

# Annex D

## Research indicators

### Technical notes and more detailed information

1. The research indicators used here are based on two measures of input and two measures of output. Three of these measures are available through the HESA data collections, while the fourth is obtained from the funding councils. Note that HESA publishes summaries of the data it collects, for example 'Student in Higher Education Institutions' for student data, and 'Resources of Higher Education Institutions' for finance data.
2. The indicators used are standardised by cost centre, as explained below. If an institution uses the same proportion of input as it produces of output, then the indicator will take a value of 1.

### Measuring input to research

3. There are a number of problems in creating a measure of research input. These arise partly because data on expenditure are not split between research and teaching, and partly because the individual staff records are only returned for staff with a full-time equivalent (FTE) of 25 percent or more. There is therefore no one ideal input measure, so it is proposed to use two complementary measures. These are:
  - a. **Academic staff costs**. This measure is available for all institutions by cost centre from the HESA finance record. It is therefore more complete than any based on the staff returns, although no separation of expenditure on research from that on teaching is possible.
  - b. **Research income from funding councils**. This measure based on academic staff cost takes no account of the varying relative levels of resources spent on research and teaching. The measure proposed here, the research income from funding councils allocated for quality (QR funding), aims to provide an indicator that does take account of the varying level of resources available for research. It is based on the funding allocation model used to allocate the recurrent research funds. Such funds form part of the block grant, which institutions are free to distribute internally as they see fit. This measure assumes that this internal distribution will follow the funding allocation model used by the funding council. This, in general, will not be the case, so the measure will provide only a rough indication of what funds go where. The research funding is allocated by 69 RAE units of assessment which have been mapped to the 40 cost centres.

### Measuring research output

4. Similarly, two measures of research output based on HESA records are proposed:
  - a. **PhDs awarded**. The number of doctoral degree completions provide a measure of the vitality of the institution in educating new researchers. The number of PhDs has been taken from the current HESA student record, summing records with a qualification obtained of 'PhD mainly by research'. The cost centre has been identified through the same record, wherever possible, or from records for the student in previous years. In some cases, we have had to map the subject of study to cost centre.
  - b. **Research grants and contracts**. Although this could be thought of as an input, it also provides a measure of the success of researchers in attracting funds over and above those allocated by the funding councils. The value of research grants and contracts comes from the current HESA finance record.

### Standardising for subject variation

5. There are often differences in the characteristics of research output between subjects. These can be adjusted for by making the measure specific to cost centre. If the output is, say, research contract income, then the indicator treats a pound of income as a different 'currency' of research output for each cost centre. This is done by looking not at the actual input and output, but at what proportion they form of the sector research. This means that institutions whose research is primarily in areas where the unit costs are

low are not at a disadvantage compared with institutions whose research is mainly in areas with high unit costs.

tions whose research is mainly in areas with high unit

6. The computation of the indicators is carried out

as follows. Let:

$r_k$  = research output of institution

$R_k$  = research output of sector

$s_k$  = input to institution

$S_k$  = input to sector

all in cost centre  $k$ .

Then,  $t = \sum(s_k)$  is the total input to the institution.

For cost centre  $k$ , the relative performance of an

institution,  $p_k$ , is given by:

$$p_k = \frac{r_k/s_k}{R_k/S_k}$$

The overall performance of the institution,  $p$ , is then calculated by summing these cost centre ratios using the weighting  $(s_k/t)$ :

hence calculated by summing these cost centre ratios using the

$$p = \sum_{\text{over all cost centres}} (p_k \times s_k/t) = \sum \frac{r_k \times (S_k/R_k)}{t}$$

### Measures of coverage

7. To put these indicators into context, a number of measures of coverage were considered. The ones from the funding councils, the percentage of funding from the funding councils allocated for research, and the total number of cost centres to which there is some input.

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8. In addition, the electronic version of the table of provision is from the sector's pattern. We have called this a measure of specialisation, and it can be used in conjunction with the number of cost centres to give an indication of how specialist an institution is. Details of how this measure is calculated are also given on our performance indicators web-site.

contains a measure of how different the institution's pattern is from the sector's pattern. We have called this a measure of specialisation, and it can be used in conjunction with the number of cost centres to give an indication of how specialist an institution is. Details of how this measure is calculated are also given on our performance indicators web-site.