

Employment Land Review Update: Addendum

Analysis of demand for employment land, based on employment projections from EEFM

May 2013

Introduction

In April 2013, Cambridge City Council commissioned SQW to complete a short piece of work, the aim of which was to re-run the estimates of future demand for employment land in Cambridge City over the period 2011 to 2031. Previously, estimates had been derived as part of the **Employment Land Review Update** (completed in July 2012 for both Cambridge City and South Cambridgeshire). However the City Council required that the re-run should use a different set of employment projections:

- the original study relied on a set of baseline projections prepared by Cambridge Econometrics using its Local Economy Forecasting Model (LEFM)
- the re-run was based on a set of baseline projections developed by Oxford Economics using the East of England Forecasting Model (EEFM).

Differences between EEFM and LEFM

Headline numbers

Both sets of projections were prepared at roughly the same time (in spring 2012) which ought to make them comparable (in terms of underlying macro-economic assumptions). In the original study, both sets of projections were analysed: LEFM in Annex A and EEFM in Annex B. However *it is important to note that the EEFM baseline projections were re-issued after the analytical work for the original study was completed. Therefore there are some differences between the data used in this paper (i.e. the re-issued numbers) and those that were reported in Annex B of the original report.*

In very headline terms, the table below summarises some of the principal metrics generated through these different sources.

Table 1: Headline comparison of employment estimates/projections ('000)

	LEFM 2012 (which provided the basis for our original report)	EEFM 2012 (as reported in our original report)	EEFM 2012 (as re-issued <i>and as used here</i>)
Cambridge City – employment 2001	101.8	95.5	95.5
Cambridge City – employment 2011	102.7	97.9	95.9
Cambridge City – employment 2021	108.5	117.3	111.3
Cambridge City – employment 2031	117.5	128.4	118.0
Growth: 2011-2031	14.8	30.5	22.1

Source: SQW

Two important points need to be taken from this summary table:

- first, the re-issued EEFM projections were more cautious than the original set which were reported in last year's report (i.e. 8,400 fewer jobs are projected in Cambridge City between 2011 and 2031)
- second, the re-issued EEFM projections are still a good deal more bullish than the LEFM baseline: the re-issued EEFM projections suggest 22,100 additional jobs whereas LEFM pointed to 14,800 over the period 2011-2031.

Standard Industrial Classification (SIC) Codes

Another important difference between LEFM and EEFM concerns the manner in which sectoral employment data are presented – and this is very important in relation to estimates of demand for employment land. In short, at the time, LEFM relied on SIC 2003 whereas EEFM used SIC 2007.

Whilst on the face of it a technicality, there are in practice some substantial differences between these two taxonomies. Ideally, in re-running the model, the sectoral definitions would have been identical and hence the only difference between the two sets of numbers should have been those deriving from the projections. However this “pure” re-run proved impossible, for three different reasons:

- at the highest level in the SIC taxonomy (“Sections”) there is not a straightforward read-across between SIC 2003 and SIC 2007: some Sections have been disaggregated (so that there was one sector under SIC 2003 but three under SIC 2007) and one has been amalgamated (so that there were two under SIC 2003 but there is now one)
- even where the name of Sections appears consistent, the composition of some of the Sections has been changed at a lower level in the hierarchy (e.g. publishing has been moved from one Section to another)
- neither OE nor CE provide sectoral information in a sufficiently fine-grained form to map one classification onto the second.

These challenges were compounded by the fact that – in the context of an Employment Land Review – the sectoral distribution of employment is only a “means to an end” for it needs to be translated into a series of assumptions about the Use Classes (i.e. “*of the employment to be generated in Sector Y, what proportion is likely to be accommodated in B1a, B1b, B2, B8 and non-B sites/premises?*”).

In last year's study, we made some broad-brush assumptions about the allocation of sectors to Use Classes. Where the sectoral definitions in SIC 2003 and SIC 2007 are identical/similar, these assumptions have been carried forward. But where the sectoral definitions are different, new assumptions were clearly needed.

In order to inform these new assumptions, we worked through the detailed description of SIC 2007¹, and the component sectors within each Section, Group, Class and Sub-Class, and

¹ UK Standard Industrial Classification of Economic Activities, 2007: Structure and Explanatory Notes, ONS, 2009

then made a judgement. These judgements were calibrated in discussion with Cambridge City Council as part of this review. The outcomes from this process are summarised in Annex A.

Findings from the model re-run on the basis of EEFM projections

As set out in Chapter 2 of our 2012 Employment Land Review update, the process of deriving estimates of land requirements from employment forecasts involves three distinct “steps”. Each one of these relies on a number of underlying assumptions; and throughout, it is important to recognise that small changes in the assumptions can have an enormous impact on the overall findings.

Step 1: Consider projected employment by SIC sectors and the types of property occupied by these sectors

The first step is to apply judgements in terms of the proportion of jobs in each employment sector accommodated in property of different Use Classes. As far as possible, the assumptions within our Employment Land Review update were simply rolled forward in this context; where this was not possible (because of the transition from SIC 2003 to SIC 2007) new apportionment assumptions were applied (see Annex A).

The overall findings from this exercise are shown in the table below. This confirms the observation reported in Table 1: that the overall jobs growth projected by EEFM across Cambridge City is 22,100 (which is higher than both LEFM scenarios).

In addition:

- overall, the quantum of employment growth that will need to be accommodated within B-Use Class provision is estimated to be 8,800 jobs; this is higher than the estimates deriving from LEFM on either the baseline or policy-led scenario
- the distribution of employment growth by Use Class is really quite different from that estimated through LEFM: EEFM points to stronger growth for B1a and B1b-related employment but an absolute reduction in the number of jobs that might have been accommodated in B2 and B8 provision.

Table 2: Distribution of employment growth ('000 jobs) by Use Class, 2011-2031

Use Class	B1a	B1b	B2	B8	Non-B	(All)	All B	B as % of all
EEFM (2012)	7.0	2.7	-0.3	-0.6	13.3	22.1	8.8	40%
<i>LEFM comparison – Baseline</i>	3.8	1.6	0	0.3		14.7	5.7	39%
<i>LEFM comparison – Policy</i>	5	1.6	0	0.4		19.6	7	36%

Source: LEFM-based numbers taken from Employment Land Review Update, 2012; EEFM-based numbers calculated by SQW

Step 2: Convert employment estimates to floorspace requirements

The second step in the process involves a shift from a focus on jobs to a consideration of floorspace requirements, and it is driven by assumptions with regard to employment densities. The assumptions that were used in the Employment Land Review Update (2012)

have been rolled forward applied to the EEFM projections; the findings are summarised in Table 3. Compared to estimates based on LEFM, this suggests far greater demand for B1a and B1b floorspace, but a reduction in demand for both B2 and B8.

Table 3: Estimates of forecast net floorspace change, 2011-31 ('000 sq m GEA)

Use Class	B1a	B1b	B2	B8	All B
EEFM (2012)	83.0	32.7	-11.8	-33.7	70.2
<i>LEFM comparison - Baseline</i>	45	19	0.7	18	83
<i>LEFM comparison - Policy</i>	59	20	1.5	21	101

Source: LEFM-based numbers taken from Employment Land Review Update, 2012; EEFM-based numbers calculated by SQW

Step 3: Using plot ratios, convert floorspace estimates to an estimate of site areas (and hence land required for B Use Classes)

The third and final stage is driven by the application of plot densities, and again, the underlying assumptions have been rolled forward from the Employment Land Review Update (2012). The findings are summarised below. Despite higher estimates of employment growth through EEFM, the overall finding is theoretically for a lower requirement of additional employment land (i.e. 7.4 ha compared to either 13.1ha or 16.2 ha). The reason for this is that projected employment growth is concentrated in sectors with high employment densities while the shake-out in employment linked to (lower density) B2 and B8 uses theoretically has a disproportionately large dampening effect on overall levels of demand for land.

Table 4: Deriving estimates of forecast land requirements, 2011-31 (ha)

Use Class	B1a	B1b	B2	B8	All B
EEFM (2012)	12.2	4.8	-2.8	-6.7	7.4
<i>LEFM comparison – Baseline</i>	6.7ha	2.7ha	0.2ha	3.6ha	13.1ha
<i>LEFM comparison – Policy</i>	8.7ha	2.9ha	0.4ha	4.3ha	16.2ha

Source: LEFM-based numbers taken from Employment Land Review Update, 2012; EEFM-based numbers calculated by SQW

Conclusion

Because of the shift from SIC 2003 to SIC 2007, the differences in the estimates generated by EEFM and LEFM are not simply explicable in terms of the different employment projections. For this reason, some care is needed in comparing the findings: tweaks in the nominal allocation of sectors to Use Classes would have a disproportionate bearing on overall projected demand *in addition to* that driven by the two forecasting houses' models. For that reason, considerable care and judgement is needed in using the findings set out in this paper.

Nevertheless, the principal findings from our re-run of the model may be summarised as follows:

- projected jobs growth over the period 2011-2031 is a good deal higher under EEFM than either of the scenarios developed by CE through LEFM

- however, projected land requirements are actually higher on the basis of LEFM than EEFM. The reason for this relates to sectoral composition; under EEFM, the implication is that there could already be a surplus of B2 and B8 employment land while noticeably more provision is needed in relation to B1a and B1b.

Annex A: Projected employment change from EEFM, and Use Class assumptions in relation to SIC 2007

Based on EEFM (rather than LEFM), and SIC 2007 (rather than SIC 2003), the table which follows sets out the key assumptions which have changed since the Employment Land Review Update in 2012. These assumptions are based on broad-brush judgements and they have been calibrated through discussion with Cambridge City Council. However changes in the assumptions would impact significantly on the overall estimate of demand; because of this, the findings need to be regarded as indicative and not definitive, and subject to change.

Table 5: Nominal allocation of SIC 2007 sectors to Use Classes, and projected employment change by SIC 2007 sector from EEFM, 2012

Sector	Nominal allocation of different sectors across Use Classes					Projected employment change, 2011-2031 (‘000 jobs)
	B1a	B1b	B2	B8	Non-B	
Agriculture	0.00	0.00	0.00	0.00	1.00	0.0
Mining and Quarrying	0.00	0.00	0.00	0.00	1.00	0.0
Food Manufacturing	0.00	0.00	0.00	0.00	1.00	0.0
General Manufacturing	0.00	0.00	1.00	0.00	0.00	-0.2
Chemicals	0.00	0.50	0.50	0.00	0.00	0.0
Pharma	0.00	0.50	0.50	0.00	0.00	0.0
Metals	0.00	0.00	1.00	0.00	0.00	-0.1
Transport	0.00	0.00	1.00	0.00	0.00	0.0
Electronics	0.00	0.50	0.50	0.00	0.00	-0.6
Utilities	0.00	0.00	0.00	0.00	1.00	-0.1
Waste and remediation	0.00	0.00	0.00	0.00	1.00	0.0
Construction	0.00	0.00	0.00	0.00	1.00	0.6
Wholesale	0.00	0.00	0.00	0.50	0.50	-1.4
Retail	0.00	0.00	0.00	0.00	1.00	1.9
Land Transport	0.00	0.00	0.00	0.25	0.75	0.4
Water and air transport	0.00	0.00	0.00	0.25	0.75	0.0
Hotels and restaurants	0.00	0.00	0.00	0.00	1.00	1.1
Publishing and broadcasting	0.40	0.00	0.50	0.10	0.00	0.1
Telecoms	0.10	0.10	0.10	0.10	0.60	0.1
Computer related activity	0.50	0.50	0.00	0.00	0.00	2.6
Finance	0.25	0.00	0.00	0.00	0.75	-0.5
Real Estate	0.20	0.00	0.00	0.00	0.80	0.9
Professional services	0.50	0.25	0.00	0.00	0.25	5.7
R+D	0.10	0.80	0.10	0.00	0.00	0.5
Business services	0.30	0.00	0.10	0.00	0.60	1.8
Employment activities	0.25	0.00	0.00	0.00	0.75	1.5
Public Administration incl land forces	0.50	0.00	0.00	0.00	0.50	-0.2

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Sector	Nominal allocation of different sectors across Use Classes					Projected employment change, 2011-2031
Education	0.25	0.00	0.00	0.00	0.75	3.6
Health and care	0.25	0.00	0.00	0.00	0.75	3.6
Arts and entertainment	0.00	0.00	0.00	0.00	1.00	0.8
Other services	0.20	0.00	0.10	0.10	0.60	0.2
Total						22.1