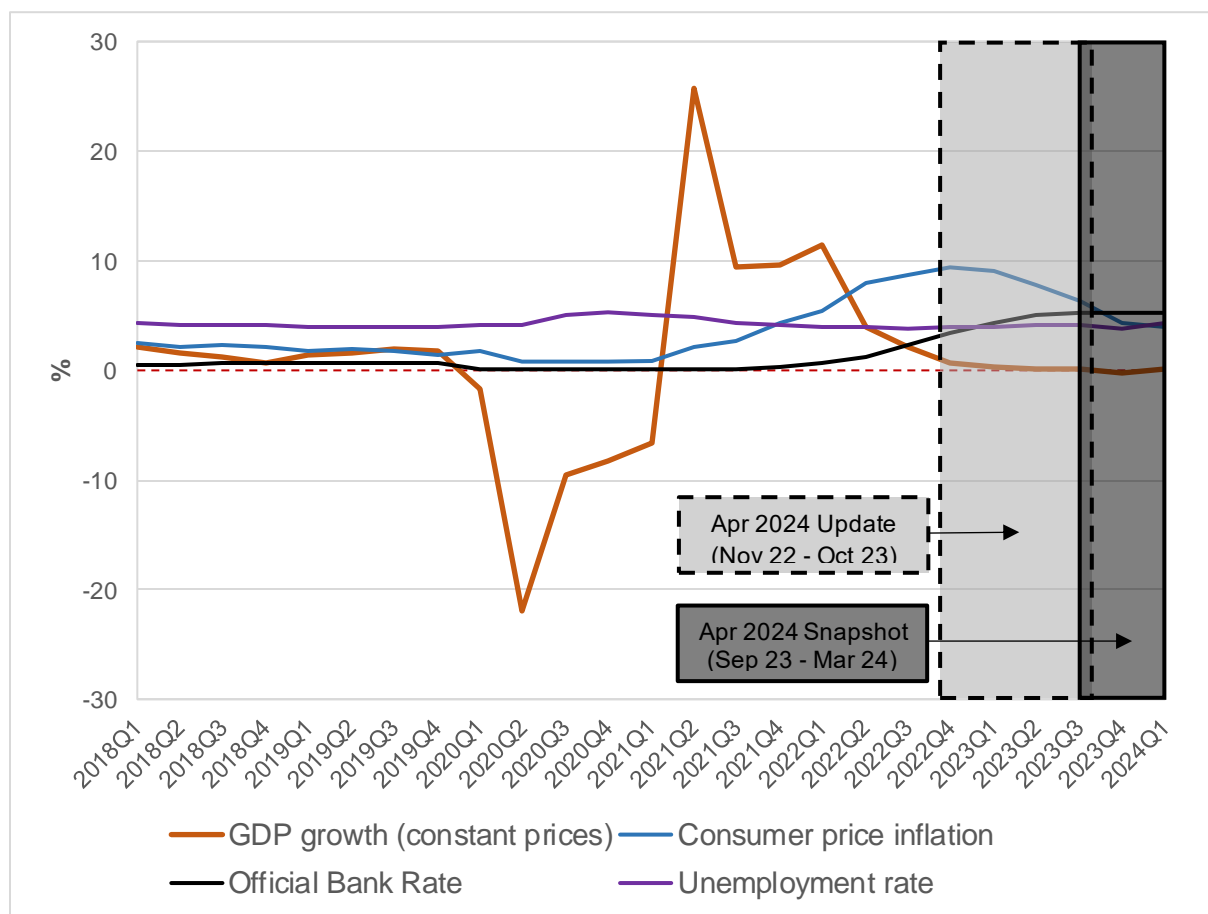
The third method has a much smaller sample since it examines recent changes in both turnover and employment growth. This sample is restricted to 139 companies in Greater Cambridge with accounting years ending between May and December 2023 which have provided both employment and turnover data for the last three years. Since large businesses provide both employment and turnover figures, the sample is quantitatively significant, with total employment of about 11,400 and total turnover of about £2.4bn. For this sample of companies, we examine their employment and turnover growth in the last year against the growth one year earlier. The comparison between these two measures allows us to provide a fuller picture of the impact of the changing business conditions on employment in the corporate sector in Greater Cambridge.

¹ The underlying core corporate database has been established and maintained with the ongoing support of Cambridge Ahead, and is currently sponsored by Arm, Cambridgeshire and Peterborough Combined Authority, Greater Cambridge Partnership, Marshall of Cambridge and Mills & Reeve.

The fourth method is a **snapshot** of very recent growth that draws on a small sample and should be regarded as merely indicative. It considers only the largest businesses (top 100 by employment or turnover) and examines those that have filed interim reports for six-month periods ending between September 2023 and March 2024. The seven companies in the snapshot sample do not provide employment figures in their interim reports, but together they represent a combined annual turnover of about £395m. The gain from focusing on interim results is that the activity reported in the accounts took place in the 2023-24 financial year. We compare turnover in this period with the same six-month period last year.

Figure 1.1 shows where the April 2024 update and snapshot sit in relation to the national economy. The shaded area for the update refers to the median year ending in mid-October 2023. The chart graphically displays how turbulent the last three years have been in comparison with the previous decade.

Figure 1.1 UK macroeconomic indicators and the April 2024 Update period



Note: GDP growth is the percentage change of GDP in constant prices on the same quarter a year earlier. Consumer price inflation is the annual change in the Consumer Price Index. Unemployment rate is the share of people aged 16 and over who are unemployed.

Source: ONS.

The remainder of this report is structured as follows. Section 2 presents the results of the April 2024 employment update, drawing on a set of charts that we developed specifically for this study. The section examines growth of Greater Cambridge-based companies by area, industry sector and firm size. Section 3 provides a detailed comparison of the largest business and science parks in the wider Cambridge region, which we present for the first time in this report. Section 4 complements the findings from Section 2 by discussing the

results of the April 2024 Update sample that includes both employment and turnover growth. Section 5 shows the findings of the snapshot sample, while Section 6 offers some concluding remarks. Appendices A1-A3 provide a summary of employment growth rates by sector for Greater Cambridge as a whole, as well as for Cambridge and South Cambridgeshire separately. Appendix A4 explains the methodology underpinning the Greater Cambridge Employment Update.

2. April 2024 employment update results

In this section, we present the results of the April 2024 employment update, the tenth of a series of updates aimed at providing a timely picture of the performance of the Greater Cambridge corporate economy. This update covers the impact of the onset of recession in the second half of 2023. We compare this year against the previous year, which captures the effects of the ongoing conflict in Ukraine on the recovery from Covid.

2.1. Analysis by area

Our previous update (October 2023 Update) pointed to continued recovery of the Greater Cambridge corporate economy from the effects of the pandemic into the Autumn of 2022, when the cost of living crisis became more severe as inflation peaked at 11.1% (a 41-year high). The April 2024 Update allows us to examine whether this robust performance of Greater Cambridge-based businesses was disrupted by the onset of recession in the second half of 2023.

Figure 2.1 depicts employment growth in KI and non-KI sectors during 2021-22 (horizontal axis) and 2022-23 (vertical axis) by area. This chart allows us to compare the performance of each area over time. It is drawn from a large sample of 5,577 companies with accounts for the years ending between May and December 2023. The position of the area marker relative to the 45° line indicates whether a given area grew more or less fast than last year. Areas with positive growth in 2022-23 are found above the horizontal axis and those with positive growth in 2021-22 appear to the right of the vertical axis. It shows growth for KI, non-KI and all sectors for Cambridge, South Cambridgeshire and for Greater Cambridge overall. A summary of employment growth rates by sector for each area is reported in Appendices A1-A3.

Figure 2.1 portrays a picture of continued but lower overall employment growth in the Greater Cambridge area during the year to mid-October 2023. Growth in the area slowed down from 7.7% in 2021-22 to 5.2% in 2022-23, suggesting that the onset of recession in the second half of 2023 has had some impact on business. Nevertheless, the employment performance of the Greater Cambridge corporate economy in the year to mid-October 2023 appears to be far superior to the performance of the national economy in this period (Figure 1.1).

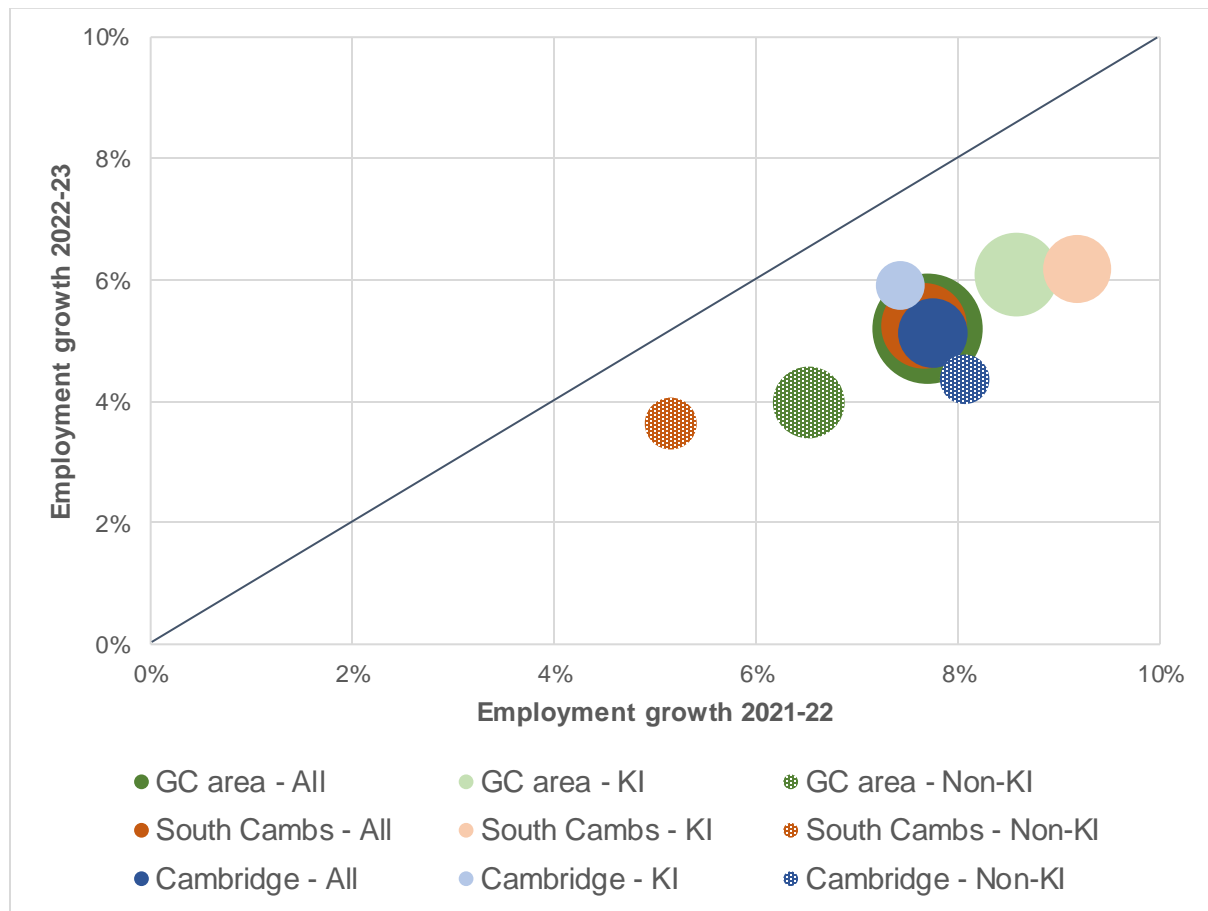
However, it must be noted that our results might reflect the performance of a somewhat exceptional sample of companies, which did not delay publication of their latest accounts despite the ongoing economic uncertainty. The fact that most of the sample companies did not take more time to file their accounts could suggest that they have been less impacted by the changing business environment than companies that have yet to file their latest accounts. We have attempted to mitigate selection bias by waiting until early May before drawing the data for this update.

The 5.2% employment growth over the median period to mid-October 2023 (April 2024 Update) is lower than the 8.5% growth to mid-February 2023 (October 2023 Update), which captures the impact of the worsening UK's cost of living crisis on the recovery from Covid. However, there are some important differences across both sectors and areas.

Our data show that the robust performance of the Greater Cambridge corporate economy during 2022-23 was driven by a dynamic KI economy, which saw employment grow by 6.1% (8.6% in 2021-22). In each of the charts the size of the bubble is proportional to total

employment in that area or sector. The bubble that identifies KI sectors is to the right of the bubble for non-KI sectors – showing that KI sectors grew faster than non-KI sectors.

Figure 2.1 Employment growth by area – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale.

Source: Cosh & Caselli, CBR.

Overall employment growth to 2023 also benefited from the continued growth of non-KI sectors. Non-KI employment increased by 4.0% in 2022-23, down from 6.5% in 2021-22. These figures point to continued recovery amongst sectors that had been severely hit by lockdowns and other Covid-related restrictions.

Turning to the individual districts, employment grew by over 5% during the most recent year in both Cambridge and South Cambridgeshire. Whilst remarkable considering the challenging macroeconomic backdrop, this growth represents a slowdown from the 7.7% growth in the previous year.

The KI sectors showed a higher degree of dynamism than the non-KI sectors in both districts.

In Cambridge, KI employment increased by 5.9% in 2022-23 (7.4% in 2021-22), helped by the performance of IQGeo, Cambridge Intelligence and Microsoft Research. In South Cambridgeshire, the addition of over 200 employees by Frontier Developments, Bango and STEMCELL Technologies was a key driver behind the 6.2% growth last year (9.2% in the previous year).

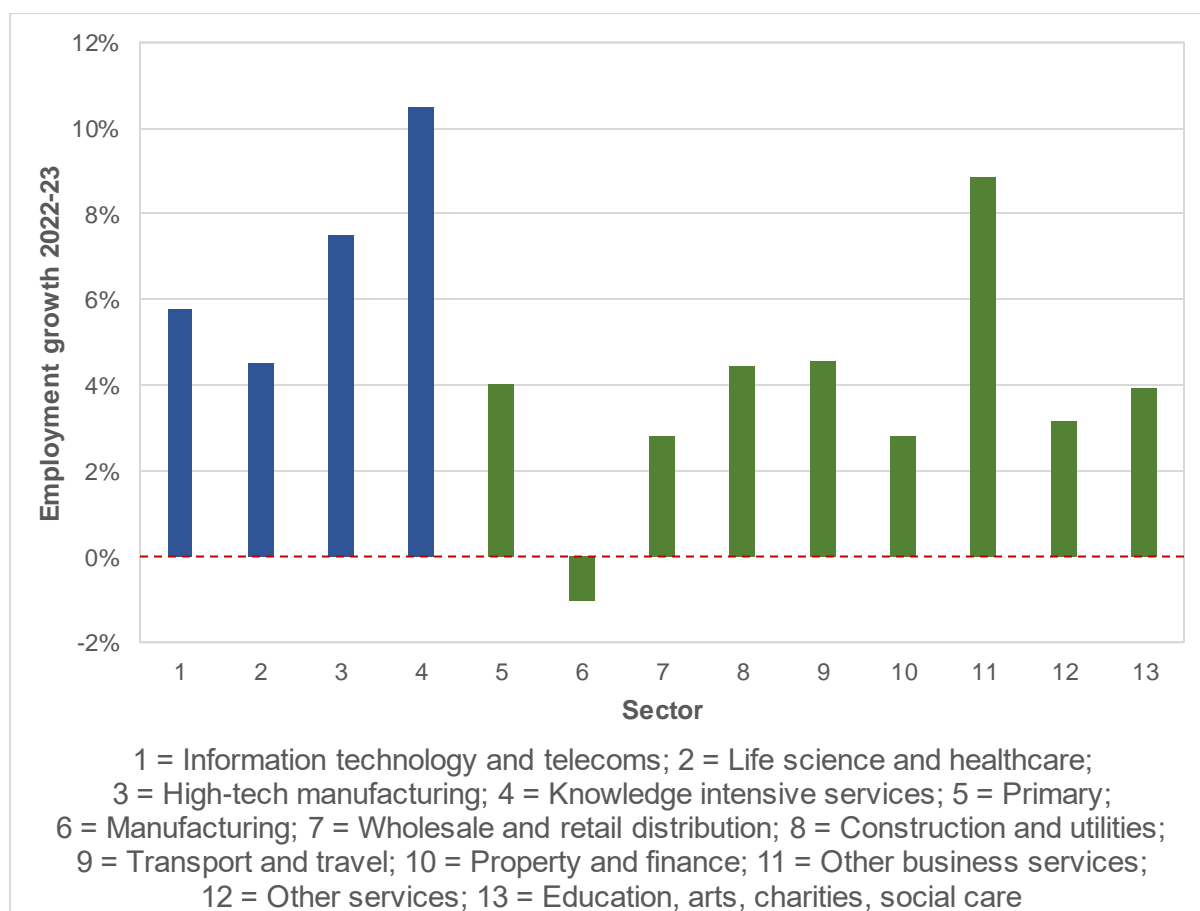
Non-KI sectors in Cambridge witnessed a 4.4% employment growth in the year to mid-October 2023. This growth, which partly reflects higher staff numbers at leading law firm Mills & Reeve, is about half the rate achieved in the previous period (8.1%). The slowdown in non-KI employment growth was less marked in South Cambridgeshire (3.6% in 2022-23 compared with 5.2% in 2021-22).

2.2. Analysis by sector

Greater Cambridge

Figure 2.2 looks more closely at differences in performance across industry sectors by distinguishing between 4 KI sectors and 9 non-KI sectors. It compares these 13 sectors by examining their employment growth during 2022-23 (on average the year to mid-October 2023), the latest year covered by this work.

Figure 2.2 Employment growth 2022-23 by sector in the Greater Cambridge area



Note: Blue bars identify KI sectors, whereas green bars are for non-KI sectors.

Source: Cosh & Caselli, CBR.

'Knowledge intensive services', one of the four sectors making up the Greater Cambridge KI economy, emerges as the fastest growing sector during 2022-23 (10.5%). Growth in the sector benefited from a continued increase in employee numbers by some of the largest 'Knowledge intensive services' companies based locally, for example RAND Europe (12.1%) and Cambridge Mechatronics (8.1%).

This is the second consecutive time since we started our employment updates work that we report a double-digit growth rate in employment for 'Knowledge intensive services' businesses, which had experienced a slowdown in employment growth as clients had tightened their belts due to the impact of Covid on their business. This result is particularly encouraging if one considers that our April 2024 Update sample covers about 72% of corporate employment in the 'Knowledge intensive services' sector in Greater Cambridge (see the fourth data column in Appendices A1-A3).

'High-tech manufacturing' was the second fastest-growing sector, with employment growth of 7.5% in the year to mid-October 2023. CRFS (25.5%), dCS Audio (19.4%) and Amethyst Designs (11.1%) are but a few examples of high-tech manufacturers reporting fast growth in the most recent period.

Employment in 'Life science and healthcare', the largest KI sector in Greater Cambridge, grew by 4.5% during 2022-23. This rate of growth happened after an exceptional performance in the previous year (11.4%). Among the companies contributing to the growth of the Life Science sector last year are Astrea Bioseparations (18.8%), Artios Pharma (17.4%) and STEMCELL Technologies (16.9%).

The second-largest KI sector in Greater Cambridge, 'Information Technology and Telecoms', saw strong employment growth of 5.8%. Examples of ICT companies with a considerable increase in employee numbers are IQGeo (48.1%), Bango (46.5%) and Cambridge Intelligence (44.4%).

All non-KI sectors but the low- and med-low-tech 'Manufacturing' sector achieved positive employment growth in the year to mid-October 2023.

'Other business services' was the fastest-growing non-KI sector. Employment in the sector grew by 8.9%, mainly due to an increase in employee numbers at several employment and staffing agencies (e.g. The Care Staff Consulting) and cleaning services companies (e.g. Trinity Harper Cleaning). Growth in the sector was also helped by a steady growth in employment by Mills & Reeve (5.3%).

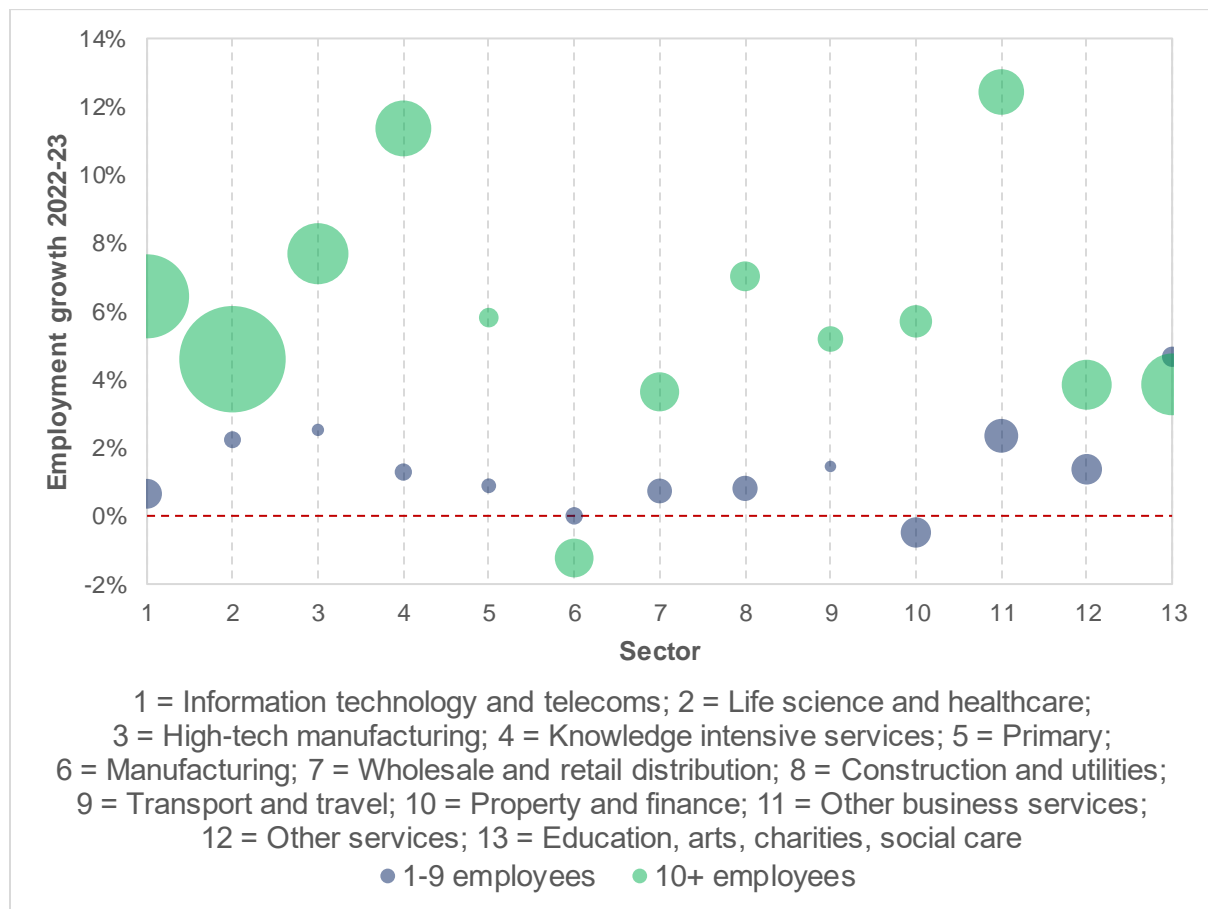
Other non-KI sectors with robust employment growth in 2022-23 are 'Transport and travel' (4.6%), 'Construction and utilities' (4.4%), 'Primary' (4.0%) and 'Education, arts, charities, social care' (3.9%). Some of the companies behind this growth are travel agent Premier Holidays ('Transport and travel'), hazardous waste processing and recycling company Malary ('Construction and utilities'), farm E W Pepper ('Primary') and accountancy training provider First Intuition Cambridge ('Education, arts, charities, social care').

Employment increased, albeit less strongly, also in 'Other services' (3.2%), 'Wholesale and retail distribution' (2.8%) and 'Property and finance' (2.8%).

Conversely, employment in the 'Manufacturing' sector fell by 1.0%, reflecting a small reduction in the number of staff employed by locally based manufacturers such as Dixon International and Histon Sweet Spreads. These results are in stark contrast to those for the 'High-tech manufacturing' sector, where employment increased by 7.5% in 2022-23.

Figure 2.3 expands on the results from Figure 2.2 presented above by providing a breakdown of employment growth to 2023 by both industry sector and firm size. Companies were assigned to two size classes: 1-9 employees; 10+ employees. Further analysis by firm size with individual sectors grouped into KI and non-KI sectors is presented in Section 2.3 below.

Figure 2.3 Employment growth 2022-23 by sector and firm size in the Greater Cambridge area



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale.

Source: Cosh & Caselli, CBR.

The results from Figure 2.2 pointed to robust employment growth across the KI sectors as well as most of the non-KI sectors. Figure 2.3 augments these results by suggesting that there is variation in employment growth rates across both industry sectors and firm sizes.

Looking at percentage growth rates for small businesses can be problematic. Most small businesses do not grow and the median growth is uninformative at 0%. However, a few small businesses can grow very fast in percentage terms (e.g. from 2 to 8 employees). It is these rare businesses that create the overall growth of smaller businesses.

Businesses with 1-9 employees tend to have been the fastest growing companies in the ‘Education, arts, charities, social care’ sector. However, the relatively small size of their bubbles shows that their impact on total employment growth was somewhat limited.

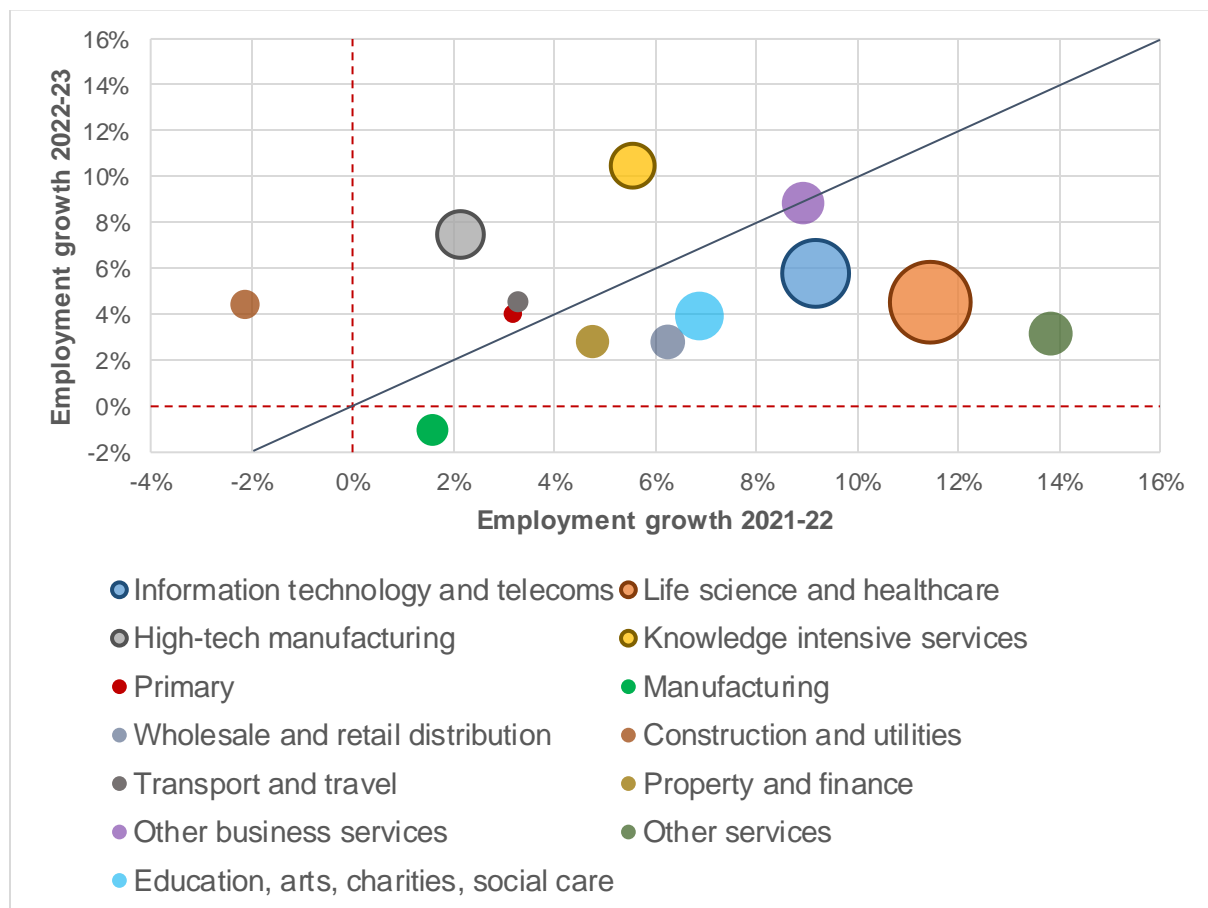
Good examples of fast growth in the 1-9 employee businesses are Zetta Genomics, a global genomics data technology company spun out of the University of Cambridge, and Legalesign, a leading developer of an e-signature software for business.

In turn, 10+ employee businesses exhibited particularly fast growth in ‘Other business services’, ‘Knowledge intensive services’ and ‘High-tech manufacturing’.

The group of 10+ employee businesses tends to dominate employment growth given its large aggregate size. These businesses are significant contributors to the growth achieved by sectors such as 'Life science and healthcare' (e.g. Genome Research), 'Information technology and telecoms' (e.g. Frontier Developments), 'Education, arts, charities, social care' (e.g. Oxford, Cambridge and RSA Examinations) and 'High-tech manufacturing' (e.g. Sepura).

Figure 2.4 compares the 13 industry sectors according to their employment growth during 2021-22 (horizontal axis) and their employment growth during 2022-23 (vertical axis). This chart allows us to compare the performance of sectors over time. The position of the sector marker relative to the 45° line shows whether the sector grew more or less fast than last year. Sectors with positive growth in 2022-23 are found above the horizontal axis and those with positive growth in 2021-22 appear to the right of the vertical axis.

Figure 2.4 Employment growth by sector in the Greater Cambridge area – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale. Bubbles with an outline identify KI sectors.

Source: Cosh & Caselli, CBR.

'Knowledge intensive services' saw employment growth accelerate in the latest year (10.5% compared with 5.6% in the previous year). This result was driven by faster growth at some of the largest 'Knowledge intensive services' companies in the area, including RAND Europe (12.1%) and Cambridge Mechatronics (8.1%).

Similarly, 'High-tech manufacturing' exhibited much faster employment growth in 2022-23 than in 2021-22 (7.5% and 2.1%, respectively). This was helped by the stronger growth of various companies such as CRFS (25.5%), dCS Audio (19.4%) and Amethyst Designs (11.1%).

Employment growth in the largest sector, 'Life science and healthcare', was high at 4.5%, down from an exceptional 11.4% in the previous year. Among the companies contributing to this growth are Astrea Bioseparations (18.8%), Artios Pharma (17.4%) and STEMCELL Technologies (16.9%).

Employment growth in the year to mid-October 2023 was high, albeit lower than in the previous year, also in 'Information technology and telecoms' (5.8% and 9.2%, respectively). IQGeo (48.1%), Bango (46.5%) and Cambridge Intelligence (44.4%) are some of the companies behind this growth.

The contribution of the Life Science and ICT sectors to corporate employment growth in Greater Cambridge will become apparent when employment change (rather than employment growth) will be examined (Figure 2.7).

The results paint a more multifaceted picture for non-KI sectors.

Employment growth was faster last year than it was the previous year in 'Construction and utilities' (4.4% and -2.1%, respectively), 'Transport and travel' (4.6% and 3.3%) and 'Primary' (4.0% and 3.2%). The result for the 'Primary' sector is particularly encouraging. The sector has been confronted with the challenges posed by Brexit, Covid and the ongoing conflict in Ukraine, which have made it difficult for agricultural businesses to source labour (particularly experienced and skilled workers).

Employment in the 'Other business services' sector continued to grow at a rate close to 9%, helped by a steady increase in employee numbers by several employment and staffing agencies (e.g. The Care Staff Consulting), cleaning services companies (e.g. Trinity Harper Cleaning) and law firms (e.g. Mills & Reeve).

By contrast, employment growth slowed down in the other five non-KI sectors.

A case in point is the 'Other services' sector, where employment grew by 3.2% in the latest year against 13.8% in the previous year. Companies such as Cambridge United Football Club, Jamaica Blue and Lunchtime Co., which showed large increases in employment during 2021-22 as the economy continued to recover from the effects of the pandemic, reported more modest growth during 2022-23.

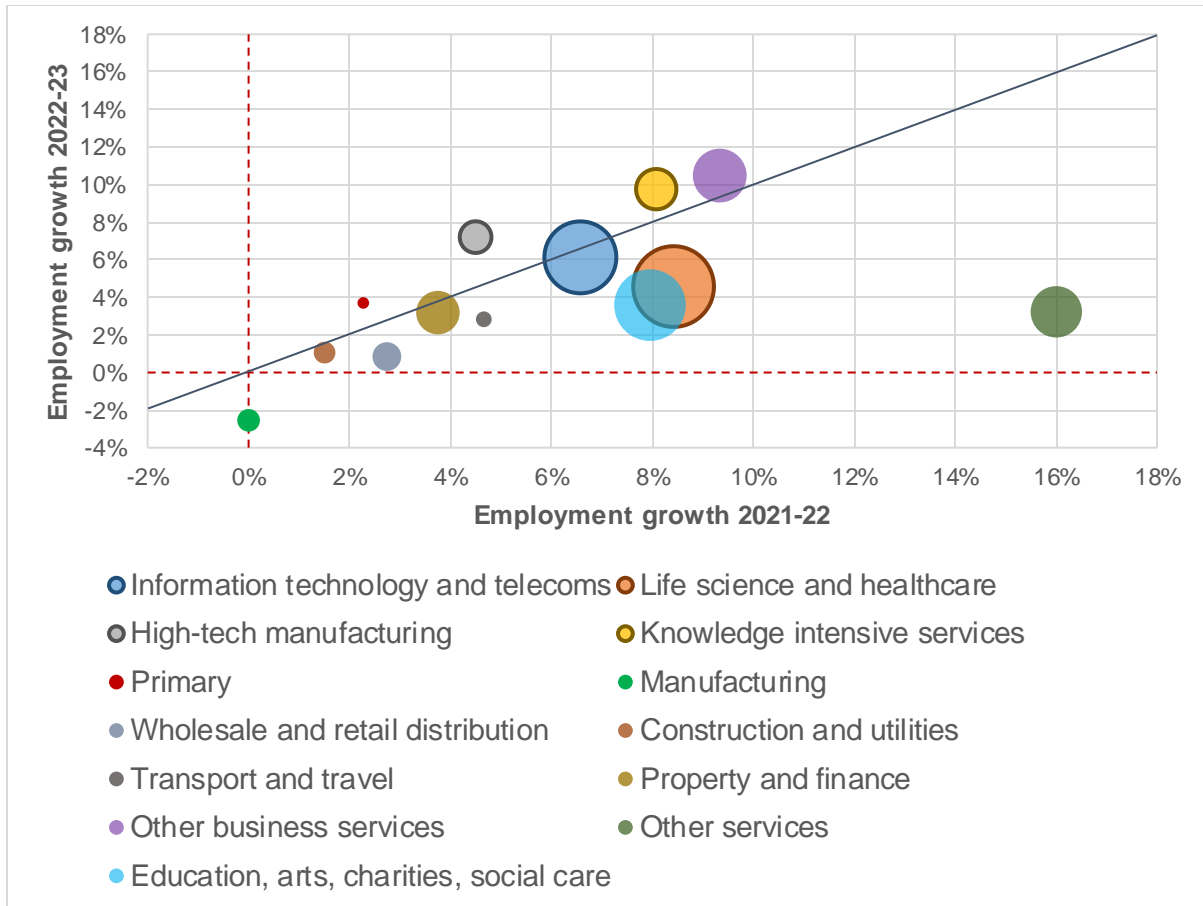
Employment growth last year was positive but lower than the previous year also in the 'Wholesale and retail distribution' sector (2.8% and 6.2%, respectively), 'Education, arts, charities, social care' (3.9% and 6.9%) and 'Property and finance' (2.8% and 4.8%).

Employment in the low- and med-low-tech 'Manufacturing' sector dropped by 1.0% in 2022-23 after increasing by 1.6% in 2021-22. These figures reflect a small reduction in employee numbers at various locally based manufacturers such as Dixon International and Histon Sweet Spreads, which had their business impacted by supply chain disruptions and inflationary pressures.

Cambridge

Figure 2.5 compares sectors based on their employment growth during 2021-22 (horizontal axis) and their employment growth during 2022-23 (vertical axis), this time focusing on Cambridge.

Figure 2.5 Employment growth by sector in Cambridge – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale. Bubbles with an outline identify KI sectors.

Source: Cosh & Caselli, CBR.

Employment growth of Cambridge-based businesses was particularly fast in ‘Knowledge intensive services’, where it reached 9.8% in 2022-23 (up from 8.1% in 2021-22). This growth benefited from the strong performance of RAND Europe (12.1%), Traffic International (10.7%) and Cambridge Mechatronics (8.1%).

Another KI sector that saw employment growth accelerate in the year to mid-October 2023 is ‘High-tech manufacturing’. Growth in the sector increased from 4.5% in 2021-22 to 7.2% in 2022-23.

Last year’s employment growth in ‘Information technology and telecoms’ and ‘Life science and healthcare’ was strong (6.1% and 4.6%, respectively), albeit lower than one year earlier (6.6% and 8.4%).

Turning to non-KI sectors, employment continued to grow at pace in the ‘Other business services’ sector (10.5% in 2022-23, up from 9.3% in 2021-22). The Care Staff Consulting, Trinity Harper Cleaning and Mills & Reeve were key drivers of this growth. ‘Property and

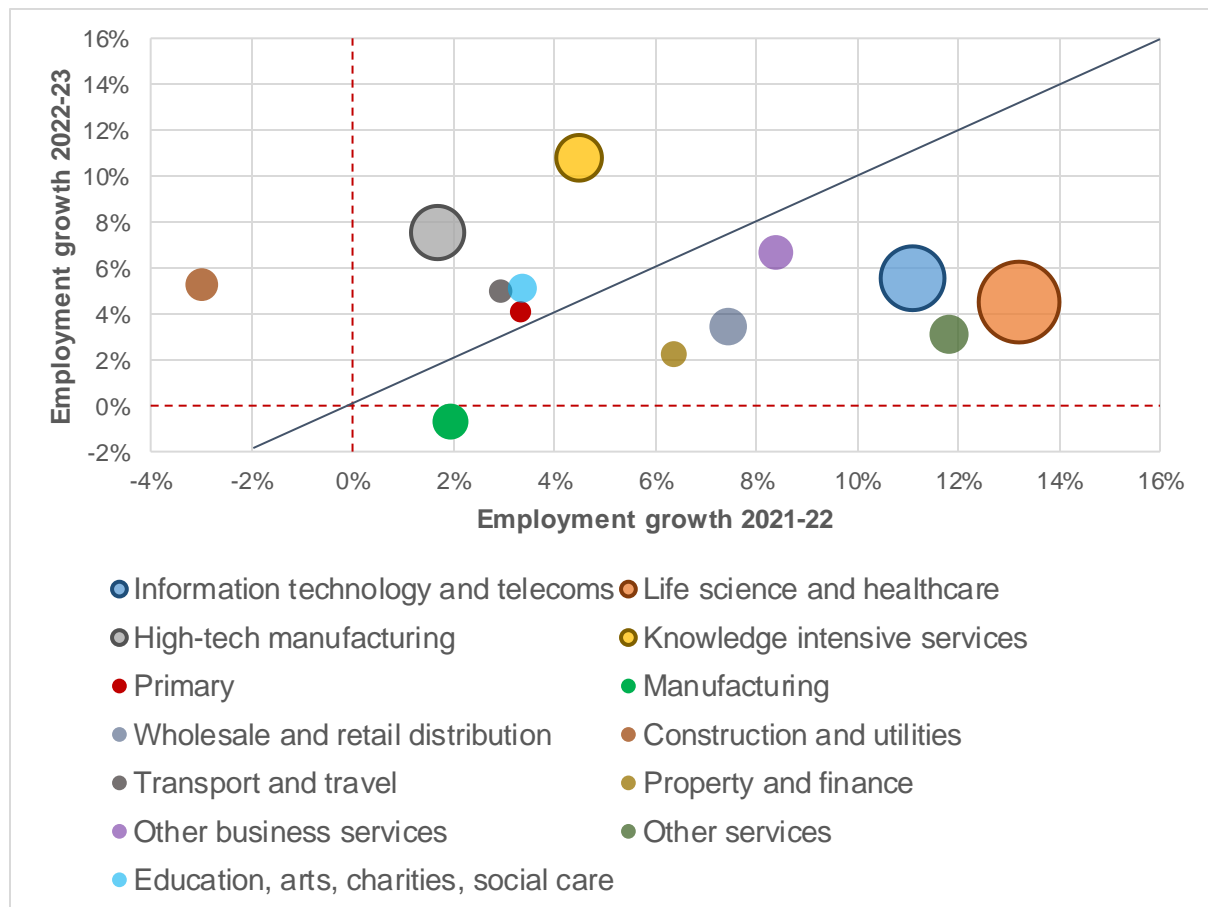
finance' and 'Construction and utilities' also had steady (but more moderate) growth in employment.

Conversely, employment growth slowed down in the latest year compared with the previous year in 'Other services' (3.2% and 16.0%, respectively), 'Education, arts, charities, social care' (3.6% and 8.0%), 'Wholesale and retail distribution' (0.8% and 2.7%) and 'Transport and travel' (2.8% and 4.7%). In turn, 'Manufacturing' employment fell by 2.5% after seeing no growth one year earlier. Some of the businesses in these sectors appear to have been adversely impacted by the onset of recession.

South Cambridgeshire

Figure 2.6 focuses on South Cambridgeshire and compares sectors based on their employment growth during 2021-22 (horizontal axis) and their employment growth during 2022-23 (vertical axis).

Figure 2.6 Employment growth by sector in South Cambridgeshire – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale. Bubbles with an outline identify KI sectors.

Source: Cosh & Caselli, CBR.

Similar to Cambridge, South Cambridgeshire-based companies in 'Knowledge intensive services' showed fast employment growth in the latest year. Employment growth in the sector accelerated from 4.5% in 2021-22 to 10.8% in 2022-23.

Employment growth to 2023 was considerably faster than employment growth to 2022 also in 'High-tech manufacturing' (7.5% and 1.7%, respectively). Some examples of fast-growing companies in this sector are CRFS (25.5%), dCS Audio (19.4%) and Amethyst Designs (11.1%).

Employment in 'Life science and healthcare', the largest sector in South Cambridgeshire, increased by 4.5% in 2022-23 (down from an exceptional 13.2% in 2021-22). The second largest KI sector in the district, 'Information technology and telecoms', exhibited a similar slowdown (5.6% and 11.1%, respectively).

The results for non-KI sectors show a mixed picture.

Like Cambridge, South Cambridgeshire saw continued employment growth in the 'Other business services' sector (6.7% in the latest year and 8.4% in the previous year). Recruitment specialist Pure (13.7%) and commercial and office cleaning company Avocet (8.2%) are among the companies contributing to this growth. Unlike Cambridge, however, employment growth in South Cambridgeshire also accelerated in 'Transport and travel' (5.0% and 2.9%) and 'Education, arts, charities, social care' (5.1% and 3.4%).

Whilst the 'Construction and utilities' sector returned to growth (5.3%) after suffering a 3.0% drop in the previous year, 'Other services' (3.1% and 11.8%, respectively), 'Property and finance' (2.2% and 6.4%), 'Wholesale and retail distribution' (3.4% and 7.4%) and 'Manufacturing' (-0.7% and 1.9%) experienced lower employment growth in 2022-23 than in 2021-22.

We now turn to look at the absolute change in employment rather than its percentage change.

Greater Cambridge

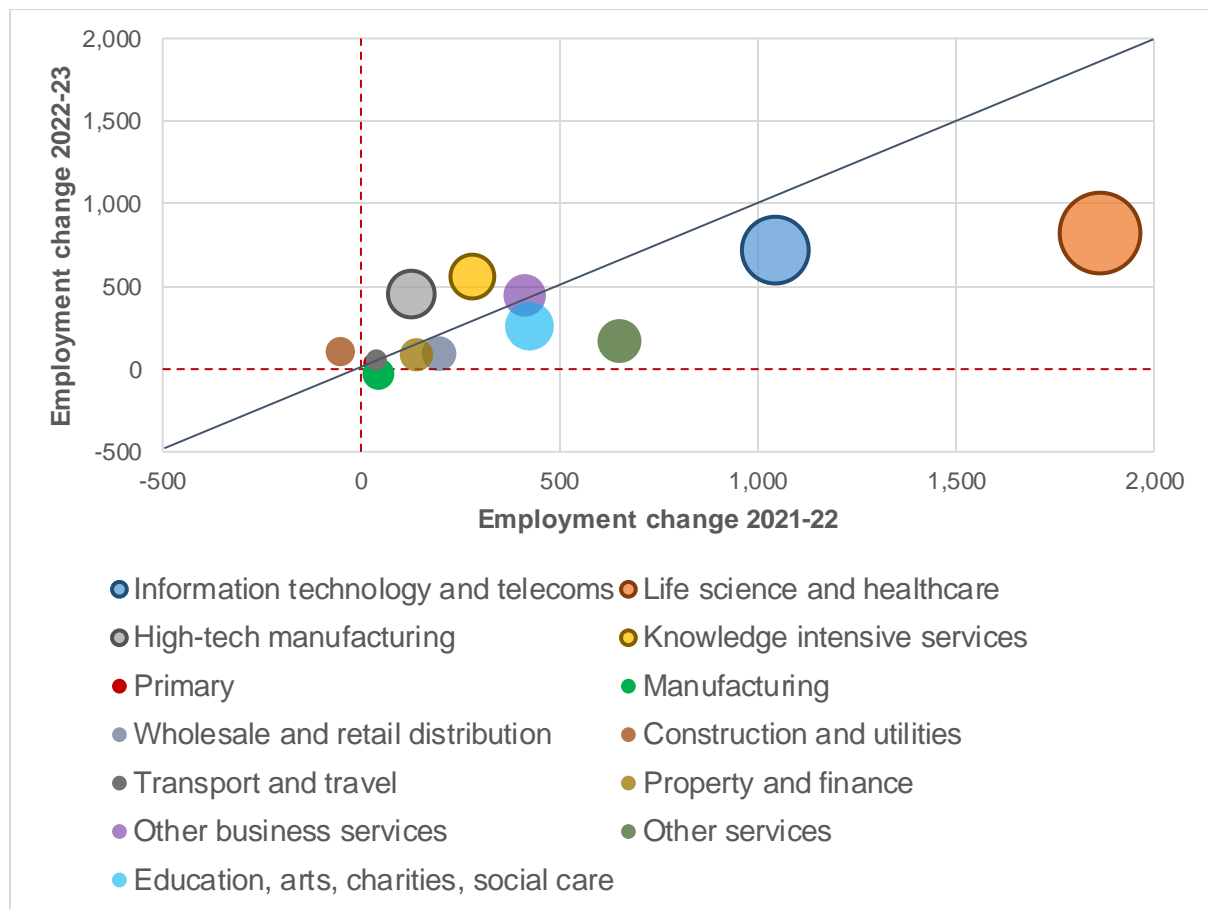
Figure 2.7 offers another comparison across sectors, this time looking at their employment change (rather than their employment growth) during 2021-22 (horizontal axis) and 2022-23 (vertical axis). Similar to Figures 2.4-2.6, this chart allows us to compare the performance of sectors over time. The position of the sector marker relative to the 45° line indicates whether employment change in the sector was higher or lower than last year. Sectors with a positive change in employment during 2022-23 are found above the horizontal axis and those with a positive change during 2021-22 appear to the right of the vertical axis.

Since % changes can sometimes be misleading, Figure 2.7 examines changes in employment in terms of the number of people employed. In this case, the findings from Figure 2.7 largely confirm those from Figure 2.4.

The two KI sectors with faster growth in 2022-23 than in 2021-22, 'Knowledge intensive services' and 'High-tech manufacturing', added over 1,000 employees combined in the latest year. About one-third of this additional employment is associated with Marshall ('High-tech manufacturing'), The Welding Institute and Cambridge Consultants ('Knowledge intensive services').

The contribution of the two largest KI sectors in Greater Cambridge, 'Life science and healthcare' and 'Information technology and telecoms', to overall employment growth becomes apparent when examined in terms of the number of people employed.

Figure 2.7 Employment change by sector in the Greater Cambridge area – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale. Bubbles with an outline identify KI sectors.
Source: Cosh & Caselli, CBR.

'Life science and healthcare' had the largest employment change in 2022-23, adding 823 employees in the latest year compared with 1,864 one year earlier. AstraZeneca (204 employees), PPD Global (101 employees) and CMR Surgical (43 employees) contributed almost half of the employment change to 2023.

The employment change in 'Information technology and telecoms' was also significant, with 720 employees added in 2022-23 (1,045 in 2021-22). A considerable share of the employment change to 2023 is associated with Frontier Developments (123 employees), Bango (87 employees) and IQGeo (65 employees), which offset the reduction in employment at other large ICT companies such as Sitec Infrastructure Services (-70) and Huawei Technologies Research & Development (-19).

Among non-KI sectors, employment change in the year to mid-October 2023 was higher than employment change in the previous year in 'Construction and utilities' (106 and -52 employees, respectively), 'Transport and travel' (56 and 39 employees) and 'Primary' (38 and 29 employees). Some examples of companies with a larger increase in employment in 2022-23 compared with 2021-22 are Malary ('Construction and utilities'), Premier Holidays ('Transport and travel') and E W Pepper ('Primary').

The 'Other business services' sector had the largest employment change in 2022-23 among non-KI sectors, adding 446 employees. Last year's change in the sector was very similar to the change one year earlier (413 employees). The Care Staff Consulting (63 employees), Mills & Reeve (47 employees) and Trinity Harper Cleaning (43 employees) accounted for more than one-third of the total employment change in the sector during 2022-23.

By contrast, the results for the other non-KI sectors suggest that they have been more adversely impacted by the onset of recession. 'Other services' (170 and 652 employees, respectively), 'Education, arts, charities, social care' (260 and 425 employees), 'Wholesale and retail distribution' (94 and 197 employees) and 'Property and finance' (87 and 140 employees) had a positive albeit lower change in employment relative to 2021-22, whilst 'Manufacturing' suffered a fall of 29 employees in the most recent year after an increase of 44 employees one year earlier.

Collectively, KI sectors added 2,557 employees during 2022-23, whereas non-KI sectors contributed 1,228 employees.

2.3. Analysis by firm size

Figure 2.8 shows employment growth in KI and non-KI sectors during 2021-22 (horizontal axis) and 2022-23 (vertical axis) by firm size. This chart allows us to compare the performance of size classes over time. The position of the size marker relative to the 45° line indicates whether the size class grew more or less fast than last year. Size classes with positive growth in 2022-23 are found above the horizontal axis and those with positive growth in 2021-22 appear to the right of the vertical axis.

Figure 2.8 points to some important differences between size classes.

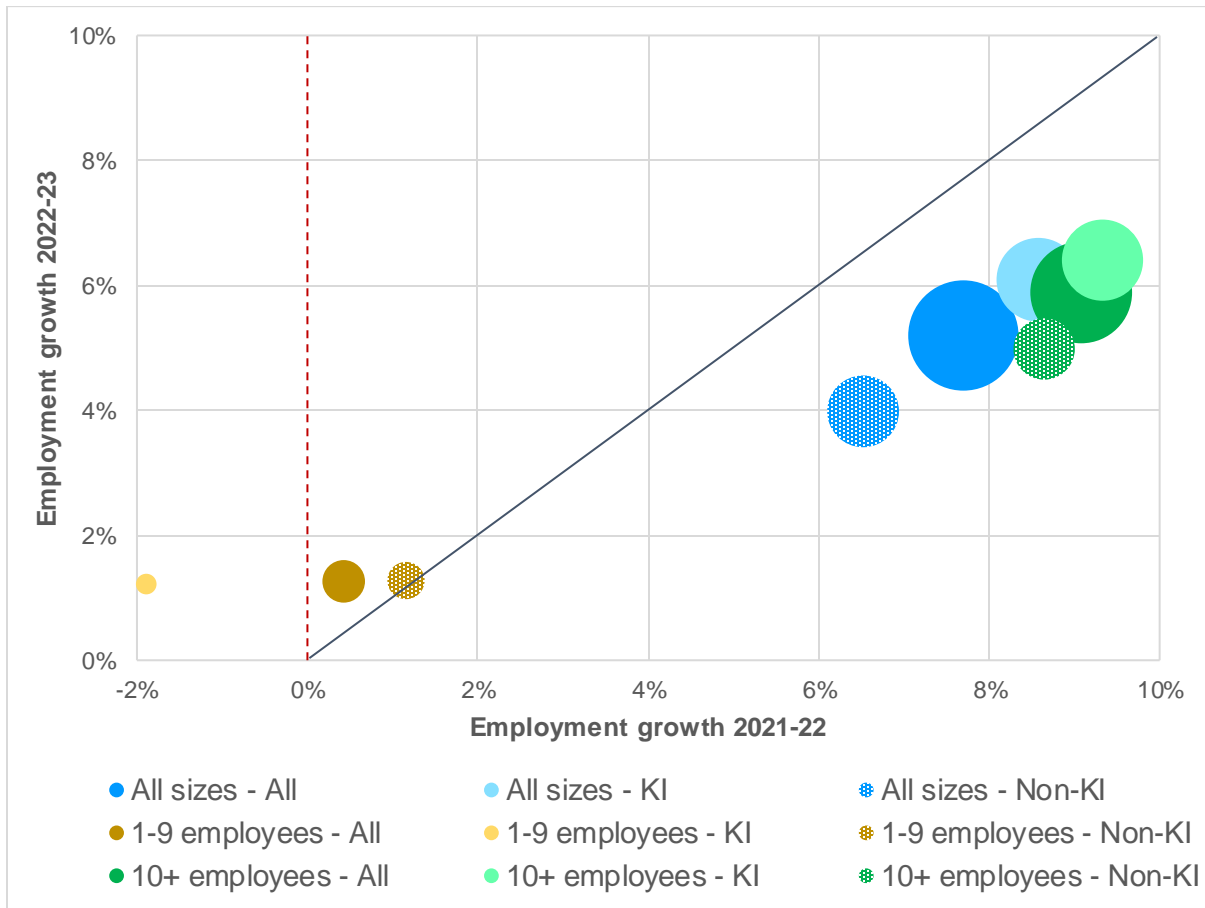
Employment growth of 1-9 employee businesses increased from 0.4% in 2021-22 to 1.3% in 2022-23. This growth was driven primarily by non-KI sectors, which saw employment grow by about 1.3% in both years. Employment of KI sectors in this size class grew by 1.2% last year, following a 1.9% drop in the previous year.

The picture looks different for 10+ employee businesses. Although both KI and non-KI employment increased much faster in this size class than in the 1-9 employee group, 2022-23 growth slowed down compared with 2021-22 in both sectors. As a result, employment growth of 10+ employee businesses was 5.9% last year, down from 9.1% one year earlier.

Given the large aggregate size of businesses employing 10 people or more, corporate employment in Greater Cambridge grew less fast – albeit still significantly considering the unfavourable macroeconomic conditions – during 2022-23 (5.2%) compared with 2021-22 (7.7%).

Figure 2.9 compares size classes based on their employment change during 2021-22 (horizontal axis) and 2022-23 (vertical axis). Similar to Figure 2.8, this chart allows us to compare the performance of size classes over time. The position of the size marker relative to the 45° line indicates whether employment change in the size class was higher or lower than last year. Size classes with a positive change in employment during 2022-23 are found above the horizontal axis and those with a positive change during 2021-22 appear to the right of the vertical axis.

Figure 2.8 Employment growth by firm size in the Greater Cambridge area – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale.

Source: Cosh & Caselli, CBR.

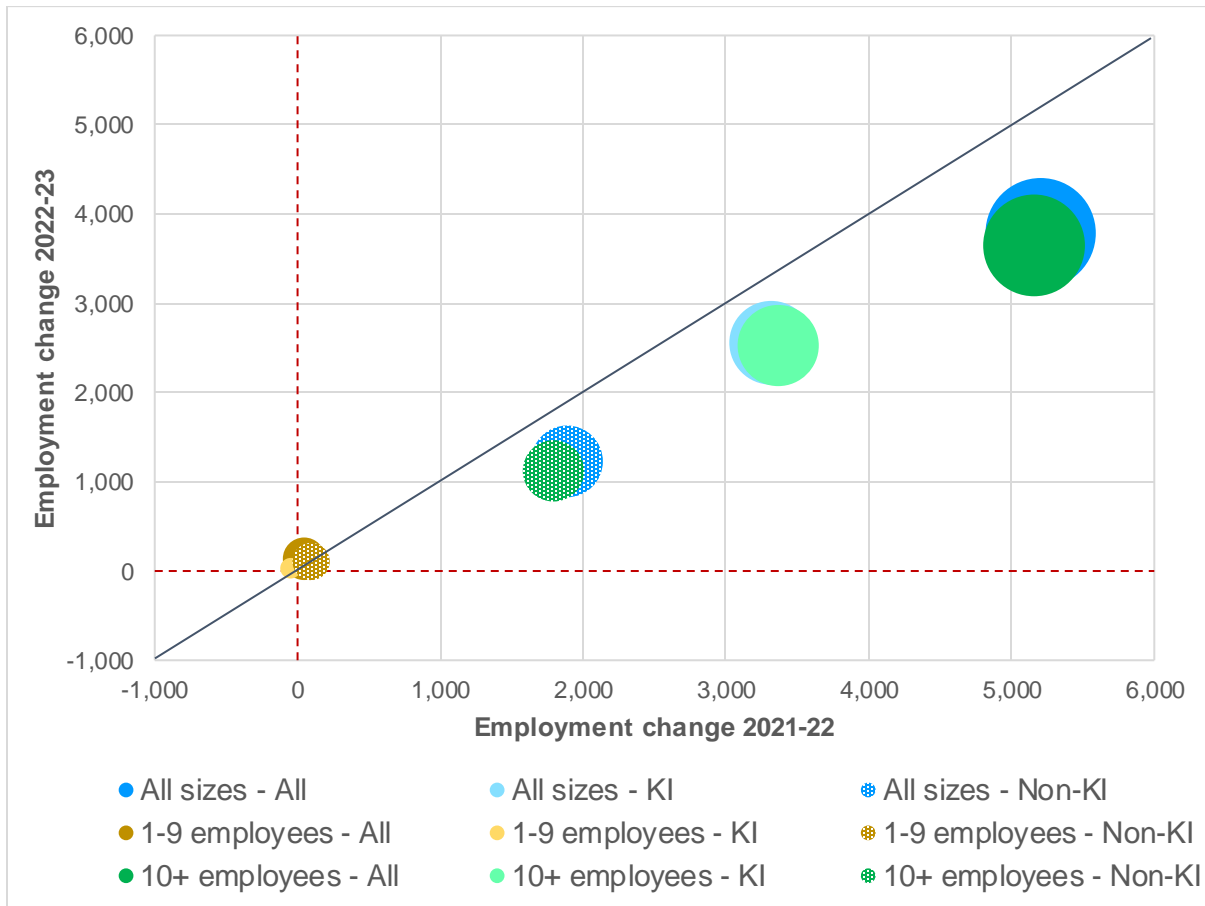
The picture obtained from employment change data largely supports the conclusions drawn from employment growth data.

Employment change at 1-9 employee businesses was positive in 2022-23 and larger than in 2021-22 (137 and 46 employees, respectively). The employment change in the most recent year originated primarily in non-KI sectors (106 employees compared with 31 employees for KI sectors).

Conversely, the employment change in 2022-23 (3,648 employees) was smaller than the employment change in 2021-22 (5,158 employees) for businesses with 10+ employees. KI and non-KI sectors showed a similar reduction. Employment change during 2022-23 was 2,526 in KI sectors (3,366 during 2021-22) and 1,122 in non-KI sectors (1,792 during 2021-22).

Overall, these results confirm that it is the group of 10+ employee businesses operating in the KI sectors which have been driving growth in the Greater Cambridge area. Corporate employment change to 2023 across all size classes was 3,785 compared with 5,204 in the year to 2022.

Figure 2.9 Employment change by firm size in the Greater Cambridge area – 2022-23 vs 2021-22



Note: The size of each bubble is proportionate to the number of employees in 2021-22 on a continuous scale.

Source: Cosh & Caselli, CBR.

The next section examines business and science parks as an important part of the innovative milieu of the wider Cambridge region.

3. Comparison of business and science parks in the Cambridge City Region

Business and science parks play an increasingly important role in the local economy. This role extends far beyond the provision of floor space and associated facilities. Studying businesses on these parks helps in understanding the factors that encourage clustering of businesses on them.

Table 3.1 shows the sectoral composition of the businesses on 37 local parks and the total employment of businesses on the parks. The six parks included at the top of the list show a strong focus on life sciences. The second group of nine parks have a high proportion of their companies in knowledge intensive (KI) sectors, but with much less of a focus on life sciences. We have summarised the remaining 23 parks into two groups – six parks with a majority of KI businesses on them and a further seventeen parks that have a majority of non-KI businesses.

Factors that may be associated with the clustering we observe can be summarised as:

- Image and imputed reputation from its location
- Collaboration possibilities with similar businesses
- Access to specialised knowledge and equipment
- Access to specialised funding
- Ability to recruit skilled employees, especially from abroad
- Proximity to the science base
- Government interest

The other benefits that companies may receive from being on one of these parks are:

- Proximity to the Cambridge cluster
- Ability to attract funding
- Quality and availability of labour force
- Communal recreation facilities and cafeteria

Table 3.1 Sectoral distribution of companies on business and science parks in the Cambridge City Region

Business Park	No of companies on park	% Life Sciences	% ICT & Telecoms	% Other KI	% Non-KI	2022-23 total employment	% of 22-23 empl in KI cos
Babraham Research Campus	65	97%	0%	2%	2%	2,012	100%
Cambridge Biomedical Campus	10	90%	0%	0%	10%	5,239	100%
Chesterford Research Park	22	73%	5%	9%	14%	1,294	87%
Granta Park	20	75%	0%	10%	15%	5,156	100%
Iconix Park / Unity Campus	7	57%	29%	14%	0%	371	100%
Wellcome Genome Campus	7	86%	14%	0%	0%	1,382	100%
Buckingway Business Park	26	8%	35%	23%	35%	1,045	60%
Cambourne Business Park	53	6%	32%	6%	57%	2,026	83%
Cambridge Business Park	87	3%	9%	1%	86%	1,604	87%
Cambridge Research Park	66	6%	20%	14%	61%	1,817	90%
Cambridge Science Park	198	16%	17%	14%	54%	8,620	94%
Harston Mill	6	17%	50%	33%	0%	683	100%
Melbourn Science Park	6	33%	17%	17%	33%	595	97%
St John's Innovation Centre/Park	246	12%	30%	13%	45%	2,555	76%
Vision Park	240	5%	14%	7%	74%	1,805	55%
<i>6 KI focused business parks</i>	<i>270</i>	<i>3%</i>	<i>7%</i>	<i>49%</i>	<i>41%</i>	<i>2,983</i>	<i>64%</i>
<i>17 other business parks</i>	<i>1,003</i>	<i>3%</i>	<i>10%</i>	<i>7%</i>	<i>81%</i>	<i>16,656</i>	<i>26%</i>
All 37 Business Parks	2,332	10%	13%	13%	63%	55,843	70%

Source: Cosh & Caselli, CBR.

Table 3.2 provides a comparison of companies located on the main business and science parks in the region according to company age, employment size and growth.²

The average size of companies on these parks is typically less than one hundred employees. The four exceptions are: the Cambridge Biomedical Campus (e.g. Astrazeneca and Abcam); Granta Park (e.g. Illumina, Gilead Sciences); Welcome Genome Campus (Genome Research Ltd) and Harston Mill (Science Group). Despite the relatively few large companies, total employment across the parks amounts to over 55,000 employees.

Companies located on life science-focused parks have achieved fast growth over the last three years, showing a superior performance compared with companies located on any of the other park types. Companies on life science parks averaged 11% pa employment growth over the last three years compared with an average of 7% pa for the fifteen other KI parks and 4% pa for the seventeen non-KI parks. These figures provide further evidence on the dynamic, fast-growing business community operating on these parks.

Table 3.3 presents a detailed analysis of R&D activity of companies based on business and science parks. R&D expenditure data was taken directly from the companies' audited accounts whenever available. If not provided in the accounts, R&D spend was estimated using R&D expenditure data for adjacent years, or the proportion of R&D staff reported in the accounts, or the R&D tax credits shown that year. For companies without significant turnover, we obtained estimates of their R&D activity based on annual changes in their share premium account, ordinary shares and shareholders' funds.

The table reveals that over £7bn of R&D was carried out by companies on these business parks over the last three years with £2.6bn of that coming in the latest year. About two-thirds of this was carried out on the six life science parks and most of the rest took place on the other nine key KI parks.

We turn to the results of the April 2024 turnover analysis in Section 4.

² Unweighted employment growth is calculated as the simple average of the individual growth rates of all the companies on a given park, whereas weighted employment growth weighs each company's growth rate by the total number of people it employs.

Table 3.2 Size and growth of companies on business and science parks in the Cambridge City Region

Business Park	No of cos	% KI	Average age	2022-23 total employment	Average number of employees	Weighted ave employment growth last 3 yrs % pa	Unweighted ave employment growth last 3 yrs % pa
Babraham Research Campus	65	98%	8.9	2,012	31.0	10.3%	21.7%
Cambridge Biomedical Campus	10	90%	9.7	5,239	523.9	12.0%	12.8%
Chesterford Research Park	22	86%	12.4	1,294	58.8	20.4%	24.5%
Granta Park	20	85%	19.3	5,156	257.8	9.9%	16.5%
Iconix Park / Unity Campus	7	100%	17.9	371	53.0	3.9%	2.2%
Wellcome Genome Campus	7	100%	12.0	1,382	197.4	5.4%	4.0%
Buckingway Business Park	26	65%	23.7	1,045	40.2	3.5%	8.8%
Cambourne Business Park	53	43%	11.0	2,026	38.2	2.0%	1.9%
Cambridge Business Park	87	14%	8.6	1,604	18.4	3.5%	-1.0%
Cambridge Research Park	66	39%	9.6	1,817	27.5	4.7%	4.5%
Cambridge Science Park	198	46%	11.3	8,620	43.5	10.6%	12.2%
Harston Mill	6	100%	19.5	683	113.8	2.0%	5.2%
Melbourn Science Park	6	67%	19.0	595	99.2	8.9%	4.0%
St John's Innovation Centre/Park	246	55%	12.2	2,555	10.4	10.4%	3.5%
Vision Park	240	26%	11.6	1,805	7.5	4.7%	2.5%
<i>6 KI focused business parks</i>	<i>270</i>	<i>59%</i>	<i>8.4</i>	<i>2,983</i>	<i>11.0</i>	<i>2.7%</i>	<i>2.8%</i>
<i>17 other business parks</i>	<i>1,003</i>	<i>19%</i>	<i>14.4</i>	<i>16,656</i>	<i>16.6</i>	<i>3.7%</i>	<i>4.3%</i>
All 37 Business Parks	2,332	37%	12.5	55,843	23.9	6.8%	5.3%

Source: Cosh & Caselli, CBR

Table 3.3 R&D activity of companies on business and science parks in the Cambridge City Region

Business Park	No of cos	% KI	2022-23 employment	% of 22-23 empl in KI cos	Total R&D last year £m	% of cos doing R&D in last 3yrs	R&D over last 3yrs £m	Ave spend pa R&D actives £,000
6 Major life science parks	131	94%	15,454	99%	1,893,599	60%	4,573,542	17,651
9 Key KI parks	928	41%	20,750	85%	630,687	8%	2,300,927	14,906
<i>6 KI focused business parks</i>	<i>270</i>	<i>59%</i>	<i>2,983</i>	<i>64%</i>	<i>21,908</i>	<i>2%</i>	<i>63,304</i>	<i>3,525</i>
<i>17 other business parks</i>	<i>1,003</i>	<i>19%</i>	<i>16,656</i>	<i>26%</i>	<i>25,320</i>	<i>1%</i>	<i>73,406</i>	<i>1,449</i>
All 37 Business Parks	2,332	37%	55,843	70%	2,571,513	7%	7,011,179	14,529

Source: Cosh & Caselli, CBR.

4. April 2024 employment and turnover update results

The analyses presented so far have examined only changes in employment, but we have turnover data for a sufficiently large subset of the companies to make turnover analysis worthwhile. We look at Greater Cambridge-based companies with three years of actual turnover and employment data; and with accounting year ends between May and December 2023. This gives us a sample of 139 companies (representing employment of about 11,400 and turnover of about £2.4bn). Table 4.1 provides a comparison of employment and turnover growth rates over the past two years for this group of companies.

Table 4.1 Comparison of employment and turnover growth rates over the past two years in the Greater Cambridge area (April 2024 Update)

Greater Cambridge area Sample of companies with both employment and turnover for the last three years	Turnover growth %pa		Employment growth %pa	
	2021-22	2022-23	2021-22	2022-23
KI COMPANIES				
Number of companies	46	46	46	46
Totals in 2022 and 2023	£1,264m	£1,443m	5,764	6,247
Median growth	11.0%	8.6%	0.0%	0.0%
Weighted average growth	12.6%	14.1%	7.5%	8.4%
NON-KI COMPANIES				
Number of companies	93	93	93	93
Totals in 2022 and 2023	£895m	£998m	4,917	5,117
Median growth	11.0%	13.0%	0.7%	4.5%
Weighted average growth	11.6%	11.5%	4.5%	4.1%

Source: Cosh & Caselli, CBR.

In recent updates we have found that the pandemic affected turnover more strongly than employment due to the operation of the furlough scheme. The table above shows that with the recovery from the pandemic normal service has been resumed and turnover growth exceeds employment growth as it does usually.

The findings are dependent on the sample selection and are provided to enable a comparison between employment and turnover growth and between the latest year and one year earlier.

Employment growth for these companies providing both employment and turnover data was notably stronger among the KI companies, which saw employment increasing by 8.4% in 2022-23 (slightly up from 7.5% in 2021-22). By contrast, the full sample showed KI employment growth slowing in 2022-23 (6.1% down from 8.6% in 2021-22).

Non-KI companies achieved positive but lower growth in each year (4.5% in 2021-22 down slightly to 4.1% in 2022-23). These findings are exceptional by comparison with the performance of the national economy shown in Figure 1.1.

The next section discusses the results of the April 2024 snapshot.

5. April 2024 snapshot results

This section summarises the results of the April 2024 snapshot. Having seen in Section 4 the results for employment and turnover data, this section uses just the seven companies that have presented interim results for the six-month periods ending between September 2023 and March 2024. Only turnover data is available and together they represent a combined current annual turnover of about £395m and had over 2,219 employees at the end of the previous financial year.

The gain from focusing on interim results for these six-month periods is the activity reported in the accounts took place in the 2023-24 financial year.

5.1. Turnover growth

Total turnover for this group of companies grew by 18% in the first six months of the 2023-24 financial year compared with the same period last year. Whilst a strong growth, this is slower than the 25% growth achieved in the previous year. The consequences of the flatlining economy in 2023 have been felt even by these successful Greater Cambridge businesses.

5.2. Companies' comments on coping with the recession

We report below some comments from the companies' latest reports. They offer some further insights into the impact of the recession on their business. These reports, published in recent months, appear to show that factors other than general business conditions are more important for these businesses.

At the start of this financial year, we characterised our FY 2024 expectations as first half stabilisation and second half re-acceleration, and performance indeed stabilised in our second quarter. Now, it is the improvement in early cycle operating measures that underpins our confidence in a return to net new business growth in the second half. We see progress in longer cycle initiatives such as large strategic, channel and government pipeline development, and upsell momentum continues. In addition, ramped salesperson tenure has lengthened, increasing by 28%, including a 31% increase in our key North American markets. Our conversion rate also rose, again driven by noticeable improvements in North America, as more tenured salespeople followed a more disciplined process to pursue better targeted and qualified sales prospects. We continue to see the cyber-crime landscape evolve rapidly in a challenging geopolitical environment and as the availability of generative AI tools lowers the barrier to entry for hostile actors. Against this backdrop and in the period ahead, we are preparing to roll out enhanced market and product positioning to better demonstrate how our unique AI can help organisations to address novel threats across their entire technology footprint.

Darktrace: Global leader in cyber security AI

We are pleased with progress over the first half of the fiscal year as the Company builds a solid foundation from which it can continue to grow. H2 is expected to remain strong, although in the absence of any further backlog to fulfill, is expected to be slightly lower than H1 FY24 with the full year's revenue expected to be in line with market expectations. The investment for the final steps in the separation of the business from the historical group will be completed during FY25. We will continue with our plans of expanding into the USA

market and adding value to the customer base with two other laboratories in the region working on the validation and approval of the FoodPrint test in readiness for launch in early FY25. The MyHealth Tracker roll out in the UK will be finalised in Q4 FY24 and a further phased roll out is planned for FY25.

Cambridge Nutritional Sciences PLC: Diagnostics testing business

In October 2023, an order for a further 300,000 Omnimesh modules and associated products was won from IntelliSmart, taking the Company's total order book for India to 5.3 million modules, of which 3.1 million are yet to be shipped. In addition, a letter of award was received for a follow-on smart metering deployment in the MENA region. This follow-on contract builds upon the first MENA order announced by the Company in April 2022 and is for CyanConnode's cellular communications product, which will be deployed to connect smart electricity and smart water meters. Under the LOA, CyanConnode will supply cellular hubs, with a capacity to connect 1.41 million devices. Delivery of the first hubs has now commenced, with the full contract expected to be delivered over the next 12 months. As of the end of November 2023, CyanConnode has won orders for 5.3 million Omnimesh modules in India alone, with 2.2 million shipped to the end of November 2023, leaving a backlog still to be shipped of 3.1 million. CyanConnode's presence in the market represents 25% of the total installed base, and its win rate is 25% in terms of volumes and 40% in terms of tenders awarded.

CyanConnode Hldgs: Delivers Wi-Fi solutions for utility metering and lighting control

2023 was a challenging year for Frontier and for many companies across the games industry. The last few months have been a tough period of change for everyone at Frontier, and of course it's been particularly difficult for those people in teams who have suffered redundancies. I'd like to thank everyone for their hard work and patience while we make the necessary changes. We are confident that our renewed focus on our world-class CMS games is getting us back on track, and it's pleasing to see the strong ongoing performance of our established portfolio of games, led by Jurassic World Evolution 2 and Planet Zoo. I'd like to thank our players across our whole portfolio for their ongoing engagement and support. We have two exciting console releases coming in the next few months, including Warhammer 40,000: Chaos Gate Daemonhunters, and we are making great progress on our new own-IP CMS game for release in FY25.

Frontier Developments PLC: Developer and publisher of videogames

In the first half of the financial year revenues increased to £32.2m (H1 FY23: £31.7m), despite the expiry of the very large profitable COVID contracts for cameras. Cash generated by operations was £3.3m (H1 FY23: £1.9m). Profits have been affected by some destocking, some of which is likely to be temporary, alongside a slowdown in China and Germany. We now expect to report FY24 adjusted profit before tax of between £7.9m and £8.4m. For over ten years SDI has consistently grown value by focusing on a clear and straightforward strategy. We acquire private companies at a significant discount to those on the quoted markets. These subsidiaries are then encouraged to grow for the benefit of all stakeholders. I am pleased to report that we have a number of new acquisition opportunities under review. So, despite the recent headwinds we look forward to the future with great confidence.

SDI Group PLC: Digital imaging and sensing and control applications

As the impact of the pandemic recedes and the number of endoscopies, ultrasound scans and other diagnostic procedures return to their pre-COVID-19 levels, we are confident that we will return to the growth trajectory we were on before 2020. The backlog for these procedures is front page news in all countries. We have simplified the business and sharpened our focus on the hospital and our proprietary chlorine dioxide chemistry. We are better placed than before COVID-19 to capitalise upon a return to normal service in global healthcare. We look forward to growing our two core brands – Tristel and Cache – and expanding our global reach.

Tristel PLC: Infection prevention products

6. Concluding remarks

The April 2024 Update is the tenth of a series of updates that provide timely data on corporate employment changes in the Greater Cambridge area. The findings in this report are drawn from a large sample of 5,577 companies with accounting year ends between May and December 2023. This sample, which represents more than two-thirds of corporate employment in the area, has a modal year end of mid-October 2023. Therefore, it captures the impact of the onset of recession in the second half of 2023. We compare this period with the previous year, which covers the effects of the ongoing conflict in Ukraine on the recovery from Covid.

The picture that emerges is one of continued but lower employment growth in Greater Cambridge in the year to mid-October 2023. Growth in the area slowed down from 7.7% in 2021-22 to 5.2% in 2022-23, suggesting that the onset of recession in the second half of 2023 has had some impact on business. Nevertheless, the employment performance of the Greater Cambridge corporate economy was far superior to the performance of the national economy over the same period. This robust employment growth was driven by a dynamic KI economy, with the 'Knowledge intensive services' and 'High-tech manufacturing' sectors reporting faster growth than one year earlier. Our results also point to continued recovery among non-KI sectors, which had been severely hit by lockdowns and other Covid-related restrictions.

We complement these findings by examining the performance of a smaller sample of companies for which we have both employment and turnover data over the past three years. We have found in recent updates that Covid affected turnover more strongly than employment due to the operation of the furlough scheme. Our April 2024 analysis shows that, with the recovery from the pandemic, normal service has been resumed and turnover growth exceeds employment growth as it does usually. Employment growth was notably stronger among KI companies, whereas non-KI companies achieved positive but lower growth in each year. The findings for this sample of companies providing both employment and turnover data are exceptional by comparison with the performance of the national economy.

Finally, we augment the results for turnover by providing a snapshot for companies with interim accounts ending between September 2023 and March 2024. Total turnover for this group of companies (all knowledge intensive) grew by 18% in the first six months of the 2023-24 financial year. Whilst a strong growth, this is slower than the 25% growth achieved in the same period last year. These findings reinforce those from the employment update sample, while suggesting that the consequences of the flatlining economy in 2023 have been felt even by these successful Greater Cambridge businesses. The perusal of their interim reports also reveals that factors other than general business conditions are more important for these businesses.

Overall, the results of our April 2024 Update portray a resilient corporate economy in Greater Cambridge against a backdrop of macroeconomic and geopolitical instability. At the same time, there are some signs that the onset of recession in the second half of 2023 was felt by some businesses and sectors, particularly in the non-KI economy. We will further explore the impact of the unfolding recession on Greater Cambridge businesses in our next update.

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May 2024

Appendix A1. Employment growth by sector in the Greater Cambridge area

April 2024 Update	Number of companies	Total empl 2022-23	Total empl 2021-22	% of GC total 2021-22	Empl growth 2022-23	Empl growth 2021-22
KNOWLEDGE INTENSIVE SECTORS						
Information technology and telecoms	795	13,153	12,433	68.9%	5.8%	9.2%
Life science and healthcare	271	18,969	18,146	88.9%	4.5%	11.4%
High-tech manufacturing	160	6,519	6,065	75.7%	7.5%	2.1%
Knowledge intensive services	250	5,903	5,343	71.6%	10.5%	5.6%
TOTAL KI SECTORS	1,476	44,544	41,987	77.9%	6.1%	8.6%
OTHER SECTORS						
Primary	132	980	942	77.7%	4.0%	3.2%
Manufacturing	233	2,793	2,822	70.0%	-1.0%	1.6%
Wholesale and retail distribution	420	3,445	3,351	60.4%	2.8%	6.2%
Construction and utilities	480	2,494	2,388	51.6%	4.4%	-2.1%
Transport and travel	111	1,285	1,229	69.0%	4.6%	3.3%
Property and finance	711	3,171	3,084	53.8%	2.8%	4.8%
Other business services	983	5,485	5,039	51.1%	8.9%	8.9%
Other services	662	5,535	5,365	55.4%	3.2%	13.8%
Education, arts, charities, social care	369	6,868	6,608	54.3%	3.9%	6.9%
TOTAL NON-KI SECTORS	4,101	32,056	30,828	56.4%	4.0%	6.5%
TOTAL ALL SECTORS	5,577	76,600	72,815	67.1%	5.2%	7.7%

Source: Cosh & Caselli, CBR.

Appendix A2. Employment growth by sector in Cambridge

April 2024 Update	Number of companies	Total empl 2022-23	Total empl 2021-22	% of Camb total 2021-22	Empl growth 2022-23	Empl growth 2021-22
KNOWLEDGE INTENSIVE SECTORS						
Information technology and telecoms	358	5,471	5,155	56.2%	6.1%	6.6%
Life science and healthcare	102	6,786	6,489	90.3%	4.6%	8.4%
High-tech manufacturing	26	1,071	999	76.2%	7.2%	4.5%
Knowledge intensive services	111	1,777	1,619	68.9%	9.8%	8.1%
TOTAL KI SECTORS	597	15,105	14,262	71.2%	5.9%	7.4%
OTHER SECTORS						
Primary	18	140	135	84.4%	3.7%	2.3%
Manufacturing	72	498	511	71.4%	-2.5%	0.0%
Wholesale and retail distribution	147	832	825	55.8%	0.8%	2.7%
Construction and utilities	137	477	472	58.0%	1.1%	1.5%
Transport and travel	37	254	247	47.3%	2.8%	4.7%
Property and finance	332	1,941	1,881	60.3%	3.2%	3.8%
Other business services	415	3,183	2,881	65.8%	10.5%	9.3%
Other services	289	2,716	2,631	61.1%	3.2%	16.0%
Education, arts, charities, social care	201	5,286	5,103	70.6%	3.6%	8.0%
TOTAL NON-KI SECTORS	1,648	15,327	14,686	64.6%	4.4%	8.1%
TOTAL ALL SECTORS	2,245	30,432	28,948	67.7%	5.1%	7.7%

Source: Cosh & Caselli, CBR.

Appendix A3. Employment growth by sector in South Cambridgeshire

April 2024 Update	Number of companies	Total empl 2022-23	Total empl 2021-22	% of S Cambs total 2021-22	Empl growth 2022-23	Empl growth 2021-22
KNOWLEDGE INTENSIVE SECTORS						
Information technology and telecoms	437	7,682	7,278	82.1%	5.6%	11.1%
Life science and healthcare	169	12,183	11,657	88.1%	4.5%	13.2%
High-tech manufacturing	134	5,448	5,066	75.6%	7.5%	1.7%
Knowledge intensive services	139	4,126	3,724	72.8%	10.8%	4.5%
TOTAL KI SECTORS	879	29,439	27,725	81.8%	6.2%	9.2%
OTHER SECTORS						
Primary	114	840	807	76.6%	4.1%	3.3%
Manufacturing	161	2,295	2,311	69.7%	-0.7%	1.9%
Wholesale and retail distribution	273	2,613	2,526	62.1%	3.4%	7.4%
Construction and utilities	343	2,017	1,916	50.2%	5.3%	-3.0%
Transport and travel	74	1,031	982	78.1%	5.0%	2.9%
Property and finance	379	1,230	1,203	46.0%	2.2%	6.4%
Other business services	568	2,302	2,158	39.3%	6.7%	8.4%
Other services	373	2,819	2,734	50.9%	3.1%	11.8%
Education, arts, charities, social care	168	1,582	1,505	30.5%	5.1%	3.4%
TOTAL NON-KI SECTORS	2,453	16,729	16,142	50.6%	3.6%	5.2%
TOTAL ALL SECTORS	3,332	46,168	43,867	66.6%	5.2%	7.7%

Source: Cosh & Caselli, CBR.

Appendix A4. Greater Cambridge Employment Update methodology

This appendix describes the purpose and methodology of regular updates of the corporate database.

Annual draw

Dr Cosh and Dr Caselli at the CBR hold a corporate database of local companies with data going back thirteen years. The current database goes from 2010-11 to 2022-23 audited company data and covers the accounting periods of companies ending in the 2022-23 financial year. The results of the 2022-23 annual draw were made available at the end of March 2024. The reasons for the delay in publication relative to the accounting periods are:

- The need to wait until most companies have filed their accounts at Companies House.
- The incorporation of all company births and deaths.
- The careful checking of any changes in ownership, or corporate structure.
- The investigation of changes of location by companies into and out of the area.

This yields a comprehensive picture each year of the total employment of all companies that are based in the Cambridgeshire and Peterborough Combined Authority, Greater Cambridge, or Cambridge Ahead (Cambridge City Region) areas. It enables us to analyse the composition of growth split into growth of continuing businesses, less the decline due to companies dying or moving out of the area, plus the contribution to growth of company births and businesses moving into the area.

A full description of the methodology used can be found at:

<https://www.jbs.cam.ac.uk/wp-content/uploads/2023/04/cbr-10-cbr-database-methodology.pdf>

Various analyses can be found at:

<https://www.jbs.cam.ac.uk/centres/business-research-cbr/research/research-projects/project-the-cambridge-corporate-database-regional-growth/>

Updates

Timings

The current circumstances for business make it important to attempt to have more timely data. This can be achieved by using a sampling approach drawing upon the most recently published accounts.

We carry out two updates each year and this can be seen in Table A1. If we look at 2024, we propose April and October updates which will yield estimates of growth for the years to mid-October 2023 and mid-February 2024. These periods capture: the impact of the onset of recession in the second half of 2023 (April update); and the worst impacts of recession and early recovery (October update). However, it must be remembered that the update takes no account of births or deaths, or of changes in location.

Table A1 Summary of Greater Cambridge Employment Updates

Draw Name	Sample or All	Accounting year ends within:	Median growth period	Release date	Insight into:
<i>Annual draw 2021-22*</i>	All companies	6 th April 2021 to 5 th April 2022	Year to early December 2021	April 2023	Recovery from worst impacts of Covid
<i>Update April 2023**</i>	Sample	May 2022 to December 2022	Year to mid-October 2022	May 2023	Impact of the ongoing conflict in Ukraine on recovery from Covid
<i>Update October 2023**</i>	Sample	December 2022 to April 2023	Year to mid-February 2023	November 2023	Effects of unfolding cost of living crisis
<i>Annual draw 2022-23*</i>	All companies	6 th April 2022 to 5 th April 2023	Year to early December 2022	February 2024	Impact of the ongoing conflict in Ukraine and unfolding cost of living crisis
<i>Update April 2024**</i>	Sample	May 2023 to December 2023	Year to mid-October 2023	May 2024	Impact of the onset of recession
<i>Update October 2024**</i>	Sample	December 2023 to April 2024	Year to mid-February 2024	November 2024	Worst impacts of recession and early recovery

Notes: * commissioned and sponsored by Cambridge Ahead, Arm, Cambridgeshire and Peterborough Combined Authority, Greater Cambridge Partnership, Marshall of Cambridge and Mills & Reeve; ** commissioned and sponsored by the Greater Cambridge Partnership and Cambridge Ahead.

Update Sample (using April 2024 Update example)

We download data from FAME for any company in Cambridge, South Cambridgeshire, Huntingdonshire, or East Cambridgeshire that has available accounts for the periods ending between May and December 2023. We then check 2021-22 and 2022-23 employment data against the existing figures on the database. Differences can occur for a number of reasons and are corrected to ensure that consistency and accuracy are maintained across the years under review.

We eliminate companies from the update sample that do not have actual employment data for the last two years. Finally, we create a file with the following information for those remaining in the update sample (**3,436** companies this time representing total employment of **27,909**):

- Company name
- Company registration number
- LA District
- Sector
- KI or non-KI
- Size class in 2021-22 – 1 = 1 employee, 2 = 2-9 employees, 3 = 10 or more employees
- Latest employment 2022-23 (on average mid-October 2023)
- Employment 2021-22 (on average mid-October 2022)
- % change in employment over last year (i.e. on average to mid-October 2023)

Next, we produce a table showing the number of companies in each of the four KI sectors and nine non-KI sectors and their total employment in the latest and previous year. This table is then reproduced separately for our three size classes.

We then create three measures of growth over the latest year: the unweighted arithmetic mean, the median and the weighted mean. The first suffers from extreme values and also attaches the same importance to a large company as that for a small company. The second will often have the values of zero since a large proportion of companies do not change size. Therefore, it is the latter that we use for the next stage of the work.

Updating the corporate database for the Greater Cambridge area

We take from our corporate database all companies currently alive that are based in Cambridge or South Cambridgeshire. We select a sample of those companies that have accounting periods ending between May and December 2023 (whether, or not, they have yet reported). For companies that were included in the update sample we enter their employment data for the last three years. For the remaining companies that have not yet reported in 2022-23 we next download the latest FAME data and check employment data for the last three years against the existing figures on the database. Following this, we create a file with all the companies based in the Greater Cambridge area (**5,577** companies representing total employment of **76,600**) with the following information:

- Company name
- Company registration number
- Local Authority District
- Sector
- KI or non-KI

- Size class in 2021-22 (as above)
- Employment 2020-21
- Employment 2021-22
- Employment 2022-23
- % change in employment between 2021-22 and 2022-23

We now use the estimates of growth by size and sector from the update sample to create an estimate of the size of each company and sector in 2022-23. This allows us to examine the most recent growth of each sector and size class over the most recent year 2022-23 in comparison with the year 2021-22 for this sample of companies. The year 2022-23 covers the impact of the onset of recession in the second half of 2023, whereas the year 2021-22 captures the effects of the ongoing conflict in Ukraine on the recovery from Covid. Since the UK economy slipped into recession in the third quarter of 2023, companies with a December year end had a higher proportion of months during the recession period compared to other companies in the sample.

The resulting sample is shown in Appendices A1-A3 and these tables highlight how significant these companies are, representing over 67% of corporate employment in Greater Cambridge. The sample has a high coverage of total employment in this update because many large businesses have a December year end and so are captured in this update.

Analyses

Using the methodology described above we can compare the performance of our sectors over time and identify those sectors with the strongest growth in employment. A powerful tool for doing this is one that has as the horizontal axis the sector's employment growth rate in the year 2021-22 and as the vertical axis the annual growth shown in the update sample for 2022-23 – see Figure 2.4 above for an example. The position of the sector marker relative to the 45° line shows those growing more or less fast than last year. Sectors with positive growth in 2022-23 are found above the horizontal axis and those with positive growth in 2021-22 appear to the right of the vertical axis. This can be shown more informatively by having the size of the marker related to the total employment in that sector.

This type of chart can be used to examine different sectors, districts or company sizes. It is reinforced by an appendix that provides detailed tables (see Appendices A1-A3).