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## SCHUMPETER DISCUSSION PAPERS

# 99 Entrepreneurship Journals: A Comparative Empirical Investigation of Rankings, Impact, and H/HC-Index

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## 99 Entrepreneurship Journals

### A Comparative Empirical Investigation of Rankings, Impact, and H/HC-Index<sup>i</sup>

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***Work in progress, comments welcome!***

*“...we have all in some way or another fallen under the seductive power of academic journal rankings even as we harbor serious reservations about their value.” (Nkomo 2009, p. 106)*

#### **Abstract**

This article takes stock of 99 journals dedicated to the field of entrepreneurship research and examines their evaluations and impact. It compares several journal quality assessments, the Australian ERA 2010, ABDC 2010 and UQ 2011 lists, with other international rankings and with highly regarded impact measurements. In a following section, the H-Index and the HC-Index for journals are introduced. The H-Indices are Google Scholar based impact measurements which can be easily executed by anyone. The results for the entrepreneurship journals H-Indices are compared with other impact factors and with journal rankings from Australia and elsewhere. Results reveal that rankings are incomplete in regard to entrepreneurship journals and that many rankings are inconsistent when compared to impact measurements. This holds true even for the ERA and the ABDC 2010 lists, even though these are among the most appropriate lists.

**Key Words:** entrepreneurship journals, H-Index, HC-Index, journal rankings, journal ratings, evaluation of journals, impact measurements, impact factors.

#### **I Introduction**

In accordance with the paradigm of “publish or perish” (Brandon 1963), journal publications have become extremely important for academic careers. This is also true for the field of entrepreneurship research. Nevertheless, a scientific system with incentives predominantly based on journal publications is often criticized. (See for instance various articles published in a special section on “Doing Work that Matters” in the journal “Academy of Management Learning and Education” in March 2009 and again in 2010: Bell (2009), Doh (2009), Adler & Harzing (2009), Jain & Golosinski (2009), Nkomo (2009), Özbilgin (2009), Giacalone (2009), Worrel (2009), Bell (2010), Peng & Dess (2010); also see Rynes (2007) and Judge et al. (2007)).

Publications on rankings of entrepreneurship journals are rather rare (Sassmannshausen 2010a, 2010b, Katz and Boal 2003, Fried 2003, Shane 1997, MacMillan 1993, MacMillan 1991). This paper presents empirical insights concerning the rankings and the impact of entrepreneurship journals. For instance the Australian ERA list has caused quite some debates. But are the classifications provided for entrepreneurship journals by the ERA listing in line with the assessments from other (national or international) rankings and with impact measurements? This article compares ranking positions as provided by various international rankings and different impact measurements.

Results reveal some variance of individual journals' ranking positions. That does not come as a surprise. However, it seems that we underestimate many entrepreneurship journals. Many entrepreneurship journals of empirically measured influence are not included in the ERA 2010 list or any other list, to the disadvantage of the field – and particularly its researchers. In addition, the ERA 2010 list seems unbalanced when it comes to entrepreneurship journals.

## II Methods

While searching libraries and the internet for academic entrepreneurship journals, we were confronted with the problem of defining the term “entrepreneurship journal”. Such a definition is influenced by someone’s general understanding of entrepreneurship as a field of research. We will not address this issue in detail, because many articles have been published on the definition of entrepreneurship as a field of research. There is still no universal answer to the questions “What is entrepreneurship?” or “What is not entrepreneurship?” Instead of entering a battle over definitions we chose a practical solution following Gartner, Davidsson and Zahra: “Entrepreneurship scholarship is what entrepreneurship scholars pay attention to. [...] The manifestation of the visible or invisible college of entrepreneurship scholars will be whatever individuals who can “get published” and cite others, make it.” (2006, p. 327). Thus we have defined entrepreneurship journals as journals dedicated to publishing articles on the start-up of organizations, the early growth of young organizations, and SME owner management. This practical solution would for instance include journals on franchise systems if franchising is explored in the context of the formation or growth of young, newly founded businesses, but not if franchising is examined as a distribution mechanism for large corporations. Accordingly, we regard innovation as a part of entrepreneurship only in the context of the previously mentioned areas. We have, however, identified some innovation journals that frequently contribute to entrepreneurship research. Hence, by and large our understanding of entrepreneurship follows Rocha’s and Birkinshaw’s (2007) “Entrepreneurship Safari”.

A second problem was the definition of the term “journal”. In some rankings, certain annual books and conference proceedings have gained status of academic journals, for instance Babson’s *Frontiers of Entrepreneurship Research* are ranked “D” on Germany’s influential journal quality list “VHB Jourqual 2011” Other publications have the appearance of an edited book, e.g. the annually published *Advances in Entrepreneurship, Firm Emergence and Growth*, but still follow similar rules as special issues of journals. Then again some publications have the looks of a journal but with each issue include only a single monographic piece of work, e.g. the “Foundations and Trends in Entrepreneurship” and the “Synthesis Lectures on Technology, Management, and Entrepreneurship”. We have included all these types of publications in our analyses, mainly to provide a “full picture” but also to create awareness for the fact that periodical, reviewed publications can have diverse faces. In addition, we had an interest in empirically measuring and comparing the impact of such publications.

Our work results in an international comparative study of ten different rankings (out of 29 international rankings identified for our research), two commercially introduced impact factor scores (Thomson Reuter’s ISI Web SCI and SCImago SJR Impact factor), and two elaborated impact measurements (H-Index and HC-Index). The calculation of the H-Index is easy to execute for everyone and provides a good estimation of a journal’s influence, based on citations. The measurement will be explained in a later section of this paper.

### III Results

#### III.1 Quantity and Dynamics of Entrepreneurship Journals

We have identified 99 periodicals which deal with the field of entrepreneurship. Journals (or periodicals with similar rigor and rules) in our sample are published in English (94), German (3), French (1), or Italian (1) (see Appendix I for complete list).<sup>ii</sup> The search was limited to those four languages. The list includes two conference proceedings which are published regularly and are accessible even for those who have not participated in the conferences (Babson's *Frontiers of Entrepreneurship Research* and the Australian *Regional Frontiers of Entrepreneurship Research*). The ICSB proceedings as well as the proceedings of many other regular and well-established conferences have not been included because they are not available as a publication in the same steady manner as Babson's *Frontiers* or the online library at Melbourne's AGSE.

The field is on the move, at least when it comes to journals: 22 new journals have been established between 2008 and 2011. The emergence of new journals reveals a tendency of entrepreneurship research to develop sub-fields of particular interest, as many of the new journals are dedicated to niche areas or specialties of entrepreneurship research such as Public Policy for Entrepreneurship, Social Entrepreneurship, Entrepreneurial Finance, Family Business, E-Entrepreneurship, Gender or Women's Entrepreneurship, and Technopreneurship. In addition, regional journals have been introduced, especially in Africa (*Journal of Language, Technology & Entrepreneurship in Africa*) and Asia, including Emerald's *Journal of Chinese Entrepreneurship*. However, there also are some new general journals, such as the *Entrepreneurship Research Journal*, the *International Journal of Entrepreneurial Venturing*, and the *Small Business Institute Journal*. The dynamics and the growth of entrepreneurship research can be illustrated by the fact that between 2000 and 2011 as many journals have been started up as in the five previous decades all together (from 1950 to 1999).

While new journals have thus been started, some older journals have come to an end. We have identified 14 entrepreneurship journals and other similar periodicals which obviously stopped their publication activities (see Appendix II). Since we have not conducted a systematic search for discontinued entrepreneurship journals, many more former journals may have gone unrecognized by our research. No information was available on two journals published by Iranian scientists. We have classified these journals as still active, hoping that the future will bring some positive news.

<i>Business + Innovation</i>	<i>Journal of Family Business Management</i>
<i>Family Business Review</i>	<i>Journal of Family Business Strategy</i>
<i>Industrial and Corporate Change</i>	<i>Journal of High Technol. Managem. Research</i>
<i>Industry &amp; Innovation</i>	<i>Journal of Innovation Economics</i>
<i>Intern. Journal of Innovation &amp; Reg. Development</i>	<i>Journal of New Business Ideas &amp; Trends</i>
<i>Int. Journal of Innovation &amp; Technology Managem.</i>	<i>Journal of Private Equity</i>
<i>International Journal of Technology Management</i>	<i>Journal of Technology Transfer</i>
<i>Internat. Journal of Technology Policy &amp; Managem.</i>	<i>Research Policy</i>
<i>Int. Jour. of Technol. Transfer &amp; Commercialisation</i>	<i>Technology Analysis &amp; Strategic Management</i>
<i>Journal of Evolutionary Economics</i>	<i>Technovation</i>

**Table 1:** 20 journals from neighbouring fields with a strong dedication to entrepreneurship

20 of the 99 journals included in our list belong to the neighbouring fields of innovation management, economics, or finance but display a strong interest in entrepreneurship. Of course it can be argued whether those publications should have been labelled "entrepreneurship journals" and be taken into account in our research or not. We have

checked with Google Scholar to ensure that more than 25% of all articles published in these journals deal with entrepreneurship in terms of new venture creation etc. However, this distinction remains discretionary as one could also argue that at least 33.3% or even 50% of articles would make a better categorization in being relevant to the field of entrepreneurship research.

### *III.2 Journal Ratings and Rankings – An International Comparison*

Many different journal rankings and ratings assess journal qualities around the globe. While rankings bring journals into a discrete order, usually by some metric data (e.g. see Hennig-Thurau et al. 2004), ratings categorize journals into groups, usually classified by letters or numbers (e.g. A\*, A, B, C, or 1, 2, 3, 4, 5). Many rankings cluster their results into groups, thus combining ranking and rating of journals (e.g. VHB 2003 and VHB 2008/2011). Harzing (2011) provides a list with 20 international rankings. Three more rankings are included in previous versions of Harzing's list. We have added six more rankings: (1) the controversial Australian ERA 2010 list and (2) the AERES 2009 (Agence d'évaluation de la recherche et de l'enseignement supérieur), an updated version of the AERES 2008 which had already been summarized by Harzing (2011); (3) the Handelsbatt Ranking 2009 is a meta-ranking combining VHB 2008 and EIJ 2006, furthermore a panel study based ranking introduced by (4) MacMillan in 1991 (MacMillan 1991) and updated by (5) MacMillan (1993) and (6) Fried (2003).

	<b>Ranking</b> (description or title)	<b>Year</b>	<b>Abbreviat.</b>	<b># of e-ship journals included</b>
1	MacMillan's (JBV) Forum for Entrepreneurship Scholars	1991	JBV 1991	4
2	MacMillan's (JBV) Emerging Forum for Entrepreneurship Sch.	1993	JBV 1993	8
3	Strategic Management Journal, published by Tahai & Meyer	1999	SMJ 1999	2
4	WU Wien Journal Rating 2001	2001	Wie 2001	10
5	Assoc. of Prof. of Business in German speaking countries	2003	VHB 2003	15
6	Fried's (JBV) updated Forum for Entrepreneurship Scholars	2003	JBV 2003	11
7	British Jnl of Management Business & Mgmt RAE rankings	2004	Bjm 2004	17
8	Hong Kong Baptist University School of Business Rating	2005	Hkb 2005	1
9	List organized through a survey by Theoharakis et al.	2005	Theo 2005	3
10	Erasmus Research Institute of Managem. Journal Listing 2006	2006	EIJ 2006	11
11	Eur. Journal of Information Systems 2007 Mingers & Harzing	2007	Ejis 2007	29
12	Like Ejis 2007 but includes the JIF for 2004	2007	Ejis-CI	29
13	University of Queensland Journal Rating 2007	2007	UQ 2007	35
14	Agence d'évaluation de la recherche et de l'enseignement super.	2008	Aeres 2008	18
15	Aston list March 2008	2008	Ast 2008	16
16	Centre National de la Recherche Scientifique (version 2.0)	2008	Cnrs 2008	16
17	WU Wien Journal Rating May 2008	2008	Wie 2008	6
18	Associat. of Business Schools Academic Journal Quality Guide	2009	ABS 2009	28
19	Agence d'évaluation de la recherche et de l'enseignement super.	2009	Aeres 2009	22
20	Handelsblatt Ranking Betriebswirtschaftslehre (Meta-Ranking)	2009	HBR 2009	
21	Australian Business Deans Council Journal Rankings List	2010	ABDC 2010	61
22	Associat. of Business Schools Academic Journal Quality Guide	2010	ABS 2010	31
23	Cranfield University School of Management (7 <sup>th</sup> ed)	2010	Cra 2010	22
24	Excellence in Research Australia Journal List	2010	ERA 2010	51
25	ESSEC Business School Ranking Paris 2009/2010	2010	Ess 2010	9
26	Centre National de la Recherche Scientifique (version 3.01)	2011	Cnrs 2011	17
27	Erasmus Research Institute of Managem. Journal Listing 2011	2011	EIJ 2011	17
28	University of Queensland Adjusted ERA Rankings List	2011	UQ 2011	36
29	Assoc. of Professors of Business in German speaking countries	2011	VHB 2011	41

**Table 2:** 29 journal rankings and the frequency of inclusion of entrepreneurship journals

Table 2 presents an overview of the rankings considered in this research and the number of entrepreneurship journals included in those various lists. Some of the lists are not completely cited by Harzing (2011), therefore we have analysed the original lists rather than Harzing's summary, and thus the numbers in table 2 (right column) deviate from those provided by Harzing (2011). For instance in Harzing's summary (2011) the VHB 2011 is reduced to 27 entrepreneurship journals, out of 41 entrepreneurship journals included in the original VHB 2011 list. Table 2 also reflects the growth of entrepreneurship research as – by and large – newer ratings include more entrepreneurship journals than older lists did. This is especially evident for rankings that have been repeatedly executed (e.g. JBV 1991: 4, JBV 1993: 8, JBV 2003: 11, VHB 2003: 15, VHB 2011: 41; EJL 2006: 11, EJL 2011: 17; Aeres 2008: 18, Aeres 2009: 22; we can even state an increase for WIE 2001 (10 journals) and WIE 2008 (6 journals), as the new WIE 2008 was only an update and complement of the 2001 list).

<b>ABDC 2010 - the Australian Business Deans Council Journal Rankings List</b>					
A*	Best or leading journal in its field.				
A	Highly regarded in the field or subfield.				
B	Well regarded in the field or subfield.				
C	A recognized journal, incl. journals that are yet to establish their reputation because of their newness				
<b>ERA-2010 Rank - Excellence in Research Australia Journal List</b>					
A*, A, B, C, with a categorisation similar to the ABDC 2010, but new and promising journals that are yet not categorized because of their newness are highlighted with "recog" instead of A*, A, B, or C.					
<b>ABS 2010 - Association of Business Schools Academic Journal Quality Guide</b>					
4*	A world elite journal	3	A highly regarded journal	1	A recognised journal
4	A top journal	2	A well regarded journal		
<b>UQ 2011- University of Queensland Adjusted ERA Rankings List</b>					
1	1 Highest quality rating, A* ERA		3	Intermediate quality rating, B ERA	
2	2 Intermediate quality rating, A ERA		4	Lowest quality rating, C ERA	
<b>VHB-2011 Rating and Values – Verband der Hochschullehrer für BWL / Assoc. of Professors of Business in German speaking countries</b>					
Rating according to ranking value, values between 10.0 (highest) and 0.0 (lowest); values are generated by quality assessment questionnaires distributed among members of the association and control variables.					
A*	values from 9.0 to 10.0, top	B	values from 7.0 to 7.99	D	values from 5.0 to 5.99
A	values from 8.0 to 8.99	C	values from 6.0 to 6.99	E	values from 0.0 to 4.99, lowest
<b>AERES 2009 – Agence d'évaluation de la recherche et de l'enseignement supérieur</b>					
A*, A, B, C (lowest), with no further definition or explanation of these categorization.					
<b>Cra 2010 – Cranfield University School of Management</b>					
4	World leading	3	Top international	2	Lower international
				1	National
<b>EJL 2011 – Erasmus Research Institute of Management (Rotterdam, The Netherlands) Journals Listing</b>					
STAR	Top journals among P-rated journals				
P	Best journals in the field				
PA	Aspirant (A) for Top international journals (P) => P A. By 1/1/2016 these journals will be transferred to a secondary list unless ISI with high impact has been attained.				
S	Scientific refereed journals of a recognized academic reputation that do not belong to STAR, P or PA				
M*	Top managerial journal				
<b>EJIS-2007 CI – European Journal of Information Systems 2007 Mingers &amp; Harzing Ranking CI</b>					
3	Highest results in meta ranking, i.e. journals with rankings among the top level				
2	Mid-level results in meta-ranking				
1	Lower-level results in meta-ranking				

**Box 1:** Cutline for ranking indexes in tables 3, 4, and 5

Dealing with 25 rankings would go far beyond the scope of this article. In this paper we will focus on those rankings that are of great importance in Australia and the Pacific region. We will compare these ratings with the German VHB 2011 and the ABS 2010, as these two lists are the most complete international sets of data, next to the ABDC and ERA 2010 lists. We furthermore included the UQ 2011, the Aeres 2009, the Cra 2010, the

EJL 2011 and the EJIS to provide more international comparison with younger listings. Box 1 provides the cutline for the rankings included in table 4, i.e. the translation of letters or numbers used to categorize journals. Table 3 displays a comparison of ratings and rankings published from 2007 to 2011. It shows that there seems to be an overall international convergence in the quality assessment of journals. Only a few but very important variances are revealed.

Abbr. (see Appendix I)	Abdc 2010	ERA- 2010 Rank	ABS 2010	UQ 2011	VHB- 2011 Rating	VHB 2011 Values	Aeres 2009	Cra 2010	EJL 2011	EJIS- 2007 CI
JBV	A*	A*	4	1	A	8,38	A+	3	P	3
ET&P	A*	A	4	2	A	8,18	A+	3	P	2
ResPol	A*	A*	4	1	A	8,41	A	4	P	3
FamBusRev	A	A	2	3	C	6,02			S	
Ind&CC	A	A	3	2	C	6,94	A	3	P	2
JEvoEcon	A	A	2	2	C		A	3	P	3
JSBM	A	A	3	2	B	7,30	A	1	S	2
SmBusEcon	A	A	3	2	C	6,94	A	3	P	2
EcoInno&NewTech	B	B	2	3	C	6,58	B			2
E&RD	B	A	3	2	C	6,61	B	2	S	1
IJEB&R	B	B	2	3	D	5,41	B	1		1
IJTM	B	B	2	3	C	6,96	B	3	S	2
ISBJ	B	A	3	2	C	6,15	B	2	S	1
JIS&SB/AJIS	B	B		3						
TechAn&StrMan	B	B	2	3	C	6,62		2	S	2
Technov	B	A	3	2	D	5,64	B	3	S	1
VC	B	C	2	4	C	6,40	B	2	S	
AcEntJ	C	C		4						
BusJEnt	C	C		4						
CrInnoMan	C	C	1	4	C	6,36	B	2		1
EntDev&MiFi	C	C								
EntBLJ	C	C								
EurJInnoMan	C	C	1	4	D	5,52	C	1		1
Found&TrEnt	C	C								
Ind&Inno	C	C	2	3	B	7,08	B	2	S	1
IntEnt&MJ	C	C	1		D	5,74				
IntJEnt	C	C		4						
IntJEnt&Inno	C	C	2	4	D	5,92	B	1		1
IntJEnt&InnoMan	C	C	1		D	5,57		1		
IntJEnt&SmBus	C	C		4	C	6,06				
IntJGen&Ent	C	C								
IntJGlob&SmBus	C	C								
IntJInno&TechMan	C	C		4						
IntJM&EntpDev	C	C		4						
IntJTechEnt	C	C								
IntJTechTr&Com	C	C								
IRE	C	C		4				3		
JIntBus&EntDev	C	C								
JApMan&Ent	C	C		4						1
JAsEnt&Sus	C	C								
JDevEnt	C	C			C	6,42				1
JEntComp&PGE	C	C								
JEntpCul	C	C	1		C	6,61				
JoEnt	C	C	1	4						1
JFamBusStr	C	C			D	5,78				
JHTechManRes	C	C		4	C	6,93	C			2
JInnoEco	C	recog		3						1
JNewBusId&Tr	C	C								
JPrivEq	C	C			D	5,61		2		
JResMar&Ent	C	C								
JSmBus&EntpDev	C	C	2	4	D	5,11	B	1		1
JSmBus&Ent	C	C			C	6,37				1
JSmBusStr	C	C		5	C	6,34				1
JTechTrans	C	C	1	4	B	7,09	B		S	
NewEngJEnt	C	C								

(Table 3 continues from previous page.)

Abbr. (see Appendix I)	Abdc 2010	ERA- 2010 Rank	ABS 2010	UQ 2011	VHB- 2011 Rating	VHB 2011 Values	Aeres 2009	Cra 2010	EJL 2011	EJIS- 2007 CI
SmEntpRes	C	C		4						1
SocEntJ	C	C	1							
StrCh:BrEntFi	C		2	4						1
StrEntJ	C	C	3		B	7,15			PA	
WoRevEntMan&SusDev	C	C	1							
JIntEnt			1		C	6,46				
JEntEdu				4	C	6,17				
IntJEntVent					C	6,62				
JEntFi					C	6,04				
ZfKE					D	5,72				
FrontEntRes					D	5,54				
Bus+Inno					E	4,90				
JKMUF&P					E	4,18				

**Table 3:** Entrepreneurship journals in rankings – an international comparison

To the disadvantage of the careers of entrepreneurship researchers the German VHB ranking seems to miss some internationally recognized journals (for instance *International Entrepreneurship Journal*, *International Review of Entrepreneurship* and *Small Enterprise Research*) and to underestimate some others (*Small Business Economics Journal*, *International Journal of Entrepreneurial Behaviour and Research*, *Technovation* and to some extent *Entrepreneurship & Regional Development*, *International Small Business Journal*, and *Journal of Small Business Management*), while Australian rankings seem to underestimate *Industry & Innovation*, *Journal of Technology Transfer* and *Strategic Entrepreneurship Journal*. Furthermore, the German VHB ranking includes journals not recognised by the ERA, the ABDC or the ABS lists from 2010. These journals – we suggest – could be taken into account by future updates of these lists, including the *Journal of International Entrepreneurship*, *Journal of Entrepreneurship Education*, *International Journal of Entrepreneurial Venturing*, *Journal of Entrepreneurial Finance*, and Babson's *Frontiers of Entrepreneurship Research*, which have achieved academic journal status in the German VHB ranking 2011 (the bottom lines in table 3). The *ZfKE* is a journal published in German and therefore of less interest for international rankings beyond German speaking countries; the same is the case for the *JKMUF&P*, an annually edited book presenting SME research articles. Last but not least there are some younger but promising journals have not yet been listed by any ranking but should be considered for inclusion in the future, e.g. the *Entrepreneurship Research Journal*. Talking about over- or underestimation of journals (resp. the question whether a journal should be listed or not) directs the discussion towards the question whether more objective measurement instruments exist which could help to estimate a journal's performance, influence or importance in an appropriate way. The following two sections will focus on such attempts, first on impact measurements conducted by organisations and second on measurements based on open access data. Measurements in the latter case have the advantage that they can be conducted, updated, and controlled by everyone.

### III.3 Journal Impact Measurements conducted by Organisations

In addition to the ratings and rankings introduced in the previous paragraph there are at least two organisations measuring journal impacts by citation analysis. The meaning of such an analysis is based on the assumption that in general “if an author cites a journal, he or she has found it useful, and therefore the more frequently a journal is cited, the greater its role in the scholarly communication process” (Romano & Ratnatunga 1996, p. 8, see Nisonger 1994). Consequently, many rankings are not independent from impact



measurements, as the impact factors either go directly into a rating system (e.g. EIJL 2007) as an input variable or – in the case of survey based assessments – are likely to influence respondents' perceptions of distinct journals.

Only 15 out of 99 active entrepreneurship journals are listed by the influential Thomson Reuter's ISI Web of Science Social Citation Index (SCI). But out of these 15 journals eight were listed in table 1 because they are journals from neighbouring fields with a strong focus on entrepreneurship. Thus only seven *entrepreneurship* journals in a more *narrow* sense are listed by ISI SCI.

ISI Rank	Abbr.	2y ISI SCI Impact Factor	ERA Rating	AB DC	SJR Rank	Abbr.	SJR Impact Factor	Delta SJR vs. ISI	ERA Rating	AB DC
1	Technov	2,993	A	B	1	ResPol	0,068	+1	A*	A*
2	ResPol	2,508	A*	A*	2	Ind&CC	0,062	+8	A	A
3	FamBusRev	2,426	A	A	3	JBV	0,051	+2	A*	A*
4	ET&P	2,272	A	A*	3	Technov	0,051	-2	A	B
5	JBV	2,149	A*	A*	5	ET&P	0,044	-1	A	A*
6	StrEntJ	2,026	C	C	6	FamBusRev	0,043	-3	A	A
7	Ind&Inno	1,831	C	C	6	SmBusEco	0,043	+3	A	A
8	SmBusEcon	1,555	A	A	8	JTechTrans	0,041	+5	C	C
9	E&RD	1,353	A	B	9	Ind&Inno	0,040	-2	C	C
10	Ind&CC	1,235	A	A	9	JEvoEco	0,040	+5	A	A
11	JSBM	1,189	A	A	11	ISBJ	0,039	+4	A	C
12	TA&StrM	1,040	B	B	11	Foun&TrEnt	0,039	nl	C	B
13	JTechTrans	1,014	C	C	13	E&RD	0,038	-4	A	B
14	JEvoEcon	0,984	A	A	14	TecA&StrMan	0,037	-2	B	A
15	ISBJ	0,927	A	B	14	JSBM	0,037	-3	A	B
					16	EurJInnoMan	0,035	nl	C	C
					17	JSB&EntDev	0,035	nl	C	C
					18	EconI&NT	0,034	nl	B	B
					19	IJEB&R	0,034	nl	B	B
					20	JHTMRes	0,033	nl		C
					21	IEnt&MJ	0,031	nl	C	C
					22	IJTechMan	0,031	nl	B	C
					23	VC	0,030	nl	C	B
					24	IJM&EntDev	0,029	nl		C
					25	JDevEnt	0,028	nl	C	C
					26	JoEnt	0,028	nl		C
					27	IJEnt&InnoM	0,027	nl	C	C
					28	IJEnt&SmBus	0,027	nl	C	C
					29	IJTP&M	0,027	nl		
					30	JECP&PGE	0,027	nl	C	C
					31	JIntEnt	0,027	nl		
					32	JPrEq	0,027	nl		C
					33	EntEx	0,026	nl		
					34	IJEntVent	0,026	nl	C	C
					35	IJTE	0,026	nl	C	C
					36	WREntM&SD	0,026	nl	C	C
					37	AcadEntJ	0,025	nl	C	C
					38	AdvSEntI&EG	0,025	nl		
					39	IJGlob&SB	0,025	nl	C	C
					40	JEntEdu	0,025	nl		

“nl” indicates journals that are listed by SJR but not by ISI SCI

**Table 4:** Journal ranking by ISI SCI and by SJR in comparison to ERA and ABDC rating

ISI Web of Science is under strong criticism, not only for the system as such but also because it is accused for sometimes incorrect data entry by ISI staff (Harzing 2010). One of the limitations of the SCI is that the ISI SCI impact factors are partly grounded on self-

citations. An example is *Technovation*: this journal's high impact factor benefits to a great extent from self-citations (articles published in *Technovation* often cite other articles previously published in *Technovation*). The same can be surveyed for *Family Business Review*, as there are not many outlets to publish research in the field of family business. Still, the SCI is of great influence on other rankings, e.g. the EIJ, which – in turn – again influence other rankings, e.g. the German “Handelsblatt Ranking”, a meta-ranking combining Dutch EIJ and German VHB rankings. Thus the SCI indirectly influences many different rankings and meta-ratings that are career relevant for academics.

SCImago Journal & Country Rank SJR is a young competitor to the ISI Web of Science. Its strategic advantage could be seen in a much broader data base. As it includes journals contained in the Scopus database from 1996 and some Scopus updates, it is less exclusive and provides impact data for 41 entrepreneurship journals. Still, the SJR list has systematic obstacles similar to the ISI Web of Science SCI, and, even though it is less exclusive, still more than half of all entrepreneurship journals in our sample remain unrecognized; for instance the *Strategic Entrepreneurship Journal* is not monitored by SJR while already included in the ISI SCI (see right hand side of table 4).

Comparing the ISI SCI Impact Factor with the Scopus based SJR Impact Factor reveals some divergence between both lists, despite the fact that both lists are often regarded as objective measurements (see column Delta SJR v. ISI). Comparing the journal rankings by impact measurement with the ERA and the ABDC rating shows that there is some dissimilarity. Even though most journals with ISI SCI Impact Factor are rated A\* or A, still some are rated only B or even C, despite a relatively impressive impact factor. This phenomenon is even stronger with the SJR Impact Factor, as some of the journals with an SJR impact factor are not even on the ERA and ABDC 2010 lists. Of course good reasons for a quality assessment divergent from impact factors can exist, for instance the self-citation biases mentioned above, the individual expert's perception of some journals regarding rigor and relevance of publications, or negative experiences with the quality of review processes.

#### ***III.4 The H-Index as an Open Access Data Based Journal Impact Measurement***

As previously mentioned, impact measurements by commercial organisations like Thomson Reuter's or SCImago have their limitations. One limitation is that by and large only citations from journals registered by the Web of Science data base (Thomson Reuter's) or by Scopus data base (SCImago) add to the impact score (see Harzing (2011) for details). Citations from books, PhD theses, white papers, working papers and even some well-established journals go unrecognized (many journals not included in Thomson Reuter's Impact Factor maintain high scientific standards and have contributed to the scientific research for many years, like most journals published by Emerald). For these and other reasons alternatives have been invented. A fairly good data source to capture citations from journals as well as from many other sources is Google Scholar. One of the impact measurements that can be easily executed is the H-Index and the HC-Index, both explained in box 2.

The H-Index was initially developed by *Jorge E. Hirsch* to assess the individual impact of scientists. Hirsch (2005) defines the H-Index as follows: “A scientist has index  $h$  if  $h$  of his/her  $N_p$  papers have at least  $h$  citations each, and the other  $(N_p - h)$  papers have no more than  $h$  citations each”. For instance a scientist with an H-Index of 14 has published 14 papers that have been cited at least 14 times each. Thus, the H-Index reflects both the number of publications and the number of citations per publication. The same scientist might have published 100 other papers that have never been cited, however, those contributions do not improve the H-Index because of their relative irrelevance, but neither do they have a negative impact. So younger papers which have remained uncited due to their newness do not harm the H-

Index but rather offer future opportunities for improvement.

One of the limitations of the H-Index is that it can only be used to compare scientists working on the very same field, as citation conventions may differ between fields. Harzing and van der Wal (2008a, 2008b, and 2009) build on that limitation by suggesting the use of the H-Index to collectively assess the overall impact of journals dedicated to the same field.

In extension of the H-Index, the HC-Index (or *contemporary* H-Index) was proposed by Sidiropoulos, Katsaros, and Manolopoulos (2006). The HC Index is a variation of the H-Index that gives more weight to younger publications and less weight to older ones, as it is more likely that older publications have accumulated more citations over time than younger ones. Thus the HC-Index is an instrument that to some extent smoothens the systematic disadvantage of younger journals when compared with older ones. The HC-Index can be calculated by use of Harzing's (2007) Publish or Perish-software. Weighting is parameterised; the Publish or Perish software implementation uses  $\gamma=4$  and  $\delta=1$ , like Sidiropoulos et al. did in their 2006 paper. This means that for an article published during the current year, its citations count four times. For an article published 4 years ago, its citations count only one time. For an article published 6 years ago, its citations count  $4/6$  times, and so on (Harzing 2007).

**Box 2:** The H-Index and HC Index

In this paper we apply the suggestion to use the H-Index to measure and compare the impact of journals dedicated to the field of entrepreneurship. We have manually calculated H-Indices for all entrepreneurship journals included in this paper with the help of free Google Scholar data. The range of the free H-Index for entrepreneurship journals is reaching from zero (no article has ever been cited – at least according to Google Scholar) up to 213 (213 papers of a journal have been cited at least 213 times, which for example is the case for *Research Policy*). The average H-Index for entrepreneurship journals is 24.79 and only 25 out of 99 entrepreneurship journals have an H-Index above average. Such left-screwed distributions are common in bibliometrics. That is why in addition to the average the median is an important measure, too. The median is ten. So an entrepreneurship journal is already in the upper half of the sample (see table 5) if eleven papers (published in that one journal) are cited at least eleven times and all other papers out of that journal are cited less than eleven times. The modus for the H-Indices is two (frequency: ten), i.e. for ten journals at least two papers have been cited twice, but not more than one single paper (per each of those ten journals) has been cited more than twice. Out of these journals with a very low H-Index (= 0; 1; 2) only one journal is older than three years (basis: 2011). This is partly because the H-Index favours older journals, as it is more likely that papers that have been out there for a longer period of time collect more total citations than brand new papers, even more so in the case of academic journals, as review and publication processes take quite a long time.

The HC-Index therefore gives less weight to older papers. We have calculated the HC-Index using Harzing's (2007) "Publish or Perish" software, version 3.4 (2011). Unfortunately, it is difficult to follow journals that underwent a name change or that have names easily confused by Google Scholar; therefore the list of HC-Index values is incomplete. Thus missing data is indicated by a dash (-) in four cases. The effect of the HC-Index on the ranking however remains rather weak, despite the fact that so many young entrepreneurship journals have just been introduced recently. Nevertheless, the effect can be observed for some cases, for instance for the newly introduced *Entrepreneurship Research Journal* (see EntResJ in table 5) that is boosted from an H-Index of 3 to an HC-Index of 8. The median for the HC-Index is 7, so the new journal has moved from the lower end of the list to the top 50%, thus indicating a promising new publication. Another promising new journal is the *Journal of Family Business Strategy* (JFamBusStr), which improved its H-Index of 7 to a HC-Index of 11.

Comparing the H- and the HC-Index with the ISI SCI 2-year and 5-year and the SJR impact measurements reveals how incomplete especially the ISI SCI is. While those

twelve journals with the highest H-Index are listed, many others are not, even though their total impact has been much higher than that of the *Strategic Entrepreneurship Journal*. One of the reasons is that the 2- and 5-year impact factors totally equalize older and younger journals, despite the fact that older journals often naturally have contributed much more to the academic discourse and empirically have a higher *total* impact. Entrepreneurship journals with a very high H-Index but without ISI SCI listing include for instance *International Journal of Entrepreneurial Behaviour and Research*, *Journal of Small Business and Enterprise Development*, *Creativity & Innovation Management*, *Journal of Developmental Entrepreneurship*, *Journal of International Entrepreneurship*, and *Strategic Change: Briefings in Entrepreneurial Finance*. Among those periodicals with very high H-Indices is also Babson's *Frontiers of Entrepreneurship Research*, which achieves an H-Index more than twice as high as the average H-Index and five times as high as the median journal. Indeed, the H-Index of the *Frontiers* is similar to *Industry & Innovation*, a journal with an ISI SCI 2-year impact above 1.8.

**TABEL 5: Comparing H- and HC-Index, Impact Factors and Rankings**

Abbr.	H-Index (Google Scholar)	HC-Index (Google Scholar)	ISI SCI	ISI SCI	SJR	ERA 2010	Abdc 2010	VHB 2011
			2-year Impact Factor	5-year Impact Factor	2011 Imp. Fact.			
ResPol	213	122	2,508	4,242	0,068	A*	A*	A
JBV	172	86	2,149	3,914	0,051	A*	A*	A
ET&P	124	72	2,272	3,839	0,044	A	A*	A
Ind&CorpCh	113	69	1,235	2,330	0,062	A	A	C
SmBusEcon	108	64	1,555	2,057	0,043	A	A	C
JSBM	99	46	1,189	1,703	0,037	A	A	B
FamBusRev	87	48	2,426	2,546	0,043	A	A	C
Technov	86	51	2,993	2,783	0,051	A	B	D
JEvoEcon	75	44	0,984	1,341	0,040	A	A	C
ISBJ	71	37	0,927	1,748	0,039	A	B	C
E&RD	70	38	1,353	1,770	0,038	A	B	C
TA&SM	60	32	1,04	1,437	0,037	B	B	C
EconInno&NewTech	58	36			0,034	B	B	C
JTechTrans	57	42	1,014		0,041	C	C	B
IntJTechMan	55	28			0,031	B	B	C
FrontEntRes	50	16						D
Ind&Inno	50	33	1,831		0,040	C	C	B
IJEB&R	45	25			0,034	B	B	D
JSmBus&EntpDev	44	25			0,035	C	C	D
Eur.JInnoMan	40	28			0,035	C	C	D
JHTechManRes	40	23			0,033	C	C	C
CrInnoMan	39	24				C	C	C
VC	38	20			0,030	C	B	C
JDevEnt	36	20			0,028	C	C	C
JIntEnt	29	21			0,027			C
StrCh:BrEntFi	25	-					C	
IntEnt&ManJ	23	4			0,031	C	C	D
EntpDev&MicFi	23	23				C	C	
IntJMan&EntDev	21	15			0,029		C	
JEntpCul	21	12				C	C	C
JInfSy&SmBus/AJInfS	21	19				B	B	
StrEntJ	21	22	2,026	3,518		C	C	B
JSmBus&Ent	20	10				C	C	C
IntJEnt&InnoMan	19	15			0,027	C	C	D
JPrivEq	19	12			0,027		C	D
AdvEntFirmEm&Gr	17	11						
JEntFi	17	3						C
JBus&Ent	16	6						
SocEntpJ	16	12				C	C	
IntJEnt&SmBus	14	13			0,027	C	C	C
IntJTechPol&Man	14	9				C	C	
JSmBusStr	14	10					C	C
JoEnt	13	-			0,028	C	C	

(Table 5 continues from previous page.)

Abbr.	H-Index (Google Scholar)	HC-Index (Google Scholar)	ISI SCI 2-year Impact Factor	ISI SCI 5-year Impact Factor	SJR 2011 Imp. Fact.	ERA 2010	Abdc 2010	VHB 2011
JApMan&Ent	12	8				C	C	
JPrivEntp	12	8						
JResMar&Ent	12	7					C	
AcadEntJ	11	11			0,025	C	C	
IRE / IntJEntEdu	11	2				C	C	
IntJTechTr&Com	10	8			0,027	C		
NewEngJoEnt	10	7				C	C	
PicImp/SmBus	10	4						
AdvStudEntI&EcoGr	9	4			0,025			
IntJInno&TechMan	9	8				C	C	
Rd'Ent	9	6						
IntJGlob&SmBus	8	7			0,025	C	C	
IntJInno&RegDev	7	9						
JIBus&EntD	7	5				C	C	
JEntpCompP&PGE	7	8			0,027	C	C	
JFamBusStr	7	11			-		C	D
JIntBus&Ent	7	2						
SmEntpResJ	7	2				C	C	
WREM&SD	7	5			0,026	C	C	
EntEx	6	4			0,026			
IntJEnt	6	-			0,026	C	C	
JInnoEco	6	8				rec.	C	
JSocEnt	6	7						
IntJGen&Ent	5	8					C	
IntJTechEnt	5	4			0,026	C	C	
JKMU-F&P	5	1						E
JAsEnt&Sus	5	4				C	C	
JEntEdu	5	2			0,025			C
RegFrontEntRes	5	4						
ZfKE	5	4						D
EntBusLawJ	4	4				C	C	
IntJEnt&Inno	4	-				C	C	D
EntResJ	3	8						
Found&TrEnt	3	3			0,039	C	C	
IntJEntVent	3	4						C
JEntRes	3	2						
IUPJEntDev	3	3						
AnnInno&Ent	2	3						
BusJEnt	2	3				C	C	
IntJE-Ent&Inno	2	3						
JChiEnt	2	4						
JEntDev	2	1						
JLangTech&EntAfr	2	2						
JNewBusI&Tr	2	2				C	C	
JWEnt&Edu	2	2						
SmBusInstJ	2	4						
SouthJEnt	2	3						
Bus+Inno	1	0						E
EntPraRev	1	2						
IntJocSocEnt&Inno	1	1						
JEnt&PubPol	1	1						
JFamBusMan	1	4						
JGlobEnt	1	1						
AsAssoBusIncu	0	0						
IntRevPrEq	0	0						
SyLecTechMan&Ent	0	0						

**Table 5:** A comparison of H- and HC-Index with other impact factors and journal ratings

The SJR Impact Factor List is more complete than the ISI SCI; and the resulting SJR journal ranking is more consistent with the H-Index than an ISI SCI listing is. Only three

periodicals with an H-Index above average are missing in the SJR list, one being Babson's *Frontiers*, not really a journal in the actual meaning; the other two are *Creativity & Innovation Management* and *Strategic Change: Briefings in Entrepreneurial Finance*. The latter one seems to be widely underestimated, as the journal is neither listed with the ERA 2010 nor with the VHB 2011.

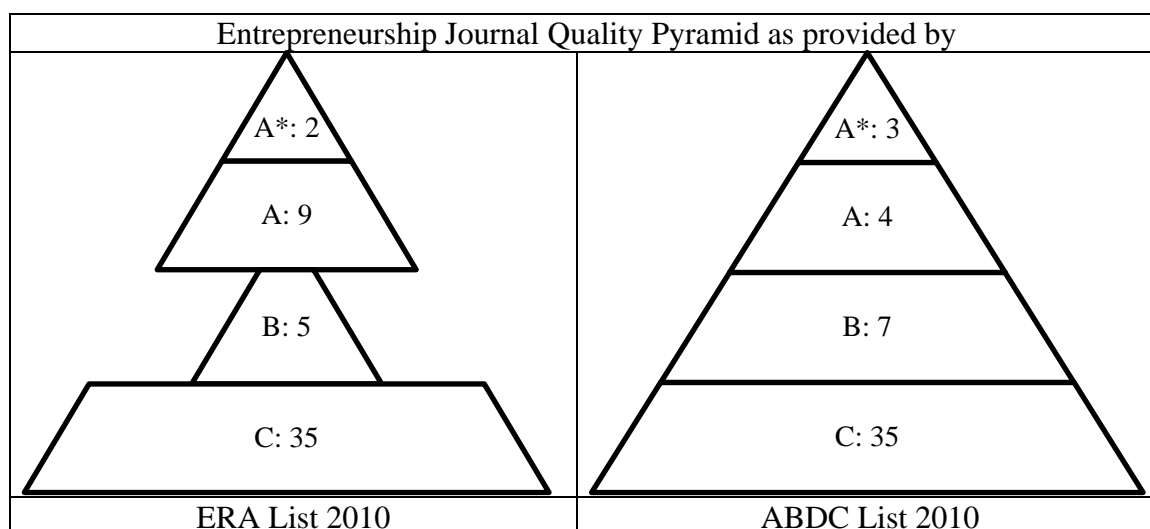
Comparing the ranking by H-Index with the ERA and ABDC 2010 lists shows that the top ranks of the two listings (A\*, A) are very consistent with the H-Index and with the ISI SCI and SJR impact factors. But there is some indifference when it comes to "B" or "C" classifications, as the rankings are not totally in line with the impact measurements. Especially the ERA 2010 list would have been better balanced with more journals classified "B", for instance the *Journal of Technology Transfer*, the *Industry & Innovation*, and the *Journal of Small Business & Enterprise Development*. However, the classification of journals remains not only impact driven but is also based on an overall perception of quality. Furthermore, both lists would appear more complete if all journals above median or at least above average would be included. Instead, some journals with H-Indices as low as 2, 3, 4, or 5 are ranked "C" while other journals with H-Indices even above 20 are excluded.

The VHB 2011 list – again for international comparison – is much less in line with impact measurements than the ERA and ABDC listings, as some journals with a rather high H-Index and other high impact factors are only considered "C" or even "D". We have already pointed at the fact that the VHB 2011 list underestimates entrepreneurship journals when compared with other international rankings, and empirical measurement of the H-Index provides evidence for that argument, as in the case of *Small Business Economics Journal*, *International Journal of Entrepreneurial Behaviour and Research*, *Technovation*, *Entrepreneurship & Regional Development*, *International Small Business Journal*, and *Journal of Small Business Management*, to name just a few. The results for H-Index also justify the decision to include Babson's *Frontiers* in the VHB 2011 ranking, but given the relatively high H-Index, the classification could have even been much higher than "D", once it is accepted that this periodical should be listed among journals at all.

After displaying and highlighting the results we finally want to enter a brief discussion of our results and derive some implications from the comparison of rankings and impact factors, and from measuring the H- and HC-Indices.

#### **IV Discussion of Results and Conclusion**

Entrepreneurship is a field of growing interest, as indicated by the number and increasing rate of newly introduced entrepreneurship journals. However, an increasing number says only little on the recognition of the field. Rankings and ratings provide more insides into that matter, especially when compared internationally. It turns out that not all journals achieve consistent results around the globe. Especially *journals from the top end of the lists gained some uniformity in their global assessments* (e.g. JBV and ET&P). Other journals, especially those in the ERA "C" category, show a high variance in their ranking positions compared with other international rankings. The ERA list suffers from the fact that it divides entrepreneurship journals mainly into "A" and "C" journals, with only five journals out of 99 categorized "B". Therefore, the ranking of journals does not form a "pyramid of quality" like most other rankings do.



**Figure 1:** Entrepreneurship Journal Quality Pyramid for ERA 2010 and ABDC 2010

When making decisions about appointments or tenure tracks, the ERA and ABDC 2010 lists can provide some good clues on a journal's real impact, but not more, especially when it comes to "B", "C", and non-listed journals. So the ERA 2010 list should be used with great care. A publication listed "C" or "B" might be published in a journal with less impact than a publication in a non-classified journal, like *Strategic Change* or *Journal of International Entrepreneurship*.

Our study provides rich insights on where to publish a paper on entrepreneurship research according to evaluations from outside Australia. For instance, the *International Journal of Entrepreneurial Behaviour and Research* is categorized "B" by the ERA 2010 listing, but has received lower evaluations by some international rankings. Australian research scholars who aim at a more international career therefore could be advised to consider submitting their paper to another journal. However, we believe that *IJEB&R* is a very good journal, and empirical measurement of the journal's H-Index provides evidence for the argument that the ERA listing of *IJEB&R* might be more accurate than its international listings.

To enrich the field of entrepreneurship research and especially the chances it provides for valued publications, the community of entrepreneurship scholars should work on increasing the number of journals recognized by the ERA or ABDC evaluation systems as well as by other international lists. Measuring the H-Index can provide a list of yet unrecognized journals that should enter the "C" or even the "B"-category, and the best journals from the "C"-category should climb up the ladder, filling the gap at the "B" level. This paper is meant to provide empirical backgrounds and arguments for such considerations.

A calculation of the H- and HC-Index for entrepreneurship journals has, to our knowledge, never been published so far. The results reveal that only very few entrepreneurship journals are quite successful, but that many other journals do not succeed in cumulating citations. Almost 75% of all entrepreneurship journals have an H-Index below average and one third of entrepreneurship journals have an H-Index of 5 (one fifth of average) or even below 5. Only for some of these journals the HC-Index suggests that the low numbers of citations are due to their newness and are likely to increase in the near future. Some other journals have just been started and have not yet – or just recently – published their inaugural issue, and thus have a low H-Index, maybe even of zero. But many others of these journals have existed for many years and still have

not gained much attention, as expressed by citations. This implies that it is not easy to establish a successful entrepreneurship journal. Editors of entrepreneurship journals should carefully consider the positioning of the journal (with regard to content, quality, and processes), its accessibility and also the general trade-off question whether to establish a new journal or to strengthen existing journals. Authors should consider promoting their publications, e.g. by sharing them with interested colleagues, because obviously citations do not come easy.

Presumably there are also implications for scholarly behaviour in the field of entrepreneurship research resulting from the many low H-Indices. The finding might indicate that in general entrepreneurship scholars do not extensively quote existing publications in the field – and hence do not extensively build on previous work. Given the relative compactness of journal articles which is usually requested today, authors may feel forced to cut down on the paragraphs dedicated to literature review and to cite previous work only cautiously in order to allocate more space for the presentation of their own research, results, and implications. For those 29 entrepreneurship journals requesting a maximum word count for submissions, this word count in our sample ranges from only 3,000 words up to 10,000 with the majority of journals (21) clustering around 5,000 to 7,000 words per article. Even though shorter articles are supposedly perceived as more readable, editors should consider the consequences of strict limitations not only for the atomisation of research but also for limited literature reviews and cautious citation behaviour. In order to encourage citations, reviewers should carefully check whether an article is tied up with existing literature or has in fact ignored some previous work.

At this stage, some readers of this article may wonder if journals with an H-Index as low as 1, 2 or 3 have any relevance for the ranking system at all. Are such journals irrelevant for the system and consequently – so to speak – disposable? Indeed the majority of articles published in these journals have got cited only one or two times or even not at all so far. However, the references included in these numerous publications add to the strong H-Index (impact) of the few at the top of the list. So the strong cumulative effects for the top journals are dependent on the existence of many low tier journals quoting top tier journals. The surplus in low impact journals is thus necessary just because the 75% of citations received by the top 25% of journals need to come from somewhere (see Sassmannshausen 2010 for the same observation on the impact of leading authors in entrepreneurship and the role of rather unknown authors in creating that impact).

The existence of many journals with only moderate or even low impact can furthermore be justified by the evolution of scientific fields. Luhmann in his theory of the evolution of ideas points at the *scientific function of being unnecessary* (Luhmann 2008c). A surplus of publications is needed to guarantee a large and stable pool of modified reproduction and distribution of core ideas. In an evolutionary system based on selection, variation, and modified reproduction of scientific knowledge someone needs to decide on what is cited and thereby will have impact through reproduction, and what is not reproduced – and will finally perish (Sassmannshausen 2010). Here, in the case of H-Index based entrepreneurship journal ranking, this decision on the “impact of the few” at the top is at least to a great extent made by the “wisdom of the crowd” at the bottom of the impact hierarchy (see Surewiewiecki 2004).<sup>iii</sup> The entrepreneurship journal ranking introduced in this paper is based on open-source data provided by Google Scholar, which was empirically processed for the purpose of H-Index impact measurement. Compared with many other journal rankings, this approach appears to be a rather democratic and less biased way of journal evaluation, as the system itself is based in on the many individual decisions by the members of the “crowd”. And such a democratic measurement seems to



be more in sequence with our traditions of academic freedom than any journal quality lists enforced by a government or any commercially driven impact agencies.

## V Limitations and future research

The H-Index is an instrument designed to measure the *impact* of authors and journals, recognizing the number of citations that a publication receives. However, the H-Index is not measuring a publication's *quality*. Journals at the lower end of the (H-Index based) ranking list may – despite their rather low impact – still excel in quality. In the case of journals, quality is the result from many influencing factors, like quality of review processes and an editorial policy that fosters rigour use of scientific methods, development of new empirical methods, contribution to theory development, scholarly recognition of previous work, and relevance of content as well as meaningful implications. All these factors are not reflected – or at least not directly reflected – by the H-Index. Future research should aim at identifying rather objective measurements of journal quality and then searching for possible correlations between a journal's H-Index and its quality. A U-shaped distribution has to be assumed, as such a correlation will not be perfect, as popular journals with massive circulation may out rule more rigour journals with a more distinct scholarly audience. Thus, the H-Index should not turn into the one and only basis for journal rankings. But it should not be totally ignored or neglected either.

A second stream of future research should compare the H- and HC-Indexes of entrepreneurship journals with the H- and HC-Indexes of journals from other, neighbouring fields, such like innovation and technology management, strategy, general management, marketing, economics etc. This would help to assess the “standing” of entrepreneurship as a field of science. The indicator would be far from perfect, because even the HC-Index might be influenced by the adulthood of a field. Still, a dynamic study with several repeated measurements over time would allow identifying progress (for instance the closing of a gap to more established fields) or setbacks in the development of entrepreneurship research.

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## Appendix

### Appendix I: Complete alphabetical list of 99 active journals in the field of entrepreneurship

Academy of Entrepreneurship Journal	AcadEntJ
Advances in Entrepreneurship, Firm Emergence and Growth	AdvEntFirmEm&Gr
Advances in the Study of Entrepreneurship, Innovation and Economic Growth	AdvStudEntI&EcoGr
Annals of Innovation & Entrepreneurship	AnnInno&Ent
Asian Association of Business Incubation	AsAssoBusIncu
Business + Innovation	Bus+Inno
Business Journal for Entrepreneurs	BusJEnt
Creativity and Innovation Management	CrInnoMan
Economics of Innovation and New Technology	EcoInno&NewTech
Enterprise Development and Microfinance (formerly Small Enterprise Development)	EntpDev&MicFi
Entrepreneurial Business Law Journal	EntBusLawJ
Entrepreneurial Executive	EntEx
Entrepreneurial Practice Review	EntPraRev
Entrepreneurship & Regional Development	E&RD
Entrepreneurship Research Journal	EntResJ
Entrepreneurship Theory & Practice	ET&P
European Journal of Innovation Management	EurJInnoMan
Family Business Review	FamBusRev
Foundations and Trends in Entrepreneurship	Found&TrEnt
Frontiers of Entrepreneurship Research	FrontEntRes
Industrial and Corporate Change	Ind&CorpCh
Industry & Innovation	Ind&Inno
International Entrepreneurship and Management Journal	IntEnt&ManJ
International Journal of E-Entrepreneurship and Innovation	IntJE-Ent&Inno
International Journal of Entrepreneurial Behaviour and Research	IJEB&R
International Journal of Entrepreneurial Venturing	IntJEntVent
International Journal of Entrepreneurship	IntJEnt
International Journal of Entrepreneurship and Innovation	IntJEnt&Inno
International Journal of Entrepreneurship and Innovation Management	IntJEnt&InnoMan
International Journal of Entrepreneurship and Small Business	IntJEnt&SmBus
International Journal of Gender and Entrepreneurship	IntJGen&Ent
International Journal of Globalisation and Small Business	IntJGlob&SmBus
International Journal of Innovation and Regional Development	IntJInno&RegDev
International Journal of Innovation and Technology Management	IntJInno&TechMan
International Journal of Management and Enterprise Development	IntJMan&EntDev
International Journal of Social Entrepreneurship and Innovation	IntJocSocEnt&Inno
International Journal of Technoentrepreneurship	IntJTechEnt
International Journal of Technology Management	IntJTechMan
International Journal of Technology Policy and Management	IntJTechPol&Man
International Journal of Technology Transfer and Commercialisation	IntJTechTr&Com
International Review of Entrepreneurship (formerly International Journal of Entrepreneurship Education)	IRE
International Review of Private Equity	IntRevPrEq
International Small Business Journal	ISBJ
Jahrbuch der KMU-Forschung und -Praxis	JKMU-F&P
Journal for International Business and Entrepreneurship Development	JIBus&EntD

*(Appendix I continues from previous page.)*

Journal of Applied Management and Entrepreneurship	JApMan&Ent
Journal of Asia Entrepreneurship and Sustainability	JAsEnt&S
Journal of Business and Entrepreneurship	JBus&Ent
Journal of Business Venturing	JBV
Journal of Chinese Entrepreneurship	JChiEnt
Journal of Developmental Entrepreneurship	JDevEnt
Journal of Enterprising Communities: People and Places of Global Economy	JEntpComP&PGE
Journal of Enterprising Culture	JEntpCul
Journal of Entrepreneurial Finance (formerly: Journal of Entrepreneurial Finance and Business Ventures; Journal of Entrepreneurial and Small Business Finance; Journal of Small Business Finance)	JEntFi
Journal of Entrepreneurship	JoEnt
Journal of Entrepreneurship and Public Policy	JEnt&PubPol
Journal of Entrepreneurship Development	JEntDev
Journal of Entrepreneurship Education	JEntEdu
Journal of Entrepreneurship Research	JEntRes
Journal of Evolutionary Economics	JEvoEco
Journal of Family Business Management	JFamBusMan
Journal of Family Business Strategy	JFamBusStr
Journal of Global Entrepreneurship	JGlobEnt
Journal of High Technology Management Research	JHTechManRes
Journal of Innovation Economics	JInnoEco
Journal of Information Systems and Small Business (now merged with Australasian Journal of Information Systems)	JInfSys&SmBus / AusJInfSys
Journal of International Business and Entrepreneurship	JIntBus&Ent
Journal of International Entrepreneurship	JIntEnt
Journal of Language, Technology & Entrepreneurship in Africa	JLanTech&EntAfr
Journal of New Business Ideas & Trends	JNewBusI&Tr
Journal of Private Enterprise	JPrivEntp
Journal of Private Equity	JPrivEq
Journal of Research in Marketing and Entrepreneurship	JResMar&Ent
Journal of Small Business and Enterprise Development	JSmBus&EntpDev
Journal of Small Business and Entrepreneurship	JSmBus&Ent
Journal of Small Business Management	JSBM
Journal of Small Business Strategy	JSmBusStr
Journal of Social Entrepreneurship	JSocEnt
Journal of Technology Transfer	JTechTrans
Journal of Women's Entrepreneurship and Education	JWEnt&Edu
New England Journal of Entrepreneurship	NewEngJoEnt
Piccola Impresa / Small Business	PicImp/SmBus
Regional Frontiers of Entrepreneurship Research	RegFrontEntRes
Research Policy	ResPol
Revue de l'Entrepreneuriat	Rd'Ent
Small Business Economics	SmBusEco
Small Business Institute Journal	SmBusInstJ
Small Enterprise Research: The Journal of SEAAZ	SmEntpResJ
Social Enterprise Journal	SocEntpJ
Southern Journal of Entrepreneurship	SouthJEnt
Strategic Change - Briefings in Entrepreneurial Finance	StrCh:BrEntFi
Strategic Entrepreneurship Journal	StrEntJ
Synthesis Lectures on Technology, Management, and Entrepreneurship	SyLecTechMan&Ent
Technology Analysis & Strategic Management	TA&SM
Technovation	Technov
The IUP Journal of Entrepreneurship Development (formerly The Icfai Journal of Entrepreneurship Development)	IUPJEntDev
Venture Capital: An International Journal of Entrepreneurial Finance	VC
World Review of Entrepreneurship, Management and Sustainable Development	WREM&SD
Zeitschrift für KMU und Entrepreneurship	ZfKE

**Appendix II: Alphabetical list of entrepreneurship journals, not active anymore**

#	Name of periodical	Status report
1	Asian Journal of Business and Entrepreneurship	Last article in 1999?
2	Australian Venture Capital Journal	Trade journal only?
3	Enterprise and Innovation Management Studies, Indian version, <a href="http://www.ijens.com">http://www.ijens.com</a>	Status unclear, name conflict
4	Enterprise and Innovation Management Studies, Routledge version	Active 2001 - 2002
5	Entrepreneurship Development Review	Active 1986 - 1987
6	Entrepreneurship, Innovation and Change	Active 1992 - 1997
7	Int. Indigenous Jour. of Entrepreneurship, Advancement, Strategy & Education	Last volume in 2006.
8	International Journal of Technological Innovation and Entrepreneurship	Active in 2003
9	Jahrbuch Entrepreneurship (former Gründungsforschungsforum, proceedings of the annual G-Forum)	Last volume 2006
10	Jahrbuch zur Mittelstandsforschung	Inform. by former editor
11	Journal of Energy Innovation and Entrepreneurship	Active 2007 – 2008, no web page
12	Journal of Microfinance (became ESR Review)	Last activity in 2008.
13	Silicon Valley Review of Global Entrepreneurship Research	Active in 2005
14	Minnesota Journal of Business Law and Entrepreneurship	Last activity in 2004

<sup>i</sup> A previous version of this paper has been presented at the ACERE DIANA Conference 2012, University of Notre Dame, in Fremantle, Western Australia, and was published in the subsequent conference proceedings. The author is grateful for the feedback of the audience. This version reflects suggestions from the audience, esp. comments by Dean Shepherd.

<sup>ii</sup> Please report missing journals to the corresponding author. Many thanks!

<sup>iii</sup> Of course the “crowd” might be influenced by some thought leaders and/or by expectations about editors’ and reviewers’ expectations. But this again is a different story and needs to be examined by future research.