Research Productivity and Impact in Sport Management Faculty Careers

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Abstract: As a field in a stage of considerable growth, sport management continues to evolve in both its field-level and parent field contributions. Its evolution, and disparity in approaches to knowledge production across subfields, can create difficulties in aligning faculty publication incentives with field- and institutional-level expectations. This work therefore serves as an overview of faculty career trajectories in knowledge production, and to discuss challenges to measurement of research contributions. Using a sample of 219 faculty, I find that the number of research papers at hire and promotion have increased over the past 20 years, with much of this increase taking place prior to being hired into a faculty role. However, individual aggregate research impact has remained relatively stable in spite of that increase in quantity. I expand upon the value of clearly exhibiting faculty output expectations, and highlight the importance of accounting for heterogeneous journal outlets across subfields.

Keywords: Performance Measurement, Higher Education, Sport Management Program

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1. Introduction

What does the CV of a tenured faculty member look like in sport management? This question likely arises in the first meeting between faculty mentors – if mentors are assigned – and their newly hired mentees. However, research standards across such a disparate academic discipline vary considerably, particularly as it relates to journal quality and publication quantity (Pfleegor et al., 2019). As a growing field, the incentives provided through what is valued in hiring, promotion, and tenure play a key role in the ability for the field to continue to build legitimacy within sport management departments and across the university, and guide the ways in which research is produced by faculty (Shilbury & Rentschler, 2007). Therefore, understanding the structure of incentives (e.g., pay and promotion; Allen et al., 2016) provided by these expectations is central to building the field in a coherent and consistent fashion.

Additionally, as a discipline grown out of physical education and recreation, with ties to business and management, sport management is claimed by a variety of home departments. This distinction – or lack thereof – has made it difficult to establish expectations for faculty research productivity consistent with field-level knowledge contributions. Although management provides some guidance, resulting in some favor for rankings such as the Australian Business Deans Council (ABDC) list, these lists are likely to poorly reflect values within the education, parks and recreation, or kinesiology departments where many programs reside, as they often exclude even indexed journals in sport management subfields. And because sport management scholars are evaluated under the direction of broader departmental, college, and university actors, there can be considerable disagreement over what constitutes an acceptable level of scholarship output and academic rigor. Even within sport management itself, Costa (2005) noted that faculty have

suggested that the field needed stronger research, enhanced doctoral training, and more interdisciplinary interaction.

Although this challenge exists across many fields, it is particularly acute for sport research, an area of society and culture that can be viewed as lower status by other fields (Mahoney, 2008; Chalip, 2006; Traube, 1996; Banks, 1983). These characteristics call for additional care in ensuring rigorous and high-quality research in order to establish legitimacy across campus (Pitts, 2000). It is therefore pertinent to be able to successfully – and often efficiently – communicate the scholarly substance and impact of this work to a broader audience, including tenure and promotion committees and administrators who are not sport experts. Further, in addition to difficulties communicating outside sport management programs, the disparate nature of the field obscures what is expected of sport management researchers upon beginning a faculty career, and a lack of consistency even within the field can lead to additional communication difficulties. There have also been recent changes to journal rankings like the ABDC list, which have left the field with no journals in the top tier category.[1] This suggests that sport management may be well-served by keeping abreast of the relative perceived impact of its work. As Pfleegor et al. (2019, pp. 205) note, "If tenure and promotions decisions are the most lasting personnel actions within the business of academia, then the entire structure of academia depends on authorship principles being accepted and self-monitored by all relevant stakeholder groups within the sub-discipline."

Finally, publication timelines, practices in citation, and expected levels of contribution across sport management subfields remain diverse, resulting in perceived disparities in faculty productivity depending on those respective subfields. Yet, until recently (Seifried et al., 2019), there has been little systematic evaluation of research productivity in the field or consideration of

[1] The *Journal of Sport Management* (JSM) was recently downgraded from A* to A without recourse.

the research and publication strategies that lead to success in securing a tenure-track faculty job and earning tenure and promotion. Although recent work tracks some overall field-level trends, tracking *individual* faculty careers is particularly important in a diverse field that is under influence from a plethora of parent disciplines.

The limited work that does explore publication records has found that the rate of journal publications in the field has grown by a factor of two to three since the 1990s (Seifried et al., 2019), though a focus on quantity could be detrimental to rigor in the field (Pfleegor et al., 2019). Other explorations of publication benchmarks have shown rather large publication counts among a select few faculty, but the benchmarks focused on by these reports have consisted almost exclusively of senior faculty who fall well outside the norm for the field (Texas A&M Center for Sport Management Research & Education, 2018). This limitation could have the effect of incentivizing smaller contributions to the literature to meet those purported quantity-based benchmarks set by the most productive faculty, in lieu of conducting deep and important research. Further, although NASSM releases a list of journals serving sport management on its website, the list is limited to the most popular publication outlets in the field and does not include all journals in which sport management scholars can potentially publish within and beyond their respective parent disciplines (https://www.nassm.com/Journals/JSSM). There is therefore an opportunity to approach structuring more standardized and clear understanding of expectations for faculty research that enhances the ability to communicate scholarly records and includes the broad base of research areas in sport management.

With this in mind, this work has two central goals. First, it seeks to provide information to graduate students, junior faculty, and departmental committees about the career trajectories of sport management faculty in North America. The objective, due to the ambiguous quality standards

across journals in the field, is to allow perceived expectations of graduate students and junior faculty to become more aligned with revealed preferences of hiring and tenure and promotions committees. Secondly, it exhibits broad-based benchmarks and measurements of research productivity that seek to balance contribution within and outside the field, and increase fairness in these measurements by accounting for substantial heterogeneity in contribution expectations and citation patterns across subfields. I also propose that these measures may be useful in ranking research productivity across programs, a controversial endeavor, but one of noted importance for building field legitimacy or credibility within the university as a whole (Mahoney, 2008; Smith, 2015).[2]

As a preview, I find that career trajectories among research faculty vary considerably at hire, at tenure, and upon promotion to full professor in both quantity and potential impact of journals, and both within and across programs. Further, the majority of the recent *growth* in total publications at promotion occurs prior to the hiring process, presumably due to increased competitive pressures in the job market. This result highlights the possibility that work may be rushed in order to be prepared for the job market and secure a tenure-track position, rather than used as a pipeline for junior faculty to begin a well-rounded research agenda in their new positions. It may also suggest increases to co-authorship opportunities as a graduate student. Nevertheless, all else equal, this phenomenon could suggest that special attention should be paid to the quality expectations of graduate student research, a concern noted explicitly in Pfleegor et al. (2019). Ultimately, the data in this paper provide a deeper understanding of focus on quantity of

[2] This is particularly important, given that the only rankings of programs in sport management, the SportBusiness Postgraduate Course Rankings (SportBusiness, 2020), are voluntary, do not provide any evidence of validity, and do not consider research contributions or dissemination of knowledge outside the classroom. In fact, most of the doctoral-granting sport management programs in North America are not even considered in these rankings.

publications and quality of journals in which literature is placed, as well as the extent to which sport management interacts broadly with its parent fields.

The subsequent section covers literature on measuring research productivity in academia, and applies these lessons to the needs of the sport management field. In Section 3, I describe in detail the sample of both faculty and publications used for analysis, as well as a full description of various measures, which are exclusively descriptive in nature. Section 4 presents results, and highlights important lessons for sport management scholars, particularly related to faculty careers and institutional expectations. I conclude in Section 5 with a number of caveats and suggestions for future inquiry into knowledge production within sport management.

2. Measuring and Exhibiting Contributions to Knowledge

2.1 Why Measure?

Measuring research output or research contribution has long been a controversial process, as research is generally best evaluated by having other experts read the work and vouch for its value (Frey & Rost, 2010). Yet, with constraints on both time and expertise of committees, administrators seeking recommendations for hire, promotion, and tenure commonly rely on various metrics or measures to proxy productivity and impact, commonly referred to as bibliometrics (Godin, 2006). These measures can often be developed externally from hiring, tenure, and promotion committees within the home department of a faculty member. A side-effect of this process is that metrics can create a façade of objectivity, despite built-in subjectivity in construction (or choice of measure) depending on the values of individuals that create (choose) them (Stevens, 1958; Frey & Rost, 2010).

Although this means the measurement process has the potential to contain bias, when designed well, it can also provide a counterweight to other occurrences subjectivity in the tenure

and promotion committee process (Pendlebury, 2010; Taylor, 2011). Further, predictive bibliometric work based on journal placement has shown to provide valuable information in decision making that may be missed by tenure and promotion committees alone (Bertsimas et al., 2015). In short, evaluation of faculty will take place with or without explicit measurement, possibly at the whim of certain individuals with power to control committee discussion. If universities ground their legitimacy and authority in the value of published knowledge (Aguinis et al., 2020), then it should be possible for faculty to come up with a system that appropriately gauges that value. If faculty fail to do so, someone else will likely fill this role, possibly without the input from those with the necessary expertise.

A common evaluation approach estimates the prospective impact of papers based on the relative prestige or impact of the journal in which they are published. There are various criticisms of this approach, particularly that journals are not always representative of individual paper quality. However, given the implicit belief in academia that the peer review and citation process is a useful filter for quality research – with recognized noise components (Jefferson et al., 2002) and other major shortcomings (Soderberg et al., 2020; Munafo et al., 2017) – abandoning this as the standard admits that the process itself is of little value in recognizing quality research. There have thus far been few viable alternatives to the peer review process, and recent controversies over non-reviewed preprints during the COVID-19 pandemic have clarified the importance of filters prior to publication (Majumder & Mandl, 2020). Hence, the use of publication outlet (journal-proxy) as some level of signal of prospective impact, in context and with opportunity for additional qualitative input, could be justified by values and practices already inherent to the scientific process. For example, work in the medical field has shown that paper quality is highly related to journal citation rates, impact factors, circulation rates, and acceptance rates (Lee et al., 2002).

Additional work has found that the most predictive indicator of future citation of papers tends to be the journal-level measure of impact (Daniel, 2014).

With careful construction and transparency, measurement also has the potential to alleviate creeping inequities and overt bias in subjective evaluations, particularly when used to foster discussion and supplement, rather than replace, qualitative evaluation (Pendlebury, 2010). Additionally, in the context of hiring and promotion, graduate students and faculty can more clearly understand the expectations ("rules of the game") from the start of their training or faculty appointments by having transparent shared expectations for research output (Aguinis et al., 2020). Performance evaluation is also inextricably tied to pay in merit evaluation. This process is often even more metric-based than the "body of work" standard for tenure and promotion, and involves considerably fewer inputs and less committee discussion. Faculty who are not "in the know" with respect to merit processes, therefore, may be further harmed by inequities that favor those familiar with the culture of evaluation. Transparency is therefore also key to avoiding faculty pay inequities even beyond tenure and promotion.

Misperception of expectations in particular can lead to misallocation of faculty time and resources by individual faculty members. These misperceptions can be driven by the salience of faculty who publish at the highest rates or in the most visible journals. While a lower average expected publication rate may be a relief, there may still be questions about which journals are counted. If faculty perceive that publication in only a select few journals "count", this could also result in a misallocation of time and resources, particularly given the lower acceptance rates relative to other journals within and outside the field. More broadly, Niles et al. (2020) show that these types of perceptions do in fact influence decisions for publication among faculty, a feature recently maligned in the field of economics (Akerlof, 2020; Heckman & Moktan, 2020). Tracking

and measuring what contributions look like at various ranks, especially at promotion time, therefore allows realignment of the disconnect between what is valued and what peers believe is valued (Niles et al., 2020).

Most centrally to sport management, gaining traction as a field of study and building a body of literature should be a key focus in designing mechanisms to evaluate research portfolios. In this vein, I suggest that there are two characteristics central to successfully measuring research contribution, borrowing the assumption from Vinkler (2010, pp. 1), "the essential aim of science is to produce and communicate scientific knowledge." The first characteristic is the ability to engage, communicate, and influence work within sport management and to outside parent disciplines, increasing the audience for which sport research can make an impact. The second consists of continuing to build a grounded, self-sustaining, and broadly recognized sport management literature in its own right (Chalip, 2006). Contributions to high impact general interest journals as well as publications in core flagship sport management journals can be of particular value here, as they enhance the prospect of advancing theory and scientific understanding in the field, upon which a larger number of others can draw. Aligning this evaluation with the goal of broader field legitimacy thus requires careful consideration of how the field interacts with academic inquiry as a whole, and communicates its value to outside researchers (Pitts, 2000). This alignment depends heavily on the way in which research is evaluated and how researchers respond to those evaluations. Therefore, the subsequent section discusses various measurement approaches alongside their virtues and shortcomings in turn.

2.2 "Bean Counting"

There is little doubt that the sport management field has grown in both size and scope over the past 20 years. Recent work has suggested that growth in publication counts over time could

indicate field maturation, positive stewardship, and faculty member scholarly achievement (Seifried et al., 2019). Yet, there are relevant concerns over using quantity of publications as a proxy for the impact and quality of research output (Pfleegor et al., 2019). Often referred to as "bean-counting" the use of total publications as a sole indicator of research output has the potential to incentivize suboptimal (or even fraudulent) behavior from researchers who attempt to publish the maximum numbers of papers in any journal that may take them. As noted by a participant in Pfleegor et al. (2019; pp. 197), "…students learn to do what is fast and easy [from their mentors] rather than what is strongly contributive to the advance of knowledge." It is therefore important to understand performance while avoiding unintended gaming of evaluations and outcome measures as much as possible (Frey & Osterloh, 2010).

The simplistic bean-counting strategy is one of the most likely to fall victim to gaming problems, which has been exacerbated in recent years by predatory pay-to-publish journals with no scientific credibility. Given that individual faculty members have both limited time and attention to give to any single research project, there may even be instances in which extreme publication counts could serve as a negative signal. Although large research teams or labs that contribute to high publication counts are standard in some fields, this is not the norm in sport management. There may also be complications related to heterogeneity in authorship across subfields within the departments in which sport management programs reside, possibly leading to pressure to take shortcuts in research when publication counts are used as a sole indicator of knowledge production. Ultimately, limited time and care may be put into study design, data collection, data analysis, and writing, or cutting corners, even inadvertently, in order to maximize publication counts (van Dalen, 2021).

Additional complications arise in evaluation due to considerable sub-field variations in citation practices, paper length, and the expected size of contributions from individual papers. For example, papers in recent issues[3] of the *Journal of Sports Economics* average only 38.5 references, while those in the *Journal of Sport Management* average 75.8, *Tourism Management* averages 86.3, and *Sociology of Sport Journal average* 60.4. Similarly, other programs within kinesiology, such as movement science and health education and behavior, commonly have short reports, comments, and extremely small samples with minimal data analysis that are treated in the same way as an expansive empirical or theoretical paper in a sport management subfield. This results in biases in both counting publications and using measures such as h-index or i10-index, which depend on both the number of papers and the number of individual citations for each paper.

One possible way to alleviate unintended behaviors that arise from simplistic bean counting could be to focus upon a select number of "key" publications for a faculty member (West, 2010). For example, it could be possible to give strong weight at promotion time to the most impactful five or ten publications a faculty member has authored. These top publications could be subjectively chosen by a faculty member themselves, or objectively evaluated based on some criteria or ranking system for journals in the context of measuring potential impact.[4] This approach also provides stronger incentives for careful science, rather than maximizing total page output: judicious selection of the most important projects leads the day.

Consideration must then be given to the preferred number of publications that are evaluated, and the way in which those publications are chosen. For example, in a field like sport management, where most faculty at research-focused institutions have 20 or more publications by the year they are awarded tenure, only using their five most important publications would ignore

[3] As of October 2020 when this manuscript was initially submitted for review.
[4] It is often the case that letter writers reveal these publications that are of most impact on a candidate's CV.

the other 15 works. The reduction in potential projects may also increase the amount of randomness or luck in the scientific and publication process: it is often wise to have various projects in case another fails. But placing lower weight on very low impact publications or journal outlets can encourage focus on work that has larger implications for the field, and provide further perceived legitimacy from parent fields by placing this work in high level general interest journals. Given that priorities for research contribution may be heterogeneous, a combination of measures to evaluate both the impact of those favored papers *and* the breadth of research as a whole may be preferred. This can be implicitly done with various measures of potential impact, discussed later.

2.3 Restrictive Lists, Discrete Categories, and the Bottom-Line Approach

At the opposite end of the spectrum from the most simplistic bean-counting approach, some fields such as economics have relied heavily on very few select journals that "count" toward merit, tenure, and promotion. Given fights for space in these top journals, it is possible that the predictions of tournament theory are realized: all researchers give maximum effort for the prize of a "Top 5" publication and therefore increase innovation and breakthrough in the field, while only some are rewarded (Hamermesh & Pfann, 2012). Yet, despite being a field built on understanding incentives and how tournament designs induce effort by individuals, economists have recently maligned this focus, noting that it has restricted innovation in research topics and led to certain types of technical work becoming favored over important questions that can only be addressed using other methods (Akerlof, 2020; Heckman & Moktan, 2020). Perhaps most importantly, randomness and close-knit networks likely play an outsized role in promotions, relative to disciplines with a broader range of acceptable publication outlets.

There two main unintended results that can arise from extremely limited lists with respect to incentives and effort. First, if the probability of a publication in this restricted list is too low,

then effort put forth to publish may actually decline, at least among faculty that perceive their probability of publication to be the lowest.[5] For example, providing no credit for a large majority of publication outlets can lead to important and/or risky work never being done. Alternatively, if a reward structure is not sufficiently steep, then there are substantially weaker incentives to put forth effort for the most impactful research contribution. In the extreme case, assuming all publications are equally impactful leaves us with the drawbacks of the earlier discussed bean counting approach. The question is then: how might one provide proper incentives, reward, and acknowledgement for such heterogeneous contributions made in the literature?

There are many well-known middle-grounds in publication credit for academic departments, often with discrete changes to what types of publications "count" toward merit, tenure, and promotion – such as the earlier mentioned use of ABDC A* and/or A journals. However, these can result in other types of distorted incentive structures that encourage unwanted behavior. Borrowing from Aguinis et al. (2020), I refer to this as the "bottom line" approach. As these authors note, exclusive focus on a certain set of journals can neglect strategies to deal with competition in publication. In particular, they highlight that the use of select "A journals" can increase the occurrence of questionable research practices, resulting in selective reporting, biased evidence, and non-reproducibility of results that are most likely to lead to top publications. Further, while promoting competition for a small number of publication outlets can result in motivational benefits, the existence of significant heterogeneity in publication rates and impact within a larger ranked category can lead researchers to seek publication only in journals with the fewest barriers *within* the ranking. This can be the case even when categories are especially large, as the discrete

[5] Here I use "effort" broadly in the economic sense, rather than to imply any moral failing. This may relate to expected impact of a given project, the amount of time worked on a given project, allocation of resources or time to high value work, or any combination of behaviors that produce work that is less impactful.

changes in credit for a publication (or in some cases case, receiving no acknowledgement at all) lead to strong incentives to do just enough to reach the cutoff. A system of evaluation and measurement relying on discrete categories, therefore, may suffer from various unintended negative impacts on research quality, despite its noble intentions. In other words, Goodhart's Law may become particularly acute with this evaluation approach.

Categorical rankings, and subsequent professional acknowledgement, can also suffer from other issues when used within the sport management field. Although sport management operates similarly to business education, and its research topics overlap considerably with management and marketing, relying on rankings generated by business schools leaves out a large number of high-quality journals in health, physical activity, leisure, and social science in which faculty publish. Further, the propensity for these rankings to change through various lobbying approaches – as recently exhibited for *Sport Management Review* and the *Journal of Sport Management* – can also result in large discrete changes to the value placed on publications from year to year. For example, if a program considers only A* publications from ABDC, the *Journal of Sport Management* would no longer contribute toward a candidate's tenure and promotion. Although as a business-adjacent field it is important to pay attention to the values of business school administrators, there is little reason to be strictly beholden to these values, given that a minority of sport management programs reside within business schools.

Although it is possible that lists of publications can be (and are) created at the program level reflecting the preferences of current faculty, politics can play an outsized role in selections of journals (van Fleet et al., 2000). There are also needed considerations for external legitimacy for the department, college, and university committees. As noted earlier, this external legitimacy is likely to be both important in building a growing field and contributing to parent fields, and in

the survival of sport management programs in the university setting. Therefore, while individual faculty expertise and preferences provide important insight into the journals considered, this does not preclude the need for other ways to validate the impact of these journals to a broader set of institutional stakeholders. Perhaps most importantly, although following restrictive lists may lead to promotion and pay raises from the development of institution-specific human capital, this can also reduce faculty mobility and impede career development that depends less on the restrictive outlets created at the department level (van Fleet et al., 2000).

2.4 A Continuous Prospective Measure Approach

This paper takes a similar approach to Seifried et al. (2019) in measuring *potential* or *prospective* impact as signaled by journal placement with the Eigenfactor Article Influence score (*AI*) developed by Bergstrom et al. (2008). As discussed later, *AI* is a measure similar to journal impact factor, but corrects both for field-level norms in citation and the relative prestige of other journals citing that journal. The measure allows for the relative impact between journals to be measured continuously, and avoids coarse categorization such as ADBC or similar lists. In this way, publications are acknowledged proportionally to the measured impact of the journal in which they have been placed. Most importantly, while journal proxies are noisy measures of quality, there is evidence that journal-level impact measures are a strong indicator of future citation expectations (Daniel, 2014).

There are a number of other reasons for taking this prospective, journal-proxy (Aguinis, 2020) approach as compared to an individual author citation measure of impact. First, it can take many years to know whether a paper is cited many times, delaying the ability to make evaluations at the time of publication, which may also be near the time of promotion. Therefore, retrospective evaluation is not possible at important career points using the information available to those

making decisions at that time. One alternative to considering potential impact may be to ignore the work altogether until it is cited in the future. But that approach could incentivize researchers to spend less time on long-term individual projects in favor of smaller projects that will be published more quickly and accrue citations by the time of the promotion decision. Specifically, the value of many research questions is not always immediately evident, nor is research valuable to the base of knowledge always highly cited. Hence, while journal-proxy measures have important drawbacks, they can also be a solution to allow a more complete evaluation of a publication record at the time it is evaluated, whether for tenure and promotion or in a yearly merit evaluation.

Secondly, as noted earlier, aggregation of individual citations runs afoul of considerable differences in citation norms across fields within departments where sport management is housed, as well as across subfields within sport management itself. By simply counting total citations over some time period, scholars in fields with norms where comprehensive literature reviews are uncommon will be at a significant disadvantage, despite having similar relative levels of influence in their subfields. The prospective, journal-proxy approach with *AI* can address many of these shortcomings by normalizing citation patterns within and across disciplines and integrating how those disciplines interact with one another hierarchically (Bergstrom et al., 2008). Further, given that many sport management programs are housed within departments or schools of kinesiology and related fields, the differences in speed of publication and half-life of citation are particularly acute. In any of these cases, numbers of citations may also simply indicate popularity, but not prestige or impact (Bollen et al., 2006). In seeking recognition both within and outside the field, there is likely to be value in incentivizing publication at outlets that are considered prestigious in parent fields, as these outlets are considered to provide the largest contributions, and reach (influence) the largest audiences.

Third, there are considerable differences in patterns of self-citation by individual authors, particularly across gender, causing inequities in comparing these without controlling for self-citation (King et al., 2017). Even when correcting for self-cites, there are also likely to be inequities in citations favoring research from dominant demographic groups in academia by nature of networks created at conferences and exercised through activities such as invited seminar talks. Journal-proxy measures are not immune to these inequities if acceptances and rates of publication across these groups are disparate. However, aggregating at the journal level is likely to be less susceptible to these problems than considering citations at the individual level.

Lastly, the prospective approach allows comparison of papers using a fixed time point at which a given journal is evaluated. Although publishing may have been less competitive well before a journal is indexed or has moved up the citation rankings, there is a strong likelihood the existence of that paper in the journal played a role in moving the journal upward among both quantitative and qualitative rankings. Therefore, it is possible to fairly evaluate productivity across the career trajectory in which citations may be most important for senior scholars, while research placement takes precedence for more junior scholars.

In this way, a publication in the *Journal of Sport Management* in 2005 is treated the same as a publication in the *Journal of Sport Management* in 2020. Because acceptance rates in the journal have decreased over the past 15 years – making it more difficult for junior scholars to publish in – presumably these scholars should be rewarded for creating research deemed acceptable for a premier journal in the field. Alternatively, a paper published 15 years ago in *JSM* may have had a higher likelihood of acceptance, but since that time has, in part, contributed to its current increased ranking, impact metrics, and desirability as an outlet that leads to reduced acceptance rates. In this way, the measures are both prospective and retrospective, using journal-

proxy measures today to imply research quality both today and in prior years. As a summary, Table 1 presents the discussed benefits and drawbacks of this and previously discussed measurement approaches to research performance evaluation. In the subsequent section, I detail this approach and the data sample, measures, aggregation levels used to apply it within sport management.

3. Methods

3.1 Author Sample

Data on full time faculty in sport management programs were collected from university program websites using the NASSM list of master's programs. The data consist of U.S. faculty in sport management programs (broadly defined) housed at universities classified as very high research activity doctoral universities (R1), high research activity doctoral universities (R2), and select programs in Canada (see Appendix). Classifications used were as of July 2020. As there are variations on the way in which programs are integrated into their parent departments, I include faculty of any program that offers a degree, minor, or specialization in sport management and that has a primary research agenda within the sport management field.

Unless a program employs at least one full-time faculty member who is a NASSM Research Fellow, schools with professional degrees that do not include full-time research faculty were excluded from this work. Centers for sport management or marketing not affiliated directly with a degree or minor in the field were also excluded unless they included a current NASSM Research Fellow. I include any non-tenure track faculty member at these institutions that has been recognized as a NASSM Research Fellow, as this is a clear sign of research productivity and recognition among their faculty peers. However, these individuals are excluded from analysis of tenure and promotion trajectories, as research expectations are unlikely to play a primary role in the promotion process. Finally, I include 5 faculty who recently moved to a program outside the

U.S. or Canada, but were hired at or promoted within one of the included U.S. R1 or R2 universities within the past 3 years. For this reason, faculty counts at some programs are not current, but reflect assignment of individual faculty to programs in the data.

Google Scholar was used to ensure a single source for publication records. These profiles tend to be updated more often than CVs at university websites, providing consistency in data collection across most faculty. Any faculty member without an existing Google Scholar profile that aggregated their peer-reviewed publications was removed from the data. In some cases, CVs posted to university websites were used to supplement the few cases in which Google Scholar pages had not updated within the past year ($N = 7$). Although the requirement for a Google Scholar page necessarily excludes a large portion of faculty working at the included universities (nearly 40%), there was little consistency in the availability of updated CVs across programs. These exclusions are relevant in that faculty without Google Scholar pages, on average, are likely to be less focused on research than faculty selecting to construct a profile. This has the potential to bias the data presented here, most likely in the upward direction, particularly for Canadian and R2 programs. Therefore, all benchmarks should be interpreted with this in mind.

Overall, there were 219 faculty included in the data, 213 of whom are tenured or tenure-track, from 82 programs. This represents a larger sample than past work (Seifried et al., 2019) and a more comprehensive overview that includes research-productive programs that do not offer doctoral degrees. Although the past use of doctoral program presence provided clear criteria for inclusion, I argue that the universities chosen for this work are a more inclusive (but not exhaustive) cross-section of programs producing sport management research and contributing to its knowledge base.

The most important difference between this analysis and the work from Seifried et al. (2019) is that I not only track current research contributions by rank and across time, but also trace this to the specific times of hire and promotion for individual faculty. As available, CVs, department or personal websites, and Linked In were used to confirm dates of conferral of the faculty member's highest degree awarded (PhD, EdD, JD, with PhD or EdD superseding JD if a faculty member has earned both degrees). I also recorded the years in which each individual began a full-time faculty position and were promoted to Associate or Full Professor, respectively. These data allow the tracking of career progression and research output up to hire and at each promotion.

Although general summaries of research portfolios include all faculty in the data, this is not the case in the mapping of faculty career trajectories. For the analysis of career trajectories and benchmarks, I remove any current faculty member who spent significant time in an academic program outside a sport management, and during which the faculty member received tenure and promotion, as expectations are likely to be even more heterogeneous than among sport management-only faculty. I also exclude faculty who received their promotions outside of universities in the U.S. and Canada. Of the sample of faculty with Google Scholar pages, 7 faculty members met these criteria and were removed in the analysis of career trajectories and promotions.

Finally, because the data include only current faculty, I highlight that this is likely to again bias estimates of research expectations upward, as those who were not hired into positions or did not receive promotions go unobserved in the data. Additionally, information on publication rates and impact for the earliest years in the data do not include retirees, resulting in smaller samples in earlier years, and likely affecting the average years of experience of those observed. Unfortunately, there is little recourse for these shortcomings, and I again urge readers to interpret the results with these caveats in mind.

3.2 Publication Data

All authorship-paper pairs were collected at the faculty member level, and were recorded as 1st author or co-author, along with the name of the journal. Although all papers were recorded, some academic publications were excluded from this analysis. These include case studies (not to be confused with research articles using the case study method), pedagogical practice or papers about class activities or athletics instruction (not to be confused with pedagogical research articles), short briefs about recent legal decisions, book reviews, introductions to special issues, and transcripts of a panel or lecture given at a conference (including Zeigler lectures). The data were collected between February 2019 and July 2020, with authors updated from their Google Scholar profiles at the end of July 2020 to ensure all research profiles were finalized on the same date.[6] Therefore, the final publication year (2020) is not a complete record of publications for that year. Given this, and due to complications with publication rates from the COVID-19 pandemic, I use data only through 2019 for analyzing career trajectories and promotions. However, overall data summaries include publications, hires, and promotions as updated through July 2020.

Overall, the data include 7,518 author-publication pairs across 989 unique journals, with publication years ranging from 1976 to 2020. I note that individual publications are counted separately for each author in the data, resulting in more author-publication pairs than total publications. In other words, a paper with 2 authors, both of whom are included in the data set, would appear twice, while a paper with 5 authors, all of whom appear in the data set, would appear 5 times. However, the paper would only appear once as a 1st author paper, irrespective of the number of authors.

[6] Papers in press available online at the time of data collection were included in the data in the year they were originally available online.

Individual journal *AI* data were collected from InCites Journal Citation Reports (JCR). These were the most recent metrics at the time of collection as of July 2020, and include source data from JCR Year 2019.[7] In order for a journal to have an associated *AI*, it must have been indexed with JCR for at least five years. Therefore, although a few journals in the data are recently indexed, they are not associated with an *AI* metric. I apply the current year *AI* retrospectively to all years for a journal. This approach ensures that a publication in the *Journal of Sport Management*, for example, in 2005 receives the same potential impact rating as one published in 2020, and allows consistent comparisons of *AI* indexed journals across cohorts of faculty. Although this introduces difficulty in gauging how indexed publications were viewed at the time of promotion in prior years, I operate under the assumption that the *relative* strength of journals has remained constant. There are obvious limitations to this assumption. However, as suggested earlier, this approach allows a view of past scholarship in a modern light, particularly since the earlier scholarship itself likely led to increases in *AI* metrics of sport management journals during this time period.

3.3 Measures, Distributing Credit, and Aggregation

To build upon the prospective approach, I use various aggregations of potential impact, depending most centrally on the Eigenfactor Article Influence (*AI*) metrics developed by Bergstrom et al. (2008). This approach also allows full consideration of value under both a field-building and general interest perspective on research contribution, as the measure includes hierarchical network effects that adjust for differences in citation patterns across fields. *AI* can

[7] In the subsequent year, Clarivate changed its calculation of impact factors to include online in-press publications. Given the uncertainty during this transition year, those newer values were not used; however, it is important to note that most journals – especially those in the social sciences and sport management – experienced large increases in impact factor. This also affected the calculations of the article influence measure used in this work.

therefore partially alleviate prior concerns about heterogeneity in knowledge transfer across subdisciplines (Seifried et al., 2019; Althouse et al., 2009).

Based on the discussion from Section 2, I use various measures to evaluate impact potential based on publications by individual authors and track career progression over time, as well as publication counts similar to Seifried et al. (2019). First author publications, indexed publications, flagship publications, and prospective impact, are all considered separately with aggregations and tracking at various levels. Of particular note in the introduction of this paper was that the data presented here can be used for tracking careers. I therefore aggregate all variables at the author-year level, across the entirety of each faculty member's respective career. This allows an evaluation of each of the metrics' value at the time of hire, at the time of promotion to Associate Professor, and at the time of promotion to Full Professor. These data exhibit changes to average research productivity at each of these career events both in tabular format and graphically over time.

3.3.1 Eigenfactor Metrics: Article Influence (AI)

As noted earlier, the Eigenfactor metric, *AI*, is used as the primary a measure of prospective research impact. Although the July 2020 release is used for all journals here, results from prior years were similar. For comparison's sake, Table 2 presents a selection of journals and their respective *AI*, Journal Impact Factor (*JIF*), 5-year Journal Impact Factor (*JIF5*), Scimago h-index (*SJRH*), and *ABDC* rating. These measures are strongly correlated, but with large differences across fields, much of which is likely attributed to citation patterns and field or journal size (Althouse et al., 2009).[8] One of the valuable additions of the Eigenfactor metrics is that they both normalize for field-level citation norms, and weight citations from higher ranked journals more heavily in their calculations.

[8] West et al. (2010) note that a high correlation between these measures is not an indicator that they include the same information or that they are exchangeable.

As an example, we can compare the *AI* and *JIF5* for *Tourism Management*, a premier journal for a very specific subfield, with the *Journal of Sport Management* and two of the most respected journals in general interest areas: economics and management. The *JIF5* for *Tourism Management* was 9.238, considerably larger than the *Journal of Economic Literature* (7.896) and nearly as high as *Administrative Science Quarterly* (9.880). However, after adjustments to citation patterns, the *AI* rating for *Tourism Management* is 1.135, while *Administrative Science Quarterly* is 5.887 and *Journal of Economic Literature* is 7.609. This indicates much higher prestige for the general interest journals than would be implied by traditional impact factors. Further, while the *JIF5* of *Tourism Management* is 3.2 times the *Journal of Sport Management's* (2.877), the relative impact shrinks by 25 percent with *AI*, to 2.4. Similarly, other general interest journals such as *Race and Class* (*JIF5* = 1.254, *AI* = 0.443), *Sex Roles* (*JIF5* = 2.724, *AI* = 0.969), and *Gender and Society* (*JIF5* = 4.012, *AI* = 1.808) are elevated on the relative scale when compared to more specific field journals.

Table 2 also highlights the benefit of using continuous measures to avoid discrete changes in value, such as in the *ABDC* lists. For example, the *Journal of Business Research* (*AI* = 0.846) is treated as an A journal by ABDC, while *Human Resource Management* (*AI* = 0.994) is considered an A*. Although the relative ranking of these two journals is reflected in using *AI*, the magnitude of the differences is quite small compared to the likely perceived differences between A and A* journals in ABDC. Similar comparisons can be made across the *International Journal of Sport Finance* (*AI* = 0.146, *ABDC* = C) and *International Journal of Sports Marketing and Sponsorship* (*AI* = 0.167, *ABDC* = B), or the *International Review for the Sociology of Sport* (*AI* = 0.465, *ABDC* = B) and *Sociology of Sport Journal* (*AI* = 0.471, *ABDC* = A).

It is worth noting that there is a substantial prospective impact advantage given to papers published in general interest journals, particularly for the most well-known parent field journals in management, economics, and other social sciences. Although this reduces the relative expected impact of top field-level journals, it is assumed that many faculty would value a publication in the *Academy of Management Journal* or the *Journal of Economic Literature* substantially higher than a sport-specific publication like the *Journal of Sports Economics* or tourism-specific publication such as *Tourism Management*, particularly among faculty from other departments and fields evaluating tenure and promotion. Irrespective of these measures, general interest publications also have considerably wider readership, resulting in broader exposure for sport research placed in these journals, and potential to influence more academic work in the future. Most importantly, with respect to earlier discussions of legitimacy, rewarding successful attempts to directly borrow from and contribute to parent literature and this larger number of researchers may be valuable for a growing academic field (for example, see Avant et al. (2017) in the context of advertising research). However, and the implications for career trajectories may be heterogeneous depending on experience and rank (Shafique, 2013).

Each paper is assigned its respective journal's *AI* and credited to authors of that paper to establish prospective impact of publication records for faculty, with zero impact assumed for any journal not indexed in JCR. I use an admittedly arbitrary weighting for each publication depending on whether it is a first author or co-authored paper. In this weighting, first author papers are given full weight, while co-authors are given half weight to the *AI* metric for the journal publication. This is applied under the assumption that authorship order implies contribution level, as noted in Abba (2011). Author order is not differentiated outside of first and co-author, though various alternative weighting choices depending on authorship order or number of authors could be

reasonably defended (see, for example, Vinkler (2010) pp. 157; Abbas, 2011). This approach also assigns value to multiple authors, the aggregate of which is larger than the *AI* for a given journal alone. Having multiple authors from the same department therefore complicates the use of this approach in ranking individual departments in research productivity, an endeavor noted to be of value earlier (Mahoney et al., 2008). Discussions regarding the appropriation of proportional credit for publications would be a welcome addition to the work presented here, particularly as it relates to senior faculty directing projects that result in first authorship from graduate students.

As a preview, the average author-publication observation is a paper in a journal with an *AI* of 0.248 when assigning any non-indexed journal a 0.00, and 0.532 when considering only publications in indexed journals. Most indexed sport management field journals have an *AI* within the range of 0.150 to 0.550, though the median paper is not in a journal indexed in JCR. Among *only* indexed publications in the sample, the median paper is equivalent to a first author paper in *International Review for the Sociology of Sport.*

One significant omission in the use of *AI* to value prospective impact is the exclusion of many law journals, given the lack of consistency of even very well respected, top law journals being indexed in JCR. There are various ways this can be addressed. For example, law journal rankings could be used to impute prospective impact measures, using the law journals that do have existing impact metrics. However, the imputation approach requires additional assumptions about data that are beyond the scope of the work here.[9] Given that many law faculty in sport management programs are particularly productive, I also aggregate publication counts as part of a general exhibition of career trajectories, summarized in the next section. This approach allows both the prospective impact and quantity of publications to contribute to the dossier of any individual

[9] For example, the form of the relationship (linear, quadratic, smoothness) would require modeling and statistical assumptions that introduce additional measurement error.

faculty member, including law journals and other journals that are not indexed in JCR. This also allows the elucidation of any proposed quantity-quality tradeoff across other faculty. However, future research on adjustments to citation analyses, particularly for law faculty, seems warranted.

3.3.2 Publication Count, Indexed Publications, and Flagship Publications

Because a majority of papers in sport management departments are published in journals not indexed by JCR, and to establish a general overview of publications in the field, I also use counts of publications of various types in the exhibition of career trajectories. Although the use of *AI* provides context on the relative impact of work in the field and to broader parent fields, the primary goal of this paper is to provide insight into what sport management faculty career trajectories traditionally look like. As publication counts are often used as a proxy for career progression and expectations of graduate students and junior faculty, it is valuable to exhibit common trajectories in the context of these measures, despite the earlier noted drawbacks (Pfleegor et al., 2019; Frey & Osterloh, 2010). As shown later, there are particularly heterogeneous career trajectories with respect to the impact measures and the number of papers published to reach those aggregate prospective impact levels implied by *AI*. This is not reflected in the bean-counting approach. Finally, I separately exhibit total and indexed publications, total and indexed first author publications, and total and first author flagship publications as defined earlier (Table 2). These aggregations show that there is considerable heterogeneity in the approach of faculty members to send to indexed, non-indexed, and flagship publications that are worth tracking in the context of hiring, tenure, and promotion.

3.3.3 Aggregation of Impact and Quality Concentration

Cumulative total weighted *AI* for each individual faculty member was aggregated for each year they have served in a faculty position. This approach assumes that the measures are additive

and linear, though other calculations or weightings could be used (see Haley (2019) as an example).[10] To address potential tradeoffs between quantity and quality of publications, I aggregate the 5, 10, 15, 20, 25, and 30 publications with the most potential influence, as indicated by *AI* and weighted by 1st authorship (*Top5AI*, *Top10AI*, *Top15AI*, *Top20AI*, *Top25AI*, and *Top30AI*). These measures assume that publications in journals with higher *AI* require more time to write and publish than those with very low *AI*, and therefore rewards authors for publications in higher impact journals. I also aggregate *AI* for all publications (*AllAI*), and calculate the average *AI* (*AIPerPub*) for each author.

It is possible that focusing only on a few top publications may fall victim to similar disincentives or hyper-focus on top journals. I assume this is alleviated by using multiple approaches to aggregation, and that the measures exhibited in this paper could be applied to any selection of publications numbers a department finds to be appropriate. Depending on the point in a career at which measurement is taking place, different levels of aggregation may be preferred. For example, the *Top30AI* effectively includes all publications for most faculty in the data at the time of promotion to Associate, and as such, serves as a consideration of a large number of publications in lower or mid-tier level indexed journals. Alternatively, most research portfolios for promotion to Full have more than 30 total publications, and this measure would not consider all publications by the given faculty member.

To exhibit differences in these measures, consider two researchers observed in this data with similar years of experience in a faculty role: Researcher A and Researcher B. Researcher A has published 15 papers and Researcher B has published 36 papers. A simple bean-counting

[10] For example, the value of a very high impact publication may not be well-represented by its *AI* value relative to a lower impact publication, and therefore some other exponential or non-linear function may be used. Other characterizations would place additional subjective value on the relative weights of various publications.

approach would imply that Researcher B is considerably more productive. Yet the total career prospective impact is much more similar: Researcher A has a total aggregated *AllAI* of 12.4, while Researcher B's 36 publications tally to 12.8. Additionally, Researcher A, has an aggregate *Top5AI* of 9.27, while Researcher B's is 5.02. In this case, Researcher A has focused on publications with more potential influence, made a higher proportion of first author contributions, or both. Having more than a single measure of research productivity and potential impact therefore provides insight into the approach that a faculty member has taken during their research career. In fact, Researcher A's *Top5AI* alone would sit in the 87th percentile of the sample's *AllAI* distribution if this were the entirety of the papers they had published, making this research portfolio particularly concentrated with high potential impact publications. I revisit these differences in publication strategies and what they reveal about research in sport management in Section 4.

3.4 Books, Book Chapters, and Edited Volumes

As a caution, I note that although the publication of books, chapters, and edited volumes are common among faculty in sport management, and provide great value to the field, I do not consider them here. In general, books are an enormous undertaking, but well known to be underweighted on a per page basis in the tenure and promotion process in the field. Their exclusion here is not a value judgement over whether they *can* or *should* play a role in the process. Yet, as they are generally not peer reviewed, are limited in number, are difficult to compare to journal articles, and are not directly associated with publication metrics, their inclusion is unlikely to make a large impact on the general lessons taken from the descriptive analysis presented in this paper. I have similarly not attempted to consider either service or teaching in this work, and make no claims to insight into any portion of the career progression process outside of research papers in peer reviewed journals. Readers are urged to interpret the information presented here with this in mind.

4. Results and Discussion

4.1 Current Publication Records

Table 3 presents a summary of the current CVs of faculty in the sample across various ranks and multiple measures. As would be expected, publication counts and overall impact as measured by *AI* tends to increase alongside rank. Due to considerable right skew in the distribution of publications and prospective impact in the data, I focus on the reported medians.

Beginning with Assistant Professors (*N = 69*), the current median number of publications is 14, of which 6 are indexed in JCR. The median Assistant Professor has also published 2 *Flagship* papers, one of which is first author, and the median aggregate prospective impact for Assistant Professors, as measured by *AllAI*, is 2.15. The mean for all measures is slightly higher, revealing a right-skewed distribution with averages pulled upward by Assistant Professors with very large publication counts (up to 43) or total prospective impact (*AllAI* as high as 8.18). The median *AllAI* for Assistant Professors is approximately equivalent to 4 first author and 2 co-authored papers in the *Journal of Sport Management*, or alternatively, 10 first authored papers in *Sport Marketing Quarterly*. As the median faculty at this rank has published 1 first author *Flagship* paper, but a median of 14 total papers, this reveals that there are a considerable number of other journal outlets where sport management faculty publish. These include both non-indexed (a majority of papers) and a wide range of outlets with varying levels of prospective impact. This pattern follows for Associate and Full Professors as well.

Associate Professors have a median of 27 current publications in total, with 10 of those published in JCR indexed journals, while the medians for Full Professors are 50.5 and 25.5, respectively. The median Associate Professor also has about 4 *Flagship* publications, 1 of which is first author. This pattern follows with Full Professors as well, who have a median of 7 *Flagship*

publications, again with a median of 1 first author *Flagship* paper during their respective careers. The lack of increase in first-author *Flagship* publications is somewhat surprising, though likely indicates that, as faculty are promoted, they tend to co-author *Flagship* publications with graduate students as primary authors, or with a wider network of co-authors. There is considerable variation in this, as one Associate Professor has 11 first author *Flagship* publications, and one Full Professor has published 19. It is also of note that there are Associate Professors with as few as 2 total peer-reviewed publications, and 0 in indexed journals over an entire career. However, it is important to remember that R1 and R2 programs are combined in Table 3, with differences in research focus even within Carnegie classification across schools. In other words, counts and impact at the extremes should be considered with caution.

Aggregate prospective impact of Associate Professors, at the median, is 3.25, about 50 percent higher than Assistant Professors. Full Professors have a median aggregate prospective impact of 7.76, though there is much more variation in service time among Full Professors than Assistant or Associate level faculty. To avoid aggregation time inequities, I turn to *Top5AI*, or the 5 most impactful papers for each faculty member according *AI*. The median output for this measure is 1.82 for Assistant Professors, 2.24 for Associate Professors, and 2.65 for Full Professors. This suggests one of a few possibilities. The first is that the highest potential impact work tends to accrue earlier in the career trajectory. The second may be that current junior faculty are more likely to publish in higher prospective impact journals than their senior colleagues were at the same career point. Third, a shift to co-authored publications later in the career reduce the weighting on *AI* assigned to faculty across different ranks (more co-authorships and graduate student mentoring later in the career). In any of these cases, the change in *Top5AI* between Assistant and Full

professor is equivalent to the addition of only about 3 first author papers in the *Journal of Sport Management* replacing 3 first author publications in the *International Journal of Sport Finance*.

Moving to the average impact per publication, *AIPerPub*, Assistant Professors tend to have higher values than Associate and Full Professors; however, this is again first-author weighted, therefore likely reinforcing the focus on first authorship earlier in faculty careers. The median prospective impact of an authored paper across all faculty in the data (*AIPerPub* = 0.16) is approximately equal to a first authored paper in the *International Journal of Sport Finance*, or a co-authored publication in the *Journal of Sports Economics*. The relatively low median *AI* is not surprising, given that the rate of JCR indexed author-publication observations is about 48 percent. In fact, among 186 faculty members in the data with at least 10 publications, just 90 have placed at least half of their papers in indexed journals, and 20 of those have published in indexed journals at a 75 percent rate or higher.[11] Although it is possible that a number of newer sport management journals will end up in JCR in future years, the relatively low rate of indexed publication is worth consideration in the context of institutional perceptions of tenure and promotion qualifications. It is likely that the low rate of indexed publications would not be acceptable in many other, more mature parent fields, warranting concern as sport management continues to grow.

4.2 Faculty Productivity at Career Events

While the overall summary data provide some insight into total knowledge production in the field, faculty even within ranks are at different points in their careers, making comparisons across ranks provides less information than impact at the time of certain career events. Therefore,

[11] Although I do not make any attempt at ranking programs here, it is notable that, among these 20 faculty, 15 either received their PhD from or work at one of two programs in the field, highlighting the role of program level norms in shaping the breadth of potential impact of work in sport management for both faculty and graduate students. This result seems to strongly support suggestions from Quatman and Chelladurai (2008) on the social construction of sport management research stemming from mentor philosophies in doctoral programs.

I turn attention to Table 4, which presents research contribution levels at the time of hire, promotion to Associate, and promotion to Full. Note that only means are presented for faculty hires, as relatively low counts result in most median measures of zero for new hires, while both means and medians are reported for promoted faculty.

Beginning with hires, the average new faculty member in this sample began their faculty position with 3.34 publications, 2 of which were first author. At R1 universities, the average is slightly higher at 3.44, and a bit lower for R2 programs at 2.79. Among these publications, 1 is published in an indexed journal, and most do not have a publication in a *Flagship* journal. The overall prospective impact in the year of hire, measured by *AllAI*, is 0.44, or about the equivalent of one first author paper in the *Journal of Sport Management*.[12]

To provide a more detailed exhibition of career benchmarks, Table 5 breaks down the R1 university group into 3 separate groups: U.S. R1 AAU member universities (*N = 12*), U.S. R1 universities with PhD programs (*N = 21*), and U.S. R1 universities without PhD programs (*N = 28*).[13] The AAU group and the PhD program group are not mutually exclusive, as all AAU programs are included in the PhD program group. However, the non-PhD program group is mutually exclusive from each of the other two. Table 5 reveals higher publication counts among non-PhD program hires (3.66) than those with PhD programs (3.40); however, these hires have published fewer first author (1.93) and fewer indexed publications (1.05) than the PhD program faculty hires (2.25 and 1.31, respectively). The difference for *Flagship* is larger, with PhD program hires having published more than twice as many papers in these journals (0.51) than the non-PhD

[12] I again remind the reader that the magnitude of these aggregates changed considerably with the update to publication metrics from JCR in 2021. Therefore, the magnitudes themselves should be interpreted with caution under the new regime of metrics.

[13] The R1 PhD program group includes University of North Carolina – Chapel Hill due to its AAU status, despite not conferring a PhD in the field. Additionally, schools in the Non-PhD and/or non-AAU group may include colleges or universities with very small or relatively new PhD programs in Sport Management. All schools in each group are listed in the table notes for Table 5.

program hires (0.22), making clear the value placed on flagship outlets such as the *Journal of Sport Management* and *Sport Management Review* by these programs. Further, the AAU group has larger values than the pooled PhD group for every measure except the *Flagship* categories, suggesting that this group places additional emphasis on general interest indexed publications when compared to their non-AAU counterparts.

Although the static values are of interest, Figure 1 visualizes the research output of the average hire, showing that it has grown tremendously over time, and especially since 2008. While the average hire in 2008 had published less than 2 total papers, by 2019 the average was nearly 7 papers. There is considerable variability around this estimate, ranging from as few as 1 and as many as 17 from 2017 to 2019 (*N = 22*). Additionally, many of the larger publication counts were from hires who had received their PhD one or two years prior to the year of hire, likely working in a post-doc or teaching-intensive faculty position between these dates. Among faculty hired in the same year their PhD was awarded, publication counts range from 1 to 10 in the 2017 to 2019 time period. These totals are considerably higher than reported in work from Geurin-Eagleman and McNary (2014), who reported that "all-but-degree" graduate students overall had 1 publication in a peer-reviewed journal, with a maximum of 7. Again, this is likely a result of the sample used here, which only considers individuals who were eventually hired into a tenure-track role at research focused universities and who have an active profile on Google Scholar.

Although the majority of publications among hires are first authored, the *AIPerPub* of 0.11 is relatively low compared to that of faculty going up for promotion to Full or Associate professor, possibly indicating that these graduate students are focusing on lower impact journals prior to going on the market. As noted earlier, while it may be prudent to publish in lower impact journals to exhibit the ability to write and publish successfully, Pfleegor et al. (2019) identify dangers in

publication for the sake of showing productivity in a "bean counting" context. Nevertheless, similar to the growth in publication rates over time, the average prospective impact has grown to 0.175 using hires from 2017, 2018, and 2019. This growth is supported in Figure 2 (left panel), which plots the increase in *AllAI* among new hires from 2000 through 2019. And given the strong variability among recent hires in publication counts, it is likely that prospective impact is being considered by hiring committees for applicants with lower publication counts. Indeed, the correlation between the number of publications and *AIPerPub* among this subsample of hires is negative and statistically significant ($\rho = -0.427, p = 0.047$), implying a tradeoff between quantity and quality of publications.

Turning attention to promotion of faculty to Associate Professor (and presumably including tenure), the median number of publications by the year of promotion is 19, with 9 first author publications. These overall values are largely driven by R1 institutions, with a median of 20.5 publications, while R2 faculty are promoted with a median of 13.5 publications (Table 4). Notably, however, the proportion of publications that are first author is higher for R2 program faculty, likely revealing the benefit of having doctoral students available as research assistants at R1 schools. As with hires, the number of publications in the year of promotion has increased over time. Figure 1 presents the average total publications from 2000 through 2019 in the year of promotion to Associate Professor. As a whole, between 2008 and 2019, the average Associate professor went from 17.5 to 22.5 publications in total (Figure 1, middle left panel), and from 15 to 20 publications *between* the time of hire and the time of promotion (Figure 1, bottom left panel).

The story is slightly different for R1 programs alone: the majority of the increase in total publications has come *prior to* the time of hire, with very little growth in the average expectations between hire and the time of promotion and tenure (Figure 1, bottom right panel). Finally, although

there have been increases in total publications, there is very little evidence that this increase has led to higher levels of prospective impact across the publication record, on average. As seen in Figure 2 (right panel) the overall prospective impact, as measured by *AllAI*, is nearly identical to the early part of the 2008. However, there is some evidence of extremely high *AllAI* values in very recent promotions to Associate (2018 and 2019), which do increase the average by the equivalent of 1 to 2 additional first author publications at the *Journal of Sport Management*.

Returning to Table 5, the differences across R1 grouping Associate promotions are larger than for hires, with the median AAU Associate Professor promoted with 26 publications, 13 of which are first author. For the pooled PhD program group, promotions average 23 publications, with 9 first author, and for the non-PhD granting groups, 14 total publications with 7 first author. The large difference here relative to those at the time of hire likely again reveal advantages of having graduate student assistants working on research alongside faculty, and possibly lower teaching or service loads.

Full Professor promotion dossiers effectively double the total publication count form the time of promotion to Associate, with a median publication count of 37 (38 for R1 programs and 28.5 for R2 programs; Table 4). Less than half of the total publications for the median Full Professor at the time of promotion are first author works. While the median Associate Professor is first author on about 50 percent of their publications between the time of hire and their first promotion, about 25 percent of publications are first author between promotions to Associate and Full Professor (Table 6). Table 5 again shows much larger disparities for Full Professors across groups within the R1 university designation. AAU program promotions to Full have a median of 58 publications, while the pooled PhD program group has a median of 39, and the non-PhD program group has a median of 34.5. There is again support for advantages to co-authoring with

graduate students in the large PhD programs, as just 18 of 58 (31%) publications for Full professors at AAU schools are first author, on average. The median for non-PhD program faculty is 14.5 (42%). The non-PhD program group also shows higher median (but not mean) *AI1st* values, relative to the AAU and PhD program groups.

Perhaps most surprisingly, at the time faculty are promoted to Full, even at R1 programs, they have published a median of just 1 first author publication in a *Flagship* sport management journal. This is true for all individual groups within the R1 designation identified in Table 5. Unlike overall publication count and *AllAI* expectations for graduate students on the market, productivity estimates at the time of promotion to Full have not changed in any notable way during the period observed here, and I therefore do not present this visually. This later career promotion likely considers a broader set of expectations related to university service and service to the field, leaving less time for increases to publication rates over the past 20 years and a growth in focus on graduate student publication within doctoral programs.

4.3 Individual Faculty Approaches and Setting Expectations for Field Building

Publication counts and prospective impact are presented together in Figure 3 for a selection of 7 different faculty career trajectories. These are plotted yearly, from the time of hire to promotion to Associate Professor. These faculty were chosen to exhibit a full range of both *AllAI* and publication counts at this career stage, and the figure includes percentile ranges across all observations in the data. Each individual observation shows the career trajectory of a faculty member promoted in a different R1 program that offers a doctoral degree, and who was promoted to Associate Professor between 2006 and 2019. It is clear in this figure that both publication count and aggregate prospective impact (*AllAI*) is quite disparate across promoted faculty. Although the observed portfolios are not necessarily indicative of institutional expectations – as those with very

high total impact could be considerably exceeding standards for promotion and tenure – it does suggest that there are heterogeneous publication strategies among junior faculty shaping the trajectory of the field that are likely to be at least partly shaped by institutional expectations (Hall, 2010). Yet, even within a similar range of *AllAI*, the publication approaches to reach these impact levels vary as well. As noted earlier, this has implications for faculty mobility: restrictive institutional expectations may limit the potential impact of individual scholars seeking to move to another university, despite meeting or exceeding local expectations.

For example, two faculty were promoted with an *AllAI* measure over 10, a relatively rare level of aggregate impact in the data, especially at the time of promotion. However, one faculty member managed to reach this point with just 12 publications, while the other did so with 31 publications. This reveals a strategy of much larger, higher impact individual works for the faculty member with fewer total publications, and possibly a stronger focus on first authored papers. These are the same two faculty members discussed in Section 3.3.3 (Research A and Researcher B). Alternatively, other faculty have been promoted with nearly 50 papers that did not reach an *AllAI* of 10. Similar comparisons can be made at lower levels of *AllAI*, where two promotions occurred with 28 and 9 total publications, respectively. Although both of these faculty were successful in promotion to Associate Professor, the faculty member with 9 publications had an *AllAI* that was 75 percent higher than the faculty member with 28 publications, again indicating a focus on more impactful individual publications.

The goal of the example in Figure 3 is not to point out strengths or weaknesses in any approach or level of potential impact or paper output. Rather, there are likely to be strong misconceptions among both junior faculty and tenure and promotion committees with respect to what the publication record of tenured faculty look like in the top sport management programs.

That distorted view can, as noted earlier, result in considerable misallocation of time, resources, and risk taking in a research agenda for both individual faculty and the departments and colleges in which they serve. This is in contrast to past benchmarking work focusing only on the most research productive faculty in the field (Texas A&M Center for Sport Management Research & Education, 2018), or presenting current average publication output across faculty (Seifried et al., 2019). The diversity of successful career paths may serve as a helpful guide when placed in context of the respective departments in which promotions have taken place. However, it is also pertinent to acknowledge the ways in which publication strategies, and the incentives provided to sport management faculty, help or harm the legitimacy it gains and maintains within its institutional walls and parent fields. Although this work does not seek to provide an answer to the optimal approach to field building, it does suggest that there is considerable room for improvement in the placement of sport management research in respected (indexed and widely read) journals. Given that faculty are most likely to respond to local-level incentives for promotion and tenure, this would require program-level focus for faculty and graduate students.

5. Summary and Conclusions

This paper argues that a key component of establishing a shared understanding of field values is the ability to clearly exhibit the ways in which knowledge production contributes to faculty career advancement. The ability for faculty to communicate with broader audiences and align knowledge contributions with values and norms of the institutions in which they work is also likely to provide opportunities for both career and scientific advancement. In this way, a carefully constructed shared understanding of knowledge production can align incentives between faculty seeking to advance in their career both in the context of building knowledge, and in the mechanistic way in which evaluations take place at the institutional level. More importantly, as sport

management moves forward, establishing a shared understanding of what systems can produce the most valuable and influential research insights and contributions can play a central role in building legitimacy. Yet, without a clear understanding of what constitutes the core body of knowledge in the field, moving forward and convincing colleagues of sport management's value becomes much more difficult.[14]

As exhibited in this work, there is an apparent lack of focus on contributing work to indexed journals. Properly rewarding risk-taking and high levels of investment in innovative ideas most likely to be published in prestigious journals allows focus on solving the most impactful problems in the field and increases its contribution more broadly (Foster, Rzhetsky, & Evans, 2015). Although indexed sport-specific journals are less common, there are many hundreds of journal outlets willing to publish work related to sport and sport management, as represented in data used here. Aligning expectations for new faculty with the goal of contributing knowledge to well-respected and core publication outlets has the potential to increase the impact of the field as a whole. It also builds broader citation networks for less known sport management journals, leading to increased reputational capital for those journals. Of course, part of this challenge is also convincing general interest journals that sport research has general interest value.

I stress here that this work only describes journal publications, and recognize that there are other ways that knowledge is built within a field. The focus is necessarily myopic to provide insight into only one of the many duties of faculty, and this does not discount the relevance of other important work faculty do in the process of earning tenure and promotion. Nevertheless, it does constitute the most salient output from faculty, and mirrors observed expectations of universities and their diverse array of sport management program structures. In this vein, this work provides

[14] This problem was also noted for Kinesiology by Knudson (2014).

both useful information for new and progressing faculty as well as a discussion of standards that may allow a broader acceptance of sport management research and its potential impact and importance to the university mission. Companion work related to teaching and service expectations – as well as other types of research output – would be important additions to the exploration provided in this work and encourage that work to take place. And, of course, research output evaluation is likely to be improved by further understanding how teaching and service interact and support research contributions, particularly given the importance of practical application in sport management.

Finally, there are a limited set of measurements used in this work, and there are important caveats related to a biased sample of faculty productivity used to exhibit benchmarks at different career points. While the virtues of measures such as *AI* are described throughout this work, additional inquiries using other measures, aggregations, or evaluations – as well as more comprehensive samples of faculty – would be a welcome addition to alleviate issues related to their shortcomings. This is especially important before taking the descriptive analysis here as direct recommendations for promotion and tenure expectations in any specific program. Programs are cautioned to consider the unintended consequences of any measurement choice. As the sport management continues to mature and expand, discussions over incentivizing deep and impactful social science require contributions from all researchers is central to growing the field and meeting the demands for broader recognition laid out by Mahoney (2008) and others.

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Table 1 – Summary of Evaluation Approaches

Evaluation Approach	Quality Evaluation Type	Measures	Aggregation	Advantages	Disadvantages
Bean Counting	• Individual	• Publication count	• Simple count	• Easy to calculate • Salient on CV	• Pay-to-publish incentives • "Least publishable units"
	• Restrictive Journal Lists	• Publication count	• Simple count	• Created by expert faculty or association/organization • Simple and transparent • Can incentivize fewer, deeper projects	• Limited journal outlets • Problems addressing SM interdisciplinarity • Noisy signals using journal quality • Coarse measurement
	• Discrete Journal Quality Categories	• A+, A, B, C, etc.	• Minimum count in each category • Weighted total across categories	• Simple and transparent • External/expert journal quality evaluation •	• Incentive to publish at easiest-to-publish journal in category (bottom-line approach) • Creates coarser measurement than continuous measures • Lists subject to lobbying • Noisy signals using journal quality
Quality and Quality-Quantity Combined Measures	• Continuous Measures (Prospective/Journal)	• Impact factor • Article Influence • Eigenfactor • Journal H-Index	• "Best X" publications • Aggregated numeric totals • Prospective or retrospective	• Less coarse than discrete categories • Avoids negative bottom-line approach incentives • Provides credit to most publications • Equal weight to journals across fields	• Can be manipulated by editors with self-citation and other tactics • Noisy signals using journal quality • Can ignore non-indexed journals • "Best X" publications ignores full body of work • Citation variability by subfield for some approaches (JIF, H-Index) • Measures may not be additive
	• Continuous Measures (Individual)	• Author Citations	• Numeric totals • Projection/prediction models • H-Index/i10-Index	• Measures individual work • H-Index provides information about number of papers viewed as high quality (indicated by citations) • Useful prediction with early career data	• Retrospective, rather than prospective • Citation practice variability across subfields

Table 2 – Selection of Journals and Associated Journal Metrics

Journal	*AI*	*JIF*	*JIF5*	*SJRH*	*ABDC*	*Flagship*
Journal of Sport Management	0.467	2.359	2.877	61	A	
Sport Management Review	0.551	3.337	3.761	50	A	Yes
European Sport Management Quarterly	0.348	1.889	2.436	29	A	
American Economic Review	9.127	5.561	7.783	277	A*	
Journal of Economic Literature	7.609	6.585	7.896	153	A*	
Administrative Science Quarterly	5.887	8.391	9.880	175	A*	
Academy of Management Journal	5.597	7.571	11.853	304	A*	
Management Science	3.645	3.935	5.469	237	A*	
Journal of Marketing	3.338	5.266	9.917	233	A*	
Journal of Organizational Behavior	2.323	5.026	6.842	164	A*	
Gender and Society	1.808	2.742	4.012	97	A*	
Annals of Tourism Research	1.162	5.908	8.120	158	A*	
Tourism Management	1.135	7.432	9.238	179	A*	
Journal of Travel Research	1.074	7.027	7.810	122	A*	
Human Resource Management	0.994	2.476	3.702	87	A*	
Sex Roles	0.969	2.409	2.724	111	A	
Journal of Business Ethics	0.910	4.141	5.455	168	A	
Journal of Business Research	0.846	4.874	5.484	179	A	
Social Justice Research	0.825	0.969	1.832	54	B	No
Journal of Sports Sciences	0.814	2.597	3.060	128	-----	
Race, Ethnicity, and Education	0.773	1.807	2.307	44	-----	
Journal of Homosexuality	0.666	1.873	2.072	70	-----	
Journal of Mixed Methods Research	0.644	3.333	3.442	42	-----	
Journal of Sport and Social Issues	0.540	1.939	1.953	54	B	
Sociology of Sport Journal	0.471	2.635	2.272	53	A	
International Review for the Sociology of Sport	0.465	2.019	1.972	54	B	
Quest	0.443	2.844	2.560	48	C	
Race and Class	0.443	1.780	1.254	36	-----	
Leisure Studies	0.422	1.566	2.349	61	A	
Leisure Sciences	0.387	1.952	2.232	62	A	
Journal of Sports Economics	0.386	1.615	1.527	44	B	
Communication and Sport	0.375	1.292	1.794	14	-----	
Sport Marketing Quarterly	0.209	0.744	1.226	5	B	
International Journal of Sport Finance	0.167	0.550	1.050	20	C	
Int. Journal of Sports Marketing and Sponsorship	0.146	1.075	1.217	20	B	
Mean of All Indexed Journals	**0.922**	**2.453**	**3.003**	-----	-----	

AI = Eigenfactor Article Influence; *JIF* = Journal Impact Factor; *JIF5* = 5-year Journal Impact Factor; *SJRH* = Scientific Journal Rankings H-Index; *ABDC* = Australian Business Dean's Council; *Flagship* = Treated as a Flagship Sport Management Journal in this paper.

Table 3 – Descriptive Statistics for Individual Faculty Across All Programs

	All (*N = 219*)				Assistant (*N = 69*)				Associate (*N = 82*)				Full (*N = 62*)			
	Mean	*Med*	*Min*	*Max*	*Mean*	*Med*	*Min*	*Max*	*Mean*	*Med*	*Min*	*Max*	*Mean*	*Med*	*Min*	*Max*
Publications	31.57	25.0	1.0	179.0	15.00	14.0	1.0	43.0	27.50	27.0	2.0	66.0	56.40	50.5	10.0	179.0
1st Author	12.74	11.0	0.0	105.0	7.36	6.0	0.0	27.0	11.93	11.0	1.0	37.0	20.18	18.0	5.0	105.0
Indexed Pub.	15.15	10.0	0.0	113.0	7.20	6.0	0.0	19.0	11.67	10.0	0.0	32.0	29.05	25.5	1.0	113.0
Indexed 1st	5.74	4.0	0.0	72.0	3.41	3.0	0.0	12.0	4.90	4.0	0.0	20.0	9.60	8.0	0.0	72.0
Flagship Pub.	5.73	3.0	0.0	50.0	2.81	2.0	0.0	12.0	5.20	4.0	0.0	19.0	9.73	7.0	0.0	50.0
JSM	2.95	2.0	0.0	25.0	1.36	1.0	0.0	6.0	2.65	2.0	0.0	12.0	5.10	4.0	0.0	25.0
SMR	1.99	1.0	0.0	21.0	1.10	1.0	0.0	7.0	1.84	1.0	0.0	10.0	3.16	1.0	0.0	21.0
ESMQ	0.79	0.0	0.0	10.0	0.35	0.0	0.0	2.0	0.71	0.0	0.0	6.0	1.47	0.0	0.0	10.0
Flagship 1st	2.16	1.0	0.0	19.0	1.39	1.0	0.0	8.0	2.32	1.0	0.0	11.0	2.81	1.0	0.0	19.0
JSM	1.18	1.0	0.0	12.0	0.67	0.0	0.0	4.0	1.27	0.0	0.0	8.0	1.60	1.0	0.0	12.0
SMR	0.74	0.0	0.0	7.0	0.55	0.0	0.0	4.0	0.77	0.0	0.0	7.0	0.89	0.0	0.0	7.0
ESMQ	0.25	0.0	0.0	4.0	0.17	0.0	0.0	1.0	0.28	0.0	0.0	3.0	0.32	0.0	0.0	4.0
Top 5 A.I.	2.63	2.23	0.00	33.67	1.84	1.82	0.00	5.68	2.27	2.24	0.00	9.27	4.01	2.65	0.42	33.67
Top 10 A.I.	3.71	3.12	---	41.58	2.38	2.15	---	6.57	3.22	3.08	---	11.62	5.86	4.74	---	41.58
Top 15 A.I.	4.28	3.32	---	46.76	2.54	---	---	7.91	3.63	3.25	---	12.40	7.15	6.11	---	46.76
Top 20 A.I.	4.65	---	---	50.57	2.57	---	---	8.18	3.85	---	---	12.40	8.14	7.00	---	50.57
Top 25 A.I.	4.90	---	---	53.16	---	---	---	---	3.98	---	---	13.62	8.87	7.22	---	53.16
Top 30 A.I.	5.09	---	---	55.37	---	---	---	---	4.06	---	---	14.57	9.42	7.47	---	55.37
All A.I.	5.59	---	---	61.15	---	---	---	---	4.07	---	---	14.64	11.16	7.76	0.42	61.15
AI 1st	3.13	1.77	0.00	47.00	1.62	1.25	0.00	6.39	2.36	1.64	0.00	11.28	5.97	3.23	0.00	47.00
AI Per Pub.	0.18	0.16	0.00	1.14	0.19	0.17	0.00	1.14	0.16	0.15	0.00	0.83	0.19	0.14	0.02	1.07

Notes: All statistics as of July 31, 2020. Includes only tenure line faculty in SM programs as of the start of Fall semester, 2020, including 2020 hires. A.I. refers to the aggregate Eigenfactor Article Influence as described in Section 3.3.

Table 4 – Faculty Productivity at Time of Hire or Promotion

	U.S. R1					U.S. R2					Canada				
	Hire	**Assoc**	**Assoc**	**Full**	**Full**	**Hire**	**Assoc**	**Assoc**	**Full**	**Full**	**Hire**	**Assoc**	**Assoc**	**Full**	**Full**
N	*128*	*73*	*73*	*30*	*30*	*34*	*18*	*18*	*6*	*6*	*16*	*5*	*5*	*3*	*3*
Measure	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*
Publications	3.44	21.25	20.5	42.87	38.0	2.79	15.06	13.5	31.67	28.5	3.75	18.00	8.0	37.33	30.0
1st Author	2.11	11.05	9.0	17.47	17.0	1.38	8.33	7.5	9.83	11.5	2.44	7.60	7.0	13.00	10.0
Indexed Pub.	1.21	9.53	7.0	20.10	17.0	1.03	5.06	4.0	13.50	9.5	1.81	9.40	5.0	16.67	14.0
Indexed 1st	0.70	4.88	4.0	7.57	6.0	0.32	2.22	1.0	3.33	1.5	1.19	5.00	4.0	6.00	7.0
Flagship Pub.	0.41	3.56	2.0	6.53	4.5	0.32	2.22	1.0	6.33	2.0	0.81	5.00	3.0	6.67	7.0
JSM	0.21	1.95	1.0	3.53	3.0	0.21	1.22	0.0	3.83	1.5	0.63	3.60	3.0	4.00	4.0
SMR	0.11	1.21	1.0	2.23	1.0	0.09	0.78	0.0	2.00	0.5	0.19	1.20	0.0	1.33	2.0
ESMQ	0.09	0.41	0.0	0.77	0.0	0.29	0.22	0.0	0.50	0.0	0.00	0.20	0.0	1.33	1.0
Flagship 1st	0.27	1.85	1.0	2.03	1.0	0.09	1.11	0.0	2.00	1.0	0.63	3.20	2.0	3.00	4.0
JSM	0.14	1.03	0.0	1.20	1.0	0.03	0.67	0.0	1.50	1.0	0.50	2.40	2.0	1.00	1.0
SMR	0.08	0.62	0.0	0.73	0.0	0.06	0.44	0.0	0.50	0.0	0.13	0.60	0.0	1.00	1.0
ESMQ	0.05	0.21	0.0	0.10	0.0	0.00	0.00	0.0	0.00	0.0	0.00	0.20	0.0	1.00	1.0
Top 5 A.I.	0.45	2.20	2.15	2.66	2.54	0.27	1.25	1.21	1.56	1.72	0.68	1.67	2.08	3.29	3.53
Top 10 A.I.	0.47	2.97	2.61	4.04	4.02	0.28	1.59	---	2.41	2.53	0.69	2.50	---	4.66	4.85
Top 15 A.I.	---	3.31	---	4.96	5.06	---	1.66	---	2.84	2.58	---	2.93	---	5.30	5.06
Top 20 A.I.	---	3.47	---	5.58	5.71	---	1.68	---	3.19	2.58	---	3.12	---	5.49	5.63
Top 25 A.I.	---	3.54	---	6.03	5.82	---	---	---	3.34	---	---	3.21	---	5.59	5.82
Top 30 A.I.	---	3.57	---	6.29	---	---	---	---	3.42	---	---	---	---	---	---
All A.I.	---	3.64	---	6.97	---	---	---	---	3.50	---	---	---	---	---	---
AI 1st	0.31	2.46	1.82	3.81	2.59	0.12	1.00	0.53	1.30	0.57	0.53	2.29	1.84	2.73	2.59
AI Per Pub.	0.11	0.17	0.14	0.15	0.13	0.07	0.11	0.10	0.11	0.11	0.16	0.15	0.17	0.20	0.17

Notes: Hires and promotions from 2020 are excluded. Faculty not receiving a first position at an R1, R2, or Canadian institution are removed from the Hire data set unless they secured a tenure-track job at one of these schools within 2 years of beginning at their first institution. Date of move to R1/R2/Canadian institution is treated as the hire date for these candidates. Any faculty not receiving their respective promotion in an R1, R2, Canadian, or Non-SM program are excluded from that promotion's data.

Table 5 – Faculty Productivity at Time of Hire or Promotion (R1 University Breakdown)

	U.S. R1 AAU Programs (*N = 12*)[a]					U.S. R1 PhD Programs (*N = 21*)[b]					U.S. R1 Non-PhD Programs (*N = 28*)[c]				
	Hire	**Assoc**	**Assoc**	**Full**	**Full**	**Hire**	**Assoc**	**Assoc**	**Full**	**Full**	**Hire**	**Assoc**	**Assoc**	**Full**	**Full**
N	*45*	*31*	*31*	*9*	*9*	*85*	*57*	*57*	*22*	*22*	*41*	*13*	*13*	*8*	*8*
Measure	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Mean*	*Med.*	*Mean*	*Med.*
Publications	3.56	26.16	26.0	59.33	58.0	3.40	22.56	23.0	45.82	39.0	3.66	14.69	14.0	34.75	34.5
1st Author	2.42	13.45	13.0	24.11	18.0	2.25	11.61	9.0	19.36	17.5	1.93	8.31	7.0	12.25	14.5
Indexed Pub.	1.36	12.84	10.0	29.67	25.0	1.31	9.89	8.0	20.09	18.5	1.05	5.69	5.0	20.13	16.0
Indexed 1st	0.89	6.81	5.0	12.00	10.0	0.81	5.05	4.0	7.91	6.0	0.49	3.00	2.0	6.63	6.0
Flagship Pub.	0.42	4.65	4.0	8.00	5.0	0.51	3.58	2.0	5.32	4.0	0.22	2.00	2.0	9.88	5.5
JSM	0.24	2.65	2.0	4.44	3.0	0.25	1.95	1.0	3.05	3.0	0.15	1.38	1.0	4.88	4.5
SMR	0.13	1.55	1.0	2.33	1.0	0.15	1.18	1.0	1.78	1.0	0.02	0.62	0.0	3.50	1.5
ESMQ	0.04	0.45	0.0	1.22	1.0	0.11	0.46	0.0	0.50	0.0	0.05	0.00	0.0	1.50	0.0
Flagship 1st	0.27	2.42	1.0	2.89	1.0	0.33	1.93	1.0	1.91	1.0	0.17	0.92	0.0	2.38	1.0
JSM	0.16	1.45	1.0	1.78	1.0	0.16	1.09	0.0	1.18	1.0	0.10	0.54	0.0	1.25	1.0
SMR	0.09	0.74	0.0	1.00	0.0	0.11	0.58	0.0	0.68	0.0	0.02	0.38	0.0	0.88	0.0
ESMQ	0.02	0.23	0.0	0.11	0.0	0.06	0.26	0.0	0.05	0.0	0.05	0.00	0.0	0.25	0.0
Top 5 A.I.	0.56	2.72	2.23	3.22	2.59	0.49	2.27	2.18	2.63	2.57	0.39	1.57	1.28	2.72	2.42
Top 10 A.I.	0.60	3.84	3.30	5.10	4.47	0.51	3.08	2.63	4.02	4.02	---	1.96	---	4.10	4.14
Top 15 A.I.	---	4.47	3.44	6.44	5.45	---	3.45	---	4.97	5.06	---	1.99	---	4.92	5.25
Top 20 A.I.	---	4.83	---	7.48	6.64	---	3.62	---	5.63	5.71	---	---	---	5.45	5.40
Top 25 A.I.	---	5.00	---	8.24	7.07	---	3.70	---	6.08	5.82	---	---	---	5.87	---
Top 30 A.I.	---	5.07	---	8.68	7.24	---	3.75	---	6.32	---	---	---	---	6.22	---
All A.I.	0.60	5.23	3.44	10.64	7.24	0.51	3.83	2.63	7.12	5.82	0.39	1.99	1.28	6.54	5.40
AI 1st	0.43	3.54	2.15	5.96	2.70	0.38	2.56	1.82	3.94	2.59	0.19	1.46	0.82	3.45	3.03
AI Per Pub.	0.15	0.21	0.20	0.16	0.13	0.12	0.17	0.13	0.13	0.12	0.09	0.16	0.11	0.20	0.20

[a]U.S. R1 AAU Programs include Florida, Michigan, Texas A&M, Texas, Illinois, Ohio State, Indiana, North Carolina, Minnesota, Kansas, and Maryland.
[b]U.S. R1 PhD Programs columns also include University of North Carolina, Chapel Hill due to its AAU status, despite not having a PhD program. This group includes all schools from the AAU group, plus Temple, UMass, Florida State, South Carolina, Georgia, Louisiana State, Connecticut, Louisville, NC State, and Tennessee.
[c]U.S. R1 Non-PhD and/or AAU Programs include Alabama, Arkansas, Central Florida, Cincinnati, Delaware, Drexel, Florida International, George Mason, George Washington, Georgia State, Houston, Miami, Mississippi State, New Mexico, North Texas, NYU, Oklahoma, Oklahoma State, Mississippi, Rice, South Florida, Southern Mississippi, Syracuse, Texas Tech, VCU, Washington, Washington State, and Wayne State.
Note: Total *N* do not necessarily add to total *N* from Table 4 due to moves to/from one type of university to another within the R1 designations, or in/out of the R1 designation for certain promotions.

Table 6 – Faculty Productivity Between Hire (H), Associate Promotion (A), and Full Promotion (F)

	U.S. R1				U.S. R2				Canada			
	H → A		A → F		H → A		A → F		H → A		A → F	
N	*73*		*30*		*18*		*6*		*5*		*2*[a]	
Measure	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Med.*	*Mean*	*Med.*
Publications	18.53	18.0	20.80	19.0	13.67	13.5	18.17	9.0	14.40	7.0	41.50	41.5
1st Author	9.22	8.0	5.40	3.5	7.50	7.5	3.00	2.5	5.80	3.0	12.50	12.5
Indexed Pub.	8.56	7.0	9.67	8.5	4.61	4.0	7.50	3.0	7.40	4.0	15.50	15.5
Indexed 1st	4.32	3.0	2.03	1.0	2.11	1.0	1.17	1.0	4.00	3.0	5.00	5.0
Flagship Pub.	3.33	2.0	3.47	2.5	1.94	1.0	3.50	0.5	4.20	2.0	5.00	5.0
Flagship 1st	1.73	1.0	0.53	0.0	1.06	0.0	0.50	0.5	2.60	2.0	2.00	2.0
All A.I.	3.25	2.12	2.95	2.14	1.54	1.20	1.79	0.85	2.54	1.24	5.25	5.25
All A.I. 1st	2.20	1.32	1.06	0.44	0.93	0.53	0.39	0.34	1.86	1.24	1.91	1.91

Notes: Hires and promotions from 2020 are excluded, as this would undercount publications, since data was collected mid-year 2020. Faculty not receiving a first position at an R1, R2, or Canadian institution are removed from the Hire data set unless they secured a tenure-track job at one of these schools within 2 years of beginning at their first institution. Date of move to R1/R2/Canadian institution is treated as the hire date for these candidates. Any faculty not receiving their respective promotion in an R1, R2, or Canadian program are excluded from that promotion's data. Any hire or promotion received in a non-sport management program is removed from each of the respective data sets, and I exclude all faculty who's dates of hire or promotion were missing from the data.

a. One observation for Full professors is missing, relative to Table 4, due to a lack of information on the year in which that faculty member received promotion to Associate.

Figure 1 – Publications at Hire and Promotion to Associate by Cohort (2000 – 2019)

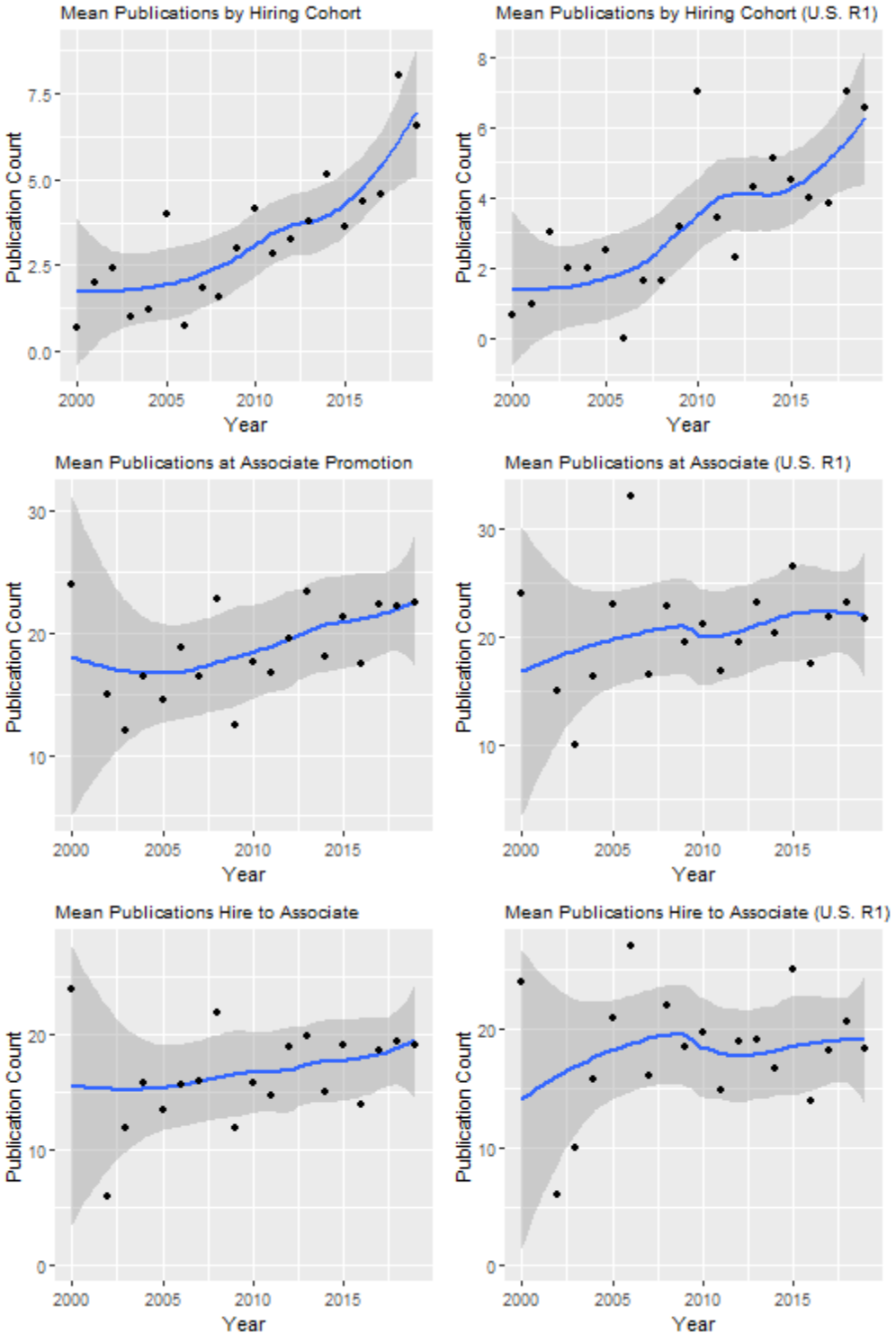

Figure 2 – Aggregate Eigenfactor AI at Career Events by Year (U.S. R1 Universities Only)

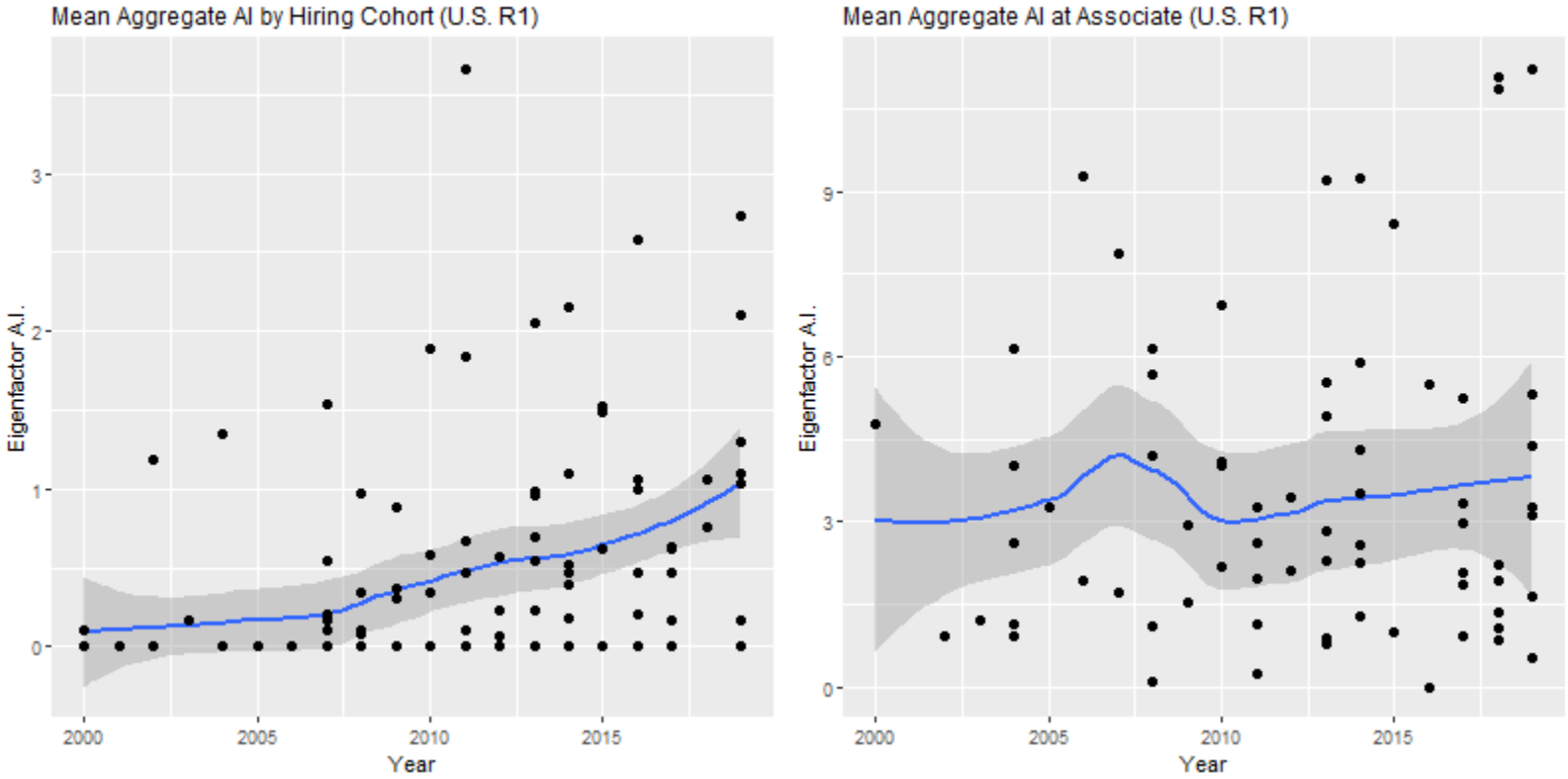

Figure 3 – Selected Career Trajectories at Promotion to Associate