

ANALYSIS OF ONS
EMPLOYMENT
MEASURES

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Abstract

The ONS produces a wide variety of measures of employment in the UK. These measures have different methods and outcomes, which have important implications as one moves to a more geographically disaggregated level of analysis. A key difference between the ONS measures of employment is whether they are based on the employees' place of residence or their place of work. If one is interested in exploring sub-regional employment dynamics (and clustering is indeed about sub-regional analysis), BRES is the only relevant measure. BRES gives good coverage relative to other measures and is the only ONS measure that can both cover district-level workbased employment and provide this information at the sector level. However, BRES has shown some significant volatility in the estimation of Greater Cambridge's employment performance in recent years, particularly for KI sectors. This points to important difficulties with using BRES data to capture employment growth in a dynamic, knowledge intensive economy like Greater Cambridge. In recent years, CBR suggests higher employment growth than BRES, with this divergence being particularly pronounced in KI sectors. We are keen to continue working on this to help ONS find ways of further improving BRES.

Keywords: Employment growth; Innovation cluster; Knowledge economy; Official statistics.

JEL Codes: J21; L16; R11

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1. Introduction

The Centre for Business Research (CBR) at the University of Cambridge has developed a unique method to assess the scale, make-up and growth rate of economic activity in the Cambridgeshire and Peterborough region. This method, which is based on an annual business census and helps overcome some of the weaknesses associated with survey-based methods, has resulted in a longitudinal database with information on over 100,000 businesses and other organisations across the region. CBR's data and analyses feed into an employment-based approach to housing and infrastructure planning that can support a sustainable local economy and improve the quality of life for those who live here.

The CBR database covers companies that are based in the region but is enhanced to some extent by an annual survey of the major non-corporate knowledge intensive (KI) research organisations in the Cambridge city region (e.g. Addenbrooke's Hospital, the MRC Laboratory of Molecular Biology and the Sanger Institute). Included in the CBR database are also individual state-funded schools in the Cambridgeshire and Peterborough region, identified using the School Workforce Census statistics published annually by the Department for Education.

However, the CBR database does not cover the local employment of national businesses based outside the region such as supermarkets, banks or insurance companies although they do have employees in the region; nor does it cover public sector activities other than education. Another potential weakness of CBR data is that it allocates businesses to their principal sector and to their principal location. On the other hand, the CBR data is auditable, transparent, and places businesses to a specific location. On balance, therefore, it would be useful to combine the CBR data with reliable Office for National Statistics (ONS) data to obtain a full picture of employment in a sub-regional economy. We now turn to see what ONS can provide.

2. Overview of ONS employment measures

Employment in the UK is measured using several datasets published and maintained by ONS. Each dataset captures a different aspect of employment and makes use of different methodologies and data sources. In this report, we consider five main ONS employment measures.

- **Business Register and Employment Survey (BRES)** – BRES is regarded by ONS as the official source of employee and employment estimates by detailed geography and industry in the UK (ONS, 2025a). It produces estimates of **employees** (anyone aged 16 or over paid directly from an employer’s payroll) and **employment** (employees plus working owners, e.g. sole traders, sole proprietors and partners) based on an annual business survey with September as its reference date – the sample includes approximately 87,000 businesses. ONS warns users that BRES is a point-in-time snapshot and is not designed as a time series (ONS, 2026). A key distinguishing feature of BRES is that employees and employment are based on where the employer is located, not where employees live.
- **Labour Force Survey (LFS)** – The LFS is the primary source for headline employment and unemployment statistics in the UK. It is a household survey conducted quarterly that measures people in employment rather than jobs. Its employment definition follows International Labour Organisation (ILO) standards and captures both employees and self-employed, as well as unpaid family workers. The LFS differs from BRES in that employees and employment are based on where people live, not where the employer is located. The sample is currently made up of approximately 29,000 households (or 63,000 individual respondents) per quarter. Due to ongoing challenges with response rates, levels and weighting approach, both the LFS and the Annual Population Survey (APS) are designed as official statistics in development. The ONS points out that estimates of change should be treated with caution because of the volatility of LFS and APS estimates (ONS, 2025b).
- **Annual Population Survey (APS)** – The APS is a household survey designed to provide estimates of key social and labour market variables at the local area level between Censuses. It combines data collected from two waves of the main LFS with local sample boosts for England and Wales. Like the LFS, it uses the ILO definition of employment and is published quarterly. The sample size is approximately 80,000 households (or 175,000 individual respondents) on each annual APS dataset. Employees and employment are based on where people live, but an APS workbased measure of employment is also produced by ONS. Each person is counted once, and their main job is used for classification and workplace. Whilst the APS has the largest sample size of any household survey, it is subject to similar challenges as the LFS.
- **Payrolled employees from Pay As You Earn (PAYE) Real Time Information (RTI)** – PAYE RTI is an administrative data source derived from HMRC’s tax collection system. It measures payrolled employees only, that is, people employed in at least one job paid through the PAYE system. This measure, which was first introduced during Covid and has

data going back to 2014, covers the entire payrolled employee population of the UK, not just a sample. It is a more timely measure of employees than e.g. BRES, being published on a monthly basis, but it differs from the latter as it based on people's place of residence rather than their place of work.

- **Census** – The Census is a decennial enumeration of the entire UK population that collects information on economic activity including employment status, occupation, industry and hours worked for all usual residents aged 16 and over. The most recent Census took place on 21 March 2021. The Census employment definition is broad, capturing employees, self-employed, those on government training schemes and unpaid family workers. This source has better geographic granularity and population coverage than the other ONS measures, but it should be noted that the 2021 Census coincided with the COVID-19 pandemic which will have affected comparability with earlier Censuses (particularly with regard to place of work).

3. Comparison of ONS employment measures

This section compares the employment coverage and growth rates between the various measures of employment published by ONS.

3.1. Differences in coverage between ONS employment measures

We begin by examining the coverage of these different employment measures relative to BRES. We take 2021 as the reference year to enable a comparison with employment figures from the 2021 Census. We look at employment first and then employees, starting with figures for the UK as a whole.

The table below shows that BRES has a larger coverage of UK employment than all the other measures. LFS (98%) is the closest to BRES, whereas the Census (94%) is the furthest. The two APS measures show a similar coverage. BRES's larger coverage is somewhat counterintuitive at a first glance, given that household surveys such as the APS and LFS are often assumed to provide broader coverage of employment by capturing self-employment and other non-standard forms of work. The larger coverage of BRES might be due to individuals holding more than one job being counted multiple times in BRES (once for each job).

Table 3.1 Differences in coverage between ONS measures: UK employment

Data Source	2021	2021 Ratios to BRES
BRES Employment	32,150,900	100%
APS Employment	30,838,000	96%
APS Workbased Employment	30,618,300	95%
LFS Employment	31,369,640	98%
Census – Employment	30,148,836	94%

Source: CBR’s analysis based on ONS data.

The employment figures for East of England portray a different picture. LFS (104%) and Census (101%) have a greater coverage than BRES. The two APS measures are starkly different. Whilst the main APS measure has virtually the same employment figure as BRES, the APS workbased measure has a much lower coverage – this suggests that a significant number of people who live in East of England commute out of the region for work.

Table 3.2 Differences in coverage between ONS measures: East of England employment

Data Source	2021	2021 Ratios to BRES
BRES Employment	2,919,100	100%
APS Employment	2,921,000	100%
APS Workbased Employment	2,633,900	90%
LFS Employment	3,048,791	104%
Census – Employment	2,951,030	101%

Source: CBR’s analysis based on ONS data.

The findings are reversed for the Cambridgeshire and Peterborough Combined Authority (CPCA) area. The Census measure is only 89% of BRES. In turn, the APS workbased measure is a bit higher than the other APS measure, suggesting that people commute into the CPCA for work. The table also shows that the gaps between BRES and the other measures are wider for the CPCA than they are for the nation as a whole.

Table 3.3 Differences in coverage between ONS measures: CPCA employment

Data Source	2021	2021 Ratios to BRES
BRES Employment	475,000	100%
APS Employment	408,500	86%
APS Workbased Employment	416,600	88%
LFS Employment	n.a.	n.a.
Census – Employment	424,454	89%

Source: CBR’s analysis based on ONS data.

The gaps between BRES and the other measures become considerably wider when measuring employees than when measuring employment. This suggest that the removal of self-employment from the total count affects each measure differently, depending on how self-employment is defined, captured and allocated across the different measurement frameworks. The BRES figure for UK employees is only 1m less than employment, but the APS and Census measures are over 4m less. As a result, the APS and Census measures of employees are only 86% and 81% of BRES respectively. The figure for the Census is strikingly low, possibly because many furloughed employees might have reported themselves as not in employment on the Census form while retaining a formal employment relationship. PAYE RTI (94%) has a greater coverage than APS and Census but is still below BRES.

Table 3.4 Differences in coverage between ONS measures: UK employees

Data Source	2021	2021 Ratios to BRES
BRES Employees	31,099,100	100%
APS Employees	26,848,500	86%
Payrolled employees from PAYE RTI	29,104,201	94%
Census – Employees	25,339,372	81%

Source: CBR’s analysis based on ONS data.

The employee figures for East of England largely mirror the findings for the UK as a whole. BRES employees are only 100K less than employment, whereas the APS and Census measures are over 400K less. This means that APS and Census are only 89% and 86% of BRES respectively. The PAYE RTI figure is very close to BRES.

Table 3.5 Differences in coverage between ONS measures: East of England employees

Data Source	2021	2021 Ratios to BRES
BRES Employees	2,828,700	100%
APS Employees	2,522,700	89%
Payrolled employees from PAYE RTI	2,792,824	99%
Census – Employees	2,428,867	86%

Source: CBR’s analysis based on ONS data.

The employee coverage of APS and Census relative to BRES is even lower if one looks at the CPCA. Whilst the BRES employee figure is only 15K less than employment, the APS and Census employee figures are over 40K less. Consequently, the APS and Census measures of employees are only 79% and 78% of BRES respectively. We can also notice that PAYE RTI drops to 89% of the BRES measure.

Table 3.6 Differences in coverage between ONS measures: CPCA employees

Data Source	2021	2021 Ratios to BRES
BRES Employees	460,500	100%
APS Employees	364,000	79%
Payrolled employees from PAYE RTI	410,452	89%
Census – Employees	360,298	78%

Source: CBR’s analysis based on ONS data.

The differences between the various ONS measures are apparent and call for some further investigation for the individual districts making up the CPCA. The table below compares the figures across ONS sources for the Cambridge local authority district. We can see that all measures pick up a low proportion of BRES. The Census appears to have the weakest coverage (58% for employment and 51% for employees). The APS workbased employment figure is puzzling – it is more than twice that of the other APS employment measure (124% and 59% respectively), suggesting a disproportionate inward commuting for work.

Table 3.7 Differences in coverage between ONS measures: Cambridge

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	112,500	100%
APS Employment	65,900	59%
APS Workbased Employment	139,700	124%
Census – Employment	65,351	58%
Employees		
BRES Employees	110,500	100%
APS Employees	61,400	56%
Payrolled employees from PAYE RTI	63,339	57%
Census – Employees	56,500	51%

Source: CBR’s analysis based on ONS data.

In South Cambridgeshire, APS, PAYE RTI and Census pick up a low proportion of BRES, albeit higher than for Cambridge. For instance, Census employment is 90% of BRES employment and PAYE RTI employees is 88% of BRES employees. The APS workbased employment figure looks puzzling but in the opposite direction, which suggests substantial outward commuting for work.

Table 3.8 Differences in coverage between ONS measures: South Cambridgeshire

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	89,500	100%
APS Employment	73,900	83%
APS Workbased Employment	38,700	43%
Census – Employment	80,664	90%
Employees		
BRES Employees	86,500	100%
APS Employees	65,600	76%
Payrolled employees from PAYE RTI	76,475	88%
Census – Employees	67,271	78%

Source: CBR’s analysis based on ONS data.

The picture for Greater Cambridge as a whole shows that the APS, PAYE RTI and Census measures all have a lower coverage than BRES (e.g. 63% for Census employees). The APS workbased employment figure is higher than the main APS measure but is below 100%. These numbers suggest that the gap in coverage between BRES and the other measures tends to widen as one moves to a more spatially disaggregated level of analysis. The consistently large gaps between

BRES and the residence-based and household survey measures could be explained by Greater Cambridge's exceptional inward commuting patterns. Greater Cambridge is a major employment centre relative to its resident population, attracting large numbers of workers from the rest of the CPCA and beyond.

Table 3.9 Differences in coverage between ONS measures: Greater Cambridge

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	202,000	100%
APS Employment	139,800	69%
APS Workbased Employment	178,400	88%
Census – Employment	146,015	72%
Employees		
BRES Employees	197,000	100%
APS Employees	127,000	64%
Payrolled employees from PAYE RTI	139,814	71%
Census – Employees	123,771	63%

Source: CBR's analysis based on ONS data.

The picture for East Cambridgeshire is markedly different. With the exception of APS workbased employment, all ONS measures exhibit a greater coverage than BRES (e.g. 124% for Census employment and 125% for PAYE RTI employees). The APS workbased employment number is well below the main APS employment figure (92% and 127% respectively). These figures suggest that a significant proportion of the people living in East Cambridgeshire work elsewhere.

Table 3.10 Differences in coverage between ONS measures: East Cambridgeshire

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	35,500	100%
APS Employment	45,000	127%
APS Workbased Employment	32,800	92%
Census – Employment	43,929	124%
Employees		
BRES Employees	33,000	100%
APS Employees	39,000	118%
Payrolled employees from PAYE RTI	41,285	125%
Census – Employees	36,306	110%

Source: CBR’s analysis based on ONS data.

For Huntingdonshire, the findings are mixed. The Census has the largest figure in terms of employment (111% coverage) but the lowest in terms of employees (98%). PAYE RTI reports a higher number of employees (108%) than BRES. The main APS measure also shows higher figures than BRES, whilst the APS workbased employment ratio (78%) looks surprisingly low given the other ratios.

Table 3.11 Differences in coverage between ONS measures: Huntingdonshire

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	80,500	100%
APS Employment	87,200	108%
APS Workbased Employment	63,000	78%
Census – Employment	89,551	111%
Employees		
BRES Employees	78,000	100%
APS Employees	78,900	101%
Payrolled employees from PAYE RTI	84,400	108%
Census – Employees	76,225	98%

Source: CBR’s analysis based on ONS data.

The comparison for Peterborough shows some similarity with that for Cambridge. All measures capture a low proportion of BRES, though this time it is the main APS measure that comes with the weakest coverage (80% for employment and 73% for employees). The APS workbased employment figure is noticeably higher than the other APS employment measure (91% and 80% respectively), consistent with significant commuting into the district.

Table 3.12 Differences in coverage between ONS measures: Peterborough

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	117,500	100%
APS Employment	93,900	80%
APS Workbased Employment	106,400	91%
Census – Employment	98,644	84%
Employees		
BRES Employees	115,000	100%
APS Employees	83,900	73%
Payrolled employees from PAYE RTI	100,345	87%
Census – Employees	84,909	74%

Source: CBR’s analysis based on ONS data.

Like East Cambridgeshire, the figures for Fenland suggest that a significant proportion of the people living in the district commute outwards for work. Census and PAYE RTI show larger figures than BRES (as high as 121% for PAYE RTI). The APS measure has a larger coverage than BRES in terms of employment, yet a lower coverage in terms of employees. The APS workbased employment is more than 6k less compared with the other APS measure.

Table 3.13 Differences in coverage between ONS measures: Fenland

Data Source	2021	2021 Ratios to BRES
Employment		
BRES Employment	39,000	100%
APS Employment	42,600	109%
APS Workbased Employment	35,900	92%
Census - Employment	46,315	119%
Employees		
BRES Employees	37,000	100%
APS Employees	35,200	95%
Payrolled employees from PAYE RTI	44,608	121%
Census - Employees	39,087	106%

Source: CBR’s analysis based on ONS data.

3.2. Stability of ONS employment ratios

The comparison presented so far has unveiled significant differences in coverage between the various ONS employment measures. It is therefore instructive to explore the stability of the employment ratios over time.

The tables below compare the 2021 employment ratios discussed above against the average 2023 and 2024 ratios, starting with Greater Cambridge. The ratios appear reasonably stable overall, but there are some exceptions which are highlighted in grey in the tables.

We can see that all the discrepancies relate to the APS measure, with Cambridge and South Cambridgeshire moving in opposite directions and little overall change for Greater Cambridge. In Cambridge, the APS has picked up an even lower proportion of BRES employment in 2023/24 (59% in 2021 versus 49% in 2023/24). In turn, APS workbased employment has fallen to a more reasonable level and is now more aligned with BRES (from 124% in 2021 to 103% in 2023/24). In South Cambridgeshire, the APS has picked up a higher proportion of BRES employment (90% in 2023/24, up from 83% in 2021), while APS workbased employment has risen to a more reasonable level.

Table 3.14 Stability of ONS employment ratios: Greater Cambridge

Area	Data Source	2021	2021 Ratios to BRES	Ave 23 & 24 ratios
Cambridge	BRES Employment	112,500	100%	100%
Cambridge	BRES Employees	110,500	100%	100%
Cambridge	APS Employment	65,900	59%	49%
Cambridge	APS Employees	61,400	56%	46%
Cambridge	APS Workbased Employment	139,700	124%	103%
Cambridge	Payrolled employees from PAYE RTI	63,339	57%	58%
South Cambridgeshire	BRES Employment	89,500	100%	100%
South Cambridgeshire	BRES Employees	86,500	100%	100%
South Cambridgeshire	APS Employment	73,900	83%	90%
South Cambridgeshire	APS Employees	65,600	76%	86%
South Cambridgeshire	APS Workbased Employment	38,700	43%	63%
South Cambridgeshire	Payrolled employees from PAYE RTI	76,475	88%	90%
Greater Cambridge	BRES Employment	202,000	100%	100%
Greater Cambridge	BRES Employees	197,000	100%	100%
Greater Cambridge	APS Employment	139,800	69%	67%
Greater Cambridge	APS Employees	127,000	64%	63%
Greater Cambridge	APS Workbased Employment	178,400	88%	85%
Greater Cambridge	Payrolled employees from PAYE RTI	139,814	71%	72%

Source: CBR's analysis based on ONS data.

Similarly, the table below points to some noticeable discrepancies in East Cambridgeshire and Huntingdonshire. In East Cambridgeshire, the APS

employment and employee ratios suggest that even more people are living in the district but are working outside. However, the APS workbased employment measure provides a partially conflicting picture, as the ratio has increased from 92% in 2021 to 113% in 2023/24. The APS workbased employment estimate for Huntingdon appears to have become more reasonable.

Table 3.15 Stability of ONS employment ratios: CPCA (other than Greater Cambridge)

Area	Data Source	2021	2021 Ratios to BRES	Ave 23 & 24 ratios
East Cambridgeshire	BRES Employment	35,500	100%	100%
East Cambridgeshire	BRES Employees	33,000	100%	100%
East Cambridgeshire	APS Employment	45,000	127%	138%
East Cambridgeshire	APS Employees	39,000	118%	132%
East Cambridgeshire	APS Workbased Employment	32,800	92%	113%
East Cambridgeshire	Payrolled employees from PAYE RTI	41,285	125%	130%
Huntingdonshire	BRES Employment	80,500	100%	100%
Huntingdonshire	BRES Employees	78,000	100%	100%
Huntingdonshire	APS Employment	87,200	108%	109%
Huntingdonshire	APS Employees	78,900	101%	98%
Huntingdonshire	APS Workbased Employment	63,000	78%	94%
Huntingdonshire	Payrolled employees from PAYE RTI	84,400	108%	108%
Peterborough	BRES Employment	117,500	100%	100%
Peterborough	BRES Employees	115,000	100%	100%
Peterborough	APS Employment	93,900	80%	79%
Peterborough	APS Employees	83,900	73%	72%
Peterborough	APS Workbased Employment	106,400	91%	86%
Peterborough	Payrolled employees from PAYE RTI	100,345	87%	88%
Fenland	BRES Employment	39,000	100%	100%
Fenland	BRES Employees	37,000	100%	100%
Fenland	APS Employment	42,600	109%	102%
Fenland	APS Employees	35,200	95%	92%
Fenland	APS Workbased Employment	35,900	92%	93%
Fenland	Payrolled employees from PAYE RTI	44,608	121%	122%

Source: CBR's analysis based on ONS data.

3.3. Differences in employment growth between ONS measures

We now turn to the differences in employment growth between the various measures of employment produced by ONS. We split the period in four sub-periods: a period well before Covid (2009-14); a period just preceding Covid (2014-19); a Covid period (2019-21); and a post-Covid period (2021-24/25).

3.3.1. Differences in employment growth between ONS measures: 2009-14

The next table compares employment growth during the period 2009-14. It shows that Greater Cambridge consistently outperformed both the East of England and Great Britain across all measures. The size of the gap varies depending on the measure considered, being particularly pronounced on APS employees (Greater Cambridge's growth was six times the national rate) and less pronounced on BRES (Greater Cambridge's growth was about 2.5 times the national rate).

The CPCA also outperformed both the East of England and Great Britain across all measures, though by a smaller margin than Greater Cambridge alone reflecting the more modest growth rates of some of its constituent districts. The APS workbased employment reported the highest growth rate, showing that employment growth in the CPCA was more than three times the national rate. Like Greater Cambridge, the size of the gap relative to Great Britain was most pronounced on APS employees (CPCA's growth was five times the national rate) but still significant on BRES (CPCA's growth was double the national rate).

The table portrays a multifaceted picture for the individual districts. Cambridge was consistently a strong performer, growing at 3.0% pa on BRES employees and APS employment. South Cambridgeshire recorded more modest growth than Cambridge across most measures, particularly on APS employment (0.3% pa) and APS workbased employment (0.8% pa). However, the growth rates for South Cambridgeshire vary widely across measures, being as high as 1.4% pa for BRES employees and as low as 0.3% pa for APS employment.

East Cambridgeshire presents the most striking anomaly in the table. While the district recorded strong BRES employee growth of 3.5% pa (the highest of any district), its APS employee figure was -2.0% per annum and APS employment was -0.3% pa. This divergence between the BRES and APS measures for East Cambridgeshire warrants further investigation, potentially reflecting differences in the coverage of self-employment, commuting patterns or sample size limitations in the APS at district level. Huntingdonshire also shows a notable divergence between measures, but in the opposite direction. Whilst BRES employment did not grow over this period (the lowest of any district on that measure), APS employment grew at 1.9% pa and APS workbased employment at

2.9% pa (the highest of any district on that measure). This would imply a significant difference in the composition of employment growth in Huntingdonshire, potentially driven by self-employment or work-based activity not fully captured by BRES. Peterborough and Fenland both recorded growth rates well below Greater Cambridge, with BRES suggesting that the two districts only marginally outperformed the East of England and the nation (whereas the APS measures show a larger gap).

Table 3.16 Differences in employment growth between ONS measures: 2009-14

2009-14 % pa	BRES Employees	BRES Employment	APS Employees	APS Employment	APS Workbased Employment	PAYE- RTI Employees
Cambridge	3.0%	2.7%	2.9%	3.0%	2.3%	n.a.
South Cambridgeshire	1.4%	1.2%	1.0%	0.3%	0.8%	n.a.
Greater Cambridge	2.2%	2.0%	1.9%	1.5%	1.8%	n.a.
East Cambridgeshire	3.5%	2.9%	-2.0%	-0.3%	2.7%	n.a.
Huntingdonshire	0.3%	0.0%	1.9%	1.9%	2.9%	n.a.
Peterborough	1.4%	1.4%	1.9%	1.7%	1.3%	n.a.
Fenland	1.2%	0.9%	1.8%	1.3%	2.3%	n.a.
Combined Authority	1.7%	1.5%	1.5%	1.4%	2.0%	n.a.
East of England	1.5%	0.8%	0.4%	0.7%	0.6%	n.a.
England	1.0%	0.9%	0.3%	0.7%	0.6%	n.a.
Great Britain (Nomis)	0.9%	0.8%	0.3%	0.6%	0.6%	n.a.

Source: CBR's analysis based on ONS data.

3.3.2. Differences in employment growth between ONS measures: 2014-19

The table below offers a similar comparison, this time looking at the period 2014-19. Greater Cambridge continued to outperform both the East of England and Great Britain across the BRES measures and PAYE RTI. Conversely, the APS measures do not generally support this, almost entirely because they have a more negative view of growth in Greater Cambridge in 2014-19 than in 2009-14. The divergence between the BRES and APS measures is striking. BRES employment grew at 2.7% pa, whilst APS employment grew at only 0.4% pa. The APS workbased measure of employment also shows a markedly different growth rate than the main APS measure (1.7% pa and 0.4% pa respectively). This suggests a strong inward commuting growth (captured by work-based measures) alongside a modest increase in resident-based employment (captured by the main APS

measure), potentially reflecting affordability and housing pressures constraining the resident workforce despite strong employer-side demand. However, it should be noted that PAYE RTI, the other measure of resident-based employment, points to a stronger growth of 2.2% pa.

The contrast between the BRES/PAYE RTI and APS measures for the CPCA mirrors the pattern seen for Greater Cambridge, but it is even more pronounced. Whilst BRES and PAYE RTI point to a superior performance of the CPCA compared with East of England and Great Britain, the three APS measures show an opposite picture – based on the main APS measure, employment in the CPCA grew only by 0.3% pa against a national growth of 1.3% pa during the same period.

Turning to the individual districts, South Cambridgeshire was the standout performer on BRES measures, growing at 3.9% pa on BRES employees and 3.6% pa on BRES employment. This was the highest of any district on both measures and a significant acceleration from its 2009-14 rates of 1.4% pa and 1.2% pa respectively. By contrast, Cambridge recorded negative APS employee growth of -0.1% pa and negative APS employment growth of -0.9% pa, despite strong BRES growth (e.g. 2.0% pa on BRES employees) and even stronger PAYE RTI growth (2.9% pa).

East Cambridgeshire again shows a notable divergence between measures, with strong BRES employment growth of 3.1% pa but negative APS workbased employment growth of -0.8% pa. The negative APS workbased employment figure is particularly puzzling given the strong BRES performance and warrants caution in interpreting either measure in isolation for this district. Huntingdonshire recorded negative growth on the APS measure, which contrasts with moderate BRES employee growth of 1.6% pa and PAYE RTI growth of 1.0% pa. The picture for Huntingdonshire is reversed from its 2009-14 picture, when the APS measures reported much stronger growth than BRES. The divergence between BRES and APS is more limited for Peterborough, though PAYE RTI points to a much faster growth (2.9% pa) than the other measures (e.g. 0.9% pa on APS employees). The opposite is true for Fenland, where there is alignment between BRES and PAYE RTI but not between these and the main APS measure.

Table 3.17 Differences in employment growth between ONS measures: 2014-19

2014-19 % pa	BRES Employees	BRES Employment	APS Employees	APS Employment	APS Workbased Employment	PAYE- RTI Employees
Cambridge	2.0%	1.9%	-0.1%	-0.9%	1.9%	2.9%
South Cambridgeshire	3.9%	3.6%	2.1%	1.7%	0.9%	1.6%
Greater Cambridge	2.9%	2.7%	1.0%	0.4%	1.7%	2.2%
East Cambridgeshire	3.3%	3.1%	2.2%	1.0%	-0.8%	1.2%
Huntingdonshire	1.6%	1.4%	-1.9%	-1.1%	-2.7%	1.0%
Peterborough	1.5%	1.3%	0.9%	1.0%	1.7%	2.9%
Fenland	1.7%	1.6%	0.4%	0.4%	2.0%	1.5%
Combined Authority	2.2%	2.0%	0.4%	0.3%	0.7%	1.9%
East of England	1.7%	1.5%	0.9%	1.0%	1.1%	1.7%
England	1.6%	1.6%	1.3%	1.4%	1.4%	1.6%
Great Britain (Nomis)	1.5%	1.4%	1.3%	1.3%	1.4%	1.5%

Source: CBR's analysis based on ONS data.

3.3.3. Differences in employment growth between ONS measures: 2019-21

We now turn to the comparison of employment growth across ONS measures for the COVID-19 period, 2019-21. The table below shows that Greater Cambridge underperformed both the East of England and Great Britain across all measures during the pandemic period, representing a marked reversal of its strong outperformance in both previous periods. This would suggest that Greater Cambridge was more adversely affected by the pandemic than the regional and national averages. The APS figures are particularly striking. The APS employee measure reports a negative growth of -0.9% pa for Greater Cambridge versus a positive growth of 0.5% pa for East of England and 0.3% pa for Great Britain, possibly suggesting a shift to economic inactivity. The slowdown in growth is even more marked for APS employment, which might partly reflect patchy coverage by the employment protection schemes. The sharp decline in APS workbased employment might reflect the collapse of inward commuting during the COVID lockdowns due to the shift to remote working, which would disproportionately affect a high-density urban economy like Greater Cambridge.

The CPCA's performance during the pandemic was broadly in line with or slightly below the East of England and Great Britain on most measures, which again represents a significant change from its consistent superior performance in

the two preceding periods. Whilst BRES and PAYE RTI show that the CPCA's performance largely mirrored the national performance, the APS measures report some noticeable discrepancies. On APS employees, the CPCA recorded negative growth of -0.2% pa, compared to 0.3% pa for Great Britain. The APS workbased employment points to an even more marked underperformance of the CPCA relative to the nation (-4.4% pa and -0.6% pa respectively).

South Cambridgeshire recorded some of the most pronounced declines in performance, with BRES employees and BRES employment at -1.1% pa, APS employees at -1.9% pa and APS employment at -4.4% pa. The APS workbased employment measure suggests an even larger drop at -12.9% pa, the most negative figure of any district on any measure in the table. This is a clear reversal from South Cambridgeshire's status as the strongest performer in 2014-19, also raising questions about the ability of the APS to accurately capture workbased employment when a substantial number of people work mainly from home – in fact, one would expect the homebased and workbased measures of APS employment to be closer together at a time of significant home working. In turn, Cambridge held up relatively better, with BRES employees growing at 0.2% pa and BRES employment at 0.4% pa. However, APS employment declined at -1.4% pa and PAYE RTI employees declined at -0.5% pa. The negative PAYE RTI figure for Cambridge is particularly notable given that PAYE RTI growth was broadly flat or positive elsewhere, suggesting that even accounting for the furlough scheme the number of payrolled employees in Cambridge contracted during the pandemic.

East Cambridgeshire recorded a notably strong APS workbased employment growth of 8.8% pa, the highest of any district and in stark contrast to the sharp declines seen elsewhere. This is a surprising result during a pandemic period and, combined with the anomalous figures seen for East Cambridgeshire in previous periods, reinforces the need for caution in interpreting APS estimates for this district. Huntingdonshire exhibited strong APS employee growth of 4.0% pa, the highest of any district on that measure and well above the growth rates reported by the other measures. As with East Cambridgeshire, this might partly reflect sampling variability at district level. Growth in Peterborough during the pandemic was relatively resilient across most measures, with BRES employment at 1.7% pa and APS employment at 0.9% pa. Once again, the APS workbased employment measure is at odds with the other measures. For Fenland, BRES shows steady growth during the pandemic (e.g. 0.7% pa on BRES employees), but PAYE RTI and particularly APS report some significant declines (e.g. -9.7% pa on APS employees).

Table 3.18 Differences in employment growth between ONS measures: 2019-21

2019-21 % pa	BRES Employees	BRES Employment	APS Employees	APS Employment	APS Workbased Employment	PAYE- RTI Employees
Cambridge	0.2%	0.4%	0.2%	-1.4%	-1.2%	-0.5%
South Cambridgeshire	-1.1%	-1.1%	-1.9%	-4.4%	-12.9%	0.4%
Greater Cambridge	-0.4%	-0.2%	-0.9%	-3.0%	-4.1%	0.0%
East Cambridgeshire	-0.7%	0.0%	1.8%	1.9%	8.8%	0.3%
Huntingdonshire	0.6%	0.6%	4.0%	0.6%	-7.5%	0.4%
Peterborough	1.6%	1.7%	0.8%	0.9%	-4.6%	0.1%
Fenland	0.7%	0.6%	-9.7%	-5.1%	-9.1%	-0.8%
Combined Authority	0.4%	0.5%	-0.2%	-1.1%	-4.4%	0.1%
East of England	0.8%	0.9%	0.5%	-0.4%	-0.8%	0.1%
England	0.4%	0.3%	0.5%	-0.5%	-0.5%	0.2%
Great Britain (Nomis)	0.4%	0.3%	0.3%	-0.6%	-0.6%	0.1%

Source: CBR's analysis based on ONS data.

3.3.4. Differences in employment growth between ONS measures: 2021-24/25

The latest period covers annualised growth rates for the years 2021-24/25 (2021-23/24 for BRES). This was a post-pandemic recovery period but also one of significant macroeconomic and geopolitical instability. The table reveals that Greater Cambridge outperformed both the East of England and Great Britain on some measures but not on others. APS employment in Greater Cambridge grew by 1.6% pa, a rate well above the national rate of 0.7% pa. BRES employment points to slightly lower growth of 1.2% pa, in line with the national growth rate over this period but well below the pre-pandemic rate of 2.7% pa. PAYE RTI paints a similar picture (1.3% pa in Greater Cambridge against 1.1% pa in Great Britain). These figures might reflect the lasting impacts of the pandemic and the dampening effects of macroeconomic instability on the expansion decisions of KI businesses.

The CPCA recorded a steady but somewhat more modest growth than Greater Cambridge during the period 2021-24/25. The BRES figures put the CPCA somewhat behind the national average – BRES employment grew by 0.9% pa in the CPCA and by 1.2% pa in Great Britain. The findings are more encouraging on the APS measures, which tend to show a superior performance of the CPCA

relative to the nation. PAYE RTI employee growth was broadly the same in the CPCA and in Great Britain. However, the BRES and PAYE RTI figures are below those observed in the period preceding the pandemic, suggesting that the broader macroeconomic headwinds of persistent inflation, stubbornly high interest rates and surging energy prices might have held back growth in the CPCA.

There is a mixed picture across districts. Cambridge exhibits robust growth of 2.5% pa in BRES employees and 2.3% pa in BRES employment, a performance which is in line with growth in the pre-COVID period. Whilst PAYE RTI shows a similar growth rate of 1.7% pa, the APS measures have a more negative view of growth in Cambridge – the -2.2% pa growth in APS workbased employment is a case in point, possibly reflecting a permanent reduction in commuting into the city as hybrid working became entrenched. South Cambridgeshire recorded more limited growth than Cambridge according to BRES and PAYE RTI, but also an extraordinary APS workbased employment growth rate of 10.3% pa – a substantial rebound from the -12.9% pa reported during the pandemic, which might partly reflect employees' return to offices and labs in South Cambridgeshire's business and science parks.

The other districts generally saw more modest growth, though there are some important differences between the various measures. For instance, Huntingdonshire recorded solid growth in BRES employees at 1.7% pa and in BRES employment at 1.4% pa. PAYE RTI employee growth in the district was also positive at 0.8%. By contrast, the number of APS employees fell by -0.2% pa and APS employment fell by 0.3% pa. These figures are surprising given Huntingdonshire's relatively resilient APS figures during COVID reported in the previous table. Fenland achieved the strongest APS employee growth of any district at 4.1% pa, a notable acceleration from its modest performance in previous periods and well above BRES growth. This might reflect post-pandemic population movements as well as the wider adoption of remote working, enabling Fenland residents to access jobs beyond the local area.

Table 3.19 Differences in employment growth between ONS measures: 2021-24/25

2021-24/5 % pa	BRES Employees	BRES Employment	APS Employees	APS Employment	APS Workbased Employment	PAYE- RTI Employees
Cambridge	2.5%	2.3%	0.2%	0.3%	-2.2%	1.7%
South Cambridgeshire	0.2%	-0.2%	2.5%	2.7%	10.3%	0.9%
Greater Cambridge	1.4%	1.2%	1.4%	1.6%	0.9%	1.3%
East Cambridgeshire	0.0%	-0.9%	0.6%	0.2%	2.8%	1.0%
Huntingdonshire	1.7%	1.4%	-0.2%	-0.3%	4.6%	0.8%
Peterborough	0.7%	0.6%	1.1%	0.1%	0.0%	0.9%
Fenland	0.9%	0.8%	4.1%	2.2%	1.4%	0.6%
Combined Authority	1.1%	0.9%	1.2%	0.8%	1.5%	1.0%
East of England	0.9%	0.7%	1.1%	0.8%	1.6%	1.0%
England	1.4%	1.3%	0.7%	0.7%	0.6%	1.1%
Great Britain (Nomis)	1.3%	1.2%	0.7%	0.7%	0.7%	1.1%

Source: CBR's analysis based on ONS data.

4. A deep dive into BRES employment

We have seen in the preceding sections that the various ONS measures of employment show important differences in the definition of employment, their coverage and reported growth rates. One of the major limitations of LFS, APS, PAYE RTI and Census is that they are based on where people live rather than on where people work. Moreover, these measures do not provide disaggregated data by sector at the district level, particularly the split between KI and non-KI sectors (an area needs a strong KI economy in order to prosper).

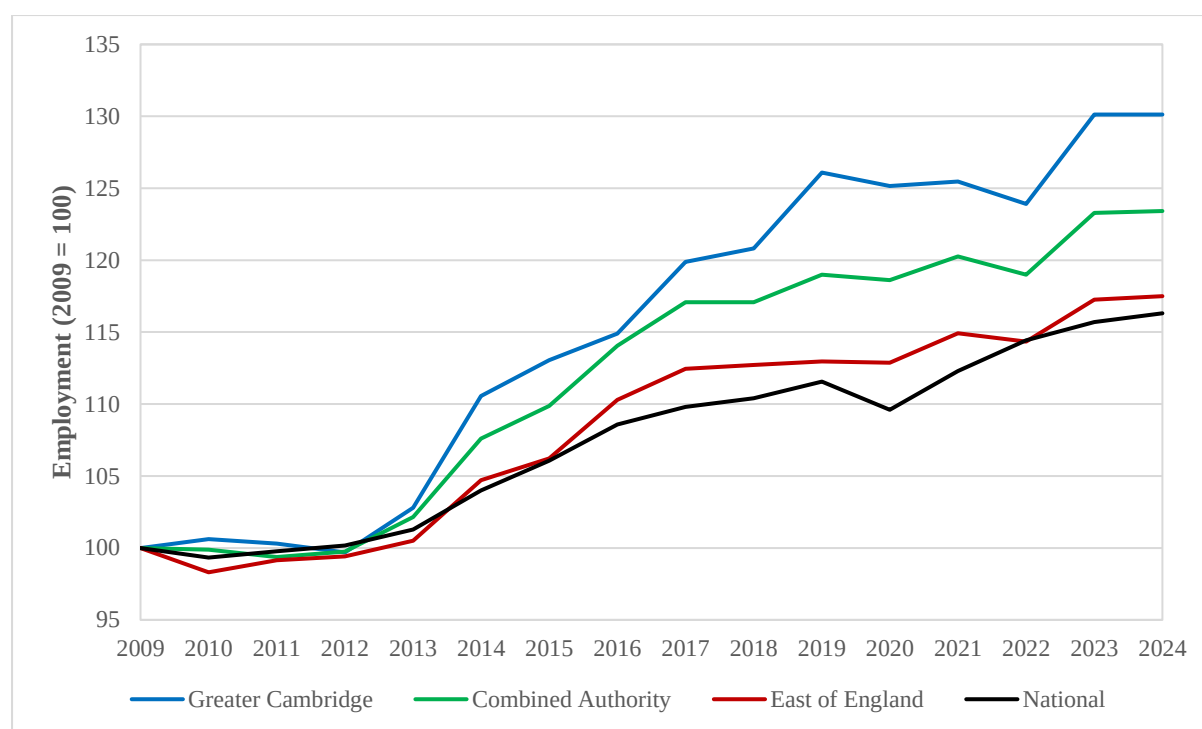
We are now going to focus on BRES which, as we have shown in the preceding sections, gives good coverage and can both cover district-level workbased employment and provide this information at the sector level. The remainder of this report will focus on Greater Cambridge as a key growth engine within the wider CPCA.

4.1. BRES employment growth in Greater Cambridge versus the nation

The figure below shows the relative performance of Greater Cambridge and the CPCA against the nation between 2009 and 2024. We can see that Greater Cambridge and, to a lesser extent, the CPCA outperformed East of England and Great Britain over the full period. The divergence between Greater Cambridge

and the benchmarks began to open up noticeably from 2013, coinciding with the acceleration of the post-financial crisis recovery. Prior to 2013, all four lines were broadly clustered together at or just above 100, suggesting that the early post-2009 recovery was relatively uniform across geographies. Greater Cambridge's growth was particularly fast between 2013 and 2019, which aligns with the strong BRES employment growth rates of 2.0% pa in 2009-14 and 2.7% pa in 2014-19 identified in the previous analysis. The pandemic impact on Greater Cambridge's employment is visible but relatively modest, with the blue line plateauing between 2019 and 2021. Greater Cambridge's post-pandemic recovery from 2021 is apparent, though there appear to be some noticeable fluctuations in employment growth year on year. By 2024/25, Greater Cambridge's employment index of approximately 130 represents a lead of around 14 index points over the national average, a gap that has widened considerably since 2009 – further underscoring the exceptional employment growth of Greater Cambridge over the full 15-year period.

Figure 4.1 BRES employment growth in Greater Cambridge and CPCA vs nation: all sectors



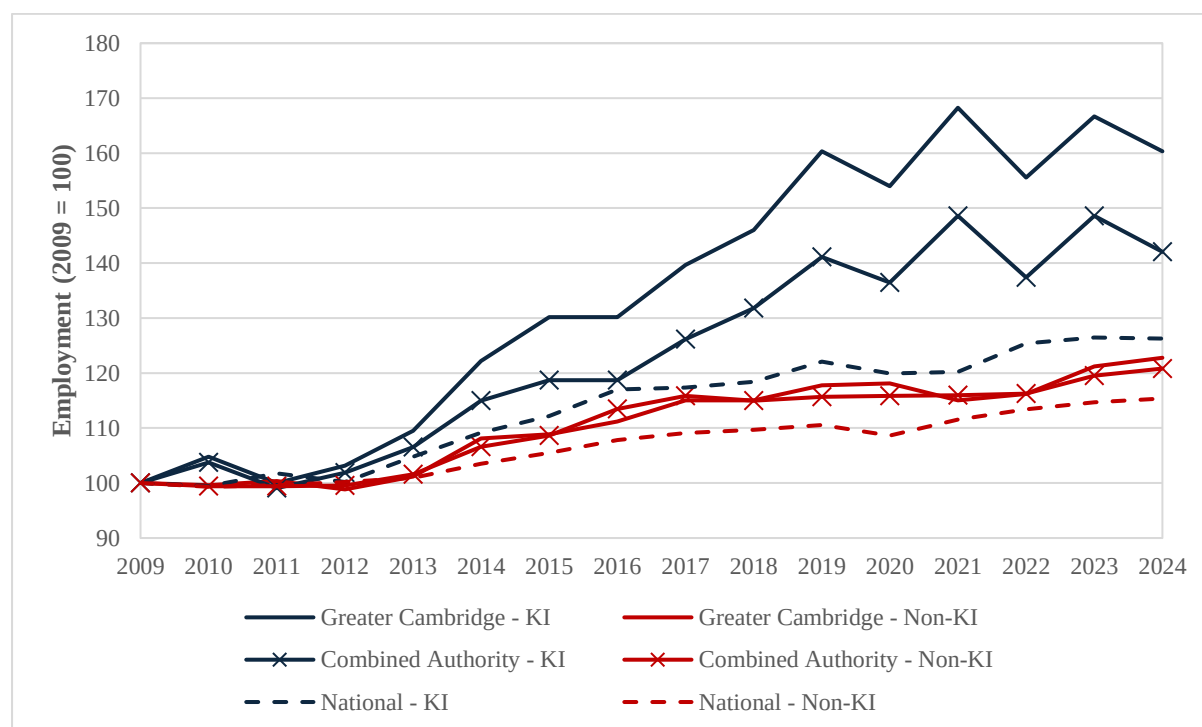
Source: CBR's analysis based on BRES data.

The figure below delves deeper into differences in performance between the four geographies by splitting employment into KI and non-KI employment. The figure suggests that the overall superior performance of Greater Cambridge and, to a lesser extent, the CPCA relative to the national average is almost entirely attributable to their exceptional KI growth over this period. Greater Cambridge's

KI employment index rose steeply from 100 in 2009 to over 160 by 2024, far above the national KI benchmark which reached only approximately 126 by 2024 – this means that Greater Cambridge’s KI employment grew at roughly 2.5 times the national KI rate over the full period. The divergence between Greater Cambridge’s KI growth and the national KI benchmark began to open up sharply from around 2013 and widened progressively through to 2019. The KI growth figures after 2019 show some significant volatility. According to BRES, employment in Greater Cambridge’s KI sectors fell by 4.0% in 2020, surged by 9.3% in 2021, fell again by 7.5% in 2022 and increased sharply by 7.1% in 2023. The volatility of Greater Cambridge’s KI line is notably higher than all other lines in the chart, with visible year-on-year fluctuations particularly from 2019 onwards.

In turn, Greater Cambridge’s non-KI sector employment grew more modestly over the 2009-24 period, rising from 100 to 123 by 2024. Nevertheless, it is worth noting that the performance of non-KI sectors in Greater Cambridge was still superior than the national non-KI sectors’ performance over the same period (the non-KI employment index for Greater Cambridge had a value of 123 in 2024 versus 115 for Great Britain).

Figure 4.2 BRES employment growth in Greater Cambridge and CPCA vs nation: KI / non-KI sectors



Source: CBR’s analysis based on BRES data.

4.2. BRES employment growth in Greater Cambridge: sectoral differences

The analysis presented so far has vividly illustrated the superior performance of Greater Cambridge relative to the nation, driven by its fast-expanding knowledge economy. This section further explores differences between KI and non-KI sectors in Greater Cambridge. The key findings are presented in the table below, focusing on the three periods 2014-19, 2019-21 and 2021-24/25.

The table shows that KI sectors drove Greater Cambridge's overall employment growth of 2.7% pa over the period 2014-19, growing at a remarkable rate of 5.6% pa and pulling the overall rate well above what non-KI sectors alone would have delivered. KI sectors also acted as a stabilising force during the COVID-19 pandemic, continuing to grow at 2.4% pa during 2019-21 and preventing a more severe overall employment loss as non-KI sectors contracted sharply by 1.2% pa (reflecting the challenges faced by e.g. retailers, hospitality businesses and language schools). The post-pandemic period saw a striking reversal, with the BRES KI employment estimate falling by 1.6% pa (a figure we find unlikely, as will be seen later when we will turn to the analysis of CBR data) while non-KI employment bounced back strongly from the worst impacts of the pandemic and grew by 2.2% pa. In this more recent period, it was thus the non-KI sectors that drove overall employment growth in Greater Cambridge according to BRES.

Table 4.1 BRES employment growth pa in Greater Cambridge: KI vs non-KI

BRES	KI	Non-KI	Total
2014-19	5.6%	1.7%	2.7%
2019-21	2.4%	-1.2%	-0.2%
2021-24	-1.6%	2.2%	1.2%

Source: CBR's analysis based on BRES data.

5. Introducing CBR employment data

The CBR has itself produced different views of employment growth in the Cambridgeshire and Peterborough region. Historically, our main measure has captured the growth in employment of businesses that are based in the area (these businesses are identified as 'Cambridge based' companies on the Cambridge Cluster Insights dashboard).¹ Alongside this corporate measure, we have reported

¹ As part of our annual data draws, we have also published an alternative measure of corporate employment growth that takes into account changes in business demography. Whilst our main corporate employment measure allocates businesses to their location at the end of the period, this alternative measure allows for changes in location during the period as well as for company births/deaths and movements in/out of the area. However, a comparison of employment growth rates between these two measures shows that they are closely aligned in their view of KI sectors' growth.

on another measure which adds to corporate employment the employment held at non-corporate KI research organisations.² The CBR database covers 10,500 businesses for Greater Cambridge in 2024/25, whereas the BRES sample includes approximately 87,000 businesses across the whole of Great Britain. In terms of employment, the BRES estimate for 2024/25 was 209,500 because of its greater coverage of non-KI sectors than CBR. By comparison, CBR employment in the same year was 159,500. On the other hand, the CBR's coverage of the KI sector is superior – we cover 63,500 KI employment in 2024/25 compared with 50,500 for BRES.

The table below provides a summary of the employment growth rates for Greater Cambridge using these measures. It shows that the addition of non-corporate employment tends to slow down employment growth, though the differences are marginal.

Table 5.2 CBR employment growth pa in Greater Cambridge: KI vs non-KI

CBR corporate	KI	Non-KI	Total
2014-19	7.8%	5.3%	6.4%
2019-21	6.5%	-0.2%	2.9%
2021-24	3.1%	4.8%	4.0%
CBR corp & non-corp	KI	Non-KI	Total
2014-19	6.5%	5.2%	5.7%
2019-21	5.7%	0.3%	2.4%
2021-24	2.8%	4.5%	3.8%

Source: CBR.

A comparison of the table above with the BRES employment growth table presented in the preceding section reveals that CBR data tends to report superior growth in Greater Cambridge than BRES data. This suggests that BRES might be

Table 5.1 Comparison of CBR corporate employment growth pa in Greater Cambridge

CBR corporate	KI	Non-KI	Total
2014-19	7.8%	5.3%	6.4%
2019-21	6.5%	-0.2%	2.9%
2021-24	3.1%	4.8%	4.0%
CBR demography	KI	Non-KI	Total
2014-19	7.7%	4.9%	6.1%
2019-21	6.4%	-1.7%	2.0%
2021-24	2.6%	4.1%	3.4%

Source: CBR.

² When we compare CBR employment growth with BRES employment growth (see the next section), there are some, albeit modest, differences in the CBR corporate's KI number since we are using the SIC classification rather than our bespoke sectoral classification.

under-recording employment growth in the area, particularly in KI sectors. We will examine this further in the next section.

6. Comparison of employment growth between BRES and CBR

This section provides a detailed comparison of BRES employment data with CBR corporate and non-corporate data by sector for Greater Cambridge.

6.1. Comparison of employment growth between BRES and CBR: 2014-19

The table below compares employment growth per annum as well as the absolute change in employment between the two sources over the period 2014-19. Overall, BRES and CBR agree that Greater Cambridge experienced strong overall employment growth in the pre-pandemic period 2014-19, though they differ with respect to the scale of that growth. BRES records overall employment growth of 2.7% pa and an absolute increase of 25,000 employment, while CBR records 5.7% pa and an absolute increase of 33,000 employment.

Both BRES and CBR point to fast employment growth in KI sectors, with CBR reporting a slightly higher figure of 6.5% pa compared to 5.6% pa according to BRES. In absolute terms, CBR shows that employment increased by over 14,000, whereas BRES shows a somewhat lower increase of 12,000. The two sources report strong growth in the R&D and Knowledge intensive services sectors, but differ starkly in their view of the ICT sector's performance. CBR growth in this sector was the highest amongst all sectors at 8.5% pa, resulting in the addition of 4,500 employment – Arm, Amazon's EVI Technologies and Darktrace contributed almost half of this additional employment. BRES growth in the ICT sector was more modest at 3.3% pa (+2,000 employment). This suggests that BRES, using the standard SIC classification, might be misclassifying or under-recording ICT employment in Greater Cambridge, where many technology companies operate across multiple activities that might not be neatly captured using SIC codes. The table also suggests that BRES failed to capture the increase in employment in High-tech manufacturing and Life sciences manufacturing which, albeit lower than the other sectors, was still notable based on CBR data. For instance, Domino and Hexcel Composites (High-tech manufacturing) added over 400 employees combined during this period, while CMR Surgical (Life sciences manufacturing) added over 350 employees.

Turning to non-KI sectors, CBR reports faster growth of 5.2% pa against a BRES figure of 1.7% pa. Health services shows the largest absolute divergence amongst non-KI sectors, with BRES recording negative growth of -0.4% pa and a loss of 500 jobs, while CBR records positive growth of 7.4% pa and a gain of over 6,000 jobs. This is the most apparent sector-level difference in the table and raises concerns about the reliability of BRES data for Health services in Greater

Cambridge. The CBR figure appears to capture the rapid growth of private healthcare and biotechnology-adjacent health services companies (e.g. Mindler, previously Ieso) as well as the expansion of Addenbrooke's Hospital and related research facilities (+2,500 research and non-research employment over the period 2014-19), which may not be fully captured in the BRES numbers. A similar, albeit less large, difference is found for Retail distribution, with BRES recording negative growth of -3.0% pa and a loss of 2,000 jobs, while CBR records positive growth of 5.7% pa and a gain of 600 jobs.

Table 6.1 BRES and CBR employment growth by sector in Greater Cambridge: 2014-19

2014-19 Sector	BRES		CBR corp & non-corp	
	% pa	Abs change	% pa	Abs change
High-tech manufacturing	0.0%	0	2.1%	750
Life sciences manufacturing	-3.2%	-150	5.4%	425
ICT	3.3%	2,000	8.5%	4,585
R&D	11.3%	8,500	7.3%	6,796
Knowledge intensive services	4.8%	2,000	5.7%	1,513
<i>Sub-total - KI sectors</i>	<i>5.6%</i>	<i>12,000</i>	<i>6.5%</i>	<i>14,069</i>
Primary	-2.3%	-250	3.3%	136
Other manufacturing	1.9%	500	3.8%	652
Property and construction	5.6%	2,500	6.6%	2,012
Utilities	-5.6%	-500	8.2%	70
Publishing	5.9%	625	4.3%	385
Transport and travel	1.9%	500	10.8%	1,010
Wholesale distribution	-3.9%	-1,000	-1.6%	-114
Retail distribution	-3.0%	-2,000	5.7%	620
Hotels, pubs and restaurants	4.7%	3,000	11.9%	1,552
Other business services	4.4%	4,000	3.5%	1,238
Public services	-2.5%	-500	5.9%	3
Other services	2.7%	1,000	2.9%	600
Education	3.1%	4,500	3.6%	3,803
Finance and professional services	0.0%	0	4.3%	413
Health services	-0.4%	-500	7.4%	6,328
<i>Sub-total - Other sectors</i>	<i>1.7%</i>	<i>12,500</i>	<i>5.2%</i>	<i>18,708</i>
Total Employment	2.7%	25,000	5.7%	32,777

Sources: CBR's analysis based on BRES data [BRES]; CBR [CBR corporate & non-corporate].

6.2. Comparison of employment growth between BRES and CBR: 2019-21

A similar comparison, this time looking at the 2019-21 period, is illustrated in the table below. Overall, BRES and CBR tell different stories about the overall

impact of the pandemic on Greater Cambridge's employment. BRES records negative overall employment growth of -0.2% pa and a loss of 1,000 employment, implying that the pandemic caused a modest but still noticeable overall employment contraction in Greater Cambridge despite the protection offered by furlough. By contrast, CBR records positive overall employment growth of 2.4% pa and a gain of 6,500 employment, suggesting that Greater Cambridge's employment base actually continued to expand during the pandemic albeit at less than half the rate achieved prior to the pandemic. The divergence in overall totals is driven by very different pictures in both KI and non-KI sectors.

The two sources agree that KI sectors as a whole continued to grow during the pandemic. This is a remarkable finding that underscores the exceptional resilience of Greater Cambridge's KI employment during the pandemic, and is consistent with the global acceleration of investment in life sciences and digital technology seen during the COVID-19 crisis. However, CBR recorded a faster growth of 5.7% pa (+6,000 employment) that is only marginally lower than the pre-pandemic rate of 6.5% pa. On the other hand, BRES recorded a much lower growth of 2.4% pa (+2,500 employment). Whilst both BRES and CBR point to robust employment growth in ICT, Knowledge intensive services and Life sciences manufacturing, they differ markedly as to the view of the R&D's sector performance. BRES shows a negative growth of -6.3% pa and a loss of 2,500 employment, in stark contrast to CBR that shows positive growth of 6.8% pa and an increase of over 3,000 employment – the CBR's figures reflect the continued increase in staff numbers at some of the largest R&D companies in the area, with AstraZeneca, Illumina and PPD Global / Thermo Fisher Scientific adding over 3,000 employees combined. Several non-corporate employers such as British Antarctic Survey and Cancer Research Horizons – Therapeutic Innovation (CRH-TI) also increased their staff numbers during this period. The BRES figure would imply a severe contraction in R&D employment during the pandemic, which is at odds with the global acceleration of R&D investment in life sciences to support the fight against COVID-19 and other viruses – the BRES R&D employment figure for 2019-21 might potentially reflect the loss of one or more large R&D employers from the BRES sample rather than genuine employment contraction.

BRES and CBR also have different views of non-KI employment growth during the period 2019-21. BRES suggests a significant non-KI contraction of -1.2% pa and -3,500 employment, while CBR suggests near-flat non-KI growth of 0.3% pa and +500 employment. Property and construction shows a notable divergence, with BRES recording negative growth of -4.9% pa and a loss of 1,000 employment and CBR recording positive growth of 0.7% pa and a gain of 100 jobs helped by the steady increase in employment by several local property and construction employers such as Quay Investments (Quay Mill Hotel) and Net Zero Buildings. The two sources also portray a different picture of the performance of

the Hotels, pubs and restaurants sector. Whilst BRES reported a rate of -3.5% pa and a loss of 1,000 employment, suggesting a profound impact of the pandemic on the hospitality sector in Greater Cambridge during this period, CBR reported a rate of 2.0% pa and a modest gain of 150 employment – some large hospitality businesses in the area such as SRD (Clayton Hotel), Cambridge Dining Company and Arundel House reported employment losses, albeit modest. In turn, both sources agree that employment in the Education sector suffered a contraction during Covid, with BRES recording -1.6% pa and a loss of 1,000 employment and CBR recording -1.3% pa and a loss of 600 jobs. This finding is not surprising considering the severe disruption to language schools and crammers caused by the pandemic (Studio Cambridge and Select English being but two examples).

Table 6.2 BRES and CBR employment growth by sector in Greater Cambridge: 2019-21

2019-21 Sector	BRES		CBR corp & non-corp	
	% pa	Abs change	% pa	Abs change
High-tech manufacturing	0.0%	0	-0.8%	-118
Life sciences manufacturing	21.3%	400	8.5%	326
ICT	10.6%	3,000	7.2%	2,027
R&D	-6.3%	-2,500	6.8%	3,199
Knowledge intensive services	10.0%	2,000	5.2%	662
<i>Sub-total - KI sectors</i>	<i>2.4%</i>	<i>2,500</i>	<i>5.7%</i>	<i>6,096</i>
Primary	-3.2%	-125	-1.1%	-20
Other manufacturing	-12.1%	-1,250	-1.7%	-129
Property and construction	-4.9%	-1,000	0.7%	103
Utilities	22.5%	750	7.0%	31
Publishing	-10.6%	-500	-4.6%	-179
Transport and travel	-4.7%	-500	-4.9%	-243
Wholesale distribution	0.0%	0	-1.3%	-35
Retail distribution	4.1%	1,000	-1.1%	-56
Hotels, pubs and restaurants	-3.5%	-1,000	2.0%	145
Other business services	0.0%	0	0.4%	67
Public services	6.5%	500	-4.3%	-1
Other services	0.0%	0	-0.6%	-51
Education	-1.6%	-1,000	-1.3%	-603
Finance and professional services	0.0%	0	4.9%	217
Health services	1.0%	500	2.9%	1,250
<i>Sub-total - Other sectors</i>	<i>-1.2%</i>	<i>-3,500</i>	<i>0.3%</i>	<i>496</i>
Total Employment	-0.2%	-1,000	2.4%	6,592

Sources: CBR's analysis based on BRES data [BRES]; CBR [CBR corporate & non-corporate].

6.3. Comparison of employment growth between BRES and CBR: 2021-24/25

Finally, the next table turns to the comparison between BRES and CBR for the more recent period 2021-2024/25. Both measures concur that Greater Cambridge's overall employment grew positively in the most recent period, but they continue to differ significantly in terms of the speed of that growth. BRES records overall employment growth of 1.2% pa, while CBR records a growth of 3.8% pa – a figure that is approximately three times the BRES growth rate.

The divergence between the two sources is now more heavily concentrated in KI sectors than in non-KI sectors, reversing the pattern seen in 2014-19. BRES figures imply that KI sectors' employment contracted in Greater Cambridge during the post-pandemic period, as captured by negative growth of -1.6% pa and a loss of 2,500 employment. By contrast, CBR shows continued growth of 2.8% pa and a gain of more than 5,000 employment. ICT shows the largest divergence amongst KI sectors, with BRES recording -5.3% pa and a loss of 2,500 employment, while CBR records a growth of 3.0% pa and a gain of 1,500 employment – Redgate, IQGeo and Bango were amongst the largest ICT employers with strong employment growth in this period, offsetting employment losses at other large ICT employers such as Aferian and Sitec Infrastructure Services. The BRES ICT number represents a dramatic reversal from the 2019-21 period, when BRES recorded strong ICT growth of 10.6% pa despite the onset of the pandemic. The BRES figure implies a severe contraction in ICT employment in Greater Cambridge during the post-COVID period, which is difficult to reconcile with the continued expansion of the Cambridge technology cluster and the broader growth of the UK technology sector in this period. A similar finding applies to the Knowledge intensive services sector, where BRES reported a negative growth of -6.2% pa and a loss of 2,000 employment, in stark contrast to CBR which reported a growth of 2.0% pa and a gain of 400 employment (with Science Group being a key contributor to that growth).

For non-KI sectors, both sources agree on positive non-KI growth in 2021-24/25. This broad agreement on the direction of non-KI recovery appears consistent with the post-pandemic rebound in hospitality, retail, tourism and other face-to-face service sectors in Greater Cambridge. However, BRES records a growth of 2.2% pa and an increase of 10,000 employment, compared with a growth of 4.5% pa and an increase of 12,000 employment by CBR. Further exploration of individual sector-level data also reveals that some non-KI sectors which were severely hit by COVID came back strong on CBR data, whilst the opposite is true on BRES data. The Hotels, pubs and restaurants sector is a case in point. The BRES finding of a negative growth of -1.3% pa and a loss of 500 employment (against a growth of 10.0% and an increase of 1,200 employment by CBR, with many hospitality

businesses such as Cambridge Dining Company and Aromi returning to growth after a challenging few years) implies continued contraction in hospitality employment in the post-pandemic period, which is somewhat surprising given the recovery of the hospitality sector following the lifting of COVID restrictions. The large drop in Retail distribution's BRES employment is also puzzling, along with the extreme BRES growth rates recorded for smaller sectors such as Utilities and Publishing – these might reflect the entry or exit of individual employers from the BRES sample rather than genuine employment changes.

Table 6.3 BRES and CBR employment growth by sector in Greater Cambridge: 2021-24/25

2021-24/25 Sector	BRES		CBR corp & non-corp	
	% pa	Abs change	% pa	Abs change
High-tech manufacturing	0.0%	0	0.9%	212
Life sciences manufacturing	14.5%	625	5.6%	386
ICT	-5.3%	-2,500	3.0%	1,470
R&D	2.7%	1,500	3.2%	2,625
Knowledge intensive services	-6.2%	-2,000	2.0%	420
<i>Sub-total - KI sectors</i>	<i>-1.6%</i>	<i>-2,500</i>	<i>2.8%</i>	<i>5,113</i>
Primary	-4.7%	-250	-0.5%	-12
Other manufacturing	1.9%	250	0.6%	62
Property and construction	5.0%	1,500	2.6%	589
Utilities	-10.3%	-625	1.1%	8
Publishing	28.6%	2,250	1.3%	74
Transport and travel	6.3%	1,000	4.4%	317
Wholesale distribution	3.6%	500	8.8%	375
Retail distribution	-2.6%	-1,000	4.4%	347
Hotels, pubs and restaurants	-1.3%	-500	10.0%	1,235
Other business services	-0.8%	-500	2.5%	611
Public services	0.0%	0	27.9%	12
Other services	2.0%	500	4.9%	695
Education	1.1%	1,000	4.1%	2,930
Finance and professional services	-3.5%	-500	8.3%	645
Health services	6.7%	5,500	5.8%	4,072
<i>Sub-total - Other sectors</i>	<i>2.2%</i>	<i>10,000</i>	<i>4.5%</i>	<i>11,960</i>
Total Employment	1.2%	7,500	3.8%	17,073

Sources: CBR's analysis based on BRES data [BRES]; CBR [CBR corporate & non-corporate].

7. Conclusions

The analysis of the various ONS measures of employment presented in this report points to important difficulties with using ONS data to capture employment growth in a dynamic, knowledge intensive economy like Greater Cambridge.

With the exception of BRES (our analysis raises concerns over the workplace-based measure of APS employment), these measures are based on the employees' place of residence rather than their place of work, and do not provide employment data at a detailed geographical and sectoral level. If one is interested in exploring sub-regional employment dynamics (and clustering is indeed about sub-regional analysis), BRES is the only relevant measure.

However, our findings show that BRES exhibits some significant fluctuations year on year and appears to be under-recording the growth in KI sectors' employment. The divergence in KI sector's growth between BRES and CBR has expanded over time, suggesting that BRES might be increasingly less capable of measuring KI employment growth in Greater Cambridge. This potentially reflects the growing complexity and diversity of KI business models in the area, which are increasingly difficult to capture within the SIC classification framework.

Whilst it is clear that BRES has weaknesses at this moment in time, it remains the only relevant measure of workplace employment at a disaggregated sectoral level produced by ONS. It follows that, at a time of limited resources and competing commitments, ONS should prioritise improving BRES rather than promoting alternative measures such as PAYE RTI or APS which possibly suffer from even greater limitations. We are keen to continue working on this to help ONS find ways of further improving BRES.

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