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Assessing Junior Faculty Research Productivity in the IS Field: Recommendations for Promotion and Tenure Standards for Asian Schools

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Abstract:

We gathered information about junior faculty research productivity in the information systems (IS) field in North America and in a set of top Asian schools. Our work complements prior studies on IS faculty research productivity in several ways. First, we focused on junior faculty research productivity, which refers to publication records of current tenure-track assistant professors. To provide statistics with a greater coverage of IS researchers, we also collected information about the pre-tenure publication records of associate professors. Second, we covered IS researchers who obtained their doctoral degrees in or after the year 2000 and counted their publications until 2013 to provide the most up-to-date information about junior faculty research productivity. Third, we collected information about IS researchers' publications in leading IS journals (based on the AIS Senior Scholar basket of journals) and in elite broader business journals (based on the Financial Times list and UT Dallas list). Finally, examining junior faculty research productivity in the IS field in Asian schools and in North America enabled us to provide recommendations for promotion and tenure standards for Asian schools in light of the research productivity and tenure standards in North America.

Keywords: Faculty Research Productivity, Junior Faculty, Tenure Standards, Publication Benchmarks, Asian Schools.

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I. INTRODUCTION

Faculty research productivity is an important topic to academic fields (Venkatesh, Wati, Chan, & Zhang, 2014). Publication record has long been used as an indicator for faculty research productivity (Vogel & Wetherbe, 1984; Chua, Cao, Cousins, & Straub, 2002). In particular, junior faculty research productivity (i.e., pre-tenure publications of tenure-track faculty members) plays a critical role in promotion and tenure decisions, which are perhaps among the most critical decisions for a scholar's academic career. Thus, it has attracted continual attention and analysis in the information systems (IS) field (e.g., Dennis, Valacich, Fuller, & Schneider, 2006; Valacich, Fuller, Schneider, & Dennis, 2006; Dean, Lowry, & Humpherys, 2011).

Prior studies on faculty research productivity, however, have predominantly focused on North American schools. Evidence on faculty research productivity in Asian schools is lacking in the extant literature. How would the research productivity of Asian schools stack up if they are put in a list of North American schools? In particular, to what levels of North American schools are top Asian schools comparable in terms of research productivity? Do promotion and tenure candidates in Asian schools have competitive research productivity if evaluated by promotion and tenure standards in North America? What standards should an Asian school use if it wants to be considered as a top research school worldwide? These questions cannot be answered if we do not have evidence about junior faculty research productivity in Asian schools and in North America during the same years. As reported by the *Information Systems Research* rankings website[1] (Venkatesh et al., 2014), a dominant majority of top-100 schools in the IS field, evaluated based on publications in leading IS journals, are in North America. As such, answering the above questions can help Asian schools to realize their standings worldwide regarding their research productivity and devise appropriate promotion and tenure standards in order to develop and catch up with their North American counterparts. Although various factors can play a role in promotion and tenure decisions, research productivity is widely argued to be an important decision factor, especially in research-oriented schools (Dean et al., 2011). The primary goal of our investigation is to provide evidence of IS junior faculty research productivity in top Asian schools and in North America, and, based on the evidence, offer some suggestions for Asian schools regarding how to evaluate research productivity of junior faculty members for promotion and tenure decisions.

II. PRIOR LITERATURE AND THE COMPLEMENTARY EVIDENCE WE PROVIDE

Although there are a large number of studies on IS faculty research productivity (e.g., Vogel & Wetherbe, 1984; Dennis et al., 2006; Valacich et al., 2006; Dean et al., 2011; Venkatesh et al., 2014), the literature is largely silent on faculty research productivity, especially junior faculty research productivity, in Asian schools. Second, prior studies that analyze and recommend tenure criteria have scrutinized publication records of tenured faculty (Dennis et al., 2006; Valacich et al., 2006; Dean et al., 2011). Although their recommendations are highly informative, any thorough discussion on appropriate tenure criteria should *also* consider the publication performance of current tenure-track assistant professors. We provide such evidence so that the field can evaluate the previously suggested criteria in light of the publication records of IS faculty members who are currently candidates for promotion and tenure. In this work, junior faculty members' research productivity refers to (i) publications by faculty members who are currently tenure candidates and (ii) pre-tenure publications by tenured faculty.

Third, based on a review by Venkatesh et al. (2014), most prior studies in the literature have investigated IS faculty research productivity until the mid-2000s. For instance, Dennis et al. (2006) analyzed publication performance of PhD graduates between the years of 1992 and 2004. One of their striking findings is that, worldwide, only 0.3 percent of each year's annual class of 275 people published four or more papers in *MIS Quarterly* and *Information Systems Research* in their tenure windows (i.e., typically 6 years after graduation). Dean et al.'s (2011) analyzed IS faculty members who received tenure between 1990 and 2008. Assuming an average tenure window of 5-7 years, their analysis covered PhD graduates in or before the year 2003. One of their key observations is that an "average performer" in a research university with a high research productivity has two publications in top business journals during the tenure window. Considering the continual importance of understanding IS faculty member research productivity, it is important to investigate faculty member research productivity by PhD graduates in the IS field in more recent years and perhaps on an ongoing basis to understand evolving productivity and standards of promotion and tenure. Hence, in order to provide evidence complementing the above studies (e.g., Dennis et al., 2006; Dean et

[1] http://www.vvenkatesh.com/isranking/

al., 2011), we focus on IS researchers who obtained their doctoral degrees in or after the year 2000 and count their publications until 2013.

Another important motivation for our analysis is related to the initiative that leading IS journals, including *MIS Quarterly* and *Information Systems Research*, have taken to increase the number of papers published per issue, which can help create more opportunities for junior faculty publications in the field's premium research outlets (Dean et al., 2011). Although the initiative intended to serve the purpose of helping the field to develop, to date, we lack evidence to answer the question of whether junior IS researchers have indeed benefited from the initiative in terms of increasing their publication productivity. We present the per capita number of publications by current assistant professors and the per capita number of publications by associate professors in their tenure windows (hence, their research productivity when considered as "junior faculty"). These statistics can demonstrate how junior faculty research productivity has evolved over time, specifically after 2000.

Finally, our analysis has a broad coverage of both IS field journals and elite non-IS journals. As information technologies play an increasingly crucial role in almost all business functions in contemporary firms, IS researchers have been publishing research, often interdisciplinary in nature and influential to other fields, in a variety of top business journals. Thus, we believe that it is informative to analyze, in one systematic study, IS researchers' publications in not only the leading field journals recognized by the Association for Information Systems (AIS), but also top business journals in general. To that end, our study covers the AIS Senior Scholars' journal basket, which includes eight high-quality IS journals (hereafter called the AIS-basket list)[2] and top business journals in two other lists: a list of 45 journals used by Financial Times in compiling the business school research rank (hereafter called as the FT list)[3] and a list of 24 journals used by the University of Texas at Dallas for ranking business schools research (hereafter called as the UTD list).[4] Such an analysis can shed light on contributions by IS faculty members to the overall research productivity of business schools. Results from the analysis also has important implications for the scope of journals that are considered in promotion and tenure decisions for IS faculty members (e.g., leading IS journals or business journals more broadly). Another list including top business journals is the *BusinessWeek list*, which includes 20 management and economics journals. The *BusinessWeek list*, however, does not include MIS Quarterly. Considering the fact that *MIS Quarterly* has been long and widely ranked as a top IS journal[5], we choose not to include the *BusinessWeek* journal list in this work.

III. DATA COLLECTION APPROACH

Sampling Procedure

We collected data for this research in 2013. We started with a list of top-100 business schools in North America released by U.S. News in 2013. For each of the schools in the list, we visited its website and used the list of IS programs (Dean et al., 2011) to identify IS faculty members. We downloaded curricula vitae from the faculty members' websites. For an individual to be included in the study, the curriculum vitae had to include the individual's PhD completion date, tenure date, and list of publications. We excluded non-research faculty and PhD faculty with minimal research expectations (e.g., clinical faculty) from our analysis. This exclusion criterion followed prior research (Dean et al., 2011). As we note earlier, we included IS faculty members who obtained their PhD in or after 2000.

To identify a set of top Asian schools in terms of IS research productivity, we used the information systems research rankings website (Venkatesh et al., 2014) to figure out the top schools in terms of number of publications in the 8 IS journals in the AIS-basket list. Among the top-100 schools identified by the website include five Asian schools (National University of Singapore, City University of Hong Kong, Nanyang Technological University, Hong Kong University of Science and Technology, and Yonsei University). In this work, when we mention top Asian schools, we particularly refer to these five schools. We visited the websites of these schools to gather information about their IS departments. We then followed the same sampling procedure as described above.

In this work, we included a faculty member in our sample if they had at least one paper published in one of the 8 journals of the AIS-basket list until the time of our data collection in 2013. We had to have such a criterion because, in some schools, one department can be home to several academic areas (e.g., IS, operations management). Instead of using any subjective discretion to define our sample, we relied on the above-mentioned objective criterion.

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[2] AIS "Senior Scholars' Basket of Journals" (http://aisnet.org/?SeniorScholarBasket).
[3] "45 Journals Used in FT Research Rank" (http://www.ft.com)
[4] "The UTD Top 100 Business School Research Rankings" (http://jindal.utdallas.edu/the-utd-top-100-business-school-research-rankings/journals)
[5] "MIS Journal Rankings" complied by Association for Information Systems (http://ais.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=432).

This is also a legitimate consideration for the purpose of our examination because, in reality, attaining tenure in one academic field usually requires publications in the field's journal(s).

Faculty Publications Information

As we describe above, we extracted our data for faculty publications from faculty curriculum vitae. This gave us an opportunity to collect information about junior faculty members' forthcoming papers (i.e., accepted for publication not yet in press). Such information is critical especially for evaluating research productivity of tenure candidates given journal backlogs and the fact that such information is typically is used in promotion and tenure decisions. Following Dean et al. (2011), we verified information about published papers by using the EBSCO database and added missing publication information in a small number of cases.

Publications Count Approach

Prior research on faculty research productivity suggests several techniques for measuring faculty productivity based on the number of publications, and the technique chosen to be used must fit the purpose of the investigation (Chua et al., 2002). In the prior literature, the most commonly used approach is the normal-count method (Dean et al., 2011; Dennis et al., 2006; Hasselback & Reinstein 1995; Im, Kim, & Kim, 1998; Vogel & Wetherbe 1984); that is, counting the number of publications an individual has had published. We employed this approach because it is appropriate for research on tenure decisions (Dean et al., 2011; Dennis et al., 2006). Some prior studies used other methods (e.g., adjusted count, to give partial credit to individual authors according to the number of coauthors or the order of authorship). Some researchers have argued that the adjusted-count method is least sensitive to the removal and addition of journals when measuring the general population of publications (Venkatesh et al., 2014). This, however, is not a major consideration in our work given the goal of our research to assess research productivity of the same cohort (junior faculty) since 2000.

Journal Lists

The AIS Senior Scholars' basket of 8 journals include: *MIS Quarterly* (*MISQ*), *Information Systems Research* (*ISR*), *Journal of Management Information Systems* (*JMIS*), *Journal of the Association for Information Systems* (*JAIS*), *European Journal of Information Systems* (*EJIS*), *Information Systems Journal* (*ISJ*), *Journal of Strategic Information Systems* (*JSIS*), and *Journal of Information Technology* (*JIT*). We followed prior research and used six lists that comprised different combinations of IS journals from the AIS-basket list (Dean et al., 2011; Venkatesh et al., 2014). Also, as we discuss above, we considered publications in two other widely used journals lists including top business journals: those lists by the Financial Times (Financial Times, 2015) and the University of Texas at Dallas (UT Dallas, 2015). Altogether, we have eight journal lists (see Table 1).

Table 1: Journal Lists

Journal list	Journals Included
IS-2	*MISQ, ISR*
IS-3A	*MISQ, ISR, JMIS*
IS-3B	*MISQ, ISR, JAIS*
IS-4	*MISQ, ISR, JMIS, JAIS*
IS-6	*MISQ, ISR, JMIS, JAIS, EJIS, ISJ*
IS-8	*MISQ, ISR, JMIS, JAIS, EJIS, ISJ, JSIS, JIT*
FT	45 journals used by the Financial Times (FT) in compiling the business school research rank, which include *MISQ* and *ISR*, but no other journals in IS-8
UTD	24 journals composed by UT Dallas (UTD) for rankings of business school research output, which include *MISQ* and *ISR*, but no other journals in IS-8

Tenure Window

In the IS field, tenure windows usually range from five to seven years (Dennis et al., 2006; Valacich et al., 2006). To determine the research productivity of IS faculty in the first five to seven years of their career, we present the following two sets of statistics. First, for assistant professors, in addition to presenting research productivity statistics of all current IS assistant professors identified by the above-mentioned approach, we particularly examined assistant professors who obtained their PhD degrees in the years 2006, 2007, and 2008. Graduating from a doctoral program in one of these three years means that these assistant professors are currently tenure candidates (i.e., 5-7 years from receiving their doctorate). Second, for tenured associate professors, in addition to presenting statistics of all their research productivity, we counted their publications published during the seven years after they graduated (i.e., in their tenure clocks). Doing so allowed us to present information about "junior faculty research productivity" as we define earlier. Considering both assistant professors' publications and associate professors' pre-tenure publications increased the size of the faculty members under investigation hopefully increases the robustness of the evidence.

IV. RESULTS

Using our criterion for an IS faculty member to be included in our sample, we identified 64 researchers who graduated in or after 2000 and were assistant professors at the top-100 US and Canadian schools as of 2013. We counted their publications in the eight journal lists (in Table 1) and ranked them from the highest productivity to the lowest for each list; in other words, the faculty members who were in the same decile were usually different people across the lists. We then divided them into 10 deciles and presented the results in Table 2. We also listed the statistics of the top performer (excluded from the top 1-10% decile) for each list.

Table 2 shows that junior IS faculty who graduated in or after 2000 and were working in the top-100 North American business schools as of 2013, on average, published 1.48 papers in IS-2 (*MISQ* and *ISR*), 2.09 papers in IS-4 (*MISQ*, *ISR*, *JMIS*, and *JAIS*), and 2.33 papers in IS-8. Further, the top 20 percent of researchers, on average, published at least 2.5 papers in IS-2, 3.67 in IS-4, and 4.17 in IS-8, while the top half of the researchers, on average, published at least 2 papers in IS-8. Also, implied in this table is that the top 20 percent of these faculty members published slightly more than 40 percent of the articles, a percentage roughly the same across all eight lists. This is an interesting observation because it appears to diverge from the so-called Pareto Principle, or the 80-20 rule. It seems to suggest that, among relatively new IS faculty members, overall, publications in the IS field were not heavily dominated by the top 20 percent of researchers. Metaphorically, the “wealth” of the field was distributed, relatively speaking, evenly through it. Based on common economic rationale, it is reasonable to expect that such a field will motivate the research productivity of more, rather than only a subset of “top”, researchers. We believe this is an encouraging signal that suggests a healthy and sustainable development of the field.

As Table 2 shows, these IS junior faculty members also published a significant number of papers in premier journals in non-IS areas, with an average of 2.05 papers in journals in the FT list and 2.41 papers in the UTD list. A comparison of the average number of publications in IS-2 (1.48) and in the UTD list (2.41) suggests that these current assistant professors, on average, published about one paper in journals in the UTD list other than *MISQ* and *ISR*. These statistics seem to suggest that the elite business journals in non-IS areas have become significant outlets for IS researchers to publish their scientific findings. Because journals included in the IS-2, UTD, and FT lists are usually considered as elite business and economics journals (Dennis et al., 2006; Dean et al., 2011), faculty publication records in these three lists deserve a closer examination.

Regarding the IS-2 list (*MISQ* and *ISR*), we identified four researchers who had 4 or more papers published in the list: Tracy A. Sykes (6 papers), Hillol Bala (5 papers), Marius Florin Niculescu (4 papers), and Jesse C. Bockstedt (4 papers). Four scholars had 3 papers published in IS-2: Rohit Aggarwal, Nicholas Berente, Jianqing Chen, and Anandasivam Gopal. Seventeen scholars had 2 papers published in IS-2. In total, out of the 64 assistant professors who graduated in or after 2000, 25 researchers (39%) published 2 or more papers in *MISQ* and *ISR*.

Regarding the FT list, three researchers had 7 papers published in the list: Hillol Bala, Jianqing Chen, and Tracy A. Sykes. Three researchers had 5 papers. Four researchers had 4 papers. Eleven researchers had 3 papers and 15 had 2 publications. As such, out of the 64 assistant professors who graduated in or after 2000, 21 researchers (33%) had 3 or more papers published in the FT list, and 36 researchers (56%) had 2 or more papers published in the FT list.

Regarding the UTD list, three researchers had 7 papers published in the list: Hillol Bala, Jianqing Chen, and Tracy A. Sykes. Three researchers had 6 papers. Three researchers had 5 papers. Six researchers had 4 papers. Ten researchers had 3 papers, and a total of 14 researchers had 2 papers. As such, out of the 64 assistant professors who graduated in or after 2000, 25 researchers (39%) had 3 or more papers published in the UTD list, and 39 researchers (61%) had 2 or more papers published in the UTD list. An important observation is that the top-ranked scholars in the IS lists are also ranked top in the FT list and the UTD list.

Table 3 focuses on the research productivity by a subset of the junior faculty members presented in Table 2: those who obtained a PhD degree during 2006-2008, which means that they were highly likely facing tenure evaluations around 2013. They, on average, had 1.77 papers published in the IS-2 list, 2.32 papers in IS-4, and 2.55 papers in IS-8. Also, the top 20 percent of researchers, on average, had at least four papers published in IS-4, and 4.5 in IS-8. The top half of this group, on average, had 2.77 papers published in IS-8. Prior research (Dean et al., 2011), based on an analysis of IS researchers who received tenure between 1990 and 2008, suggest that an “average performer” in a research university with a high research productivity had 2 publications in top business journals during their tenure window. As evident in the publication records in the FT list and the UTD list shown in Table 3, the top 70 percent of IS junior faculty members who were likely facing tenure evaluations in 2013 meet that standard.

We then studied the research productivity of associate professors (Table 4 presents all their publications and Table 5 presents their publications in their first seven years as faculty members; that is, within their tenure windows). Table 2 shows that the 38 associate professors in our sample each had, on average, 1.76 papers published in the IS-2 list, 2.50 papers in the IS-4 list, and 3.03 papers in the IS-8 list. To rank in the top 20 percent of this group, one needed to publish at least 4.25 papers in the IS-4 list and 5.25 in the IS-8 list, while, to rank in the top 50 percent, one needed at least 3 papers published in the IS-8 list. These associate professors also, on average, had 3.13 papers published in the FT list and 3.40 in the UTD list. This implies that associate professors published significantly more papers in journals beyond the IS field, similar to the sample of assistant professors discussed above.

Table 5 presents the research productivity by associate professors in the timeframe of seven years following their obtaining their PhD degree. Note that 36 faculty members are in this sample: we dropped two from the sample presented in Table 4 because they graduated less than seven years ago. Table 5 is largely comparable to Table 3, which presents the research productivity of junior faculty in the five to seven years after they obtained a doctoral degree. Overall, the associate professors had less research productivity in an equal or longer period of time than the current set of assistant professors (see Table 3): on average, they had 1.44 papers published (compared to 1.77 for the assistant professors who graduated between 2006-2008) in the IS-2 list, 2.06 (2.32 for the assistant professors) in the IS-4 list, and 2.33 (2.55 for the assistant professors) in the IS-8 list. However, the top 20 percent of associate professors had similar productivity as the assistant professors ranked in the same quintile. For example, the top 11-20 percent of researchers in both groups, on average, had about 3 papers published in the IS-2 list and 4 papers in the IS-4 list. Given these statistics, it may be that the expansion of per-issue papers published in the top journals in the IS field has allowed more junior IS faculty members graduating in recent years to publish more in these journals.

It is also interesting to see that these associate professors published less in non-IS journals (i.e., in the FT list and UTD list) earlier in their career. Each associate professor had an average of 2.44 papers published in journals in the FT list and 2.53 in the UTD list in the first seven years of their career compared to 3.13 and 3.40 during their career till 2013, ranging from 6 to 13 years. One possible explanation could be that the associate professors broadened their research outlets and audience as they matured in their career. It also could be the case that the IS community has been evolving to be more interdisciplinary and, accordingly, IS researchers have been increasingly contributing to non-IS areas in the business school. This explanation is also consistent with our observation in Tables 2 and 3 that current assistant professors, compared to those tenured earlier, had a higher portion of their research published in the FT list and the UTD list.

Tables 6 and 7 present the research productivity of assistant professors in the top Asian schools, with Table 6 showing the statistics for those who graduated in or after 2000 and Table 7 showing those who obtained their doctorate between 2006 and 2008. Comparing Table 6 with Table 2, we can see that faculty member research productivity of these top Asian schools in general falls in the range of the top 21-60 percent of North American schools. For instance, the number of publications in the IS-2 list by Nanyang Technological University was 2, which equates to the 21-30 percent decile in North America. Table 7 suggests that overall the research productivity of junior faculty members in their tenure window in these Asian schools would also rank them in the top 31-70 percent of their cohort if they worked at the top North American schools. For instance, the number of publications in the FT list by City University of Hong Kong was 3, which equates to the 31-50 percent decile in North America.

Tables 8 and 9 present statistics about associate professors in these Asian schools. Considering all the publications of the associate professors who graduated in or after 2000 (presented in Table 8), the research productivity varied significantly across these schools, ranging from the top 1 percent to top 70 percent of the productivity in the North American schools. For instance, the number of papers in the FT list by Hong Kong University of Science and Technology was 5, which equates to the 21-30 percent decile in North America. Considering the publications by these researchers in the first seven years after they obtained a PhD (presented in Table 9), the variation in productivity was again high, with most statistics equating to the range of the top 10-70 percent of the productivity of their North American counterparts. For instance, the number of publications in the IS-2 list by National University of Singapore was 3, which equates to the 10-19 percent decile in North America.

Table 2: Research Productivity of Assistant Professors in the Top-100 North American Schools								
	PUB IS-2	PUB IS-3A	PUB IS-3B	PUB IS-4	PUB IS-6	PUB IS-8	PUB FT	PUB UTD
Top performer	6	7	7	7	8	8	7	7
Top 1-10%	3.6	5.2	3.8	5.2	5.8	5.8	5.2	6.4
Top 11-20%	2.5	3.5	2.67	3.67	3.83	4.17	3.67	4.5
Top 21-30%	2	2.57	2	2.71	3	3	3	3.43
Top 31-40%	2	2	2	2	2	2.17	2.33	3
Top 41-50%	1	2	1.14	2	2	2	2	2
Top 51-60%	1	1.67	1	2	2	2	1.67	2
Top 61-70%	1	1	1	1	1.17	1.17	1	1.17
Top 71-80%	1	1	1	1	1	1	1	1
Top 81-90%	0.5	1	1	1	1	1	0.67	0.83
Top 91-100%	0	0.14	0	0.43	0.86	1	0	0
Full sample	1.48	2.00	1.58	2.09	2.27	2.33	2.05	2.41
PUB = Average number of publications in the journal list								

Table 3: Research Productivity of Assistant Professors in the Top-100 North American Schools (During 5-7 Years after Obtaining a PhD Degree)								
	PUB IS-2	PUB IS-3A	PUB IS-3B	PUB IS-4	PUB IS-6	PUB IS-8	PUB FT	PUB UTD
Top performer	5	5	5	5	6	6	6	7
Top 1-10%	3	5	4	5	5	5	5	7
Top 11-20%	3	3.5	3	4	4.5	4.5	4.5	5.5
Top 21-30%	2.5	3	3	3	3	3.5	4	4.5
Top 31-40%	2	2.5	2	3	3	3	3	4
Top 41-50%	2	2	2	2	2.33	2.67	3	3
Top 51-60%	1	2	1.5	2	2	2	2.5	3
Top 61-70%	1	1.5	1	2	2	2	2	2.5
Top 71-80%	1	1	1	1	1	1	1	1
Top 81-90%	1	1	1	1	1	1	1	1
Top 91-100%	0.67	0.67	1	1	1	1	0.67	0.67
Full sample	1.77	2.14	1.95	2.32	2.45	2.55	2.64	3.09
PUB = Average number of publications in the journal list								

Table 4: Research Productivity of Associate Professors in the Top-100 North American Schools								
	PUB IS-2	PUB IS-3A	PUB IS-3B	PUB IS-4	PUB IS-6	PUB IS-8	PUB FT	PUB UTD
Top performer	4	7	4	7	7	7	13	16
Top 1-10%	4	5.5	4	5.5	6	6	9.5	8.5
Top 11-20%	3.25	4.25	3.75	4.25	5	5.25	6	6.25
Top 21-30%	3	3.5	3	4	4	4.25	4.75	5
Top 31-40%	2.75	3	3	3	3.5	3.75	3.75	4.25
Top 41-50%	2	2.75	2	3	3	3	3	3.5
Top 51-60%	1.33	2	1.33	2	2.67	2.67	2	2.67
Top 61-70%	1	1.5	1	1.5	2	2	1.5	1.75
Top 71-80%	0.75	1	1	1	1.25	1.75	1	1
Top 81-90%	0	0.75	0	1	1	1	0.25	0.25
Top 91-100%	0	0	0	0	1	1	0	0
Full sample	1.76	2.39	1.87	2.50	2.90	3.03	3.13	3.40
PUB = Average number of publications in the journal list								

Table 5: Research Productivity of Associate Professors in the Top-100 North American Schools (During 7 Years after Obtaining a PhD Degree)								
	PUB IS-2	PUB IS-3A	PUB IS-3B	PUB IS-4	PUB IS-6	PUB IS-8	PUB FT	PUB UTD
Top performer	4	5	4	5	5	5	8	8
Top 1-10%	3.5	5	4	5	5	5	7	6.5
Top 11-20%	3	3.75	3	4	4.25	4.25	5.75	5.25
Top 21-30%	2.67	3	3	3	3.33	3.33	4	4.33
Top 31-40%	1.75	2.25	2	2.5	2.5	2.75	3	3.5
Top 41-50%	1	2	1	2	2	2	2	2.5
Top 51-60%	1	1.33	1	1.67	2	2	1	1.33
Top 61-70%	1	1	1	1	1.25	1.5	1	1
Top 71-80%	1	1	1	1	1	1	1	1
Top 81-90%	0	1	0	1	1	1	0.25	0.25
Top 91-100%	0	0	0	0	0.75	1	0	0
Full sample	1.44	1.97	1.53	2.06	2.25	2.33	2.44	2.53
PUB = Average number of publications in the journal list								

Table 6: Research Productivity of Assistant Professors in the Top Asian Schools					
	City University of Hong Kong	Hong Kong University of Science and Technology	Nanyang Technological University	National University of Singapore	Yonsei University
PUB IS-2	1.11	1.50	2.00	1.67	1.00
PUB IS-3A	1.78	1.75	3.00	1.67	1.00
PUB IS-3B	1.11	1.50	2.00	1.67	1.00
PUB IS-4	1.78	1.75	3.00	1.67	1.00
PUB IS-6	1.78	2.00	3.00	1.67	1.00
PUB IS-8	1.78	2.00	3.00	1.67	1.00
PUB FT	1.44	1.50	2.00	2.17	1.00
PUB UTD	1.44	1.50	2.00	2.33	1.00
PUB = Average number of publications in the journal list					

Table 7: Research Productivity of Assistant Professors in the Top Asian Schools (During 5-7 Years after Obtaining a PhD Degree)					
	City University of Hong Kong	Hong Kong University of Science and Technology	Nanyang Technological University	National University of Singapore	Yonsei University
PUB IS-2	2.00	NA	NA	2.00	1.00
PUB IS-3A	3.50	NA	NA	2.00	1.00
PUB IS-3B	2.00	NA	NA	2.00	1.00
PUB IS-4	3.50	NA	NA	2.00	1.00
PUB IS-6	3.50	NA	NA	2.00	1.00
PUB IS-8	3.50	NA	NA	2.00	1.00
PUB FT	3.00	NA	NA	2.00	1.00
PUB UTD	3.00	NA	NA	2.33	1.00
PUB = Average number of publications in the journal list					

Table 8: Research Productivity of Associate Professors in the Top Asian Schools					
	City University of Hong Kong	Hong Kong University of Science and Technology	Nanyang Technological University	National University of Singapore	Yonsei University
PUB IS-2	3.00	2.00	1.00	4.00	NA
PUB IS-3A	11.00	3.00	2.00	5.00	NA
PUB IS-3B	3.00	2.00	1.00	4.00	NA
PUB IS-4	11.00	3.00	2.00	5.00	NA
PUB IS-6	13.00	3.00	2.00	5.00	NA
PUB IS-8	13.00	3.00	2.00	5.00	NA
PUB FT	4.00	5.00	4.00	4.00	NA
PUB UTD	3.00	4.00	4.00	4.00	NA
PUB = Average number of publications in the journal list					

Table 9: Research Productivity of Associate Professors in the Top Asian Schools (During 7 Years after Obtaining a PhD Degree)					
	City University of Hong Kong	Hong Kong University of Science and Technology	Nanyang Technological University	National University of Singapore	Yonsei University
PUB IS-2	0.00	1.00	0.00	3.00	NA
PUB IS-3A	3.00	2.00	1.00	4.00	NA
PUB IS-3B	0.00	1.00	0.00	3.00	NA
PUB IS-4	3.00	2.00	1.00	4.00	NA
PUB IS-6	3.00	2.00	1.00	4.00	NA
PUB IS-8	3.00	2.00	1.00	4.00	NA
PUB FT	0.00	4.00	3.00	3.00	NA
PUB UTD	0.00	3.00	3.00	3.00	NA
PUB = Average number of publications in the journal list					

V. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

First, research productivity is only one of the factors that is evaluated for promotion and tenure decisions. In reality, promotion and tenure evaluation committees consider other factors including grants, teaching, internal (school/department) service, and service to the community. These factors may be weighed differently across schools. Research productivity, however, is a key factor, especially in research-oriented schools. Second, counting the number of publications offers information about only one aspect of faculty member research productivity. There are other ways to evaluate faculty research productivity. For example, it is important to assess the impact of an academic study. But, still, we most often hear questions such as “How many papers do I need for tenure?” and “What journals are As?” from junior faculty members. The statistics presented in this work should be useful benchmarking information for schools and junior faculty in the IS field. Third, among the top-100 schools as identified in information systems research rankings website (Venkatesh et al., 2014), there are only five Asian schools. As a result, the sample size of IS faculty members in Asian schools covered by this study is rather small. Readers must keep this in mind when digesting the statistics and recommendations presented in this work. Related to this limitation, we only covered five Asian schools that were the top schools in Asia as evaluated by publication records in the AIS-basket list. There are other ways to rank research productivity, and future research could expand school coverage to draw implications for schools in Asia. Finally, future research could examine junior faculty member research productivity in other regions in the world to advance the understanding of IS faculty member research worldwide. In particular, an interesting direction for future research would be to consider global standards for promotion across different continents in the field. A question worth further research is how to set reasonable standards for institutions outside the US, considering differences in research environments across different regions. In this work, we only assess junior faculty research output and do not answer those questions, which we believe are interesting directions for future research. Even with these limitations, we believe that our efforts of systematically collecting information about IS junior faculty member research productivity since 2000 in North America and in top Asian schools provides important implications to our field. In Section 6, we discuss recommendations for promotion and tenure decisions for Asian schools.

VI. RECOMMENDATIONS FOR ASIAN SCHOOLS

First, for an Asian school, perhaps the most direct way to use the statistics we present in Tables 2 through 5 is to identify a decile as a benchmark group and then use the average numbers of papers published in the decile when making promotion and tenure decisions. For instance, if an Asian school aims to pursue a position as a top-50 percent school in North America in terms of research productivity, then Table 5 suggests that the corresponding numbers of papers published in the IS-2 list, FT list, and UTD list are 1, 2, and 2.5, respectively. Given that an individual researcher can only publish whole numbers of papers, the minimal requirement for papers published in the IS-2 list, FT list, and UTD list could be set as 1, 2, and 3, respectively. External reviewers for promotion and tenure candidates can use information presented in the present paper in a similar way. Note that various factors go into promotion and tenure decisions, which we note above, and so the minimal publication requirements as Tables 2 and 3 suggest are neither necessary nor sufficient. With that said, the information can be a useful benchmark for an Asian school to evaluate promotion and tenure candidates if the school has figured out its target “peer” schools in North America. Tenure candidates can also use the information for self-evaluation. For instance, according to Table 3, if a tenure candidate working in an Asian school has 4 papers published in the FT list, then such a publication record places the candidate in the top 30 percent of a North American school. We also remind schools and tenure candidates that the numbers of publications reported in Tables 2 through 5 are average numbers in certain deciles. As such, meeting the bare minimal standards based on these numbers only suggests research performance that is not below-average in certain deciles. To increase the likelihood of tenure, a candidate should target higher than the average number of publications.

Second, note that the criteria for publication records for promotion and tenure decisions can be a moving target and, based on observations in this work, we argue that it is reasonable to expect an increasing bar for Asian schools. The statistics shown in Tables 2 and 3 indicate a tendency of increasing numbers of publications by current assistant professors in North America compared to associate professors during their tenure windows. This tendency is made clear by comparing the average number of publications in each of the 8 journal lists in Table 3 (i.e., publications by assistant professors who likely faced promotion and tenure evaluations around 2013) and the average number of publications in Table 5 (i.e., publications by associate professors during their tenure windows). On the one hand, the tendency reflects more publication opportunities for junior faculty members in the IS field. On the other hand, it is possible that promotion and tenure expectations for junior faculty members in the IS field may become more demanding as their overall publication records become stronger. Asian schools need to keep this in mind if they want their research productivity to be competitive worldwide.

Third, when making promotion and tenure decisions for IS faculty members, Asian schools should consider both IS journals and business journals in other areas. As evident in Tables 2-5, IS researchers in North American schools published not only in IS journals, but also in business journals in other areas (i.e., FT list and UTD list). This evidence is present among IS researchers across all the 10 deciles as ranked by their research productivity, and is present over time (i.e., current assistant professors as shown in Table 2 and associate professors as shown in Table 3). We had similar observations for Asian scholars, as shown in Tables 4 and 5. These observations confirmed our prior belief that IS researchers make contributions to various areas in business schools. These observations also remind promotion and tenure decision makers to consider junior faculty members’ publications in non-IS journals, especially in journals included in the FT list and the UTD list. In Section 4, we discuss an inference, based on a comparison of Table 3 and Table 5, that IS researchers have seemed to increasingly publish in the FT list and the UTD list. To the extent that this inference is attributable to IS researchers’ increasing contributions to the scientific findings of business schools as a whole, it emphasizes the importance for promotion and tenure evaluation committees to consider junior IS faculty members’ publications in non-IS journals.

Fourth, we embrace the suggestion by prior research (Dean et al., 2011) that all the eight journals included in the AIS-basket list should be relevant for promotion and tenure decisions in the IS field. While Dean et al.’s (2011) suggestion was made based on an analysis of IS scholars who received tenure between 1990 and 2008, our evidence, based on newer data, reached the same conclusion that IS researchers published in all the 8 IS field journals. We echo the viewpoint that, although *MISQ* and *ISR* are usually considered to be the top IS journals (Venkatesh et al., 2014), the other journals in the AIS-basket list published findings of scientific research (Dean et al., 2011) and so they should also be considered by promotion and tenure evaluation committees. This suggestion is corroborated by statistics shown in Tables 4 and 5, where we did find that IS researchers in the Asian schools published across the six IS journal lists from the AIS-basket list.

Yet, at the same time, we found a difference between these top Asian schools and top0ranked researchers in North America. As Table 9 shows, in these top Asian schools, the number of *MISQ* and *ISR* publications (i.e., IS-2) by tenured faculty members during their tenure windows had a high variation across the schools. A couple of Asian schools granted tenure to IS faculty members without *MISQ* or *ISR* publications. As Table 5 shows, tenured faculty members in the majority (i.e., 80%) of North American schools had *MISQ* or *ISR* publications. This difference suggests promotion and tenure evaluation committees in Asian schools should place greater emphasis on IS faculty member publications in the IS-2 list. In the meantime, it seems that these top Asian schools and faculty members may have noticed this issue and strived to publish in the field's elite journals. As Tables 6 and 7 show, current assistant professors in the Asian schools had, on average, more papers published in *MISR* and *ISR* than their tenured colleagues in the Asian schools during the tenure windows.

Our final recommendation for Asian schools is beyond just promotion and tenure decisions, but for the development of IS community in Asia in general. If evaluated based on publications in the elite business journals (i.e., IS-2 list, FT list, and UTD list), the top performers in the five Asian schools would be ranked in the top 20-50 percent deciles if working in North America. In a couple of exceptional cases, the top performers in the five Asian schools would be ranked as the top performer or the top 20 percent if working in a North American school. On the one hand, these observations should be encouraging to the Asian IS community because they suggest that it is possible for researchers working in Asian schools to become top researchers worldwide. On the other hand, the fact that, in most of the cases, the top Asian schools still lag behind the top 20 percent in North America seems to suggest that there is still room for the top Asian schools to develop their research productivity. To that end, promotion and tenure standards in Asian schools may play a guiding role in inspiring junior faculty members. More importantly, Asian schools, especially the top Asian schools, need to have various resources (e.g., research activities, database purchase, subject fees, conference attendance, research time) available to help junior faculty to develop their research. This is further underscored by the fact that IS researchers in the Asian universities who, in terms of the publication records (e.g., Table 8), are comparable to the best researchers in North American universities started working as an assistant professor in their current Asian schools. This is encouraging news to the Asian IS community because it suggests that, with appropriate promotion and tenure standards and the required resources for faculty development, Asian schools can foster their own star researchers and make important contributions to the IS field worldwide.

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