

## RESEARCH NOTE

### A CITATION ANALYSIS OF AUSTRALIAN LAW JOURNALS

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*[Citation analysis is a developing field of legal research. It has been used to evaluate the influence of other disciplines (such as economics) on legal scholarship, the sources which influence judges when they draft judgments and the influence of particular articles, scholars and legal journals. We undertake a citation analysis of Australian law journals as a means of providing a partial indication of where legal academics obtain ideas for their research. We evaluate the influence of Australian law journals and compare this to the influence of both overseas and non-law journals on Australian legal writing. We find that authors publishing in Australian law journals are looking to a broad range of journals (including interdisciplinary and non-law journals) for ideas. Specialist law journals are increasingly influential. At the same time, significant influence is wielded by a small number of Australian law journals. Possible explanations for our findings are considered.]*

#### I INTRODUCTION

Is it possible to determine the influence of Australian law journals? This is an important question for a number of reasons. First, it may provide an indication of where legal academics obtain ideas for their research. Publication in journals is one way in which ideas are disseminated. Second, in recent years there has been a dramatic increase in the number of Australian law journals. It is estimated that there are now over 70 law journals published in Australia.<sup>1</sup> Ten years ago there would have been less than half this number. This rapid increase in the number of Australian law journals has implications for the collection policy of law libraries. Many law libraries will be unable to have a comprehensive collection of all Australian law journals and may therefore seek to build a core collection of what might be regarded as influential law journals. Third, authors may be interested in publishing in those journals which are regarded as being particularly influential. Finally, researchers may be interested in identifying influential journals.

It is, of course, impossible to determine journal influence in a way that is uncontroversial. Not all will agree with an assessment that certain journals are more influential than others. However, as noted in a recent government report,

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<sup>1</sup> See the Australian law journals listed in Butterworths, *Australian Current Law* (1997).

'the fact of the matter is that scholars do judge journals on quality, however described. Researchers make judgments based on their individual notions or understandings of journal utility, visibility, and recognition in the field'.<sup>2</sup> This report outlined three main approaches for measuring the influence of journals.<sup>3</sup> First, it is possible to assess the influence of a journal by asking the opinion of experts. This can be done by way of questionnaires or interviews.<sup>4</sup> Second, journal influence can be assessed based on an analysis of the use of journals in libraries. Third, there is citation analysis. Using this method, the influence of a journal is measured by the number of citations to articles published in the journal.

In this article we use citation analysis as a measure of the influence or impact of Australian law journals. We compare these results to those of overseas law journals and non-law journals. In Part II we review a number of arguments relating to the use of citation analysis as a means of measuring journal influence. This is followed in Part III by an overview of previous citation analysis studies in law. In Part IV we outline the data and methodology used in our own study. The results are presented in Part V and discussed in Part VI. Part VII concludes the paper.

## II CITATION ANALYSIS

Citation analysis measures the influence of journals by studying the number of citations to articles published in those journals. It may also be used to measure the influence of particular scholars or particular articles.<sup>5</sup> Citation analysis has been used to determine whether scholars tend to cite a higher proportion of authors of their own sex than they do authors of the opposite sex.<sup>6</sup> Two of the underlying assumptions of citation analysis when applied to journals are that the influence of a journal can be ascertained by measuring its use and that citation analysis is an appropriate way of measuring the use made of particular journals. It can reasonably be assumed that a citation means an author has read the article and believes it to be of sufficient importance to refer to it in the author's own work.<sup>7</sup> Citation analysis has been employed in a broad range of scientific and

<sup>2</sup> Penelope Murphy, *Determining Measures of the Quality and Impact of Journals* (Commissioned Report No 49, National Board of Employment, Education and Training, 1996) 4.

<sup>3</sup> *Ibid* 5–11.

<sup>4</sup> For a recent example of the use of this technique in relation to journals in the accounting and finance discipline, see Tony Brinn, Michael Jones and Maurice Pendlebury, 'UK Accountants' Perceptions of Research Journal Quality' (1996) 26 *Accounting and Business Research* 265.

<sup>5</sup> For examples of the use of citation analysis to achieve these objectives in law see, eg, Fred Shapiro, 'The Most-Cited Law Review Articles' (1985) 73 *California Law Review* 1540; Fred Shapiro, 'The Most-Cited Articles from the Yale Law Journal' (1991) 100 *Yale Law Journal* 1449; William Landes and Richard Posner, 'Heavily Cited Articles in Law' (1996) 71 *Chicago-Kent Law Review* 825. For recent examples from other disciplines see, eg, Ellen Cohn and David Farrington, 'Who are the Most-Cited Scholars in Major American Criminology and Criminal Justice Journals?' (1994) 22 *Journal of Criminal Justice* 517; Richard Wright, 'The Most-Cited Scholars in Criminology: A Comparison of Textbooks and Journals' (1995) 23 *Journal of Criminal Justice* 303.

<sup>6</sup> Marianne Ferber, 'Citations: Are they an Objective Measure of Scholarly Merit?' (1986) 11 *Signs: Journal of Women in Culture and Society* 381.

<sup>7</sup> Olavi Maru, 'Measuring the Impact of Legal Periodicals' [1976] *American Bar Foundation Research Journal* 227, 230.

social science fields. It has been used to rank economics journals,<sup>8</sup> finance journals,<sup>9</sup> psychology journals,<sup>10</sup> political science journals,<sup>11</sup> criminology and criminal justice journals,<sup>12</sup> and a wide range of science journals.<sup>13</sup> In addition, as we shall see in Part III, citation analysis has also been used to measure the influence of law journals.

Although it has been said that '[o]f all data that are known to have been used in the evaluation process, only citation count provides a measuring tool for the evaluation of scholarly literature that is conveniently available and lends itself to quantitative analysis',<sup>14</sup> citation analysis is not without its limitations. It relies on the assumption that a citing author values the work that he or she cites as a useful source of information.<sup>15</sup> Citations may be made for many reasons. One commentator has identified 15 possible motivations for citations.<sup>16</sup> These reasons include supporting an assertion made by the author or, more problematically, the author citing his or her own work or a negative citation (that is, citation for the purpose of criticism). It is possible that an article which is poor in quality may receive many citations because of widespread criticism of the article.<sup>17</sup> However, in general, commentators do not view these limitations as undermining, to any substantial degree, the value of citation analysis. A significant number of negative citations for a particular article may in fact indicate that it is an important, though controversial, publication.<sup>18</sup> In the words of one commentator, 'although the purposes underlying particular citations may be various and sometimes capricious, and all citations do not merit equal weight, large numbers of citations to a publication are strong evidence of its scholarly influence.'<sup>19</sup>

<sup>8</sup> S Leibowitz and J Palmer, 'Assessing the Relative Impacts of Economics Journals' (1984) 22 *Journal of Economic Literature* 77.

<sup>9</sup> John Alexander and Rodney Mabry, 'Relative Significance of Journals, Authors and Articles Cited in Financial Research' (1994) 49 *Journal of Finance* 697; G William Schwert, 'The Journal of Financial Economics: A Retrospective Evaluation (1974-91)' (1993) 33 *Journal of Financial Economics* 369.

<sup>10</sup> Murray White and K Geoffrey White, 'Citation Analysis of Psychology Journals' (1977) 32 *American Psychologist* 301.

<sup>11</sup> Pippa Norris and Ivor Crewe, 'The Reputation of Political Science Journals: Pluralist and Consensus Views' (1993) 41 *Political Studies* 5.

<sup>12</sup> S Stack, 'Measuring the Relative Impacts of Criminology and Criminal Justice Journals' (1987) 4 *Justice Quarterly* 475; David Shichor, Robert O'Brien and David Decker, 'Prestige of Journals in Criminology and Criminal Justice' (1981) 19 *Criminology* 461.

<sup>13</sup> A number of these citation analysis studies in various scientific fields are reprinted in a multi-volume series: Eugene Garfield (ed), *Essays of an Information Scientist* (1962-93) vols 1-15. For one recent example, see A Jones, 'Evaluating the Work of Forensic Scientists by Citation Analysis' (1995) 40 *Journal of Forensic Sciences* 529.

<sup>14</sup> Maru, above n 7, 229.

<sup>15</sup> Murphy, above n 2, 9.

<sup>16</sup> M Weinstock, 'Citation Indexes' (1971) 5 *Encyclopedia of Library and Information Science* 16, 19, cited in James Leonard, 'Seeing' the Cites: A Guided Tour of Citation Patterns in Recent American Law Review Articles' (1990) 34 *St Louis University Law Journal* 181, 190.

<sup>17</sup> Leonard, above n 16, 191.

<sup>18</sup> *Ibid.*

<sup>19</sup> Shapiro, 'The Most-Cited Law Review Articles', above n 5, 1543.

## III PREVIOUS CITATION ANALYSIS STUDIES IN LAW

A *Studies Measuring Factors Other than the Influence of Law Journals*

We have seen that citation analysis has been widely used in the scientific and social science disciplines.<sup>20</sup> It has also been widely used in law, and has been specifically examined in a law journal's special symposium issue on the use of citation analysis in law.<sup>21</sup> Although our main concern is the use of citation analysis to measure the influence of law journals, citation analysis has been used to measure the influence of economics on legal writing,<sup>22</sup> the influence of particular articles published in law journals and the influence of particular legal scholars.<sup>23</sup> It has also been used to demonstrate the growing extent to which the writings of minority scholars, critical race theorists and feminist legal scholars are influencing the character and direction of legal thought.<sup>24</sup> It has been said that citation analysis, when used in this way, can assist in providing an 'intellectual history of law'.<sup>25</sup>

Citation analysis has been extensively used as a means of exploring the sources which may influence judges when they draft their judgments. A number of these articles examine patterns in the citation of cases.<sup>26</sup> For example, citation analysis has been used to examine the use of American precedents by the High Court of Australia.<sup>27</sup> Citation analysis has been used to test various hypotheses regarding judgments. For example, one author has endeavoured to test the proposition that

<sup>20</sup> See above nn 8–13 and accompanying text.

<sup>21</sup> 'Symposium on the Trends in Legal Citations and Scholarship' (1996) 71 *Chicago-Kent Law Review* 743–1013.

<sup>22</sup> William Landes and Richard Posner, 'The Influence of Economics on Law: A Quantitative Study' (1993) 36 *Journal of Law and Economics* 385.

<sup>23</sup> See, eg, Shapiro, 'The Most Cited Law Review Articles', above n 5; Landes and Posner, 'Heavily Cited Articles in Law', above n 5.

<sup>24</sup> Fred Shapiro, 'The Most-Cited Law Review Articles Revisited' (1996) 71 *Chicago-Kent Law Review* 751. For an interpretation of these results, see Frances Olsen, 'Affirmative Action: Necessary but not Sufficient' (1996) 71 *Chicago-Kent Law Review* 937.

<sup>25</sup> Shapiro, 'The Most-Cited Law Review Articles Revisited', above n 24, 765.

<sup>26</sup> Charles Johnson, 'Citations to Authority in Supreme Court Opinions' (1985) 7 *Law and Policy* 509; Peter Harris, 'Ecology and Culture in the Communication of Precedent Among State Supreme Courts, 1870–1970' (1985) 19 *Law and Society Review* 449; Peter McCormick and Tammy Praskach, 'Judicial Citation, the Supreme Court of Canada, and the Lower Courts: A Statistical Overview and the Influence of Manitoba' (1996) 24 *Manitoba Law Journal* 335; Peter McCormick, 'What Supreme Court Cases Does the Supreme Court Cite? Follow-up Citations on the Supreme Court of Canada, 1989–1993' (1996) 7 *Supreme Court Law Review* 451; Peter McCormick, 'The Supreme Court Cites the Supreme Court: Follow-up Citation on the Supreme Court of Canada, 1989–1993' (1995) 33 *Osgoode Hall Law Journal* 453; Robert Schriek, 'Most-Cited US Courts of Appeals Cases From 1932 Until the Late 1980s' (1991) 83 *Law Library Journal* 317; William Manz, 'The Citation Practices of the New York Court of Appeals, 1850–1993' (1995) 43 *Buffalo Law Review* 121; Richard Mann, 'The North Carolina Supreme Court 1977: A Statistical Analysis' (1979) 15 *Wake Forest Law Review* 39; John Merryman, 'Toward a Theory of Citations: An Empirical Study of the Citation Practice of the California Supreme Court in 1950, 1960 and 1970' (1977) 50 *Southern California Law Review* 381; Lawrence Friedman *et al.*, 'State Supreme Courts: A Century of Style and Citation' (1981) 33 *Stanford Law Review* 773.

<sup>27</sup> Paul Von Nessen, 'The Use of American Precedents by the High Court of Australia, 1901–1987' (1992) 14 *Adelaide Law Review* 181.

a court will employ more citations in its judgments the more difficult and uncertain the decision it has to make.<sup>28</sup>

There is another category of articles which examines the citation by courts of secondary sources, that is, sources other than statutes and other judgments.<sup>29</sup> Some of these articles have examined the citation by courts of law journals,<sup>30</sup> publications by academics,<sup>31</sup> and articles written by law students in law journals.<sup>32</sup> Other articles have examined the citation patterns of individual judges,<sup>33</sup> while still others have taken a particularly important treatise (such as a commentary on the United States Constitution) to see how it has been cited by, for example, the United States Supreme Court, with a view to tracing the collective thinking of the Justices on the treatise.<sup>34</sup>

### B Studies Measuring the Influence of Law Journals

There have been several previous studies employing citation analysis to measure the influence of law journals. Four of these have been undertaken in relation to law journals published in the United States and there is also a study of Australian journals. In 1976 Olavi Maru published a citation analysis of 278 United States law journals.<sup>35</sup> He selected 1972 as the publication year and then analysed all footnotes in every article published in the 278 journals for that year and determined how many times any of the same 278 journals were cited. Maru found that the five most cited journals were:

- *Harvard Law Review*;
- *Yale Law Journal*;
- *Columbia Law Review*;
- *University of Pennsylvania Law Review*; and
- *Michigan Law Review*.

He commented upon the influence of the most cited journals. For example, the *Harvard Law Review* accounted for almost 10 per cent of all citations and the

<sup>28</sup> Peter Harris, 'Difficult Cases and the Display of Authority' (1985) 1 *Journal of Law, Economics, and Organization* 209. Indications employed by the author to identify decisions that were difficult and uncertain included a dissenting or concurring opinion, the reversal of the decision from which the case was appealed, the existence of more than two parties, and the involvement of *amici curiae*.

<sup>29</sup> See, eg, Wes Daniels, 'Far Beyond the Law Reports: Secondary Source Citations in United States Supreme Court Opinions October Terms 1900, 1940, and 1978' (1983) 76 *Law Library Journal* 1.

<sup>30</sup> Louis Sirico and Beth Drew, 'The Citing of Law Reviews by the United States Courts of Appeals: An Empirical Analysis' (1991) 45 *University of Miami Law Review* 1051; Louis Sirico and Jeffrey Margulies, 'The Citing of Law Reviews by the Supreme Court: An Empirical Study' (1986) 34 *University of California Los Angeles Law Review* 131.

<sup>31</sup> Vaughan Black and Nicholas Richter, 'Did She Mention My Name? Citation of Academic Authority by the Supreme Court of Canada, 1985-1990' (1993) 16 *Dalhousie Law Journal* 377.

<sup>32</sup> Bert Sloan, 'What Are We Writing For? Student Works as Authority and their Citation by the Federal Bench, 1986-1990' (1992) 61 *George Washington Law Review* 221.

<sup>33</sup> William Manz, 'Cardozo's Use of Authority: An Empirical Study' (1995) 32 *California Western Law Review* 31.

<sup>34</sup> Buckner Melton Jr, 'The Supreme Court and *The Federalist*: A Citation List and Analysis, 1789-1996' (1996-97) 85 *Kentucky Law Journal* 243.

<sup>35</sup> Maru, above n 7.

three most cited law journals accounted for almost 20 per cent of all citations. In order to account for variations in the number of pages each journal published in a particular year, Maru developed what he termed an 'impact factor', which was based on the average number of pages each journal published over a ten year period. This enabled him to develop a ranking of United States law journals based on the number of citations per page of text published by the law journals. The five most cited United States law journals ranked by 'impact factor' were:

- *Harvard Law Review*;
- *Yale Law Journal*;
- *Columbia Law Review*;
- *University of Chicago Law Review*; and
- *University of Pennsylvania Law Review*.

In 1986, Professor Richard Mann published a citation analysis of 161 United States law journals.<sup>36</sup> Professor Mann chose the publication year 1978–79. He then examined the number of citations (in both law journals and judicial decisions) appearing in *Shepard's Law Review Citations* for 1984 that referred to articles published during 1978–79 in any of the 161 law journals. Based upon the total number of law journal citations, the most cited journals were:

- *Harvard Law Review*;
- *Columbia Law Review*;
- *Yale Law Journal*;
- *University of Pennsylvania Law Review*; and
- *Hastings Law Journal*.

Like Maru, Mann developed a citation count to take into account the potential bias in favour of journals which publish many more pages than other journals and therefore have more citable material. When this was undertaken, the five most cited journals were:

- *Arbitration Journal*;
- *Columbia Law Review*;
- *Judicature*;
- *Harvard Law Review*; and
- *University of Chicago Law Review*.

A limitation of Mann's study is that he relied on *Shepard's Law Review Citations*, which does not include citations for a significant number of law journals.

More recent citation analysis studies, also using *Shepard's Law Review Citations*, were undertaken by Scott Finet<sup>37</sup> and by the Executive Board of the *Chicago-Kent Law Review*.<sup>38</sup> The more detailed of these studies was that

<sup>36</sup> Richard Mann, 'The Use of Legal Periodicals by Courts and Journals' (1986) 26 *Jurimetrics Journal* 400.

<sup>37</sup> Scott Finet, 'The Most Frequently Cited Law Reviews and Legal Periodicals' (1990) 9 *Legal Reference Services Quarterly* 227.

<sup>38</sup> Executive Board, 'Chicago-Kent Law Review Faculty Scholarship Survey' (1989) 65 *Chicago-Kent Law Review* 195. For a subsequent study, see Colleen Cullen and Randall Kalberg, 'Faculty Scholarship Survey — Chicago-Kent Law Review' (1995) 70 *Chicago-Kent Law Review* 1445.

published in the *Chicago-Kent Law Review*. The editors of the *Chicago-Kent Law Review* selected three publication years (1980–81, 1981–82 and 1982–83) and then analysed the 1986 volume of *Shepard's Law Review Citations* to determine the number of citations to articles published during the three sample years in any of 142 general interest law journals affiliated with United States law schools. Using this methodology, the five most cited law journals were:

- *Harvard Law Review*;
- *Yale Law Journal*;
- *Stanford Law Review*;
- *Columbia Law Review*; and
- *California Law Review*.

The authors of this article did not endeavour to provide a calculation that took into account the bias in favour of journals that publish more pages than other journals.

The most recent citation analysis of United States law journals was undertaken by Professor Leonard.<sup>39</sup> He examined the citations in a 'randomly selected' group of 211 articles published in academic law journals in 1986. His survey resulted in a total of 2079 citations to 219 individual law journals. The five most cited law journals were:

- *Harvard Law Review*;
- *Yale Law Journal*;
- *Columbia Law Review*;
- *Stanford Law Review*; and
- *University of Pennsylvania Law Review*.

Like Maru, he developed an 'impact factor' to adjust for disparity in page length among law journals. The five most cited journals, adjusted for the 'impact factor' were:

- *Harvard Law Review*;
- *Journal of Legal Studies*;
- *Yale Law Journal*;
- *Columbia Law Review*; and
- *University of Chicago Law Review*.

A finding that is common to all of these studies is the significant influence that is exerted by a small number of law journals. For example, Leonard found that the five most cited law journals accounted for 26 per cent of all citations in his study. Conversely, he found that the majority of academic law journals published in the United States are infrequently cited. In the year of his study (1986), Leonard identified 314 law journals published or affiliated with United States law schools. His study of 211 articles published in 1986 found citations to 219 of these law journals, meaning that another 95 United States law journals received no citations.

<sup>39</sup> Leonard, above n 16.

Is the finding of the significant influence exerted by a small number of law journals in the United States replicated in Australia? The first detailed citation analysis of Australian law journals was undertaken by Warren.<sup>40</sup> Warren identified the Australian law journals indexed in the Index to Legal Periodicals and Books. He then examined all articles published in these 32 Australian law journals during the year 1995. The 10 most cited law journals were:

- *Australian Law Journal*;
- *Law Quarterly Review*;
- *Sydney Law Review*;
- *Melbourne University Law Review*;
- *Company and Securities Law Journal*;
- *Modern Law Review*;
- *University of New South Wales Law Journal*;
- *Harvard Law Review*;
- *Journal of Contract Law*; and
- *Federal Law Review*.

Warren concluded that 'in Australia as elsewhere, a small number of law serials exert a significant influence'.<sup>41</sup> In his article, Warren identified the 100 most frequently cited Australian law journals and found that the 10 most cited law journals accounted for approximately 21 per cent of all citations.

The Warren study provides a valuable insight into the citation patterns of Australian law journals. However, it does have several limitations. First, the study does not attempt to adjust for the fact that there is an inherent bias towards journals that publish more pages than other journals. In the words of one commentator, 'a journal with more citable material (more pages of text) may be expected to be cited more often than one with less citable material.'<sup>42</sup> This is an important issue because, for example, in any given year the *Australian Law Journal* will publish almost 1,000 pages of text. However, some university law journals will only publish one-fifth of that amount in any given year. Consequently, it can immediately be seen that, unless there is an adjustment for disparity in pagination among law journals, there is an inherent bias towards journals that publish more pages.

The second limitation of the Warren study is that it suffers a bias towards older journals. This is because he examines all citations in articles published in his sample of Australian law journals during the year 1995. Regardless of whether the citation is to an article published one or two years prior to 1995 or is to an article published 50 years prior to 1995, it is included in his study. While this information is useful in terms of identifying the pattern of citations over time, it suffers from an inherent bias towards older journals since older journals, by reason of the greater amounts of material they have published, will generally be

<sup>40</sup> Dennis Warren, 'Australian Law Journals: An Analysis of Citation Patterns' (1996) 27 *Australian Academic and Research Libraries* 261.

<sup>41</sup> *Ibid* 267.

<sup>42</sup> Maru, above n 7, 240.



favoured by this methodology. For this reason, a number of the more recent citation analysis studies of United States law journals selected one or more specified years for study. For example, it will be recalled that Professor Richard Mann examined citations appearing in the 1984 issue of *Shepard's Law Review Citations* that referred to articles published during the year 1978–79 in any of 161 law journals. He chose the year 1978–79 on the basis that it avoided a bias towards older journals and therefore 'all titles have had an equal amount of time to attract citations'.<sup>43</sup>

A third limitation of the Warren study is that it does not exclude self-citations. A self-citation is a citation of an article published in the same journal as the article being surveyed. Self-citation is not expected to be a major problem, although a bias can be created where there is excessive repetition of citations in symposium issues of law journals.<sup>44</sup>

The study that we have undertaken and which is outlined in the following section was designed to overcome these limitations.

#### IV DATA AND METHODOLOGY

We selected for analysis 13 law journals affiliated with Australian law schools. The list of journals analysed does not include all law journals affiliated with Australian law schools. The reason was that, in order to be included, the journal had to have been published at least since 1990. We also selected the *Australian Law Journal* for analysis. The 14 law journals were:

- *Adelaide Law Review*;
- *Australian Journal of Law and Society*;
- *Australian Law Journal*;
- *Bond Law Review*;
- *Federal Law Review*;
- *Law in Context*;
- *Melbourne University Law Review*;
- *Monash University Law Review*;
- *Queensland University of Technology Law Journal*;
- *Sydney Law Review*;
- *University of New South Wales Law Journal*;
- *University of Queensland Law Journal*;
- *University of Tasmania Law Review*; and
- *University of Western Australia Law Review*.

We then examined every article, note and book review published in these 14 law journals during the years 1994 and 1995. Our review of the 14 law journals for 1994 and 1995 found that these journals contained 404 articles, 85 notes and 128 book reviews. A database was developed which contained citations in the 1994 and 1995 articles, notes and book reviews to any journal articles published

<sup>43</sup> Mann, above n 36, 401, fn 5.

<sup>44</sup> Executive Board, above n 38, 203.

in the four years 1990–93. We specifically limited our analysis to citations to journal articles published in those four years in order to avoid the bias towards older journals that would inevitably occur if we included all citations, regardless of the year in which the cited journal article was published. The need to avoid such bias towards older journals was discussed in the preceding section.

In order to adjust for the different number of pages published by law journals, the total number of citations was standardised to 1,000 pages of text (as undertaken by Professor Mann in his study) by dividing the total number of citations to a particular journal by the actual number of pages of text of that journal for the four years 1990–93, and then multiplying that quotient by 1,000. In a small number of cases, citations were made to journals which had commenced publication since 1990. In these cases, it was possible to standardise the citation counts to 1,000 pages of text by dividing the total number of citations to each of these journals by the actual number of pages of text of the journal (where this was less than four years), and then multiplying that quotient by 1,000.

For the 14 law journals surveyed, we prepared two separate databases: one that included self-citations and one that excluded self-citations.

## V RESULTS

The results of our citation analysis are contained in Tables 1 and 2.<sup>45</sup> Table 1 provides an analysis of citations by category. The 14 journals surveyed for 1994 and 1995 resulted in citations to another 34 Australian law journals in addition to the 14 journals surveyed. The 14 journals surveyed also resulted in citations to 84 overseas law journals and 12 non-law journals. The 14 Australian law journals surveyed accounted for 21 per cent of the total number of citations in all categories. The 34 other Australian law journals accounted for 25 per cent of all citations, while the 84 overseas law journals accounted for 48 per cent. Finally, the 12 non-law journals accounted for the remaining 6 per cent.

Table 2 identifies the 20 most cited journals when all categories of journals (Australian, overseas and non-legal) are included.<sup>46</sup> The five most cited journals are, in order:

- *Australian Law Journal*;
- *Public Law Review*;
- *University of New South Wales Law Journal*;
- *Melbourne University Law Review*; and
- *Sydney Law Review*.

However, once an adjustment is made to account for those journals which publish more pages in a given year (and consequently have more citable mate-

<sup>45</sup> Tables 1 and 2 are summaries of a more detailed analysis which is available from the authors in which we provide statistics on the citations to each of the 144 journals referred to in Table 1. For each of the 144 journals we calculate the average number of citations per volume of the journal and the average number of citations per 1,000 pages of text.

<sup>46</sup> In Table 2, the number of citations for surveyed journals excludes self-citations.

rial), a different rating results. The five most cited journals, per 1,000 pages of text (with a requirement of a minimum of 10 citations each) are, in order:

- *Public Law Review*;
- *Journal of Judicial Administration*;
- *Federal Law Review*;
- *Australian Bar Review*; and
- *University of New South Wales Law Journal*.

Nine of the 10 most cited journals still remain in the list of the 20 most cited journals when citation counts are standardised to 1,000 pages of text. Thirteen of the 20 most cited journals still remain in the list of the 20 most cited journals when citation counts are standardised to 1,000 pages of text.

Table 2 indicates that significant influence is wielded by a small number of journals. It will be recalled from Table 1 that there were citations to a total of 144 journals. Tables 1 and 2 indicate that the five most cited journals out of this total of 144 journals account for 15 per cent of all 1596 citations. The 10 most cited journals account for almost 26 per cent of all citations. The 20 most cited journals account for 41 per cent of all citations. The influence wielded by the most cited journals listed in Table 2 is not as extreme as that found for United States journals in the studies referred to in Part III. For example, Maru found in his study of United States law journals that the *Harvard Law Review* accounted for almost 10 per cent of all citations and the three most cited United States law journals accounted for almost 20 per cent of all citations.<sup>47</sup> In his study, Leonard found that the five most cited United States journals accounted for 26 per cent of all citations.<sup>48</sup>

Table 2 also provides a comparison of the influence of overseas law journals and Australian law journals. Of the 20 most cited law journals, 12 are published in Australia, five in the United States and three in England. When the citation counts are standardised to 1,000 pages of text, there is a significant change. Eighteen of the 20 most cited journals are published in Australia, two are published in England and none are published in the United States.<sup>49</sup> None of the non-law journals had sufficient citations to be included in Table 2. However, it is useful to indicate the titles of the non-law journals that were cited in the 14 journals we surveyed. The five most cited non-law journals were:

- *Medical Journal of Australia* (19 citations);
- *Journal of Church and State* (12 citations);
- *Australian Journal of Political Science* (11 citations);
- *Legislative Studies* (nine citations); and
- *Journal of the American Medical Association* (nine citations).

When citation counts were standardised to 1,000 pages of text, the most cited non-law journals were, in order:

<sup>47</sup> Maru, above n 7, 240.

<sup>48</sup> Leonard, above n 16, 191.

<sup>49</sup> This is a reflection of the substantial number of pages of text published each year by the major United States law journals.

- *Legislative Studies*;
- *Australian Journal of Political Science*;
- *Constitutional Commentary*;
- *Arena Journal*; and
- *Journal of Church and State*.

## VI DISCUSSION OF RESULTS

We stated in the introduction that one of the objectives of our study was to provide an indication of where legal academics obtain ideas for their research. The results indicate a number of notable trends. First, although we surveyed 14 law journals, the articles in these 14 journals had citations to a total of 144 journals. Consequently, a conclusion that can be drawn is that the authors of these articles are looking to a broad range of journals for ideas, including interdisciplinary journals. In many respects, this is an unsurprising result given that law is increasingly seen as having significant links with other disciplines. As an indication, it is possible to point to a number of 'law and' movements such as law and economics, law and sociology, law and anthropology, and law and literature.<sup>50</sup>

Second, we have examined the influence of overseas law journals. These journals accounted for 54 per cent of all citations. This indicates that Australian legal scholars, despite being able to draw upon the writings contained in a large number of Australian law journals, have a strong propensity to look internationally for ideas. Third, we found that only six per cent of all citations are to non-law journals. However, it would be erroneous to conclude that this reflects a lack of interdisciplinary scholarship. Rather, it is clear from the overseas law journals which were cited, that many of these can actually be regarded as interdisciplinary in nature. For example, they include medical law journals, business law journals, law and economics journals, and journals of law and sociology.

One of the most interesting results of the study is the significant influence wielded by a small number of Australian law journals. Of the 144 journals that were cited, the 10 most cited journals account for almost 26 per cent of all citations. In addition, while 54 per cent of all citations were to overseas law journals, the most cited journals were Australian. The five most cited journals are all published in Australia. Seven of the 10 most cited journals are published in Australia. This influence of Australian law journals is even more apparent when an adjustment is made to standardise the citation counts to 1,000 pages of text. After this adjustment, the 13 most cited journals are all published in Australia. Eighteen of the 20 most cited journals are published in Australia.

Are there any reasons which might account for the significant influence wielded by a small number of law journals? It is only possible to speculate. One

<sup>50</sup> On the development of interdisciplinary legal scholarship, see generally Martha Minow, 'Law Turning Outward' (1987) 73 *Telos* 79; Charles Collier, 'The Use and Abuse of Humanistic Theory in Law: Re-examining the Assumptions of Interdisciplinary Legal Scholarship' (1991) 41 *Duke Law Journal* 191; Richard Posner, 'The Decline of Law as an Autonomous Discipline: 1962-1987' (1987) 100 *Harvard Law Review* 761.

possible answer is that the more influential journals are more readily available and therefore more easily cited. In an era of electronic communication and wide availability of inter-library loans, this seems an unlikely explanation. Another possible explanation is that the refereeing processes at the more influential journals are particularly rigorous, with the result that particularly influential articles are published in these journals. Again, this seems to be an unlikely explanation. University law journals typically use academics to review articles submitted for publication. Some of these academics will act as referees for a number of journals, including university law journals and specialist law journals. Where this occurs, it is difficult to argue that, as a general rule, the refereeing process is necessarily more rigorous at some journals than at others. In addition, the *Australian Law Journal*, which is one of the 14 journals we surveyed and which can be classified as one of the more influential journals, does not have a formal independent refereeing process. Rather, the editor of the Journal (currently a Justice of the New South Wales Supreme Court) typically decides whether a submitted article is published.

Another possible explanation of the fact that some journals are more influential than others is the age of these journals. In other words, they have had more years to become established and well-known.<sup>51</sup> While this may be the case with some of the more influential journals, it cannot provide a complete answer. This is because a number of the more influential journals have not been in existence for a significant number of years. For example, the *Public Law Review* (the most cited law journal when citation counts are standardised to 1,000 pages of text) commenced publication in 1990. The *Journal of Judicial Administration*, the second most cited journal using the same criterion, only commenced publication in 1991. One further explanation is that authors who have written articles which are particularly influential may generally want their articles to be published in journals which they believe to be influential. Each author has his or her own view regarding which journals are more influential than others. It may be that the results of our study coincide to a reasonable degree with this ranking by academics.

The final aspect of our results warranting discussion is the influence of what might be termed specialist law journals. These are journals specialising in particular areas of law such as public law, corporate law, criminal law, tort law, contract law, taxation law and many other areas. We have recently seen in Australia a significant increase in the number of these journals. For example, there are two Australian journals in each of the areas of tort law, corporate law and trade practices law. There is no doubt that these specialised journals are becoming increasingly influential. Of the 20 most cited journals, four can be regarded as specialist journals. When citation counts are standardised to 1,000 pages of text, specialist journals wield even more influence. Eight of the 20 most cited journals are specialist journals. The development of specialist journals has

<sup>51</sup> For discussion of this point in the context of social science journals, see James Christensen and Lee Sigelman, 'Accrediting Knowledge: Journal Stature and Citation Impact in Social Science' (1985) 66 *Social Science Quarterly* 964.

provided increased avenues for publication. At the same time, a number of these specialist journals have proved to be very influential in the relatively short period of time since they commenced publication. Indeed, some of them have proved to be much more influential than a number of university law journals.

This raises an interesting question. Will specialist law journals continue to expand their influence at the expense of university law journals? Specialist law journals have the advantage of a readership consisting of not only academics with an interest in the subject area of the specialist journal, but also specialist practitioners who may not read university law journals. For many academics, it is important to have one's scholarship read and considered by as broad a range of people as possible. Publication in some specialist law journals may offer a broader range of readers than publication in some university law journals. However, even if an author is interested in communicating his or her published ideas only to academics, then this objective may best be achieved by publication in a specialist law journal. For example, administrative law academics may be more aware of articles published in the *Public Law Review* than articles dealing with administrative law published in some of the many university law journals published in Australia. This is particularly the case if some of the newer university law journals are not indexed in professional citation indexes and are therefore less readily accessible.

What else might explain the increasing influence of specialist law journals? An advantage of publishing in such journals is that they allow communication of ideas to a readership which shares an interest in the area of law being examined in the article. It might be possible to communicate ideas in a more succinct form when publishing in specialist law journals because authors may assume that the readers are familiar with a number of concepts underpinning the area of law being analysed in the article. It may not be possible to do this with university law journals. Another possible explanation is changes in criteria for promotion and granting of tenure in universities. A number of years ago it would have been the case that publication in certain university law journals was important or perhaps necessary for promotion and tenure. As a general rule, this is no longer the case. Publication in specialist journals is well regarded for the purposes of tenure and promotion, although this may be subject to the specialist journal having a formal refereeing process. Consequently, as the number of specialist journals has increased, incentives to publish in these journals have also increased because publication in these journals has also become a means of academic advancement.

Prior to concluding, it is important to note some of the limitations of our study. We have talked in terms of the influence of law journals and, in particular, the extent to which the authors of articles in the journals we surveyed looked to particular journals as a source of ideas. When an academic researches and writes an article, journals are only one influence. An academic may obtain ideas from books, judgments of courts, the media and conversations with colleagues. At the same time, when we refer to journals being influential, we have examined influence solely by citations. While citation analysis is generally regarded as a useful measure of the influence of journals, the influence of a journal cannot be

measured solely by citations.<sup>52</sup> Journals have a number of uses and may be influential in ways other than as a possible source of ideas for academics. For example, particular articles in journals may be used by practitioners or law reform bodies or they may be used for teaching purposes.

Finally, although we have only considered citations in law journals, at some stage it would be useful to extend this study by undertaking a citation analysis of law books, because they form a significant proportion of legal publishing. Comparing books and journals as sources of influence raises a number of interesting and important questions. Is more theoretical work in law published in journals rather than books? Because many law books have as their objective a detailed analysis of a specific area of law it may be that more theoretical work in law is published in law journals. Is the same true of interdisciplinary scholarship? To what extent do different audiences for books (students, academics or practitioners) determine the type of publications that are cited in books? To what extent does the need to satisfy the commercial imperatives of publishing companies play a role in determining the content of books? It may be that citation analysis can provide some of the answers to these questions.

## VII CONCLUSION

This article has quantified the influence of law journals by using citation analysis. Although citation analysis is not without its limitations, it has been used in the science and social science disciplines as a measure of the influence of journals. Citation analysis has also been widely used in law. Several of the more important findings of this study should be reiterated. First, because the articles in the 14 journals surveyed had citations to 144 journals, we conclude that the authors of these articles look to a broad range of journals for ideas. Second, significant influence is wielded by Australian law journals when compared to overseas law journals. Third, a small number of law journals exercise significant influence. We have seen that of the 144 journals that were cited, the 10 most cited journals account for almost 26 per cent of all citations. Fourth, there has been a significant increase in the influence of specialist journals. Possible explanations for these findings were considered. The fifth conclusion is that only six per cent of all citations are to non-law journals. However, as we have seen, it would be erroneous to conclude that this reflects a lack of interdisciplinary scholarship, because there is an increasing number of interdisciplinary law journals. Finally, we have considered the advantages and disadvantages of citation analysis as a method of research.

<sup>52</sup> See the above discussion of citation analysis in Part II, and see also James Lester, 'Evaluating the Evaluators: Accrediting Knowledge and the Ranking of Political Science Journals' (1990) 23 *PS: Political Science and Politics* 445; Charles Thomas, 'The Utility of Citation-Based Quality Assessments' (1987) 15 *Journal of Criminal Justice* 165.

TABLE 1: Citation by Category

| Category  | Number of journals | Number of citations | Percentage of citations | Average citations/<br>volume | Average citations/<br>1000 pages |
|---|--------------------|---------------------|-------------------------|------------------------------|----------------------------------|
| Australian law journals surveyed (excl. self-citations) | 14                 | 335                 | 21                      | 5.98                         | 15.30                            |
| Other Australian law journals                           | 34                 | 398                 | 25                      | 3.47                         | 11.58                            |
| Overseas law journals                                   | 84                 | 763                 | 48                      | 2.29                         | 2.87                             |
| Non-law journals  | 12                 | 100                 | 6                       | 2.14                         | 4.18                             |
| <b>Total</b>  | 144                | 1596                | 100                     | 3.47<br>(mean)               | 8.48<br>(mean)                   |



TABLE 2: 20 Most Cited Journals — All Categories

| Rank | Journal   | Number of citations | Adjusted rank | Journal   | Average citations/ 1000 pages* |
|------|---|---------------------|---------------|---|--------------------------------|
| 1    | <i>Australian Law Journal</i>                     | 63                  | 1             | <i>Public Law Review</i>                          | 46.36                          |
| 2    | <i>Public Law Review</i>                          | 58                  | 2             | <i>Journal of Judicial Administration</i>         | 30.17                          |
| 3    | <i>University of New South Wales Law Journal</i>  | 44                  | 3             | <i>Federal Law Review</i>                         | 27.59                          |
| 4    | <i>Melbourne University Law Review</i>            | 39                  | 4             | <i>Australian Bar Review</i>                      | 22.12                          |
| 5    | <i>Sydney Law Review</i>                          | 37                  | 5             | <i>University of New South Wales Law Journal</i>  | 21.98                          |
| 6    | <i>Law Quarterly Review</i>                       | 35                  | 6             | <i>Melbourne University Law Review</i>            | 20.62                          |
| 7    | <i>University of Western Australia Law Review</i> | 35                  | 7             | <i>Monash University Law Review</i>               | 20.43                          |
| 8    | <i>Public Law</i>                                 | 34                  | 8             | <i>Australian Law Journal</i>                     | 18.42                          |
| 9    | <i>Michigan Law Review</i>                        | 32                  | 9             | <i>University of Tasmania Law Journal</i>         | 17.66                          |
| 10   | <i>Company and Securities Law Journal</i>         | 31                  | 10            | <i>Sydney Law Review</i>                          | 17.61                          |
| 11   | <i>Federal Law Review</i>                         | 29                  | 11            | <i>University of Western Australia Law Review</i> | 17.54                          |
| 12   | <i>Yale Law Journal</i>                           | 29                  | 12            | <i>Company and Securities Law Journal</i>         | 16.77                          |
| 13   | <i>Monash University Law Review</i>               | 27                  | 13            | <i>Alternative Law Journal</i>                    | 16.52                          |
| 14   | <i>Modern Law Review</i>                          | 26                  | 14            | <i>Public Law</i>                                 | 12.97                          |
| 15   | <i>Australian Bar Review</i>                      | 25                  | 15            | <i>Law Quarterly Review</i>                       | 12.58                          |
| 16   | <i>Law Institute Journal</i>                      | 24                  | 16            | <i>Australian Journal of Family Law</i>           | 12.36                          |
| 17   | <i>Columbia Law Review</i>                        | 23                  | 17            | <i>Law in Context</i>                             | 11.41                          |
| 18   | <i>Harvard Law Review</i>                         | 23                  | 18            | <i>Australian Business Law Review</i>             | 11.23                          |
| 19   | <i>Stanford Law Review</i>                        | 22                  | 19            | <i>Adelaide Law Review</i>                        | 9.13                           |
| 20   | <i>Australian Business Law Review</i>             | 22                  | 20            | <i>Criminal Law Journal</i>                       | 8.21                           |

\* minimum of 10 citations