



THE UNIVERSITY OF  
MELBOURNE

# Melbourne Institute Report

*No. 4*

## The International Standing of Australian Universities

*Ross Williams and Nina Van Dyke*

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MELBOURNE INSTITUTE  
of Applied Economic and Social Research

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Published by  
Melbourne Institute of Applied Economic and Social Research  
The University of Melbourne

# The International Standing of Australian Universities\*

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## 1. Introduction

The world's finest universities have always been international in outlook, attracting academics and students from many countries. Globalisation has meant an increased demand from students, employers, and academics for indicators of the international standing of universities.

Decisions about where to study, whom to employ, or where to seek professional expertise should be based on quantitative and qualitative information but it is often difficult for the decision maker to obtain this information directly. Global companies recruit globally; international agencies seek expertise wherever it exists. Students intending to study abroad must choose from a vast array of universities, a decision for which much information is required.

Higher education is a major world industry which has experienced rapid growth in recent years. In 2002, some 1.90 million students were studying at the tertiary level outside their country of origin, an increase of 15 per cent over the previous year. Education services have rapidly become a major trading activity. The OECD notes that, "international negotiations currently underway on trade liberalisation of services highlight the economic implications of the internationalisation of the provision of education services. The trend towards greater internationalisation of education is likely to have a growing impact on countries' balance of payments...."<sup>1</sup>.

The Australian higher education sector is very global in outlook. Australia has the highest percentage of foreign tertiary students of any OECD country; in absolute terms it is the fourth largest provider of tertiary education to foreign students behind only the USA, UK and Germany. International enrolments in Australia more than doubled over the period 2000-2004 and now comprise 23 per cent of all enrolments in universities. Furthermore, the tight restrictions on foreign students remaining in Australia after the completion of their studies means that overseas firms, particularly in Asia, are important employers of graduates of Australian universities.

Considerable national debate exists in Australia regarding the international standing of its universities. Are any Australian universities comparable with, say, the top 50 in

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\* We are greatly indebted to Peter Dawkins who initiated this project and provided many valuable comments on the work during its progress.

<sup>1</sup> See OECD (2004a), p.294. The international statistics quoted in this section are from this source, pp 293-313. A fuller study of internationalisation in higher education is contained in OECD (2004b).

the USA or the top 100 in the world? Which Australian universities would rank in the top 200 in the world? The principal aim of this paper is to measure the international standing of each Australian university and thereby fill an information gap. A secondary aim is to provide some guidance regarding which attributes of a university give it international standing. Knowledge in this area can assist universities to improve their status and compete more effectively for the best students and scholars.

We approach the measurement of international standing from two directions. In one approach we survey vice-chancellors and presidents of the world's best universities and deans of Australian universities for their perceptions of the international standing of Australian universities. This approach provides us with a broad subjective measure; it is primarily a reputation measure. In the other approach we use published quantitative data which we combine into an index of performance. The two approaches are linked in that we also ask those surveyed to provide us with the weights to combine the quantitative measures into a single index. By using outside opinion to fix the major weights we overcome one of the major criticisms of rating exercises, namely, that the researchers subjectively choose all their own weights.

We measure standing in both absolute terms (where Australian universities stand *vis a vis* the world's best universities) and in relative terms within Australia.

Our methodology assumes that there is a 'brand effect' for the university as a whole, while acknowledging that there are discipline effects as well: the ranking of a given discipline across universities may differ from the ranking of institutions as single entities. We postulate, however, that the variability in the quality of departments within an institution is falling as a result of the growth in interdisciplinary research and quality controls on departments and universities. Bad departments in good universities are becoming rarer.

The plan of the paper is as follows. In section 2 we overview the existing range of published measures used in evaluating universities. In section 3 we discuss what is meant by international standing and how it might be measured. We present the methodology we use for evaluating Australian universities in section 4 and discuss the results in section 5. Section 6 contains some concluding remarks.

## **2. Report Cards**

We follow the terminology of Gormley and Weimar (1999) and refer collectively to the plethora of published evaluations of universities as report cards. The foci of these measures of performance range from providing information to school leavers choosing a university to formulae for funding research by governments. Schematically they can be divided by purpose as in table 1 below, which lists a few examples. A more complete set of report cards for universities in a number of countries together with details of the performance measures used are contained in

Appendix B. Concise summaries of performance evaluation work in Germany are given by Federkeil (2002); in Poland by Siwinski (2002); in Japan by Yonezawa, Nakatsui and Kobayashi (2002); and in Russia by Filinov and Ruchkina (2002). Developments in the USA are discussed in Vaughin (2002). Bowden (2000) evaluates the usefulness to prospective students of league tables published by newspapers in the U.K; Gater (2002) does this for the USA.

*Table 1: Schematic Representation of the Range of Existing Studies of Standing*

	<i>Purpose</i>			
	<b>Undergraduate Choice</b>	<b>Postgraduate Choice</b>	<b>Funding</b>	<b>Overall Standing</b>
<b>National Ranking</b>	Times (UK) US News and World Report Good Universities Guide (Australia) CHE-Der Stern (Germany) Macleans (Canada)	GUD to Postgraduate Courses (Australia) US News and World	RAE ( UK) DEST (Australia) New Zealand PBRF	Perspektywy (Poland) TheCenter (USA)
<b>International Ranking</b>		Surveys of Business Schools (eg Financial Times)		Shanghai Study Times Higher Ed (UK)

The most common report card is one designed to assist students in choosing a university within a country. Often these studies are undertaken by newspapers and magazines. They use a range of measures, such as scores required for entry, class size, ratios of students to academic staff, degrees held by academic staff, attrition/graduation rates, and spending on student services, especially libraries and IT. Research performance of academic staff is typically given a low weight. Student guides often also provide information on the standing of disciplines across universities.

Studies used to allocate funds or to evaluate overall standing of an institution typically assign heavy weight to research. Governments are increasingly using performance measures to allocate funds to universities, especially for research purposes. The Higher Education Funding Council for England, for example, allocates substantial funds to universities based on research performance. The procedure involves a major exercise in evaluating the quality of research in each discipline.

In Australia, the Department of Education and Training (DEST) allocates funds for research and research training through the Institutional Grants Scheme (IGS), the Research Infrastructure Block Grants (RIBG) Scheme, and the Research Training Scheme (RTS). The performance measures used are external research income, research publications, research student load, and research degree completions. Funds have also been set aside from 2006 to allocate government funds to universities based on learning and teaching performance.

The New Zealand government has recently introduced Performance-Based Research Funding (PBRF) ([www.tec.govt.nz](http://www.tec.govt.nz)) for tertiary institutions using three criteria: the quality of research output as determined by expert panels, research degree completions, and external research income.

A recent pioneering attempt to evaluate the standing of universities on a world-wide basis has been carried out by a research team in the Institute of Higher Education at Shanghai Jiao Tong University (hereafter referred to as the “Shanghai Study”). Commencing in 2003, they publish annually an academic ranking of the top 500 universities in the world (<http://ed.sjtu.edu.cn/ranking.htm>). The rankings are based on research output and citations plus the affiliations of Nobel Prize winners. The measures are biased towards institutions which are heavily science based.<sup>2</sup>

In November 2004, the *Times Higher Education Supplement* published a ranking of the world’s top 200 universities using both survey data and quantitative data (see [www.thes.co.uk](http://www.thes.co.uk))

In this paper we evaluate the international standing of thirty-nine Australian universities: the thirty-eight members of the Australian Vice-Chancellor’s Committee plus the University of Notre Dame, Australia. In terms of table 1, this study fits into the top right-hand corner. We undertake this project in a manner which will readily permit extension to other countries, that is, in a way that will enable us to move to the bottom right-hand cell of table 1.

### **3. Determinants of International Standing**

International standing is a combination of current performance and reputation. The latter can be thought of as a combination of current and past performance. Reputation is in this sense the wider measure, but it lags current performance and also favours older institutions. The reputation of an institution will more closely correlate to current performance the more informed the respondent. For example, an academic who commands world-wide respect for her output is more likely to equate reputation with current performance than is a member of the general public.

Most measures of standing use a combination of past and current performance data. The Shanghai Study, for example, includes Nobel Prize winners who were graduates of the university, which is a reputation measure. This criterion is combined with research output measures which are closer to current performance measures, although even here the time interval involved is typically publications over a decade.

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<sup>2</sup> In the 2003 Shanghai study, for example, the London School of Economics was ranked as falling in the range 450-500 of the world’s best universities although in all other rankings it comes well inside the top 10 institutions in the U.K. A limited attempt was made to address this issue in the Shanghai study in 2004 but the authors acknowledge that the problem remains.

While we believe that the contribution of scholars to international research is the dominant means by which universities establish an international reputation we believe that a number of other attributes also contribute, such as the quality of teaching and research training. It is doubtful if a university can maintain a high international standing if it neglects all but its research function. Broadening the range of attributes does, however, make the task of evaluation across national frontiers much more difficult.

We accept the conventional view that international standing is based primarily on gross measures of performance not value-added measures. In other words, in measuring the performance of researchers and teachers the quality of inputs, such as the quality and diversity of students, is ignored. Again to draw on Gormley and Weimar (1999, pp 65-66):

Rankings or ratings based on the selected outcome measure may be useful in some circumstances, irrespective of inputs or effort. Potential clients of organisations may sometimes care only about the gross levels of outcomes they achieve. Students considering MBA study, for example, may find rankings of programs based on reputation in the business world, such as those of Harvard University and Stanford University, derive much of their success from being able to recruit exceptional student bodies rather than from the additions they make to the capabilities of their students.

In practice, a range of measures of input, process, and output are used to measure performance. As noted by Gormley and Weimar (1999, p.63): “Conceptually it is desirable to use output rather than process and input variables as proxies for outcomes because outputs are separated by fewer assumed theoretical links. Practically, however, considerations of the availability, accuracy, and integrity of data are important”.

In the next section we evaluate the measures used by others (and listed in Appendix B) from the perspective of international standing. We group them into six main categories as given below, while admitting some interdependence among the groups<sup>3</sup>. We require measures that (i) are important for international standing, (ii) conceptually have their counterparts in most university systems, and (iii) are publicly available.

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<sup>3</sup> A useful guide to the construction of university quality ratings is Clarke (2002).

## **Possible Measures of International Standing**

(i) *Quality/International Standing of Academic Staff:* The common variables used in previous studies to measure academic staff quality are: the quantity and quality of research publications; citations to the research output; research income, especially from competitive grants; recognition of academic standing through election to academies, receipt of prestigious awards, or invitations to conferences; status of degrees held by academic staff. These measures translate across national frontiers. We prefer research output over degrees held as it is a better measure of current performance.

(ii) *Quality of Graduate Programs:* Proxy measures for quality are degree of selectivity in intake, number of completions, progression rates, and student evaluation. In order to make international comparisons, emphasis should be placed on the PhD program as it is recognised internationally.

(iii) *Quality of Undergraduate Intake:* Quality of intake falls between a reputation measure and a performance measure. While the lags can be of varying length, we take the view that a poor undergraduate program will in time be reflected in a decline in the quality of intake. Measures typically used are scores on national entrance examinations and acceptance rates. Geographic diversity of students is also sometimes used as measure of standing.

(iv) *Quality of Undergraduate Program:* The most common measures of the quality of undergraduate programs are progression rates, outcomes on graduation such as employment or progression to a higher degree, awards won or honours grades achieved, student evaluations, diversity of the student body, and class size. The weakness of class size is that it assumes a given technology of teaching. The ratio of students to academic staff is a more neutral measure, although even this measure ignores the increased role of teaching through the internet. We reject unemployment or 'not employed' as an appropriate negative indicator of success. It is subject to regional and national variations in employment rates, and overlooks the increased tendency for students to take time off between study and work. Honours grades and awards do not readily translate internationally.

(v) *Resource Levels:* These can be measured in physical units or monetary amounts. The use of physical units facilitates international comparisons. Examples used in previous studies are support staff, library volumes and IT facilities. With technological developments, however, it is increasingly the enabling ability which matters in retrieving information. Monetary measures include total revenue per student or staff member, and expenditure on IT and libraries. Alumni giving and salary levels are sometimes included as measures of standing.

(vi) *Subjective Assessment:* In a number of rankings of universities and disciplines people are asked to rate universities using various criteria. The potential population to be surveyed ranges from academics employed in universities to alumni, employers,

key decision makers in society, and the general public. In evaluating the international standing of a university the views of those in other countries are important -- the views of foreign academics, global employers, and buyers of research such as international agencies are the most relevant.

*Discipline Mix:* In many areas such as funding, research activity, and methods of teaching, a major difference exists between science/laboratory based departments and other/non-laboratory based departments. The choice of variables should allow for these differences in order to limit any bias towards institutions that are, for example, much stronger in the sciences.

*Combining measures:* If ratings or rankings are to be derived for each university then weights need to be applied within each category and across categories. The weights must be chosen to reflect the aim of the exercise. Thus, the weights used in evaluating international standing will be different from those used in, say, a guide for undergraduates. The allocation of weights is a subjective exercise but it can be informed by surveys of peers.

#### **4. Measuring the International Standing of Australian Universities**

Within Australia there has been much discussion about the international standing of its universities. The discussion is often related back to funding issues. Is it possible under current funding arrangements for Australian universities to be high up in the international league tables?

One answer to the last question has been provided by the Shanghai study. In 2004, two Australian universities, ANU and Melbourne, were ranked in the range 50-100. Fourteen Australian universities were listed among the top 500 world universities.<sup>4</sup>

We examine the international standing of 39 Australian universities: the 38 members of the Australian Vice-Chancellor's Committee (AVCC) plus the University of Notre Dame Australia. The full list is contained in Table 5. Some 29 of these universities belong to one of four groupings: Australian Technology Network (ATN), Group of Eight (Go8), Innovative Research Universities Australia (IRUA), and New Generation Universities (NGU). We recognise that the collective missions of each group are quite different and that the criterion of international standing is merely one criterion by which to evaluate performance or reputation.

Our subjective measures of international standing are based on surveys of CEOs of international universities and Australian deans. Our choice of quantitative variables

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<sup>4</sup> The list is all the Group of Eight universities plus Flinders, La Trobe, Macquarie, Murdoch, Newcastle and Tasmania. More recently in the survey published in *The Times Higher Education Supplements* 11 Australian universities are listed in the top 100 in the world: the Go8 plus RMIT, Curtin and Macquarie. Australian institutions do well in the THES survey in large part because of the inclusion in the criteria of the number of international students.

and the categories into which they are placed follows the structure set out in section 3. We use the short-hand *Lab* and *NonLab* for data that relate to the sciences and to other disciplines, respectively.

The characteristics of the performance data are (i) they come either from international data banks or conceptually have their counterparts in other countries (ii) they have been collected on a consistent basis by an external agency and (iii) undue complexity is avoided.

Under each heading below we provide the weights we have applied within each of our six broad categories. The results from the surveys provide the weights for combining our six broad measures of standing into a single rating. The overall ratings will be much more sensitive to the choice of weights for the six broad categories than they will be to the weights assigned to individual variables within categories. In this way we greatly limit the importance of our subjective views.

#### *4.1 Quality/International Standing of Staff*

The international standing of staff depends predominantly on research activity and its impact. We measure these features by research performance and peer recognition. We distinguish four subcategories with equal weights: refereed research output, citations, peer recognition, and research income.

We use the ISI (Institute for Scientific Information) data bank ([www.isinet.au](http://www.isinet.au)) as a measure of research performance. The data bank includes approximately 8700 journals in the sciences, social sciences, and arts and humanities. Inclusion is based on quality of the journal. Specifically, we use the Essential Science Indicators (ESI) which provides data on publications and citations for those institutions in the top 1 per cent of the world based on citation counts over a decade. In absolute terms about 3500 institutions are included —28 out of our 39 Australian universities make the cut-off. Coverage is for the period 1 January 1994 to 29 February 2004. The ESI data are biased towards the sciences: two thirds of the journals are in the sciences and books are not included. Coverage is particularly limited in the arts and humanities.<sup>5</sup> We attempt to redress this imbalance in two ways. First, we divide the ESI data into NonLab (Economics & Business and Social Sciences (General)) and Lab (all other 20 categories) and create separate variables for each. Second, we also include the wider measure of audited weighted publications (2001 and 2002) as used by the Department of Education, Science and Training (DEST) in its research funding formula. This

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<sup>5</sup> A critical evaluation of the ISI data is contained in van Raan (2004). An NBEET commissioned study using 1991 publication data for all Australian universities found that the ISI data bank covered less than 10 per cent of articles published in Law and Arts and only around 50 per cent in mathematical sciences and economics. The findings are reproduced in Butler (2004), p.154. Many of the omitted publications were presumably in Australian journals which were not ranked highly on an international scale. Their omission then (and now) therefore matters less for measuring international standing than it would for a wider measure of research performance.

measure includes all refereed output of Australian academics, with books given a weighting of 5 to a journal article weight of 1.

We use two measures of peer recognition: membership of an Australian Academy<sup>6</sup> and inclusion in the ISI-ESI list of top researchers in a field of research as judged by citations over the period 1981-1999. As at August 2004, approximately 200-250 researchers were named in each of 21 ISI fields of study of whom 64 had an affiliation with an Australian university. The research income measures are, using DEST data for 2001 and 2002, the value of National Competitive Grants (NCGs) and total research income.

It is a moot point as to whether research output per academic staff member or total staff output is the most appropriate indicator of international standing. A small institution with exceptional staff may have as high a reputation as a large institution with a large number of good staff<sup>7</sup>. The treatment of size is largely an empirical matter which we address in Section 6. Where feasible, in constructing the scaled variables we divide by total academic staff in the university. As it is not possible to obtain a Lab/NonLab split for all academic staff we must modify the scaled variables. In particular we combine publications in the two areas, but replace citations with citations per paper. The two alternative measures, together with internal weights, are as follows:

#### Levels

- publications: DEST points (0.10), Lab ESI articles(0.10), NonLab ESI articles (0.05)
- citations: Lab ESI (0.17), NonLab ESI (0.08)
- peer recognition: Academy membership (0.20), highly cited researcher (0.05)
- research income: NCGs (0.15), total income (0.10)

#### Scaled for size

- publications: DEST points per head (0.10), ESI count per head
- citations per article: Lab ESI (0.17), nonLab ESI (0.08)
- peer recognition: Academy membership per head (0.20), highly cited researchers per head (0.05)
- research income: NCGs per head (0.15), total income per head (0.10)

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<sup>6</sup> Data relate to June 2004 and were taken from the following web sites: the Australian Academy of the Humanities ([www.humanities.org.au](http://www.humanities.org.au)), the Australian Academy of Science ([www.science.org.au](http://www.science.org.au)), the Academy of Social Sciences in Australia ([www.assa.edu.au](http://www.assa.edu.au)), and the Australian Academy of Technological Sciences and Engineering ([www.atse.org.au](http://www.atse.org.au)). In order to provide a relatively contemporary view of standing we excluded fellows who were retired from a full-time position at a university. Holders of adjunct positions and visiting staff were also excluded. At this stage we have not included Nobel prize winners in our measure of peer recognition because of the conceptual issues involved in the allocation of weights to length of time since award, where research was carried out, and current affiliation.

<sup>7</sup> Katz (2000) shows that, at least in the sciences, citations increase more than proportionately to publications at both the institutional and national level with an exponent of around 1.25. We ignore this effect.

The extent to which overall findings are sensitive to weights depends on the degree of correlation between variables. In practice, the correlation between most variables exceeded 0.9; of interest is that the correlation between publications as measured by DEST and the Lab ESI publications measure was 0.99; 0.97 if the universities with zero ESI entries are excluded. The correlation between DEST publications and ESI publications when both are divided by numbers of academic staff is 0.89. Correlation was weakest between the peer recognition variables and the other variables.

#### 4.2 *Quality of Graduate Program*

There exist a plethora of postgraduate programs with a range of titles and standards. It is the PhD program that has worldwide currency and it is therefore appropriate to focus on it. The variables<sup>8</sup> and weights we use are

- PhD completions, average 2001-2002 (0.35)
- postgraduate progression rates, 2002
  - domestic students (0.15)
  - international students (0.15)
- student evaluation of their PhD program. (0.35)

Student evaluation of courses is contained in the postgraduate research experience questionnaire (PREQ) administered by each university. We use replies to the question: “Overall, I was satisfied with the quality of my higher degree research experience”. The results are coded on a five point scale ranging from “strongly disagree” to “strongly agree”. These scores are converted to a single number with a maximum value of 100, using the weights -100, -50, 0, 50, 100. Student responses relate only to students whose attendance was ‘wholly or mainly full-time’.

Data were obtained separately for *Lab* and *Non-Lab* disciplines. The allocation between the two was based on the DEST classification of Academic Organisational Unit Groups (AOU). The AOU groupings of Science, Health, Engineering and Agriculture were allocated to *Lab* and Information Technology, Business and Economics, Architecture, and Arts & Humanities to *Non-Lab*.

At the national level there was little difference between *Lab* and *Non-Lab* students in the mean score on student evaluation. In order to obtain sufficient sample sizes for all institutions the results for *Lab* and *Non-Lab* were combined and data averaged over the most recent three years of data (2000, 2002, 2003)<sup>9</sup>.

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<sup>8</sup> PhD completions are from DEST; attrition rates are taken from “Higher Education Attrition Rates 1994-2002: A Brief Overview”, Research Note No. 1, Strategic and Evaluation Group, DEST, March 2004 (Tables 13a and 18a); student evaluation data are from the Postgraduate Research Experience Questionnaire and were provided by the Graduate Careers Council of Australia.

<sup>9</sup> Even then the sample size was less than 10 for five institutions; for these we used the median, which was a better measure of central tendency. This result is not a sampling problem with the PREQ but is

Student progression rates are available only for all graduate students. They are derived from the inverse measure of attrition rates which are calculated as number of students enrolled in postgraduate courses in 2002 who were not enrolled in 2003 and who had not successfully completed their course.

No appropriate data exist on quality of postgraduate student intake: government funded scholarships are determined by formula the components of which we already include under quality of staff.

#### *4.3 Quality of Undergraduate Intake*

Data limitations restrict us to using a measure based on the tertiary entrance score (TES) of domestic students completing year 12. The only national measure available to us from DEST was, for each university, the distribution of the TES across courses at a given percentile level. Even this measure is severely compromised by the range of methods used by universities in selecting students; in many courses selection is by a range of measures and TES are not reported.

At high percentile levels there is surprisingly little variation across institutions in the reported data. We have therefore used the median TES score for the 50<sup>th</sup> percentile ('the median median'). In order to smooth out some large annual changes we have averaged over 2002 and 2003.

#### *4.4 Quality of Undergraduate Program*

We use four broad measures: staff-student ratios, progression rates, continuation into higher studies, and student evaluations. Progression rates are not available on a *Lab/Non-Lab* basis but the other three measures are. The allocation to *Lab* and *Non-Lab* is again made using DEST AOU's, as explained in section 4.2. The number of international students was also considered as a variable but rejected because no appropriate information is available on quality. The existence of off-shore campuses also raises difficult conceptual issues.

Continuation into higher studies is not necessarily at the same institution. In looking at this measure we include separate variables for masters by coursework and research degrees. Enrolments in masters by coursework can be heavily influenced by professional requirements and may entail a cross over between a *Lab* and *Non-Lab* based discipline. For these reasons they are given a lower weight and no discipline split is made.

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due to the very small number of PhDs awarded over the period at these institutions. While our overall findings will not be sensitive to these data limitations it is not appropriate to make fine distinctions in analysing the results for components.

Progression rates are based on DEST estimates of attrition rates, measured as the number of students enrolled in undergraduate courses in 2002 who were not enrolled in 2003 and who had not successfully completed their course. Although attrition rates are open to the objection that low rates may reflect lax standards, in practice high rates owe more to students losing interest and dropping out, either directly by formally withdrawing or indirectly by not studying and failing exams. The rates are also influenced by the nature of the intake and by variables such as age of student and the nature of the enrolment (part-time or full-time, external or internal etc) but as elsewhere in this paper we ignore these effects.

Student evaluation of courses is contained in the course experience questionnaire (CEQ) administered by each university. We use replies to the question: "Overall, I was satisfied with the quality of this course". The results are coded on a five-point scale ranging from "strongly disagree" to "strongly agree" and are converted to a single number with a maximum value of 100 using the weights -100, -50, 0, 50, 100.

In calculating ratios of academic staff to students, we exclude offshore students<sup>10</sup>; research-only staff are excluded; and all figures are in full-time equivalents.

Each of the four broad measures is weighted equally. All data relate to 2002. Details are as follows<sup>11</sup>:

- Progression rates (0.25)
  - domestic students (0.125)
  - international students (0.125)
- Staff-student ratios (0.25)
  - *Lab* (0.125)
  - *Non-Lab* (0.125)
- Student evaluation (0.25)
  - *Lab* (0.125)
  - *Non-Lab* (0.125)
- Percentage of students graduating with a pass or honours bachelors degree who in the next year are enrolled in a higher degree (0.25)
  - masters by coursework (0.10)
  - honours degree, masters by research or PhD, *Lab* (0.075)
  - honours degree, masters by research or Ph D, *Non-Lab* (0.075)

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<sup>10</sup> Student load from IT courses at Ballarat, international students taught in Australia under contract by Central Queensland University, and the courses run by Charles Sturt University for the NSW police force have been excluded. In all three cases staff are not included in DEST figures.

<sup>11</sup> Progression rates are derived from the same source (DEST) as in footnote 7 (Tables 2a and 16a); student evaluation data are from the CEQ sent in 2003 to graduates from 2002 and was provided to us by the Graduate Careers Council of Australia; data on enrolment in higher degrees is from the Graduate Destination Survey sent in 2003 to 2002 graduates and was provided to us by the Graduate Careers Council of Australia; data for staff-student ratios are derived from DEST, *Staff 2003* (sic): *Selected Higher Education Statistics*, Appendix 1.6 and *2002 Students: Selected Higher Education Statistics*, Table 46. DEST data are available at [www.dest.gov.au/highered/statpubs.htm](http://www.dest.gov.au/highered/statpubs.htm).

#### 4.5 Resource Levels

It was not possible to obtain useful measures of expenditures in areas such as libraries, student support and IT. Universities no longer supply this information to DEST; the last year for which it is available is 2000 and the data for this year suggest variation across institutions in the coding of data.

Non-monetary measures of resource use also appear to suffer from data deficiencies, with variations occurring across institutions in how staff numbers are allocated to the various categories, and in the treatment of staff, both academic and support staff, who are involved in off-shore teaching.

In light of the above difficulties we are left with an aggregate measure of resources, namely total revenue. In principle, to allow for size differences between institutions revenue should be deflated by a weighted average of student and staff numbers<sup>12</sup>. Revenue per student is an indicator of the resources available for teaching and research training. Revenue per academic staff member provides an indicator of the resources available for administrative and technical assistance for research. Insofar as revenue per staff member is used to pay higher average salaries it is also a further measure of the standing of academic staff. Resources such as libraries and IT facilities are used by both students and staff.

We use both resources per student and resources per academic staff (including research only staff), with weights of 0.75 and 0.25 respectively<sup>13</sup>. These measures exhibit significant year-to-year fluctuations for several smaller institutions so average values for 2001-2002 are used.

The growing importance of marketing and promotion in the budgets of Australian universities does, however, reduce the appropriateness of using an aggregate revenue measure, at least insofar as the relative importance of marketing expenditure varies across institutions. The increase in promotional activities has arisen in large part from the desire of institutions to increase the numbers of international students. This expenditure does of course increase international awareness although not necessarily international standing of an institution. Insofar as a large promotion budget and associated staff are required to recruit students, the funds are not available to improve service delivery and should be subtracted from total revenue in measuring resources available for research and teaching. Unfortunately, no nation-wide data exist in this area.

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<sup>12</sup> Weighting is only necessary if the ratio of students to staff vary across institutions – otherwise dividing by either student or staff numbers would give the same relative values for each institution. In practice the ratio of students to *total* academic staff varies greatly across Australian institutions: using average 2001-2002 data the ratio varies from 5 at ANU to more than 20 for several regional universities.

<sup>13</sup> The resource measure used is normal operating revenue as defined by DEST in its Finance Statistics. Total university revenue can exceed this owing to activities of subsidiary entities.

#### 4.6 Subjective Assessment

A common criticism of using quantitative performance measures is that “we already know the best universities”. Direct measurement of perceptions provides a check on such an assertion. It permits a comparison between perceptions/reputation and current performance.

Our subjective assessment exercise comprised two parts. We first asked respondents, both domestic and foreign, to rate each Australian university in comparison with foreign universities on a five-point scale. Second, we asked them to place weights on each of the six objective categories described above. We then use these weights in combining our quantitative measures into a single rating.

Questionnaires were sent to Chief Executive Officers (CEOs)<sup>14</sup> of foreign universities of high standing and to deans in all 39 Australian universities. It was thought that within Australia deans were less likely than CEOs to answer strategically.

The foreign universities included were 172 of the world’s best universities as judged by the Shanghai study<sup>15</sup>. Their CEOs were asked to compare the international standing of each Australian university with the standing of universities in their respective continent. A five-point scale was used with the categories calibrated across each continent (North America, Europe and Asia) using the results of the 2003 Shanghai Study. For example, the first category roughly corresponds to being in the top 80 in the world = top 50 US = top 25Europe = top 5Asia. The fifth (lowest) point on the scale was “not known well enough to rate”. Details on each scale are given in table 2 below. In order to facilitate comparisons, examples were provided of the universities in the respondent’s continent which in the Shanghai study just made it into each of the categories.

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<sup>14</sup> The actual nomenclatures include Vice-Chancellor, President, Rector, Chancellor, Principal, Director and combinations thereof.

<sup>15</sup> We aimed to achieve around 40-50 replies. Preliminary investigation indicated that a low response rate could be expected. Because of the pressures on CEOs time we decided to over-sample rather than to follow up nonrespondents. The sample size of 172 was arrived at by including the following universities: those included in the top 100 universities in the Shanghai study for 2003 or 2004, those ranked 101-152 in the 2004 Shanghai study, UK and Canadian universities ranked 153-201 in the 2004 study, all members of the Russell Group of research universities in the UK, and, in order to increase country representation from the Asia-Pacific region, all non-Japanese universities (which are well represented under other criteria) included in the top 300 in either of the two Shanghai studies, plus all eight New Zealand Universities. Not all of these categories are mutually exclusive.

Table 2: Questionnaire Design for Foreign CEOs in each of 3 Continents

		Category 1	Category 2	Category 3	Category 4
<i>Continent</i>	<i>Number of universities in sample</i>	<i>top 80 in world</i>	<i>top 81-200 in world</i>	<i>top 200-500 in world</i>	<i>outside top 500 in world</i>
<i>North America</i>	80	top 50	top 51-100	top 101-200	known but not in top 200
<i>Europe</i>	65	top 25	top 26-75	top 76-200	known but not in top 200
<i>Asia</i>	19	top 5	top 6-12	top 13-70	known but not in top 70

Note: see text for format of questionnaire for 8 New Zealand universities

Australian deans and New Zealand vice-chancellors were asked to compare with North American universities for the first two categories (comparable to top 50 in the US, comparable to top 51-100) but categories 3 and 4 were replaced, respectively, with “not comparable to top 100 in North America but well known internationally in some areas”, and “little if any international reputation”. The wording of category 5 was changed marginally to “little known about university”.

The responses of international leaders are useful in their own right in that they throw light on how many Australian universities perceived to be in the top  $x$  per cent in the world. However, in order to combine the information from the survey with our quantitative data it is necessary to collapse the responses into a single number for each university. We do this by applying a weight of 8 for category 1, and weights of 4, 2, 1 and 0 for the other four categories, and then averaging. Responses from Australian deans are combined into a single measure using the same weights but we exclude responses from the dean’s own university.

The five point scale provides a coarse grid for rating universities which is appropriate for foreign CEOs. Respondents from Australia and New Zealand are more able to provide a finer grading. Australian deans and New Zealand vice-chancellors were, therefore, also asked to rank the top 10 universities in Australia based on the criterion of international standing. These rankings were converted into a single number for each university using weights of 10,9,8, .....2,1. We excluded the ranking of each dean’s own university and calculated the resultant weighted averages. We recalculated in order to offset differences in the number of respondents from each university. We combine these rankings with the ratings to produce an overall index of international standing.

We used the following weights to incorporate the questionnaire data into the overall ratings of Australian universities:

- Ratings by CEOs of foreign universities (0.50)
- Ratings by Australian deans (0.25)
- Rankings by Australian deans and New Zealand vice-chancellors (0.25)

All CEOs and deans were also asked to place weights on our six categories of attributes. Specifically, we asked:

*In evaluating university performance, data on different attributes are frequently combined into a single measure. If you were to evaluate the international standing of a university, what percentage weight would you place on each of the following?*

- *quality of staff as measured by criteria such as the number and quality of publications, competitive grants obtained, honours achieved*
- *quality of graduate programs*
- *quality of undergraduate intake*
- *quality of graduate programs*
- *resource levels*
- *opinions gained from surveys of academics and university administrators*

## **5. Results**

We received useable replies to the questionnaires from 40 CEOs of overseas universities and from 80 deans of Australian universities. About 50 per cent of the replies from foreign universities were from Europe; 40 per cent of the Australian responses were from deans in Go8 universities. The survey results provide us with our weights for the six broad categories of attributes and these results are discussed first.

### *5.1 Weights on Attributes*

A surprising finding was that overseas CEOs and Australian deans placed remarkably similar weights on our six classes of attributes<sup>16</sup>. These weights are given below in table 3. Given the similarities, we use the (rounded) average weights in our rankings.

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<sup>16</sup> A  $\chi^2$  test formally shows no significant difference.

*Table 3: Mean responses to question, “If you were to evaluate the international standing of a university, what percentage weight would you place on each of the following?”*

<b>Attribute</b>	<b>Foreign CEOs</b>	<b>Australian Deans</b>	<b>Chosen weights</b>
Quality/International Standing of Staff	39.8%	39.5%	40%
Quality of Graduate Programs	17.1%	14.1%	16%
Quality of Undergraduate Intake	10.4%	11.8%	11%
Quality of Undergraduate Programs	13.4%	14.3%	14%
Resource Levels	10.7%	12.3%	11%
Peer opinion	8.7%	8.0%	8%

## *5.2 Ratings by Foreign CEOs and Australian Deans*

The Australian National University and the University of Melbourne were rated the most highly by overseas CEOs. In each case about one-half of respondents rated these institutions as being in the top category: comparable to top 50 in North America or top 80 in the world. forty responses. A clear majority placed Sydney, Queensland and New South Wales in the top 200 in the world, and about 50 per cent also placed Monash in this category. These results mirror those of the Shanghai study, except that in our results Monash replaces the University of Western Australia. In the THES ratings, by comparison, fourteen Australian universities figured amongst the top 200.

Not surprisingly, Australian deans rated Australian universities more highly than did the international respondents. As an illustration, in Table 4 we give the percentages of foreign and domestic respondents who rated each Group of Eight university as comparable to the top 80 in the world (top 50 in the USA). The responses from Australian deans exclude evaluation of their own university; if own university is included the percentages rise only by one or two percentage points.

Table 4: Percentage of Respondents ranking Go8 universities in top 80 in world

	CEOs of foreign universities	Australian Deans
ANU	53	67
Monash	13	23
Adelaide	8	8
Melbourne	48	62
New South Wales	18	18
Queensland	13	48
Sydney	30	53
Western Australia	8	8

To convert the differential between foreign CEOs and Australian deans into a single number, we apply weights of 5,4,3,2,1 to each category and sum for all universities. The mean for Australian deans was 0.81 above that for foreign CEOs (2.80 versus 1.99), implying an inflation factor of nearly one full category.<sup>17</sup>

Table 5 contains the results from our surveys using the weights as given in Section 4.6. In all tables the results are standardised with the best performing institution in each subcategory given a grade of 100; these scores are then added across subcategories and the overall score for that category is obtained by further rescaling so that the highest performing institution receives a grade of 100.

The correlation between the foreign and domestic ratings is very high – the rank correlation coefficient is 0.97. Differences between the dean’s ratings and dean’s rankings occur when for two universities *rated* similarly, say in the top category, one university is *ranked* consistently higher than the other.

Universities are arranged in rank order in Table 5. The Go8 universities enjoy the highest ratings. These universities fall into four groupings: ANU and Melbourne enjoy the highest overall ratings by peers using the criterion of international standing, Sydney is third, followed by Queensland and New South Wales, and then a group comprising Monash, Western Australia and Adelaide.

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<sup>17</sup> A number of CEOs of overseas universities informed us that they felt unable to rate Australian universities. In this sense the results from the completed questionnaires provide an upper bound on the international standing of Australian universities.

### 5.3 Overall Rankings

In evaluating international standing it is to a large extent an empirical matter as to how to account for size of institution. Is it more appropriate to use total research activity or research activity per academic staff member?<sup>18</sup> We have followed usual practice in choosing measures of performance in teaching that are expressed in ratio form. Nevertheless, it might be argued that for these measures a large institution that scores the same as a small institution is really doing better. Thus if two institutions have common scores on variables such as entrance levels, progression rates and student evaluations, because the larger institution has a greater number of students at a given level or score then in some sense its total performance is superior to that of the smaller institution.

In tables 6 and 7 we present the overall results which combine all six categories using weights obtained from the questionnaires.<sup>19</sup> In table 6 the rankings are set out using levels for all variables in the “international standing of staff” category and using PhD completions in the standing of graduate programs. In table 7 we adjust for size of institution: staff quality is now measured by the per capita method as set out in section 4.1, and we divide PhD completions by the total number of academic staff. In both tables all other variables are the same and allow, either explicitly or implicitly, for size; in particular the revenue variable is always adjusted as set out in section 4.5.

In table 6, the Go8 universities are ranked in the same pattern as in the survey of peers although the differences are now less: Melbourne and ANU are at the top, then Sydney, then Queensland and New South Wales, followed by Monash, Western Australia and Adelaide. The universities in each of the four national groupings of Go8, IRUA, ATN and NGU are ranked in that order. This result can be interpreted as reflecting the view that each group has a distinct mission, whereas within each group missions are similar across universities. Newer universities are disadvantaged in a ranking of international standing because of the relatively large weight given to research which has taken place over the last decade; sliding the observation period forward can be expected to narrow the relativities.

The categories that have the greatest range in scores are international standing of staff and the survey findings. This result is to be expected because several of the variables, such as the ESI data, have thresholds; universities falling below the thresholds receive no score. The scores for the two categories concerned with undergraduate education show relatively little dispersion. The spread for resource levels is also quite small apart from the very high value for ANU.

In table 7, in which the international standing of staff takes account of the size of institution, ANU is clearly in first position, followed by Melbourne. The University of Western Australia is now ranked third. The rankings again follow the four

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<sup>18</sup> In the Shanghai ranking 90 per cent of the weight is given to total levels and 10 per cent to size of institution.

<sup>19</sup> Bond University is not included because of lack of data in a number of areas.

groupings of Go8, IRUA, ATN, and NGU. Comparing the ratings in tables 6 and 7 we note the expected result that the range of scores is much less when size of institution is allowed for fully.

The results presented in tables 6 and 7 are very much building blocks in the measurement of overall performance. The different variables within each category have been chosen as relevant for international standing. In particular, the results provide incomplete information on choice of institution for study, let alone the best places to study in a given area.<sup>20</sup> Attributes such as location, physical environment, socio-economic mix of students and so on are relevant for student choice, but are much less relevant for international standing.

A remaining question is to what extent is there congruence between the subjective survey measures of international standing and the measures based on current performance? The survey respondents on average recommended that their views should account for less than 10 per cent in the overall evaluation, presumably because they felt they needed more actual performance data to firm up their views.

We can now compare the survey findings with the quantitative results. There is strong congruence between the survey results and the performance data. We find that the survey results are more closely correlated with the quantitative results when we use total research activity not adjusted for size of institution -- in this case the simple correlation coefficient between the survey scores and the quantitative results is 0.987 and the rank correlation coefficient is 0.938. The corresponding values for correlation between the survey scores and the quantitative results using research activity per staff member are 0.866 and 0.912. These results provide evidence that it is the totality of research output which matters most for international prominence.<sup>21</sup> But we can go further than this and ask what weights on the two sets of quantitative results would produce a combined index which maximises the rank correlation coefficient between the survey results and the new combined quantitative index? The solution yields weights of 0.84 for the levels rating (table 6) and 0.16 for the per capita ratings (table 7).<sup>22</sup>

The resultant combined index is presented in table 8. We label this the *Melbourne Institute Index of the International Standing of Australian Universities*. In this new ranking ANU and Melbourne tie for first place, followed by Sydney, Queensland and New South Wales in that order. The Go8 universities occupy the first eight places. The highest placed institutions in each of the other national groupings are: Flinders (IRUA), Curtin and the Queensland University of Technology (ATN) and the University of Canberra (NGU). Interestingly, the highest-ranked fourteen universities

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<sup>20</sup> Carico et al (1997) use data envelopment analysis with UK data to conclude (p.1167) that “ although the *The Times* league table may be appropriate for the most able students, it is not useful in terms of assisting in the choice of university for other categories of applicants”.

<sup>21</sup> Large institutions tend to be more diverse so the results may be reflecting diversity as much as size.

<sup>22</sup> We ignore the complication that the survey results form a (minor) component (8 per cent) of the quantitative results.

are the same fourteen universities (though with some differences in ordering) as appear in the 2004 Shanghai list of the top 500 Australian universities (see table A3).

## **6. Concluding Remarks**

We have produced ratings of Australian universities based on the criterion of international standing. Our survey results exhibit a common view within Australia and overseas that the measurement of standing should not be confined to research performance; indeed, the general consensus was that the international standing of academic staff as measured by research performance should have a weight of less than 50 per cent. But this weight underestimates the importance of first-rate academic staff; other personal attributes such as teaching and supervision excellence are reflected in our measures of the quality of the undergraduate and graduate programs.

Any analysis of performance or standing is limited by data availability. This study, along with others, fails to capture fully the more general contribution of universities to society, such as contributions to public policy and technology. This omission could be partially redressed by extending the range of data to include variables such as citations in government policy papers and patents taken out, and by extending the qualitative data by surveying key decision-makers outside the higher education sector. The impact of books has traditionally been much undervalued in evaluation studies and there is now the need to address the influence of the internet. These various extensions of coverage would also help to redress the bias in existing measures towards the more theoretical research.

International standing is, of course, only one criterion by which a university's performance may be measured. There is the need to develop other measures of performance which have a more local focus, such as contributions to regional development, contributions to national well-being, and detailed evaluation of teaching performance which takes account of the mix of students. A range of criteria linked to mission statements are necessary if Australia is to have a diverse higher education system which caters for the full range of desires of its people.

**Table 5: International Standing of Australian Universities: Survey Results**

Group	University	Foreign CEOs (0.50)	Deans Ratings (0.25)	Deans Rankings (0.25)	Standardised Total
Go8	University of Melbourne	100.0	96.5	100.0	100.0
Go8	Australian National University	94.7	100.0	90.1	95.7
Go8	University of Sydney	79.6	91.0	82.6	84.0
Go8	University of Queensland	54.9	87.3	77.0	69.1
Go8	University of New South Wales	62.4	79.0	65.7	68.0
Go8	Monash University	54.0	67.5	46.8	56.1
Go8	University of Western Australia	38.1	68.2	44.0	47.5
Go8	University of Adelaide	45.1	51.3	30.9	43.5
IRUA	Macquarie University	19.0	38.5	7.2	21.1
	University of Tasmania	19.9	36.0	3.6	20.0
IRUA	La Trobe University	21.7	32.0	3.7	19.9
ATN	Queensland University of Technology	20.4	29.8	5.4	19.2
IRUA	Flinders University of South Australia	17.3	34.8	5.9	19.0
IRUA	Griffith University	15.5	34.7	5.6	18.0
ATN	RMIT University	16.8	29.2	2.9	16.6
ATN	Curtin University of Technology	17.7	26.1	2.7	16.2
ATN	University of Technology, Sydney	14.6	31.7	3.2	16.2
IRUA	University of Newcastle	15.0	30.8	3.1	16.1
	Deakin University	17.7	26.7	0.9	15.9
	University of New England	18.1	25.1	0.6	15.6
	University of Wollongong	13.7	30.6	3.3	15.5
	James Cook University	15.0	26.8	0.0	14.3
NGU	University of Canberra	19.0	18.1	0.5	14.3
ATN	University of South Australia	14.2	24.8	0.9	13.6
IRUA	Murdoch University	12.8	25.4	0.0	12.9
NGU	Victoria University	11.1	16.0	0.0	9.6
NGU	Edith Cowan University	9.3	17.3	0.0	9.0
NGU	Central Queensland University	9.7	14.6	0.3	8.7
	Bond University	6.2	17.7	1.5	8.0
	Charles Darwin University	8.4	14.1	0.0	7.8
NGU	University of Western Sydney	6.6	17.5	0.0	7.8
	Charles Sturt University	5.3	17.2	0.0	7.0
	Swinburne University of Technology	5.3	15.8	0.0	6.7
NGU	Australian Catholic University	5.8	13.3	0.4	6.4
NGU	University of Southern Queensland	4.9	15.2	0.0	6.3
NGU	Southern Cross University	4.0	13.3	0.0	5.4
NGU	University of the Sunshine Coast	4.4	11.6	0.0	5.2
NGU	University of Ballarat	3.5	12.7	0.0	5.0
	University of Notre Dame, Australia	2.7	11.9	0.0	4.3

Go8 = Group of Eight

IRUA = Innovative Research Universities Australia

ATN = Australian Technology Network

NGU = New Generation Universities

**Table 6: International Standing of Australian Universities: Quantitative Results**

Group	University	International Standing of Staff (0.40)	Graduate Programs (0.16)	Undergrad Intake (0.11)	Undergrad Programs (0.14)	Resources (0.11)	Views of CEOs and Deans (0.08)	Standardised Total
Go8	University of Melbourne	100.0	100.0	100.0	94.2	58.5	100.0	100.0
Go8	Australian National University	95.1	82.0	93.4	90.7	100.0	95.7	98.1
Go8	University of Sydney	94.5	97.1	96.4	95.6	55.5	84.0	95.3
Go8	University of Queensland	77.0	94.0	99.5	95.5	58.5	69.1	86.8
Go8	University of New South Wales	73.6	90.8	98.0	94.1	53.9	68.0	83.8
Go8	Monash University	61.1	88.2	92.9	90.2	47.7	56.1	75.2
Go8	University of Western Australia	50.9	78.4	98.0	100.0	61.2	47.5	72.1
Go8	University of Adelaide	43.8	76.2	96.9	94.8	55.0	43.5	66.7
IRUA	La Trobe University	25.2	73.2	89.3	83.5	41.4	19.9	52.3
IRUA	Flinders University of South Australia	20.3	72.2	95.9	89.9	42.8	19.0	51.8
IRUA	Macquarie University	17.1	73.3	96.4	87.6	42.8	21.1	50.6
IRUA	University of Newcastle	22.9	66.0	94.4	77.9	39.2	16.1	49.2
	University of Tasmania	19.1	67.3	91.3	82.6	45.0	20.0	49.2
IRUA	Griffith University	16.9	67.6	91.8	82.2	38.7	18.0	47.4
IRUA	Murdoch University	11.9	65.8	91.3	94.8	44.9	12.9	47.1
ATN	Curtin University of Technology	13.1	66.9	94.9	82.2	47.1	16.2	46.9
	University of Wollongong	12.6	70.0	89.3	86.1	42.9	15.5	46.6
ATN	Queensland University of Technology	14.8	74.5	95.9	71.7	37.3	19.2	46.6
	Deakin University	12.4	65.1	87.8	74.4	48.8	15.9	44.5
ATN	University of Technology, Sydney	10.3	66.3	100.0	77.8	37.8	16.2	44.5
	Swinburne University of Technology	4.0	72.5	92.9	82.8	54.8	6.7	43.9
	University of New England	11.2	60.6	79.1	84.3	45.0	15.6	43.2
ATN	University of South Australia	9.8	64.4	85.7	77.4	41.1	13.6	42.4
	James Cook University	11.0	62.1	87.2	69.3	46.3	14.3	42.1
ATN	RMIT University	7.9	58.7	91.3	72.6	48.3	16.6	41.6
NGU	University of Canberra	2.9	60.2	91.3	83.0	43.3	14.3	40.5
NGU	Victoria University	4.4	58.8	74.5	89.6	44.8	9.6	39.7
NGU	Edith Cowan University	5.9	69.6	82.7	69.8	37.4	9.0	39.3
	Charles Darwin University	1.3	63.4	80.1	69.1	64.2	7.8	38.9
NGU	Southern Cross University	2.4	70.4	70.9	77.7	36.8	5.4	37.4
NGU	University of Western Sydney	8.6	55.4	80.1	69.6	34.7	7.8	37.3
NGU	University of Ballarat	1.0	56.6	79.6	71.0	57.2	5.0	36.8
	Charles Sturt University	5.0	55.9	86.7	69.7	35.7	7.0	36.7
NGU	Australian Catholic University	1.4	56.0	87.2	76.7	32.0	6.4	35.8
NGU	Central Queensland University	1.7	53.0	84.2	64.0	51.5	8.7	35.6
NGU	University of Southern Queensland	1.5	54.5	91.3	73.3	30.9	6.3	35.4
	University of Notre Dame, Australia	0.3	29.3	76.5	78.5	41.2	4.3	30.7
NGU	University of the Sunshine Coast	0.3	28.4	82.7	74.8	40.0	5.2	30.7

**Table 7: International Standing of Australian Universities**  
*Research performance adjusted for size of institution*

Group	University	International Standing of Academic Staff	Standardised Total
Go8	Australian National University	100.0	100.0
Go8	University of Melbourne	84.6	91.9
Go8	University of Western Australia	87.5	89.0
Go8	University of Sydney	80.1	87.5
Go8	University of Adelaide	77.8	82.7
Go8	University of Queensland	70.3	82.5
Go8	University of New South Wales	71.9	82.3
Go8	Monash University	59.5	72.9
IRUA	Flinders University of South Australia	63.7	72.2
	University of Tasmania	62.7	70.8
IRUA	Macquarie University	51.5	67.0
IRUA	Murdoch University	50.7	66.9
	University of New England	55.2	66.0
IRUA	La Trobe University	50.9	64.4
	University of Wollongong	45.9	63.6
IRUA	University of Newcastle	54.8	63.4
	James Cook University	50.0	61.7
	Deakin University	39.0	57.7
ATN	Curtin University of Technology	33.0	55.9
ATN	Queensland University of Technology	34.4	55.3
IRUA	Griffith University	34.6	55.3
ATN	University of Technology, Sydney	32.1	54.5
	Swinburne University of Technology	18.6	52.3
ATN	University of South Australia	30.3	51.8
ATN	RMIT University	24.1	49.3
NGU	University of Canberra	19.3	48.7
	Charles Darwin University	16.5	48.6
NGU	Edith Cowan University	27.0	48.6
NGU	Victoria University	19.9	47.3
NGU	Southern Cross University	14.8	46.8
	Charles Sturt University	26.4	46.0
NGU	University of Western Sydney	27.9	45.9
NGU	University of Ballarat	11.0	41.6
NGU	Central Queensland University	8.5	39.0
NGU	University of Southern Queensland	6.5	37.8
NGU	Australian Catholic University	6.2	37.8
	University of Notre Dame, Australia	7.1	33.9
NGU	University of the Sunshine Coast	7.8	33.7

**Table 8: Melbourne Institute Index of the International Standing of Australian Universities**  
*Weighted average of levels and size adjusted*

Group	University	Weighted Score	Rank
Go8	Australian National University	100	1
Go8	University of Melbourne	100	1
Go8	University of Sydney	95	3
G08	University of Queensland	87	4
Go8	University of New South Wales	85	5
Go8	Monash University	76	6
Go8	University of Western Australia	76	6
Go8	University of Adelaide	70	8
IRUA	Flinders University of South Australia	56	9
IRUA	La Trobe University	55	10
IRUA	Macquarie University	54	11
	University of Tasmania	53	12
IRUA	University of Newcastle	52	13
IRUA	Murdoch University	51	14
	University of Wollongong	50	15
ATN	Curtin University of Technology	49	16
IRUA	Griffith University	49	16
ATN	Queensland University of Technology	49	16
	Deakin University	47	19
	University of New England	47	19
ATN	University of Technology, Sydney	47	19
	James Cook University	46	22
	Swinburne University of Technology	46	22
ATN	University of South Australia	44	24
ATN	RMIT University	43	25
NGU	University of Canberra	42	26
	Charles Darwin University	41	27
NGU	Edith Cowan University	41	27
NGU	Victoria University	41	27
	Charles Sturt University	39	30
NGU	Southern Cross University	39	30
NGU	University of Western Sydney	39	30
NGU	University of Ballarat	38	33
NGU	Australian Catholic University	37	34
NGU	Central Queensland University	37	34
NGU	University of Southern Queensland	36	36
	University of Notre Dame, Australia	32	37
NGU	University of the Sunshine Coast	32	37

Weights are 0.84 on levels (table 6) and 0.16 on scores adjusted for size of institution (table 7). The weights maximise the rank correlation coefficient between the survey rankings (table 5) and a weighted average of the two quantitative measures.

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