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AN EVALUATION OF PUBLICATION PRODUCTIVITY IN INFORMATION SYSTEMS: 1999 TO 2003

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ABSTRACT

University hiring, promotion and tenure decisions make researchers' publication productivity an important issue. This study reports on data about publication productivity of information systems (IS) researchers from 1999 to 2003. We collected information about IS papers published in twelve IS journals during this period. After classification, the most productive individuals and institutions for this sample are identified. We also compared our findings with past research to demonstrate the changes in publication productivity over time. Publication productivity changes somewhat among researchers and institutions.

Keywords: publication productivity, individual IS researchers, academic institutions, IS research

I. INTRODUCTION

Historically, the number of research publications served as representative evidence of individual productivity. Most schools in the United States, and some schools in other countries, consider number of publications in quality research journals quite seriously in tenure and merit decisions [Applegate and King, 1999; Mesak and Jauch, 1991; Niemi, 1987]. From a broader view, publication productivity of academic institutions adds to their reputation. With a strong research publication record, universities can not only earn a better reputation, but use the reputation to attract new faculty and improve funding opportunities. Therefore, faculty productivity is an important issue, both for individual and institutions.

In IS, papers on publication productivity were published in the past few years. Im et al. [1998] examined IS papers from 1991 to 1996 in 6 major IS journals. Athey and Plotnicki [2000] extended the research scope to 10 journals from 1992 to 1996. Our research focuses on publication productivity of IS researchers and institutions in twelve journals for a period since the study by Athey and Plotnicki; from 1999 to 2003. This later time period has presented shifts in the individuals publishing and the institutions represented, including the addition of more universities around the globe.

To understand the current status of IS publication activities, we follow the procedure of Athey and Plotnicki [2000]. First we collected data on authors and institutions in IS-related papers that were published in the twelve journals selected from 1999 to 2003. With summary statistics, we identify the most publication productive researchers and institutions during that period and compared 1992 to 1996 with 1999 to 2003.

II. REVIEW OF PREVIOUS RESEARCH

The assessment of individual and institutional publication productivity is not a new topic in many research disciplines. In IS, two papers published since 1998 focused on evaluating publication productivity.

1.. Im et al. [1998] collected data 809 IS-related papers published in six journals including *Communication of the ACM*, *Decision Sciences*, *Information Systems Research*, *Journal of Management Information Systems*, *Management Information Systems Quarterly*, and *Management Science*, between 1991 and 1996.

2. Athey and Plotnicki [2000]. They extended the scope from six to ten journals by adding *IEEE Transactions of Software Engineering*, *Information & Management*, *Harvard Business Review*, and *Sloan Management Review* and used the time period to 1992 through 1996. The differences between these two studies are summarized in Table 1.

Table 1. Review of Past Research

Individual		Institution	
Im et al., 1998	Athey and Plotnicki, 2000	Im et al., 1998	Athey and Plotnicki, 2000
Igbaria, M.	Igbaria, M.	U of Arizona	U of Arizona
Jarvenpaa, S.	Clemons, E.	U of Minnesota	New York U
Grover, V	Grover, V.	MIT	MIT
Mukhopadhyay, T.	King, W.	Carnegie Mellon	Nat'l U. Singapore
Nunamaker, J.	Brynjolfsson, E.	NYU	U of Pennsylvania
Clemons, E.	Nunamaker, J.	South Carolina	Drexel U
Benbasat, I.	Jarvenpaa, S.	U of Pennsylvania	U of South Carolina
King, W.	Guimaraes, T.	U of Texas, Austin	U of Minnesota
Dennis, A.	Kemerer, C.	British Columbia	U of Texas, Austin
Brynjolfsson, E.	Lucas, H.	Drexel U	Carnegie Mellon
Bessey, I.	Sprague, R.	U of Georgia	Georgia State U
Higgins, C.	George, J.	National U, Singapore	Florida International
Valacich, J.	Vessey, I.	Florida State U	U of Memphis
Vogel, D.	Szajna, B.	Florida International	U of Georgia
Robey, D.	Zack, M.	UCLA	U of Pittsburgh
George, J.	Palvia, P.	U of California, Irvine	U of British Columbia
Baroudi, J.	Baroudi, J.	Georgia State U	Queen's U
Todd, P.	Benbasat, I.	U of Pittsburgh	U of Houston
Bostrom, R.	Alavi, M.	Texas A&M	Florida State U
Guimaraes, T.	Robey, D.	Penn State U	Penn State U
Kettinger, W.	Lederer, A.	U of Colorado, Boulder	Texas A&M
Kemerer, C.	Orlikowski, W.	Queen's U	Arizona State U
Sethi, V.	Todd, P.	U of Indiana	U of Toledo
Ives, B.	Chau, P.	Auburn U	U of California, Irvine
Row, M.		Maryland U	
Barki, H.		Case Western Reserve	
Rainer, R.		U of Houston	
Teng, J.		U of Southern California	

III. METHODOLOGY

Our first step was to define the range and scope of data collection. We reviewed the journal ranking information published on the ISWorld web site (Table 2). We selected the top 10 journals in the list by from Mylonopoulos and Theoharakis [2001]. Due to similarity of methodology, we included the Sloan Management Review to be consistent with the Athey and Plonicki study.

We added the Journal of the Association for Information Systems (JAIS). JAIS is in electronic format and, because of its relative short history, did not exist in the previous studies. However, a recent study ranked this journal high [Lowry et al. 2004] and Peffers and Ya [2003] suggested that this e-journal should be one of the important IS journals.

Table 2 Journal Ranking from Previous Studies

Journal Name	Mylonopoulos & Theoharakis, [2001]	Whitman et al., [1999]	Hardgrave & Walstrom, [1997]	Walstrom et al., [1995]	Holsapple et al., [1994]	Gillenson & Stutz, [1991]
MIS Quarterly	1	1	1	1	1	2
Communications of the ACM	2	3	4	2	2	3
Information Systems Research	3	4	2	3	not ranked	not ranked
Journal of Management Info. Systems	4	6	5	7	3	5
Management Science	5	2	3	4	4	1
IEEE Transactions	6	8	7 - software engineering	5 - software engineering.	6	8 - various subjects
Harvard Business Review	7	7	9	9	7	10
Decision Sciences	8	5	6	8	17	4
Decision Support Systems	9	13	10	11	5	not ranked
Information & Management	10	15	20	12	8	12

Source: ISWorld <http://www.isworld.org/csaunders/rankings.htm>

Table 3. Journals Selected for this Research

Im et. al. (1998)	Athey and Plotnicki [2000]	This study (2005)
Communications of the ACM Decision Sciences Information Systems Research Journal of Management Information Systems MIS Quarterly Management Science	Communications of the ACM Decision Sciences Information Systems Research Journal of Management Information Systems MIS Quarterly Management Science Harvard Business Review IEEE Transactions on Software Engineering Information & Management Sloan Management Review	Communications of the ACM Decision Sciences Information Systems Research Journal of Management Information Systems MIS Quarterly Management Science Harvard Business Review IEEE Transactions on Software Engineering Information & Management Sloan Management Review Journal of AIS Decision Support Systems

Note: Lists two and three include the previous list plus journals added in **boldface**

All research papers published in these 12 journals were then included in a database with author and institution information. Books reviews, comments, responses to comments, columns, and opinions were excluded. General managerial-oriented journals, such as *Harvard Business Review* and *MIT Sloan Management Review*, contain many non-IS papers. To avoid drawing conclusions from the non-IS papers, we next removed papers that do not include IS researchers as authors. The determination of "IS researcher" is based on the About the Authors section of each paper. For journals that don't provide author or department information, the determination was based on whether the researcher's name appears in the ISWorld faculty directory. Any paper containing at least one IS author was treated as an IS paper.

In most journals, author affiliation was provided. The institution affiliation was first determined by the credit given in the the publication. Where journals, such as HBR, do not contain the affiliation, we attribute the paper according to the information on authors' vitae located on the web. In this case, the affiliation at the time of publication was credited with the publication. Only failing these options was the paper was attributed to the authors' current institution. This latter situation occurred for only one of the authors listed below.

The productivity of each author and institution was calculated using two metrics, an absolute (normal) count and one adjusted by the number of coauthors. In the normal count, the productivity of each author and institution was calculated according to how many times they appeared in the database. The adjusted count is based on the weighting method developed by Lindsey [1980] and followed by Im et al. [1998] and Athey and Plotnicki [2000], where the score of each author and institution is adjusted by the number of authors in each paper. For example, the adjusted score of one paper will be counted as 0.25 point for each author if it contains four authors.

IV. RESULTS

Initially, 4060 papers were entered into the database with 6169 researchers represented. The ratio of papers to authors is 0.66 which means that a typical paper in the journals surveyed included two or more authors. After removing non-IS papers, 1597 papers and 2442 researchers were left. The ratio of papers to authors was 0.65. The number of issues, number of articles, and number of IS-authored articles are list in Table 4. For comparison, we also list the Athey and Plotnicki [2000] results.

Table 4 Comparison of Journal Publication

Journal Name	No. of Issues		No. of Articles		No. of IS-Authored Articles		Percent of IS-authored Articles	
	This Study	Athey & Plotnicki (2000)	This Study	Athey & Plotnicki (2000)	This Study	Athey & Plotnicki (2000)	This Study	Athey & Plotnicki (2000)
Communications of the ACM	60	60	907	596	387	90	42.67%	15.10%
Decision Sciences	20	24	168	135	88	48	52.38%	35.56%
Decision Support Systems	45	---	314	---	224	---	71.34%	---
Harvard Business Review	60	30	892	194	16	1	1.79%	0.52%
IEEE software engineering	54	60	342	362	32	51	9.36%	14.09%
Information & Management	44	52	259	280	259	280	100.00%	100.00%
Information Systems Research	20	20	113	92	113	92	100.00%	100.00%
JAIS	4	---	43	---	43	---	100.00%	---
Journal of MIS	20	24	185	187	185	186	100.00%	99.47%
Management Science	60	60	565	621	104	73	18.41%	11.76%
MISQ	20	20	98	116	98	116	100.00%	100.00%
MIT Sloan Management Rev.	20	20	174	161	48	29	27.59%	18.01%

Note: --- denotes not included

Observations on Table 4

- The information in Table 4 represents different time periods and the inclusion of *J AIS* and *DSS*. An attempt was made to use the same processes, but differences may exist between our understanding and that of the prior authors.
- *I&M*, *ISR*, *J AIS*, *J MIS*, *DSS* and *MISQ* are dedicated to the IS field. The portion of IS articles for these journals is 100%. *Harvard Business Review* and *IEEE Software Engineering* contain the lowest percentage of IS-authored papers, less than 10%.
- Except for *Harvard Business Review*, all journals published the same number of issues (or less) during last five years compared to 1992 to 1996¹. However, the number of articles in some journals increased, while the others remained fairly stable or decreased.
- The portion of IS articles to all articles in each journal increased, except *IEEE Software Engineering*.

PUBLICATIONS BY UNIVERSITY

We selected universities from the database according the number of published articles and list in Table 5 the universities whose adjusted count is more than 10. A total 31 universities met this criterion.

Table 5 Comparison of Institutional Publication Productivity

University	# of Articles (Adjusted Count)	Rank in Athey & Plotnicki (2000)	Rank in Im et al. (1998)
Georgia State U	38.25	11	17
U of Maryland	28.83	---	25
U of Pennsylvania	26.08	5	7
U of Arizona	25.88	1	1
**City U of Hong Kong	22.00	---	---
Indiana U	21.78	---	23
U of Texas, Austin	19.46	9	8
**Hong Kong U of Sci. and Tech.	18.33	---	42
U of Minnesota	17.73	8	2
Arizona State U	17.62	22	---
U of Connecticut	17.08	---	---
**National U of Singapore	16.83	4	12
**Korea Adv. Inst. of Sci. and Tech.	16.73	---	---
Carnegie Mellon U	16.48	10	4
U of Southern California	15.77	---	28
U of Central Florida	15.50	---	---
U of Michigan	15.15	---	41
Stanford U	14.92	---	---
U of North Carolina	14.45	---	---
U of Kentucky	14.25	---	---
**U of Hong Kong	14.02	---	---
U of California, Irvine	13.83	24	16
MIT	13.58	3	3
U of Wisconsin, Milwaukee	13.38	---	---
Syracuse U	12.42	---	38
U of Georgia	12.17	14	11

¹ HBR increased its frequency of publication from 6 to 12 issues per year during this period.

U of South Carolina	11.83	7	6
U of Texas, Dallas	11.00	---	---
**U of British Columbia	10.87	16	9
Drexel U	10.83	6	10
U of Pittsburgh	10.17	15	18
---: not listed in the previous research.			
**: non-US schools			

Observations on Table 5

- Six non-U.S. universities are in the top 31. In particular, a major increase in representation of Asian universities occurred.
- About half of the schools in this study were not represented in the two previous studies of comparison. These data indicate a significant change in less than a decade. Reasons for this change are unclear and deserve further study.

PUBLICATIONS BY AUTHOR

Table 6 lists the researchers whose names appear on the most publications. Those who are authors or coauthors of eight or more articles are included resulting in thirty researchers. Adjusted count and current location are also provided.

Observations on Table 6

- With normal counting, the most productive publishers are Jiang, Klein, Grover, Whinston, and Benbasat. With adjusted counts, Grover, Jiang, Klein, Benbasat, and Kauffman are the top five most productive publishers.
- Compared with past studies, we found that Varun Grover still is in the top 5, which means that he is one of the most productive publishers during the past 13 years, according to these studies.
- Five faculty at non-US universities are included on the list: Benbasat, Chau, Tan, Tam and Wei. One of them is in Canada and the others are in Asia. Benbasat, teaching in Canada, and Chau, serving at the University of Hong Kong, appear in the top 10. Compared with the prior study, these results show an increase in the number of non-US based people among the most prolific publishers.

Table 6. Top 30 Productive Authors During Past 5 Years

Ranking	Researcher	Current Institution	Normal Count	Adjusted count
1	Jiang, J.	U of Central Florida	21	7.50
1	Klein, G.	U of Colorado, Springs	21	7.50
3	Grover, V.	Clemson U	19	7.75
4	Whinston, A.	U of Texas, Austin	16	5.17
5	Benbasat, I	U of British Columbia	15	6.50
6	Kauffman, R.	U of Minnesota	13	6.33
6	Nunamaker, J.	U of Arizona	13	3.58
8	Chau, P.	U of Hong Kong	12	5.62
8	Straub, D.	Georgia State U	12	4.83
8	Agarwal, R.	University of Maryland	12	4.67
8	Chen, H.	U of Arizona	12	3.34
12	Venkatesh, V	U of Arkansas	10	5.42
12	Clemons, E.	U of Pennsylvania	10	5.00
12	Sambamurthy, V.	Michigan State U	10	3.92

12	Krishnan, M.	U of Michigan	10	3.42
16	Rai, A	Georgia State U	9	4.00
16	Devaraj, S	U of Notre Dame	9	3.67
16	Watson, R.	U of Georgia	9	3.00
16	Briggs, R.	U of Arizona, Delft U of Technology, GroupSystems.Com	9	2.75
20	Zmud, R.	U of Oklahoma	8	3.50
20	Kohli, R.	U of Notre Dame	8	3.33
20	Keil, M.	Georgia State U	8	3.08
20	Dennis, A.	Indiana U	8	3.00
20	Tam, K.	H K U of Sci. and Tech.	8	2.83
20	Wei, K.	City U of Hong Kong	8	2.58
20	Gupta, A.	U of Minnesota.	8	2.50
20	Tan, B.	National U of Singapore	8	2.50
20	Massey, A.	Indiana U	8	2.45
20	Mukhopadhyay, T.	Carnegie Mellon U	8	2.45
20	Rao, H.	SUNY, Buffalo	8	2.18

RESEARCH CONTRIBUTIONS AND NUMBER OF COAUTHORS

Table 7 summarizes the number of contributions for all the authors in the database. Table 8 indicates the number of coauthors on the papers in the database.

Table 7. Research Contribution of Authors

Contribution (Article Numbers)	Normal Count No. of Authors				Adjusted Count No. of Authors			
	This study		Athey & Plotnicki(2000)		This Study		Athey & Plotnicki (2000)	
> =10	15	0.61%	7	0.64%	0	0.00%	1	0.08%
8 - 9.99	15	0.61%	37	3.30%	0	0.00%	4	0.56%
5 - 7.99	57	2.34%	106	8.77%	9	0.37%	20	1.77%
3 - 4.99	205	8.39%	95	15.6%	27	1.11%	53	4.10%
2 - 2.99	304	12.45%	878	71.7%	411	16.83%	242	20.1%
1 - 1.99	1,846	75.59%	0	0%	1900	77.81%	903	73.4%
< 1	0	0.00%						

Table 8. The Number of Authors Per Paper

No. of Authors	No. of Papers
1	324 20.29%
2	655 41.01%
3	422 26.42%
4	143 8.95%
> 4	53 3.32%

Observations on Tables 7 And 8

- In the normal count, 30 authors wrote eight or more articles, while most contributed one paper, in either normal or adjusted counts. In adjusted counts, no one contributed more than ten papers, and only nine contributed more than eight papers. This result indicates that most researchers publishing in the 12 journals only publish one paper in these journals during a five year period.

- Co-authorship is common in the field, with only about one in five articles being singly-authored. Two in five papers include more than two authors. Co-authorship yields an adjusted count showing most authors having less than one paper.

PUBLICATIONS BY INSTITUTION AND JOURNAL

To understand whether faculty in universities publish in different journals, we created the cross tabulation between journals and schools shown in Table 9. This table is based on adjusted counts.

Table 9. Cross Tabulation by Journal

MIS Quarterly		Management Science		ISR	
Indiana U	4.50	U of Pennsylvania	8.83	U of Maryland	5.17
U of Maryland	4.50	Stanford U	7.50	Georgia State U	4.50
U of Oklahoma	4.50	Carnegie Mellon U	5.93	Carnegie Mellon U	3.75
Georgia State U	3.33	MIT	5.17	U of California, Irvine	3.50
U of Georgia	3.33	U of Texas, Dallas	3.83	U of British Columbia	3.00
U of British Columbia	3.17	H K U of Sci. & Tech.	3.67	U of Pennsylvania	2.83
Emory U	2.33	U of Connecticut	3.17	U of Michigan	2.50
U of Hawaii	2.00	U of Michigan	3.08	U of Minnesota	2.50
U of Southern California	1.93	INSEAD;		Indiana U;	
U of Houston;	1.83	U of Southern California	2.67	U of Texas, Austin;	2.33
U of Virginia		U of Texas, Austin		Vanderbilt U	
Journal of MIS		CACM		Decision Support Systems	
U of Arizona	8.92	Georgia State U	10.25	U of Arizona	13.03
U of Minnesota	8.83	U of Maryland	7.08	KAIST, Korea	5.83
U of Pennsylvania	6.50	Syracuse U	6.17	U of Florida	5.67
Georgia State U	4.58	U of North Carolina	5.75	Arizona State U	5.58
U of Rochester	4.33	City U of Hong Kong	5.50	U of Kentucky	5.33
H K U of Sci. and Tech.	3.67	U of Nebraska	5.33	U of Maryland	5.22
New Jersey Institute of Technology	3.44	SUNY, Buffalo	5.19	City U of Hong Kong	5.17
U of Texas, Austin	3.33	U of Connecticut	5.00	Georgia State U	4.67
U of Southern California	3.25	U of Illinois, Chicago	4.85	H K U of Sci. and Tech.	4.17
U of Colorado, Boulder	3.00	U of California, Irvine	4.83	U of Connecticut	4.17
Information & Management		Decision Sciences		IEEE Software Engineering	
KAIST, Korea	6.73	U of South Carolina	3.33	U of Michigan	2.75
U of Hong Kong	5.50	Michigan State U	3.00	Georgia State U	1.83
City U of Hong Kong	4.83	U of Wisconsin,	2.97	U of Maryland	1.83
Brunel U, United Kingdom	4.67	Milwaukee		Carnegie Mellon U	1.50
U of North Carolina	4.33	Indiana U	2.50	National Chiao Tung U, Taiwan	1.50
National Chung Cheng U, Taiwan	3.75	Florida International U	2.42	U of Wisconsin,	1.42
U of Memphis	3.50	Ohio State U	1.75	Milwaukee	
		U of Florida	1.67	U of Hong Kong	1.33
		Kent State U	1.58		
Georgia State U; National Central U, Taiwan; U of Colorado, Springs; U of Mississippi;	3.33	Florida State U; National U of Singapore; Texas A&M U; U of Memphis; Washington State U	1.50	Athens U of Eco & bus.; La Trobe U, Australia; National Taiwan U of Sci. and Tech.; U of Arkansas; U of Durham; U of Macedonia	1.00

JAIS		MIT Sloan	
Georgia State U	3.50	Harvard U	5.83
City U of Hong Kong	2.00	INSEAD	2.83
San Diego State U	2.00	Accenture Institute	2.33
National U of Singapore	1.67	Northeastern U	2.00
Virginia Commonwealth University	1.50	MIT	1.92
Drexel U	1.50	U of Texas, Austin	1.75
U of Texas, Arlington	1.33	Boston U	1.50
Washington State U	1.25	Dartmouth College	1.50
		U of Virginia	1.17

Observations on Table 9

- Except for *ISR* and *JMIS*, each journal contains at least one non-U.S. university. International faculty now play an increasing role in IS research activities with Asia being a major force. Countries includes Korea, Taiwan, Hong Kong, and Singapore.
- Harvard Business Review was omitted because of relative few IS papers. For JAIS and MIT Sloan, the adjusted count of too many universities equals 1. Therefore, these schools are omitted.
- In certain journals, such as *MISQ*, *ISR*, and *JMIS*, publication count is dominated by the University of Arizona, the University of Minnesota, Indiana University, University of Maryland, and Georgia State University.
- Information & Management can be viewed as an international journal. Half of its top ten list is non-U.S. universities. These universities are in Korea, Hong Kong, Taiwan, and the United Kingdom.

V. CONCLUSIONS

This study analyzed personal and institutional publication productivity in the IS field. Papers published in twelve journals during 1999 to 2003 were collected. The 30 researchers who were author or coauthor of eight or more papers are identified as are the 31 institutions with adjusted counts of ten or more publications. Compared with past IS publication productivity research, new individual researchers emerged and productive institutions altered significantly. We speculate that this change may be the result of increasing competition for publication in these journals, high quality research by individual researchers to build their reputation, or to obtain a better competitive position, or to earn tenure or promotion².

People who want to extend this research to practical use, such as promotion and tenure decisions, should be very careful for several reasons. First, the scope of our study is limited to twelve journals. Some high-quality and more specialized, journals (such as International Journal of Electronic Commerce, ACM journals, and other IEEE Transactions) are not included in this study. Although, the determination of IS-authored articles is based on the data published in the journals or the ISWorld faculty directory, we do not believe the data presented would be altered substantially if a more complete investigation were made.

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² One change involved Magid Igbaria, who was stricken with cancer of which he later died. There may be other such cases.

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