Growth within the CPCA over the past 12 years Findings from a longitudinal database*

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* 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.



Preamble

- The work presented in these slides is made possible by the existence of a high-quality longitudinal database of companies that the CBR has curated over the last decade.
- We have tracked births and deaths and the performance of surviving companies over a 12-year period and the database contains over 90,000 companies.
- This was made possible by long-term support of Cambridge Ahead and a loyal set of sponsors and we remain very grateful.



The T&C's

- We look either at companies that are **based** in the Cambridgeshire and Peterborough Combined Authority (CPCA) area or those based within 20 miles of Great St Mary's.
- Companies based in these areas can be either **independent** businesses or **subsidiaries** of UK or foreign businesses that have an identifiable company within the area.
- Our work does not cover national businesses based outside our areas such as retailers, banks or insurance companies although they do have employees in the Combined Authority area; nor does it cover non-corporate non-KI organisations.
- Companies are assigned to a single principal location and to a single principal sector.
- The companies covered are at the heart of the generation of economic activity in the Combined Authority area.
- When we compare our employment data (CBR) with employment data from ONS's Business Register and Employment Survey (BRES) we include in our measure the employment in local non-corporate KI research organisations.
- We also create a composite measure (CBR/BRES) with half the sectors taken from CBR data and half the sectors (where corporate employment is less) from BRES data.



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- 2. Recent growth within the CPCA by district and sector
- 3. Business demographics in the Cambridge City Region

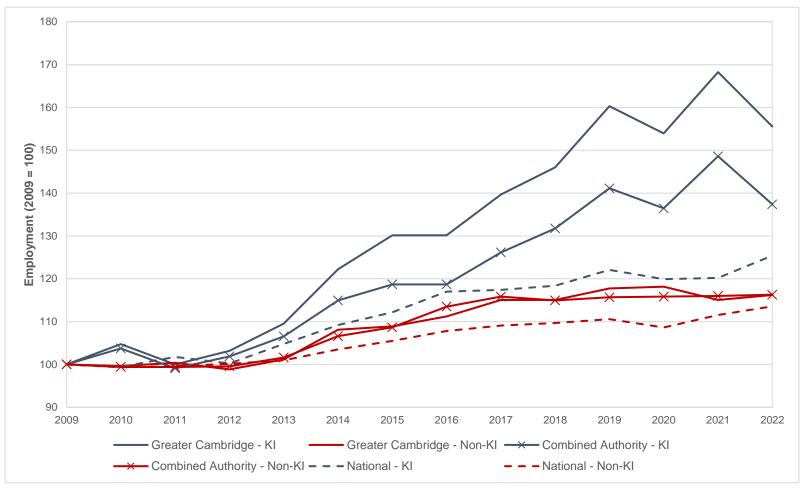


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BRES employment growth: Greater Cambridge and Combined Authority vs national



Source: CBR's calculations based on data from BRES (Nomis).

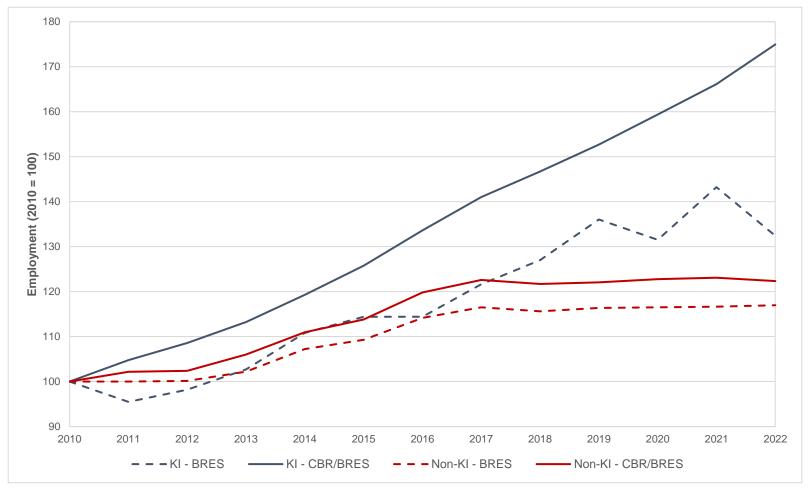


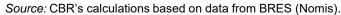
BRES employment growth: Greater Cambridge and Combined Authority vs national

- This chart looks at long-term employment growth in Greater Cambridge and in the wider Combined Authority area against the nation. It is based on data from BRES. We distinguish between KI sectors (the blue lines) and non-KI sectors (the red lines).
- The past decade was a rather turbulent period due to the Covid pandemic, the UK's cost-of-living crisis and more recently the economic recession. Nevertheless, our analysis reveals that the Combined Authority achieved robust employment growth and outperformed the nation.
- KI employment within the CPCA, particularly in Greater Cambridge, increased much faster than the national average.
- It would also appear that KI activity in Greater Cambridge has pulled the performance of non-KI sectors above the nation as a whole.
- How does this picture change if we take into account CBR data alongside BRES?



BRES vs CBR/BRES employment growth in the Combined Authority







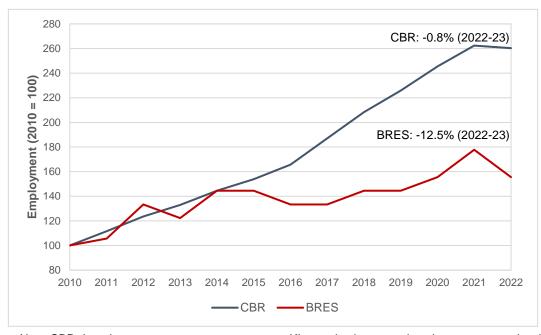
BRES vs CBR/BRES employment growth in the Combined Authority

- We find that the performance of KI and non-KI sectors within our region is even stronger when CBR data are combined with BRES data.
- Whilst the difference between BRES and CBR/BRES for non-KI sectors has remained largely unchanged over time, the gap for KI sectors has widened. BRES appears to be underrecording the growth of KI sectors in the local economy, possibly because of the limitations associated with the SIC classification.
- The widening gap between BRES and CBR/BRES partly reflects very different views about KI
 employment growth in the last year. Whilst CBR data points to continued growth in the local KI
 economy, BRES data suggests a substantial fall in KI employment.
- BRES figures for the latest year are very puzzling to say the least, particularly if we move to a
 more disaggregated sectoral level. The next couple of slides zoom in further to identify the
 main causes of the widening gap referred to earlier.

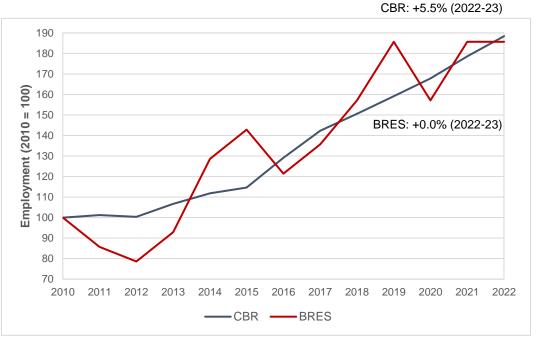


CBR vs BRES: examples of sector-level differences Cambridge

ICT



R&D



Note: CBR data does not cover non-corporate non-KI organisations, nor does it cover companies that are active but not based in the area. Source: CBR's calculations based on data from BRES (Nomis).

Organisation name	CBR empl change 2022-23
Arm (Cambridge estimate) Limited	-478
Luminance Technologies LTD	+51
EVI Technologies Limited	+46

Organisation name	CBR empl change 2022-23
Astrazeneca (Cambridge estimate) PLC	+265
British Antarctic Survey	+114
Lightcast Discovery LTD	+50



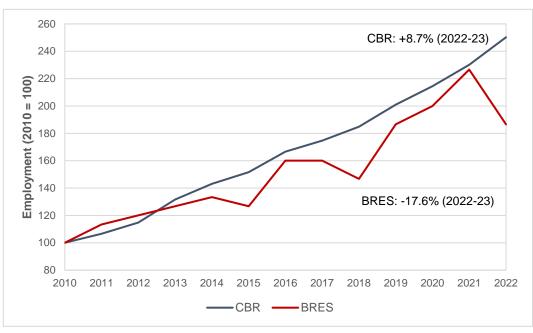
CBR vs BRES: examples of sector-level differences Cambridge

- A first example is the ICT sector in Cambridge, where BRES is reporting a 3.8% growth pa over the entire period compared with 8.3% pa from CBR. What is particularly puzzling is the massive drop in BRES employment in the latest year, -12.5% (corresponding to a loss of 1,000 employees).
- Even after taking into account Arm's reduction in Cambridge employment following their 2022 restructuring, we find a much more modest reduction of 0.8% (-70 employees).
- A second example is the Cambridge R&D sector. Although BRES and CBR point to very similar growth over the entire period (5.3% and 5.4% pa, respectively), BRES shows some very large fluctuations from one year to the next – these ups and downs are hard to explain in light of the evidence on the ground.

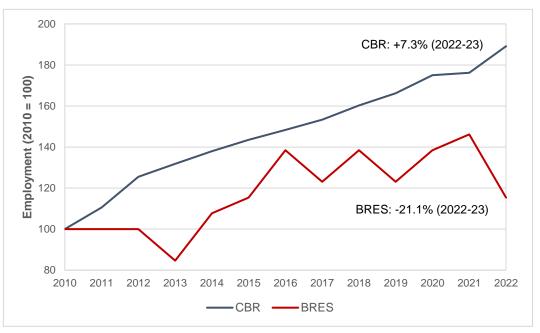


CBR vs BRES: examples of sector-level differences South Cambridgeshire

ICT



Knowledge intensive services



Note: CBR data does not cover non-corporate non-KI organisations, nor does it cover companies that are active but not based in the area. Source: CBR's calculations based on data from BRES (Nomis).

Organisation name	CBR empl change 2022-23
Frontier Developments PLC	+132
Darktrace Holdings (Cambridge estimate) Limited	+101
Bango PLC	+99

Organisation name	CBR empl change 2022-23
The Welding Institute	+72
Cambridge Design Partnership Limited	+68
Science Group PLC	+21



CBR vs BRES: examples of sector-level differences South Cambridgeshire

- This slide gives a couple more examples drawn from South Cambs.
- BRES and CBR depict very similar growth in the ICT sector until 2021-22, although BRES once again shows some noticeable fluctuations. There is an extremely large difference for the most recent year, with CBR showing growth of 8.7% and BRES a drop of 17.6%.
- The large drop in BRES employment during 2022-23 fails to recognise the growth that has happened locally with companies like Frontier, Darktrace and Bango just to name a few.
- The picture for Knowledge intensive services is perhaps even more puzzling. Overall, we find BRES data, particularly for the most recent year, very concerning and we will continue to explore this further.



BRES vs CBR/BRES employment growth pa 2010 to 2022 by district: KI and non-KI sectors

	KI s	ectors	Non-K	(I sectors	All sectors		
District	BRES	CBR/BRES	BRES	CBR/BRES	BRES	CBR/BRES	
Cambridge	3.9%	6.3%	1.4%	1.5%	1.9%	2.4%	
South Cambs	3.0%	5.2%	1.0%	2.1%	1.6%	3.2%	
Greater Cambridge	3.3%	5.7%	1.3%	1.7%	1.8%	2.7%	
East Cambs	2.0%	5.5%	2.0%	2.4%	1.9%	2.7%	
Hunts	-0.5%	3.5%	0.9%	1.0%	0.8%	1.2%	
Peterborough	0.8%	1.6%	1.4%	1.6%	1.4%	1.6%	
Fenland	1.9%	3.9%	1.5%	2.3%	1.4%	2.3%	
Combined Authority	2.4%	4.8%	1.3%	1.7%	1.5%	2.2%	

Note: CBR data does not cover non-corporate non-KI organisations, nor does it cover companies that are active but not based in the area. CBR/BRES combined uses CBR data for the first ten sectors (where CBR has a better coverage) and BRES data for the last ten sectors (where BRES has a better coverage). Source: CBR's calculations based on data from BRES (Nomis).

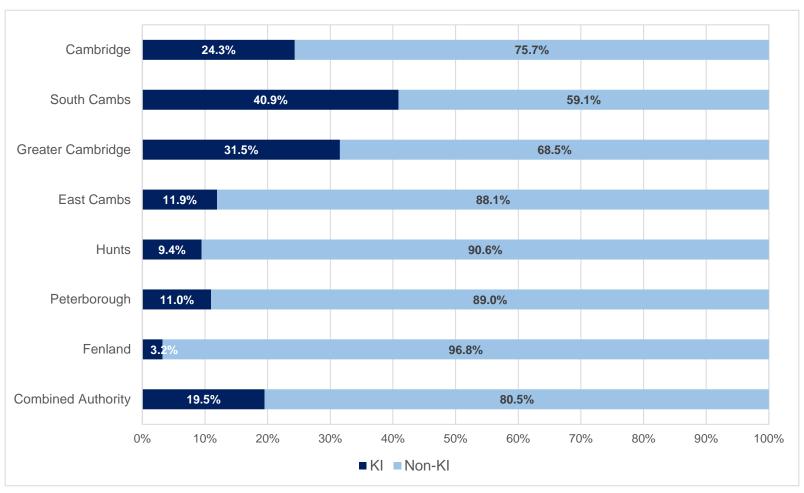


BRES vs CBR/BRES employment growth pa 2010 to 2022 by district: KI and non-KI sectors

- This table provides a more detailed comparison of ONS's view of long-term employment growth against CBR/BRES for the individual districts making up the Combined Authority area.
- CBR/BRES data tends to report a higher rate of growth than BRES, not just for Greater Cambridge but for the other four districts as well. The difference tends to be within 1 percentage point, with the exception of South Cambs. In this case, the difference becomes as large as 1.6 percentage points.
- These differences may sound small, but small differences in percentages over time may lead to large differences in employment levels.
- The largest discrepancy between BRES and CBR/BRES lies in KI sectors, where local knowledge and word searches to identify KI companies across a variety of SICs make us extremely confident about our coverage of the KI economy.
- The difference between BRES and CBR/BRES is more accentuated for Greater Cambridge than for other areas. This is explained by Greater Cambridge having a considerably higher share of employment in KI sectors compared with the other four districts, as can be seen in the next slide.



Knowledge intensity across the Combined Authority area: CBR/BRES employment



Note: CBR data does not cover non-corporate non-KI organisations, nor does it cover companies that are active but not based in the area. CBR/BRES combined uses CBR data for the first ten sectors (where CBR has a better coverage) and BRES data for the last ten sectors (where BRES has a better coverage).

Source: CBR's calculations based on data from BRES (Nomis).



Knowledge intensity across the Combined Authority area: CBR/BRES employment

- This chart illustrates differences in KI intensity across the Combined Authority area.
- Greater Cambridge is home to one of the leading scientific and high-technology clusters in the world, which generates a sizeable share of the total jobs in the local economy. At the last count, about a third of Greater Cambridge employment was in KI sectors. KI intensity in Greater Cambridge has increased over time from 22% a decade ago.
- The exceptional 'Klness' of Greater Cambridge becomes apparent when considered alongside other areas. For example, KI employment accounts for 12% of total employment in East Cambs, 11% in Peterborough and 9% in Hunts. Fenland has the lowest figure, with 3% of employment in KI sectors.
- This and the previous charts point to some important differences across districts and sectors within the Cambridgeshire and Peterborough region. We now explore this further by looking at recent growth within the CPCA by district and sector.

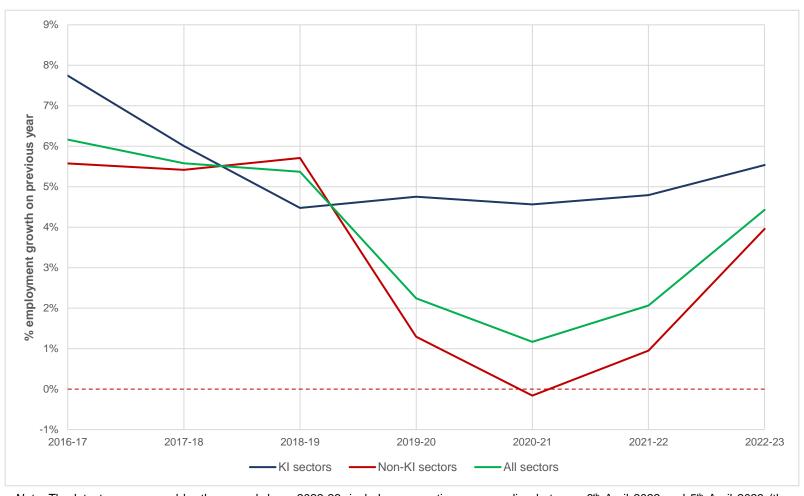


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CBR corporate employment growth pa 2016-17 to 2022-23 in the Combined Authority area



Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022).

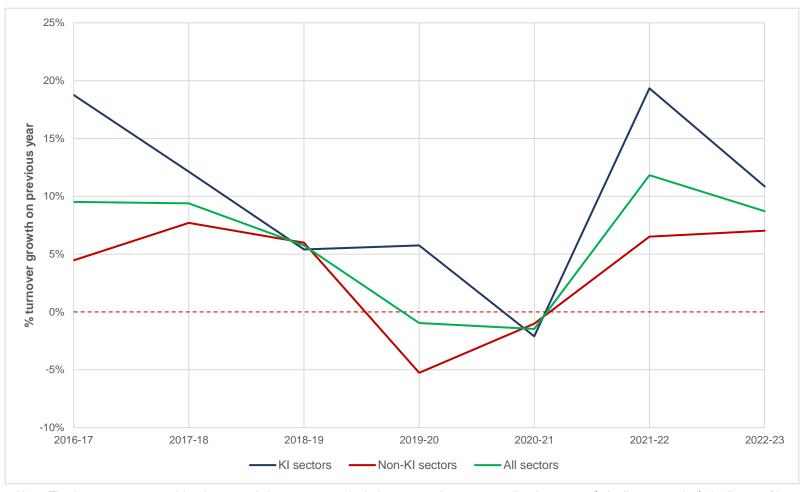


CBR corporate employment growth pa 2016-17 to 2022-23 in the Combined Authority area

- This chart shows annual corporate employment growth in the Combined Authority during the past six years. It distinguishes between KI sectors (the blue line) and non-KI sectors (the red line). The green line is for all sectors combined.
- Broadly speaking, we can identify three periods: the pre-Covid years (up to 2019-20); the Covid years (2020-21 and 2021-22); and the latest year (2022-23).
- We can see that growth in KI sectors was consistently high at around 5% pa. By contrast, non-KI growth was closer to KI growth at the start of the period before slowing down in 2019-20, largely as a result of the collapse of Peterborough-based Thomas Cook. Non-KI growth was the lowest during the Covid affected years but has been recovering since.
- As a result, overall growth in the Combined Authority was strong in the most recent year at 4.4%. This figure is all the more remarkable if one considers that it happened against a backdrop of rising cost of living and an impending recession.



CBR corporate turnover growth pa 2016-17 to 2022-23 in the Combined Authority area



Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022).



CBR corporate turnover growth pa 2016-17 to 2022-23 in the Combined Authority area

- This chart provides an equivalent picture based on turnover.
- Whilst the results are broadly consistent with those based on employment, there are a couple of observations that are worth making.
- First, the results presented in this chart bear witness to the important role played by the furlough scheme, which held up employment in sectors with declining sales during Covid.
- Second, we can notice that turnover suffered a steep decline during the pandemic but bounced back in 2021-22. Since then, it has resumed its usual pattern of showing higher growth than employment.



CBR corporate employment growth pa across the Combined Authority area: the Covid impact on KI and non-KI sectors

	% KI AII					KI		Non-KI			
District	2022-23	Latest year 2022-23	Covid years 2020-22	Pre-Covid years 2017-20	Latest year 2022-23	Covid years 2020-22	Pre-Covid years 2017-20	Latest year 2022-23	Covid years 2020-22	Pre-Covid years 2017-20	
Cambridge	47%	5.7%	3.8%	6.8%	3.8%	10.7%	11.3%	7.5%	-1.5%	3.9%	
South Cambridgeshire	52%	5.9%	2.4%	5.0%	8.2%	4.2%	4.9%	3.5%	0.7%	5.1%	
Greater Cambridge	50%	5.8%	3.0%	5.7%	6.5%	6.5%	7.0%	5.1%	-0.2%	4.6%	
East Cambridgeshire	18%	2.2%	-0.3%	6.4%	3.1%	0.6%	7.5%	2.0%	-0.4%	6.2%	
Huntingdonshire	14%	4.5%	0.1%	1.7%	3.7%	0.4%	1.9%	4.6%	0.0%	1.6%	
Peterborough	19%	4.0%	1.3%	4.0%	4.3%	0.7%	-0.6%	3.9%	1.4%	5.2%	
Fenland	6%	0.6%	1.3%	3.9%	-7.5%	6.0%	6.9%	1.2%	1.0%	3.7%	
Combined Authority	30%	4.4%	1.6%	4.4%	5.5%	4.7%	5.1%	4.0%	0.4%	4.1%	

Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022).

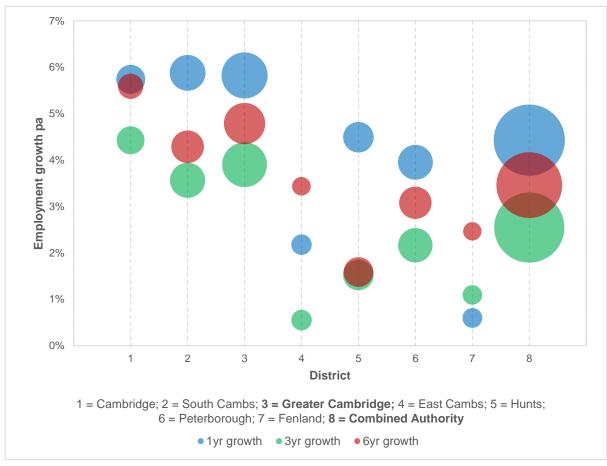


CBR corporate employment growth pa across the Combined Authority area: the Covid impact on KI and non-KI sectors

- Let us now explore how the individual districts within the CPCA have fared in each of the three
 periods mentioned earlier. The first part of this table shows corporate employment growth in the
 latest year, the Covid years and the pre-Covid years for all sectors. The second part of the
 table provides an equivalent comparison for KI and non-KI sectors.
- If we look at all sectors first, we can see that employment growth in the Combined Authority as a whole in the last year reached a virtually identical figure to growth prior to the onset of the pandemic, after suffering a slowdown during the Covid years.
- The picture for Greater Cambridge is very similar, although employment growth in the Greater Cambridge corporate economy during Covid was higher than in other parts of the region. This was driven by the buoyant performance of KI sectors in Greater Cambridge, which continued to grow at 6.5% pa despite Covid-related restrictions.
- KI growth during Covid in the other districts was generally more modest (the 6% growth pa for Fenland is misleading given the relatively small size of its KI economy). The table also suggests that non-KI growth was generally more impacted by Covid than KI growth.
- Whilst Peterborough is also now back to pre-Covid growth, East Cambs and Fenland saw lower growth in the most recent year compared with the years prior to Covid. Conversely, last year's employment growth in Hunts was higher than pre-Covid growth.



One-, three- and six-year employment growth in the corporate sector by district



Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022). The size of each bubble is proportionate to the number of employees at the start of each period (e.g. 2016-17 for six-year employment growth) on a continuous scale.

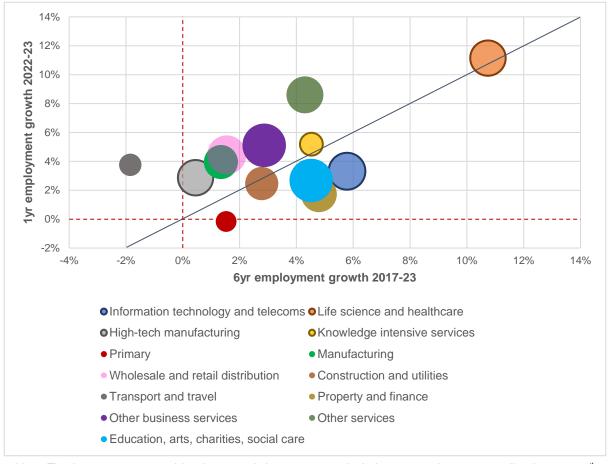


One-, three- and six-year employment growth in the corporate sector by district

- This chart provides an additional analysis of corporate employment growth across districts over the past one, three and six years.
- We find that last year's employment growth (the blue bubbles) was generally higher than threeand six-year employment growth. The exception is East Cambs (district number 4 in this slide), where employment growth last year was lower than growth over the entire six-year period (the red bubbles).
- Three-year growth (the green bubbles) was generally the lowest, reflecting the Covid impact discussed in the previous slide.
- Let us now turn to differences in employment growth across industry sectors.



CBR corporate employment growth pa by sector in the Combined Authority area: one year vs six years



Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022). The size of each bubble is proportionate to the number of employees in 2022-23 on a continuous scale. Bubbles with an outline identify KI sectors.



CBR corporate employment growth pa by sector in the Combined Authority area: one year vs six years

- This chart compares the 13 sectors in the Combined Authority (4 KI sectors, identified by the bubbles with an outline, and 9 non-KI sectors) based on their corporate employment growth in the last year (on the vertical axis) and over the past six years (on the horizontal axis). The position of each bubble relative to the 45° line shows whether last year the sector grew more or less fast than the six-year average.
- We can see that 8 out of 13 sectors exhibited faster growth in the most recent year. The
 performance of the Life Science sector, the orange bubble with an outline, stands out when
 examined this way.
- With the exception of the Primary sector, which saw a slight reduction in employment, last year's employment growth was positive across the board. It is particularly encouraging to see sectors like 'Other services' (the dark green bubble e.g. hospitality businesses) and 'Wholesale and retail distribution' (the pink bubble), which were severely affected by Covid, show strong growth in the most recent year and continued recovery.

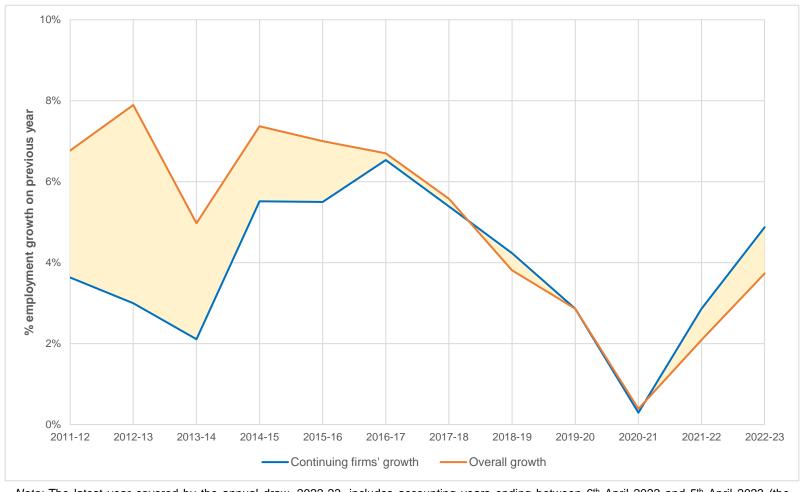


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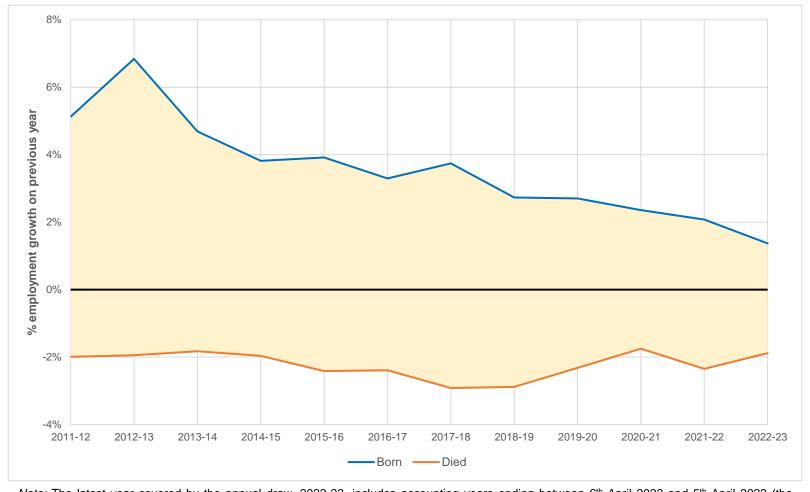
Contribution of net entrants to corporate employment growth in the Cambridge City Region



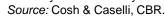
Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022). The contribution of net entrants to corporate employment growth is represented by the shaded area. *Source:* Cosh & Caselli, CBR.



Contribution of net births to corporate employment growth in the Cambridge City Region



Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022).





5 yrs employment growth for different business cohorts - for all companies alive in 2017-18

		All Sectors			KI Sectors		Non-KI Sectors			
Business cohorts	Number of companies	Employment 2017-18	Growth 2017-18 to 2022-23 %pa	Number of companies	Employment 2017-18	Growth 2017-18 to 2022-23 %pa	Number of companies	Employment 2017-18	Growth 2017-18 to 2022-23 %pa	
Companies born in 2017-18	2,612	5,964	3.7%	570	866	12.5%	2,042	5,098	1.9%	
Companies born in 4yrs before 2017-18	6,147	20,086	1.6%	1,252	4,526	12.6%	4,895	15,560	-2.8%	
Other companies alive in 2017-18	16,236	146,041	0.5%	3,317	51,071	3.2%	12,919	94,970	-1.1%	
All companies alive in 2017-18	24,995	172,091	0.7%	5,139	56,463	4.3%	19,856	115,628	-1.2%	

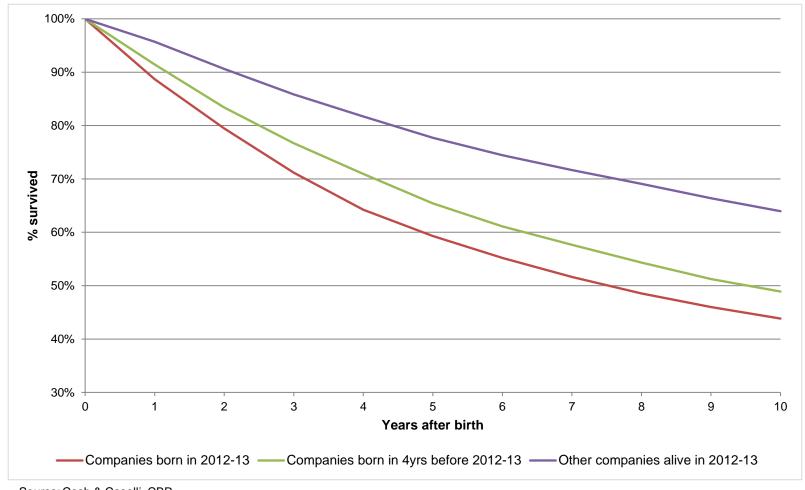


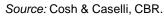
Employment growth over 8 yrs for different business cohorts - for all companies alive in 2014-15

		All Sectors			KI Sectors		Non-KI Sectors			
Business cohorts	Number of companies	Growth 2014-15 to 2018-19 %pa	Growth 2018-19 to 2022-23 %pa	Number of companies	Growth 2014-15 to 2018-19 %pa	Growth 2018-19 to 2022-23 %pa	Number of companies	Growth 2014-15 to 2018-19 %pa	Growth 2018-19 to 2022-23 %pa	
Companies born in 2014-15	2,693	5.2%	5.5%	589	17.1%	19.4%	2,104	2.4%	-0.6%	
Companies born in 4yrs before 2014-15	5,951	2.7%	-1.9%	1,262	3.7%	4.1%	4,689	2.5%	-3.4%	
Other companies alive in 2014-15	14,033	2.6%	0.3%	2,885	4.0%	3.3%	11,148	1.8%	-1.7%	
All companies alive in 2014-15	22,677	2.7%	0.3%	4,736	4.3%	4.0%	17,941	1.9%	-1.9%	



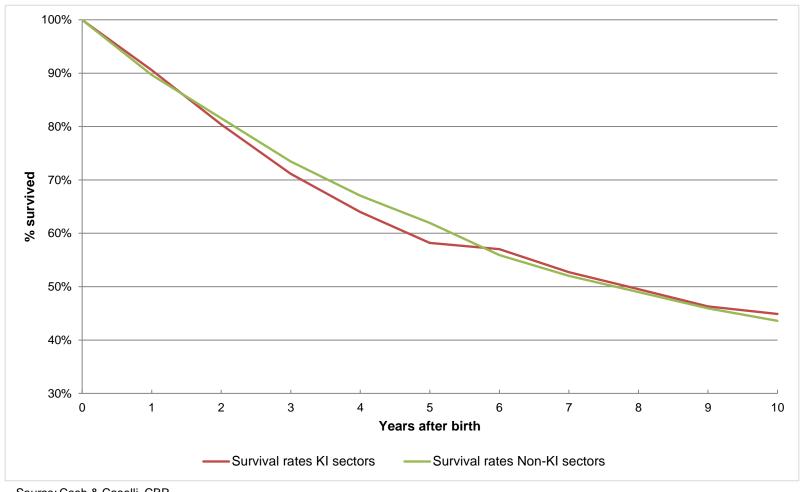
Survival rates for the different cohorts alive in 2012-13







Survival rates for new companies - KI and Non-KI sectors (averaged across three years)





Birth cohorts analysis

- Measurement of corporate births and deaths is a time-consuming task and is not helped by simplistic measures that are readily available. Corporate reorganisations and name changes can be taken mistakenly as births and deaths and companies can be 'born' only to sit dormant for many years.
- Over the last 12 years net births and location changes have moved from making a significant contribution to employment growth to having a small negative effect.
- It is the falling impact of company births that is the principal cause. Net moves have had about -0.5% pa impact on employment growth. The impact of deaths has remained at about -2% pa. The immediate impact of births on employment growth has fallen from 4.6% pa in the first half to 2.5% pa in the second half of the period.
- This negative picture is offset by our cohorts analysis which shows the subsequent performance of births offsets deaths by so much more than simply their employment level at birth.
- Newly born companies, particularly those in KI sectors, show a much higher rate of growth than established companies even after taking account of their lower survival rate. Companies born in 2014-15 (2017-18) represented 4% (3%) of employment when born but contributed 15% (19%) of growth in employment over the next 5 (8) years.
- KI and non-KI new borns typically lose 30% in the first 3 years and 50% within 8 years.



Final words

- Company databases of company reports do form the basis of our database, but very detailed work is needed to create something that is meaningful.
- This detailed work leads to correction of companies' assigned sectors and stated locations and the elimination of double-counting through pyramids of ownership.
- The annual curation of this database provides the sampling frame for our updates that give us a current picture of employment growth in our region across sectors.
- Whilst we do not engage in forecasting, we do provide a highly accurate picture of recent performance which is the starting point for good forecasting.



Growth within the CPCA over the past 12 years: Findings from a longitudinal database

Q&A



Appendix



CBR corporate employment across the Combined Authority area: selected years

	% KI	All				KI				Non-KI			
District	2022-23	Empl 2022-23	Empl 2021-22	Empl 2019-20	Empl 2017-18	Empl 2022-23	Empl 2021-22	Empl 2019-20	Empl 2017-18	Empl 2022-23	Empl 2021-22	Empl 2019-20	Empl 2017-18
Cambridge	47%	42,741	40,420	37,532	30,840	20,023	19,281	15,734	11,427	22,718	21,139	21,798	19,413
South Cambridgeshire	52%	65,835	62,179	59,266	51,173	33,907	31,340	28,877	25,029	31,928	30,839	30,389	26,144
Greater Cambridge	50%	108,576	102,599	96,798	82,013	53,930	50,621	44,611	36,456	54,646	51,978	52,187	45,557
East Cambridgeshire	18%	20,615	20,176	20,278	16,833	3,675	3,565	3,522	2,833	16,940	16,611	16,756	14,000
Huntingdonshire	14%	47,021	45,000	44,935	42,778	6,808	6,565	6,508	6,148	40,213	38,435	38,427	36,630
Peterborough	19%	60,760	58,450	56,977	50,649	11,655	11,177	11,030	11,215	49,105	47,273	45,947	39,434
Fenland	6%	19,022	18,909	18,411	16,437	1,121	1,212	1,078	882	17,901	17,697	17,333	15,555
Combined Authority	30%	255,994	245,134	237,399	208,710	77,189	73,140	66,749	57,534	178,805	171,994	170,650	151,176

Note: The latest year covered by the annual draw, 2022-23, includes accounting years ending between 6th April 2022 and 5th April 2023 (the median year end is early December 2022). Source: Cosh & Caselli, CBR.

You can create the numbers in this table using the Cambridge Cluster Insights interactive dashboard. The following selections will reveal 11,030 employees:

Area: **Combined Authority**Organisation type: **LEP based**

Year: 2019-20

Local Authority District: Peterborough

Knowledge Intensive: 1

You can also use the dashboard for other explorations.

