Additional information – Context statistics for performance indicators

Introduction

1. Under ‘Extra details’ there are two extra tables, and expanded versions of all the original tables. The extra tables, T1c and T2c, provide the access indicators for entrants to sub-degree courses such as HND or DipHE courses, for young and mature entrants respectively. Only institutions with at least 20 entrants to sub-degree courses are included. As some such institutions have predominantly mature students on these courses, they have been omitted from T1c and so the totals for the two tables differ slightly. The expanded tables contain the numbers behind the indicators, the standard deviations of the benchmarks, and three additional context statistics that were not included in the printed tables. Two of these apply to the teaching and learning indicators, and one to the research indicator. This document describes these extra statistics.

2. The expanded table for the employment indicator, Table E1, contains two benchmarks for each indicator. Benchmark 1, which excludes the sandwich course marker, is in the published table. Benchmark 2, which includes the sandwich marker, is comparable to last year’s published benchmark.

Teaching and learning performance indicators

3. The two additional context statistics for teaching and learning are:
- the average number of institutions in the adjusted sector benchmark comparison
- the average proportion which the institution’s own students contribute to the benchmark.

4. These context statistics are provided for both the original benchmark and the location-adjusted benchmark in Tables T1 and T2.

5. It is important to note that both of these statistics are <u>average</u> values. The numbers do not relate to specific institutions.

<u>Interpretation</u>

6. The interpretation is fairly straightforward. If the average number of institutions in the comparison is small, say less than 20, then there are not many institutions whose students are similar to the one in question. If the students at the institution contribute a large proportion to the benchmark, say more than 20 per cent, then the adjusted sector benchmark will be similar to the institution’s own value. For the original benchmarks, very few institutions have a small number of comparable institutions or contribute a large proportion to the benchmark. For the location-adjusted benchmarks, these measures are more likely to be small or large respectively, and so these benchmarks are generally closer to the indicators than are the original benchmarks.

7. These statistics are designed, in particular, to pick up situations where the benchmark is of limited use because there are few other institutions that are really comparable. This has not occurred with the current set of PIs, although for the location-adjusted figures there are some institutions with a relatively small number of comparable institutions.

Average number of institutions in comparison

8. The calculation of the two statistics is based on the sector grid of entry qualifications and subject of study. (See HEFCE 2002/52, Annex B, paragraphs 8 and following.) For each cell in this grid, we count the number of institutions with students in that cell. Let this number be n_{ij} for subject i and entry qualification j. For the institution of interest, call the number of its students t, and let t_{ij} be the number studying subject i with entry qualification j. Then for each cell compute $\frac{t_{ij}}{t} \times n_{ij}$, and sum these values over all cells. So the required value is

$$\text{average number of institutions in comparison} = \sum_{over\ all\ cells} \frac{t_{ij}}{t} \times n_{ij}$$

Average contribution to benchmark

9. To find the contribution of the institution's students to the benchmark, we use a similar weighted average, but now of the proportion of each cell's students who come from the institution. If the number of students in the sector who are studying subject i and have entry qualification j is T_{ij}, then in any cell the institution's students form a proportion $\frac{t_{ij}}{T_{ij}}$ of the total, and the context statistic is the weighted average of these values, namely

$$\text{average contribution to the benchmark} = \sum_{over\ all\ cells} \frac{t_{ij}}{t} \times \frac{t_{ij}}{T_{ij}}$$

Research performance indicators

10. The additional context statistic for the research indicators has been called a 'measure of specialisation'. It is designed to be used, in conjunction with the number of active cost centres, to show how comparable the institution is to others in the sector with regards to research quantity.

Interpretation

11. If an institution has only one active cost centre, then the measure of specialisation gives a value of zero. In such cases, the institution is clearly very specialised, in the sense that it is concentrating all its research effort into one cost centre, so the measure of specialisation is unnecessary.

12. If an institution has more than one cost centre, the measure of specialisation gives an indication of how research activity (as measured by the input, that is either academic staff costs, or funding council allocation for research) is spread across these cost centres compared with how it is spread across the same centres in the sector as a whole. If the institution is similar to the sector in the way its research activity is spread across its cost centres, the measure of specialisation will be close to zero. If the institution is very different from the sector in the way its research activity is spread across its cost centres, then the measure of specialisation will be closer to one. In practice, it is rare for a value greater than 0.2 to occur, and any institution with such a value can be regarded as very different from the rest of the sector. Also in practice, institutions with high numbers of active cost centres have very low values for the measure of specialisation, which is not unexpected as such institutions are generally not very specialised.

Definition

13. The measure of specialisation depends on the inputs to the institution in each cost centre, and to the sector as a whole, again for each cost centre. Using the same notation as Annex D of ‘Performance indicators in higher education’ (HEFCE 2002/52), let s_k be the input to the institution in cost centre k, and S_k be the input to the sector in cost centre k. Then $t = \sum (s_k)$ is the total input to the institution for all subjects.

14. In addition, for the institution of interest let

$$n_k = 1 \qquad \text{where } s_k > 0$$
$$n_k = 0 \qquad \text{otherwise}$$

Then the number of active cost centres at the institution, n, is given by $n = \sum (n_k)$

15. The measure of specialisation, d, for the institution can be derived as follows:

$$d_k = \left| (s_k / t) - (S_k / T^*) \right| \qquad \text{where } s_k > 0$$
$$d_k = 0 \qquad \text{otherwise}$$

where $T^* = \sum (n_k . S_k)$ is the total input to the sector across all costs centres that are active at the institution.

Then the measure of specialisation is $d = \sum (d_k / n)$