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Measuring the impact of accounting journals using *Google Scholar* and the *g*-index

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ABSTRACT

The UK's proposed Research Excellence Framework promotes a move towards citation analysis for assessing research performance. However, for business disciplines, journal rankings are likely to remain an important aid in evaluating research quality. The accounting literature includes many journal rankings and citation studies, however there has been little coverage of recent advances in these areas. This study explores approaches to assessing the impact of accounting journals with a focus on quantitative measures as a complement to peer-review-based evaluation. New data sources and techniques for citation studies are reviewed, and the *g*-index is selected for further analysis. The *g*-index was developed by Professor Leo Egghe in 2006 as an improvement on the *h*-index. Like the *h*-index, the *g*-index represents a relationship between papers published and the level of citations they receive, but the *g*-index is more sensitive to highly cited paper. To apply the *g*-index to accounting journals, the study first combines eight published journals rankings to produce a list of 34 highly-regarded titles. Citation data are then gathered from *Google Scholar* and used to calculate *g*-index scores as the basis of a new ranking. *Google Scholar* is found to have broader coverage of accounting citations than *Scopus* or the Web of Science databases, but requires cleaning to remove duplicate entries. The use of the *g*-index for ranking journals is found to be a useful innovation in citation analysis, allowing a more robust assessment of the impact of journals.

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1. Background

In many countries, journal rankings are used to assess research performance and, therefore, can influence career progression and funding for universities. As a consequence, accounting academics are under increasing pressure to publish specifically in 'top tier' journals as identified by ranking studies.² Given this context it is not surprising that journal ranking studies are relatively common in the accounting literature (for example, Ballas & Theoharakis, 2003; Beattie & Goodacre, 2006; Herron & Hall, 2004; Chan & Liano, 2009). Alongside the interest in journal ranking studies, citation data have also been a popular basis for analysing accounting research (for example, Brown & Gardner, 1985; Krogstad & Smith, 2003; Milne, 2001; Wakefield, 2008). Outside the accounting discipline, new tools have emerged for citation analysis over the last five years. The traditional sources of citation data are those provided by Thomson Scientific: The *Science Citation Index (SCI)*, *Social Sciences*

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E-mail addresses: drosenstreich@swin.edu.au (D. Rosenstreich), bwooliscroft@business.otago.ac.nz (B. Wooliscroft).¹ Tel.: +64 3 479 8445; fax: +64 3 479 8172.² For discussion of the 'publish or perish' phenomenon and the pressure to publish in top tier journals see Ballas and Theoharakis (2003), Bonner, Hesford, Van der Stede, and Young (2006), Brinn, Jones, and Pendlebury (2001), Brown, Jones, and Steele (2007), Chow et al. (2006).

Citation Index (SSCI), and *Journal Citation Reports (JCR)*, but alternatives such as *Google Scholar* and *Scopus* are becoming popular (for example see Ball & Tunger, 2006; Gray & Hodgkinson, 2008; Law & Veen, 2008; Neuhaus & Daniel, 2008).

As citation data have become more available, new formulae for analysis have developed. The best known of the new formulae are the *h-index* (Hirsch, 2005) and *g-index* (Egghe, 2006). These new indices have been applied and modified in various studies (for example, Bar-Ilan, 2008; Jacsó, 2008; Jin, Liang, Rousseau, & Egghe, 2007; Ronald & Fred, 2008); and incorporated into online resources including *Scopus*, *SSCI* and Harzing's *Publish or Perish* software (Harzing, 2008). Despite the popularity of the new tools for citation analysis, there has been little discussion within the accounting literature of these alternative sources of citation data or the value of the *h-index* or *g-index* to the discipline.

The original aim of both the *h-index* and *g-index* was to facilitate useful comparisons of the impact or importance of individual researchers (Egghe, 2006; Hirsch, 2005). Evaluation at the level of individuals is useful, however evaluation at the journal level is more practical for large scale assessment of research outputs, such as those carried out by universities and funding agencies. For example, based on the number of submissions to the UK's Research Assessment Exercise (RAE), it is likely that journal rankings were used as a proxy for assessing the quality of articles by some subject panels (Geary, Marriott, & Rowlinson, 2004).³ Journal rankings have several applications beyond research assessment schemes (Baumgartner & Pieters, 2003; Marsh & Hunt, 2006), including providing a basis for selecting journals for consultation or for subscription. Rankings can also be a guide as to the perceived quality of an article when a piece of research is assessed by someone unfamiliar with the topic. Finally, journal rankings also assist authors to identify possible outlets for their research.

From 2013, the UK's RAE will become the Research Excellence Framework (REF) and will include a move towards more quantitative assessment of publications (Higher Education Funding Council for England (HEFCE), 2009). The HEFCE has recommended that some subject panels (for example, medicine and computer science) should assess research outputs through citation data for individual publications, while other panels are to consult with their 'communities' before determining whether they will use article citation data (HEFCE, 2009).

The HEFCE's proposals for the REF currently outline a five year period of evaluation, and suggest that only material published in the year prior to each assessment should be considered too new to have been cited (HEFCE, 2009). Such an approach may lead to problems in using article-level citation data to assess business publications. It is well-known that the number of years from the time research appears in print to when it becomes widely cited can vary across fields of study (Egghe & Rousseau, 2000; Garfield, 2000), and the average age of citations within business articles has been found to be as high as 10–11 years (Nederhof, 2006; Tahai & Meyer, 1999). As a consequence of these time lags, the journal in which an article is published may need to remain a proxy for the quality of accounting research, therefore journal rankings are likely to remain important to the discipline.

There is much debate concerning whether opinion survey or citation analysis is the best method for ranking journals (reviews of the different viewpoints are provided by Jones, 1999; Lowe & Locke, 2005; Wakefield, 2008). Brinn, Jones, and Pendlebury's (2000) large survey of accounting academics showed overwhelmingly that peer-review approaches are considered to be better measures of journal quality than citation analysis. However, despite the preferences of academics, the REF demonstrates clearly that there is a move towards quantitative measures – as Hirsch points out, "In a world of limited resources, such quantification (even if potentially distasteful) is often needed for evaluation and comparison purposes" (2005, p. 1). Given this context, it is in the accounting discipline's interests to explore new approaches to quantitative assessment of research outputs.

The purpose of this study is to review the strengths and limitations of different data sources and approaches used for citation analysis, and to apply these tools to accounting journals. Eight journal rankings are combined to produce a list of highly-regarded accounting titles. Citation data are gathered for each journal from *Google Scholar*, and *g-index* scores are calculated to reveal which accounting journals have the greatest impact. This application of the *g-index* is an innovation in citation analysis and presents an interesting advance in the quantitative assessment of research impact.

The structure of our paper is to first provide a brief overview of citation analysis, including a review of the Impact Factor, *h-index* and *g-index* formulae. We follow this with a comparison of the three major data sources for accounting citations: *Web of Science*, *Scopus* and *Google Scholar*. The fourth and fifth sections of the paper present the methodology and results from our main empirical work. Finally, we discuss the implications of our findings, and present some concluding remarks and suggestions for future research.

2. Citation analysis

Supporters of citation-based journal rankings suggest that citation analysis is the most objective way to measure the impact, importance or peer recognition of researchers and/or their research outputs (for example, see Beattie & Ryan, 1989; Brown & Gardner, 1985; Wakefield, 2008). However, critics raise many concerns related to citation analysis – some of the common criticisms are summarised in Table 1.

It is important to note that, within the accounting discipline, some of the criticisms of citation analysis are in fact criticisms of *SSCI*'s poor coverage of accounting journals or are criticisms of specific analytical approaches (for example, Ballas & Theoharakis, 2003; Brown, 2003; Lowe & Locke, 2005) rather than criticisms of citation analysis *per se*. As noted earlier,

³ At a meeting of Professors in Accounting and Finance in Manchester, September 2009, members of the 2008 RAE Accounting and Finance sub-panel stated that submitted articles were assessed on their merits rather than by means of proxies such as journal rankings. This was confirmed by Ashton et al. (2009) in a paper on the 2008 Research Assessment Exercise cited in the current issue of the *British Accounting Review*.

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