Australian and New Zealand Academy of Management (ANZAM) Research Productivity Survey Report 2014 - 2016

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Published by:
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Australian and New Zealand Academy of Management (ANZAM) Research

Productivity Survey Report 2014 - 2016

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ISBN: 978-0-6481109-3-4

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Foreword from the President of ANZAM

Dear ANZAM members,

ANZAM is the premier professional body for management educators, researchers and practitioners in our region. Your Academy is focused on providing members with a range of services that they consider useful. In keeping with this goal, I am pleased to introduce the ***fourth*** ANZAM Research Productivity Report (2014-2016). The report is based upon the responses received from 24 universities; the best response to date for this initiative. Responses for the survey were received from institutions that represent the tertiary landscape in both New Zealand and Australia.

Collectively, the Research Productivity Reports paint a picture of the changes that have occurred in the research landscape since the new millennia. I am not sure all these changes are driven by external factors since the University sector also recognises the need to constantly lift its performance. This fourth report makes it clear that there is no doubt we are producing high quality management research, earning external income and graduating good quality research higher degree students.

This report also provides a general snapshot of research achievements for a three-year period. The publications are categorised according to the Australian Business Deans' Council (ABDC) journal ranking list. Although some argue this list may not fully represent the journals that we publish in, there is general agreement this list compares favourably with other rankings. The ABDC leadership has always made clear that this list is not meant to be the only one to assess journal quality.

A further way in which the Research Productivity Report is useful to our members, is that it serves as a research benchmarking tool to self-assess our research performance. While this has value in its own right, some members may use this data to argue their case for promotion or to seek employment in an increasingly competitive job market.

I wish to acknowledge the people that gave their time to making this report a reality. Firstly, to Professor Peter Jordan and his team of Terry Sloan, Tim Bentley, and Dan Langerud for producing the report. Professor Jordan is a dedicated supporter of ANZAM and I am pleased at his continued involvement with our Academy. Secondly, my thanks to the Heads of School and Deans of Research who provided the necessary data and, finally, the ANZAM Board for providing the funding.

ANZAM is at a key point in its development. As it develops a strategic plan to guide its future, reports such as this can provide a platform for providing services to our members and making ANZAM a relevant organisation in the academic landscape into the future.

Professor Lee Di Millia
ANZAM President, 2018

Introduction

The research productivity of academics has been the focus of much attention academics, academic institutions and government. Academics are interested in research productivity as we all try to understand the expectations and standards of the industry we are engaged in. Whether it is completing performance appraisals or applying for jobs or considering promotion at some stage in our careers, we have a need to compare ourselves with others as a proxy to understand performance. Similarly, academic institutions are constantly comparing across institutions but also within institutions across disciplines. The ability to compare across disciplines is often criticised as comparing apples with oranges, but the question still emerges, what does an average apple or orange look like. Finally, governments continue to support schemes to assess research output, from the Performance-Based Research Fund (PBRF) in New Zealand, to the Excellence in Research for Australia (ERA) Initiative in Australia, and the Research Assessment Exercise (RAE) in the UK. The central concern of each of these measurement schemes has been to understand academic research productivity, to encourage a focus on quality in academic publishing, and to provide governments with a measure of their Return on Investment. Each of these programs has also enabled some benchmarking between institutions and countries in the sector. While these studies have provided a unique insight into the publication output of individual researchers or groups of researchers within institutions, each has been developed with a different focus (e.g. individuals under the PBRF and RAE and disciplines within a University under ERA) and each has used different procedures to collect the data (individual submissions to University submissions). This makes direct comparisons from these data problematic.

Following on from ANZAM's report on research productivity from 2008 – 2010, the aim of this report is to examine the research productivity of Australian academics working within Managements Schools / Departments between 2014 and 2016. In line with the previous report, this report differs from other reports on research productivity because it focuses at a Department / School level (broader than the 1503 Field of Research Code used by the Australian federal government) across the sector, rather than at the institutional level. The report is more detailed than collections like ERA or the PBRF as it combines a number of issues such as total

research output, journal quality, research supervision, specific grant activity and workload allocations. Our aim in this report is to provide a snapshot of academic productivity from the management discipline in New Zealand and Australia for the period 2014 – 2016.

Previous Research into Academic Research Productivity

Research productivity remains an ongoing area of interest to both researchers and their supervisors, with a recent search [google scholar 12/11/18] revealing 77,000+ articles for the term "research productivity" with approximately 10% [7,650] of these having been published in the last 12 months. Along with reference to previous reports in this series (Jordan et al., 2013, Soutar, 2005, Soutar, 2003) a comprehensive review of prior studies has been produced by Amara et al (2015) while other scholars (eg Harzing, 2016) have utilised the posting online presentations on the measurement of research performance. A concentration on the measurement of research performance is not unexpected as Altbach (2015) noted "research productivity is easier to measure than other kinds of academic work" (p.6), and this measurement forms the basis for many indices which purport to 'rank' institutions even though "only a thousand or so out of the world's 18,000 universities appear anywhere in the international rankings" (Altbach, 2015, p.6)

Moving from past studies which examined research outputs aggregated on an institutional basis, recent research has moved to concentrate on comparisons of research outputs either within or across academic systems (eg Bentley & Kyvik, 2011; Kweik, 2017; Upadhyaya & Pillai, 2018). Bland et al. (2006) found higher research productivity and commitment from those staff with ongoing appointments when compared to those with limited tenure. In other early research Townsend and Rosser (2007) found that, in terms of reported hours worked, there had been a significant increase in the workload of academics (1993-2004). This increased workload also encompassed a change in the nature of academic work, with faculty reporting a greater number of taught classes. This change was most noticeable in teaching-intensive institutions – also the class with the lowest overall research productivity. The ongoing intensification of academic work, with particular increases in teaching responsibilities, is also reported by later researchers (eg Kweik, 2017).

These findings lead to research into reasons for the variations in academic research productivity. Wamala and Ssembatya (2014) in reviewing the effect of research student supervision found a casual linkage between the number of supervised students and co-authored publications, however such a link could not be demonstrated between time in position (years of teaching) and research output. In his extensive review of the European Academies Kweik (2017) surveyed 17,000+ academics. He noted that the 'academic capitalism' that originated in the US system was yet to have a great influence in Europe where the traditional view of academic performance 'In a community of scholars, scholarly performance is the only legitimate claim to recognition……the academic marketplace as a system rests on the assumption that the worth of the academic man (sic) can be measured by the quality of his (sic) published work' (Caplow & McGee 1958:225). As with previous work on academic performance, Kweik's analysis was based on easily measured indicators – publication outputs.

Increasingly the measures of research productivity, and its utility for comparisons of academic output, are being questioned and in contrast to Kweik's approach others (eg Nygaard, 2017, Hardré et al., 2011; Hardré, 2014) have looked for the causes driving research productivity. These researchers have highlighted a change in the way in which academics are viewing their expected contributions, with a move away from the traditional 'scientific' publication outlets: "I feel very strongly that it's the duty of any researcher…., to engage with the public [and policymakers]." (Nygaard, 2017:524). The research found that "Many of the outputs that do not 'count'…..are crucial to maintaining the social relevance of academic research" (Nygaard, 2017:530). While these drivers have been identified, along with the need to review the range of the ways in which academic work is disseminated, little work has yet been undertaken here.

Recent work has concentrated on narrowing the scope of the research. Comparisons range from those of the research outputs within a narrow cohort of a single discipline within an individual institution (eg Obuku, 2017) to cross system comparisons (eg Upadhyaya & Pillai, 2018). While the scope of the research has been narrowed, the measurements of the research productivity of a 'typical' academic have remained largely unchanged, and Teodorescu's (2000) observations from his study remain valid:

- Wide variances exist between the variables that affect publication productivity between the different countries;
- Academic rank correlates positively with publication productivity only among British and Australian scholars;
- Time spent on teaching does not negatively affect publication productivity;
- Weekly time spent on administration also did not seem to negatively affect publication productivity;
- Staying connected to a "mother discipline" ….. emerged as an important correlate of article productivity.

Given that measurement of academic productivity is presently linked to determining the 'value' of individual academics how should this then be accomplished? Harzing (2016) recommends the following for performance metrics:

- The analysis should be at an individual level;
- Where possible comparisons should only be made between academics at similar institutions;
- Comparisons should be made within a single discipline;
- Use widely available metrics for publications.

Further she notes such comparisons should be used to create a frame of reference – as a way to demonstrate the large diversity in productivity from academics in similar circumstances.

The ANZAM Research Productivity Survey

The ANZAM board's interest in members' research productivity began with the 2002 research productivity report (Soutar, 2002) which covered the years 1997 – 1999 which was followed by the 2005 report covering the years 2000 – 2002 (Soutar, 2005), with the most recent report being for the period 2008 – 2010 (Jordan, Chapman, Grimmer & Christie, 2013). The original 2002 survey was based on 226 academics (Soutar, 2002), the 2005 report had a sample of 428 academics (Soutar,

2005), while the 2013 report drew on a sample of 592 academics from Australia only (Jordan et al., 2013). The current report (2014 – 2016) has a sample of 714 academics across 24 institutions in both New Zealand and Australia.

The first two ANZAM surveys (Soutar, 2002, 2005) used full counts for publications. The previous survey (Jordan et al., 2013) used the Australian Government's Higher Education Research Data Collection (HERDC), an Australian Government data collection of weighted publication counts provided annually by Australian Universities. The rationale for this change in counting was a desire to examine individual productivity. Using weighted counts are a more accurate depiction of productivity than using full counts of publications which may reflect an individual's ability to collaborate or network. The data in the current survey draws on the same method for data collection for Australian Universities, but for the first time, New Zealand Universities are included in the collection.

The data collection for this project began with a series of meetings with the Deans Research of Business Schools Network (BARDsnet) and various Heads of Schools / Departments of Management across Australia and New Zealand to get feedback on the previous report and to seek advice on the sort of data they would find useful in the current survey. We would like to thank all those who participated in these meetings as they were a valuable source of direction for this round of research. The current survey follows the same methodology used in the 2008 - 2010 report with slight amendments based on the feedback from these meetings. There were mixed views on the period to cover with some participants arguing for a 2017 cut off and others a 2016 cut off. On balance, to try to increase the returns from institutions, we decided that a 2014 – 2016 time frame was reasonable for those submitting to the current report. We are also excited that our New Zealand colleagues have contributed to this research. While we were unable to include New Zealand data last time around as it clashed with the collection of PBRF, this time around the Heads of Schools / Departments have been overwhelmingly supportive of the data collection.

The research was conducted under an approved research protocol obtained from Griffith University. The data were de-identified when collected and were aggregated into a single data file upon receipt to maintain the privacy of individual

respondents and of institutions. Data in the report are only analysed at a level that does not allow the identification of individuals or institutions.

The ANZAM Research Productivity Survey and Excellence in Research Australia and the Performance Based Research Framework in New Zealand.

The ANZAM Research Productivity Survey is not intended to replace, but rather to complement, other data collection exercises such as the ERA or the PBRF by providing a greater depth of information within the broader management discipline. For instance, the ERA is focussed on assessment of research outputs against a world standard for a particular Field of Research, in this case the Management research code of 1503. This collection, however, is not an accurate depiction of the actual productivity or output of Management schools for several reasons. First, most universities manage the ERA data collection to ensure only research productive academics are included. A strategy most Business Schools use to show their work in the best light in ERA is to move researchers who are members of the faculty and do little research, or those who research but are in teaching focussed or teaching only positions, outside of the 1503 code to other codes (e.g., 1599) which may not be returned due to low numbers of outputs. The ANZAM collection examines total research output across academic levels for Schools / Departments of Management regardless of whether the faculty are teaching focussed or research focussed.

Similarly, in New Zealand the PBRF does not capture the activity in specific management schools. Performance Based Research Fund (PBRF) is a New Zealand government process, that assesses the research performance of universities to decide funding of research in universities in New Zealand. The PBRF exercise is undertaken every six-years, although this may change in the future, with data collected on research performance over the preceding six-year period (most recent 2012-2017). Individuals within universities who have research in their contract are required to produce an evidence portfolio, having three sections. The first, Nominated Research Outputs (NRO), requires selection of the individual's top four research outputs during the assessment period and provide a narrative evidencing the quality of each. NRO are worth 70% of the individual's quality score. The second section is a list of other outputs (up to 12 in the last PBRF round) and is not assigned a score, but informs the overall portfolio assessment, while the third

section, research contributions, is worth 30%. This details contributions to the research environment and personal achievements and contributions. This collection does not provide an accurate depiction of the output of Management schools for several reasons. Firstly, it does not allow for all publications to be included in the assessment. Secondly, the PBRF assessment data is not collected and reported at discipline level. Thirdly, as with the ERA, universities indulge in a certain amount of gaming to hide research-inactive individuals from the assessment process, moving them into teaching-only positions and other approaches.

The aim of the ANZAM collection is to examine the total research output across academic levels for Schools / Departments of Management regardless of whether the faculty are teaching focussed or research focussed. The ANZAM survey also captures other data that are important to academic managers and Business Schools, but which may not be relevant to policy makers, such as research workloads and Higher Degree by Research (HDR) supervisory load.

It is important to recognise that this report does not capture activity in the sector. We know that A* rated journals on average are accepting less than 10 percent of submissions with the acceptance rate raising slightly in A rated, B rated and C rated journals. We also acknowledge that the data we report in relation to Research Grants does not capture activity in the sector. Examining Australian Research Council (ARC) grants, we know the average success rate for Discovery grants is around 22 percent and for Linkage grants is around 45 percent but we also know (as will be revealed later in this report), the success rate is far poorer in 1503. Finally, in terms of supervisions, we are clear that no research supervision is the same and that some HDR students require massive amounts of work for the supervising academics, while others are relatively easy to supervise. In this report we do not capture these data and we do not seek to quantify activity in the sector. Our focus is on visible productivity and therefore, we only focus on successful outcomes in each of these fields of activity.

Advice on use of the ANZAM Research Productivity Report

We note that this report is based on a representative sample of the sector, and on this basis, we do not provide a detailed analysis at lower units of analysis (School / Department). Although this report may be used for broad comparisons for

individual academics and Management Schools / Departments, we consider it is not appropriate to be used for fine level policy development in relation to expectations and workloads. Variations we have noticed that may affect how these data can be interpreted include:

- Differences in research workload allocations between Universities;
- Differences in professional experience within academic levels;
- Differences between academic levels;
- Differences in grant activity and consultancy income between Universities and between academic levels;
- Differences in supervision loads between Universities and between academic levels;
- Differences in quality of output between individual academics, even within the same academic level;
- The lumpy nature of academic publishing which means in a given period there may be significant fluctuations in output;
- Research related output / contributions that are not counted in this collection including editorships, editorial board membership, ad hoc reviewing;
- Impact across the sector including unpaid consultancies and broader commercial reports (which are not recorded as a research outcome in this report);
- Anecdotal evidence that the process we have used of weighted allocation of equal authorship to papers is not the way in which the sector works and that generally in most publications there is differential contribution to outputs.

On this basis, we recommend that this report not be used to establish a one size fits all policy on research output across Australian Universities. What this report does provide, however, is a good snapshot of Academic research output during the period 2014 – 2016 and an indication of how research output within the sector is changing.

The ANZAM Research Productivity Survey

The Survey

The ANZAM Research Productivity Survey was developed in 2018 (Appendix 1). The survey mirrors information reported previous ANZAM Research Productivity Reports (Jordan et al., 2013, Soutar, 2002, 2005), but also includes additional information that was seen as being useful to Management School / Department administrators in 2018. The survey was developed as a spread sheet to enable the majority of the data collected to be cut and pasted from existing reports and collections held within Management Schools / Departments for both University reporting and Australian federal government reporting. In developing this survey, we received advice from current Heads of Schools / Departments of Management and Business Schools in New Zealand and Australia regarding useful information to assist in making decisions. The survey was discussed at both Institutional Member meetings of ANZAM and the ANZAM Heads of Schools of Management network and during meetings that commenced in 2017 as an ANZAM initiative. The survey covers the years from 2014 – 2016 and focuses on the broader Management discipline.

Procedure

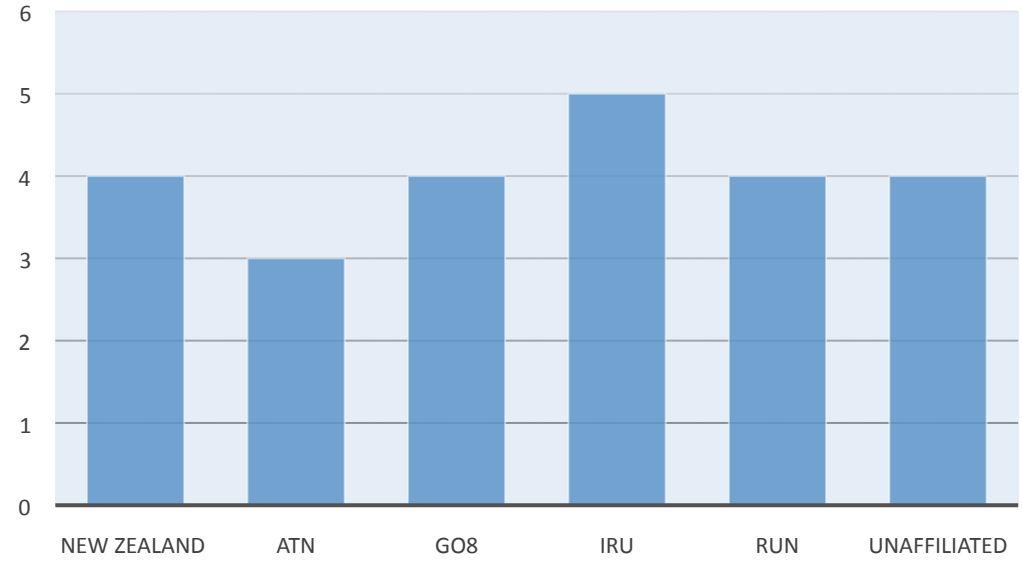
The initial survey (Appendix 1) was emailed to approximately 40 Business Schools / Heads of School / Institutional Member representatives in April 2018. The first survey was returned in May 2018 and the last survey was received in October 2018. In completing the surveys, academic managers were asked to incorporate ALL academic staff in their School / Department / Faculty including teaching, service or research focussed academics. This included both full and part time faculty, but we asked respondents not to include adjunct and emeritus positions, sessional workers, or students. Where Schools included disciplines other than Management, respondents were asked to report only Management academics and identify their main area of management using the listing of continuing ANZAM Conference Tracks (Appendix 2).

Sample

In total, we received returns from 24 separate Schools or Departments in Universities across Australia and New Zealand ranging from large metropolitan

universities to smaller regionally focussed Universities. Figure 1 outlines the range of Universities that provided data for this report. To provide a picture of our sample we have used the Universities Australia 2018 categorisation of the Australian University Sector (see Appendix 3) and added New Zealand as a single category. In our sample, we received returns from: 4 New Zealand institutions; 3 Technology Network affiliated universities; 4 Go8 Business Schools; 5 from the Innovative Research University network; 4 from the Regional Universities Network; with 4 surveys returned from Australian Unaffiliated universities. On this basis, we see the data in this report as broadly representative of the University sector.

Figure 1 Submissions by University Type



As noted earlier, our sample are full or part time academics working in Management Schools and Departments in Australia and New Zealand during the period 2014 – 2016. We specifically asked Heads of School / Department not to include sessional staff, PhD students (unless they were employed on a full or part time basis as faculty), adjunct or emeritus faculty. In total, we received data for 693 academics in 2014, 690 in 2015 and 716 in 2016. We removed 2 cases from each of the years in which the data provided were on adjuncts or emeritus level faculty. This left our final analysis being completed on 691 academics in 2014, 688 in 2015 and 714 in 2016 or a total of 2093 data points across the collection.

In Table 1 we provide the highest qualification in line with the Australian Qualifications Framework achieved by our sample. The data provided covers each

of the 2014, 2015 and 2016 returns. When examining averages over the three year sample period for research output we provide both the number of data points (total sample over the three years) and the sample for each year. Based on our 2016 sample, we found 93 percent of academic staff as PhD qualified. This contrasts with the previous ANZAM research productivity report 2000 – 2002, where only 63 percent of academic staff had a PhD (Soutar, 2005) and the 1997 – 1999 report, where only 59 percent of faculty held a PhD (Soutar, 2002) and the 2013 study (Jordan et al., 2013) where the percentage was 85 percent. Clearly, the PhD is becoming a required standard in the field. In contrast to our current study, where 5.9 percent of our sample held Master qualifications, approximately 35 percent of faculty held a Masters degree between 1997 and 1999 (Soutar, 2002), and 29 percent of faculty had Masters as their highest level of qualification in the 2000 – 2002 report (Soutar, 2005) while the 2013 report (Jordan et al., 2013) revealed this had shrunk to 11 percent. Based on these data, the standard of Business Schools employing academically qualified faculty to address professional performance standards and meet accreditation requirements is clear.

Table 1 Highest Academic Qualification 2014, 2015, 2016.

Qualifications	2014	%	2015	%	2016	%
Level 6 (Adv Diploma)	1	0.14%	1	0.15%	1	0.14%
Level 7 (Bachelors)	5	0.72%	5	0.73%	4	0.56%
Level 8 (Hons/GradDip)	2	0.29%	3	0.44%	3	0.42%
Level 9 (Masters)	40	5.79%	44	6.40%	42	5.88%
Level 10 (PhD)	643	93.05%	639	92.88%	664	93.00%
Total	**691**		**688**		**714**	

Table 2 lists the sample for each academic level for 2014, 2015 and 2016. The spread of the sample broadly replicates the distribution of academics in the sector suggesting that we have a representative sample based on the levels within Management Schools / Departments.

Table 2 Academic Rank 2014, 2015, 2016

Academic Level	2014	%	2015	%	2016	%
TF & STF *	5	0.7%	5	0.7%	4	0.6%
Associate Lecturer (A)	31	4.5%	30	4.4%	32	4.5%
Lecturer (B)	183	26.5%	183	26.6%	195	27.3%
Senior Lecturer (C)	232	33.6%	226	32.8%	230	32.2%
Assoc. Professor(D)	109	15.8%	111	16.1%	108	15.1%
Professor (E)	129	18.7%	130	18.9%	137	19.2%
RF & SRF *	2	0.3%	3	0.4%	8	1.1%
Total	**691**		**688**		**714**	

* Teaching Fellow and Senior Teaching Fellow

** Research Fellow and Senior Research Fellow

As indicated in our literature review, prior research suggests that there are a number of factors that underpin research productivity including experience, qualifications and academic appointment level. An overriding issue, however, is the amount of time academics devote to research according to their workload. This varies across Schools / Departments and Universities.

In Figure 2, 3 and 4, we outline workloads of the participating academics for 2014, 2015 and 2016. In the 1997 – 1999 survey, Soutar (2002) reports the workload of his sample (n=226) as comprising 44 % teaching, 33 % research and 23 % Service. In the 2000 – 2002 survey (n=429), the average workload of Management academics was listed as 49 % teaching, 30 % research and 21 % Service (Soutar, 2005). The 2013 survey (Jordan et al., 2013) collected data on research workloads only and reported that 38.3% of the sample reported a 40% research workload and 22.3% of the sample were on a 30% research workload. The average workload has changed slightly in the current period 2014 – 2016 with the data revealing more focus on research.

Figure 2 Research Workload Allocation 2014

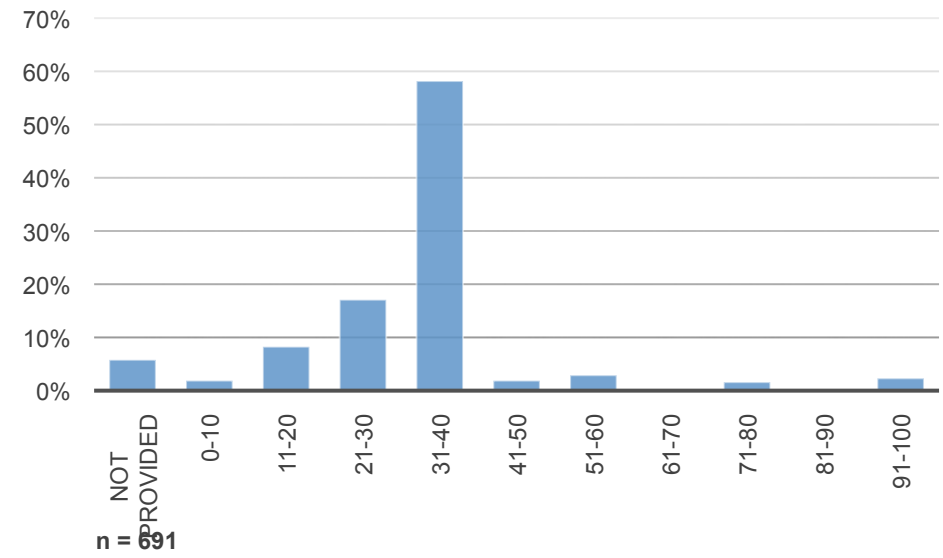


Figure 3 Research Workload Allocation 2015

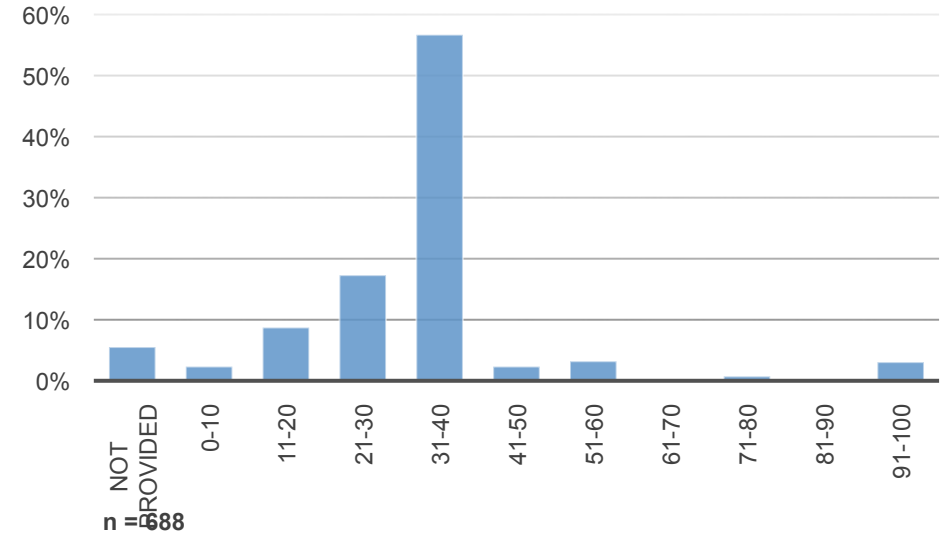
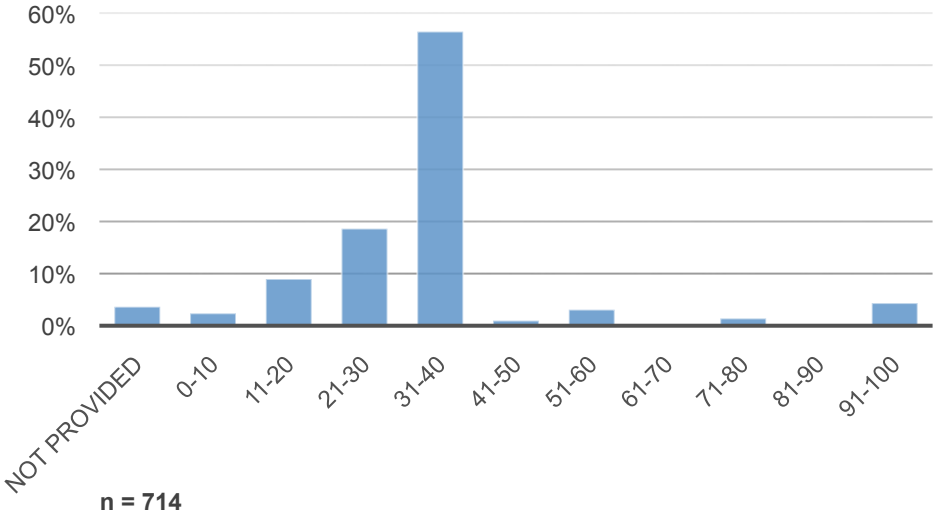


Figure 4 Research Workload Allocation 2016



As reported in Figures 2, 3 and 4, the most common workload was between 31 and 40 % across the three collection periods. In the data from the current report we found that the average workload over the 3 years was 36.6 % with workloads ranging from zero to 100%. The median workload reported in the survey was 40%.

Table 3 outlines the sample by Discipline for 2014, 2015 and 2016.

Table 3 Academics by Discipline 2014 - 2016

Research Area	2014	2015	2016	Total	%
Critical Management / Organisational Studies	27	27	26	80	3.82%
Employment / Industrial Relations	16	15	17	48	2.29%
Entrepreneurship, Startups and Small Business	40	41	50	131	6.26%
Gender and Diversity and Indigeneity	21	21	19	61	2.91%
HRM and Development & Change	114	110	123	347	16.58%
International Management	59	53	56	168	8.03%
Leadership and Governance	21	23	27	71	3.39%
Management Education and Development	29	29	40	98	4.68%
Marketing	7	7	4	18	0.86%
Organisational Behaviour	76	72	76	224	10.70%
Public Sector and Not-for-Profit	21	22	16	59	2.82%
Research Methods	2	1	2	5	0.24%
Strategic Management	58	57	54	169	8.07%
Sustainability and Social Issues in Management	50	54	50	154	7.36%
Technology, Innovation and Supply Chain Management	63	73	77	213	10.18%
Tourism, Sport and Event Management	26	22	22	70	3.34%
Other not Listed	61	61	55	177	8.46%
Total	**691**	**688**	**714**	**2093**	**100%**

Respondents were asked to report against the ANZAM streams for the 2017 conference. In preparing these data, we adjusted some of the categories given in the original survey as these data were individually coded by Heads of School / Department. For instance, we added categories of Employment / Industrial Relations and Tourism Sport and Events as there were sufficient returns across institutions to make these meaningful categories. While we had a small number of indigenous business responses, we joined them into a category of Gender, Diversity and Indigeneity.

On balance, Table 3 shows a meaningful spread of the sample across disciplines. In interpreting these data, we acknowledge that Management academics work across disciplines so that research in Organizational Behaviour may also be in the field of Gender and Diversity and Human Resource Management, and that academics working in Sustainability may be using other disciplines to publish this research. We asked for the primary discipline of each academic, and as we were asking Heads of School / Department to make this judgement, we acknowledge that these data may not always be accurate. Table 3 does show, however, that the data captured in this report are not isolated to one field in the Management discipline.

Research Output 2014 – 2016

Understanding the Data

This report is based on data provided to us by Management Schools / Departments. While we have taken every care to make sure the data provided were accurate on a prima facie basis, we take no responsibility for any errors in the data provided to us. In a small number of cases, means have been substituted for publications when the survey obviously gave full counts of publications rather than weighted counts. It was clear in these cases that the data provided were non weighted not only when the data was only reported in full numbers, but also when groups of Level B faculty were outperforming Level E faculty across the board in similar university groupings. As a result, the full publication counts were replaced with the counts being replaced by weighted means for university type. We also converted foreign currencies into Australian Dollars using a currency conversion program. Otherwise, the tables prepared, however, accurately reflect the data collected.

Academic publishing in the Management disciplines is a long-term process and there are often long lead times to papers being published. For instance, in a review of 20 years of publications in the Strategic Management Journal, Phelan, Ferreira, and Salvador (2002) note that the average time between initial submission and eventual publication was an average of 720 days (S.D. 332 days). Phelan et al., (2002) notes the median number of authors on manuscripts in this field as being 2. This contrasts with figures in the sciences (e.g., Biology), where Eysenbach (2006) cites an average time from submission to publication as being 104 days in non-open access journal, and an average number of authors per paper in as being 5.7 (Eysenbach, 2006). Similarly, in examining 28 biomedical journals, the time between submission and publication was 270 days (S.D. 63 days). In terms of a comparison between the physical sciences and the social sciences, Franceschet and Costantini, (2010) note that average collaboration in the social sciences is much lower, being around 2 authors per paper, whereas in the physical sciences, the average is around 4 authors per paper with some disciplines such as Physics having an average of 55 authors per paper (median 5 authors per paper). While the average of 55 authors

per paper seems inaccurate, Franceschet and Costantini, (2010) note the largest number of authors on a Physics manuscript was 1412 authors. On this basis, it is difficult to compare across disciplines.

The data provided in this section gives an overview of publications achieved during the three year period from 2014 to 2016. We acknowledge that data collections of this type often use a five or six year period when examining research productivity to allow the ebb and flow of academic publishing. We have chosen a three year span for this research to provide a comparison with previous ANZAM collections.

What is a weighted publication point?

An important issue is that our reporting is based on Higher Education Research Definition Collection (HERDC) process in which output is calculated based on the relative contributions of authors to publications. This is important to remember as many previous studies have reported on unweighted points, which would clearly lead to higher apparent research outputs.

To allow the data in this report to be consistently compared between academics we have adopted a standard measure for publication output based on the Higher Education Research Data Collection (HERDC) process in Australia. Quoting from the documents issued by the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education,

"where there are multiple authors the count must be apportioned according to the number of authors. For example, if there are three authors of a publication, one third should be counted for each author who was a staff member or student" (DIICCSRTE 2013, p 33).

The Results

Table 4 reveals the average output per academic across all Management disciplines in the years 2014 – 2016. As noted already, the nature of academic publishing in the Management discipline and any Social Science discipline, which involves long lead times in the review process and to eventual publication, means that looking for trends across a 3 year period is difficult. One trend which may be drawn from these data is the overall reduction in reported Refereed Conference

Papers. Academics continue to attend and present papers at conferences, however it appears that the message sent by institutions that devalues conference output is being heard and they appear to be less reported (except by junior faculty) in official collections.

Table 4 Combined Average Research HERDC Point per Academic – 2014 to 2016

Output	2014	2015	2016
Research Books (A1)	.02	.03	.02
Research Book Chapters (B1)	.18	.17	.14
Journal Articles (C1)	.61	.69	.58
Conference Papers (E1)	.36	.31	.26
Total	**1.17**	**1.20**	**1.01**

2014 n = 691, 2015 n = 688, 2016 n = 714

Discussing trends across survey can be difficult as the first two ANZAM reports were based on full counts (a publication output rather than a weighted output), but some interesting observations can be made (given this method of measuring outputs results in greater numbers). In the 2000 – 2002 survey (Soutar, 2005) revealed a steady publication rate for book chapters, and a statistically significant increase in the number of journal articles (0.58 per academic in 2000 and .88 per academic in 2002) with a more dramatic rise in refereed conference papers during that period (0.56 per academic in 2000 and 1.10 per academic in 2002). The 2013 report (for the years 2008 – 2010) revealed that publication of journals had increased (given the change in methodology to measuring weighted outputs) to an average of .56 per academic across the 3 year period. Clearly, the current report sees that trend continuing with an increased average of .63 journal publications per academic for 2014 – 2016 and a decreased average reported conference output of .31 for this period.

The trend towards reduced conference publications over the 2014 – 2016 period may be as a result of movement in academia in New Zealand and Australia generally, as the impact of the Productivity Based Research Framework (NZ) and the Excellence in Research (Australia) programs influenced publishing preferences.

We note that academics at several institutions in Australia during 2014 - 2016 were encouraged to only report journal and book chapter activity and not to report conference papers. This was partly as there is a hope that these would eventually become full journal articles and would not result in double counting of publications, however the devaluation of conference output is also a contributing factor. Table 5 provides more detailed descriptive statistics for each type of publication output.

Table 5 Average Annual HERDC Points x Academic x Publication Type 2014 - 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.03	0.16	0.63	0.31	1.12
Std Dev	0.16	0.45	0.86	0.69	1.31
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	2.50	6.58	6.92	6.14	13.50
Bottom 25%	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.33	0.00	0.75
Top 25%	0.00	0.00	1.00	0.33	1.66
Top 10%	0.00	0.50	1.67	1.00	2.78
Top 5%	0.00	1.00	2.33	1.66	3.66
Top 1%	1.00	2.00	4.09	3.50	6.06

Total Data Points = 1603, 2014 n = 691, 2015 n = 688, 2016 n = 714

After examining the dataset, we observed that a significant number of academics in the Management disciplines were reported as having no reported publication output for the period 2014 - 2016. On a yearly basis, this number across all academic levels was 171 in 2014 (24.7% of the sample), 170 in 2015, (24.7% of the sample) and 187 in 2016 (26.2% of the sample). To examine this in greater detail we have analysed non-output by academic level, as shown in Table 6. In the 2002 report, Soutar noted that the number of non-publishing academics was 20% with a further 20% only producing conference papers. In the 2005 report, Soutar

reported these figures as being 23% non-publishing academics and 14% who published conference papers only during the 2000 - 2002 period. The relative percentages per year who did not publish in the 2013 report were 31.2% of the 2008 sample, 33.9% of the 2009 sample and 35.3% of the 2010 sample. The data in Table 6 reveals the number of academics who did not publish in 2014, 2015 and 2016.

Table 6 Non-Publishing Academics x Academic Level 2014, 2015, 2016

Academic Level	2014	%	2015	%	2016	%
TF & STF	1	0.1%	2	0.3%	1	0.1%
Associate Lecturer (A)	25	3.6%	21	3.1%	26	3.6%
Lecturer (B)	71	10.3%	71	10.3%	73	10.2%
Senior Lecturer (C)	44	6.4%	45	6.5%	42	5.9%
Assoc Professor (D)	14	2.0%	19	2.8%	23	3.2%
Professor (E)	16	2.3%	12	1.7%	21	2.9%
RF & SRF	0	0.0%	0	0.0%	1	0.1%
Total Nonproducing	**171**	**24.7%**	**170**	**24.7%**	**187**	**26.2%**

2014 n = 691, 2015 n = 688, 2016 n = 714

We also analysed the number of academics who did not publish at all across the three year period. These turned out to be far fewer and a reduction on previous reports. In analysing these data, we adopted a conservative approach and identified all respondents who had no publications over the three year survey period. In total, 54 (n= 714) academics produced no published outputs over the period 2014 – 2016. This is 7.6 % of academics that did not publish during the period. We note this is a much lower level than previously reported by Soutar (2002, 2005) and Jordan et al. (2013) who reported that cross the 3 years (2008 – 2010) 12% of academics had not published any outputs, a clear decrease from the previous reports. In Table 7, we outline the academic level of the group that did not publish across the three year period.

Table 7 Non-Publishing Academics x Academic Level 2014 – 2016

Academic Level	Number	Sample	% with no Outputs	Average Research Workload
TF & STF	0	4	0.0%	0%
Associate Lecturer	15	32	46.9%	19%
Lecturer	25	195	12.8%	19%
Senior Lecturer	8	230	3.5%	25%
Associate Professor	4	108	3.7%	31%
Professor	1	137	0.7%	25%
RF & SRF	0	8	0.0%	100%
Total	**54**	**714**	**7.6%**	**36%**

It is important to note that these data cannot be judged without referring to Figures 2, 3 and 4, which outline the research workload within the sector. At Level A (Associate Lecturer), we stated earlier that many of these academics are still studying towards their Doctorate degrees and their focus during this time is understandably on producing their dissertation. At the other end of the spectrum, at Level D (Associate Professor) and Level E (Professor), we also note that academics working at these levels often take on significant administrative loads that can have a direct effect on the flow of research. We also note that the number not publishing at Levels D and E drops significantly as academic level increases in Table 7.

Although we note that there are Level B (Lecturer) and Level C (Senior Lecturer) academics who are not appearing to produce research outputs on a yearly basis (Table 6), we also note that these data have changed significantly since the last report. Acknowledging the relatively small sample, some concern can be expressed over the number of academics at Level A who have not produced any publications over a three year period (Table 7) which has increased from 41.2% in the 2013 report to 46.9% in the current data collection. Explanations for this may range from being new to academia and not being able to balance the requirements

of service teaching and research, or being overloaded with teaching that may restrict them from research. We also note anecdotal evidence of some Management faculties encouraging junior academics to publish only in A*, A and B ranked journals. We have noted earlier in this report the low acceptance rate for these journals. It may be the case that asking junior academics to publish at these levels without experience may result in no publications for a specific period. The situation at Level B has improved with non-publishing academics in 2010 being 21.7% and dropping to 12.8% in the current report.

Details of Research Output by Academic Level

Table 8 presents publication output across each of the academic levels. Analysis reveals that there are statistically significant differences (all statements regarding significant difference in this report were checked for statistical validity using ANOVA analysis) between the overall output at each level of academe within Management Schools / Departments.

Table 8 Average Annual HERDC Points x Publication Type x Academic Rank 2014 – 2016

Academic Level	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
TF & STF	0.00	0.11	0.46	0.21	0.78
Associate Lecturer	0.00	0.02	0.06	0.08	0.16
Lecturer	0.01	0.05	0.38	0.19	0.63
Senior Lecturer	0.03	0.17	0.66	0.35	1.21
Associate Professor	0.04	0.29	0.70	0.40	1.42
Professor	0.04	0.24	1.00	0.40	1.67
RF & SRF	0.00	0.03	0.53	0.20	0.76

Total Data points = 2093, 2014 n = 691, 2015 n = 688, 2016 n = 714

We note that these data question a perception that teaching focussed faculty and teaching fellows in particular do not publish or do research. The overall output of Research Fellows and Senior Research Fellows falls between Level B (Lecturer) and Level C (Senior Lecturer) and is significantly different from each of those levels. This is to be expected as Research Fellows are often junior faculty (Early Career

Academics) who have work profiles that generally vary between 80 to 100 % research and therefore, have much more of their workload in research.

Overall, there are significant differences between journal output and conference output at all academic levels except for Level A (Associate Lecturer) for whom the difference is not significant. To explore these differences in greater detail we now move to examine research output for each academic level.

Table 9 reveals the research output for faculty employed as Teaching Fellows and Senior Teaching Fellows. We note that the work profiles of these faculty may or may not include a research component, however most will include a scholarship expectation to remain academically qualified. We also note that many of the individuals who are employed at Level B and Level C may have similar work profiles (see Figures 3, 4, and 5). Again it is important to note that these figures are based on a very small sample.

Table 9 Average Annual HERDC points – Senior and Teaching Fellows 2014 to 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.00	0.11	0.46	0.21	0.78
Standard Dev	0.00	0.29	0.60	0.40	0.69
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	0.00	1.00	2.00	1.14	2.00
Bottom 25%	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.25	0.00	0.75
Top 25%	0.00	0.00	1.00	0.37	1.19
Top 10%	0.00	0.75	1.50	1.07	2.00

Data points = 14, 2014 n= 5, 2015 n = 5, 2016 n = 4

Table 10 reveals the research output for Level A or Associate Lecturer level academics. Again, the data are based on relatively low number of returns. Within Business Schools generally, and Management Schools / Departments specifically, this is not a large employment category. Many of the faculty employed at this level are completing Doctorates and their research activity may be focussed on completing a thesis rather than publication.

Table 10 Average Annual HERDC Points - Level A (Associate Lecturer) 2014 - 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.00	0.02	0.06	0.08	0.16
Standard Dev	0.00	0.08	0.22	0.26	0.34
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	0.00	0.50	1.50	1.50	1.50
Bottom 25%	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.00
Top 25%	0.00	0.00	0.00	0.00	0.00
Top 10%	0.00	0.00	0.15	0.28	0.75
Top 5%	0.00	0.07	0.50	0.82	1.00

Data points = 93, 2014 n= 31, 2015 n = 30, 2016 n= 32

Staff employed at Level A (who would not normally yet have Doctorates) had research output that was commensurately low. Analysing the data for Level A (Associate Lecturer) faculty, there is an insignificant difference between their conference outputs and their journal output with academics at this level relying to a greater degree on conferences for their output.

The data in Table 11 shows the average output for Level B or Lecturer level academics, statistically the second largest group in this report.

Table 11 Average Annual HERDC Points - Level B (Lecturer) 2014 - 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.01	0.05	0.38	0.19	0.63
Standard Dev	0.06	0.19	0.64	0.47	0.85
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	1.00	1.50	4.50	4.33	5.00
Bottom 25%	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.33
Top 25%	0.00	0.00	0.50	0.00	1.00
Top 10%	0.00	0.16	1.00	0.67	1.91
Top 5%	0.00	0.50	1.86	1.00	2.32
Top 1%	0.33	1.00	3.05	2.22	4.00

Data points = 561, 2014 n= 183, 2015 n = 183, 2016 n = 195

The data in Table 11 reveals a significant difference in outputs with this group producing more journal articles per year than conference papers during this period. This trend has changed over time as in the 2000 – 2002 collection Level B academics in the Management disciplines produced more conference papers than journal articles.

Academics who are very active in research at Level B (the top 10 % of the group) produce on average approximately 2 HERDC points per year with at least 1 of those HERDC points being from journal articles.

The average output for Level C or Senior Lecturer level academics is reported in Table 12. The data in Table 12 reveal a significant difference between conference and journal output with this group producing more journal articles per year than conference papers during this period. This trend was also evident in the 2000 – 2002 and the 2008 – 2010 collection for Level C academics during that period, who also produced more journal articles than conference papers. The direction in ANZAM associated Universities to upgrade the quality of their outputs focussing on journal articles and the various quality research assessment exercises run in New Zealand and Australia seems to have been reflected in the outcome for this group given the focus on journal articles.

Table 12 Average Annual HERDC Points - Level C (Senior Lecturer) 2014 to 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.03	0.17	0.66	0.35	1.21
Standard Dev	0.18	0.43	0.86	0.68	1.26
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	2.00	3.83	5.67	5.33	8.06
Bottom 25%	0.00	0.00	0.00	0.00	0.25
Bottom 50%	0.00	0.00	0.33	0.00	0.91
Top 25%	0.00	0.00	1.00	0.50	1.83
Top 10%	0.00	0.58	1.75	1.00	2.82
Top 5%	0.00	1.00	2.36	2.00	3.68
Top 1%	1.00	2.00	4.39	3.00	5.76

Data points = 688, 2014 n= 232, 2015 n = 226, 2016 n= 230

Academics who are very active in research at Level C (the top 10 % of this group) produce on average 2.8 HERDC points per year, an increase from the 2013 report when this group (top 10%) produced 2.4 publications per year. In terms of journal output, activity increased with those in the top 10% group increasing their output of HERDC weighted journal articles from 1.5 in 2014 to 1.75 in the current report.

The average output for Level D or Associate Professor level academics are reported in Table 13.

Table 13 Average Annual HERDC Points - Level D (Associate Professor) 2014 to 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.04	0.29	0.70	0.40	1.42
Standard Dev	0.18	0.66	0.84	0.85	1.45
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	2.50	6.49	6.92	5.40	8.80
Bottom 25%	0.00	0.00	0.00	0.00	0.33
Bottom 50%	0.00	0.00	0.50	0.00	1.00
Top 25%	0.00	0.33	1.00	0.33	2.07
Top 10%	0.00	1.00	1.66	1.50	3.25
Top 5%	0.33	1.50	2.48	2.37	4.29
Top 1%	0.85	3.19	3.64	4.38	7.10

Data points = 328, 2014 n= 109, 2015 n = 111, 2016 n = 108

In Table 13, the data reveal that this group was producing more journal articles than conference papers per year during this period. This trend has changed from previous collection (Jordan et al., 2013) where Level D academics were producing journal and conference articles at the same rate. In both surveys, the average number of journal articles produced was greater than academics at Level C. Academics who are very active in research at Level D (the top 10 % of this group) achieve on average 3.2 HERDC points per year with at least 1.6 of those HERDC points being from journal articles.

Table 14 contains the average research output for Level E or Professor level academics across the period 2014 - 2016.

Table 14 Average Annual HERDC Points - Level E (Professor) 2014 to 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.04	0.24	1.00	0.40	1.67
Standard Dev	0.22	0.56	1.06	0.87	1.64
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	2.50	6.58	6.26	6.14	13.50
Bottom 25%	0.00	0.00	0.25	0.00	0.50
Bottom 50%	0.00	0.00	0.73	0.00	1.33
Top 25%	0.00	0.33	1.49	0.50	2.33
Top 10%	0.00	1.00	2.33	1.30	3.69
Top 5%	0.25	1.09	3.00	2.02	4.64
Top 1%	1.00	2.02	5.01	4.59	7.93

Data points = 396, 2014 n= 129, 2015 n = 130, 2016 n = 137

The data reveals that this group was producing a significantly greater number of journal articles than conference papers per year during this period. This trend was similar in all previous collections for Level E academics. In all surveys, the average number of journal articles produced was greater than academics at Level D. Direct comparison of total output between previous research collections and the current study is not possible due to the change in the way the 2002 and 2005 reports were prepared using total publication count. This report however can be compared with the previous report (Jordan et al., 2013) as both use a weighted publication count by number of authors. In 2013 the reported total output of Professors was 1.77 compared to 1.67 in this report. This difference may be attributable a range of factors including publication cycles.

Academics who are very active in research at Level E (top 10 % of this group) produce on average 3.69 HERDC points per year with at least 2.3 of those HERDC points being from journal articles.

The average output for Research Fellow and Senior Research Fellow academics is reported in Table 15.

Table 15 Average Annual HERDC points – Senior / Research Fellows 2014 to 2016

	Books (A1)	Book Chapters (B1)	Journal Articles (C1)	Refereed Conference Papers (E1)	Total Output (A1-E1)
Mean	0.00	0.03	0.53	0.20	0.76
Standard Dev	0.00	0.09	0.40	0.24	0.54
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	0.00	0.33	1.33	0.73	1.66
Bottom 25%	0.00	0.00	0.21	0.00	0.29
Bottom 50%	0.00	0.00	0.50	0.00	0.67
Top 25%	0.00	0.00	0.85	0.33	1.17
Top 10%	0.00	0.23	1.20	0.64	1.62

Data points = 13, 2014 n= 2, 2015 n = 3, 2016 n= 8

We have combined these two groups so as to increase the level of reliability in the data, as the datasets for each category were small. The data reveals that this group was producing significantly more journal articles than conference papers per year during this period. The report for 2000 – 2002 did not collect data for these academic levels.

Academics who are very active in research these groups (in the top 10 % of the group) produce on average 0.67 HERDC points per year with at least .5 of those HERDC points being from journal articles. This output needs to be considered in the light of Research Fellows typically having a much higher proportion of their workload allocated to research.

Often Research Fellow are Early Career Researchers and this output may reflect the start of a research career.

Research Productivity and Workload

As indicated earlier, the amount of time that a Management academic can dedicate to research will have a large impact on their research output. As a result, the data received on research workload were collected so we could assess the effect of workload on research productivity. As the workload data were not normally distributed, but were instead multimodal (that is, very 'lumpy'), we decided to allocate academics into four relatively meaningful workload groups, according to the percentage of time allocated to research:

Group 1. Up to and including 25% (N= 343)

Group 2. Around 30% (i.e. +- 1%) (N = 358)

Group 3. 35-40% (N=1195)

Group 4. Over 40% (N=197)

Analysis reveals a significant difference in overall research output between Group 1 and groups 2, 3 and 4, and between group 4 and groups 1, 2, and 3 (see Figure 5). In other words, those Management academics whose research workload is lowest produce the least research output, and those whose research workload is highest produce the most research output. The 30% and 35-40% research workload groups did not differ on some of the categories of research publication.

Further analysis of journal (C1) and research book chapter (B1) output shows a similar pattern (see Figures 6 and 7). However, the picture changes for conference paper (E1) output (see Figure 7). While trends linking more research time to more outputs is evident for journal outputs and book chapter outputs, the data for conference papers is less conclusive. The random nature these data may be attributed to the random nature of claiming conference publications under the HERDC process as conference papers are seen as less valuable. It may also be a fact that those who have less research time focus on the quick returns a conference submission can give. At this point, further research would be required to be able to make any definitive conclusion about this. It appears this situation has not changed significantly since the last report (Jordan et al., 2013).

Figure 5 **Comparison between Research Workload Groups by Total Research Output (Average HERDC Points)**

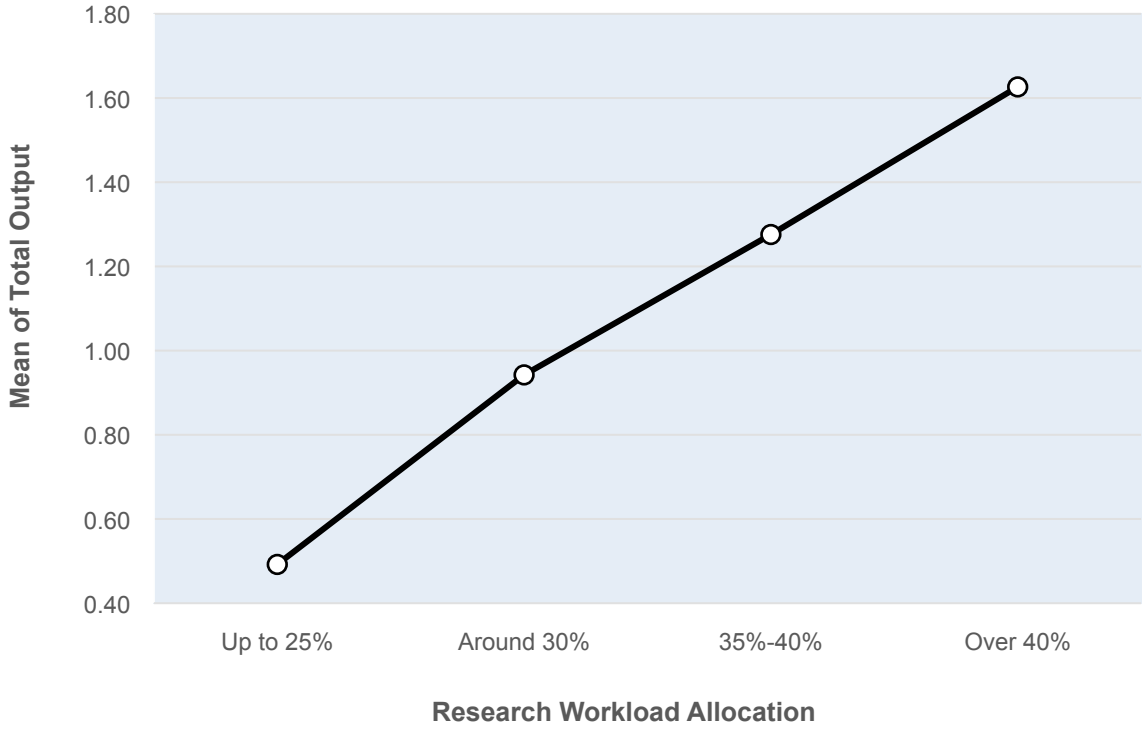


Figure 6 **Comparison between Research Workload Groups by Journal (C1) Output (Average HERDC Points)**

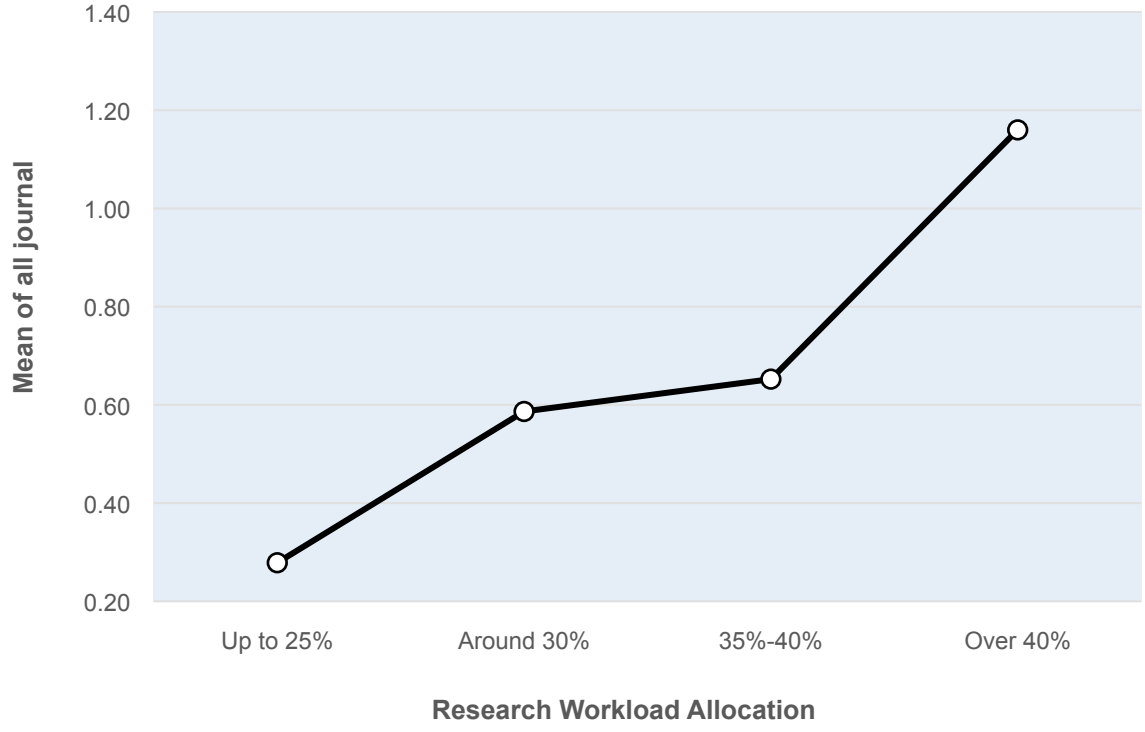


Figure 7 Comparison between Research Workload Groups by Research Book Chapter (B1) Output (Average HERDC Points)

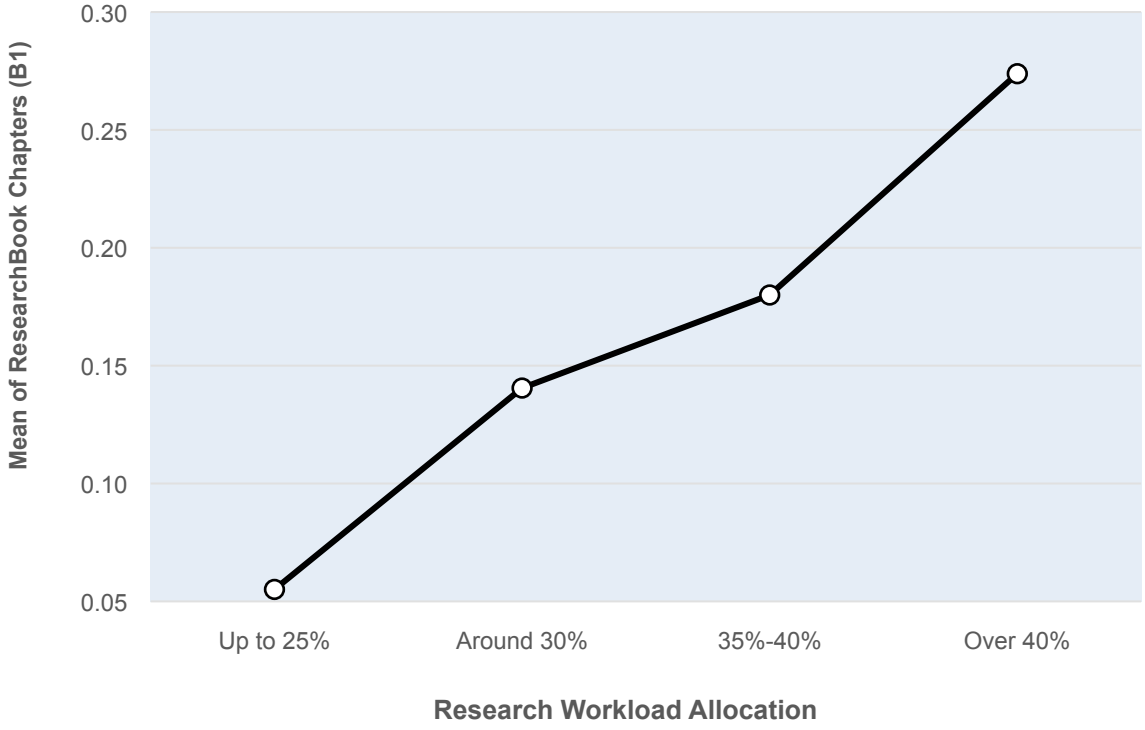
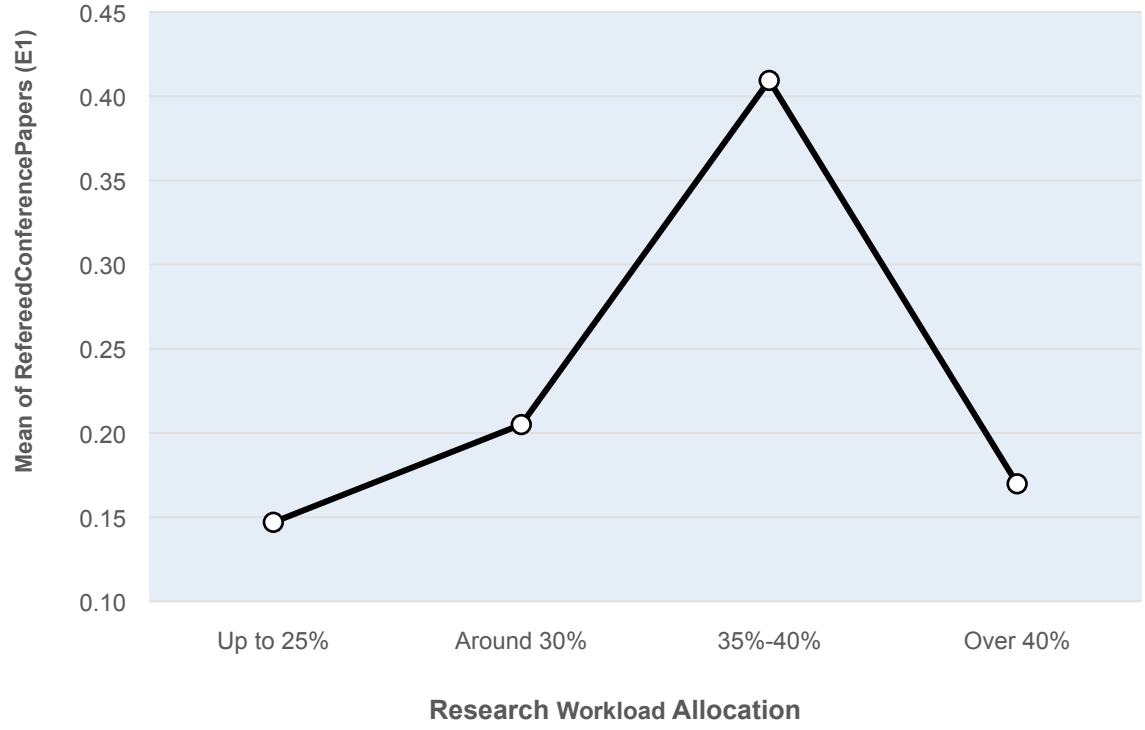


Figure 8 Comparison between Research Workload Groups by Conference Paper (E1) Output (Average Annual HERDC Points)



While total output is important, the emphasis in both Australia and New Zealand on increasing the quality of academic research has been a focus for both government and Universities. Generally, in the field of Management this is interpreted as increasing the quality of journal output. To examine this, we now move to analysing journal output by quality of journal.

Details of Research Output by ABDC Journal Rating

Analysing the quantity of research output provides an important picture of the amount of research activity carried out by Management academics in Australia. However, the question of quality of output is not specifically addressed (beyond, for example, the need for journal outputs to be refereed). One of the improvements to the current ANZAM Research Productivity Survey over methodology used in the earlier surveys is that participating Management Schools / Departments were asked to not only list the overall number of journal (C1) outputs for their academic staff, but also provide information about the quality of journal outputs, using the Australian Business Deans Council (ABDC) Journal Rating List. Thus, it is possible in this report to examine the proportion of journal outputs across ABDC A*, A, B, C and unranked rated journal publications.

In the following section, we provide data for average output per academic for the A*, A, B, C and unranked journal classifications.

Table 16 shows the average output per academic across the four ABDC rating categories for 2014 - 2016. As can be seen, the mean output decreases from A through to C rated journals. This may be evidence of the push in some Business Schools to avoid C ranked and unranked journals for outputs. The amount of work published in A* outlets doubtless reflects the relative difficulty of placing papers in these journals. For example, there were only 258 academics (from 2094 data points) who reported any A* outputs across the 3 year period. This means only 12.2% of the most productive academics were able to achieve HERDC points in A* journals, with the highest performing academic producing 3.00 HERDC outputs in A* rated journals across the three years (Top 1%) (average of 1 A* publication per year). The picture gradually changes across A and B rated journals, with increasingly greater proportions of academics publishing in these outlets, as expected. Mean HERDC

points for A rated journal outputs increased over the three year sample period; specifically, the mean A rated journal output was similar across 2016 (0.16), 2015 (0.17) and 2014 (0.15). Differences emerged over the three years of the sample period for the other journal classifications.

Table 16 Average Annual HERDC Points per Academic by ABDC Journal Rating 2014 to 2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.07	0.16	0.15	0.10	0.14	0.63
Standard Dev	0.23	0.37	0.37	0.34	0.37	0.86
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	3.00	4.00	5.50	5.00	6.00	6.92
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.33
Top 25%	0.00	0.17	0.00	0.00	0.00	1.00
Top 10%	0.25	0.50	0.50	0.33	0.50	1.67
Top 5%	0.50	0.99	1.00	0.81	1.00	2.33
Top 1%	1.00	1.87	1.77	1.62	1.76	4.09

Total Data points = 2093, 2014 n = 691, 2015 n = 688, 2016 n = 714

We also analysed data from those academics who produced journal outputs in the three-year sample period across the four ABDC rating categories. This was done to provide a clearer picture of where journal outputs were placed, one that was not clouded by the proportion of academics with no journal output. Of those sampled, in 2014, there were 418 academics who produced journal outputs; in 2015, there were 434, and in 2016, there were 440. Table 17 provides the means for journal output for those academics who published journal articles during the 2014 – 2016 period.

Table 17 Average Annual HERDC Points per Academic (for those published in journals) by ABDC Journal Rating 2014 to 2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.11	0.26	0.25	0.17	0.23	1.02
Standard Dev	0.29	0.44	0.45	0.42	0.45	0.90
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	3.00	4.00	5.50	5.00	6.00	6.92
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.50
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.75
Top 25%	0.00	0.45	0.33	0.00	0.33	1.25
Top 10%	0.39	0.83	0.83	0.50	0.83	2.00
Top 5%	0.66	1.00	1.00	1.00	1.00	2.96
Top 1%	1.34	2.01	2.00	2.00	2.00	4.53

2014 n = 418, 2015 n = 434, 2016 n = 440

Tables 18 - 25 show the average output per academic across the four ABDC rating categories at each academic level within Management Schools/Departments. NOTE: The first table in this series includes ALL academics at that level and the following table provides the data compared to those who published in this period. We omitted Level A (Associate Lecturer) academics from this analysis as only nine journal publications were produced during the sample period (out of a possible 94 Level A academic survey returns across 2014-2016). We made a similar decision for Teaching Fellows and for Research Fellow categories as the sample sizes were too small across the survey period to draw any reasonable conclusions.

Table 18 shows the average output per academic across the four ABDC rating categories for 2014 - 2016 for Level B (Lecturer) academics using the entire Level B sample of 561 data points. As expected, mean output increases from A* to A rated journals. Additional analysis reveals that the top 10% of Level B academics published one HERDC weighted journal publication over the 3 years. Only the top 5% of Level Bs were able to publish in A* rated journals

Table 18 Average Annual HERDC Points per Level B by ABDC Journal Rating 2014-2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.04	0.09	0.08	0.07	0.10	0.38
Standard Dev	0.17	0.29	0.28	0.27	0.30	0.64
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	2.00	3.08	4.00	3.00	2.10	4.50
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.00
Top 25%	0.00	0.00	0.00	0.00	0.00	0.50
Top 10%	0.00	0.33	0.33	0.00	0.33	1.00
Top 5%	0.25	0.50	0.50	0.50	0.67	1.86
Top 1%	1.00	1.09	1.15	1.50	1.64	3.05

Data Points = 561

Table 19 shows the average output per academic across the four ABDC rating categories for 2014-2016 for Level B (Lecturer) academics who published a journal article in this period. There were 50 Level B academics in 2014, 60 in 2015, and 70 in 2016 who produced journal output (compared with the total number of Level B academics sampled of 183 in 2014, 183 in 2015, and 195 in 2016). Using this analysis we found that of those Level B's who published, the top 10% were publishing up to 2 HERDC weighted publications across the 3 years.

Table 19 Average Annual HERDC Points per Level B for those publishing journal articles by ABDC Journal Rating 2014-2016 (Sample: ONLY academics with journal outputs)

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.08	0.20	0.18	0.15	0.22	0.82
Standard Dev	0.24	0.39	0.39	0.39	0.41	0.73
Minimum	0.00	0.00	0.00	0.00	0.00	0.10
Maximum	2.00	3.08	4.00	3.00	2.10	4.50
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.33
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.50
Top 25%	0.00	0.33	0.33	0.00	0.33	1.00
Top 10%	0.25	0.50	0.50	0.50	0.67	2.00
Top 5%	0.57	1.00	0.75	1.00	1.00	2.35
Top 1%	1.00	2.20	2.00	2.04	2.00	4.16

Data Points = 561

Table 20 provides the data for all Level C academics from 2014 to 2016.

Table 20 Average Annual HERDC Points per all Level C by ABDC Journal Rating 2014-2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.06	0.15	0.18	0.13	0.14	0.66
Standard Dev	0.24	0.38	0.42	0.40	0.32	0.86
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	3.00	3.00	5.50	5.00	2.00	5.67
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.33
Top 25%	0.00	0.00	0.25	0.00	0.00	1.00
Top 10%	0.25	0.50	0.60	0.50	0.50	1.75
Top 5%	0.33	1.00	1.00	1.00	1.00	2.36
Top 1%	1.11	2.00	1.78	2.00	1.51	4.39

Data Points = 688

Table 21 reports the results for those Level C academics that published a journal paper during this period. There were 81 Level C academics in 2014, 87 in 2015, and 92 in 2016 who produced journal outputs (compared with the total number of Level C academics sampled of 232 in 2014, 226 in 2015, and 230 in 2016). Again, mean output increases from A* through to B rated journals. Overall journal output was significantly higher for Level C versus Level B academics, though not for any of the individual ABDC journal categories.

Table 21 Average Annual HERDC Points per Level C who published journal articles by ABDC Journal Rating 2014-2016 (Sample: ONLY academics with journal outputs)

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.09	0.22	0.28	0.20	0.22	1.01
Standard Dev	0.32	0.49	0.53	0.53	0.41	0.90
Minimum	0.00	0.00	0.00	0.00	0.00	0.33
Maximum	3.00	3.00	5.50	5.00	2.00	5.67
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.50
Bottom 50%	0.00	0.00	0.00	0.00	0.00	1.00
Top 25%	0.00	0.50	0.50	0.29	0.48	1.50
Top 10%	0.33	0.86	1.00	1.00	1.00	2.31
Top 5%	0.57	1.00	1.18	1.25	1.00	3.00
Top 1%	1.99	2.69	2.00	2.39	1.92	5.00

Data Points = 260

Table 22 shows the average output per academic across the four ABDC rating categories for 2014-2016 for Level D (Associate Professor) academics.

Table 22 Average Annual HERDC Points per all Level D by ABDC Journal Rating 2014-2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.06	0.17	0.17	0.11	0.18	0.70
Standard Dev	0.22	0.33	0.38	0.29	0.51	0.84
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	3.00	2.15	3.33	2.03	6.00	6.92
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.00
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.50
Top 25%	0.00	0.25	0.25	0.00	0.20	1.00
Top 10%	0.26	0.58	0.50	0.33	0.50	1.66
Top 5%	0.50	0.96	0.90	0.66	1.00	2.48
Top 1%	0.64	1.52	1.91	1.86	2.44	3.64

Data Points = 328

Table 23 reports the results for those Level D academics that published a journal paper during this period. There were 41 Level D academics in 2014, 45 in 2015, and 50 in 2016 who produced journal outputs (compared with the total number of Level D academics sampled of 109 in 2014, 111 in 2015, and 108 in 2016). Again, mean output increases from A* rated through to C rated journals. Overall, journal output for Level D academics did not differ significantly from that for Level C academics; nor did output for any of the individual ABDC journal categories. Level D academics did, however, perform significantly higher than Level B academics for A* and A rated journal output. This pattern may reflect a greater focus by Level D academics on publishing in higher quality journals.

Table 24 shows the average output per academic across the four ABDC rating categories for 2014-2016 for Level E (Professor) academics.

Table 23 Average Annual HERDC Points per Level D who published journal articles by ABDC Journal Rating 2014-2016 (Sample: ONLY academics with journal outputs)

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.08	0.23	0.24	0.15	0.25	0.96
Standard Dev	0.25	0.36	0.43	0.33	0.58	0.85
Minimum	0.00	0.00	0.00	0.00	0.00	0.17
Maximum	3.00	0.36	0.43	0.33	0.58	0.84
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.45
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.75
Top 25%	0.00	0.33	0.33	0.25	0.33	1.11
Top 10%	0.33	0.67	0.58	0.50	0.75	1.99
Top 5%	0.50	1.00	1.00	0.95	1.00	2.86
Top 1%	0.86	1.87	2.60	2.00	3.10	4.47

Data Points = 239

Table 24 Average Annual HERDC Points per all Level E by ABDC Journal Rating 2014-2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.15	0.30	0.23	0.12	0.19	1.00
Standard Dev	0.33	0.47	0.42	0.38	0.42	1.06
Minimum	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	2.00	4.00	2.50	3.50	2.50	6.26
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.25
Bottom 50%	0.00	0.00	0.00	0.00	0.00	0.73
Top 25%	0.20	0.50	0.33	0.00	0.25	1.49
Top 10%	0.50	0.96	0.76	0.33	0.67	2.33
Top 5%	1.00	1.04	1.00	0.99	1.07	3.00
Top 1%	1.51	2.26	2.01	2.00	1.96	5.01

Data Points = 396

Table 25 contains the data for journal outputs for Level E academics who published journal articles during the three years from 2014 – 2016. There were 55 Level E academics in 2014, 58 in 2015, and 77 in 2016 who produced journal outputs (compared with the total number of Level E academics sampled of 129 in 2014, 130 in 2015, and 137 in 2016). Again, mean output increases from A* rated through to A rated journals. Overall journal output was significantly higher for Level E than for Level D academics, as well as for B rated journal output, but not for the other three ABDC journal categories. Level E academics perform significantly higher than Level B and C academics, except for C rated journal output. Indeed, the mean is lower for C rated journal output than that for Level C academics, perhaps again reflecting a greater focus on publishing in higher quality journals.

Again based on further analysis of these data we note that the top 20% of Level E academics published in A* rated journals (specifically, those above the 80th percentile). The top 40% published in A rated journals, the top 53% in B rated journals and the top 52% in C rated journals.

Table 25 Average HERDC Points per Level E who published journal articles by ABDC Journal Rating 2014-2016 (Sample: ONLY academics with journal outputs)

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
Mean	0.19	0.38	0.29	0.16	0.24	1.26
Standard Dev	0.36	0.50	0.45	0.42	0.45	1.04
Minimum	0.00	0.00	0.00	0.00	0.00	0.17
Maximum	2.00	4.00	2.50	3.50	2.50	6.26
Bottom 25%	0.00	0.00	0.00	0.00	0.00	0.50
Bottom 50%	0.00	0.33	0.00	0.00	0.00	1.00
Top 25%	0.33	0.50	0.50	0.00	0.33	1.66
Top 10%	0.75	1.00	1.00	0.50	1.00	2.62
Top 5%	1.00	1.27	1.02	1.00	1.25	3.47
Top 1%	1.65	2.47	2.22	2.00	2.21	5.45

Data Points = 313

Summary of comparison between academic levels for research quality

Figures 9 – 12 contain the mean plots for each of the four ABDC rating categories across each academic level. The picture is one of increased quality of journal output as academic level rises, as would be expected. What is noteworthy as well is the apparently lower interest amongst Level D and Level E academics in publishing in B rated and especially C rated journals, relative to A* rated and A rated journal output. Output in B rated and C rated journals is evidently a route to research performance for early and perhaps middle career researchers, but less so for mature researchers. The exception is for RF/SRF academics who still publish in B rated and C rated journals at a higher rate than Level D and Level E academics; this is doubtless a function of the higher research workload allocation for these academics.

Figure 9 Comparison between Academic levels publishing in A* journals by HERDC output

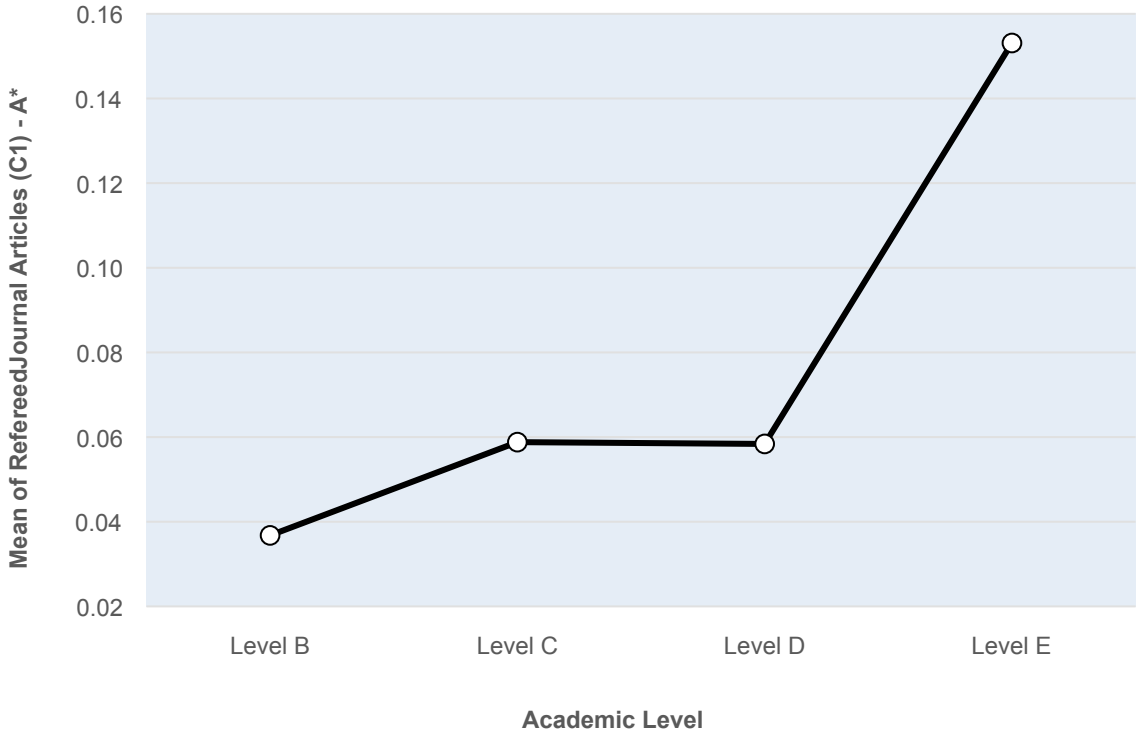


Figure 10 Comparison between Academic levels publishing in A journals by HERDC output

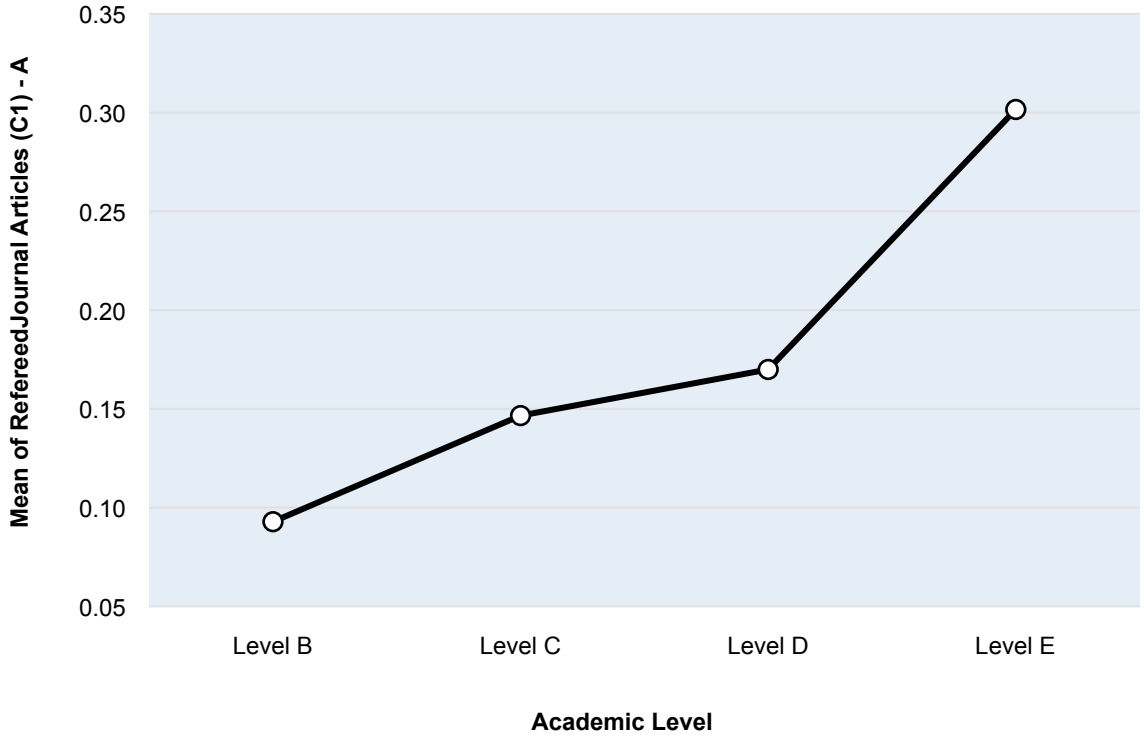


Figure 11 Comparison between Academic levels publishing in B journals by HERDC output

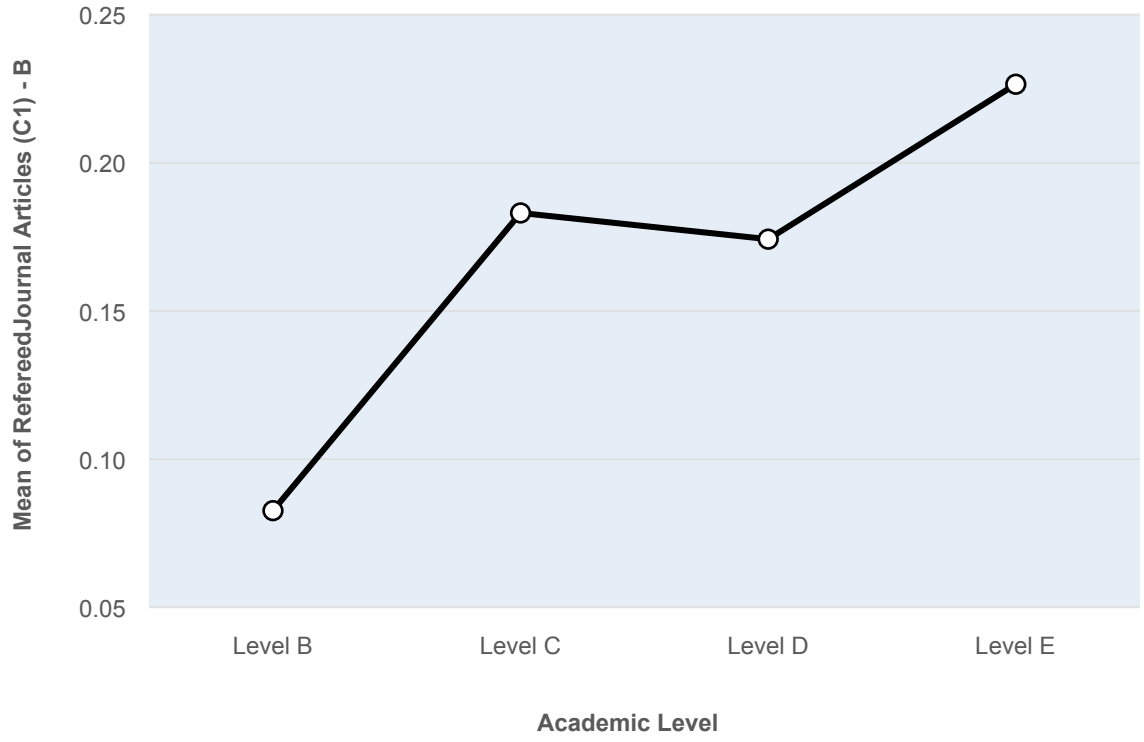
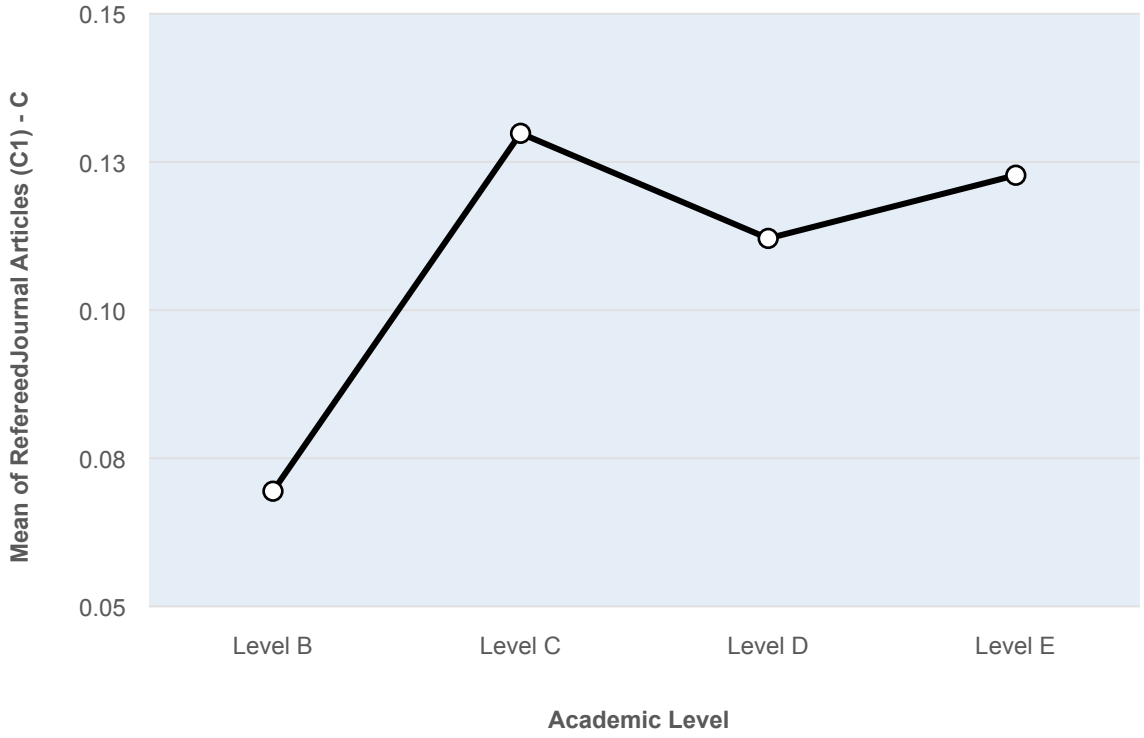


Figure 12 Comparison between Academic levels publishing in C journals by HERDC output



Details of Research Output by University Category

We have seen differences in publication output by academic level, however another factor that influences publication output is the institution where the academic is working. Clearly different institutions operate to different funding models and have different constraints put on them by the broader university administration which will affect research outcomes. To see what difference this makes, our final analysis is looking at publication output by University Category. The average number of universities in each category is 4, so this in no way reflects any individual institution, but as with the rest of this report, can be seen as a snapshot of publication outcomes in each grouping. Table 26 examines publication outputs by university category.

Table 26 HERDC Points by University grouping 2014-2016

	Books	Book Chapters	Journals	Conf Papers	Total Publications
NZ	0.01	0.19	0.68	0.12	1.01
ATN	0.02	0.25	0.72	0.15	1.14
Go8	0.02	0.12	0.49	0.16	0.80
IRU	0.01	0.19	0.68	0.12	1.01
RUN	0.01	0.10	0.68	0.17	0.96
Not Aff	0.01	0.09	0.60	0.29	1.00

Data Points = 2094; NZ = New Zealand, ATN = Australian Technology Network, Go8 = Group of Eight, IRU = Innovative Research Universities, RUN = Regional Universities Network, Not Affil = Not Affiliated Universities.

Table 26 reveals minor differences in Book and Book Chapter outputs but a significant difference in Journal output and overall outputs. Clearly different institutions encourage different outcomes from faculty which will affect their overall research outcomes. To explore these differences in more detail Table 27 we examined journal publication outputs by university category.

Table 27 HERDC Points by University grouping ABDC Journal Rating 2014-2016

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
NZ	0.05	0.19	0.14	0.11	0.19	0.68
ATN	0.06	0.19	0.20	0.11	0.16	0.72
Go8	0.15	0.19	0.09	0.02	0.05	0.49
IRU	0.05	0.19	0.14	0.11	0.19	0.68
RUN	0.03	0.13	0.18	0.09	0.24	0.68
Not Aff	0.05	0.19	0.14	0.11	0.19	0.68

Data Points = 2094

The differences in Table 26 are somewhat clarified in Table 27. To see what difference this makes, our final analysis is looking at publication output by University Category. While Go8 institutions produced the lowest quantity of output, they clearly produce significantly more A* publications than each of the other groupings. The Go8 also produce significantly less B, C and unranked publications during this

period. An interpretation that can be made about these trends is that Go8 institutions value quality over quantity. This is backed up by Excellence in Research Australia rankings where some of the Go8 institutions in this survey were judged as world class and have reputations for quality in international ranking lists. A clear message from this is that more research outputs do not necessarily mean greater productivity, particularly if productivity is defined in terms of quality. This message is exacerbated when we just these data to compare between grouping for those academics who published a journal article during this period. Table 28 reveals these data.

Table 28 HERDC Points by University grouping for those who published journal articles by ABDC Journal Rating 2014-2016 (Sample: ONLY academics with journal outputs)

	A* Journal Articles	A Journal Articles	B Journal Articles	C Journal Articles	Unranked Journal Articles	Total Journal Articles
NZ	0.08	0.24	0.36	0.20	0.43	1.30
ATN	0.09	0.29	0.30	0.17	0.24	1.08
Go8	0.40	0.53	0.19	0.04	0.08	1.24
IRU	0.08	0.29	0.21	0.17	0.29	1.04
RUN	0.06	0.23	0.30	0.15	0.42	1.16
Not Aff	0.06	0.20	0.30	0.48	0.18	1.21

Data Points = 1293

The conclusions drawn from Table 27 are strengthened when we examine the analysis in Table 28, which reports on faculty who have published journal outputs during this period. The Go8 institutions are outperforming all other groups on A* and A publications and are still the lowest group for publishing B, C and unranked journal outputs. The Go8 move from the lowest overall output on total publications to the second highest group in publishing journal outputs. In this analysis, NZ researchers publish more journal outputs per academic over this period, but also have the highest number of journal outputs in unranked journals.

Research Supervisions and Completions 2014 – 2016

A significant responsibility for the faculty working in the Management discipline is the training and nurturing of the next generation of academics. As noted earlier in this report, Management Faculties generally are employing more highly qualified faculty. Our aim in this section is to outline overall supervision responsibilities and completion data for both Doctoral and Masters students.

Measures.

Our instructions in gathering these data expressed our desire to focus on research productivity and workloads. Specifically, we asked respondents about their overall supervisory responsibilities. Our instructions were "to record a faculty member's proportional involvement in research supervision. There are 2 columns for number of students enrolled – one for primary supervision and one for associate supervision. Again, students under supervision should be assigned proportionately over the years depending on the supervision load." In terms of PhD completion data, our instructions were "Student completions should be again recorded proportionately across faculty members for the year in which the degree was awarded. So a completed student where the faculty member was a Principal Supervisor (70%) may be recorded as .7 while a faculty member with an Associate Supervision (30%) completion would be recorded as .3. Shared supervisions (50%) would be recorded as .5." Although the majority of respondents have completed the survey in this way, a few respondents used full counts of student. For instance, while one or two returns revealed that some supervisors had 7 principal supervisions, others recorded this as 4.9 supervisions (i.e., 7 supervisions x .7 principal supervision load). Where it was clear we were given full counts we have converted this to a proportional loading using a formula of 1 principal supervision is the equivalent of .7 of an EFTSL and one associate supervision is the equivalent of .3 of an EFTSL. We acknowledge that there will be some supervisions in which it will be .5 for a principal supervision, but on the whole we consider this to be the best solution. Where there was a mix of apparently full counts and weighted supervisions, we have treated these data as weighted counts.

Sample.

We note that 2 of our Departments / Schools did not provide any data in relation to supervision and we have dropped these from the analysis resulting in a sample of 22 universities with 1968 data points across the 3 years.

Research Supervisions

In Table 29 we provide the total and average supervisions for 2014, 2015 and 2016. The data reveal a mean of 26.61 supervisions (principal and associate) per university in 2014 building to 29.34 per program in 2016.

Table 29 Average Research Supervisions per Institution 2014 – 2016

Year	Total Supervisions	Mean Supervisions
2014	585.53	26.61
2015	597.34	27.15
2016	645.45	29.34
Total	**1828.32**	**27.70**

Number of Institutions = 22

The data reported in Table 29 significantly exceeds the supervisions reported in the previous research productivity report (Jordan et al., 2013). We note that our data reflect the figures provided by Schools and Departments and consider that these data may be a more accurate count of the supervision responsibilities in these units as they match the authors' experiences of the size of doctoral and masters programs in our respective institutions. We also note significant missing data were reported in the 2013 report. The data above include Doctoral, Masters and Honours supervisions.

To extend our understanding of supervision load, we looked at the spread of supervision within University Types. In Table 30, we examine the spread of supervision across the universities grouping in Australia and New Zealand. We note that the largest spread of supervision is in New Zealand with 63% of faculty undertaking some form of supervision and the lowest is in the Regional Universities Network where only 48% of academics are involved in supervision.

Table 30 Academics Involved in Supervisions (Doctorate, Masters, Honours) by University Type

Group	Total Academics	Total Academic Supervisors	% of Faculty supervising
NZ	436	274	63%
ATN	360	207	58%
Go8	399	220	55%
IRU	277	165	60%
RUN	210	100	48%
Not Aff	285	168	59%
Total	**1967**	**1134**	**58%**

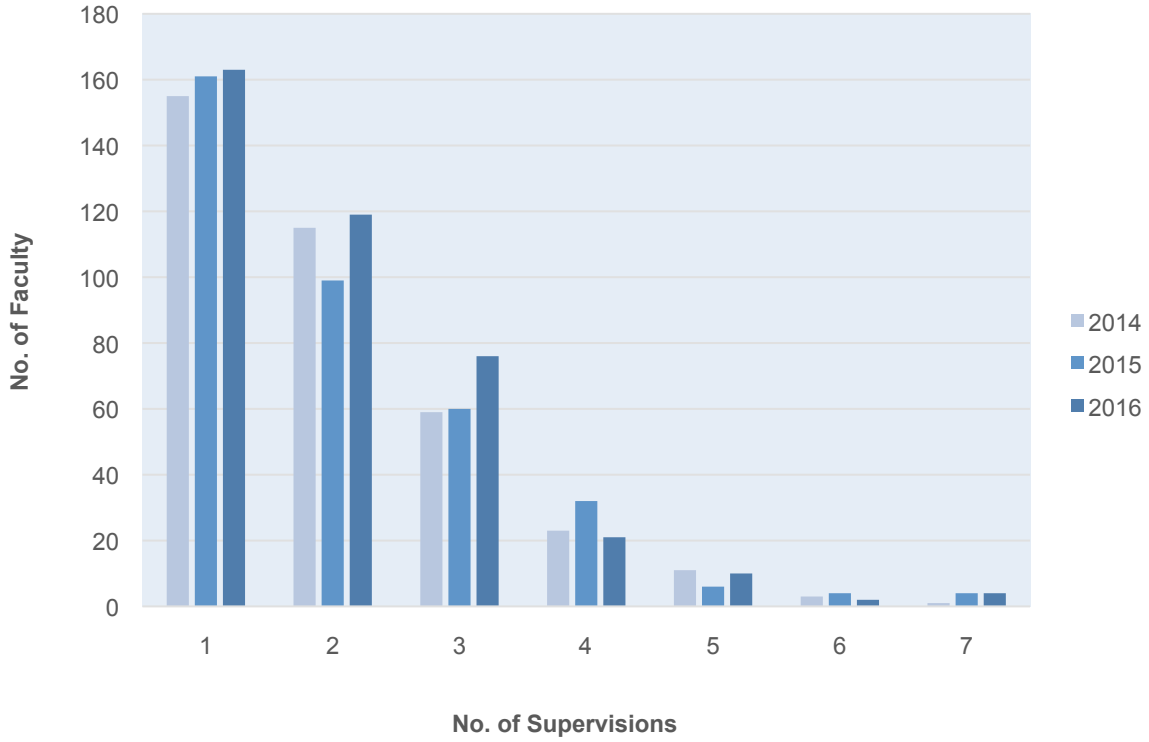
To complete this analysis, in Table 31 we examine the spread of supervisions by academic level. As expected the spread of supervision at Level E is far greater than at Level B. We also note from the data the Level B faculty may be more involved in Masters / Hons supervisions rather than Doctoral supervisions.

Table 31 Academics Involved in Supervisions (Doctorate, Masters, Honours) by Academic Level 2014 - 2016

	Total Academics	Total Academic Supervisors	% of Faculty supervising
Level B	525	190.00	36%
Level C	655	428.00	65%
Level D	304	227.00	75%
Level E	384	273.00	71%
Total	**1868**	**1118.00**	**60%**

In order to examine the research supervision issue in greater detail, in Figure 13 we examine average supervision load of academics supervising across the period 2014 – 2016. This figure reveals that there are a large number of academics not supervising research students. There are also very few academics that are supervising more than 1 research student. We did note some variation in the way in which these data were held and reported across the sample.

Figure 13 Number of Supervisions per Academic (Excluding those not supervising)



Finally, we examined supervisions by university category in Table 32. We note that this analysis reveals significant variance in reported supervisions across the sector both within in Australia and between Australia and New Zealand. Based on later analysis in relation to completions, some of the increased supervision load in New Zealand may be attributable to larger Masters / Honours supervision programs in New Zealand.

Table 32 Total Supervisions for Doctoral Programs by University Type 2014 - 2016

	Total Supervisions	Mean Supervisions Per Academic	Mean Supervisions Per Institution	Average Supervisions per year per Institution
NZ	542.30	1.24	180.77	60.26
ATN	346.41	0.96	115.47	38.49
Go8	289.51	0.73	96.50	32.17
IRU	255.11	0.92	85.04	28.35
RUN	124.61	0.59	41.54	13.85
Not Affil.	270.38	0.95	67.59	22.53
Total	**1828.32**	**0.94**	**83.11**	**27.70**

Completions

Our next set of data examine research supervision completions during the period 2014 – 2016. In Table 33 and Table 34 we examine Doctoral completions and Masters / Hons research supervision completions for the period 2014 – 2016.

Table 33 Doctoral Completions by University Sector 2014 - 2016

Group	Total Doctoral Students	Total Academics	Mean Per Academic	Mean per Institution	Mean per institution per year	Total Academic Supervisors	% of Faculty with Thesis Completion
NZ	62.47	436	0.14	15.62	5.21	76	17%
ATN	69.65	360	0.19	17.41	5.80	77	21%
Go8	45.37	399	0.11	15.12	5.04	73	18%
IRU	33.15	277	0.12	8.29	2.76	53	19%
RUN	17.60	210	0.08	4.40	1.47	24	11%
Not Aff	53.95	285	0.19	13.49	4.50	60	21%
Total	**282.19**	**1967**	**0.15**	**12.83**	**4.28**	**363**	**18%**

Table 34 Masters / Honours Completions by University Sector 2014 - 2016

Group	Total Masters Students	Total Academics	Average Per Academic	Mean per Institution	Mean per institution per year	Total Academic Supervisors	% of Faculty with Thesis Completion
NZ	105.50	436	0.24	26.38	8.79	75	17%
ATN	17.60	360	0.05	4.40	1.47	22	6%
Go8	29.00	399	0.07	9.67	3.22	30	8%
IRU	15.20	277	0.05	3.80	1.27	10	4%
RUN	4.88	210	0.02	1.22	0.41	8	4%
Not Aff	8.30	285	0.03	2.08	0.69	8	3%
Total	**180.48**	**1967**	**0.09**	**8.20**	**2.73**	**153**	**8%**

In Table 33 we note that only 18% of academics reported a Doctoral completion over this period. The completion rate appears to be fairly stable across the sector. The picture changes however when we move to look at other supervision completions. In Table 34 we note that New Zealand has a far greater number of Masters / Honours completions that Australia. Over the period, New Zealand graduated a total of 105 students whereas the numbers of Master's / Hons graduations was much lower in other sectors.

Table 35 reports on Doctoral Completions by Academic level for 2014 – 2016. Over the period Level E faculty graduated a total of 96 students under supervision with 32% of Level E faculty participating in a completion over that period. The completion rate improves as academic level rises with only 8% of Level B faculty achieving a completion during the 3 years.

Table 35 Doctoral Completions by Academic Level 2014 – 2016

Level	Total Students	Total Academics	Average Per Academic	Total Academic with completion	% of Faculty with Completion
B	26.80	525	0.05	40	8%
C	83.70	655	0.13	115	18%
D	75.00	304	0.25	83	27%
E	96.60	384	0.25	122	32%
Total	**282.10**	**1868**	**0.15**	**360**	**19%**

Table 36 reports on Thesis completions (Hons and Masters) by Academic level for 2014 – 2016. We note that a significantly smaller number of completions over this period for this group.

Table 36 Masters Honours Completions by Academic Level 2014 - 2016

Level	Total Students Completed	Total Academics	Average Per Academic	Total Academic Supervisors	% of Faculty with Completion
B	15.60	525	0.03	17	3%
C	68.70	655	0.11	57	9%
D	44.40	304	0.15	31	10%
E	51.60	384	0.13	46	12%
Total	**282.10**	**1868**	**0.15**	**151**	**8%**

To complete our examination of supervisions, we now turn to data which reveals the supervision load across disciplines in Table 37 (2014), Table 38 (2015) and Table 39 (2016).

Table 37 Number of Research Supervisions by Discipline 2014

2014	No of Faculty	Not Super-vising	Super-visors	% Super-vising	No of Super-visions	Avg Super per faculty
Critical Management / Organisational Studies	25	12	13	52.00%	11.36	0.87
Employment / Industrial Relations	16	9	7	43.75%	4.24	0.61
Entrepreneurship, Startups and Small Business	37	20	17	45.95%	13.16	0.77
Gender and Diversity and Indigeneity	18	9	9	50.00%	9.29	1.03
HRM and Development & Change	106	47	59	55.66%	62.49	1.06
International Management	55	20	35	63.64%	28.15	0.80
Leadership	21	10	11	52.38%	8.28	0.75
Management Education and Development	26	19	7	26.92%	2.01	0.29
Marketing	7	5	2	28.57%	1.00	0.50
Organisational Behaviour	70	29	41	58.57%	43.62	1.06
Public Sector and Not-for-Profit	20	6	14	70.00%	12.53	0.90
Research Methods	2	1	1	50.00%	1.90	1.90
Strategic Management	54	18	36	66.67%	31.33	0.87
Sustainability and Social Issues in Management	47	19	28	59.57%	29.42	1.05
Technology, Innovation and Supply Chain Management	61	28	33	54.10%	29.64	0.90
Tourism, Sport Events	25	6	19	76.00%	17.97	0.95
Other not listed	59	24	35	59.32%	30.37	0.87
TOTAL	**649**	**282**	**367**	**53.71%**	**336.79**	**0.89**

Table 38 Number of Research Supervisions by Discipline 2015

2015	No of Faculty	Not Super-vising	Super-visors	% Super-vising	No of Super-visions	Avg Super per faculty
Critical Management / Organisational Studies	25	11	14	56.00%	9.86	0.70
Employment / Industrial Relations	15	6	9	60.00%	6.78	0.75
Entrepreneurship, Startups and Small Business	38	23	15	39.47%	12.95	0.86
Gender and Diversity and Indigeneity	18	8	10	55.56%	11.08	1.11
HRM and Development & Change	102	41	61	59.80%	69.22	1.13
International Management	49	19	30	61.22%	24.28	0.81
Leadership	23	10	13	56.52%	9.04	0.70
Management Education and Development	26	18	8	30.77%	3.07	0.38
Marketing	7	5	2	28.57%	0.80	0.40
Organisational Behaviour	66	25	41	62.12%	53.47	1.30
Public Sector and Not-for-Profit	21	10	11	52.38%	8.98	0.82
Research Methods	1	0	1	100.00%	4.13	4.13
Strategic Management	53	17	36	67.92%	32.68	0.91
Sustainability and Social Issues in Management	51	21	30	58.82%	25.39	0.85
Technology, Innovation and Supply Chain Management	71	32	39	54.93%	33.85	0.87
Tourism, Sport Events	21	9	12	57.14%	8.58	0.72
Other not listed	59	25	34	57.63%	31.63	0.93
TOTAL	**646**	**280**	**366**	**56.40%**	**345.80**	**1.02**

Table 39 Number of Research Supervisions by Discipline 2016

2016	No of Faculty	Not Super-vising	Super-visors	% Super-vising	No of Super visors	Avg Super per faculty
Critical Management / Organisational Studies	24	9	15	62.50%	10.88	0.73
Employment / Industrial Relations	17	9	8	47.06%	4.42	0.55
Entrepreneurship, Startups and Small Business	46	23	23	50.00%	20.03	0.87
Gender and Diversity and Indigeneity	16	5	11	68.75%	17.94	1.63
HRM and Development & Change	115	43	72	62.61%	85.03	1.18
International Management	53	17	36	67.92%	31.30	0.87
Leadership	27	12	15	55.56%	11.83	0.79
Management Education and Development	36	25	11	30.56%	3.68	0.33
Marketing	4	3	1	25.00%	0.18	0.18
Organisational Behaviour	70	25	45	64.29%	56.41	1.25
Public Sector and Not-for-Profit	15	6	9	60.00%	8.31	0.92
Research Methods	2	1	1	50.00%	1.77	1.77
Strategic Management	50	14	36	72.00%	37.93	1.05
Sustainability and Social Issues in Management	47	22	25	53.19%	24.91	1.00
Technology, Innovation and Supply Chain Management	76	33	43	56.58%	38.64	0.90
Tourism, Sport Events	21	6	15	71.43%	13.53	0.90
Other not listed	53	24	29	54.72%	24.45	0.84
Total	**672**	**277**	**395**	**56.01%**	**391.24**	**0.93**

Research Income 2014 – 2016

As noted in an earlier report (Jordan et al., 2013) there has been an increasing emphasis across all Universities on the importance of research funding. This has not changed since the 2013 report. For some reason, income is still considered as an outcome of research or an indicator of quality, rather than an input to research. That said, there is no evidence in the Management discipline of a direct link between obtaining research funding and increased research output. The ARC notes a link between successful research and the gaining of grant income, however as grants are often decided (to a certain degree) on the research team quality, it may be tautological to claim that funding leads to better quality research. Internationally, there are many successful Management researchers who produce quality research without funding. The nature of the competitive process of gaining grants in New Zealand and Australia means that already successful researchers are more likely to also get grants to support further research.

As grant income is seen as an important aspect of research productivity in the Australian as well as the New Zealand context, in this section we report on broad grant income across the sector. We do note that there are differing outcomes across the sector both at different academic levels, but also across institution types.

In Tables 40 and 41 we give an overview of the research funding provided by respondents to the survey in both Category 1 grants (Government funded competitive grants) and other income (external funding through private organizations, commercial research consultancies and so on). Note, we requested that only external income was reported in gathering these data.

The data in Table 40 shows the Category 1 income reported for each year from 2014 – 2016. Success in winning Category 1 income is difficult to predict and based on these data, as with most academic outputs it appears to be relatively lumpy over a relatively short period such as 3 years. In comparison to the previous report, there are many more grants and faculty involved in those grants. A closer inspection of the data revealed that many Category 1 grants for Australian

institutions were gained outside of the Australian Research Council (ARC) system with Category 1 grants from a range of Departments such as Primary Industries and the Health Departments.

Table 40 Survey Reported Research Income Category 1 Grants 2014 - 2016

	2014	2015	2016
Number of Grants	81	75	72
Number of Universities reporting grant income	17	16	14
Number of Academics involved	66	58	50
Maximum Allocation	$692,552	$300,000	$578,335
Total of Grants	**$4,895,219**	**$3,245,157**	**$3,560,705**

The data in Table 40 shows the other income reported for each year from 2014 – 2016. We note that there is significantly greater income in this category with larger numbers of academics and projects. In comparison to the previous report, there are many more grants and faculty involved in those grants. A closer inspection of the data revealed that many average income per academic for these grants was approximately $8,500 per academic compared to Category 1 income were the average across the 3 years was approximately $5,600. The average number of projects for this funding was .28 per academic compared with Category 1 funding where the average was .11 per academic per grant.

Table 41 Survey Reported Research Other Income 2014 - 2016

	2014	2015	2016
Number of Grants	198	158	232
Number of Universities reporting grant income	20	19	19
Number of Academics involved	131	113	121
Maximum Allocation	$547,660	$641,068	$842,607
Total of Grants	**$6,077,257**	**$4,426,898**	**$7,283,048**

In Tables 42 and 43 we analyse the data by looking at income across university type (Table 42), and academic level (Table 43). As expected Level E academics have won a significantly larger amount of Category 1 income and significantly more other income. Table 42 reveals a greater number of academics involved in gaining other income as opposed to Category 1 income. Although Level C academics appear to earn more total income than Level D, there are far fewer Level D academics who earn that income, however, these generate more projects.

Table 42 External Funding by Academic Level 2014 – 2016

	Academics with Category 1	Number of Grants	Category 1 Income	Academics with other income	Number of Projects	Other Income	Total funding
Level B	11	96	$368,476	41	192	$1,061,110	$1,429,586
Level C	54	59	$2,981,646	129	139	$4,421,287	$7,402,933
Level D	40	61	$2,694,172	85	197	$3,944,601	$6,638,773
Level E	69	11	$5,636,787	107	56	$8,313,546	$13,950,332
RF	1	2	$20,000	2	2	$46,660	$66,660
Total	**175**	**230**	**$11,701,081**	**364**	**589**	**$17,787,204**	**$29,488,284**

In Table 43 we examine external funding by Institution type. This table reveals a larger number of Go8 academics involved in earning Category 1 income with a significantly larger number of grants. The total amount of money earned in Go8's is not commensurate with the number of grants suggesting smaller amounts are won per grant. The ATN appears to be more successful in gaining other income.

Table 43 External Funding by Institution Type 2014 – 2016

Group	Academics with Category 1	Number of Grants	Category 1 Income	Academics with other income	Number of Projects	Other Income	Total funding
NZ	32	49	$3,682,211	63	69	$1,992,526	$5,674,738
ATN	28	36	$2,968,549	96	179	$7,056,852	$10,025,400
Go8	61	85	$3,514,234	44	62	$2,705,865	$6,220,099
IRU	22	26	$727,099	58	128	$3,202,619	$3,929,718
RUN	4	5	$104,555	40	45	$1,755,307	$1,859,862
Not Aff	28	29	$704,433	63	107	$1,074,034	$1,778,467
Total	**175**	**230**	**$11,701,081**	**364**	**589**	**$17,787,204**	**$29,488,284**

Analysis of major research grant applications.

A significant amount of prestige is associated with what we describe in this report as Category 1 (national competitive) funding, particularly from the Australian Research Council and the Marsden Fund in New Zealand. To round out the analysis of income in the field we provide a brief analysis of funding under the Marsden Fund and from the ARC.

Research funding in New Zealand through the Marsden Fund

A case-by-case analysis of all (1029) Marsden funding decisions for the ten-year period, 2008-2017, identified 15 business-related awards under the Standard or Fast Start categories. Of these, just eight were in the broad Management/Marketing field. These eight awards were in the areas of: HR/ER (3), Marketing (3), Ops management (1), and Maori management (1). Two of the management/marketing field projects were awarded Fast Start funding. Interestingly, seven of the successful management/marketing proposals were submitted to the Social Sciences panel, and just one to the Economics and Human and Behavioural Sciences panel.

The awards were unevenly distributed across the eight New Zealand Universities, with four of the eight awards going to a single university. The Management/Marketing field was awarded a total of $5,206,232 in Marsden funding over the ten-year period 2008-2017, with an average award of $650,779. Unfortunately, we do not have data on the relative success of Management/Marketing proposals during the entire ten-year period of the analysis, although Table 44 does provide an approximate breakdown (based on codes rather than a case-by-case analysis) for the 2009-2013 period. This is considered fairly indicative of the longer-term success rates.

Table 44 below provides a breakdown of business success in Marsden 2009-2013 rounds, showing successful proposals from the commerce, management, tourism and services fields (note: this information was produced by another analyst).

Table 44 Business sciences* success in the Marsden Fund 2009-2013

Year	No. Prelims	No. Fulls	% in full round (relative to prelims)	No. Contracts	% success (relative to prelims)
2013	50	3	6%	3	6%
2012	41	5	12%	1	2%
2011	29	3	10%	1	3%
2010	36	5	14%	3 ^	8%
2009	33	6	18%	2 ^	6%
Total	**189**	**22**	**12%**	**10**	**12%**

* Proposals/Contracts with research codes from Commerce, Management, Tourism and Services

^ One proposal has both Economics and Commerce, Management, Tourism and Services codes

While the average success rate for Marsden Fund proposals was 8-9%, the average success rate for proposals that had a component that related to Economics or Commerce, Management, Tourism and Services was 6%.

Research funding in Australia through the Australian Research Council

Australian academics are encouraged to apply for Australian Research Council (ARC) funding, which is seen as an indication of esteem and quality when comparing between Universities. Universities have also been clear in their instructions that academics need to increase the amount of funds and the number of grants sought from the ARC. This situation is similar to that in New Zealand, where academics are encouraged to apply for grants from the Marsden Fund and other granting bodies. We also need to acknowledge there that the ARC is extraordinarily generous in providing public access to data on their grant rounds. NOTE: In preparing this analysis we noted some inconsistencies in the data provided by the ARC and note that their website contains the following disclaimer: "While due care has been taken in its preparation, the ARC cannot guarantee and assumes no legal liability or responsibility for the accuracy, currency, completeness or interpretation of the information."

In Table 45, we outline the number of grants and the overall income across the Management Discipline from Discovery and Linkage Grant outcome reports were

funding was provided in the years 2011 to 2016 (based on reports provided by the Australian Research Council). These data were aggregated from ARC reports focussing on data reported for the 1503 Field of Research (FoR) code. The application success rates are provided for both Discovery Grants and Linkage Grants, as well as overall grants awarded by the ARC to the Management discipline. These data were gathered from the ARC website (https://www.arc.gov.au/grants-and-funding/apply-funding/grants-dataset).

Table 45 Proposals and Funded Projects for Management by Discipline 2011 - 2016

Group	2011	2012	2013	2014	2015	2016
Number of DP Applications	29	24	23	28	25	24
Number DP projects funded	4	4	3	2	1	3
1503 (Mgt) Success Rate	15.7%	18.2%	12.7%	7.0%	3.3%	13.7%
Overall ARC DP success	22.0%	22.0%	21.4%	19.9%	18.0%	18.0%
Number of LP Applications	25	17	21	15	11	11
Number LP projects funded	13	5	6	4	1	4
1503 (Mgt) Success Rate	52.0%	29.4%	28.6%	26.7%	9.1%	36.4%
Overall ARC LP success	43.4%	36.4%	39.0%	35.9%	36.6%	33.1%
Number of All Applications#	80	93	106	103	85	80
Number All projects funded	21	16	15	11	3	13
1503 (Mgt) Success Rate	26.25%	17.20%	14.15%	10.68%	3.53%	16.25%
Overall ARC success	27.0%	22.7%	21.9%	20.7%	17.8%	21.2%
Total funding allocated	$4,386,195	$5,333,146	$3,477,799	$5,466,061	$342,400	$4,386,195

* Data compiled from ARC funding outcome reports

ARC Future Fellowships, Australian Laureate Fellowships, Discovery Early Career Researcher Award. Discovery Indigenous, Discovery Projects, Linkage Projects

In line with the common perception in the Management Field, the 1503 Field of Research Code regularly achieves a lower success rate than the overall ARC

success rate. Certainly, the outcomes in 2015 are clearly below the average across other disciplines and seem to vary from a previous pattern of apparent under-allocation. Discovery projects for 2013, 2014 and 2015 were also well below the average funding from the ARC for Discovery grants. We do note however that funding from ARC funded grants other than Discovery and Linkage programs suggests that some funding is flowing to the 1503 discipline, though this is (sometimes more) but often less than that attracted by other disciplines.

To analyse these data in greater depth we now look at where the funding was provided across the 1503 FoR code. In this analysis, we examine the completed projects by 6 digit Field of Research Code to allow us to examine where ARC funding was awarded. In this analysis in Table 46, we noted the total number of completed projects (final year of funding) over the period was 125, which is far greater than the 79 projects identified in Table 45 as being awarded over this period. This is significant as there appear to be a number of ARC funded projects that incorporate the 1503 code without being led by a 1503 researcher. The data from our earlier analysis (Tables 42 and 43) suggest that researchers are also seeking funding from non ARC Category 1 sources.

The data in Table 46 are difficult to create generalisations from given the relatively small numbers of projects in some of the FoR codes. Remembering these are completed projects (and therefore successfully funded projects), the table demonstrates an uneven use of specific FoR codes in assigning research in ARC applications. By far the largest numbers of successful applications appear to be in the Organisational Behavior, Human Resource Management and Industrial Relations areas.

Table 46 Completed Projects for Management by Discipline (FoR 6 digit Code) 2011 - 2016

FoR Code	Description	Number of Projects 2011 - 2016	Avg % of Project Linked to 1503
150301	Business Information Management	4	28%
150302	Business Information Systems	8	26%
150303	Corporate Governance	7	37%
150304	Entrepreneurship	3	52%
150305	Human Resources Management	22	47%
150306	Industrial Relations	19	55%
150307	Innovation and Technology Mgt	12	48%
150308	International Business	2	45%
150309	Logistics and Supply Chain Mgt	6	54%
150310	Org and Management Theory	12	62%
150311	Organisational Behaviour	23	50%
150312	Org Planning and Management	3	27%
150313	Quality Management	1	20%
150314	Small Business Management	2	70%
150399	Management not classified	1	60%
Total		**125**	**48%**

Conclusion

This analysis raises new questions on the sources of funding obtained in the Management Discipline. While the common perception of a low level of funding from the ARC seem to be accurate, it appears that researchers are supplementing this gap with other Category 1 income. A casual examination of these data suggests funding is flowing in Australia from Government Departments such as Primary

Industries and Health and that sometimes the values of these grants far exceeds the amount of funding (on average) from the ARC.

In New Zealand, the funding landscape for the Management Sciences is similar. Access to Marsden Funding is at a lower level, but reports from the survey suggest that Category 1 income is flowing into the discipline. Where New Zealand appears to have less academics gaining funding from non Category 1 sources, from the data provided, it is not clear if this is an intentional strategy in Business Schools or a consequence of a smaller economy in New Zealand to provide this type of funding. Further research is required to understand these data.

Conclusion

Discussion

Research Output

A clear trend is emerging within the 2014 – 2016 survey which replicates a movement in the overall university sector towards a focus on greater output and higher levels of quality. While we have discussed the trend identified in earlier reports (Soutar, 2002, 2005) towards increasing conference paper submissions, in the 2014 – 2016 period this has been reversed, although we note that the reasons for this are not clear. Based on our data one conclusion that could be drawn is that refereed conference paper submissions have reduced and journal submissions are increasing. However, one issue we noticed in putting this report together was the number of reporting units that did not report conference papers in this collection. While we are not condoning "double-dipping" of conference and journal papers, we are also concerned that this trend hides a substantial amount of output in the sector. Under the ERA research quality assessment exercise in Australia, the trend not to count or to recognise conference publications may increase as Universities try to minimize the number of conference paper publications, which are often seen as lower quality research outputs. This ignores the fact that in the Management discipline, conference papers are often used by academics as a first step in developing quality journal papers. Prior research has demonstrated the importance of attending conferences for staying in touch with a discipline and its contribution to improving research output (Teodorescu, 2000).

In comparing results found in this survey with the previous Jordan et al. (2103) report, it would seem that New Zealand and Australian Management academics are producing slightly less book chapters per person (.20 in 2013 versus .16 in this report), less conference papers (.48 in 2013 compared with .31 in this report) and more journal articles (.57 in 2013 against .63 in this survey). Based on these results, it appears the message about focussing on journals is being heard.

As noted earlier, the number and proportion of non publishing academics across the three year period was lower in this survey (7.6%) compared to 12% in the

previous survey (Jordan, et al., 2013).The data around research workloads does not seem to have changed and remains around 35% of total workload.

Research Supervision

A comparison between the 2014 – 2016 survey and earlier research collections is difficult. The data, however, suggests a significant increase in the number of students enrolled in Higher Degree Research programs. We also note that the previous report (Jordan, et al., 2013) reported a relatively small percentage of academics involved in supervision (average of approximately 25%) whereas this report suggests a greater spread of supervision with approximately 58% of faculty having supervision responsibilities during this period. These data are too fluid to assume growth in the intervening period with the previous report noting significant missing data.

Although universities are generally concerned about completion times (particularly for Doctoral students), the completion rate of around 18% is in keeping with the approximately 4 years (full time or equivalent) or so that it takes the average Doctoral Student to complete their degree. Clearly, more research is required in this area to understand the impact of supervision on the research load of academics.

Research Grants

The university sector as a whole has placed significant emphasis on grant income over the last 5 years. Certainly, the data collected within the 2014 – 2016 survey demonstrates that Management academics are seeking grants from a broad range of areas beyond the standard annual Government funding rounds. Indeed funding from external non government sources provides a substantial contribution to the field. We also note that many more academics are involved in this type of activity.

A clear message has emerged from our analysis of ARC and Marsden funding that Management researchers are active in the forums but that the level of funding is lower than other disciplines. In the case of Australia, what may be hidden is the amount of contribution that the Management Sciences make to other projects that are hosted outside of the 1503 Field of Research. These data are not often recognised when mainstream analysis of success rates is considered.

Limitations

There are several limitations in this report that need to be acknowledged.

(i) Representativeness of the data set. While we have given every School/Department of Management the opportunity to respond to this survey, our final sample was 24 units. While we have results from New Zealand, GO8 universities, Australian Technology Network Universities, Innovative Research Universities and Rural Universities and Unaffiliated Universities, we do not claim that we have a truly representative sample from each grouping, with some groups having more responses than others. We do, however, contend that the data we collected is broadly indicative of trends in the sector.

(ii) Errors in data reporting. Although clear instructions were given to Universities to collect based on the Higher Education Research Data Collection (HERDC) definitions, we are concerned that in a very small number of cases these definitions may not have been adhered to. To address this issue we normalised data that did not conform to HERDC specifications. In considering the overall data set and the size of the sample and our attempts to normalise these data, we consider this as acceptable error in our results and do not believe that this would have dramatically affected our results.

Conclusions and Future Directions

Comparison with previous studies on research productivity have shown changes in the types of output for publications, increases in supervision (with the earlier qualificiations around this) and higher levels of research income generation, More research is required, however, to understand these trends and the implications for the sector into the future.

Significantly, one aspect of this report mirrors previous reports provided by ANZAM on this topic, and that is that there is a small group of academics who did not publish over the 3 year span of this report. We note that this is significantly less than the previous survey, however, the question remains of what these faculty are doing if they are not completing this part of their workload. This is an issue that needs to be addressed by Management Schools and Departments and by Universities generally across disciplines.

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Appendix 1 – Survey Items

University Name

Year

ID (anonymous)

Current Academic Level

Highest Qualification

Research Workload Allocation

Primary Discipline Area

Publications

Weighted Outputs A1

Weighted Outputs B1

Weighted Outputs C1_A* rating

Weighted Outputs C1_A rating

Weighted Outputs C1_B rating

Weighted Outputs C1_C rating

Weighted Outputs C1_Unranked

Weighted Outputs E1

Supervision

Number of EFTSL HDR supervisions

Number of HDR completions PhD

Number of HDR completions Research Masters

Income

Category 1 Grants (Number)

Category 1 Income (Number)

Other Research Grants (Number)

Other Research Grants (Amount)

Appendix 2 – ANZAM Streams 2017

The Management disciplines selected for this report were drawn from a combination of the ANZAM conference streams for the 2017 and 2018 Conferences and the responses of survey participants. The streams are as follows.

1. Critical Management / Organisational Studies
2. Employment / Industrial Relations
3. Entrepreneurship, Startups and Small Business
4. Gender and Diversity and Indigeneity
5. Human Resource Management and Development & Change
6. International Management
7. Leadership and Governance
8. Management Education and Development
9. Marketing
10. Organisational Behaviour
11. Public Sector and Not-for-Profit
12. Research Methods
13. Strategic Management
14. Sustainability and Social Issues in Management
15. Technology, Innovation and Supply Chain Management
16. Tourism, Sport and Event Management
17. Other not Listed

Appendix 3 – University Types (From UA website)

Groupings of Australian Universities

There are four main groupings of Australian Universities. These have been formed to promote the mutual objectives of the member universities. There are a number of objectives in this including marketing advantages, practical benefits of collaboration, and the increased lobbying power that comes from being part of a group. The four main groupings currently active are: 1. Australian Technology Network (ATN), 2 Group of Eight (Go8) (Group of 8), 3. Innovative Research Universities (IRU) 4. Regional Universities Network

Membership of any of these groups does not in itself signify anything special about the member universities. There are universities that are not part of any of these groupings that have their own set of strengths and foci. Most universities have international connections which might be more important to them than any domestic groupings. However, the groupings do represent universities which have a similar style and focus and the formation of these groups will most likely accentuate these similarities.

Types of Australian Universities

ATN	Group of Eight	IRU	Regional	Not Affiliated (public)
Curtin U	ANU	Charles Darwin	Central Qld U	Aust Catholic University
QUT	Monash U	Flinders U	Federation U.	Canberra
RMIT	U of Adelaide	Griffith U	Southern Cross U.	Charles Sturt U
UniSA	U of Melbourne	James Cook U	U of New England	Deakin U
UTS	UNSW	La Trobe U	U of Southern Qld	Edith Cowan
	U of Qld	Murdoch U	U of Sunshine Coast	Macquarie U
	U of Sydney			U of Newcastle
	UWA			U of Tasmania
				U of Western Sydney
				Swinburne U of Tech
				U of Wollongong
				Victoria University

From: https://www.australianuniversities.com.au/directory/australian-university-groupings/ Accessed 6 October 2018 (Modified to fit page)

New Zealand Universities

Auckland University of Technology
Lincoln University
Massey University
University of Auckland
University of Canterbury
University of Otago
University of Waikato
Victoria University of Wellington

Appendix 4 Glossary of Terms

ABDC	Australian Business Deans Council – a national council comprising Deans, Heads and Directors of Australian University business faculties and schools.
Academic Levels	Also known as Academic Rank. Includes Associate Lecturer, Lecturer, Senior Lecturer, Associate Professor, Professor, and Research Fellow & Senior Research Fellow
Academic Rank	See Academic Levels
Acceptance Rate	The percentage of articles/books accepted for publication.
Activity	Activity refers to the full range of writing effort including accepted and unaccepted work
ANOVA analysis	A one-way analysis of variance of group means.
ANZAM	Australian and New Zealand Academy of Management
ANZAM Board	Board of Directors for ANZAM
ANZAM Conference Tracks	See Appendix 2.
ANZAM Research Productivity Survey	This is the current survey and collects data similar to that in the 2002 and 2005 ANZAM Research Productivity Reports (Soutar, 2002, 2005) and the 2013 ANZAM Research Productivity Survey (Jordan et al 2013)
ANZAM Streams	Also referred to as tracks. See Appendix 2.
AQF	Australian Qualifications Framework – national policy for regulated qualifications in Australian Education and Training.
ARC	Australian Research Council – a statutory body under DIICCSRTE which promotes Australian research and innovation globally. It manages the National Competitive Grants Program (NCGP) and administers ERA.
Australian University Sector	Includes Group of eight universities (Go8), 1960's-1970's universities, Australian Technology Network universities (ATN), New Generation Universities, Innovative Research Universities, and Rural Universities.
BARDsNET	Business Academic Research Directors Network
DIICCSRTE	Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education
Discovery Grants	Part of the NCGP managed by the ARC.
EFTSL	Equivalent Full Time Student Load
ERA	Excellence in Research (Australia)
Ethics Protocol	The ethics for this report was obtained from Griffith University under approval number EHR/23/12/HREC)
Expectancy Theory	(Vroom, 1964) Where the desire to satisfy a need is sufficient to ensure the effort required to achieve it is worthwhile.
FoR Code	Field of Research Code
HDR	Higher Degree by Research
HDR Supervisory Load	EFTSL for supervision of HDR students.
Heads of Schools of Management Network	Network of Heads of Schools of Management within ANZAM. Commenced in 2010.
HERDC	Higher Education Research Data Collection in which publications are categorised A1 = Research Books B1 = Research Book Chapters C1 = Journal Articles E1 = Refereed Conference Papers
HERDC Category 1 grant income	Australian Competitive Grants Research Income including ARC Discovery and Linkage Grants
Other income	Other Public Sector Research Income Industry and Other Research Income, Research Consultancies

Institutional Member Meeting	Meeting of representatives of the member institutions involved in ANZAM.
Journal Rankings	A variety of ranking methods can be used. In this document the ABDC standards are applied. (A*, A, B, & C level journal quality) as judged by an expert panel.
Linkage Grants	Part of the NCGP managed by the ARC.
Management Disciplines	See also ANZAM streams.
Marsden Fund	The Marsden Fund supports research excellence in New Zealand in the areas of science, engineering and mathematics, social sciences and the humanities.
Mother discipline	The main discipline in which an academic operates and through which they derive support. Could be maintained through professional association membership or attendance at annual meetings.
NCGP	National Competitive Grant Program. A range of competitive grant programs operated by the Federal Government.
Not Provided/specified	Data was provided however not appropriately categorised.
Other Publications	Publications which are not of A, A*, B, & C level journal quality.
PBRF	Performance Based Research Fund (NZ)
PhD	Doctor of Philosophy
Publication Output	Volume of publication output which meets the relevant national standards e.g. ERA or RAE.
RAE	Research Assessment Exercise (UK) – A quinquennial evaluation of the quality of research in British higher education institutions.
Relative Contributions	Points for authorship of publications are weighted in accordance with the HERDC standards.
Research Productivity	Productivity based on the volume and standard of research publications.
Research Quality Framework	The predecessor to the ERA program developed by the former Federal Government.
Research Supervision	Supervision of HDR students including PhD and Masters students.
RF & Senior RF	Research Fellow and Senior Research Fellow
RFCD	Research Fields, Courses and Disciplines classification codes (Superseded in 2008 by the FoR codes)
SD	Standard Deviation
Structural Equation Modelling	Statistical technique for testing and estimating simultaneous equations to determine a model of best fit.
Unweighted Points	Points for authorship of publications are not weighted and therefore each author receives credit for the whole publication instead of a proportion of it.
Workload Allocation	Expectation of effort across a range of activities e.g. 40:40:20 would indicate 40% of time should be spent on Research, 40% on Teaching, and 20% on Service or administration.