

Bibliometric Analysis of Cited References in Commerce Journals

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Abstract

The paper examines the distribution of cited references in three commerce journals pertaining to the years 2012 to 2014. The study reveals that maximum number of cited references was found in *Journal of World Business*, followed by *The International Journal of Accounting* and *Journal of Commerce and Management Thought*. Most of the cited references were authored by more than one author. M. W.Peng's articles were most cited and maximum journals were from the fields of business and management.

Keywords: Journals; Citation analysis; Bibliometrics; Bradford's Law

Introduction

Commerce is a well-developed discipline which has existed for nearly 102 years now (Pinto 2014). As is known, the discipline is related to the study of finance, accounts economics, taxations, auditing, management, business studies, statistics etc. Historically, commerce may be said to have begun when exchange began (Evelyn 1947).

In recent years there is growth in published research literature in both electronic and print formats in all the disciplines including commerce. Understanding the literature growth in a field reveals patterns of communication and information. This understanding enables us to develop appropriate information systems for the field.

Many studies have been conducted in the sub-disciplines of commerce including international business (Ferreira, Santos, de Almeida and Reis 2014), logistics (Wang, Chen, Rogers, Ellram, and Grawe, 2017), business and industrial marketing (Valenzuela, Merigó, Johnston, Nicolas and Jaramillo 2017), retailing (Findlay and Sparks 2002) etc. However, there had been very limited literature reporting bibliometric investigations of the commerce discipline. This paper provides a multidimensional view on the growth of commerce literature based on three journals to understand what are the trends in commerce research and which authors and journals are most productive in commerce research.

The present study analyses the cited references in research papers published in three journals, viz., *Journal of World Business*, *The International Journal of Accounting* and *Journal of Commerce and Management Thought*. The reasons for including the journals include, same periodicity of the journals (quarterly), availability in electronic format, similar scope and coverage and accessibility.

The paper attempts to uncover how knowledge is exchanged and disseminated in the commerce literature by studying the cited references in journals and to understand the many facets of the discipline.

Review of literature

Chan, Fung and Leung (2009) examined the citations of four international business journals. They found that the area of international business is influenced by management journals, scholarly books, and international business journals. Zhong, Geng, Liu, Gao, and Chen, (2016) conducted a bibliometrics study on natural resource accounting and found that natural resource accounting has proliferated since 2001 and the most productive journal was *Journal of Environmental Management*.

A study on manufacturing strategy literature was conducted by Chatha and Butt (2015) on 506 articles published in top-ranked refereed international journals in operations management and international business. They found 11 major thematic areas including manufacturing strategy components and paradigms, manufacturing capabilities, strategic choices, etc. Authors also found that strategic choices and manufacturing capabilities were the areas in which decline in publication trend were observed.

Ahsina and Taouab (2014) examined the authorship pattern, major research field, the nature of research, and research methods used in accounting. Further, they classified authorship by institution, and the top seven authors by relative contribution. Mittal and Pillani (2014) studied the progress of business research in India and identified the key disciplines, journals, articles, authors, and institutions. Lahiri (2011) studied the publication of India-focused articles in international business journals. The research provided an overview of all publications focusing on the Indian context from seven leading international business journals during 1991 and 2008.

The present study helps in understanding the citation behaviour of researchers in the field of commerce, authorship pattern as well as lists core journals in the field of commerce among other things.

Objectives of the study

- To examine the growth rate of cited references;
- To identify the various categories of information resources cited in different journals in commerce;
- To examine the pattern of authorship in the cited references of source journals;
- To identify the disciplines of cited references in the field of commerce; and
- To find out the core journals in the field.

Methodology

Basic data related to the objectives laid down in the study was collected for the three source journals for the period 2012-2014. These journals were *Journal of World Business*, *The International Journal of Accounting* and *Journal of Commerce and Management Thought*. Each issue of all the journals for the said period was downloaded from the journals' websites and required information from cited references were collected in MS-Excel for analysis. Some incomplete references were not included in study.

The source journals

Journal of World Business

The *Journal of World Business* is an international quarterly journal in the field of commerce published by Elsevier Science. The first issue appeared in 1965 under the name *Columbia Journal of World Business*. The journal provides a forum for the publication of research that reflects important developments in the global business environment and advances new theoretical directions and ways of thinking about global phenomena.

The International Journal of Accounting

The International Journal of Accounting is a reputed quarterly journal in the field of accounting. The aim of journal is to advance the academic and professional understanding of accounting theory and practice from an international perspective and viewpoint. It attempts to assist in the understanding of the present and potential ability of accounting to aid in the recording and interpretation of international economic transactions.

Journal of Commerce and Management Thought

Journal of Commerce and Management Thought is a quarterly journal published from India that is dedicated to advancing commercial and management sciences, practices, research and theories through publication of scholar articles. *Journal of Commerce and Management Thought* primarily focuses on domains of commerce and management such as accounting, business administrations, banking and insurance, business law and ethics, business histories, culture and education, finance, human resource, capital, marketing and organizational behaviour.

Analysis

Table 1 shows the volume-wise distribution, number of cited references and average cited references per article in three source journals. It was found that *Journal of Commerce and Management Thought* has published maximum number of 173 articles 2012 to 2014 with an average of 10.43 cited references per articles, followed by *Journal of World Business* which has published 171 articles with an average of 80.99 cited references per articles and *The International Journal of Accounting* has 47 articles with 56.04 cited references per article.

Table 1--Pattern of cited references in commerce journals

Year (volume)	Articles	Number of cited references	Average cited references Per Article
<i>Journal of World Business</i>			
2012 (47)	66	4934	88.11
2013 (48)	49	3998	71.39
2014 (49)	56	4918	87.80
Total	171	13850	80.99
<i>The International Journal of Accounting</i>			
2012 (47)	15	842	56.13
2013 (48)	17	1034	60.82
2014 (49)	15	852	56.80
Total	47	2728	56.04
<i>Journal of Commerce and Management Thought</i>			
2012 (3)	55	634	11.53
2013 (4)	70	716	10.22

2014 (5)	48	455	9.48
Total	173	1805	10.43

Types of information Sources

Table 2 shows that highest references are from journals. Out of the total 18,383 cited references, 13,852 references (75.35 percent) are from journals, followed by books with 2,484 references (13.50 percent), editorial work (514 citations), websites (419 citations), and so on.

Table 2--Various types of information sources

Information sources	Citations	Percentage	Cumulative citations
Journals	13852	75.35	13852
Books	2482	13.50	16334
Editorial works	514	2.80	16848
Websites	419	2.28	17267
Working papers/ research papers	227	1.23	17494
Reference books	202	1.10	17696
Research reports	163	0.89	17859
Conference proceedings	126	0.69	17985
Thesis/ dissertations	52	0.28	18037
Others*	346	1.88	18383
Total	18383	100.00	

*Includes newspapers, magazines, bills, acts, monograph, bills, anthology, circulars, census, drafts, gazettes, manuscripts, meeting papers, dissertation's synopsis, presentations, interviews, unpublished papers and white papers.

Bradford's Law of Scattering

From the data analysis it was found that 13,852 cited references were from journals. For testing the Bradford's law in the present study, a list of journals and articles published there were prepared. Table 3 shows the scatter of articles in journals.

Table 3--Applicability of Bradford's law in commerce

No. of journals	No. of cited references	Total cited references	Cumulative cited references	Rank	Log of rank of journals
1	980	980	980	1	0
1	807	807	1787	2	0.301
1	565	565	2352	3	0.477
1	500	500	2852	4	0.602
1	455	455	3307	5	0.699
1	301	301	3608	6	0.778
1	293	293	3901	7	0.845
1	234	234	4135	8	0.903
1	231	231	4366	9	0.954
1	222	222	4588	10	1
1	219	219	4807	11	1.041
1	215	215	5022	12	1.079

1	194	194	5216	13	1.114
1	193	193	5409	14	1.146
1	185	185	5594	15	1.176
1	177	177	5771	16	1.204
1	163	163	5934	17	1.23
1	159	159	6093	18	1.255
1	142	142	6235	19	1.279
1	136	136	6371	20	1.301
1	132	132	6503	21	1.322
1	125	125	6628	22	1.342
1	118	118	6746	23	1.362
1	113	113	6859	24	1.38
1	100	100	6959	25	1.398
1	92	92	7051	26	1.415
1	91	91	7142	27	1.431
1	76	76	7218	28	1.447
1	74	74	7292	29	1.462
1	70	70	7362	30	1.477
1	68	68	7430	31	1.491
1	67	67	7497	32	1.505
1	66	66	7563	33	1.519
1	63	63	7626	34	1.531
2	62	124	7750	36	1.556
1	58	58	7808	37	1.568
3	56	168	7976	40	1.602
3	55	165	8141	43	1.633
1	52	52	8193	44	1.643
2	50	100	8293	46	1.663
1	48	48	8341	47	1.672
1	46	46	8387	48	1.681
3	45	135	8522	51	1.708
1	44	44	8566	52	1.716
3	43	129	8695	55	1.74
1	42	42	8737	56	1.748
1	41	41	8778	57	1.756
1	40	40	8818	58	1.763
2	37	74	8892	60	1.778
1	36	36	8928	61	1.785
2	35	70	8998	63	1.799
2	34	68	9066	65	1.813
2	31	62	9128	67	1.826
3	30	90	9218	70	1.845
1	29	29	9247	71	1.851
1	28	28	9275	72	1.857
3	27	81	9356	75	1.875
6	26	156	9512	81	1.908
2	25	50	9562	83	1.919

3	24	72	9634	86	1.934
3	23	69	9703	89	1.949
2	22	44	9747	91	1.959
3	21	63	9810	94	1.973
7	20	140	9950	101	2.004
6	19	114	10064	107	2.029
6	18	108	10172	113	2.053
8	17	136	10308	121	2.083
5	16	80	10388	126	2.1
3	15	45	10433	129	2.111
5	14	70	10503	134	2.127
9	13	117	10620	143	2.155
14	12	168	10788	157	2.196
12	11	132	10920	169	2.228
11	10	110	11030	180	2.255
15	9	135	11165	195	2.29
20	8	160	11325	215	2.332
21	7	147	11472	236	2.373
36	6	216	11688	272	2.435
48	5	240	11928	320	2.505
49	4	196	12124	369	2.567
114	3	342	12466	483	2.684
213	2	426	12892	696	2.843
960	1	960	13852	1656	3.219

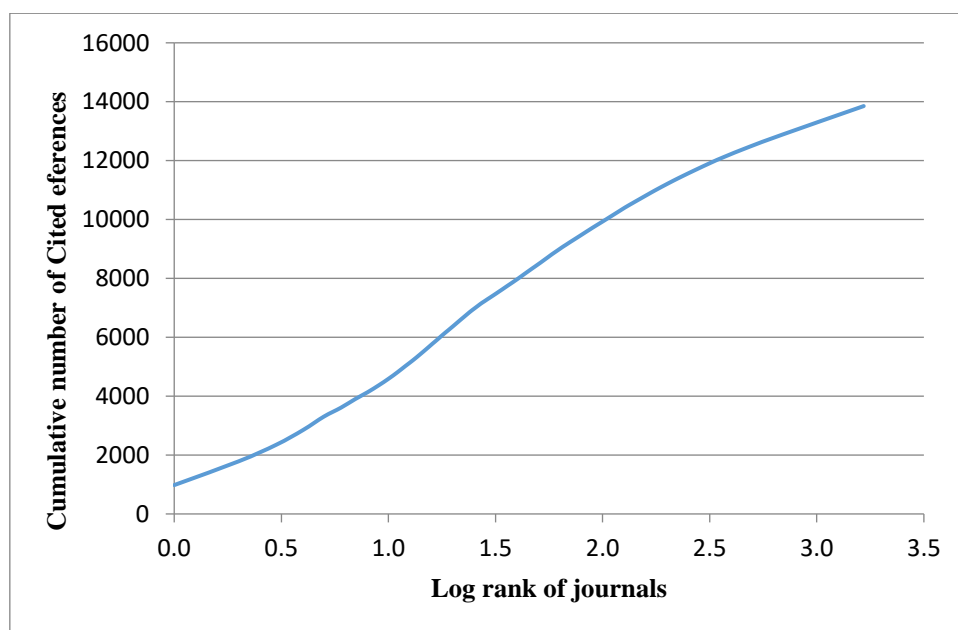


Fig. 1--Bradford's curve in commerce literature

To apply the Bradford's law of scattering 13,852 cited references were divided into three zones. In the present study, 11 journals covered 4,807 citations, next 67 journals covered 4,627 citations and rest of the journals i.e. 1,578 covered remaining 4,418 citations. Bradford's zone is also depicted in the Table 4. Here the observed distribution is 11:67:1578= 1656 and the expected distribution is 11:11 (14.82):11 (14.82)². In the expected distribution, 14.82 is the Bradford's multiplier which is obtained by dividing the number of journal titles of a particular zone by dividing the number of journals of preceding zone as depicted in Table 4. Figure 1 shows the Bradford's bibliograph. This indicates that law is not applicable in the study.

Table 4--Bradford's Zone in commerce literature

Bradford's Zones	No. of citations	Percentage of citations	No. of journals	Percentage of journals	Bradford's Multiplier
1	4807	34.70	11	0.66	
2	4627	33.40	67	4.05	6.09
3	4418	31.89	1578	95.29	23.55

Expected distribution= 11:163:2416

Observed distribution= 11:67:1578

Percentage of error = (2590-1656)/1656= 56.40

The error is more than 10 percent so this is not good approximation hence Bradford's law is not applicable in this study.

Core journals in commerce

Table 5 shows the rank list of journals cited in three commerce journals that had at least 100 cited references in the source journal. It was found that *Journal of International Business Studies* is the most cited journal with 980 cited references, followed by *Strategic Management Journal* (807 references), *Academy of Management Journal* (565 references), *Journal of World Business* (500 references), *Academy of Management Review* (455 references), *Journal of Management* (301 references), *Journal of Accounting and Economics* (293 references), *Journal of Management Studies* (234 references), *Organization Science* (231 references), *Administrative Science Quarterly* (222 references) and so on (Table 5).

Table 5--Rank List of Journals cited 100 or more times

Sl. no.	Journal	Country of publication	Frequency
1	<i>Journal of International Business Studies</i>	United Kingdom	980
2	<i>Strategic Management Journal</i>	United Kingdom	807
3	<i>Academy of Management Journal</i>	United States	565
4	<i>Journal of World Business</i>	United States	500
5	<i>Academy of Management Review</i>	United States	455

6	<i>Journal of Management</i>	United States	301
7	<i>Journal of Accounting and Economics</i>	Netherlands	293
8	<i>Journal of Management Studies</i>	United Kingdom	234
9	<i>Organization Science</i>	United States	231
10	<i>Administrative Science Quarterly</i>	United States	222
11	<i>The Accounting Review</i>	United States	219
12	<i>Journal of Accounting Research</i>	United Kingdom	215
13	<i>Management International Review</i>	Germany	194
14	<i>International Business Review</i>	United Kingdom	193
15	<i>Journal of Applied Psychology</i>	United States	185
16	<i>International journal of Human Resource Management</i>	United Kingdom	177
17	<i>Journal of Financial Economics</i>	Netherlands	163
18	<i>Journal of Marketing</i>	United States	159
19	<i>Harvard Business Review</i>	United States	142
20	<i>Journal of Finance</i>	United Kingdom	136
21	<i>Management Science</i>	United States	132
22	<i>Journal of Business Venturing</i>	United States	125
23	<i>Journal of International Management</i>	United States	118
24	<i>Human Resource Management</i>	United States	113
25	<i>Asia Pacific Journal of Management</i>	United States	100

Authorship pattern of citations

Table 6 reveals the authorship pattern of cited references in the published research papers of source journals. Block year-wise analysis of journals shows that most of the papers were single authored prior to 1963 and the earlier block years. However, the trend in authorship pattern was different during the block year 1990-2014 with more papers being two-authored papers followed by single-authored papers and so on.

Table 6--Authorship pattern of cited references

Block years	Single authored papers	Two authored paper	Three authored paper	Paper With more than three authors
<1963	118	44	7	9
1964-1989	1141	824	140	37
1990-2014	5324	5919	3420	1331
69 references did not contain publication date. Total cited references: 18383				

Most cited authors

The study also reveals prominent authors in the field of commerce. One of the aims of this study was to identify the core authors in the commerce field. It was found that 36,789 authors were cited in 18,383 cited references that appeared in the source journals under study during

the period 2012 to 2014. Table 7 lists the names of some of the top researchers in the field. The analysis shows that most cited author was M. W. Peng, followed by P. W. Beamish, Y. Luo, M. A. Hitt, J. Johanson, A. Shleifer. S. Ghoshal and so on.

Table 7--Rank list of most cited authors

Sl. no.	Name of Authors	Frequency	Percentage
1	M. W. Peng	145	0.394
2	P. W. Beamish	106	0.288
3	Y. Luo	99	0.269
4	M. A. Hitt	92	0.250
5	J. Johanson	89	0.242
6	A. Shleifer	81	0.220
7	S. Ghoshal	74	0.201
8	G. Hofstede	70	0.190
9	A. Delios	67	0.182
10	B. Kogut	66	0.179
11	R. E. Hoskisson	61	0.166
12	M. Javidan	59	0.160
13	C. Leuz	59	0.160
14	M. Wright	58	0.158
15	S. A. Zahra	57	0.155
16	J. A. Dunning	56	0.152
17	J. Birkinshaw	55	0.150
18	R. LaPorta	54	0.147
19	I. Björkman	53	0.144
20	R. J. House	51	0.139
Total references: 18383		Total cited authors: 36789	

Areas of research in commerce

Table 8 shows the top twenty areas of research in commerce. Core areas show the interest of researchers in particular field. It was noticed that major part of research area belongs to multinational corporations, which means that most of research was conducted on various aspects of multinational corporations (602 references), followed by leadership (449 references), foreign investments (374 references), accounting standards (357 references), auditing (299 references), globalisation (285 references), culture (201 references), personnel management (198 references), entrepreneurship (185 references), business enterprises-performance (170 references) and so on.

Table 8--Core areas of research in commerce

Sl. no.	Research areas	Frequency
1	Multinational Corporations	602
2	Leadership	449
3	Foreign Investment	374
4	Accounting Standards	357
5	Auditing	299
6	Globalisation	285
7	Culture	201

8	Personnel Management	198
9	Entrepreneurship	185
10	Business Enterprises-Performance	170
11	Corporate Governance	167
12	Innovations	160
13	Talent Management	155
14	Psychology	149
15	Small Enterprises	147
16	Tax	138
17	Competition	136
18	Earnings Management	133
19	Brand	132
20	Financial Reporting	131

Distribution of cited journals by disciplines

A total of 1656 journals were cited during 2012-2014 in three source journals in commerce. These journals were distributed in different subject areas including business and management, science and technology, social science, arts and humanities, environmental science, etc. Table 9 shows the top 20 disciplines of cited journals. Table 9 indicates that the highest number of cited journals were from business and management, which constitutes about 28.22%. Journals from the economics and psychology together constituted about 19.14%. Rest of journals was from finance, marketing, accounting, sociology, political science, education etc.

Table 9-- Distribution of journals

Subject areas	Number of journals
Business And Management	474
Economics	206
Psychology	111
Finance	92
Marketing	84
Accounting	70
Sociology	61
Political Science	54
Education	42
Law	31
Librarianship	29
Organisational Behaviour	28
Industries	21
Health Science	20
Social Science	18
Statistics	18
Communication Studies	16
Geography	16
Engineering	13
Behavioural Science	11

Conclusion

In the present paper an attempt has been made to identify the research trends in the discipline of commerce using list of 18383 cited references appended in 391 articles published in three commerce journals during 2012-2014. Based on the list of cited references, authors analysed types of information sources cited, pattern of growth, geographical distribution of cited journals etc. It is clear that journals are the most preferred source of information as the most of cited references have been from journals. United States was found to be the country of publication of as many 15 journals out of top 25 journals. The number of papers with two authors have grown steadily in both the block years i.e. 1964-1989 and 1990-2014 but papers with more than three authors fewer in all the block years. Further, about one-third of the total cited references were from 11 journals only and rest two third were scattered in more than 1600 journals. The study concluded that Bradford's Law of scattering does not hold good to the journals cited in the three journals. Based on the reference analysis of the appended articles, it can also be concluded that the field of commerce is highly multidisciplinary as it integrates knowledge from several fields like business and management, economics, psychology etc.

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