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Ranking Australian Universities: Controlling for Scope

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October 2007



MELBOURNE INSTITUTE
of Applied Economic and Social Research

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ISBN 978-0-7340-3261-4

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Rankings of universities that are based on aggregate measures ignore the discipline coverage within institutions. In this paper, for each of Australia's 37 public universities, performance in research and teaching in broad discipline groups is evaluated and then aggregated up to obtain whole-of-institution rankings. Relative staff numbers are used as weights to aggregate research performance; student numbers are used to weight teaching performance. The performance attributes chosen are those that contribute to international academic standing. The rankings of ANU and some technologically oriented universities are raised when scope is allowed for, but elsewhere the changes are minor.

1. Introduction

In Australia, the procedures for allocating both the Research Quantum Fund and the Learning & Teaching Performance Fund recognize that patterns of research and teaching vary across disciplines. National or international rankings of universities, however, typically use aggregate data that ignore the scope of research and teaching undertaken within an institution. While discipline rankings exist, they usually are not used as input into whole-of-institution rankings¹. Many rankings of universities are biased against institutions that have a heavy emphasis on the social sciences and humanities. For example, international rankings that use the aggregate number of journal articles listed in the Thomson Scientific (TS) data base are particularly influenced by whether or not a university has a clinical medical school².

* I am greatly indebted to Emayenesh Seyoum and Carol Smith for assistance with preparation of the data sets and to the Department of Education, Science and Training and the Graduate Careers Council of Australia for the provision of data.

¹ Information on the performance of universities is typically compiled either at the whole-of-institution level or at the discipline level. Examples of the former include the Shanghai Jiao Tao University (SJTU) world rankings, The THES-QS world rankings and various national rankings. World rankings at the discipline level are compiled by SJTU and THES-QS; US News and World Report in the USA and Maclean's in Canada provide national rankings of selected disciplines.

² See R. Williams, 'Broadening the Criteria: Lessons from the Australian Rankings', in Jan Sadlak and Liu Nian Cai (eds), *The World-Class University and Ranking: Aiming Beyond Status*, UNESCO-CEPES, 2007, pp. 205-221. Over the last 10 years in Australia, research in clinical medicine accounts for 22 per cent of articles and 37 per cent of citations in the TS Essential Science Indicators; only 11 per cent of academic staff in Australian universities are classified as being in Medical Studies.

One criterion for a good ranking methodology is that an institution that ranks highly in each of the disciplines that it covers should be ranked highly overall. In this paper we rank disciplines within an institution according to their performance in research, and in learning, training and teaching. The broad criterion used for choosing measures is ‘international academic standing’. Overall rankings are obtained by using a weighted average of the discipline rankings, where the weights reflect the scope of the institution. In research, the weights used are the relative number of academic staff in each discipline; in teaching, student numbers are used as weights. The research and teaching ratings are then combined to give institutional rankings.

All thirty-seven public universities that are members of Universities Australia are included: a full listing is given in the Data Appendix.

2. Measuring Scope

We define scope in terms of the distribution of academic staff across discipline areas. We use as the basic building block the official classification of academic staff by academic organizational unit (AOU) as compiled by the Department of Education, Science and Training (DEST). The ten discipline groups are

1. Sciences
2. Information Technology
3. Engineering
4. Architecture and Building
5. Agriculture/Environment
6. Health
7. Education
8. Management and Commerce
9. Society and Culture (includes Law, Economics and Behavioural Science)
10. Creative Arts

Data limitations sometimes require collapsing these groups into fewer classes. For some purposes it is useful to split the category Society and Culture into subgroups.

Staff numbers are calculated, in equivalent full-time units, as the sum of ‘teaching & research’ and ‘research only’ staff. Casual staff and staff holding ‘teaching only’ appointments are excluded. The percentages of staff in each university included in each category are given in Table 1. For the public universities in Australia as a whole, Science and Society & Culture each account for 20 per cent of academic staff; a further 16 per cent are employed in Health. Management & Commerce accounts for only 10.5 per cent of academic staff although 20 per cent of students are enrolled in this area.

The national averages hide major differences in discipline composition between universities. The proportion of academic staff in the area of Health ranges from a high of nearly 40 per cent at Flinders to negligible numbers at Canberra, Swinburne and USC.

Table 1: Scope of Institutions as Measured by Academic Staff Numbers, percentage shares, 2005

| University | Science | IT | Engineering | Architecture & Building | Agriculture & Environment | Health | Education | Management & Commerce | Society & Culture | Creative Arts |
|------------|---------|------|-------------|-------------------------|---------------------------|--------|-----------|-----------------------|-------------------|---------------|
| ACU | 7.4 | 0.0 | 0.0 | 0.0 | 0.0 | 19.8 | 34.8 | 12.0 | 25.9 | 0.0 |
| Adelaide | 29.6 | 2.3 | 9.2 | 1.3 | 11.0 | 19.8 | 0.7 | 5.0 | 18.8 | 2.4 |
| ANU | 37.3 | 2.0 | 2.8 | 0.0 | 4.4 | 5.1 | 0.2 | 6.3 | 36.4 | 5.6 |
| Ballarat | 8.7 | 11.8 | 3.9 | 0.0 | 0.0 | 25.8 | 12.4 | 19.3 | 12.6 | 5.6 |
| Canberra | 6.7 | 13.9 | 0.0 | 6.1 | 0.0 | 0.0 | 15.3 | 19.7 | 27.0 | 11.2 |
| CDU | 24.0 | 5.1 | 0.0 | 0.0 | 0.7 | 16.0 | 11.0 | 2.7 | 40.4 | 0.0 |
| CQU | 8.2 | 1.3 | 5.3 | 0.0 | 7.9 | 12.3 | 17.5 | 13.3 | 27.0 | 7.2 |
| CSU | 9.1 | 7.5 | 0.0 | 0.0 | 15.2 | 14.7 | 14.3 | 13.5 | 19.8 | 5.9 |
| Curtin | 15.4 | 5.4 | 12.9 | 0.0 | 2.6 | 18.6 | 1.4 | 14.9 | 22.2 | 6.6 |
| Deakin | 9.6 | 8.8 | 5.5 | 2.6 | 0.0 | 20.6 | 8.9 | 16.7 | 18.8 | 8.4 |
| ECU | 4.1 | 10.8 | 4.8 | 0.0 | 0.0 | 11.8 | 23.3 | 11.6 | 18.2 | 15.5 |
| Flinders | 10.7 | 5.2 | 0.0 | 0.0 | 0.0 | 39.4 | 6.9 | 4.1 | 33.7 | 0.0 |
| Griffith | 18.4 | 4.7 | 5.2 | 1.0 | 0.0 | 9.4 | 9.8 | 16.6 | 24.2 | 10.6 |
| JCU | 24.0 | 3.5 | 5.4 | 0.0 | 6.4 | 20.9 | 8.3 | 7.4 | 18.6 | 5.6 |
| La Trobe | 19.5 | 4.7 | 2.3 | 0.0 | 2.6 | 22.6 | 5.3 | 8.9 | 30.5 | 3.5 |
| Macquarie | 20.4 | 5.2 | 1.7 | 0.0 | 1.4 | 1.7 | 7.6 | 17.1 | 41.7 | 3.2 |
| Melbourne | 24.0 | 3.0 | 7.0 | 2.0 | 5.0 | 24.9 | 4.9 | 4.6 | 19.3 | 5.3 |
| Monash | 29.4 | 7.9 | 9.5 | 0.0 | 0.0 | 16.8 | 4.3 | 9.4 | 19.5 | 3.2 |
| Murdoch | 33.4 | 6.2 | 0.0 | 0.0 | 0.0 | 15.2 | 6.4 | 9.5 | 22.7 | 6.6 |
| Newcastle | 20.7 | 0.0 | 14.7 | 3.2 | 0.0 | 17.1 | 9.6 | 6.3 | 19.7 | 8.7 |
| Queensland | 28.2 | 0.0 | 13.7 | 1.9 | 5.9 | 21.2 | 1.7 | 5.8 | 18.9 | 2.6 |
| QUT | 16.9 | 10.6 | 4.7 | 6.3 | 0.0 | 11.5 | 12.3 | 12.1 | 17.0 | 8.6 |
| RMIT | 21.5 | 10.3 | 12.9 | 8.6 | 0.0 | 7.4 | 3.2 | 9.8 | 12.0 | 14.2 |
| SCU | 12.2 | 5.1 | 0.0 | 0.0 | 0.0 | 11.8 | 9.4 | 29.4 | 21.3 | 10.9 |
| Swinburne | 0.0 | 20.3 | 19.8 | 0.0 | 0.0 | 0.0 | 1.5 | 27.3 | 21.9 | 9.2 |
| Sydney | 22.1 | 2.3 | 5.7 | 1.8 | 2.0 | 29.8 | 3.4 | 6.5 | 21.8 | 4.5 |
| Tasmania | 17.2 | 5.1 | 2.6 | 1.9 | 8.5 | 17.3 | 7.9 | 6.0 | 27.3 | 6.2 |
| UNE | 12.9 | 5.7 | 0.0 | 0.0 | 12.1 | 4.9 | 17.6 | 5.1 | 36.0 | 5.7 |
| UniSA | 12.7 | 5.6 | 18.3 | 2.9 | 0.0 | 13.9 | 9.5 | 16.4 | 13.4 | 7.1 |
| UNSW | 22.3 | 5.4 | 16.9 | 3.5 | 0.2 | 11.0 | 1.0 | 12.5 | 22.5 | 4.8 |
| USC | 32.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 37.0 | 0.0 | 30.8 |
| USQ | 15.0 | 6.4 | 15.5 | 0.0 | 0.0 | 5.4 | 12.6 | 14.2 | 17.6 | 13.4 |
| UTS | 16.2 | 9.7 | 11.8 | 8.5 | 0.0 | 5.1 | 7.7 | 19.1 | 13.5 | 8.5 |
| UWA | 28.7 | 2.3 | 9.6 | 2.4 | 0.0 | 26.3 | 1.6 | 10.0 | 17.6 | 1.5 |
| UWS | 11.1 | 6.4 | 5.4 | 2.8 | 3.5 | 10.9 | 9.9 | 15.1 | 26.4 | 8.5 |
| Victoria | 4.3 | 12.3 | 12.8 | 0.0 | 0.0 | 13.4 | 6.0 | 15.4 | 30.7 | 5.1 |
| Wollongong | 19.6 | 9.9 | 17.8 | 0.0 | 0.0 | 3.8 | 7.2 | 11.0 | 25.7 | 5.1 |
| Average | 20.6 | 5.4 | 8.3 | 1.9 | 2.5 | 16.4 | 6.3 | 10.5 | 22.1 | 5.9 |

Macquarie has nearly twice the national average percentage of staff in Society & Culture; ACU has over one-third of staff in Education compared with a national average of only 6 per cent. Swinburne has 40 per cent of staff in either IT or Engineering compared with a national average of 14 per cent. CSU, UNE and Adelaide have over 10 per cent of staff in Agriculture compared with a national average of only 2.5 per cent. The proportion of academic staff in Management & Commerce ranges from 3 per cent (CDU) to 37 per cent (USC).

As an index of the overall degree of specialisation for each university we use the standard deviation of staff shares from the national average shares in each of the ten disciplines, standardised to give the most specialised university a score of 100.³ The ranking is given in Table 2.

On our criterion, USC is the most specialised university followed by Swinburne and ACU. The universities that are closest to the national average are JCU, Curtin and Monash.

With these differences among the discipline mix of Australian universities it is clearly desirable that performances measures take account of the scope of an institution. We now turn to measuring performance in the different discipline areas.

3. Measuring International Standing in Research

The research measures used are publications and citations in internationally recognized journals, total referred publications including books, success in national competitive grants, membership of academies and doctoral completions.

Publications and Citations

Publications and citations data are from the TS data banks ESI and USI (which collectively we will call ISI), for the most recent ten year period.⁴ USI data are used where either the ESI journal coverage is poor (Education and Arts & Humanities) or few Australian universities make the cut-off (Business & Economics). In total, seven discipline groups are distinguished. Four groups (Science, Information Technology, Engineering and Health) are constructed from the 20 ESI fields in these areas (see Data Appendix for details). There is some arbitrariness in dividing categories between Science and Health, but to combine them would fail to address the need to deal appropriately with institutions that do not have a clinical medical school. USI data are used for Education and for Economics & Business; a category Social Sciences & Humanities is constructed

³ A related absolute measure of specialisation is contained in R. Williams, 'Measuring submarket specialisation by firms', *Economic Letters*, 36 (1991), pp. 291-294.

⁴ Data from Essential Science Indicators relate to the period January 1997 to April 2007. University Statistical Indicators cover the period 1996-2005. In all the USI data the citations relate to two five year periods which are then added. I am indebted to Thomson Scientific for permission to use the USI data.

Table 2: Specialisation Index: Degree of Departure from National Staff Distribution Across Disciplines

| Rank | University | Index |
|------|------------|-------|
| 1 | USC | 100.0 |
| 2 | Swinburne | 76.3 |
| 3 | ACU | 70.0 |
| 4 | Flinders | 62.3 |
| 5 | Canberra | 59.9 |
| 6 | ECU | 56.2 |
| 7 | ANU | 55.0 |
| 8 | UNE | 54.7 |
| 9 | Macquarie | 54.4 |
| 10 | SCU | 48.8 |
| 11 | CDU | 47.8 |
| 12 | Ballarat | 46.3 |
| 13 | Victoria | 43.8 |
| 13 | CSU | 43.8 |
| 15 | UTS | 40.5 |
| 16 | CQU | 40.4 |
| 17 | RMIT | 39.0 |
| 18 | USQ | 38.3 |
| 19 | UniSA | 35.6 |
| 20 | Wollongong | 35.3 |
| 21 | Adelaide | 33.3 |
| 22 | Murdoch | 32.2 |
| 22 | UWA | 32.2 |
| 24 | Deakin | 31.2 |
| 25 | Sydney | 31.0 |
| 26 | Queensland | 30.2 |
| 27 | UWS | 28.5 |
| 28 | QUT | 27.4 |
| 29 | La Trobe | 26.0 |
| 30 | Griffith | 25.0 |
| 31 | UNSW | 24.9 |
| 32 | Melbourne | 24.6 |
| 33 | Tasmania | 23.5 |
| 34 | Newcastle | 22.6 |
| 35 | Monash | 22.0 |
| 36 | Curtin | 20.6 |
| 37 | JCU | 19.4 |

If university has same distribution of staff across disciplines as national average then index is zero. High values indicate greater departure from national average.

by combining ESI data in Social Sciences with USI data in Humanities.⁵

Corresponding staff numbers are obtained by re-grouping the 10 AOU's given above (see the Data Appendix).

ISI data cover publications which appear in journals. The data collected by DEST include journal articles, books, chapters in books, and referred conference papers. The coverage of journals is extended to all refereed publications. The wider coverage removes the quality filter given by ISI data, but in areas such as Law it compensates for deficiencies in the ISI coverage. A breakdown of DEST publications by discipline area is not readily available so only total weighted output over the five-year period 2001-2005 is used, with a weight of five for books.

Competitive Research Grants

The principle nationally competitive research grant schemes are those administered by the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC). The measure used is the value of awards over the life of each project for successful applications in the years 2004-2006 (with funding normally starting in the next year). The ARC data cover both Discovery and Linkage projects and infrastructure funding. All NHMRC funding is included.

Under the definitions used, total funding to universities is similar under each scheme. It follows that unless allowance is made for the discipline composition of each university those universities with medical schools must dominate research funding, irrespective of the merits of other discipline areas. ARC funding is allocated to the 10 discipline groups using RFCDC codes as set out in the Data Appendix. NHMRC funding is all allocated to Health.

Federation Fellows

The ARC awards Federation Fellowships to distinguished scholars, typically for a period of five years. The data used are the number of fellowships awarded over the five years 2003-2007 for each university and by RFCDC code.

Academy Membership

It is difficult to allocate members of the four learned academies to the ten discipline groups. Instead, fellows of the Academy of Science and the Australian Academy of Technological Sciences and Engineering are allocated to a composite group defined for convenience as 'sciences' (the first six discipline groups set out in Section 2). Fellows of the Academy of Social Sciences in Australia and of the Australian Academy of the Humanities are allocated to a composite group labelled 'humanities and social sciences' (the last four in the list given in Section 2). Membership is at May 2007.

⁵ The Humanities data combine publications in the USI categories Classical Studies, History, Philosophy and Literature.

Doctoral Completions

The variable used is doctoral completions over the period 2002-2005 in each of the ten discipline areas listed in Section 2. A weighted aggregate is obtained using the distribution of academic staff across the disciplines.

4. Measuring Quality of Teaching and Research Training

The international standing of a university depends mainly but not solely on the standing of its academic staff and their research performance. Other attributes of a world class university include strong undergraduate and graduate programs that are reflected in measures such as student satisfaction, demand by students for places, and progression rates within the undergraduate degree and into graduate programs.

In choosing specific measures we use the information employed by DEST in allocating the Learning and Teaching Performance Fund. Three measures are taken from this source: overall student satisfaction with their course immediately after graduation,⁶ and progression rates and retention rates of Australian undergraduate students. The data are adjusted by DEST for characteristics of the institution and are provided separately for four discipline groupings:

- Science, Computing, Engineering, Architecture and Agriculture
- Business, Law and Economics
- Humanities, Arts and Education
- Health

We also employ this four discipline grouping in the calculation of weighted average (undergraduate) tertiary entrances scores (TES).

We construct rankings within each group and then aggregate up using as weights total student load in bachelors degrees in each category. (See the Data Appendix for load shares.) Total load is used as it is a better measure of scope than is domestic student load. The data are for 2005.⁷

The results of the 2006 Graduate Destination Survey (GDS), undertaken by the Graduate Careers Council of Australia, are used to calculate a measure of the propensity of students to proceed to research degrees (including honours) and masters by coursework in their own or another university. Progression rates to research degrees are calculated separately for 'science' and 'humanities and social sciences' using the same definitions as in research. Separate rankings are obtained and then combined using as weights the number of students graduating in each group in each institution. In obtaining a total ranking for

⁶ The data are from the Course Experience Questionnaire administered by all universities through the Graduate Careers Council of Australia.

⁷ For three universities (CDU, CQU and ECU) TES data were not available for 2005 so 2004 data are used.

this attribute, masters by coursework students are given a half-weight compared with research students.

The measure of student satisfaction we use at the graduate level is overall satisfaction with the PhD program taken from the postgraduate research experience questionnaire (PREQ) for the years 2004-2006. For many institutions the number of responses, even with three years data, is too small to permit disaggregation by discipline so we just use overall figures.

Finally, we calculate the resources available for learning and teaching as the sum of (i) Commonwealth Grants Scheme and other grants, (ii) Australian Government payments under HECS-HELP and FEE-HELP, (iii) upfront student contributions, (iv) fees and charges for teaching, (v) investment income and (iv) donations and bequests. This revenue estimate for 2005 is then divided by the onshore student load in teaching programs (i.e. excluding research higher degree students).⁸

5. Results

Research Performance

We have argued that in measuring research performance and standing there is a need to control for the composition of each institution. The data in Table 3 are measures of research performance that allow for compositional differences in staff numbers; data unadjusted for compositional differences are presented in Table 4. Ratings by individual disciplines groups are contained in Appendix Tables A1 to A5.

Using ISI publications and citations data (ESI and USI), the effect of weighting for scope is to increase the relative rating of newer institutions and institutions that do not have a long-established clinical medical school, that is, the rating for newer universities is a much higher percentage of the top rated institution when allowance is made for scope. ANU, where clinical medical education is relatively recent, is ranked about equal first with Sydney on ISI publications when allowance is made for scope, but using the raw data it is ranked fifth. Similar results are observed for citations data, where ANU moves from fourth to equal first after weighting for scope.

The rate of academy membership in a given university does not show marked differences across the two broad discipline groups (sciences and humanities/social sciences) so that weighting for scope makes little difference to overall rankings. ANU dominates.

The importance of NHMRC income is indicated in the findings for nationally competitive grants. ANU is equal first with Sydney when we allow for scope, but is sixth ranked on total income. In contrast, Melbourne is first ranked on total income but falls a little

⁸ The payment to the Australian National University for the (research) Institutes is excluded. The mix of disciplines and level of courses (including masters by coursework) makes it difficult to establish appropriate discipline weights, so only aggregate student numbers are used.

Table 3: Research Performance and Standing: Weighted by Scope

| Rank | University | Publications | | Citations | Academies | Grants | Fellowships | Doctoral Completions | Total |
|------|------------|--------------|-------|-----------|-----------|--------|-------------|----------------------|-------|
| | | ISI | DEST | ISI | | | | | |
| 1 | ANU | 99.0 | 77.7 | 99.8 | 100.0 | 99.3 | 86.7 | 80.9 | 100.0 |
| 2 | Melbourne | 90.8 | 100.0 | 88.9 | 67.4 | 96.6 | 85.6 | 100.0 | 97.8 |
| 3 | Sydney | 100.0 | 96.3 | 100.0 | 49.9 | 100.0 | 74.7 | 98.8 | 97.1 |
| 4 | Queensland | 86.2 | 91.0 | 76.4 | 22.9 | 78.4 | 100.0 | 87.4 | 82.1 |
| 5 | UNSW | 85.8 | 80.8 | 84.0 | 29.8 | 86.8 | 43.7 | 78.3 | 77.9 |
| 6 | Monash | 69.2 | 86.5 | 59.4 | 27.2 | 58.1 | 29.0 | 75.4 | 65.1 |
| 7 | UWA | 51.2 | 48.8 | 48.3 | 24.0 | 43.4 | 17.2 | 45.8 | 45.0 |
| 8 | Adelaide | 40.3 | 46.8 | 33.3 | 21.0 | 36.1 | 17.8 | 43.9 | 38.4 |
| 9 | QUT | 34.1 | 34.5 | 31.2 | 1.8 | 33.9 | 4.3 | 31.3 | 28.2 |
| 10 | Macquarie | 19.7 | 28.5 | 15.5 | 12.4 | 21.6 | 17.4 | 38.7 | 24.2 |
| 11 | La Trobe | 25.6 | 29.6 | 22.9 | 19.3 | 12.9 | 2.4 | 32.7 | 24.0 |
| 12 | Griffith | 25.6 | 33.1 | 16.0 | 5.1 | 19.5 | 3.9 | 35.3 | 22.8 |
| 13 | Newcastle | 26.2 | 28.8 | 24.4 | 5.5 | 17.6 | 4.4 | 26.2 | 21.8 |
| 14 | Wollongong | 15.6 | 27.9 | 12.4 | 2.5 | 29.3 | 8.3 | 28.2 | 20.0 |
| 15 | Tasmania | 19.2 | 22.8 | 12.6 | 8.6 | 15.1 | 2.7 | 27.5 | 17.9 |
| 16 | RMIT | 2.9 | 28.8 | 1.7 | 0.9 | 22.4 | 12.9 | 43.9 | 17.8 |
| 16 | UTS | 14.1 | 24.5 | 13.3 | 4.4 | 24.5 | 3.4 | 24.2 | 17.8 |
| 18 | UWS | 16.2 | 24.9 | 14.4 | 3.4 | 15.7 | 0.0 | 23.6 | 16.4 |
| 19 | Flinders | 17.7 | 22.2 | 13.8 | 7.7 | 12.0 | 0.0 | 24.3 | 16.3 |
| 20 | UniSA | 13.2 | 25.3 | 9.9 | 1.9 | 16.2 | 0.0 | 30.1 | 16.1 |
| 21 | Curtin | 17.2 | 25.1 | 14.2 | 2.3 | 8.1 | 0.0 | 26.9 | 15.6 |
| 21 | Deakin | 16.1 | 28.6 | 13.6 | 1.4 | 10.9 | 4.3 | 21.0 | 15.6 |
| 23 | UNE | 17.2 | 14.6 | 11.0 | 6.8 | 8.9 | 0.0 | 24.2 | 13.8 |
| 24 | ECU | 14.9 | 17.6 | 12.4 | 1.0 | 3.3 | 0.0 | 18.6 | 11.3 |
| 25 | Murdoch | 9.4 | 14.8 | 6.6 | 3.9 | 7.4 | 0.0 | 21.1 | 10.5 |
| 26 | JCU | 10.5 | 15.3 | 10.0 | 2.5 | 4.9 | 6.5 | 15.8 | 10.4 |
| 27 | Swinburne | 0.7 | 13.3 | 0.4 | 1.8 | 19.6 | 0.0 | 19.8 | 9.3 |
| 28 | CSU | 8.0 | 14.1 | 5.3 | 0.8 | 4.0 | 0.0 | 11.2 | 7.2 |
| 29 | SCU | 1.2 | 6.2 | 0.7 | 0.5 | 1.5 | 0.0 | 32.6 | 7.1 |
| 30 | ACU | 6.8 | 6.9 | 2.3 | 1.6 | 4.9 | 0.0 | 14.8 | 6.2 |
| 31 | Victoria | 1.7 | 16.3 | 0.5 | 0.7 | 1.4 | 0.0 | 15.9 | 6.1 |
| 32 | USQ | 4.0 | 6.8 | 7.8 | 0.0 | 2.4 | 0.0 | 5.0 | 4.3 |
| 33 | Canberra | 2.5 | 7.8 | 0.5 | 0.0 | 3.3 | 0.0 | 10.0 | 4.0 |
| 34 | CQU | 3.6 | 9.4 | 2.6 | 0.0 | 1.0 | 0.0 | 4.0 | 3.5 |
| 35 | Ballarat | 1.3 | 5.4 | 1.0 | 0.7 | 1.5 | 0.0 | 4.8 | 2.4 |
| 35 | CDU | 1.1 | 4.3 | 0.6 | 0.3 | 3.7 | 0.0 | 4.4 | 2.4 |
| 37 | USC | 0.4 | 2.1 | 0.1 | 0.0 | 1.5 | 0.0 | 5.0 | 1.5 |

Table 4: Research Performance and Standing: Unweighted by Scope

| Rank | University | Publications | | Citations | Academies | Grants | Fellowships | Doctoral | Total |
|------|------------|--------------|-------|-----------|-----------|--------|-------------|-------------|-------|
| | | ISI | DEST | ISI | | | | Completions | |
| 1 | Melbourne | 89.2 | 100.0 | 95.4 | 67.7 | 100.0 | 77.3 | 100.0 | 100.0 |
| 2 | Sydney | 100.0 | 96.3 | 100.0 | 49.7 | 95.6 | 95.5 | 90.9 | 98.2 |
| 3 | Queensland | 84.7 | 91.0 | 82.3 | 25.5 | 68.4 | 100.0 | 87.7 | 82.8 |
| 4 | ANU | 68.1 | 77.7 | 77.9 | 100.0 | 49.3 | 77.3 | 48.6 | 77.9 |
| 5 | UNSW | 71.6 | 80.8 | 67.0 | 29.7 | 59.2 | 45.5 | 73.3 | 68.4 |
| 6 | Monash | 61.1 | 86.5 | 61.7 | 28.4 | 65.9 | 36.4 | 68.9 | 66.1 |
| 7 | UWA | 51.8 | 48.8 | 50.9 | 24.2 | 45.9 | 22.7 | 48.0 | 47.5 |
| 8 | Adelaide | 39.6 | 46.8 | 36.7 | 20.0 | 36.7 | 18.2 | 36.4 | 38.1 |
| 9 | La Trobe | 13.3 | 29.6 | 10.5 | 18.7 | 8.3 | 4.5 | 27.6 | 18.7 |
| 10 | Newcastle | 17.9 | 28.8 | 14.8 | 5.5 | 17.7 | 4.5 | 23.0 | 18.6 |
| 11 | Macquarie | 12.1 | 28.5 | 11.3 | 11.0 | 9.7 | 18.2 | 21.2 | 17.4 |
| 12 | QUT | 12.1 | 34.5 | 6.3 | 1.6 | 12.3 | 4.5 | 25.7 | 16.0 |
| 13 | Griffith | 10.7 | 33.1 | 5.6 | 4.5 | 8.5 | 9.1 | 27.2 | 15.9 |
| 14 | Tasmania | 16.3 | 22.8 | 13.0 | 8.7 | 7.4 | 4.5 | 23.0 | 15.8 |
| 15 | Wollongong | 7.6 | 27.9 | 4.6 | 2.6 | 11.1 | 4.5 | 22.7 | 13.3 |
| 15 | Curtin | 8.7 | 25.1 | 5.8 | 2.3 | 7.0 | 0.0 | 29.8 | 13.3 |
| 17 | Flinders | 8.7 | 22.2 | 7.0 | 7.7 | 11.0 | 0.0 | 17.7 | 12.6 |
| 18 | Deakin | 6.3 | 28.6 | 3.6 | 1.3 | 5.5 | 4.5 | 19.7 | 11.4 |
| 19 | RMIT | 1.1 | 28.8 | 0.3 | 1.0 | 5.3 | 4.5 | 28.0 | 11.3 |
| 20 | UniSA | 4.5 | 25.3 | 1.9 | 1.9 | 9.7 | 0.0 | 20.5 | 10.8 |
| 21 | JCU | 10.5 | 15.3 | 9.4 | 2.3 | 4.3 | 9.1 | 14.5 | 10.3 |
| 22 | UTS | 3.2 | 24.5 | 0.8 | 4.2 | 7.4 | 4.5 | 17.3 | 10.1 |
| 23 | UWS | 2.7 | 24.9 | 0.8 | 2.6 | 3.6 | 0.0 | 17.7 | 8.8 |
| 24 | Murdoch | 5.9 | 14.8 | 4.2 | 3.9 | 5.6 | 0.0 | 17.1 | 8.7 |
| 25 | UNE | 6.4 | 14.6 | 3.4 | 5.8 | 2.2 | 0.0 | 16.5 | 8.3 |
| 26 | Swinburne | 0.1 | 13.3 | 0.0 | 2.3 | 4.6 | 0.0 | 11.9 | 5.4 |
| 27 | ECU | 1.4 | 17.6 | 0.4 | 0.6 | 1.3 | 0.0 | 9.2 | 5.2 |
| 28 | Victoria | 0.2 | 16.3 | 0.0 | 0.6 | 0.5 | 0.0 | 11.9 | 5.0 |
| 29 | CSU | 2.0 | 14.1 | 0.9 | 0.6 | 1.0 | 0.0 | 5.9 | 4.1 |
| 30 | SCU | 0.1 | 6.2 | 0.0 | 0.3 | 1.1 | 0.0 | 9.7 | 2.9 |
| 31 | CQU | 0.2 | 9.4 | 0.0 | 0.0 | 0.4 | 0.0 | 4.0 | 2.4 |
| 32 | Canberra | 0.2 | 7.8 | 0.0 | 0.0 | 1.4 | 0.0 | 4.2 | 2.3 |
| 33 | ACU | 0.2 | 6.9 | 0.0 | 1.0 | 0.6 | 0.0 | 3.7 | 2.1 |
| 33 | USQ | 0.3 | 6.8 | 0.1 | 0.0 | 0.5 | 0.0 | 4.4 | 2.1 |
| 35 | CDU | 1.0 | 4.3 | 1.0 | 0.3 | 1.7 | 0.0 | 3.6 | 2.0 |
| 36 | Ballarat | 0.1 | 5.4 | 0.0 | 0.6 | 0.9 | 0.0 | 3.8 | 1.8 |
| 37 | USC | 0.0 | 2.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.8 | 0.5 |

below Sydney and ANU when we allow for scope. Queensland has had the most number of Federation Fellows whether or not we allow for scope.

Melbourne is first for doctoral completions on either method of rating. As with publications, weighting by scope improves the relative ranking of newer institutions, especially those which are not science-oriented. Southern Cross, for example, increases from 10 per cent of the best performing institution (Melbourne) to 33 per cent after allowing for the distribution of staff within institutions.

The total columns in Tables 3 and 4 are obtained by a simple average of the seven attributes with a half-weight on Fellowships in recognition that these are a narrow measure of the ability to attract researchers⁹. Controlling for scope raises the scores for all non-GO8 universities and therefore reduces overall dispersion; the greatest increase in ranking occurs for UTS (6 places) and UWS (5 places)¹⁰.

On overall research performance, after allowing for scope, ANU is first ranked followed by Melbourne, Sydney and Queensland in that order. If scope is ignored Melbourne is first ranked followed by Sydney, Queensland and ANU in that order.

Teaching and Research Training

Performance measures in teaching and research training are given in Table 5. In obtaining the ratings for each measure of performance all data have been weighted by discipline mix except for student evaluation of PhD programs and resources per student.

The three variables taken from the Learning and Teaching Performance Fund data (undergraduate satisfaction, retention and progression rates) show much less dispersion across institutions than were observed with the research measures: the lowest ranked institution typically has a rating of about 75 per cent of the top ranked institution. In part this compression is due to the fact that the data are standardised by DEST to reflect institutional characteristics. G08 universities (ANU and Melbourne) occupy only two of the top ten places in student satisfaction; the top three are Murdoch, New England and Wollongong. The G08 universities do well in progression rates (six out the top ten); the top three universities are Canberra, UNSW and Melbourne. Melbourne has the best retention rate followed by ANU and Macquarie.

ANU dominates resource levels per student followed by UWA, Melbourne and Sydney. Melbourne has the highest quality intake as measured by the TES, followed by UWA.

Progression rates to higher degrees exhibit considerable variation. Given the mission of G08 universities it is not surprising that they occupy the top five positions: ANU is a clear first followed by Sydney and Adelaide. In contrast, students from G08 universities

⁹ Publications in quality journals are implicitly given a double weight as they enter in both ISI and DEST publications.

¹⁰ The largest fall occurs for Curtin owing to the low staff weight given to its good performance in Education. The result may be due to inappropriate classification of staff in the data.

Table 5: Teaching and Learning, Weighted by Scope

| Rank | University | Student Satisfaction | | Progression Rates | | Retention | Entrance | | Total |
|------|------------|----------------------|-------|-------------------|-------------|-----------|----------|-----------|-------|
| | | undergrad | PhD | undergrad | to postgrad | Rates | Score | Resources | |
| 1 | ANU | 96.2 | 86.7 | 98.4 | 100.0 | 98.8 | 96.8 | 100.0 | 100.0 |
| 2 | Melbourne | 92.6 | 85.3 | 99.3 | 66.0 | 100.0 | 100.0 | 77.8 | 91.7 |
| 3 | UWA | 91.5 | 84.5 | 97.9 | 66.1 | 94.1 | 98.9 | 84.7 | 91.3 |
| 4 | Sydney | 82.9 | 82.3 | 98.3 | 76.3 | 96.5 | 95.7 | 75.6 | 89.8 |
| 5 | Adelaide | 82.4 | 86.9 | 93.0 | 75.0 | 94.0 | 92.0 | 66.7 | 87.1 |
| 5 | Macquarie | 87.5 | 83.6 | 96.1 | 65.9 | 97.8 | 96.8 | 61.9 | 87.1 |
| 7 | Queensland | 86.6 | 89.3 | 96.8 | 51.6 | 92.1 | 95.6 | 71.5 | 86.2 |
| 8 | Monash | 89.6 | 88.2 | 95.3 | 53.5 | 95.3 | 91.1 | 68.4 | 85.9 |
| 9 | UNSW | 87.0 | 77.0 | 99.5 | 47.9 | 97.3 | 96.9 | 68.3 | 84.8 |
| 10 | Wollongong | 96.4 | 81.2 | 97.9 | 52.2 | 96.6 | 88.0 | 55.8 | 83.9 |
| 11 | Tasmania | 86.3 | 82.3 | 92.5 | 61.4 | 91.6 | 84.3 | 63.5 | 83.0 |
| 12 | Murdoch | 100.0 | 91.6 | 91.2 | 46.9 | 89.3 | 85.6 | 56.1 | 82.9 |
| 13 | UTS | 89.6 | 93.4 | 98.1 | 21.3 | 95.5 | 92.1 | 58.5 | 81.1 |
| 14 | La Trobe | 88.3 | 90.8 | 92.7 | 47.6 | 89.4 | 80.3 | 55.2 | 80.4 |
| 15 | Newcastle | 84.0 | 85.9 | 94.9 | 34.6 | 96.0 | 87.9 | 58.3 | 80.0 |
| 15 | Curtin | 87.2 | 84.6 | 94.1 | 25.7 | 94.8 | 91.1 | 63.8 | 80.0 |
| 17 | Flinders | 86.9 | 76.6 | 92.2 | 46.4 | 91.5 | 83.2 | 57.5 | 79.0 |
| 18 | JCU | 89.7 | 98.3 | 87.5 | 20.0 | 84.0 | 84.0 | 61.2 | 77.5 |
| 19 | Griffith | 86.8 | 79.0 | 91.8 | 41.7 | 83.2 | 86.1 | 55.5 | 77.4 |
| 19 | Canberra | 86.5 | 80.4 | 100.0 | 22.2 | 95.7 | 86.4 | 52.5 | 77.4 |
| 21 | QUT | 84.1 | 84.3 | 91.3 | 22.9 | 89.4 | 90.1 | 58.4 | 76.9 |
| 22 | Swinburne | 93.3 | 69.8 | 95.3 | 25.8 | 92.9 | 79.4 | 59.0 | 76.2 |
| 23 | UniSA | 84.7 | 77.5 | 92.1 | 25.5 | 91.8 | 78.7 | 63.0 | 75.8 |
| 24 | UNE | 97.6 | 89.3 | 89.0 | 21.1 | 90.2 | 74.2 | 49.8 | 75.5 |
| 25 | RMIT | 85.1 | 63.6 | 94.2 | 27.1 | 92.5 | 80.2 | 65.8 | 75.1 |
| 26 | Victoria | 90.8 | 84.2 | 88.0 | 25.8 | 88.6 | 73.8 | 55.5 | 74.8 |
| 27 | SCU | 93.7 | 100.0 | 91.4 | 15.0 | 82.3 | 69.7 | 51.1 | 74.3 |
| 28 | USC | 94.5 | * | 85.5 | 21.9 | 78.1 | 79.8 | 55.5 | 73.8 |
| 29 | Deakin | 87.1 | 56.0 | 93.0 | 32.9 | 92.8 | 79.3 | 58.3 | 73.8 |
| 29 | ECU | 86.4 | 83.3 | 91.0 | 19.2 | 87.3 | 79.5 | 52.7 | 73.8 |
| 31 | ACU | 88.6 | * | 96.4 | 12.4 | 91.7 | 79.6 | 45.1 | 73.6 |
| 32 | Ballarat | 94.4 | * | 90.7 | 22.4 | 91.0 | 73.0 | 41.7 | 73.5 |
| 33 | CSU | 90.9 | * | 90.7 | 8.5 | 92.4 | 74.4 | 47.2 | 72.2 |
| 34 | USQ | 93.6 | 77.4 | 85.8 | 16.3 | 86.1 | 85.1 | 44.0 | 72.1 |
| 35 | UWS | 80.4 | 86.5 | 93.2 | 19.8 | 86.9 | 71.0 | 49.4 | 72.0 |
| 36 | CDU | 68.0 | 82.4 | 82.2 | 11.2 | 81.3 | 77.4 | 67.8 | 69.5 |
| 37 | CQU | 75.6 | 67.0 | 79.9 | 15.4 | 89.5 | 83.7 | 54.0 | 68.7 |

* Denotes 10 or fewer observations, put equal to national average of 84.6 in calculating overall ranking.

are more critical of their experience: the top five positions on the student survey data are all non-G08 institutions: SCU, James Cook, UTS, Murdoch and La Trobe.

Overall satisfaction with PhD programs is highest for smaller universities, with SCU recording the highest level. The best performing GO8 university is Queensland, ranked number six.

The last column in Table 5 provides a measure of overall ranking in teaching and research training obtained by a simple average of the seven attributes. ANU is ranked first followed by Melbourne, UWA and Sydney.

Overall Performance

The results for research and teaching (the last columns of Tables 3 and 5) are now combined using equal weights for each. These weights are based on the findings of our earlier survey of university CEOs¹¹. Two sets of results are given in Table 6: one where research is weighted by scope and one where it is not.

If allowance is made for scope, the highest ranked institutions are ANU, Melbourne, Sydney, Queensland, UNSW and Monash in that order. If no adjustment is made for scope ANU falls to third but the other orderings are maintained. Apart from ANU, the biggest improver in ratings when allowance is made for scope is QUT; UWS and UTS also show a small improvement. On the other hand, the rankings of the most specialised institutions as listed in Table 2 are not much changed by adjusting for scope.

6. Concluding Remarks

There exist marked differences in the scope of Australian universities as measured by the distribution of academic staff across disciplines; one important differentiating factor is whether or not the institution has a medical school. In principle, universities should be evaluated on the basis of whether they are good at what they do. This implies that institutional performance should be defined as a weighted sum of discipline performance. We have followed this approach, and while allowing for scope does reduce the dispersion in the *rating* scores, for only a few universities does it significantly affect institutional *rankings* in Australia using as the criterion ‘international academic standing’.

At the top end of the rankings, allowance for scope moves ANU to first place but the ordering of the other GO8 universities remains unchanged. The result is not surprising given that the ANU medical school is relatively new and the staff profiles of the seven state based GO8 universities are similar.

The rankings of the more technologically oriented universities, such as QUT, are improved when controlled for scope.

¹¹ See R. Williams and N. Van Dyke, ‘Measuring the International Standing of Universities with an Application to Australian Universities’, *Higher Education*, 53 (June 2007), pp.819-841.

Table 6: Index of the International Standing of Australian Public Universities

| <i>Allowing for Scope</i> | | | <i>Research Unadjusted for Scope</i> | | |
|---------------------------|------------|-------|--------------------------------------|------------|-------|
| Rank | University | Index | Rank | University | Index |
| 1 | ANU | 100 | 1 | Melbourne | 100 |
| 2 | Melbourne | 95 | 2 | Sydney | 98 |
| 3 | Sydney | 93 | 3 | ANU | 93 |
| 4 | Queensland | 84 | 4 | Queensland | 88 |
| 5 | UNSW | 81 | 5 | UNSW | 80 |
| 6 | Monash | 75 | 6 | Monash | 79 |
| 7 | UWA | 68 | 7 | UWA | 72 |
| 8 | Adelaide | 63 | 8 | Adelaide | 65 |
| 9 | Macquarie | 56 | 9 | Macquarie | 55 |
| 10 | QUT | 53 | 10 | La Trobe | 52 |
| 11 | La Trobe | 52 | 10 | Tasmania | 52 |
| 11 | Wollongong | 52 | 12 | Newcastle | 51 |
| 13 | Newcastle | 51 | 12 | Wollongong | 51 |
| 14 | Tasmania | 50 | 14 | Griffith | 49 |
| 14 | Griffith | 50 | 14 | Curtin | 49 |
| 16 | UTS | 49 | 16 | QUT | 48 |
| 17 | Curtin | 48 | 16 | Murdoch | 48 |
| 17 | Flinders | 48 | 16 | Flinders | 48 |
| 19 | Murdoch | 47 | 16 | UTS | 48 |
| 20 | RMIT | 46 | 20 | JCU | 46 |
| 20 | UniSA | 46 | 21 | UniSA | 45 |
| 22 | Deakin | 45 | 21 | RMIT | 45 |
| 22 | UNE | 45 | 23 | Deakin | 44 |
| 24 | UWS | 44 | 23 | UNE | 44 |
| 24 | JCU | 44 | 25 | Swinburne | 43 |
| 26 | Swinburne | 43 | 26 | UWS | 42 |
| 27 | SCU | 41 | 26 | Victoria | 42 |
| 27 | Canberra | 41 | 26 | Canberra | 42 |
| 29 | Victoria | 40 | 29 | SCU | 40 |
| 29 | ACU | 40 | 29 | CSU | 40 |
| 29 | CSU | 40 | 31 | ACU | 39 |
| 32 | USQ | 38 | 31 | Ballarat | 39 |
| 32 | Ballarat | 38 | 31 | USC | 39 |
| 32 | USC | 38 | 31 | USQ | 39 |
| 35 | ECU | 37 | 35 | ECU | 35 |
| 36 | CDU | 30 | 36 | CDU | 31 |
| 36 | CQU | 30 | 36 | CQU | 31 |

The ratings of the more specialised universities are not greatly affected when scope is allowed for. This finding reflects the fact that Australia does not possess outstanding specialist institutions, such as the London School of Economics, the Swiss Federal Institute of Science, and the Indian Institute of Science.

It remains an open question as to whether controlling for scope would change institutional rankings more if we used a finer discipline breakdown or could obtain better data on research output in the social sciences and humanities.

Data Appendix

1. Mapping of 21 ESI categories into discipline groups

- Engineering = Engineering + ½ Material Science
- Information Technology = Computer Science
- Science = Agric Science + ½ Biology & Biochemistry + Chemistry + Environmental/Ecology + Geosciences + ½ Materials Science + Mathematics + ½ Molecular Biology & Genetics + ½ Multidisciplinary + Physics + Plant & Animal Science + Space Science
- Health = ½ Biology & Biochemistry + Clinical Medicine + Immunology + Microbiology + ½ Molecular Biology & Genetics + ½ Multidisciplinary + Neuroscience & Behaviour + Pharmacology & Toxicology + Psychiatry/Psychology
- Social Sciences = Social Science General

2. USI mapping

- Arts&Humanities = History + Philosophy + Literature + Classical Studies

3. Mapping of Academic Staff in 10 AOU's into ISI-based discipline groups:

- Science = Science + Agricultural Science + Architecture & Building
- Information Technology = Information Technology
- Engineering = Engineering
- Health = Health + Behavioural Science
- Education = Education
- Economics & Business = Management & Commerce + Economics
- Social Sciences & Humanities = Society&Culture + Creative Arts – Economics – Behavioural Science

4. Mapping of RFCD codes into the 10 AOU's

Science = Mathematical Sciences + Physical Sciences + Chemical Sciences + Earth Sciences + Biological Sciences

Information Technology = Information, Computing and Communication Sciences

Engineering = Engineering and Technology

Agriculture = Agricultural, Veterinary and Environmental Sciences

Architecture & Building = Architecture, Urban Environment and Building

Health = Medical and Health Sciences

Education = Education

Management & Commerce = Commerce, Management, Tourism and Services

Society & Culture = Economics + Policy & Political Science + Studies in Human Society + Behavioural & Cognitive Sciences + Law, Justice & Law Enforcement + Journalism, Librarianship & Curatorial Studies + Language & Culture + History & Archaeology + Philosophy & Religion

Creative Arts = The Arts

Data Sources

Staff and Student Numbers: Department of Education, Science and Technology (DEST)

Publications and Citations: Thomson Scientific (TS) Essential Science Indicators (ESI) and University Statistical Indicators (USI); DEST data at <http://www.universitiesaustralia.edu.au/content.asp?page=/publications/stats/research.htm>

ARC Research Grants: http://www.arc.gov.au/general/searchable_data.htm

NHMRC Research Grants: <http://www.nhmrc.gov.au/funding/dataset/rmis/index.htm>

Federation Fellows: http://www.arc.gov.au/ncgp/fedfellows/ff_outcomes.htm

Academy Membership: Australian Academy of the Humanities (www.humanities.org.au), Australian Academy of Science (www.science.org.au), Academy of Social Sciences in Australia (www.assa.edu.au), and Australian Academy of Technological Sciences and Engineering (www.atse.org.au)

Doctoral Completions: DEST

Course Experience Questionnaire Responses, Progression Rates and Retention Rates http://www.dest.gov.au/sectors/higher_education/policy_issues_reviews/key_issues/learning_teaching/ltpf/2007ltpf.htm

Tertiary Entrance Scores (TES): DEST

Movement to Higher Degrees: Graduate Destinations Survey, Graduate Careers Council of Australia

Satisfaction with PhD program: Postgraduate Research Experience Questionnaire, Graduate Careers Council of Australia

University Revenue:

http://www.dest.gov.au/sectors/higher_education/publications_resources/profiles/finance_2005_stats.htm

Undergraduate Student Load, percentage shares, 2005, LTPF categories

| University | Sciences | Business | Humanities | Health |
|----------------|-------------|-------------|-------------|-------------|
| ACU | 3.7 | 13.5 | 51.9 | 30.8 |
| Adelaide | 40.9 | 26.6 | 18.7 | 13.8 |
| ANU | 24.0 | 28.7 | 44.9 | 2.4 |
| Ballarat | 19.8 | 30.6 | 31.0 | 18.7 |
| Canberra | 19.9 | 44.9 | 29.5 | 5.6 |
| CDU | 15.6 | 25.9 | 35.5 | 23.0 |
| CQU | 21.6 | 43.4 | 26.4 | 8.6 |
| CSU | 14.2 | 36.8 | 26.1 | 22.9 |
| Curtin | 29.2 | 42.8 | 12.4 | 15.6 |
| Deakin | 20.5 | 29.4 | 35.9 | 14.2 |
| ECU | 16.4 | 24.0 | 43.1 | 16.4 |
| Flinders | 20.1 | 19.2 | 35.9 | 24.8 |
| Griffith | 18.2 | 38.7 | 31.1 | 12.0 |
| JCU | 19.9 | 21.2 | 34.2 | 24.7 |
| La Trobe | 17.0 | 31.0 | 29.5 | 22.5 |
| Macquarie | 14.4 | 54.5 | 28.5 | 2.7 |
| Melbourne | 41.2 | 26.3 | 19.7 | 12.7 |
| Monash | 36.0 | 36.5 | 19.9 | 7.6 |
| Murdoch | 25.1 | 32.8 | 31.2 | 10.9 |
| Newcastle | 29.1 | 17.2 | 33.8 | 19.9 |
| Queensland | 33.1 | 22.4 | 25.5 | 19.0 |
| QUT | 29.6 | 31.3 | 25.7 | 13.4 |
| RMIT | 40.9 | 39.0 | 9.9 | 10.3 |
| SCU | 11.0 | 42.2 | 31.4 | 15.5 |
| Swinburne | 49.9 | 38.0 | 11.1 | 1.0 |
| Sydney | 29.0 | 18.2 | 28.5 | 24.2 |
| Tasmania | 29.0 | 22.6 | 32.5 | 15.9 |
| UNE | 17.1 | 24.1 | 53.1 | 5.7 |
| UniSA | 21.5 | 27.9 | 26.6 | 24.0 |
| UNSW | 48.8 | 25.4 | 17.0 | 8.8 |
| USC | 22.0 | 35.3 | 30.6 | 12.0 |
| USQ | 30.3 | 31.2 | 29.2 | 9.3 |
| UTS | 40.3 | 41.4 | 8.7 | 9.5 |
| UWA | 42.9 | 32.0 | 12.0 | 13.1 |
| UWS | 22.3 | 33.5 | 29.6 | 14.7 |
| Victoria | 18.9 | 47.0 | 19.5 | 14.7 |
| Wollongong | 33.9 | 31.7 | 25.5 | 8.9 |
| Average | 28.3 | 32.5 | 25.8 | 14.4 |

Notes: Sciences includes Computing, Engineering, Architecture and Agriculture; Business includes Economics and Law; Humanities includes Arts and Education. The categories are not exhaustive but the shares have been rescaled to sum to 100 per cent.

List of Universities

| | |
|------------|---|
| ACU | Australian Catholic University |
| Adelaide | University of Adelaide (GO8) |
| ANU | Australian National University (GO8) |
| Ballarat | University of Ballarat |
| Canberra | University of Canberra |
| CDU | Charles Darwin University |
| CQU | Central Queensland University |
| CSU | Charles Sturt University |
| Curtin | Curtin University of Technology (ATN) |
| Deakin | Deakin University |
| ECU | Edith Cowan University |
| Flinders | Flinders University of South Australia (IRUA) |
| Griffith | Griffith University (IRUA) |
| JCU | James Cook University (IRUA) |
| La Trobe | La Trobe University (IRUA) |
| Macquarie | Macquarie University (IRUA) |
| Melbourne | University of Melbourne (GO8) |
| Monash | Monash University (GO8) |
| Murdoch | Murdoch University (IRUA) |
| Newcastle | University of Newcastle (IRUA) |
| Queensland | University of Queensland (GO8) |
| QUT | Queensland University of Technology (ATN) |
| RMIT | RMIT University (ATN) |
| SCU | Southern Cross University |
| Swinburne | Swinburne Institute of Technology |
| Sydney | University of Sydney (GO8) |
| Tasmania | University of Tasmania |
| UNE | University of New England |
| UniSA | University of South Australia (ATN) |
| UNSW | University of New South Wales (GO8) |
| USC | University of the Sunshine Coast |
| USQ | University of Southern Queensland |
| UTS | University of Technology, Sydney (ATN) |
| UWA | University of Western Australia (GO8) |
| UWS | University of Western Sydney |
| Victoria | Victoria University |
| Wollongong | University of Wollongong |

GO8 = Member of Group of Eight

ATN = Member of Australian Technology Network

IRUA = Member of Innovative Research Universities Australia

Appendix Tables

Table A1: ESI/USI Journal Publications by Discipline

| University | Science | IT | Engineering | Health | Education | Economics & Business | Social Sciences & Humanities |
|------------|---------|-------|-------------|--------|-----------|-------------------------|---------------------------------|
| ACU | 0.0 | 0.0 | 0.0 | 0.0 | 16.6 | 0.7 | 1.1 |
| Adelaide | 47.4 | 0.0 | 25.7 | 32.3 | 11.7 | 23.2 | 30.0 |
| ANU | 100.0 | 50.1 | 49.5 | 24.9 | 13.5 | 93.1 | 93.2 |
| Ballarat | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 2.2 | 0.2 |
| Canberra | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 2.8 | 1.0 |
| CDU | 0.0 | 0.0 | 0.0 | 2.0 | 2.5 | 0.7 | 0.9 |
| CQU | 0.0 | 0.0 | 0.0 | 0.0 | 16.0 | 3.0 | 0.2 |
| CSU | 1.9 | 0.0 | 0.0 | 0.0 | 16.0 | 5.2 | 14.8 |
| Curtin | 5.1 | 0.0 | 23.8 | 4.4 | 62.0 | 20.1 | 26.6 |
| Deakin | 3.5 | 0.0 | 5.4 | 4.0 | 39.3 | 12.5 | 31.7 |
| ECU | 0.0 | 0.0 | 0.0 | 0.0 | 32.5 | 8.2 | 16.2 |
| Flinders | 2.9 | 0.0 | 0.0 | 11.6 | 17.2 | 8.2 | 31.0 |
| Griffith | 7.0 | 0.0 | 18.6 | 6.6 | 28.8 | 22.5 | 39.0 |
| JCU | 19.1 | 0.0 | 0.0 | 3.9 | 22.1 | 6.1 | 1.7 |
| La Trobe | 10.1 | 0.0 | 0.0 | 11.5 | 33.7 | 24.5 | 46.6 |
| Macquarie | 14.6 | 0.0 | 9.7 | 6.2 | 20.9 | 13.9 | 27.4 |
| Melbourne | 68.5 | 87.4 | 64.5 | 100.0 | 53.4 | 100.0 | 83.7 |
| Monash | 42.9 | 100.0 | 71.9 | 63.5 | 63.2 | 73.8 | 63.4 |
| Murdoch | 7.6 | 0.0 | 0.0 | 3.3 | 20.2 | 5.4 | 14.2 |
| Newcastle | 9.9 | 0.0 | 39.3 | 16.8 | 21.5 | 11.3 | 39.4 |
| Queensland | 79.1 | 92.5 | 62.1 | 79.3 | 100.0 | 60.6 | 91.5 |
| QUT | 4.5 | 56.0 | 30.7 | 6.8 | 84.0 | 37.4 | 28.9 |
| RMIT | 0.0 | 0.0 | 9.0 | 0.0 | 6.1 | 11.0 | 0.6 |
| SCU | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 1.5 | 0.1 |
| Swinburne | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.3 | 0.7 |
| Sydney | 90.4 | 76.0 | 94.2 | 97.8 | 57.7 | 47.4 | 100.0 |
| Tasmania | 27.0 | 0.0 | 10.5 | 4.0 | 13.5 | 11.3 | 23.7 |
| UNE | 10.0 | 0.0 | 0.0 | 0.0 | 19.0 | 18.4 | 23.8 |
| UniSA | 0.0 | 0.0 | 16.5 | 3.6 | 31.9 | 16.7 | 15.6 |
| UNSW | 65.7 | 98.6 | 100.0 | 57.6 | 22.1 | 92.9 | 73.1 |
| USC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.2 |
| USQ | 0.0 | 0.0 | 0.0 | 0.0 | 19.0 | 6.3 | 1.2 |
| UTS | 0.0 | 0.0 | 17.6 | 0.0 | 27.0 | 27.5 | 14.9 |
| UWA | 53.0 | 0.0 | 50.0 | 47.7 | 23.3 | 47.0 | 36.7 |
| UWS | 1.4 | 0.0 | 0.0 | 0.0 | 50.9 | 20.4 | 19.9 |
| Victoria | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 6.1 | 1.4 |
| Wollongong | 5.2 | 0.0 | 32.0 | 2.8 | 9.8 | 11.9 | 16.9 |

Table A2: ESI/USI Journal Citatations by Discipline

| University | Science | IT | Engineering | Health | Education | Economics & Business | Social Sciences & Humanities |
|------------|---------|-------|-------------|--------|-----------|-------------------------|---------------------------------|
| ACU | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 0.2 | 0.0 |
| Adelaide | 35.5 | 0.0 | 20.6 | 26.2 | 3.9 | 16.6 | 21.2 |
| ANU | 100.0 | 56.8 | 41.5 | 29.5 | 7.7 | 93.7 | 72.3 |
| Ballarat | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.5 | 0.0 |
| Canberra | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.7 | 0.0 |
| CDU | 0.0 | 0.0 | 0.0 | 1.8 | 2.1 | 0.0 | 0.0 |
| CQU | 0.0 | 0.0 | 0.0 | 0.0 | 10.9 | 1.9 | 0.0 |
| CSU | 1.0 | 0.0 | 0.0 | 0.0 | 4.9 | 4.1 | 11.1 |
| Curtin | 5.3 | 0.0 | 14.9 | 2.6 | 43.2 | 11.7 | 23.4 |
| Deakin | 1.3 | 0.0 | 5.0 | 3.3 | 29.8 | 5.3 | 27.9 |
| ECU | 0.0 | 0.0 | 0.0 | 0.0 | 23.2 | 6.5 | 13.4 |
| Flinders | 1.9 | 0.0 | 0.0 | 9.0 | 8.4 | 4.1 | 22.3 |
| Griffith | 3.8 | 0.0 | 12.6 | 4.0 | 20.7 | 10.9 | 21.7 |
| JCU | 14.7 | 0.0 | 0.0 | 1.8 | 33.7 | 6.8 | 0.0 |
| La Trobe | 8.0 | 0.0 | 0.0 | 8.4 | 31.9 | 12.5 | 40.9 |
| Macquarie | 13.9 | 0.0 | 8.0 | 4.4 | 9.1 | 10.3 | 18.7 |
| Melbourne | 55.3 | 100.0 | 75.9 | 100.0 | 33.3 | 97.3 | 60.6 |
| Monash | 35.4 | 82.0 | 55.6 | 64.4 | 34.4 | 54.1 | 36.7 |
| Murdoch | 2.9 | 0.0 | 0.0 | 3.9 | 6.3 | 4.2 | 11.7 |
| Newcastle | 6.0 | 0.0 | 40.5 | 15.1 | 7.0 | 9.2 | 35.9 |
| Queensland | 57.4 | 84.5 | 56.3 | 77.0 | 100.0 | 42.6 | 66.5 |
| QUT | 2.6 | 39.5 | 25.1 | 4.5 | 81.8 | 32.3 | 22.6 |
| RMIT | 0.0 | 0.0 | 7.7 | 0.0 | 2.5 | 3.3 | 0.1 |
| SCU | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 0.6 | 0.0 |
| Swinburne | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.1 | 0.1 |
| Sydney | 64.4 | 48.1 | 100.0 | 96.6 | 41.4 | 50.0 | 100.0 |
| Tasmania | 18.4 | 0.0 | 12.4 | 3.1 | 4.2 | 8.1 | 11.7 |
| UNE | 5.2 | 0.0 | 0.0 | 0.0 | 5.3 | 19.2 | 14.9 |
| UniSA | 0.0 | 0.0 | 12.0 | 1.9 | 22.1 | 12.5 | 9.2 |
| UNSW | 50.0 | 54.3 | 89.3 | 55.7 | 18.6 | 100.0 | 70.2 |
| USC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| USQ | 0.0 | 0.0 | 0.0 | 0.0 | 30.2 | 18.1 | 0.0 |
| UTS | 0.0 | 0.0 | 9.9 | 0.0 | 30.2 | 26.1 | 11.4 |
| UWA | 37.0 | 0.0 | 45.5 | 46.6 | 18.2 | 48.4 | 31.9 |
| UWS | 0.5 | 0.0 | 0.0 | 0.0 | 66.7 | 5.8 | 14.8 |
| Victoria | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 2.2 | 0.0 |
| Wollongong | 3.1 | 0.0 | 24.3 | 2.6 | 8.1 | 8.9 | 11.7 |

Table A3: Nationally Competitive Grants

| University | Science & Agriculture | Engineering & IT | Architecture | Health | Education | Management & Commerce | Society & Culture | Creative Arts |
|------------|-----------------------|------------------|--------------|--------|-----------|-----------------------|-------------------|---------------|
| ACU | 0.1 | 0.0 | 0.0 | 0.3 | 9.7 | 0.0 | 2.6 | 0.0 |
| Adelaide | 46.8 | 19.4 | 0.0 | 35.7 | 0.0 | 8.0 | 8.0 | 19.5 |
| ANU | 100.0 | 39.6 | 0.0 | 19.1 | 5.2 | 7.9 | 100.0 | 50.7 |
| Ballarat | 1.1 | 0.0 | 0.0 | 0.5 | 5.9 | 0.0 | 2.3 | 0.0 |
| Canberra | 2.9 | 0.0 | 13.5 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 |
| CDU | 5.7 | 0.3 | 0.0 | 0.2 | 8.4 | 0.0 | 2.0 | 0.0 |
| CQU | 0.0 | 0.3 | 0.0 | 0.4 | 3.4 | 0.0 | 0.8 | 0.0 |
| CSU | 1.3 | 0.0 | 0.0 | 0.1 | 13.9 | 1.7 | 4.2 | 0.0 |
| Curtin | 8.7 | 15.8 | 0.0 | 4.1 | 28.5 | 0.0 | 4.7 | 3.0 |
| Deakin | 2.7 | 17.3 | 37.7 | 3.2 | 31.6 | 7.9 | 3.8 | 0.0 |
| ECU | 0.7 | 1.5 | 0.0 | 0.9 | 5.9 | 6.1 | 1.7 | 0.0 |
| Flinders | 7.2 | 1.8 | 0.0 | 11.7 | 5.9 | 0.0 | 12.7 | 0.0 |
| Griffith | 7.7 | 7.0 | 7.3 | 4.7 | 36.7 | 15.9 | 20.7 | 25.4 |
| JCU | 9.4 | 2.6 | 0.0 | 2.8 | 4.0 | 0.0 | 0.9 | 0.0 |
| La Trobe | 8.5 | 0.0 | 0.0 | 5.8 | 10.9 | 0.0 | 23.5 | 0.0 |
| Macquarie | 19.2 | 17.2 | 0.0 | 2.0 | 0.0 | 26.5 | 19.4 | 9.0 |
| Melbourne | 76.5 | 56.6 | 94.7 | 100.0 | 100.0 | 40.9 | 79.7 | 97.5 |
| Monash | 47.0 | 61.4 | 0.0 | 66.6 | 76.6 | 21.2 | 38.0 | 29.5 |
| Murdoch | 12.7 | 2.0 | 0.0 | 3.4 | 5.6 | 0.0 | 3.7 | 3.0 |
| Newcastle | 16.9 | 42.8 | 12.6 | 13.1 | 10.3 | 0.0 | 7.7 | 0.0 |
| Queensland | 84.2 | 81.1 | 34.7 | 52.0 | 75.0 | 56.3 | 54.6 | 5.2 |
| QUT | 10.9 | 24.7 | 47.9 | 5.6 | 62.9 | 57.0 | 17.3 | 21.5 |
| RMIT | 6.4 | 16.4 | 71.8 | 0.7 | 34.3 | 1.7 | 6.6 | 38.9 |
| SCU | 4.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 5.4 |
| Swinburne | 0.0 | 36.9 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 3.1 |
| Sydney | 96.1 | 94.7 | 62.5 | 81.2 | 87.4 | 85.7 | 80.1 | 60.2 |
| Tasmania | 20.4 | 4.4 | 0.0 | 1.4 | 34.8 | 0.0 | 11.6 | 17.8 |
| UNE | 4.5 | 0.0 | 0.0 | 0.1 | 14.8 | 0.0 | 8.6 | 12.0 |
| UniSA | 9.6 | 38.7 | 4.7 | 4.3 | 7.4 | 6.2 | 5.9 | 0.0 |
| UNSW | 60.3 | 100.0 | 100.0 | 41.3 | 0.8 | 100.0 | 55.5 | 100.0 |
| USC | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 |
| USQ | 0.0 | 4.5 | 0.0 | 0.0 | 8.1 | 0.0 | 0.1 | 0.0 |
| UTS | 5.3 | 30.5 | 5.5 | 1.5 | 7.6 | 51.6 | 12.1 | 8.6 |
| UWA | 45.9 | 38.7 | 12.7 | 43.6 | 12.8 | 26.0 | 24.1 | 15.0 |
| UWS | 1.4 | 5.4 | 0.0 | 0.5 | 75.2 | 0.0 | 14.8 | 13.1 |
| Victoria | 0.0 | 3.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.9 | 0.0 |
| Wollongong | 14.5 | 45.7 | 0.0 | 1.9 | 11.5 | 40.6 | 11.7 | 20.9 |

Table A4: Federation Fellows

| University | Science & Agriculture | Engineering & IT | Architecture | Health | Society & Culture | Creative Arts |
|------------|-----------------------|------------------|--------------|--------|-------------------|---------------|
| ACU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Adelaide | 21.4 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| ANU | 35.7 | 100.0 | 0.0 | 33.3 | 100.0 | 0.0 |
| Ballarat | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Canberra | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CDU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CQU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CSU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Curtin | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Deakin | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ECU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Flinders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Griffith | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| JCU | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| La Trobe | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macquarie | 21.4 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| Melbourne | 50.0 | 60.0 | 100.0 | 100.0 | 50.0 | 0.0 |
| Monash | 42.9 | 20.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| Murdoch | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Newcastle | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Queensland | 92.9 | 60.0 | 0.0 | 66.7 | 66.7 | 0.0 |
| QUT | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| RMIT | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 |
| SCU | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Swinburne | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sydney | 100.0 | 60.0 | 0.0 | 33.3 | 50.0 | 0.0 |
| Tasmania | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| UNE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| UniSA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| UNSW | 35.7 | 40.0 | 0.0 | 33.3 | 16.7 | 100.0 |
| USC | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| USQ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| UTS | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| UWA | 21.4 | 20.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| UWS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Victoria | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Wollongong | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Table A5: Doctoral Completions

| University | Science | IT | Engin | Archit | Agric | Health | Educ | Mngment& Commerce | Society & Culture | Creative Arts |
|------------|---------|-------|-------|--------|-------|--------|-------|----------------------|----------------------|------------------|
| ACU | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.5 | 32.0 | 0.0 | 3.7 | 0.0 |
| Adelaide | 41.5 | 0.0 | 16.7 | 27.6 | 97.9 | 32.7 | 6.6 | 2.9 | 23.9 | 6.4 |
| ANU | 85.0 | 0.0 | 10.6 | 0.0 | 27.4 | 4.3 | 0.0 | 1.9 | 89.3 | 14.9 |
| Ballarat | 2.9 | 12.1 | 0.0 | 0.0 | 0.0 | 1.5 | 0.8 | 3.8 | 7.5 | 2.1 |
| Canberra | 5.0 | 1.7 | 0.0 | 27.6 | 0.0 | 0.0 | 9.0 | 5.8 | 1.4 | 27.7 |
| CDU | 4.5 | 1.7 | 0.6 | 0.0 | 8.4 | 1.0 | 4.1 | 1.0 | 4.3 | 0.0 |
| CQU | 5.8 | 20.7 | 1.2 | 0.0 | 1.1 | 0.8 | 11.5 | 1.9 | 0.3 | 0.0 |
| CSU | 0.0 | 0.0 | 0.0 | 0.0 | 33.7 | 2.5 | 9.0 | 6.7 | 8.1 | 0.0 |
| Curtin | 22.3 | 25.9 | 12.2 | 10.3 | 10.5 | 11.4 | 100.0 | 40.4 | 19.6 | 25.5 |
| Deakin | 13.9 | 15.5 | 9.4 | 10.3 | 0.0 | 5.3 | 26.2 | 24.0 | 34.0 | 0.0 |
| ECU | 2.4 | 13.8 | 1.8 | 0.0 | 5.3 | 4.3 | 18.9 | 13.5 | 11.0 | 34.0 |
| Flinders | 18.9 | 6.9 | 1.8 | 0.0 | 0.0 | 15.2 | 0.0 | 0.0 | 34.9 | 0.0 |
| Griffith | 10.8 | 31.0 | 8.8 | 3.4 | 60.0 | 7.9 | 45.1 | 42.3 | 28.8 | 57.4 |
| JCU | 27.6 | 3.4 | 3.0 | 0.0 | 21.1 | 3.6 | 9.8 | 9.6 | 11.0 | 8.5 |
| La Trobe | 26.0 | 22.4 | 1.8 | 0.0 | 7.4 | 20.1 | 30.3 | 21.2 | 38.0 | 29.8 |
| Macquarie | 17.6 | 10.3 | 0.6 | 3.4 | 7.4 | 0.8 | 12.3 | 41.3 | 45.0 | 31.9 |
| Melbourne | 100.0 | 8.6 | 43.2 | 93.1 | 75.8 | 87.1 | 85.2 | 34.6 | 100.0 | 57.4 |
| Monash | 55.6 | 100.0 | 36.8 | 0.0 | 2.1 | 57.6 | 50.8 | 100.0 | 66.0 | 14.9 |
| Murdoch | 16.3 | 10.3 | 2.4 | 0.0 | 25.3 | 4.1 | 18.0 | 23.1 | 21.0 | 40.4 |
| Newcastle | 21.8 | 15.5 | 17.9 | 24.1 | 1.1 | 8.6 | 18.9 | 10.6 | 25.4 | 55.3 |
| Queensland | 91.3 | 70.7 | 50.2 | 65.5 | 100.0 | 59.1 | 39.3 | 52.9 | 80.4 | 38.3 |
| QUT | 22.0 | 24.1 | 26.1 | 27.6 | 0.0 | 12.7 | 43.4 | 22.1 | 9.8 | 63.8 |
| RMIT | 25.2 | 51.7 | 31.0 | 55.2 | 0.0 | 4.1 | 33.6 | 46.2 | 10.1 | 68.1 |
| SCU | 4.2 | 5.2 | 0.0 | 0.0 | 7.4 | 4.1 | 3.3 | 79.8 | 2.6 | 12.8 |
| Swinburne | 10.0 | 0.0 | 19.8 | 0.0 | 0.0 | 0.5 | 0.0 | 38.5 | 8.9 | 0.0 |
| Sydney | 82.2 | 31.0 | 26.4 | 100.0 | 49.5 | 100.0 | 41.8 | 34.6 | 94.2 | 100.0 |
| Tasmania | 31.2 | 8.6 | 3.0 | 3.4 | 82.1 | 6.1 | 23.0 | 5.8 | 14.1 | 44.7 |
| UNE | 23.1 | 0.0 | 0.9 | 0.0 | 25.3 | 0.5 | 36.9 | 21.2 | 17.0 | 4.3 |
| UniSA | 4.7 | 22.4 | 25.5 | 24.1 | 2.1 | 7.4 | 33.6 | 70.2 | 9.5 | 8.5 |
| UNSW | 60.4 | 13.8 | 100.0 | 93.1 | 0.0 | 45.2 | 14.8 | 76.0 | 50.1 | 95.7 |
| USC | 0.3 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 3.8 | 0.6 | 8.5 |
| USQ | 2.4 | 0.0 | 8.5 | 0.0 | 0.0 | 0.3 | 11.5 | 3.8 | 2.6 | 0.0 |
| UTS | 17.3 | 31.0 | 6.7 | 10.3 | 0.0 | 4.8 | 35.2 | 26.0 | 11.8 | 36.2 |
| UWA | 50.9 | 6.9 | 24.9 | 17.2 | 92.6 | 29.4 | 31.1 | 57.7 | 35.2 | 6.4 |
| UWS | 13.6 | 5.2 | 2.7 | 0.0 | 25.3 | 2.5 | 22.1 | 24.0 | 26.8 | 40.4 |
| Victoria | 9.7 | 1.7 | 5.8 | 0.0 | 0.0 | 2.8 | 9.0 | 36.5 | 17.0 | 0.0 |
| Wollongong | 21.3 | 27.6 | 24.0 | 0.0 | 7.4 | 3.6 | 17.2 | 17.3 | 17.6 | 85.1 |