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Grading Journals in Economics: The ABCs of the *ABDC*

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Abstract:

Many institutions and governments grade academic journals for the evaluation of research. In this paper we implement a multi-bibliometric methodology for the evaluation of such a list of journal grades. We examine the grades assigned by the Australian Business Deans Council (*ABDC*) for over 750 journals in the fields of economics and statistics.

First, we generate up to 48 bibliometric based grades for each journal based on the grade distribution implied by the *ABDC*. Second, we categorise the bibliometrics employing a cluster analysis of an interrater agreement statistic. Third, we present a visualisation of the consistency of the grading by journal. Finally, we list those journals where the majority of the matched bibliometrics indicate a higher or lower grade than their *ABDC* grade.

Key words: Research productivity measurement, *Academic Journal Quality Guide,* journal lists, multi-bibliometric analysis, cluster analysis, grade distributions, heat-maps.

JEL Codes: C49, O30, Y10

Introduction

Grading of journals has been proposed for the evaluation of research production in several countries where a significant proportion of academic institutions are state funded. Dobra and Tombazos (2019) reference a number of these schemes from: the UK in 1986, Belgium in 1990, Italy and the Netherlands 2003, Japan in 2004, and Norway and Denmark in 2006. Australia generated such a list

as part of the 2010 *Excellence in Research for Australia* (*ERA*) which originally classified over 20,000 journals in 173 fields of research.[1] In this paper we employ a multi-bibliometric approach to determine the consistency of a journal grading scheme generated by the Australian Business Deans Council (*ABDC*) for journals in economics and statistics that was based in part on the ERA list.

The *ABDC* grade over 750 journals in the Australian Bureau of Statistics defined Fields of Research (*FoR*) categories of Statistics, Economic Theory, Applied Economics, Econometrics and Other Economics.[2,3] Each journal is given a grade according to a four-interval scale defined as: A*, A, B, and C. These scales have been proposed to be used to evaluate research within and across institutions and have gone through a series of public discussions as documented at the *ABDC* web-site.

The *ABDC* rankings are widely employed for the measurement of research output. Current advertisements for academic positions in Australia explicitly require that applicants demonstrate a record of consistent publication in A* journals as defined by the *ABDC* gradings with a reference to the web-address of the list.[4] This would indicate that the *ABDC* list is used as an indicator of potential future research productivity by newly minted PhDs and economists with limited opportunity to develop a citation history (i.e. Laband 2013). However, Card and DellaVigna (2013) found that top journals in economics are publishing 25% fewer papers and have cut their acceptance rate by almost 2/3 from 1970 to 2013, a finding that implies that job applicants will find it harder to publish in the top journals and assessing their research will also require an evaluation of lower ranked journals.

Although the list is Australian, it is employed as a resource for evaluation of publication records for economists employed in other countries. On-line searches reveal several universities' web-sites in the US as well as other countries explicitly reference the *ABDC* list grades as a criterion for the

[1] The current ERA list of journals can be found at: https://www.arc.gov.au/excellence-research-australia/era-2018-journal-list. However, this list no longer includes grades for the journals and is only used to allocate publications in these journals to the Field of Research code. A site to look up journals based on the historic versions of the ARC list is maintained by Associate Professor John Lamp of Deakin University, Geelong Australian and can be accessed at http://lamp.infosys.deakin.edu.au/era/?page=jmain . The 2010 list is in: http://content.webarchive.nla.gov.au/gov/wayback/20110217195308/http://www.arc.gov.au/zip/ERA2010_tech_pack.zip .

[2] The 2016 list that can be found at https://abdc.edu.au/wp-content/plugins/abdc-manager/inc/scripts/journals.php

[3] The Fields of Research (*FoR*) can be found at http://www.abs.gov.au/ausstats/abs@.nsf/0/4AE1B46AE2048A28CA25741800044242?opendocument .

[4] Job Openings for Economists JOE ID Number:2018-01_111460158 (Monash University).

evaluation of research for promotion and tenure decisions. [5] Liebowitz (2014) conducted a survey of 46 US economics department heads' promotions criteria. He reports that when considering applicants for promotion heads of lower ranked departments placed double the importance on where the applicant's research appeared than on the reading of their research as compared to their counterparts in higher ranked institutions who placed almost equal emphasis on reading the applicants work and where the papers were published. This implies that a list such as the *ABDC* is more likely to be employed where limited resources for evaluation necessitates the use of lower cost methods of research quality assessment. In addition, the more extensive coverage of journals in the *ABDC* list than in most of the alternative journal ranking lists means that it would cover more of the publishing outlets available to young researchers and for more specialized research.

To gauge the potential influence of lists such as the *ABDC* grading in countries other than Australia and New Zealand, we compiled an indication of the number of organisations that may employ journal lists for evaluation purposes. For example, *RePEc*'s list of *Economics Departments, Institutes and Research Centers in the World* (*EDIRC*) has 14,451 entities.[6] We find that approximately 25% of these listed organisations are located in countries outside the European Union (including the UK), the US, Canada and Japan (Australia and New Zealand excluded) where we may assume there are limited resources for research evaluation. However, even within the US there would be a significant number of organisations with limited evaluation resources and thus be prone to use such lists as the *ABDC* grades. Scott and Siegfried's (2019) survey of US economics departments reports that of the 6,235 members of the 299 departments that returned surveys, 11% are employed in institutions that offer only MAs and 31% are employed by institutions that offer only BAs. This would imply that these departments are likely to be in the lower ranked group as those referred to by Liebowitz (2014). The demand for less costly methods of research assessment by these institutions implies that a significant proportion of the world's research active economists are employed by institutions that may employ the *ABDC* journal gradings or one similar for the evaluation of their research. [7]

The ranking of journals in economics and econometrics has been the subject of many articles both in the economics and bibliometrics literature. Most of these papers propose alternative rankings that partially cover journals from some countries, are not widely available, and not maintained. For example, Chang et al (2011) propose the advantages of 12 different bibliometrics for a set of the most highly cited journals in economics, management, business and business-finance. Most recently,

[5] As of March 1, 2019 institutions in the US that make reference to the *ABDC* list are: Towson University in Baltimore Md, Sacramento State University, Florida Atlantic University, San Francisco State University, Worcester Polytechnic Institute in Boston MA, Stetson University in DeLand FL and Middle Tennessee State University in Murfreesboro TN. In India Pondicherry and Vellore Institute of Technology are two examples.

[6] These were downloaded on September 1, 2019 from: https://edirc.repec.org/ .

[7] Bodenhorn (2003) found that the research output of the faculty of US Liberal Arts Colleges can be quite extensive and thus would require some means for the measurement of productivity.

Bornmann et al (2018) provide an overview of 45 previous studies that rank economics journals. They propose that the ranking of economics journals be performed using a composite bibliometric based on the principal component analysis of the harmonic mean of 22 bibliometrics to arrive at a single bibliometric. Other methods that have been proposed rank journals based on a matrix of the number of citations "imported" from and "exported" to other journals. For example, Kóczy and Strobel (2010) propose a tournament methodology that ranks journals based on their net export of citations to and from each other. Kóczy and Nichifor (2013) in a related paper, propose a method to use a weighting of citation imports based on the quality of the journal. In most of these studies, the coverage of journals is limited to the top tier of US/UK journals. One exception is a ranking of 1,168 journals in economics that appeared in Combes and Linnemer (2010) although it is based on bibliometrics that were available in 2010. In this paper we examine the *ABDC* grading of journals that covers many of the outlets left out of earlier studies and is regularly updated. We estimate that between 30 to 40 percent of the citations to articles published in the *ABDC* listed journals are to articles published in 576 journals ranked as B and C that are often overlooked in previous studies that only focus on the top 200 to 250 journals.[8]

Unlike many earlier approaches to economics journal rankings, this study does not propose a single ranking, but it employs a multi-bibliometric approach. In this way we attempt to avoid the potential pitfall of using a single bibliometric that may be subject to uncertainty as shown by Stern (2013). We generate alternative journal gradings based on 48 existing and widely available bibliometrics. The bibliometrics employed are designed for the comparison of journals based on citation counts, abstract views and downloads. Our methodology employs a multivariate generalization of Moosa's (2016) univariate buckets and uses interrater comparison statistics to establish the consistency of the *ABDC* grades with the bibliometric ranking alternative. We use the interrater statistics to define a distance matrix which is used in a cluster analysis to establish the relationship between the bibliometrics. We present these results with a series of graphic representations to allow the reader to draw conclusions as to the consistency of the *ABDC* grading. We also identify those journals for which the majority of the bibliometrics would indicate greatest difference in grading.

The paper proceeds as follows: First, we provide a background for the *ABDC* list and the 48 bibliometric measures used. Second, we formalise the analysis employed by Zainuba and Rahal (2015) by defining a measure of interrater agreement to evaluate the *ABDC* grades with respect to alternative journal rankings based on the bibliometrics. Third, we compute this measure for each set of bibliometric grades to determine how well they match the *ABDC* grades. We then compute the interrater agreement between the bibliometric grades in order to cluster them. We also consider an alternative ranking proposed by the UK Chartered Association of Business School's *Academic Journal Quality Guide* (*AJG*)[9] to establish how the *ABDC* compares to this ranking. Finally, we determine the consistency of the *ABDC* with the various bibliometrics that have been proposed and list those journals for which there exists the greatest evidence of over classification and under classification by the *ABDC* ranking when compared to the bibliometric grades.

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[8] Using the average of Scopus CiteScore count of cites in the last 3 years by ABDC grade times the number of journals in the grade or the number of journals matched from the Scopus data.

[9] This list can be located at: https://charteredabs.org/academic-journal-guide-2018/

The *ABDC* List and Journal Quality Bibliometrics.

2.1 The *ABDC* list

The Australian Business Deans Council represents 39 Australian university business schools. The *ABDC* publishes a ranking list of journals in most of the fields under which research is performed in these institutions.[10] The genesis of the *ABDC* list is the now defunct Excellence in Research for Australia (*ERA*) journal rankings list that was discontinued in 2010 due to "… *feedback from Research Evaluation Committees that they relied on their own expert knowledge of the quality of research outlets relevant to their discipline* …" rather than using a ranking list.[11] The then Australian government minister for Science and Research Kim Carr, stated "*that the ERA (Excellence in Research for Australia) could work perfectly well without the rankings and their existence was focussing ill-informed undesirable behaviour in the management of research*" (Rowbotham 2011).

Moosa (2011) examined the ARC gradings in the fields of accounting and finance journals and concluded that when re-grading these journals by citation indices he found many miscategorized journals. Recent studies conducted by Dobra and Tombazos (Tombazos and Dobra 2014, Dobra and Tombazos 2019) investigating the impact of the panel of experts that were involved in the original 2007 *ERA* rankings found that the characteristics of these experts, as defined by the journals in which they published, had a significant influence on the journal rankings they proposed.

The 2016 *ABDC* list examined here, categorises 760 journals in the Australian and New Zealand Standard Research Classification Field of Research (*FoR*) classifications of: Statistics, Economic Theory, Applied Economics, Econometrics and Other Economics. Table 2.1 lists the distribution of the 760 journals by letter designation and *FoR*. Note that categorisation by letters C, B, A and A* is 45.00%, 30.79%, 16.71% and 7.50% respectively. Also note, that the *FoR*s Statistics, Economic Theory, Applied Economics, Econometrics and Other Economics, are represented by 11.05%, 3.95%, 66.45%, 4.47% and 14.08%. From Table 2.1 it can be noted that the proportion of the highest grade (A*) is 7.5% for all the journals considered here. However, the "Econometrics" group of journals is listed with 6 of the 34 journals (17.65%) classified as an A* journal, while of the 107 journals in the "Other Economics" *FoR* none earn an A* rating. Many of the "Other Economics" journals in this category are new, highly specialised or local journals that are not edited in the US or a major European country. This table also indicates that approximately 2/3 of the journals graded are in the "Applied Economics" field of research.

To determine the degree to which these grades that have been proposed are consistent with the bibliometrics for these journals we match the list of *ABDC* graded journals to the corresponding bibliometrics collected from several sources. The next section describes the statistics collected from these ranking lists. In the remainder of this section we describe the sources and the nature of the available measures. The span of possible bibliometrics is quite wide and has spawned numerous studies in this area as reviewed by Waltman (2016).

[10] Copies of the 2016 and the 2019 files can be found on the Mendeley data site Hirschberg (2020). The variation between these files are discussed in Section 5.

[11] From the Australian Research Council website on 30/07/2018 : http://www.arc.gov.au/excellence-research-australia .

	Field of Research (FoR code)					
ABDC grade	***Statistics (0104)***	***Economic Theory (1401)***	***Applied Economics (1402)***	***Econometrics (1403)***	***Other Economics (1499)***	***Total***
C	**24***	**8**	**221**	**14**	**75**	**342**
	3.16**	1.05	29.08	1.84	9.87	45.00
	7.02†	2.34	64.62	4.09	21.93	100.00
	28.57‡	26.67	43.76	41.18	70.09	
B	**26**	**9**	**166**	**6**	**27**	**234**
	3.42	1.18	21.84	0.79	3.55	30.79
	11.11	3.85	70.94	2.56	11.54	100.00
	30.95	30.00	32.87	17.65	25.23	
A	**23**	**9**	**82**	**8**	**5**	**127**
	3.03	1.18	10.79	1.05	0.66	16.71
	18.11	7.09	64.57	6.3	3.94	100.00
	27.38	30.00	16.24	23.53	4.67	
A*	**11**	**4**	**36**	**6**	**0**	**57**
	1.45	0.53	4.74	0.79	0.00	7.50
	19.30	7.02	63.16	10.53	0.00	100.00
	13.10	13.33	7.13	17.65	0.00	
Total	**84**	**30**	**505**	**34**	**107**	**760**
	11.05	3.95	66.45	4.47	14.08	100.00
	-	-	-	-	-	-
	100.00	100.00	100.00	100.00	100.00	

* Number in cell, ** % in cell, † % with the same *ABDC* grade, ‡ % in the same *FoR*.

Table 2.1. The distribution of journals by their *ABDC* grades and Field of Research from the 2016 *ABDC* list.

2.2 The Bibliometrics collected.

The bibliometrics we use are generated by eight different publishing and academic initiatives, they include: the Scopus *CiteScore* bibliometrics [12], the *SCImagoJR* Journal ranks[13], the Clarivate Analytics' *InCites* bibliometrics [14], the *IDEAS/RePEc* citation indices[15], the *LogEc* access measures[16], the latest emerging set of *Altmetrics* measures based on internet activity[17], the Combes and Linnemer (2010) rankings which are an extensive set of measures targeting only economics journals[18] and the bibliometrics generated by *Google Scholar* cites that includes cites in non-traditional publications such as working papers.[19]

To match the bibliometric data to the *ABDC* list we use the titles of the journals and the ISSN numbers for both the electronic and paper versions of the journals. To facilitate the matching of the titles we convert all letters to upper-case and remove special characters from the titles. In addition, once the matching was done we check the matching by comparing all non-matched records for both sets using a generalised distance function based on the Levenshtein (1966) edit distance to measure the differences between two strings.[20] This distance measure attempts to construct the second string from the first by using each character from the first and computes the distance based on a weighting of the number of moves needed. In this case we checked the titles of the closest of the non-matched titles to determine if there was any similarity between the two sets. When a similar title was found we modified the titles compared to make the match.

2.2.1 Scopus CiteScore Measures.

The Scopus ranking statistics are provided under subscription by Elsevier. The primary journal specific bibliometric generated by Scopus is the CiteScore which measures the average number of citations that are recorded for all the papers published in the journals during the previous

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[12] Scopus CiteScore data and details can be downloaded at https://www.scopus.com/sources .

[13] The SCImagoJR data and details can be found at http://www.scimagojr.com/journalrank.php .

[14] The InCites data can be found at https://clarivate.com/products/incites/.

[15] The IDEAS/*RePEc* rankings and details can be found at https://ideas.*RePEc*.org/top/top.journals.all.html .

[16] The LogEc data and details can be found at: https://logec.*RePEc*.org/about.htm .

[17] The Altmetrics are available from https://www.altmetric.com/ .

[18] These can be found at https://www.gate.cnrs.fr/IMG/pdf/cl_ranking_with_econ_correction.pdf

[19] The h5-index and h5-median were found at https://scholar.google.com/citations?view_op=top_venues&hl=en

[20] These comparisons were made using the *compged* function in SAS.

3 years. The CiteScore data for 22,366 titles[21] used here was accessed on April 30, 2018 based on data from May 31, 2017. In addition to the CiteScore that indicates the average number of cites per paper we also recorded the CiteScore Percentage that measures the relative CiteScore for the journal within its field, the total number of cites, the percent of the papers cited at least once, the Source Normalized Impact per Paper (SNIP) which indicates the number of citations received relative to citations expected in the journal's subject field, SCImagoJR Journal Rank (SJR) measures weighted citations received by the journal where the citation weighting depends on the subject field and prestige of the citing journal based on its SJR and the total number of papers published in 2013 to 2015.[22]

We are able to match 510 titles from the Scopus data to the *ABDC* list. Of the 250 that were not matched over 80% were classified as C journals, 18% as B journals and only 2 A journals. All of the A* journals were matched to the Scopus list.

2.2.2 The SCImagoJR Journal Ranking Bibliometrics

The SCImagoJR journal ranking bibliometrics are based on the Scopus data. It is a research group based at the Consejo Superior de Investigaciones Científicas (CSIC), University of Granada, Extremadura, Carlos III (Madrid), Spain. They have developed a number of journal ranking bibliometrics that are also included in the Scopus CiteScore data series discussed above with coverage that matches most but not all the same journals.[23] The bibliometrics obtained from the SCImagoJR data include: the total number of papers in the journal in 2016 and from 2013 to 2015, the number of citable papers from 2013 to 2015, the Hirsch index(2005)[24], the SCImagoJR journal rank (SJR)[25], cites per paper in last 2 years, total cites in last 3 years, SJR rank over all journals, and the total number of references.

The SCImagoJR data covers 509 of the journals on the *ABDC* list.[26] The majority of the journals that are not matched are C's (with 274 non-matches) B's (with 71 non-matches) and A's

[21] Note that a number of journals were listed more than once in the original list of 49,146 due to being classified in multiple categories.

[22] The details of the SJR bibliometric are listed in Section 2.2 that describes the SCImago Journal ranking bibliometrics.

[23] SCImago (2007). SJR — SCImago Journal & Country Rank. Retrieved July 21, 2015, from http://www.scimagojr.com

[24] Here we use the Hirsch index of the journal which is defined as the largest number h such that h articles published in over a given period have at least h citations each. For an analysis of the properties of this statistic see Pratelli et al (2012).

[25] The description of the construction of the SJR bibliometric can be found at https://www.scimagojr.com/SCImagoJournalRank.pdf .

[26] There are 28 journals that do not match between the Scopus and SCImago data series.

(with 5 non-matches) with all the A* journals matched. The same procedure for matching the series was employed as was used for the Scopus data.

2.2.3 The InCites Journal Access Bibliometrics

Clarivate Analytics produces the *InCites* journal citation reports as part of their Web of Science products. The bibliometrics available in this data are like those in the Scopus and SCImagoJR series with the addition of the Eigenfactor score, the separation of self-cites from all cites, the immediacy index, and the article influence score. The Eigenfactor score was first proposed by Bergstrom (2007). It involves an iterative ranking method by which the citations in more influential journals are weighted higher. The article influence score is based on a weighted value of the Eigenfactor score where the number of articles in the journal is used as the weight. The immediacy index is based on the number of citations to the articles in the journal in the year it is published indicating how quickly the journal's articles are cited. By self-cites the InCites data is referring to citations to articles in the same journal. The coverage of the *ABDC* list journals in the InCites list is the lowest of the bibliometrics we consider here with only 364 journals. However, the majority of these are of the highest three categories.

2.2.4 The *RePEc* Journal Ranking Bibliometrics

Research Papers in Economics (*RePEc*) has been an on-line bibliographic service for academic economists since 1997. Traditionally this web-site and the related products have been a repository for working papers and software. It provides a web-page for academics in the field of economics to list their work including working papers, published papers and software. This process is done automatically, and each registrant is provided with monthly updates as to the number of cites, downloads and abstract reads of their work. The details of the *RePEc* and the related sites are described in Zimmermann (2013). In this study we have downloaded a series of citation measures that are available via the *CitEc* site that are like those provided by Scopus and SCImagoJR with a more extensive coverage of smaller journals in economics, but less coverage of statistics journals. Note that this service is not a commercial service thus it is not vulnerable to possible influence to be exerted by publishers (see Moosa 2016). It has been used in many classifications of economics journals (i.e. Seiler and Wohlrabe 2012, Wohlrabe and Friedrich 2016, Bornmann et al 2018).

The measures we have obtained from *CitEc* include: Hirsch index (Hirsch 2005), the Euclidian index (Perry and Reny 2016), simple impact factor, discounted impact factor, recursive impact factor, the discounted recursive impact factor, and the number of articles. The simple impact factor is the number of citations (after removal of self cites to the same journal) divided by the number of articles. The discounted impact factor uses weights for each citation that is proportional to the inverse of how long ago the cite was made. One interpretation of the recursive impact factor for a journal is that it provides a measure of the probability that the random selection of references in all articles would result in a search ending at the journal. The recursive discounted impact factor combines the recursive process with the discounted impacts. The details of the definitions of these different bibliometrics are given in Zimmermann (2013). The Euclidean index was proposed by Perry and Reny (2016) which they found to be superior to the Hirsch index in the prediction of the

strength of a selection of economics departments in Macroeconomics. This measure is computed as the square-root of the sum of the squares of the number of cites each article received.

Although, the *RePEc* data coverage for economics journals is wider than for the SCImagoJR and Scopus economics journals it does not include many specialized statistics journals and thus we can only match 478 journals of the 760 *ABDC* ranked journals using the *RePEc* citation data.

2.2.5 The *LogEc* Journal Access Bibliometrics

In a difference from the other journal bibliometrics, the *RePEc* site also collects data on article text downloads as well as abstract views from its site and reports them on *LogEc*.[27] These bibliometrics have been employed to rank economics journals in Bornmann et al (2018). Originally, these statistics were mainly available for determining the visibility of working papers and could be accessed for individual researchers. However, they are also available by journal on the related *LogEc* site that collects statistics for all items listed in *RePEc* and accessed through that site. In this analysis we accessed the abstract views and article downloads for the years 2014, 2015 and 2016 for all the journals on the *RePEc* list. Unlike the citation data which is based on the years the articles were published, these data are defined by when the download or abstract view occurred. Consequently, these observations may be influenced by the downloads and abstract views of articles that were published years ago. To scale these observations by the number of articles in these journals we divide the abstract views and downloads by the reported number of items listed in the *RePEc* data to obtain ratios of downloads and abstract views. These measures are more in the spirit of internet related measures that are based on the non-paper access and not the older technology citation statistics. In addition, we also construct a new measure defined as the number of downloads per abstract view as a potential quality measure to establish the degree to which visitors to the site would go to the extent of reading the entire paper. The coverage of the *LogEc* data is a bit wider than the *RePEc* data. This means that we could match 542 journals for the number of abstract views and downloads. However, due to cases where the number of abstract views was recorded as zero we lost 11 observations. Since 2008 the aggregate *LogEc* statistics indicate a downturn across all journals due to the shift in the use of Google instead of *RePEc* to download and review abstracts, thus these statistics may be biased by the shift in the access method employed.[28]

2.2.6 The Altmetrics

"*Altmetrics is the study and use of scholarly impact measures based on activity in online tools and environments*" (Priem 2014). These are measures based on the access and reference to articles that appear in journals in areas that are less formal than citations in other scholarly journals in web-based locations such as blogs, Wikipedia entries, news sites and specialized scientific websites.

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[27] See the LogEc web site at: https://logec.*RePEc*.org/, the journal bibliometrics can be found at: https://logec.*RePEc*.org/scripts/seriesstat.pf .

[28] This observation was made in a private communication with Professor Sune Karlsson the maintainer of the LogEc web-site.

These alternative references appear in what may be described as research "products" as differentiated from research publications. The shift to consideration of the inclusion of products in US grant applications was referred to in a comment in *Nature* (Piwowar 2013). The study of social media and its ability to disseminate information has been compared to traditional bibliometrics by several authors (see Costas et al 2015, Bornmann 2014, Haustein et al 2014, and Zahedi et al 2014). These studies have investigated the correlations between these measures and the traditional measures available from the other sources discussed above based on article and researcher specific measures as well as acceptance of these sources in scientific research. They have not considered the journals we include in this analysis nor do they consider the full set of other bibliometrics as described above.

These measures are closest in nature to the *LogEc* measures of abstract views and downloads since they are not limited to output produced during a specified period – the limiting factor is when the output was mentioned. Here we limit the counts to those that have been measured during the 3-year period from January 1, 2015 to December 31, 2017. Although the Altmetrics site includes 19 bibliometrics we have chosen 7 that have the greatest number of non-zero values for the *ABDC* listed journals over this time. The bibliometric with the greatest coverage is defined as the "Total mentions" of those items counted by the "Number of mentioned outputs" bibliometric. The seven web indicators we include are the number of: Blog mentions, Wikipedia mentions, Facebook mentions, Policy mentions, Twitter mentions, mentioned outputs, and all mentions. In addition, we added an eighth bibliometric as the ratio of all mentions to the number of outputs mentioned. Note that the Altmetrics match 573 of the *ABDC* listed journals which is more than any of the other bibliometrics from our traditional sources.

2.2.7 The Combes and Linnemer Bibliometrics

Combes and Linnemer (2010) propose a ranking of 1,168 journals in economics that were listed in *EconLit*. [29] They combine a number of rankings some of which are: the Thompson-Reuters Journal of Citation Reports (*JCR*) Impact factor, the *Red Jasper* indices [30], Bergstrom's (2007) Eigenfactors, *h-index* from *Google Scholar*, and the *JCR* by field of specialization. One feature of these rankings is that they have generated the bibliometrics using out-of-sample predictions based on the publishing characteristics of the authors in those journals that are not included in the *JCR*. Their final index is then transformed to provide two versions with differing distributional characteristics.[31] These are designated as Combes-Linnemer medium (CLM) and Combes-Linnemer high (CLH). These two measures provide the same ranking except for the limitation caused by the presence of ties. Unlike

[29] The current list of journals covered by *EconLit* can be found at https://www.aeaweb.org/econlit/journal_list.php

[30] Current site at https://dl.acm.org/citation.cfm?id=1620121

[31] See Combes and Linnemer (2010) for the details on the construction of these scores.

the other bibliometrics in this study that are based on the most current values as of 2018, these bibliometrics are based on data available in 2010.

Due to the low number of statistics journals included in the Combes and Linnemer data we match only 480 journals to the *ABDC* list. However, coverage of journals in all other *FoR*s exceeded or matched the coverage of the other bibliometrics.

2.2.8 The *Google Scholar* Bibliometrics

Google provides a service to measure the impact of scholarly publications via its *Google Scholar* service.[32] This service automatically constructs and updates a web-site that lists all the publications available on the web by an author and the corresponding number of publications that cite them. The *Google Scholar* list of publications includes not only those items appearing in traditional scholarly journals but those that may only be available as unrefereed working papers. Recently this service has compiled bibliometrics for scholarly journals as well as for individuals. These bibliometrics are available for lookup by field and by journal title based on citations as of July, 2019. The two bibliometrics provided are the Hirsch index based on all the citations to the journal from 2014 to 2018 and the median number of citations for the articles that are used in the computation of the Hirsch index. The bibliometrics are only available for journals that have published at least 100 articles in the five-year period.

The Google Scholar bibliometrics matched to 515 journals on the *ABDC* list. There did not appear to be any particular field in which the Google Scholar bibliometrics matches were better than by any of the other bibliometrics.

The Journal Bibliometrics.

In this section we present a description of the 48 journal bibliometrics we use. We also discuss the relationship between these bibliometrics and the *ABDC* grades based on interrater agreement statistics. Then we examine the interrelationship between the bibliometrics and assess the potential grouping of these bibliometrics using a hierarchical clustering algorithm.

[32] Details can be found at https://scholar.google.com/intl/en/scholar/metrics.html. The bibliometrics for a particular journal can be found at : https://scholar.google.com/citations?hl=en&view_op=search_venues&vq=%22American+Economic+Review%22&btnG=.

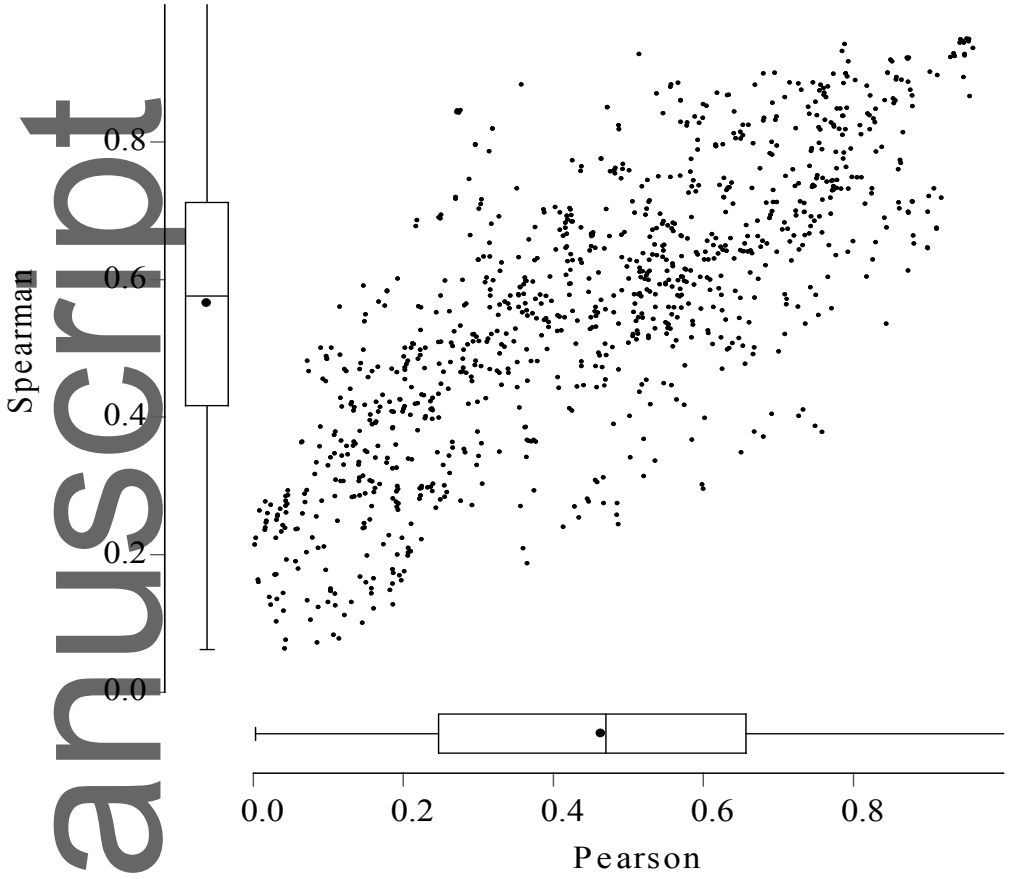

Figure 3.1 The scatter plot of the correlations between the bibliometrics described in Table 3.1 with the boxplots of the correlations.

Most of the bibliometrics are significantly positively correlated with each other (using both Pearson and Spearman rank measures). Figure 3.1 displays the scatter plot of the Spearman rank and Pearson correlation coefficients with boxplots of the distribution of the correlations on the axes. The difference between the Spearman and Pearson correlations indicates that these measures tend to be subject to a skewed distribution. The majority of the correlations between the bibliometrics are sufficiently large enough to reject the null that they are equal to zero. The main exception is the ratio of downloads to abstract views (*D_p_AV*) which appears to be uncorrelated with most of the other bibliometrics. We examine the interrelationship between these bibliometrics using the grades implied by their ranks in Section 3.4 below.

Table 3.1 provides the descriptive statistics for the 48 bibliometrics used in this analysis. This table also lists the variable names and source series for each of the bibliometrics. To ensure that higher values of each bibliometric are considered an indication of greater quality we have constructed inverse ranks such as *i_rnk_area* so that they count-up instead of down.

Mnemonic	*Source**	*Label*	*N*	*Mean*	*Sd*	*Min*	*Max*
h_index	R	Hirsch-index	478	12.43	12.62	0	100.00
e_c_score	R	Euclidian citation score	478	152.22	257.64	0	2528.79
s_impact	R	Simple impact factor	478	3.33	5.82	0	55.67
d_impact	R	Discounted impact factor	478	0.88	1.57	0	15.63
dr_impact	R	Discounted recursive impact factor	478	0.33	0.90	0	10.91
r_impact	R	Recursive impact factor	478	0.35	0.93	0	10.76
Number	R	Number of items listed	478	408.28	469.92	1	3840
absv_item	R&L	Abstract Views / Item	478	117.75	163.76	0	1831.67
dl_item	R&L	File downloads / Item	478	25.37	38.17	0	488.50
sjr_cscore	C	SCImagoJR Journal Rank Index	510	1.20	2.09	0.1	24.77
SNIP	C	Source Normalized Impact per Paper	510	1.07	0.84	0	6.75
CiteScore	C	Average citations per document	510	1.18	1.11	0	8.21
Citation_Count	C	# cites in 2016 for 2013-15 papers	510	245.81	766.94	0	15407
Percent_Cited	C	% of papers in 2013-15 cited	510	44.79	19.94	0	96.00
Percentile	C	Relative standing in its subject field.	510	61.23	25.14	0	99.00
Scholarly_Output	C	Documents published in 2013 – 15	510	163.07	240.47	6	3424
i_rnk_area	C	5000 - Rank in subject area	510	4863.26	141.79	3700	4999
Total_2016	S	Total Docs. (2016)	509	60.83	85.34	0	1192
Total_3yr	S	Total Docs. (3years)	509	167.91	256.45	5	3424
Cit_Doc_3yr	S	Citable Docs. (3years)	509	156.58	224.26	3	2343
h_ind_sjr	S	Hirsch index	509	36.00	33.13	0	300
SJR	S	SCImagoJR Journal Rank	509	1.19	2.10	0.1	24.77
Cites_p_D__2yr	S	Cites per document in the last 2 yrs	509	1.07	1.03	0	8.77
Total_C_3yr	S	Total Cites (3years)	509	245.53	765.46	0	15342
i_rnk_sjr	S	30000 - SJR overall rank	530	20878.32	6827.31	1901	29993
Total_Refs	S	Total Refs	509	1961.17	2222.33	0	16656
D_p_AV	L	Downloads/Abstract Views 2013-17	531	0.21	0.07	0	0.41
File_Ds	L	File Downloads 2013-2017	542	10425.33	23483.73	0	314208

Mnemonic	*Source**	*Label*	*N*	*Mean*	*Sd*	*Min*	*Max*
Abs_Vs	L	Abstract Views 2013-2017	542	43970.46	86030.92	0	1197132
jif_inc	I	Journal Impact Factor	364	1.30	1.13	0.04	9.44
jif_wo_inc	I	Journal Impact Factor w/o self-cites	364	1.17	1.09	0.03	9.31
jif5_inc	I	5yr Journal Impact Factor	364	1.69	1.50	0.07	10.70
EIFac_inc	I	Eigenfactor	364	0.0057	0.0135	0.00	0.1833
im_index_inc	I	Immediacy Index	364	0.3055	0.4216	0.00	5.0770
inf_sc_inc	I	Article influence score	364	1.27	1.89	0.02	17.15
av_jif_inc	I	Average Journal Impact Factor	364	48.53	27.35	0.14	99.86
Blog_mentions	A	Blog mentions	573	38.10	126.35	0.00	1737
Wikipedia_mentions	A	Wikipedia mentions	573	24.96	74.79	0.00	1128
Facebook_mentions	A	Facebook mentions	573	33.29	104.87	0.00	1288
Policy_mentions	A	Policy mentions	573	174.36	578.08	0.00	6036
Twitter_mentions	A	Twitter mentions	573	901.36	3140.21	0.00	59256
Number_of_mentioned	A	Number of mentioned outputs	573	227.67	475.12	1.00	7659
Total_mentions	A	Total mentions	573	1248.40	4000.31	1.00	70978
Mentions_p_Output	A	Mentions per outputs	573	4.04	5.94	1.00	103.46
CLM	CL	Combes-Linnemer medium	480	13.19	14.73	4.40	100.00
CLH	CL	Combes-Linnemer high	480	3.91	11.75	.20	100.00
gsh_inx	GS	*Google Scholar* h_index 2014-18	515	22.17	16.53	1.00	147.00
gs_med	GS	*Google Scholar* median # cites 2014-18	515	33.21	27.28	1.00	233.00

* Codes for sources: R – *RePEc*, C – Scopus CiteScore, S – SCImagoJR, L – *LogEc*, R&L match of *RePEc* and *LogEc*, I – InCites, A – Altmetrics, CL – Combes and Linnemer, GS – *Google Scholar*

Table 3.1 Summary statistics for journal bibliometrics (*N* indicates the number of *ABDC* journals matched).

1.1 A Description of the Bibliometrics

Table 3.2 provides the level of coverage of the journals by *FoR*. From these tables it can be noted that the Combes and Linnemer, *LogEc* and *RePEc* bibliometrics have the lowest coverage for Statistics since they are primarily focused on journals in economics. The other general bibliometrics cover up to 78 out of the 84 statistics journals on the *ABDC* list. Another anomaly occurs in the *FoR* Other Economics where the InCites bibliometrics only match 24 journals while *LogEc* matches 87 of the 107 on the *ABDC* list.

Source	Field of Research					
	Statistics	*Economic Theory*	*Applied Economics*	*Econometrics*	*Other Economics*	*Total*
CiteScore	76	22	345	18	49	510
	14.9	*4.31*	*67.65*	*3.53*	*9.61*	*100.00*
SCImagoJR	77	22	357	20	54	530
	14.53	*4.15*	*67.36*	*3.77*	*10.19*	*100.00*
InCites	63	18	243	16	24	364
	17.31	*4.95*	*66.76*	*4.40*	*6.59*	*100.00*
RePEc	21	21	333	27	76	478
	4.39	*4.39*	*69.67*	*5.65*	*15.9*	*100.00*
LogEc	30	24	374	27	87	542
	5.54	*4.43*	*69.00*	*4.98*	*16.05*	*100.00*
Altmetrics	78	27	381	22	65	573
	13.61	*4.71*	*66.49*	*3.84*	*11.34*	*100.00*
Com-Lin	12	20	373	20	55	480
	2.50	*4.17*	*77.71*	*4.17*	*11.46*	*100.00*
G Scholar	70	25	340	23	57	515
	13.59	*4.85*	*66.02*	*4.47*	*11.07*	*100.00*

Table 3.2 The coverage of the bibliometrics by *FoR*. (top is number, bottom is column %)

In Table 3.3 we present the coverage by *ABDC* grade. In this table we also note that the InCites bibliometrics have a much lower coverage of the B and C graded journals than any of the other bibliometrics. Although coverage of the InCites bibliometrics are comparable to the other bibliometrics for the *ABDC* grades A and A* they cover far fewer of the B and C grade journals. The lower coverage for the A* journals by *LogEc, RePEc* and Combes and Linnemer bibliometrics is due to the lack of some major Statistics journals.

Source	ABDC grade				
	A*	**A**	**B**	**C**	**Total**
CiteScore	57	125	188	140	510
	11.18	*24.51*	*36.86*	*27.45*	*100.00*

SCImagoJR	57	125	194	154	530
	10.75	*23.58*	*36.6*	*29.06*	*100.00*
InCites	57	124	134	49	364
	15.66	*34.07*	*36.81*	*13.46*	*100.00*
RePEc	49	100	163	166	478
	10.25	*20.92*	*34.1*	*34.73*	*100.00*
LogEc	50	111	182	199	542
	9.23	*20.48*	*33.58*	*36.72*	*100.00*
Altmetrics	57	127	208	181	573
	9.95	*22.16*	*36.3*	*31.59*	*100.00*
Com-Lin	43	98	168	171	480
	8.96	*20.42*	*35*	*35.63*	*100.00*
G Scholar	56	115	168	176	515
	10.87	*22.33*	*32.62*	*34.17*	*100.00*

Table 3.3 The coverage of the bibliometrics by *ABDC* grade. (top is number, bottom is column %).

3.2 The Comparison of Bibliometric Grades to *ABDC* Grades

For our analysis we employ the ranks of these bibliometrics since our objective is to match them to the ranking of the journals as was done in Zainuba and Rahal (2015). In this way we use the distribution of the sample of journals where we observe both the bibliometric and the *ABDC* grade. The process proceeds in three steps.

1. First, we determine the implied grade distribution of the sample of journals we can match to the *ABDC* list from each bibliometric source.
2. Second, we construct a cross-tabulation table of the grades implied by the distribution found in step 1 as applied to the rank of the bibliometric and the grades assigned by the *ABDC*.
3. Last, we compute an interrater agreement statistic based on the degree to which the two gradings agree.

The use of grades by the *ABDC* instead of a complete ranking allows a degree of flexibility in the classification of the journals. In order to make comparisons between the *ABDC* grades and the bibliometrics we construct an equivalent grade for each journal. We acknowledge that this process involves the loss of information as to the magnitude of the differences in the bibliometrics between the journals. However, it most closely matches the process employed by the *ABDC.* An example of this process is given in Section 3.2.1

3.2.1 An Example of the Implied Grade Distribution

We grade each journal into the A*, A, B and C designation based on the rank of each bibliometric where we can match a value for the bibliometric. For example, of the 478 journals for which we observe their bibliometrics in the *RePEc* list, we determine their corresponding designations as A*, A, B or C from the *ABDC* list. This will provide the grade distribution for this sample of journals as established by the *ABDC*. Table 3.4 shows the comparison of the grade distribution for the 478 journals in *RePEc* data as compared to the distribution of all the *ABDC* listed journals as replicated from Table 2.1.

	RePEc		***ABDC* (all)**	
Score	**Number**	**%**	**Number**	**%**
C	166	34.73	342	45.00
B	163	34.10	234	30.79
A	100	20.92	127	16.71
A*	49	10.25	57	7.50
Total	478		760	

Table 3.4 The distribution of the sample of journals listed in the *RePEc* bibliometrics by the *ABDC* grade as compared to the distribution of all the journals classified by the *ABDC*.

From Table 3.4 we note that the sample of *RePEc* measured journals significantly under represents the C and B level journals. While the top 10.25% of the journals for which we observe a *RePEc* bibliometric are classified as A*. We conclude then, that if the ranking was made based on any of the bibliometrics found from *RePEc* that the top 10.25% would be graded as A* journals, then the next 20.92% as A, … et cetera. This follows in the same manner as if we were marking students in a class and we were given a grade distribution that we were expected to follow. Hence, we employ the distribution of 10.25%, 20.92%, 34.10% and 34.73% to determine the grades of all the journals in the *RePEc* data into the A*, A, B and C classes based on the journal's rank (marks) in each bibliometric (assessment). Thus, we only use the grade distribution based on how the *ABDC* grades those journals for which we match bibliometrics from the *RePEc* list. In this process each journal has a grade based on the bibliometric and the one specified by the *ABDC*. In this way each bibliometric can be used to assign a grade to the journal and each journal may have up to 48 separate grades if we can match all the bibliometrics for that journal.

3.2.2 The Cross Tabulation of Grades

We can compare the grades we assign the journal based on the bibliometric and the *ABDC*'s grade using a cross-tabulation table. For example, to compare the grades implied for the Hirsch index from *RePEc* to the grades assigned by the *ABDC* we first rank the journals that we can match from the

RePEc data by the Hirsch index (*h-index*) and assign each journal a grade from A*to C grades based on the 10.25%, 20.92%, 34.10% and 34.73% distribution (see the *RePEc* row in Table 3.3). The crosstabulation table in Table 3.5 allows the comparison between the *ABDC* grades and the grades implied by the *RePEc* Hirsch index.

	RePEc h_index				
ABDC	*C*	*B*	*A*	*A**	*Total*
C	**119**	42	5	0	166
B	40	**98**	22	3	163
A	6	22	**63**	9	100
*A**	1	1	10	**37**	49
Total	166	163	100	49	478

Table 3.5 The cross tabulation of the classification by rank of Hirsch index reported in *RePEc* to the *ABDC* classification.

From Table 3.5 we find that of the 478 journals in the *RePEc* data that we can match to the *ABDC* series we grade the same number of journals as A*, A, B and C. However, a journal may not have the same grade when ranked by the bibliometric (here the Hirsch index) as assigned to it by the ABCD. We note that the diagonal values in this table (119, 98, 63, 37) indicate the journals where both the Hirsch index and the *ABDC* grades agree. Thus, the percent of the same (*%Same*) in this case is $100\left({}^{317}\!/_{478}\right) = 66.32\%$. The number of cases where the *ABDC* grade indicates a lower grade than the Hirsch index is the sum of journals in the cells in the upper triangle (42 + 5 + 0 + 22 + 3 + 9 = 81). This implies that $100\left({}^{81}\!/_{478}\right) = 16.95\%$ of the journals are graded lower by the *ABDC*. We refer to this as the *%Low*. The alternative percentage case, where the *ABDC* grade indicates a higher grade than the Hirsch index, would be $100\left({}^{80}\!/_{478}\right) = 16.74\%$ and is referred to as the *%High*.

3.2.3 The Interrater Agreement Statistic

We can measure the consistency of the bibliometric and the *ABDC* grading as the % of the journals with the same grades. Measures of this type are referred to as interrater agreement statistics (IAS) (chapter 18 in Fleiss et al 2003). In this case 66.32% of the classifications are the *%Same*. We can also establish the number that are graded higher by the Hirsch index than the *ABDC* as the number above the diagonal divided by the total as 16.95% and those graded higher by the *ABDC* than the Hirsch index as the number below the diagonal divided by the total as: 16.74%.

Table 3.6 lists the IAS defined by *%Same*, *%High* and *%Low* compared to the *ABDC* classification for all the bibliometrics. The table is sorted by *%Same*. In addition, we also report Cohen's *kappa* as an alternative IAS (Cohen 1960). The definition of *kappa* is given as:

$$\kappa = \frac{p_0 - p_c}{100 - p_c}$$

where x_{ji} is the number in row *i* and column *j*, *N* is the number of journals compared, p_0 is the *%Same* defined as $p_0 = \frac{100}{N}\sum_{i=1}^{4} x_{ii}$, and p_c is the hypothetical *%Same* based on the product of the marginal percentages defined by $p_c = \frac{100}{N^2}\sum_{i=1}^{4} x_{.i}x_{i.}$ where $x_{.i} = \sum_{j=1}^{4} x_{ji}$ and $x_{i.} = \sum_{j=1}^{4} x_{ij}$. In the comparisons used here p_c is the same for every bibliometric from the same source. In addition, it is very similar in comparisons between bibliometric sources consequently, the value of κ is approximately a simple linear transformation of p_0. This implies that ordering bibliometrics by the *%Same* is equivalent to the ordering by the kappa. From this table we find that for 44 out of the 48 bibliometrics *%High* ≤ *%Low*. This indicates that on average when the grades do not agree one would expect that the *ABDC* grade is lower or the same as the grade implied by the bibliometric.

In Table 3.6 we find that the Combes and Linnemer bibliometrics (*CLM* and *CLH*) are the most consistent in the categorisation and the ratio of downloads to abstract views (*D_p_AV*) is the least consistent. To establish statistical significance for the statistics reported in this table, we use a randomisation test to determine the distribution under the null hypothesis that the bibliometrics had no relationship to the *ABDC* grade. This is done by assigning a uniformly distributed random variable instead of the bibliometric for the same coverage of the journals in the *ABDC* list as the bibliometric to be tested. From this analysis we find that all the values in this table had less than a 1% probability of being generated under the null hypothesis of no relationship.[33] The asymptotic standard error for κ can also be derived and we found that all of the values in this table are significantly different from zero. Banerjee et al (1999) propose that values of $\kappa > .75$ indicate excellent agreement with values of $.75 \geq \kappa \geq .40$ as an indication of fair to good agreement. Using this rule of thumb, we conclude that the *ABDC* and these bibliometrics only have a fair degree of agreement for the first 12 bibliometrics listed here.

[33] The 98% range for same % under the null was from 23.4% to 34.5%, for the higher % under the null was from 32.1% to 38.9%, and for the lower % under the null was from 32.3% to 38.5% based on 1000 random sets of bibliometrics with the same match to the *ABDC* list.

Bibliometric	*Source*	*Label*	*%Same*[34]	*%High*[35]	*%Low*[36]	*K*	*CV*
CLM	CL	Combes-Linnemer medium	72.08	13.96	13.96	**0.60**	1.15
CLH	CL	Combes-Linnemer high	71.67	14.17	14.17	**0.59**	0.36
h_index	R	Hirsch-index	66.32	16.74	16.95	**0.52**	0.53
dr_impact	R	Discounted recursive impact factor	64.23	17.57	18.20	**0.50**	0.23
e_c_score	R	Euclidian citation score	63.81	17.78	18.41	**0.49**	na
r_impact	R	Recursive impact factor	62.97	18.20	18.83	**0.48**	na
d_impact	R	Discounted impact factor	62.34	18.41	19.25	**0.47**	0.17
s_impact	R	Simple impact factor	62.13	19.04	18.83	**0.47**	na
h_ind_sjr	S	Hirsch index	59.62	19.81	20.57	**0.43**	0.78
i_rnk_sjr	S	30000 - SJR overall rank	58.30	19.06	22.64	**0.42**	na
SJR	S	SCImagoJR Journal Rank	57.92	19.25	22.83	**0.41**	0.25
sjr_cscore	C	SCImagoJR Journal Rank Index	57.45	19.41	23.14	**0.41**	na
EIFac_inc	I	Eigenfactor	56.59	20.33	23.08	0.38	0.57
inf_sc_inc	I	Article influence score	55.22	20.60	24.18	0.37	na
gsh_inx	GS	Google Scholar h-index 2014-18	54.76	20.58	24.66	0.37	0.43
Wikipedia_mentions	A	Wikipedia mentions	54.62	22.69	22.69	0.36	0.64
Policy_mentions	A	Policy mentions	53.75	23.56	22.69	0.35	0.13
Number_of_mentioned	A	Number of mentioned outputs	52.53	23.21	24.26	0.33	na
CiteScore	C	Average citations received per paper	51.96	21.57	26.47	0.33	0.51
gs_med	GS	Google Scholar med # cites 2014-18	52.04	21.94	26.02	0.33	0.38
Total_C_3yr	S	Total Cites (3years)	51.89	21.70	26.42	0.33	na
Abs_Vs	L	Abstract Views 2013-2017	52.40	23.62	23.99	0.32	na
Citation_Count	C	# cites in 2016 for 2013-15 papers	51.37	22.16	26.47	0.32	na

[34] %same is the percent of cases where both the bibliometric and the *ABDC* grades agree.

[35] *%High* is the percent of cases where *ABDC* grade indicates a higher grade than the bibliometric.

[36] *%Low* is the percent of cases where the *ABDC* grade indicates a lower grade than the bibliometric.

Blog_mentions	A	Blog mentions	51.66	23.39	24.96	0.32	0.45
SNIP	C	Source Normalized Impact per paper	51.18	23.14	25.69	0.32	na
File_Ds	L	File Downloads 2013-17	51.29	24.72	23.99	0.31	na
Cites_p_D__2yr	S	Cites per doc in the last 2 years	49.43	22.26	28.30	0.29	0.38
Percent_Cited	C	% of papers in 2013-15 cited	48.82	23.53	27.65	0.29	0.44
jif5_inc	I	5yr Journal Impact Factor	49.45	22.80	27.75	0.28	na
Total_mentions	A	Total mentions	48.34	24.96	26.70	0.27	na
Number	R	Number of items listed	47.49	24.69	27.82	0.26	na
av_jif_inc	I	Average Journal Impact Factor	47.25	23.63	29.12	0.25	na
jif_wo_inc	I	Journal Impact Factor w/o self-cites	46.15	24.18	29.67	0.24	na
dl_item	R&L	File downloads / Item	44.98	26.78	28.24	0.22	na
jif_inc	I	Journal Impact Factor	45.05	24.18	30.77	0.22	na
Percentile	C	Relative standing in its subject field.	43.33	26.08	30.59	0.21	0.24
Twitter_mentions	A	Twitter mentions	43.80	28.10	28.10	0.21	0.09
absv_item	R&L	Abstract Views / Item	43.72	26.15	30.13	0.21	na
Facebook_mentions	A	Facebook mentions	42.41	27.57	30.02	0.19	0.69
Cit_Doc_3yr	S	Citable Docs. (3years)	41.89	28.11	30.00	0.19	0.28
Total_Refs	S	Total Refs	40.57	27.74	31.70	0.17	na
Total_3yr	S	Total Docs. (3years)	40.00	28.87	31.13	0.16	0.40
Scholarly_Output	C	Documents published in 2013 – 15	39.80	29.22	30.98	0.16	0.17
Total_2016	S	Total Docs. (2016)	39.62	29.62	30.75	0.15	0.69
i_rnk_area	C	5000 - Rank in subject area	37.65	30.78	31.57	0.13	0.09
im_index_inc	I	Immediacy Index	37.64	28.85	33.52	0.12	0.07
Mentions_p_Output	A	Mentions per Outputs	36.65	30.19	33.16	0.11	na
D_p_AV	L	Downloads/Abstract Views 2013-17	35.78	32.20	32.02	0.09	na

* Codes for sources: R – *RePEc*, C – Scopus CiteScore, S – SCImagoJR, L – *LogEc*, R&L match of *RePEc* and *LogEc*, I – InCites, A - Altmetrics, CL – Combes and Linnemer, GS – Google Scholar

Table 3.6 The interrater agreement statistics for different bibliometrics and the *ABDC* classifications.

3.3 Uncertainty in Bibliometrics

Bibliometrics are statistics and as such they are subject to uncertainty. Although we do not observe the within uncertainty statistics for the individual bibliometrics we employ, we can measure the between variation in the rank of the same journal over the set of bibliometrics that we can match to a journal. In order to establish how the variation in rankings we observe compares to the variation for specific bibliometrics we perform a comparison of the within bibliometric variation to the between bibliometric variation.

In order to measure the within variation of the bibliometrics we use Stern's (2013) data. Stern examined the uncertainty in the ranking of 230 journals in economics by collecting the set of all citations to 54,416 articles published in these journals from 2006 to 2010. Employing his data, we compute the average interquartile range of the fractional rank (ranked from 0 to 1) over the 230 journals for four bibliometrics: the average number of cites, the median number of cites, the percent of papers with at least one citation and the Hirsch-index. To compute the journal specific interquartile range for the ranks of these statistics we use a balanced bootstrap (see Algorithm 9.1 in Davison and Hinkley 1997) with 1,000 replications. For each bootstrap replication we determine the fractional rank of each journal separately based on these four bibliometrics as they compare to the other journals. We use these replications to define the interquartile range for the fractile ranks for each of the four bibliometrics.[37] The average interquartile range for the fractional ranks range from .056 for the rank of the average number of citations per article to .087 for the rank of the Hirsch-index.

To measure the between variation we use the bibliometrics that we have measured for the set of 712 journals for which we have at least one bibliometric measure. The between variation is defined as the average of interquartile range of the ranks for each journal's bibliometrics. This was done in three steps: first we convert the bibliometrics to fractional ranks. Then we compute an interquartile value across the bibliometric ranks observed for each journal. Finally, we average these interquartile values across all 712 journals. From this exercise we find that the average interquartile range of the ranks between the set of bibliometrics observed for these journals is .236.

Thus, we can conclude that on average the between variation in the bibliometric ranking for each journal is of the order of 3 times the within variation from the variation in the individual bibliometric. This implies that by making comparisons across multiple bibliometrics we allowed for a greater degree of variation in our comparisons than one would find if our analysis is based on a single bibliometric with a measure of the variability for that bibliometric.[38]

3.4 Comparisons of Bibliometric Grades

To make comparisons between the bibliometrics, we employ the same type of table as Table 3.5 except instead of comparing them to the *ABDC* classifications we compare them to the implied

[37] The interquartile range is defined as the difference between the 75% and 25% value.

[38] A comparable analysis based on the average standard deviation produced similar results.

ABDC classes based on the ranks of each bibliometric. Table 3.7 is a cross tabulation table of the rankings based on the Number of downloads to abstract views from the *LogEc* series (*D_P_AV*) as compared to the Hirsch index compiled in the *RePEc* series (*h-index*). From this table we find that these two bibliometrics agree on the *ABDC* rankings for 178 out of 471 journals for which there is a match in both series. Thus, we have the *%Same* as 37.8% for the rankings they match and 62.2% do not. Since the margins of Table 3.7 are not equal the appropriate interrater agreement statistic for this table would be kappa.

	LogEc D_p_AV				
RePEc h_index	C	B	A	A*	Total
C	71	44	28	16	159
B	55	65	33	10	163
A	29	39	26	6	100
A*	4	11	18	16	49
Total	159	159	105	48	471

Table 3.7 The cross-tabulation between the *ABDC* rankings based on the *RePEc h-index* and the *LogEc* ratio of article downloads to abstract views.

To compare the journal bibliometrics we can define a distance between each bibliometric based on the *kappa* since the margins are different between bibliometrics from different sources. This distance is defined by: 100 – *kappa*. Figure 3.2 provides a heatmap of the distance matrix between each bibliometric based on those comparisons where the full set of bibliometrics are available. The order of the bibliometrics is based on their proximity where the darker the value the smaller the value of *kappa*.[39] Note that the darker the squares on this map indicate the greater the dissimilarity and the lighter squares indicate bibliometrics that are more similar. The lines of dark squares indicate those bibliometrics that are dissimilar from all other bibliometrics.

To investigate the similarities of these bibliometrics we use the distance matrix shown in Figure 3.2 to perform a hierarchical cluster analysis. Cluster analysis is employed to provide an overview of a multivariate phenomenon as an alternative to the use of such summary techniques as principal component analysis.[40] We employ a hierarchical method to allow us to demonstrate how these clusters are formed with a dendrogram or tree diagram. Figure 3.3 is a dendrogram based on a hierarchical cluster analysis based on the distance matrix as shown in Figure 3.2. These clusters

[39] Other examples of the use of the heatmap presentation of multivariate data can be found in Nickerson and Rogers (2014) and Stock and Watson (2014)

[40] For example, for a comparison of quality of life indicators using cluster analysis see Hirschberg et al (1991).

were formed using the complete or furthest distance linkage to determine the distances between clusters.[41] The complete linkage method defines the inter-cluster distance as the maximum distance between any bibliometric in one cluster to any bibliometric in the cluster to which it is to be combined. The dendrogram indicates the relationship between the bibliometrics and provides an indication of the distances between the clusters formed. Note that each bibliometric begins the agglomeration process in a cluster of its own, then the distances between the clusters are compared to find the closest one to combine with until all the bibliometrics are included in one cluster. The complete linkage method employed here defines the distance between clusters as the maximum distance between the members of the clusters being compared.

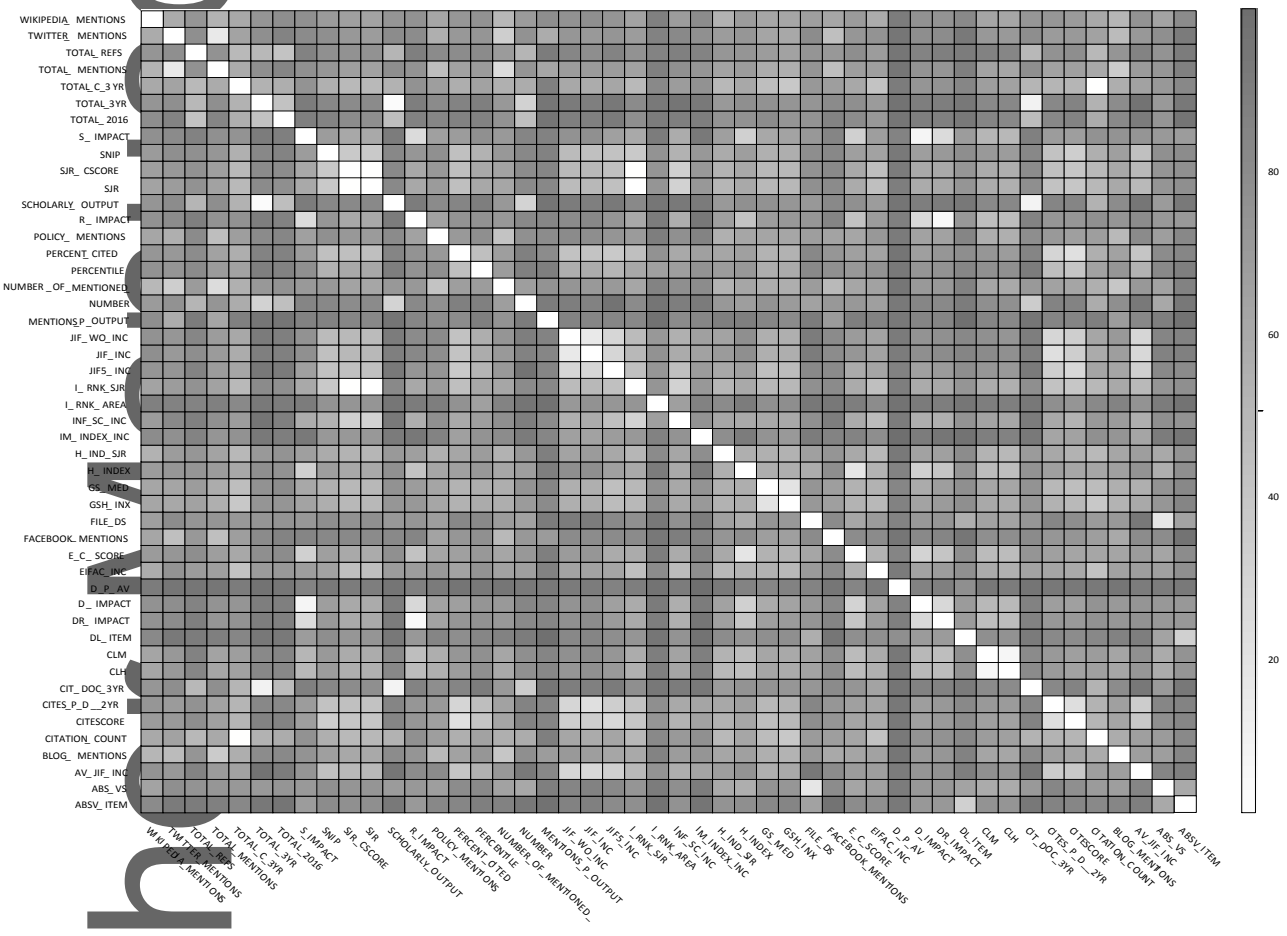

Figure 3.2 The Heatmap of the distance matrix based on the interrater score between the grading of a common set of journals defined as 100 - *kappa*.

[41] See Section 5.1.b in Kaufman and Rousseeuw (1990) for details.

From Figure 3.3 we can see that at a scaled distance of 1.00 on the bottom axis we can define 10 clusters. Reading the left axis of Figure 3.3 we can find the bibliometrics *absv_item* (abstract views per item), *dl_item* (downloads per item), *abs_vs* (abstract views) and *file_ds* (file downloads) all bibliometrics from *LogEc* and *RePEc* make up the first cluster. Note that abstract views per item and downloads per item clustered together first then abstract views and file downloads clustered together and finally these two clusters combined to one cluster. All 10 clusters are identified in Figure 3.3 with four bibliometrics *d_p_av* (downloads per abstract view), *im_index_inc* (immediacy index), *i_rnk_area* (the inverse of the rank in subject area) and *mentions_p_output* (mentions per output) that are included in clusters with only one member. Those clusters that are formed first are the ones formed with branches that are closest to the left-hand axis. For example, *i_rnk_sjr* (30000 - SJR overall rank), *sjr* (SCImagoJR Journal Rank) and *sjr_cscore* (SCImagoJR Journal Rank Index), all appear to combine with very little distance between them since the only difference between them is a slight difference in coverage of different journals. Also note that the ratio of downloads to abstract views (*d_p_av*) appears to be combined at the furthest distance with the other bibliometrics which indicates that its measure is the most diverse from all the others.

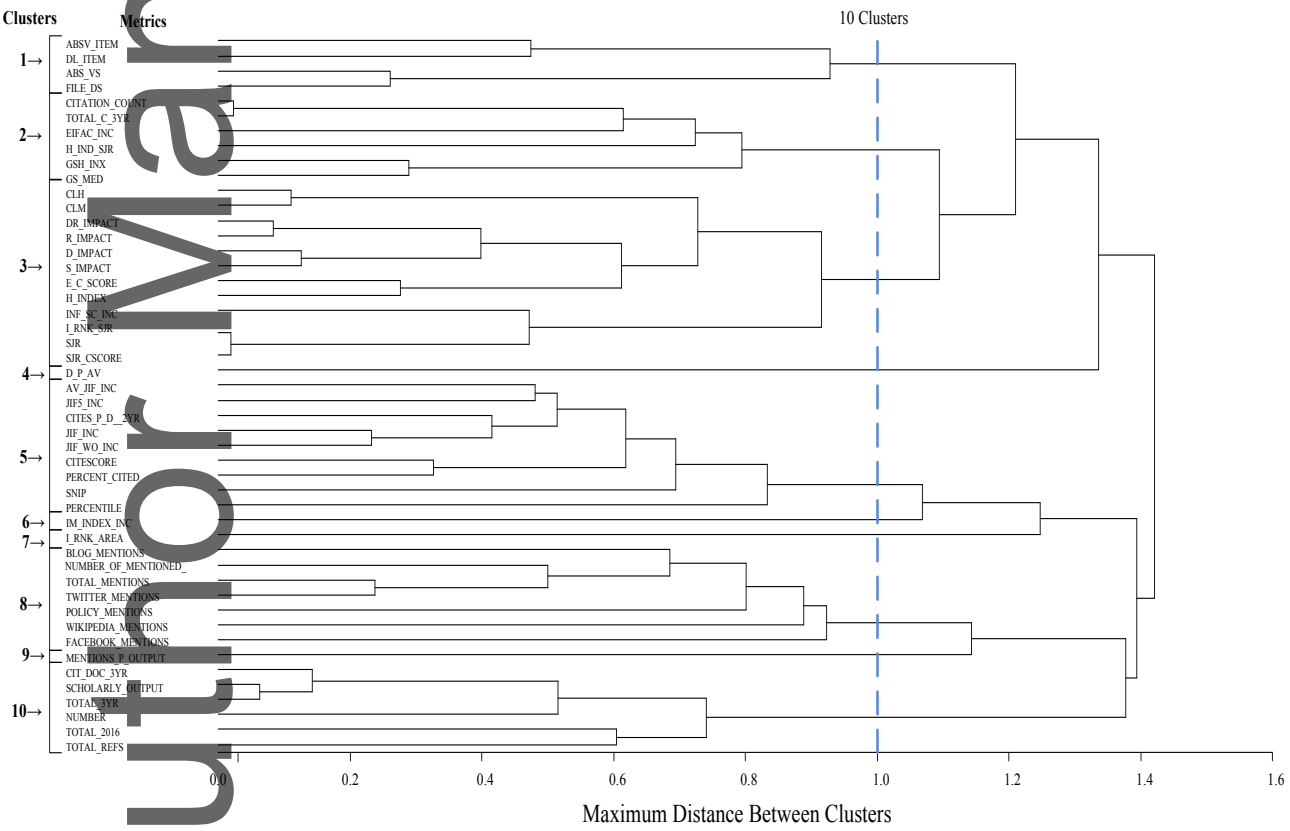

Figure 3.3 The dendrogram of the clustering of the journal bibliometrics using the *kappa* IRS distances as shown in Figure 3.2 using a complete linkage hierarchical algorithm.

Table 3.8 lists the membership of each cluster as implied by the dendrogram in Figure 3.3. Note that some clusters are dominated by bibliometrics from one source as in the case of cluster one and cluster eight. To define subgroups of bibliometrics within the clusters one can use the dendrogram to find those bibliometrics that form sub-clusters within the clusters with multiple bibliometrics. We use the order of the bibliometrics on the left axis from the dendrogram to order the bibliometrics in the heatmaps provided in Figures 4.1 and 4.2 listed below.

Cluster	*Bibliometric*	*Source**	*Label*
1	*absv_item*	***R&L***	Abstract Views / Item
	dl_item	***R&L***	File downloads / Item
	Abs_Vs	***L***	Abstract Views 2013-2017
	File_Ds	***L***	File Downloads 2013-2017
2	*Citation_Count*	***C***	# cites in 2016 for papers from 2013-15
	Total_C_3yr	***S***	Total Cites (3years)
	EIFac_inc	***I***	Eigenfactor
	h_ind_sjr	***S***	Hirsch index
	gsh_inx	***GS***	Hirsch-index 2014-18
	gs_med	***GS***	Median # cites 2014-18
3	*clh*	***CL***	Combes – Linnemer high
	clm	***CL***	Combes – Linnemer medium
	dr_impact	***R***	Discounted recursive impact factor
	r_impact	***R***	Recursive impact factor
	d_impact	***R***	Discounted impact factor
	s_impact	***R***	Simple impact factor
	e_c_score	***R***	Euclidian citation score
	h_index	***R***	Hirsch-index
	inf_sc_inc	***I***	Article influence score
	i_rnk_sjr	***S***	30000 - SJR overall rank
	SJR	***S***	SCImagoJR Journal Rank
	sjr_cscore	***C***	SCImagoJR Journal Rank Index
4	*D_p_AV*	***L***	Downloads/Abstract Views 2013-2017
5	*av_jif_inc*	***I***	Average Journal Impact Factor

	jif_inc	***I***	Journal Impact Factor
	jif_wo_inc	***I***	Journal Impact Factor w/o self-cites
	jif5_inc	***I***	5yr Journal Impact Factor
	CiteScore	***C***	Average citations received per document
	Percent_Cited	***C***	% of papers in 2013-15 cited
	Cites_p_D__2yr	***S***	Cites per document in the last 2 years
	SNIP	***C***	Source Normalized Impact per Paper
	Percentile	***C***	Relative standing in its subject field.
6	*im_index_inc*	***I***	Immediacy Index
7	*i_rnk_area*	***C***	5000 - Rank in subject area
	Blog_mentions	***A***	Blog mentions
	Number_of_mentioned	***A***	Number of mentioned outputs
	Total_mentions	***A***	Total mentions
8	*Twitter_mentions*	***A***	Twitter mentions
	Policy_mentions	***A***	Policy mentions
	Facebook_mentions	***A***	Facebook mentions
	Wikipedia_mentions	***A***	Wikipedia mentions
9	*Mentions_p_Output*	***A***	Mentions per Outputs
	Cit_Doc_3yr	***S***	Citable Docs. (3years)
	Scholarly_Output	***C***	Documents published in 2013 – 15
	Total_3yr	***S***	Total Docs. (3years)
10	*Number*	***R***	Number of items listed
	Total_2016	***S***	Total Docs. (2016)
	Total_Refs	***S***	Total Refs

** Codes for sources: R – RePEc, C – Scopus CiteScore, S – SCImagoJR, L – LogEc, R&L match of RePEc and LogEc, I – InCites, A – Altmetrics, GS – Google Scholar.*

Table 3.8 The Cluster membership.

The Academic Journal Quality Guide (AJG)

A similar classification to the *ABDC* list has been proposed by the UK Chartered Association of Business Schools' *Academic Journal Quality Guide* (see Harvey et al 2007) that grades scholarly journals in business research fields. Recently this classification of journals has been updated as the *Academic Journal Guide* (AJG) (Chartered Association of Business Schools 2018). The guide provides a ranking of journals into 5 categories 4*, 4, 3, 2, and 1, where the 4* category is very small and reserved for only a handful of journals designated as "Journals of Distinction". In this study we compare these rankings for the economics, econometrics and statistics journals in the *ABDC* list. For our comparison we note that these 4* journals would be designated as A* in the *ABDC* list. The implications for the consistency of the AJG rankings have been investigated by Mingers and Yang (2017) who perform a similar analysis on a smaller range of bibliometrics.

Table 4.1 provides the cross tabulation of the AJG ranking with the *ABDC* rankings.[42] From this table we note that most of the AJG ranks are the same or lower than the *ABDC* ranks and that only 332 out of 760 journals in the *ABDC* list are ranked by the AJG. A primary cause for this discrepancy is the incomplete coverage of statistics journals in the AJG list. Thus, the *%Same* is 52.71% while 40.96% of the journals are ranked higher by the *ABDC* ranking than the AJG list and only 6.32% are ranked higher by the AJG than the *ABDC* rankings. Because the marginal totals are not the same, we use the more appropriate Cohen's *kappa* statistic which in this case is .3397 with an estimated standard deviation of .0387. From this comparison we see that the AJG rankings are usually lower than the *ABDC*. Where the journals are ranked by the AJG we have included the rank in the lists provided in Appendices A and B.

	ABDC				
AJG	**C**	**B**	**A**	**A***	**Total**
1	**33**	58	1	0	92
2	9	**66**	51	0	126
3	0	9	**52**	26	87
4+4*	0	0	3	**24**	27
Total	42	133	107	50	332

Table 4.1 The cross tabulation of the AJG rankings for 2015 and the *ABDC* rankings.

[42] For this analysis we use the 2015 AJG rankings to conform more closely to the date of the *ABDC* rankings we use in this analysis.

Applying Bibliometrics to the Journals.

In this section the journal bibliometrics described in Section 3 are used to grade journals in the *ABDC* rankings using the various bibliometrics we have discussed. Thus, for all the journals that are included in the journal data (i.e. Scopus, Citescore, *RePEc* and *LogEc*) we determine the distribution of A*, A, B, and C journals using a similar approach as was described for Table 3.4. Then we rank the journals based on the different bibliometrics and allocate them a grade so that the distribution of the grades matches the distribution we observe in the data. For example, a journal may be classified as an A* in the *ABDC* list but its ranking according to the *RePEc h-index* may indicate that it is an A journal. We can use the corresponding ranking for each bibliometric we observe for the journal to establish the degree to which the *ABDC* ranking agrees with the rankings that may have been created by any of the bibliometrics.

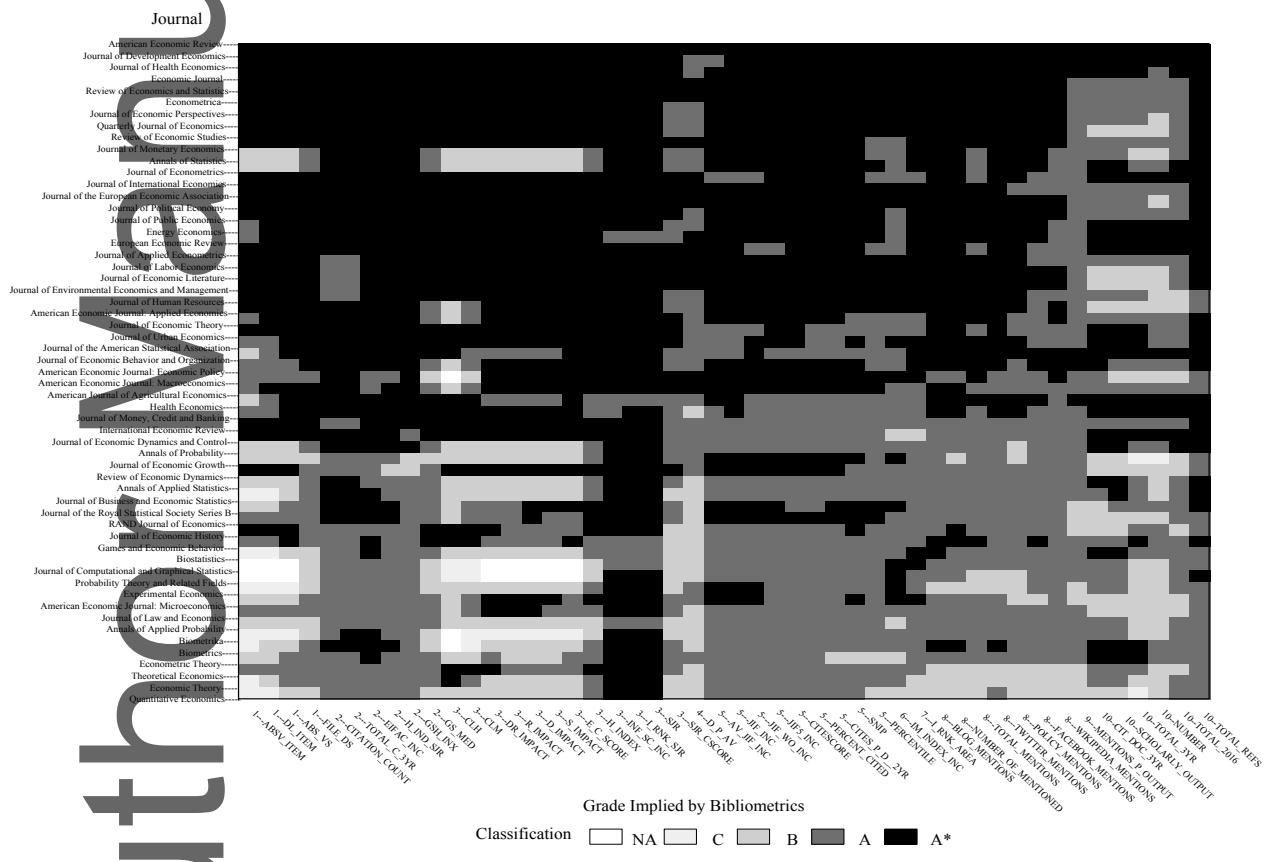

Figure 5.1 The heatmap of the grades for all journals designated as A* journals in the *ABDC* rankings.

An example of the rankings can be seen in the heatmap given in Figure 5.1 for the journals that have been categorised by the *ABDC* as A* journals. The darkest value in the heatmap indicates the highest numeric value. The journals are ordered by the grade point average (GPA where A* = 4, A = 3, B = 2 and C = 1) they receive based on all the bibliometrics that we can match for the journal. From this figure all the 48 bibliometrics are of A* rank for the *American Economic Review*. However, although three bibliometrics rank *Quantitative Economics* as an A* journal it has a GPA of 2.41. Consequently, it is listed last among the *ABDC* A* journals in this list. In this figure one can note that the less consistent the colours near the lower part of the heatmap indicate the greater variability in the grades implied by the bibliometrics. The more consistent colours at the top demonstrate that the bibliometric grades for these journals are graded more consistently with the *ABDC* grades. We use the order of the bibliometrics in Table 3.8 for the bottom axis in Figure 5.1.

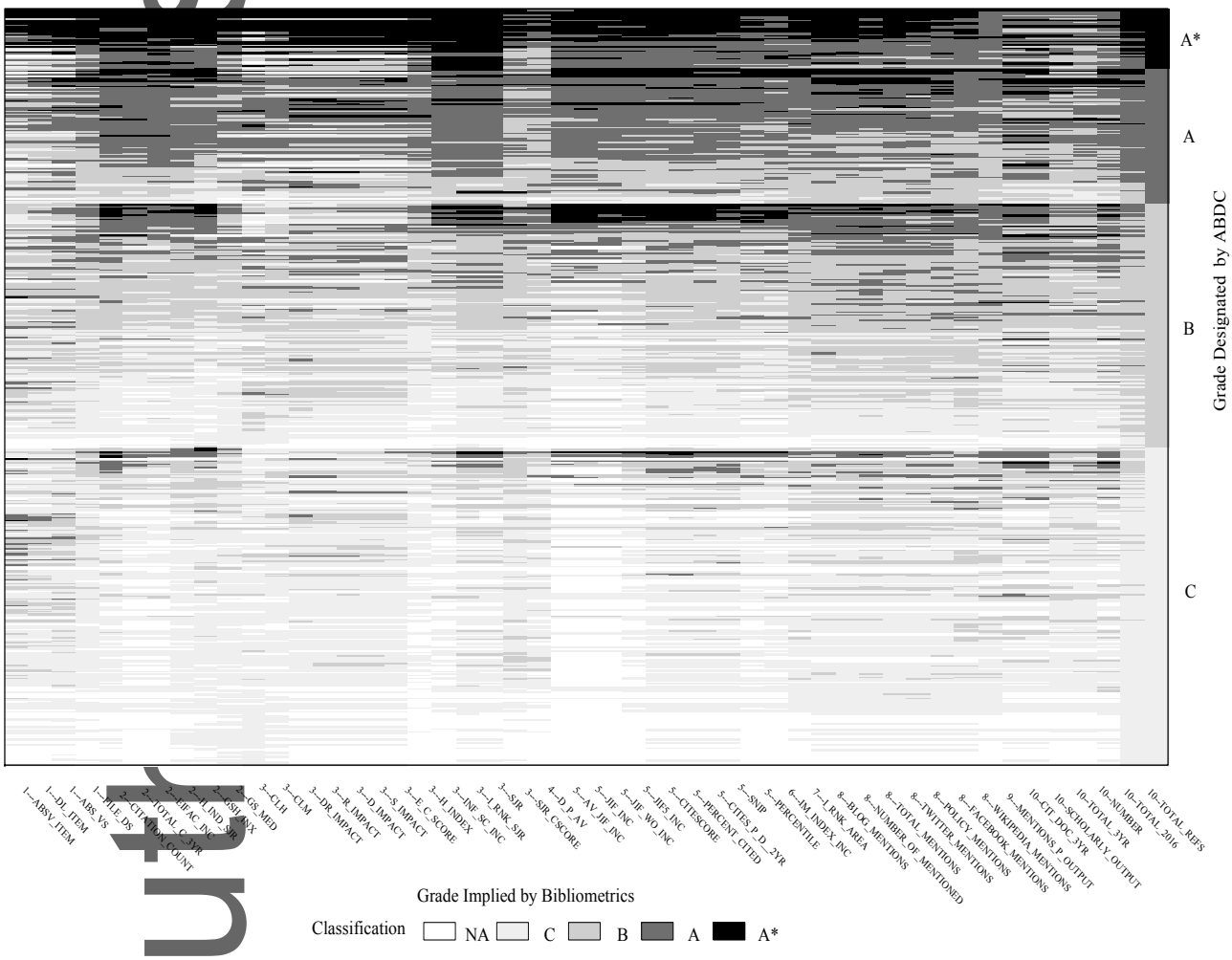

Figure 5.2 The heatmap of the grades for the 712 journals for which we observe the at least one of the 48 bibliometrics.

To appreciate how these bibliometrics coincide with the journals graded by the *ABDC* in all categories, we provide the equivalent heatmap for all 712 journals for which we can match any of the 48 bibliometrics in Figure 5.2. To reduce the clutter in this figure we have removed the journal titles. Again, these journals are ordered by *ABDC* grade then by their GPA within the *ABDC* rank based on the bibliometrics. From Figure 5.2 one can see that the top journals in the A, B and C categories often have several bibliometric grades that would indicate the journal is above their designated *ABDC* category listed. This bunching is most noticeable at the borders of the *ABDC* grades where the colour of the indicators for the journals at the top of the next grade appear darker than the indicators at the bottom of the grade above. The heatmaps also allow us to establish the degree of consistency or inconsistency in the gradings across the different bibliometrics by comparing the indicator colours across the rows. Thus, instances where the colour changes across the rows are an indication of the between variation in bibliometric grades for a journal. This figure can be viewed as a multivariate version of Moosa's (2016) bucket figure where he shows separate plots of the ranks of the *SJR* and the h-index (as defined by *h_ind_sjr* and *h-index*) by grade classification.

Although we emphasize the consideration of multiple bibliometrics in this paper it is useful to provide some summary statistics. We can determine the GPA and the median grade (GPM) based on all the bibliometric grades available for a journal. Figure 5.3a is an overlay plot of the estimated kernel densities of the GPA for each set of journals as classed by the *ABDC* grade.[43] Note that there is considerable overlap of the densities between the grades which indicates that the GPA for some journals could be greater or lower than the GPA of journals in the adjacent *ABDC* grade. The difficulty in the use of a single measure such as the GPA or GPM is the need to assume a weight for each bibliometric. In this case each is assumed to have an equal weight.

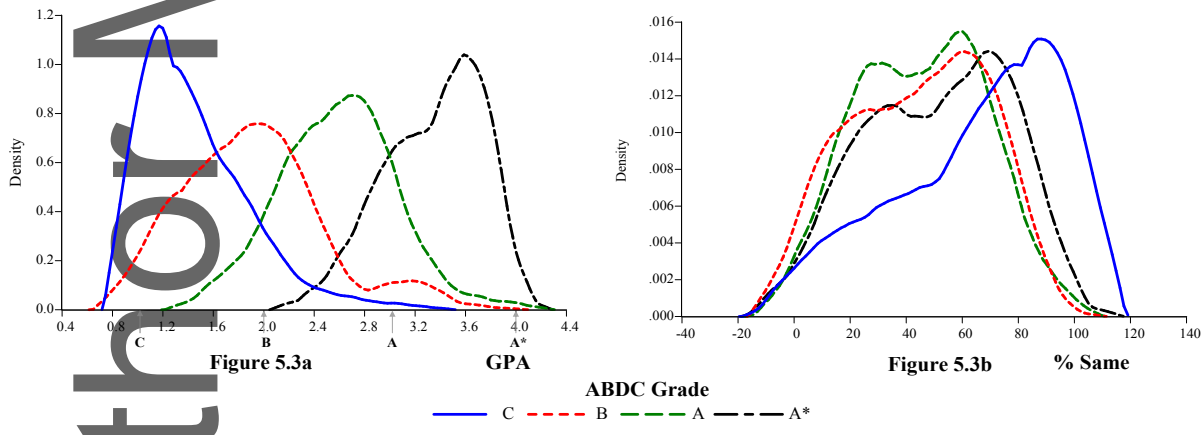

Figure 5.3 The distributions of the GPA and *%Same* by *ABDC* grade

[43] These density estimates employ the Epanechnikov kernel evaluated at 100 points with a bandwidth of .35.

An alternative statistic for the degree to which the *ABDC* grade matches the implied bibliometric grade is to determine the proportion of the bibliometrics that imply a grade above, the same grade, and a grade below.[44] Figure 5.3b provides the equivalent set of density plots to Figure 5.3a for the *%Same*. This measure indicates that the journals rated C are more likely to be graded as C by bibliometrics than the journals in the other grades. We also note that the for the *ABDC* grades A*, A, and B there is less distinction between the grades.

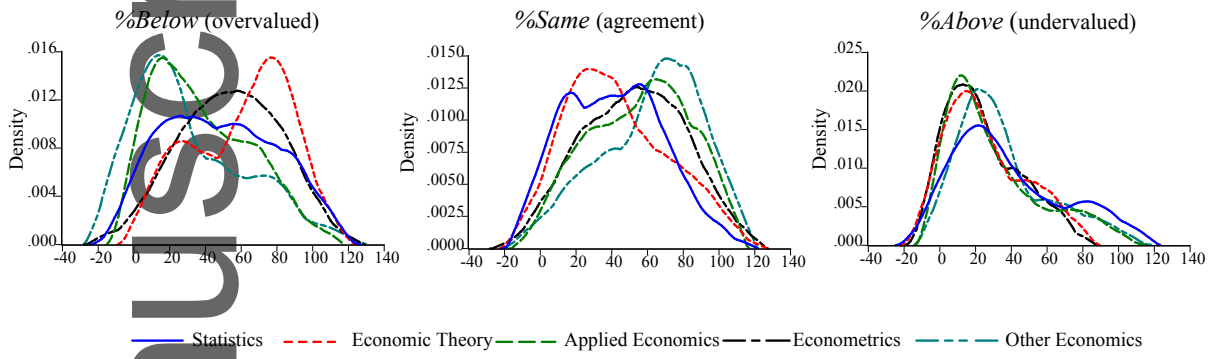

Figure 5.4 The distributions of the *%Below, %Same*, and *%Above* by Field of Research .

We can gain an additional perspective on the allocation of grades by the *ABDC* by examining the *%Below* (indicating overvalued by *ABDC*), *%Same* (indicating agreement with the *ABDC*) and *%Above* (indicating undervalued by *ABDC*) by the Field of Research (*FoR*) designation of the journals. If the *FoR* was independent of the journal classification, then there would be no indication that journals in one field may be classified differently than those in other fields. We can reject the hypothesis that the averages of the *%Below*, *%Same* and *%Above* are equal in all *FoR*s with a 95% confidence. Figure 5.4 provides an indication of the distributions of these measures by *FoR*. We note that the *ABDC* grades for Economic Theory journals appear to have a distribution that indicates the average *%Below* to be greater than those for any other field – a measure that would specify that they are overvalued.

[44] One limitation of these measures for grades A* and C is that they are truncated from above and below respectively. This means that the *%Above* for all A* journals is zero and *%Below* for all C journals is zero.

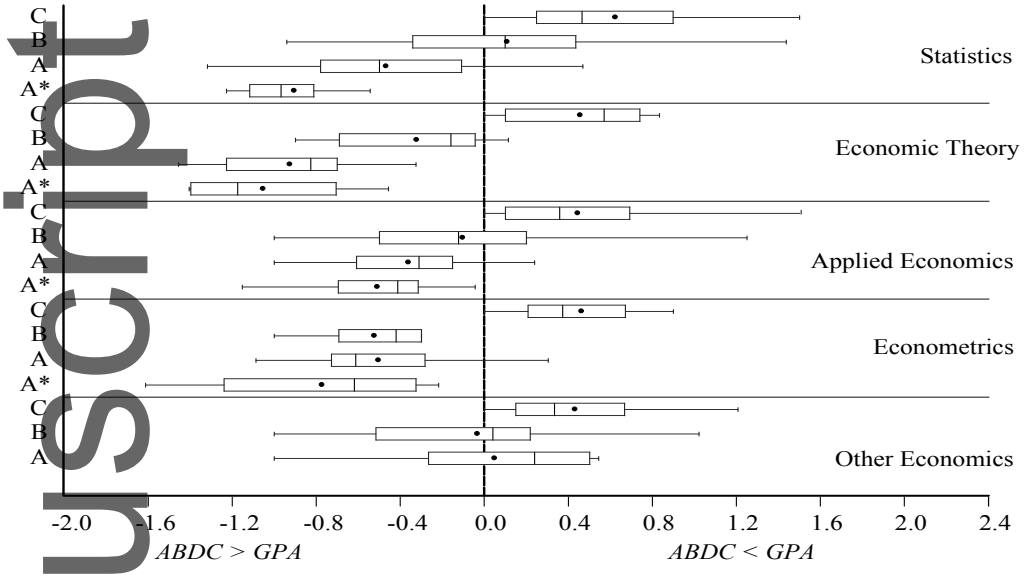

Figure 5.5 The distributions of the difference between the *ABDC* grade and the *GPA* $(ABDC - GPA)$ by *FoR* and *ABDC* grade (the box indicates the interquartile distance, the line the median and the dot is the mean).

By comparing the GPA to the numeric value of the *ABDC* grade we can define the difference as $(ABDC - GPA)$. The boxplots provided by *FoR* and *ABDC* grade are listed in Figure 5.5. Note that negative values of this difference are indicative of cases where the average bibliometric grade would specify a lower grade than the grade assigned by the *ABDC*. Thus, a difference of -1 indicates that the GPA is one unit less than the *ABDC* grade consequently the journal is graded higher by the *ABDC* than would be determined by the average bibliometric grade. From this figure one can see that the lower quartile of the differences for the B and A grade journals in Econometrics and Economic Theory are given grades that are above the equivalent *GPA* as defined by the bibliometrics. For example, the mean *GPA* of Economic Theory journals graded as A by the *ABDC,* where A = 3, is estimated as 2.08 which implies an average grade differential of -.92.

To examine the degree to which the bibliometric grades for specific journals match the *ABDC* grades we have provided tables of those journals that appear to be undervalued in Appendix A and overvalued in Appendix B. In Appendix A we list those journals where we find that the majority of the bibliometric grades suggest a higher grade (where *%Above* ≥ 50) than their *ABDC* grade. These tables also list the percent of bibliometrics that agree with the *ABDC* grade (*%Same*), the percent that are below the *ABDC* grade (*%Below*), the *GPA* of the bibliometrics, the difference of the *GPA* from the *ABDC* grade (*Diff*), the median grade (*GPM*), and the number of bibliometrics matched for this journal (*N*). In addition, we have added the grade point average based only on the more traditional bibliometrics in clusters 2, 3, 5 and 10 (designated as *GPA**), where *N** indicates the number of these bibliometrics which could be matched, and *AJG* indicates the grade from the UK Academic Journal Quality Guide for 2015 when

available. The tables in Appendix B provides the list of journals where 50% or more of the bibliometric grades are lower, hence when %*Below* is greater than 50%. The columns in these tables are the same as those used in the Appendix A tables.

By comparing the bibliometrics for journals classified by the *ABDC* we can determine that several journals are undervalued by almost all bibliometrics. There are 16 journals that are graded as C with 90% or more of their bibliometric grades indicating they should have a higher grade.[45] We also discover that there are five journals (one A and four B's) that can be classed as overvalued with 100% of the bibliometrics we can assign to them indicating they would be in a lower grade. Unlike previous methods for the analysis of journal rankings we have employed a multi-bibliometric approach. This was done by a comparison on grades assuming a discrete categorization in the same manner as the *ABDC*. Although we find that most of the journals that are graded as C journals that would be higher are specialist journals, some cover more mainstream topics. In addition, we can identify journals that are classed by the *ABDC* as A* journals that bibliometric ranks would order as A's and B's. These include *Quantitative Economics,* and the *Journal of Law and Economics.* The capricious nature of the changes in the *ABDC* ranking for journals has been widely noted. For example, in a newspaper article Keen (2013) refers to changes that were initiated by one academic.

Our tables in the appendices A and B are relevant to the *ABDC* list up to December 2019 (*ABDC* 2019). However, this list is a moving target since it was updated in December 2019.[46] Table 5.1 lists the total changes to the ABDC list by grade and FoR code for the economics and statistics journals. Twenty-nine journals were added to the list and 2 were reclassified by FoR code into economics FoRs from other fields. Thirty journals were removed, many of these are journals that are no longer issued or do not satisfy the requirement of appropriate content. Ten of the 79 undervalued journals with a grade of C as listed in Table A.1 are now graded as B or A. In Table A.2 six of the 27 undervalued journals with a grade of B have been upgraded to an A. However, although two journals were up-graded from A to A*, none of these are among the journals listed in Table A.3. This new grading exercise has resulted in only three journals in Table B.1 to be down-graded from A* to A with another removed from the list entirely. All of these are Statistics journals. None of the overvalued journals graded as A (48) or B (66) listed in Tables B.2 and B.3 have been downgraded. Also note that of the 29 "new" journals the majority are in Applied Economics and their grades are either B or C. The one new A* journal (*American Economic Review: Insights*) is an off-shoot of the *American Economic Review* that appears to publish the shorter papers that used to appear in the

[45] Tables A.1 and A.2 highlight those journals that have been moved based on the 2019 revision of the *ABDC* list.

[46] Downloaded December 2019 from https://abdc.edu.au/wp-content/uploads/2019/12/abdc_jql_2019_0612.xlsx .

original journal. The stated aim of this new journal is to publish "insights that can be conveyed succinctly" with submissions limited to 6,000 words.[47]

December 2019 ABDC	New Grade				Field of Research					
	A*	A	B	C	*Statistics*	*Economic Theory*	*Applied Economics*	*Econometrics*	*Other Economics*	Total
Change FoR from "Applied Economics"	0	0	1	1	0	0	0	0	2	2
Change FoR from "Other Economics"	0	0	1	0	0	0	1	0	0	1
Change FoR from "Other Commerce"	0	0	0	1	0	0	1	0	0	1
Change in number	-1	+18	+3	-21	0	+2	+6	-2	-7	-1
Upgrade to	2	13	9		5	2	14	2	1	24
Upgrade and change FoR from "Other Economics"	0	2	0	0	0	0	2	0	0	2
Upgrade and change FoR from "Banking"	0	1	0	0	0	0	1	0	0	1
Down grade	3				3					3
Added	1	5	11	12	1	3	22	1	2	29
Removed	1	1	6	22	1	1	17	3	8	30

Table 5.1 Changes to the ABDC list as of the December 2019 table.

Discussion

There is no question that these rankings provide some indication of research quality and have been devised as an inexpensive method for the evaluation of research that can be conducted by individuals that have limited expertise in the research areas and to provide a tool for the evaluation of young scholars who have a limited track record. However, one aspect of journal rankings is that they are open to gaming the result. This was the position taken by Biagioli (2016) who claimed that "*All metrics of scientific evaluation are bound to be abused"* (page 201) along the lines of Moosa's (2016, page 459) assertion that such "*bucket classifications*" lead inevitably to "*publication*

[47] See https://www.aeaweb.org/journals/aeri/about-aeri for details of the submission policy.

arbitrage" – whereby authors search for the lowest entry barrier in the highest graded journal – the bottom of the bucket. A recent panel discussion by five Nobel Laureates held at the 2017 American Economic Association Annual Meeting discussed the topic of "Publishing and Promotion in Economics: The Curse of the Top Five", (American Economic Association 2017, see also notes by Heckman 2017). A major concern of this panel was the over reliance on publishing activity in the top journals as a measure of the worth of prospective hires and promotion in academic economics departments. Angus Deaton observed that academics, in countries outside the US, may encounter significant difficulties in publishing on local policy issues in US/UK based journals when promotion decisions are heavily weighted toward these journals.

There appear to be some systematic factors that determine the overvaluations. It was shown in Figure 5.5 that the difference between a journal's *ABDC* grade and the *GPA* is greater for Economic Theory journals than for Applied Economics journals. In addition, of the 13 journals that can be identified as having an Australian origin, 10 can be classed as overvalued since more than 50% of their bibliometrics indicate that they would be given a lower grade if classified based purely on their bibliometric grades.[48] Are these "inflated grades" enough to encourage research in the areas that are pertinent to Australian policy and are the non-Australian institutions that use the *ABDC* grades aware of this characteristic? Should a domestic ranking be used to encourage examination of Australian policy issues? Or more generally, should domestic journals be promoted over journals based in other countries?

It is also important to keep in mind that these bibliometrics were originally designed to aid in the planning of library holdings and, there are several recent papers that demonstrate their short-comings. Larivière et al (2016) suggest the full distribution of citations for a journal be used. In this way the nature of the skewness that may dominate the journal level citation count maybe accounted for. The Hirsch index is one of several measures to describe the nature of the distribution of the number of citations (see Ellison 2013 for others).

Other papers question the use of journal rankings to measure research productivity. Haucap et al (2017) find little relationship between an economist's academic reputation and the rankings of the journals in which they publish as based on the Handelsblatt journal grades.[49] In a recent paper in which Hamermesh (2018) uses a citation analysis to rank the top 30 economics departments in the US, he remarks that "*the tremendous heterogeneity of individual contributions published in the same*

[48] *Australian and New Zealand Journal of Statistics, Economic Record, Australian Journal of Agricultural and Resource Economics, Statistics Education Research Journal, History of Economics Review, Agenda, Australian Journal of Labour Economics, Journal of Australian Political Economy, Australian Economic History Review,* and *Australian Economic Papers*

[49] This list can be found at https://www.wu.ac.at/fileadmin/wu/d/economics/Department_of_Economics/Leistungspr%C3%A4mien/Handelsblatt-Liste_2015.pdf.

outlet makes attributing journals' average quality to the individual articles they published extremely error-prone."(page 116) He then proposes that it would be more appropriate to "*rely on one's own reading of scholarly contributions or the readings by a group of scholars refereeing a person for appointment or promotion.*" (page 116) He then proposes that one way to develop a personal citation profile would be to ask researchers to register and create a Google Scholar site.[50] Alternatively, one can employ Anne-Wil Harzing's Publish or Perish computer application to query Google Scholar, Scopus, Microsoft Academic and the Web of Science citation indices to generate citation lists by author.[51] Another approach would be to create a RePEc site.[52] In an earlier paper (Hamermesh and Pfann 2012) he concludes that "*The major determinant of reputation - what is rewarded in this particular academic reputational market - is the interest that a scholar's work generates among his/her peers.*" (page 15)

One recent vein of this research is that citations do not account for the desire for original contributions or "neophilia". Packalen and Bhattacharya (2017) propose a bibliometric that is based on the originality of contributions where the innovative aspects of articles are characterised. They find that although the rank of the usual citation indices for journals in the area of General and Internal Medicine are related to the index of neophilia the correlation is -.47 and there are a significant number of outliers. Wang et al (2017) investigate a similar phenomenon with research into the bias against novelty in scientific research.

Finally, a caveat to this analysis is that none of the citation and access statistics match the full set of the journals in the *ABDC* list. Partly this is due to the imperfect information available in both the *ABDC* list and the citation information lists where journals have conflicting titles, non-matching International Standard Book Numbers (ISBNs), changing titles and problems in translation from non-English titles and where non-English characters are used. In addition, some of the smaller and less frequently published journals are not included in the major citation indices. Furthermore, the *RePEc* and *LogEc* lists only include those outlets that are primarily oriented toward economics and econometric journals and do not cover all statistics journals. The full list of journals to which bibliometric grades could be matched is available at Hirschberg (2020).[53]

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[50] Instructions can be found at https://libguides.reading.ac.uk/boost/google-scholar-profile .

[51] See https://harzing.com/.author/anne.harzing to download this program.

[52] This can found at https://authors.repec.org/ .

[53] The full set of computed grades by bibliometric along with the 2016 and 2019 ABDC grade lists are available on Mendeley data from: http://dx.doi.org/10.17632/9yx25scsn6.3.

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Appendix A. The undervalued journals with at least 50% of bibliometrics indicating the grade would be higher.

Table A.1 Undervalued journals with an *ABDC* ranking of C.[54]

Journal	%			All Bibliometrics				CL 2, 3, 5, & 10		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Journal of Medical Economics	100	0	0	2.22	3.22	3	27	3.28	18	
Economic Systems Research† (B)	100	0	0	1.88	2.88	3	48	3.06	33	2

[54] **†** (X) indicates that as of December 2019 the journal was up-graded by the *ABDC* to grade X (see https://abdc.edu.au/research/abdc-journal-list/). *%Above* indicates the % of bibliometrics that would indicate a higher rank, *%Below* is the % of bibliometrics that would indicate a lower rank, *%Same* the % of bibliometrics that would indicate the same rank, *Diff* is the difference between the average of the bibliometric ranks and the *ABDC* rank, *N* indicates the number of bibliometrics for which we can match the journal, *GPA* is the average grade based on the observed bibliometrics , *GPM* is the median grade based on the observed bibliometrics , *GPA** is based only on bibliometrics in clusters 2, 3, 5, and 10, *N** is the number of bibliometrics in the clusters 2, 3, 5, and 10 observed, *AJG* indicates the grade given to this journal by the 2015 AJG ranking.

Journal	%			All Bibliometrics				CL 2, 3, 5, & 10		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Journal of Statistical Computation and Simulation	97	3	0	1.53	2.53	2	34	2.71	24	
Journal of Biopharmaceutical Statistics	97	3	0	1.26	2.26	2	34	2.42	24	
Journal of Statistical Software †(A)	96	4	0	2.11	3.11	3	46	3.48	31	
Journal of Consumer Policy	95	5	0	1.12	2.12	2	41	2.07	27	2
Socio Economic Planning Sciences	95	5	0	1.13	2.13	2	39	2.16	25	
Expert Review of Pharmacoeconomics and Outcomes Research	94	6	0	1.67	2.67	3	36	2.62	26	
CES IFO Economic Studies	94	6	0	1.06	2.06	2	36	2.08	26	2
Energy Sources. Part B. Economics, Planning, and Policy	94	6	0	1.32	2.32	2	34	2.54	24	
Applied Health Economics and Health Policy	94	6	0	1.69	2.69	3	32	2.80	20	
Empirica	94	6	0	0.98	1.98	2	48	2.03	33	1
Sustainable Development	93	7	0	1.59	2.59	2	46	2.61	31	
Monetary and Economic Studies	93	7	0	1.50	2.50	2	14	2.33	9	
Journal of Theoretical Probability † (A)	91	9	0	1.24	2.24	2	34	2.42	24	
World Trade Review	90	10	0	1.00	2.00	2	48	2.03	33	
Cost Effectiveness and Resource Allocation	89	11	0	1.52	2.52	3	27	2.33	18	
Forest Policy and Economics† (B)	87	13	0	1.91	2.91	3	46	3.10	31	
African Development Review	85	15	0	1.02	2.02	2	48	2.09	33	
International Journal of Energy Economics and Policy	84	16	0	1.16	2.16	2	31	2.24	25	
Journal of the Knowledge Economy	83	17	0	1.20	2.20	2	30	2.50	18	
Journal of Development Effectiveness	83	17	0	1.04	2.04	2	48	1.85	33	
Intereconomics	83	17	0	0.97	1.97	2	29	1.90	20	1
Networks and Spatial Economics† (B)	81	19	0	1.35	2.35	2	48	2.67	33	2
Journal of Industry, Competition and Trade	81	19	0	0.84	1.84	2	32	1.85	20	2
Statistical Methodology	79	21	0	0.79	1.79	2	34	1.92	24	
Review of African Political Economy	79	21	0	1.25	2.25	2	48	2.18	33	2
Aquaculture Economics and Management	78	22	0	1.15	2.15	2	27	2.17	18	
Health Economics Review	77	23	0	1.00	2.00	2	30	1.89	18	
Stochastics† (B)	76	24	0	0.88	1.88	2	34	2.13	24	
Local Economy	76	24	0	1.12	2.12	2	41	2.19	27	2
Review of Black Political Economy	75	25	0	0.94	1.94	2	32	1.75	20	
De Economist	75	25	0	0.90	1.90	2	48	1.88	33	1
Choices	75	25	0	0.81	1.81	2	16	1.91	11	
Atlantic Economic Journal	73	27	0	0.80	1.80	2	41	1.67	27	1

Journal	%			All Bibliometrics				CL 2, 3, 5, & 10		
	Above	Same	Below	Diff	GPA	GPM	N	GPA*	N*	AJG
Journal of Benefit Cost Analysis	73	27	0	0.77	1.77	2	22	1.89	9	
Advances in Statistical Analysis	72	28	0	0.92	1.92	2	36	1.96	26	
Journal of Economic Interaction and Coordination† (B)	72	28	0	0.79	1.79	2	39	1.85	26	1
Progress in Development Studies	72	28	0	0.98	1.98	2	46	2.00	31	
Brussels Economic Review	71	29	0	1.07	2.07	2	14	1.56	9	
Economics Bulletin	71	29	0	1.27	2.27	2	41	2.30	27	
Cliometrica	70	30	0	1.02	2.02	2	44	2.03	29	2
Middle East Development Journal	70	30	0	0.75	1.75	2	20	1.86	7	
Development Southern Africa	69	31	0	0.90	1.90	2	48	1.82	33	
Environmental Economics and Policy Studies† (B)	69	31	0	0.69	1.69	2	32	1.75	20	1
Transformations in Business and Economics	68	32	0	0.86	1.86	2	28	1.88	26	
China Agricultural Economic Review	67	33	0	0.70	1.70	2	46	1.71	31	
Applied Econometrics	67	33	0	1.42	2.42	3	12	1.71	7	
European Economic Letters	67	33	0	0.92	1.92	2	12	1.71	7	
Working USA	67	33	0	0.83	1.83	2	12	1.00	4	
Journal of Choice Modelling† (B)	67	33	0	0.77	1.77	2	39	1.88	25	
Journal of Chinese Economics and Business Studies	66	34	0	0.73	1.73	2	41	1.59	27	1
International Economic Journal	66	34	0	0.71	1.71	2	41	1.59	27	1
Review of Keynesian Economics	65	35	0	0.78	1.78	2	46	1.65	31	
Asian Economic Policy Review	65	35	0	0.69	1.69	2	48	1.73	33	
Statistical Methods and Applications	64	36	0	0.64	1.64	2	39	1.81	26	
Historical Materialism	62	38	0	0.71	1.71	2	34	1.63	24	
Journal of Bioeconomics	61	39	0	0.66	1.66	2	41	1.67	27	1
Rethinking Marxism	59	41	0	0.85	1.85	2	27	1.61	18	
International Journal of Political Economy	59	41	0	0.82	1.82	2	22	1.33	9	1
Money Affairs	58	42	0	0.83	1.83	2	12	1.57	7	
Journal of Agricultural and Applied Economics	58	42	0	0.75	1.75	2	24	2.09	11	1
Journal of Wine Economics	58	42	0	0.71	1.71	2	24	1.73	11	
Theoretical and Applied Economics	57	43	0	0.86	1.86	2	14	1.56	9	
Journal of African Development	57	43	0	0.57	1.57	2	14	1.56	9	
Studies in Political Economy	56	44	0	0.56	1.56	2	25	1.63	16	
Foundations and Trends in Econometrics	56	44	0	0.78	1.78	2	27	1.67	18	1
Czech Journal of Economics and Finance	56	44	0	0.72	1.72	2	36	1.73	22	

Journal	%			All Bibliometrics				CL 2, 3, 5, & 10		
	Above	Same	Below	Diff	GPA	GPM	N	GPA*	N*	AJG
Journal of Econometric Methods† (B)	55	45	0	0.90	1.90	2	20	2.29	7	1
Capitalism and Society	55	45	0	0.55	1.55	2	22	1.67	9	
Review of Austrian Economics	54	46	0	0.68	1.68	2	41	1.44	27	1
German Journal of Agricultural Economics	53	47	0	0.63	1.63	2	38	1.55	31	
Prague Economic Papers	52	48	0	0.52	1.52	2	48	1.58	33	
Mathematics and Financial Economics	52	48	0	0.67	1.67	2	27	1.78	18	
International Advances in Economic Research	51	49	0	0.63	1.63	2	41	1.56	27	1
Journal of Economic Integration	51	49	0	0.54	1.54	2	41	1.56	27	1
IUP Journal of Managerial Economics	50	50	0	0.75	1.75	1.5	12	1.57	7	
Journal of Economic Development	50	50	0	0.63	1.63	1.5	24	1.64	11	
Economics and Applied Informatics	50	50	0	0.58	1.58	1.5	12	1.29	7	

Table A.2 Undervalued journals with an *ABDC* ranking of B. [55]

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	Same	Below	Diff	GPA	GPM	N	GPA*	N*	AJG
Value in Health	97	3	0	1.74	3.74	4	34	3.79	24	
Statistical Methods in Medical Research	97	3	0	1.38	3.38	3	34	3.50	24	
Food Policy	94	6	0	1.50	3.50	4	48	3.52	33	3
Journal of Economic Surveys† (A)	90	10	0	1.23	3.23	3	48	3.30	33	2
Journal of Happiness Studies	87	5	8	1.23	3.23	3	39	3.23	26	1
Journal of Common Market Studies	83	6	10	1.25	3.25	4	48	3.30	33	3
Annual Review of Economics	80	17	2	1.28	3.28	3.5	46	3.45	31	3
Health Policy† (A)	80	9	11	1.15	3.15	3	46	3.19	31	2
European Journal of Health Economics† (A)	79	18	3	1.18	3.18	3	39	3.27	26	2
International Journal of Urban and Regional Research	77	10	13	1.21	3.21	4	48	3.27	33	2
International Organization	77	19	4	1.21	3.21	3	48	3.15	33	
Journal of Financial Stability† (A)	77	23	0	1.06	3.06	3	48	3.24	33	3
Agriculture and Human Values	77	21	3	0.92	2.92	3	39	3.00	26	

[55] **†** (X) indicates that as of December 2019 the journal was up-graded by the *ABDC* to grade X (see https://abdc.edu.au/research/abdc-journal-list/). .

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Stochastic Environmental Research and Risk Assessment	76	21	3	1.12	3.12	3	34	3.46	24	
Resources Policy	75	25	0	1.02	3.02	3	48	3.09	33	2
Development and Change	73	10	17	0.63	2.63	3	48	2.67	33	3
British Journal of Mathematical and Statistical Psychology	71	26	3	1.06	3.06	3	34	3.17	24	
Biometrical Journal	68	32	0	0.71	2.71	3	34	2.71	24	
Bayesian Analysis † (A)	65	35	0	0.74	2.74	3	34	2.75	24	
Applied Economic Perspectives and Policy	59	33	9	0.50	2.50	3	46	2.58	31	2
Cambridge Journal of Regions, Economy and Society	57	35	9	0.76	2.76	3	46	2.90	31	3
Annual Review of Financial Economics	57	33	11	0.65	2.65	3	46	2.81	31	3
Annual Review of Resource Economics	57	30	13	0.48	2.48	3	46	2.61	31	2
Journal of Institutional Economics	56	38	6	0.56	2.56	3	48	2.58	33	3
Environmetrics	52	24	24	0.28	2.28	3	46	2.42	31	
Applied Economics Letters	50	38	13	0.60	2.60	2.5	48	2.42	33	1
Journal of Behavioral and Experimental Economics† (A)	50	46	4	0.48	2.48	2.5	48	2.39	33	2

Table A.3 Undervalued journals with an *ABDC* ranking of A.

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Bioinformatics	97	3	0	0.97	3.97	4	34	4.00	24	
World Development	79	21	0	0.79	3.79	4	48	3.76	33	3
Ecological Economics	65	27	8	0.56	3.56	4	48	3.58	33	3
PharmacoEconomics	59	31	10	0.46	3.46	4	39	3.50	26	2
Statistics in Medicine	53	44	3	0.50	3.50	4	34	3.46	24	
Economics Letters	52	13	35	0.17	3.17	4	48	3.09	33	3

Appendix B The overvalued journals with at least 50% of bibliometrics indicating they would be lower.

Table B.1 Overvalued journals with an *ABDC* ranking of A*.[56]

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Annals of Applied Probability† (A)	0	3	97	-1.15	2.85	3	34	3.04	24	
Economic Theory	0	5	95	-1.44	2.56	3	39	2.81	26	3
Biostatistics† (A)	0	6	94	-0.97	3.03	3	34	2.96	24	
Journal of Computational and Graphical Statistics	0	8	92	-1.00	3.00	3	36	3.00	26	
Econometric Theory	0	17	83	-1.23	2.77	3	48	2.91	33	4
Quantitative Economics	0	17	83	-1.59	2.41	2.5	46	2.84	31	3
Theoretical Economics	0	19	81	-1.38	2.63	3	48	3.03	33	3
Journal of Law and Economics	0	19	81	-1.15	2.85	3	48	2.73	33	3
Biometrika	0	22	78	-1.17	2.83	3	46	2.97	31	4
Experimental Economics	0	23	77	-1.02	2.98	3	48	3.15	33	3
Games and Economic Behavior	0	25	75	-0.96	3.04	3	48	3.18	33	3
Biometrics † (Removed)	0	26	74	-1.20	2.80	3	46	2.90	31	
Annals of Applied Statistics† (A)	0	26	74	-0.82	3.18	3	34	3.33	24	
Journal of Economic History	0	27	73	-0.94	3.06	3	48	2.88	33	3
Probability Theory and Related Fields	0	29	71	-1.00	3.00	3	34	3.33	24	
American Economic Journal: Microeconomics	0	30	70	-1.07	2.93	3	46	3.19	31	3
Journal of Business and Economic Statistics	0	33	67	-0.85	3.15	3	48	3.36	33	4
Review of Economic Dynamics	0	33	67	-0.81	3.19	3	48	3.27	33	3
RAND Journal of Economics	0	35	65	-0.90	3.10	3	48	3.21	33	4
International Economic Review	0	40	60	-0.71	3.29	3	48	3.39	33	4

[56] **†** (X) indicates that as of December 2019 the journal was down-graded or removed by the *ABDC* to grade X (see https://abdc.edu.au/research/abdc-journal-list/). *%Above* indicates the % of bibliometrics that would indicate a higher rank, *%Below* is the % of bibliometrics that would indicate a lower rank, *%Same* the % of bibliometrics that would indicate the same rank, *Diff* is the difference between the average of the bibliometric ranks and the *ABDC* rank, *N* indicates the number of bibliometrics for which we can match the journal, *GPA* is the average grade based on the observed bibliometrics , *GPM* is the median grade based on the observed bibliometrics , *GPA** is based only on bibliometrics in clusters 2, 3, 5, and 10, *N** is the number of bibliometrics in the clusters 2, 3, 5, and 10 observed, *AJG* indicates the grade given to this journal by the 2015 AJG ranking.

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Journal of Economic Dynamics and Control	0	42	58	-0.71	3.29	3	48	3.45	33	3
Journal of Money, Credit and Banking	0	42	58	-0.67	3.33	3	48	3.45	33	4
American Journal of Agricultural Economics	0	42	58	-0.63	3.38	3	48	3.39	33	3
Journal of the Royal Statistical Society Series B	0	43	57	-0.89	3.11	3	46	3.39	31	4
Annals of Probability	0	44	56	-0.79	3.21	3	34	3.54	24	
Health Economics	0	48	52	-0.65	3.35	3	48	3.45	33	3

Table B.2 Overvalued journals with an *ABDC* ranking of A.

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Australian and New Zealand Journal of Statistics	0	0	100	-1.17	1.83	2	35	1.86	22	
Statistica Neerlandica	0	2	98	-1.39	1.61	2	46	1.58	31	
Environmental and Ecological Statistics	0	3	97	-1.06	1.94	2	34	1.96	24	
BE Journal of Theoretical Economics	0	4	96	-1.48	1.52	1	48	1.52	33	2
Studies in Nonlinear Dynamics and Econometrics	2	8	90	-1.13	1.88	2	48	1.97	33	2
IZA Journal of Labor Economics	0	11	89	-1.46	1.54	1	28	1.25	16	2
Theory of Probability and its Applications	0	12	88	-1.26	1.74	2	34	1.79	24	
Journal of Institutional and Theoretical Economics	0	15	85	-1.27	1.73	2	48	1.73	33	2
Journal of Cultural Economics	2	15	83	-0.96	2.04	2	48	1.85	33	2
Journal of Public Economic Theory	0	17	83	-0.90	2.10	2	48	2.24	33	2
Canadian Journal of Agricultural Economics	0	17	83	-0.83	2.17	2	36	2.15	26	2
Review of Industrial Organization	0	21	79	-0.83	2.17	2	48	2.15	33	2
Scottish Journal of Political Economy	0	21	79	-0.83	2.17	2	48	2.18	33	2
BE Journal of Macroeconomics	0	23	77	-1.25	1.75	2	48	1.70	33	2
Mathematical Social Sciences	0	23	77	-0.94	2.06	2	48	2.00	33	2
Economics of Transition	0	23	77	-0.85	2.15	2	48	2.21	33	2
NBER Macroeconomics Annual	16	8	76	-1.05	1.95	2	37	1.96	23	
Journal of Human Capital	4	22	74	-0.93	2.07	2	46	2.00	31	
Economics and Philosophy	0	26	74	-0.85	2.15	2	46	2.06	31	2
Journal of the Japanese and International Economies	0	26	74	-0.74	2.26	2	46	2.13	31	2
Journal of Applied Probability	12	15	74	-0.71	2.29	2	34	2.46	24	2
Annals of the Institute of Statistical Mathematics	0	27	73	-0.78	2.22	2	37	2.38	24	
Journal of Agricultural and Resource Economics	0	27	73	-1.00	2.00	2	48	2.18	33	2

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Theory and Decision	0	27	73	-0.79	2.21	2	48	2.33	33	2
Economic and Industrial Democracy	0	28	72	-0.81	2.19	2	36	2.04	26	3
Marine Resource Economics	0	29	71	-1.00	2.00	2	48	2.06	33	1
Social Choice and Welfare	10	21	69	-0.62	2.38	2	39	2.54	26	3
Journal of Forecasting	0	31	69	-0.71	2.29	2	48	2.33	33	2
Econometrics Journal	9	24	67	-0.74	2.26	2	46	2.42	31	3
Economic Record	0	33	67	-0.77	2.23	2	48	2.15	33	2
International Journal of Game Theory	3	31	67	-0.74	2.26	2	39	2.38	26	2
History of Political Economy	6	27	67	-0.73	2.27	2	48	2.03	33	2
Journal of African Economies	0	33	67	-0.71	2.29	2	48	2.30	33	2
Journal of Evolutionary Economics	0	33	67	-0.67	2.33	2	39	2.27	26	2
Journal of Mathematical Economics	8	27	65	-0.65	2.35	2	48	2.48	33	3
Information Economics and Policy	0	38	63	-0.65	2.35	2	48	2.39	33	2
International Environmental Agreements Politics	0	38	62	-0.73	2.27	2	37	2.38	24	
BE Journal of Economic Analysis and Policy	0	39	61	-0.83	2.17	2	46	2.23	31	2
Journal of Time Series Analysis	0	39	61	-0.67	2.33	2	46	2.35	31	3
Journal of Regulatory Economics	0	40	60	-0.63	2.38	2	48	2.55	33	2
American Journal of Health Economics	4	37	59	-0.89	2.11	2	27	2.15	13	
Australian Journal of Agricultural and Resource Economics	6	35	58	-0.56	2.44	2	48	2.55	33	2
Scandinavian Journal of Statistics	0	46	54	-0.67	2.33	2	46	2.58	31	3
Electronic Journal of Statistics	18	29	53	-0.35	2.65	2	34	2.88	24	
Macroeconomic Dynamics	4	44	52	-0.52	2.48	2	48	2.61	33	2
Statistica Sinica	3	47	50	-0.71	2.29	2.5	34	2.71	24	
International Statistical Review	4	46	50	-0.61	2.39	2.5	46	2.29	31	3
Kyklos	0	50	50	-0.56	2.44	2.5	48	2.36	33	3
Journal of Statistical Planning and Inference	15	35	50	-0.38	2.62	2.5	34	2.75	24	2

Table B.3 Overvalued journals with an *ABDC* ranking of B.

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Asia Pacific Journal of Economics and Business	0	0	100	-1.00	1.00	1	16	1.00	11	
International Journal of Development and Conflict	0	0	100	-1.00	1.00	1	12	1.00	7	
Journal of European Economic History	0	0	100	-1.00	1.00	1	12	1.00	4	1

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Recherches Economiques de Louvain	0	0	100	-1.00	1.00	1	17	1.00	9	
Statistics Education Research Journal	0	6	94	-0.94	1.06	1	17	1.06	16	
History of Economic Ideas	0	8	93	-0.93	1.08	1	40	1.06	33	
History of Economics Review	0	8	92	-0.92	1.08	1	12	1.00	4	
Review of Urban and Regional Development Studies	3	8	90	-0.87	1.13	1	39	1.04	25	
Revue d tudes Comparatives Est Ouest	0	15	85	-0.85	1.15	1	34	1.17	24	
Politica Economica	2	13	85	-0.83	1.17	1	46	1.16	31	
Competition and Regulation in Network Industries	0	16	84	-0.84	1.16	1	31	1.12	25	
El Trimestre Economico	3	13	84	-0.81	1.19	1	31	1.21	19	
Decisions in Economics and Finance	0	17	83	-0.83	1.17	1	30	1.17	18	1
Indian Growth and Development Review	3	15	82	-0.79	1.21	1	39	1.16	25	
Hitotsubashi Journal of Economics	8	11	82	-0.74	1.26	1	38	1.00	31	
International Journal of Stochastic Analysis	0	20	80	-0.80	1.20	1	25	1.19	16	
Problems of Economic Transition	8	13	79	-0.67	1.33	1	24	1.27	11	
Review of Economic Design	5	16	78	-0.73	1.27	1	37	1.29	24	2
Spanish Economic Review	0	23	77	-0.77	1.23	1	13	2.00	2	
International Game Theory Review	0	24	76	-0.76	1.24	1	41	1.30	27	1
Journal of Gambling Business and Economics	8	17	75	-0.67	1.33	1	12	1.00	7	1
Mathematical Methods of Statistics	11	14	75	-0.64	1.36	1	28	1.56	16	
Journal of Statistics Education	0	26	74	-0.74	1.26	1	27	1.22	18	
Agenda	4	22	74	-0.70	1.30	1	27	1.17	18	
Australian Journal of Labour Economics	0	27	73	-0.73	1.27	1	22	1.56	9	1
Japanese Economy	0	27	73	-0.73	1.27	1	22	1.00	9	
Journal of Income Distribution	3	26	71	-0.68	1.32	1	31	1.33	18	1
Econ Journal Watch	4	25	71	-0.67	1.33	1	48	1.24	33	
International Journal of Business and Economics	8	21	71	-0.63	1.38	1	24	1.18	11	
Journal of Quantitative Economics	13	17	71	-0.58	1.42	1	24	1.27	11	
Chinese Economy	7	22	71	-0.63	1.37	1	41	1.26	27	
International Journal of Economic Theory	4	26	70	-0.65	1.35	1	46	1.39	31	2
Journal of Financial Economic Policy	5	27	68	-0.59	1.41	1	41	1.52	27	1
Journal of Australian Political Economy	0	32	68	-0.68	1.32	1	28	1.31	26	
International Labor and Working Class History	2	30	67	-0.65	1.35	1	46	1.29	31	
Journal of Demographic Economics	6	28	66	-0.59	1.41	1	32	1.23	22	

Journal	%			All Bibliometrics				CL 2, 3, 5 only		
	Above	*Same*	*Below*	*Diff*	*GPA*	*GPM*	*N*	*GPA**	*N**	*AJG*
Cogent Economics and Finance	20	15	65	-0.45	1.55	1	20	1.00	7	
Asia Pacific Development Journal	14	21	64	-0.50	1.50	1	14	1.22	9	
Review of Economics and Finance	14	21	64	-0.50	1.50	1	14	1.00	9	
Review of Law and Economics	0	36	64	-0.64	1.36	1	39	1.40	25	2
Journal of Media Economics	2	35	63	-0.61	1.39	1	46	1.13	31	1
Eastern European Economics	2	35	63	-0.60	1.40	1	48	1.45	33	1
Singapore Economic Review	13	25	63	-0.48	1.52	1	48	1.48	33	
Journal of the Economic and Social History of the Orient	12	26	62	-0.44	1.56	1	34	1.21	24	
New Zealand Economic Papers	3	36	62	-0.59	1.41	1	39	1.32	25	1
Global Economy Journal	5	34	61	-0.56	1.44	1	41	1.33	27	1
Economic and Political Weekly	30	11	59	0.00	2.00	1	27	2.28	18	
African Journal of Agricultural and Resource Economics	0	41	59	-0.59	1.41	1	22	1.67	9	
European Journal of Comparative Economics	0	41	59	-0.59	1.41	1	22	1.67	9	
Economic Notes	0	41	59	-0.59	1.41	1	39	1.32	25	1
Contributions to Political Economy	3	38	59	-0.56	1.44	1	39	1.24	25	2
Australian Economic History Review	2	40	58	-0.56	1.44	1	48	1.33	33	2
Journal of Prediction Markets	8	33	58	-0.42	1.58	1	12	1.29	7	1
Communications in Statistics	25	17	58	-0.19	1.81	1	36	2.08	26	
Economists' Voice	5	38	56	-0.51	1.49	1	39	1.28	25	
Series	13	31	56	-0.44	1.56	1	32	1.27	22	1
Journal of Modern Applied Statistical Methods	19	26	56	-0.37	1.63	1	27	1.78	18	
Journal of Economics and Statistics	10	35	55	-0.45	1.55	1	40	1.50	26	1
Finnish Economic Papers	27	18	55	-0.18	1.82	1	22	2.22	9	
Australian Economic Papers	4	42	54	-0.50	1.50	1	48	1.33	33	1
International Trade Journal	10	36	54	-0.41	1.59	1	39	1.52	25	1
Revue Economique	17	31	52	-0.34	1.66	1	29	1.60	20	
Innovation Policy and the Economy	16	32	51	-0.35	1.65	1	37	1.70	23	
Studies in Economics and Finance	7	41	51	-0.44	1.56	1	41	1.67	27	1
Asian Economic Journal	0	50	50	-0.50	1.50	1.5	46	1.42	31	1
Journal of Time Series Econometrics	15	35	50	-0.30	1.70	1.5	20	2.14	7	2