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The prestige economy of higher education journals: a quantitative approach

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Abstract
This study addresses stratification in the global higher education research community and the changing geography of country affiliations in six elite journals. The distribution of country affiliations is analyzed from a longitudinal perspective (1996–2018), and full-time and part-time authors in the field are contrasted. The prestige maximization model and principal-agent theory provide the theoretical framework for the study, which examines 6334 articles published in six elite journals in the context of 21,442 articles in 41 core journals. The findings indicate that about 3.3% of academics have authored at least five articles (full-timers). These authors constitute the publishing core of the research community, while the 80% who have authored one article (part-timers) constitute its periphery. *Higher Education* (HE) and *Studies in Higher Education* (SHE) emerge as elite global journals, with an increasing share of non-Anglo-Saxon authors. Previously globally invisible countries became visible almost exclusively through HE and SHE. Global trends include the diminishing role of American researchers and the increasing role of researchers from Continental Europe, East Asia, and the cluster of 66 "other" countries. The single biggest affiliation loser is the United States, which had 42.5% of country affiliations in 1996–2003 but only 26.9% in 2012–2018. This reflects both the increasing share of non-American affiliations and the increasing yearly volume of HE and SHE publications, in which US academics tend not to publish massively.

Keywords Elite journals · Higher education research community · Academic prestige · Prestige generation · Journal stratification · Bibliometrics · Quantitative methods · Academic careers · Competition

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Introduction

Elite journals and seeking prestige

Higher education journals are "the most significant repository for the outputs of higher education research" (Tight 2018: 22), and they offer a mechanism by which higher education professionals "communicate ideas, stimulate discussion (as well as controversy), and share information" (Hutchinson and Lovell 2004: 383). Seeking prestige by publishing in top academic journals is central to the so-called prestige economy in higher education (Blackmore and Kandiko 2011; Rosinger et al. 2016; Kandiko Howson et al. 2018). At all levels—from national system to institution to department to individual academic—the global academic community competes in prestige markets, where "'prestige' indicates a particular kind of market, one in which what is recognized and traded does not necessarily have a direct financial value" (Blackmore 2016: 10). Prestige can be accumulated and is associated with university research rather than teaching or service missions (Marginson 2014; Melguizo and Strober 2007; Slaughter and Leslie 1997). Through their research, institutions and academics are heavily engaged in prestige-maximizing activities (Taylor et al. 2016; Rosinger et al. 2016), such as publishing in top journals or seeking selective grants.

The prestige economy of elite higher education research journals is a function of scarcity; the upper 10% of journals will always be limited in number, although the slots they offer may increase over time. Space is a scarce resource for top journals, which have high rejection rates of 90% or more. Indeed, "prestige requires scarcity" (Blackmore 2018: 234), and the number of scientists wishing to publish in top-tier journals outnumbers the available slots at any given time, as in the case of prestigious grants, fellowships, and faculty placements in prestigious institutions. The value of a scarce social good is increased by the mere fact that others cannot easily possess it (Blackmore 2018: 245). Each field has its own top-tier journals, and the idea of "the tyranny of the top five" (Heckman and Moktan 2018) is applicable far beyond elite journals in economics.

Elite journals and four dimensions of academic life

Research productivity in general (widely studied in the literature) differs sharply from elite journals' research productivity, reflecting a difference between simply publishing and publishing in elite journals. Different institutional higher education strata tend to focus on different publication channels: the upper echelons of national systems tend to focus on the upper echelons of journals (see Kwiek 2016 on the highly productive European research elite).

Publications in top journals strongly influence four fundamental dimensions of academic life: securing an initial academic job and keeping it, or where academics work (Fochler et al. 2016); the speed of promotion and attaining tenured positions, or how academic careers develop (Hammarfelt 2017; Lindahl 2018); access to competitive research funding, or the scope of externally funded research (Bak and Kim 2019); and (in some systems) remuneration, or how academics are paid, from intra-institutional and extra-institutional comparative perspectives (including various additional supplements to salaries, from endowed chairs to cash bonuses; see performance-based incentives in Andersen and Pallesen 2008; Franzoni et al. 2011; Bak and Kim 2019; and Mouritzen and Opstrup 2020).

The two pivotal components of every science system, academic careers and resource allocation, are increasingly subject to publication-based evaluation, and policymakers have

been emphasizing the impact of publications, usually operationalized through the journal impact factor (see the development of impact-oriented science policies in Shibayama and Baba 2015). Therefore, academics of all ranks determine their publication destination "strategically," as indicated by a study of Japanese biology professors:

> It is essential for individual academics to improve publication metrics constantly to survive career filters throughout all career stages. Even after obtaining a tenured position, they have to keep fundraising to cover research expenses, for which excellent publication records are needed and a lack of funds could mean an exit from a research career. (Shibayama and Baba 2015: 937)

Indeed, strategic journal choice is key to surviving in the current impact-oriented academic environment of research-intensive universities.

However, not all institutions are involved to the same extent in the prestige game fueled by publication in top journals. Therefore, the top echelons of academic institutions need to be clearly distinguished from the rest of the institutions within national systems. The prestige game is predominantly played by research-intensive universities and their research-focused scientists; it cannot be generalized as a principal mechanism to whole, usually highly stratified, national systems. Publications in top journals may determine the future of academics in one system's subsectors while being irrelevant in its other subsectors. There are substantial cross-national differences in the emphasis on using publications in such journals for hiring, promotion, and funding decisions (see Mouritzen and Opstrup 2020; Sutherland 2018; Fochler et al. 2016; Bak and Kim 2019; and Lindahl 2018). And there are also differences between scientific fields, with stronger roles of elite journals in hard sciences and weaker roles in soft fields, and between more article-oriented and book-oriented subfields within the same fields, especially in social sciences and the humanities (Hammarfelt 2017).

Elite journals and academic careers

Studies of higher education journal status have value to academics and their careers, especially in the current competitive academic environment, as Fumasoli et al. (2015) show in an impressive empirical study of 500 structured interviews across eight European systems. In European countries with more competitive career structures and award and recognition systems, highly cited publications are increasingly important in personnel and funding decisions (Kwiek 2018c). A large-scale global survey of academics in 21 countries resulted in similar conclusions, finding that more peripheral systems in the sample (e.g., Poland, Romania, Malaysia, Hong Kong, South Korea, and New Zealand) were heavily involved in various versions of performance-based research funding, with a research focus on hiring, promotion, and tenure systems (Shin et al. 2014). For instance, in the extreme case of the performance-based research funding (PBRF) system in New Zealand, all academics are divided between A's (world-class standing), B's (national standing), C's (local standing), and R's (research inactive) based on their research outputs in the period under review. The PBRF rates A researchers as five times more valuable than C researchers in terms of the funding that goes back to universities (Sutherland 2018: 86).

In today's highly competitive (Fochler et al. 2016) and resource-seeking (Shibayama and Baba 2015) environment, academic success across a wide range of disciplines (except for some areas of the humanities, Hammarfelt 2017: 614–619), depends largely on publishing in

prestigious journals (Franzoni et al. 2011). Consequently, while the top higher education journals are increasingly flooded with submissions, journals closer to the bottom of the "pecking order" fight to attract authors. The reason is simple: location matters for individuals (Mouritzen and Opstrup 2020), institutions (Sutherland 2018), and countries (Bak and Kim 2019; Kwiek 2020a), subject to incessant ranking and assessment procedures—not everywhere, but in many countries.

In the prestige economy, academic careers have become quantifiable in ways that were not imaginable several decades ago (Kandiko Howson et al. 2018: 1). According to extensive studies on the role of research and teaching in university promotion criteria in UK universities (Parker 2008) and on expectations and standards of faculty performance in US research universities (Hardré and Cox 2009), quantification is based on research rather than on teaching. As Starbuck (2013: 707) shows for social and behavioral researchers in the US, deans and department heads have been increasing the pressure on professors to publish papers that attract many citations. In sum, as Schimanski and Alperin (2018: 7) argue in their summary of review, promotion, and tenure processes, "in terms of career success, faculty should aim to publish [in journals] with as much prestige as possible."

Publications in elite journals are important, especially in national systems with competitive career structures and stringent research evaluation systems (Whitley and Gläser 2007; Sutherland 2018; Fochler et al. 2016). Evaluation is commonly based on Web of Science or Scopus journal classifications as proxies of scientific quality, and in many countries new reward systems assess individual and institutional research performance based on journal prestige as well as the number of papers published. Financial incentives further affect decisions about where and how frequently to submit articles for publication (Bak and Kim 2019: 219ff.).

There is extensive evidence showing that publication in top-tier journals is the main predictor of faculty pay in research-intensive universities (Gomez-Mejia and Balkin 1992: 942; Hamermesh and Pfann 2011: 12; Heckman and Moktan 2018), although there is little evidence indicating that research productivity in general (as opposed to elite journals' research productivity) predicts career progression (Kwiek 2018b). There is also evidence of a feedback effect, as the journal in which a paper is published has a powerful influence on citation rates; in other words, positioning within the vertically stratified global publishing system tends to determine a paper's impact. In this regard, a journal-related Matthew effect lends papers "an added value over and above their intrinsic quality" (Larivière and Gingras 2010: 424). Promotion, tenure, recognition, and competitive research funding are closely linked to publishing in top-tier journals in many countries (see country-level analyses in Mouritzen and Opstrup 2020 for Denmark; Sutherland 2018 for New Zealand; Fochler et al. 2016 for Austria; Heckman and Moktan 2018 for the US; Bak and Kim 2019 for South Korea; Lindahl 2018 for Sweden; and Shibayama and Baba 2015 for Japan).

Elite journals and academic disciplines

Empirical studies show that publication in elite journals remains the key determinant of scientific recognition in many disciplines. In the field of economics, for example, "publishing in T5 (top five journals) is the most effective means of improving one's chances of obtaining tenure in all of the top 35 U.S. economics departments" (Heckman and Moktan 2018: 6). Increasingly, the recognition obtained from top journal publications provides the "direct and often the only path to career advances" in information systems (Lyytinen et al. 2007: 321). In mathematics, top journal publications during the first four years of an individual's academic

career are the most important predictor of future research achievement (Lindahl 2018: 531). A recent study of external assessment reports used for recruitment in four Swedish universities in biomedicine, economics, and history shows that the ability to publish in top journals is the most important evaluation criterion of careers in the first two fields, and top journals are mentioned in almost all reports and are often a clearly decisive factor. A logical conclusion from these assessment reports is that "top researchers should publish in the best journals, and the highest-ranked universities should employ them." In contrast, monographs and the length of publications, combined with prizes and book reviews, are used as indicators of impact in history, highlighting the importance of cross-field differences (Hammarfelt 2017: 614–619).

The role of elite journals in career progression is pervasive. Postdoctoral students in Austria exemplify a generational gap in the sciences, with "hyper-competition" felt more strongly by younger scientists (Fochler et al. 2016). They maximize their individual productivity and competitive performance in three areas: top publications, grant funding, and citations—as internationally accepted and transferable tokens of academic quality. In their highly competitive environment, "failure to produce results that can be transformed into publications or grant money cannot be compensated, and equals career failure" (Fochler et al. 2016: 196). Across Europe, expectations to publish in top journals are standard in national research funding agencies (Lyytinen et al. 2007), and they are an absolute must in the European Research Council (Rodríguez-Navarro and Brito 2019).

The reputation of journals also plays an overriding role in gaining attention in science and is an important part of science signal systems: who publishes where matters. The risk of publishing in non-core journals is that their readers will not be drawn to consult the pages, as the "impact score of these journals signals that the average article will not be highly influential" (van Dalen and Henkens 2005: 229). Finally, a study of demography journals finds that "journals are the dominant force in allocating citations. Articles published in core journals receive considerably more citations than articles in second-tier journals" (van Dalen and Henkens 2005: 231).

The present study

Higher education as a field of study is not immune from these global publishing pressures. Although sometimes "highly prestigious journals publish quite a few low-value articles, low-prestige journals publish some excellent articles, and excellent manuscripts may receive successive rejections from several journals" (Starbuck 2005: 196), this research reasonably assumes, following Silverman (1987), that papers published in top journals are the best of all submitted and revised manuscripts.

The present study explores changes in the global higher education research community by examining publishing trends in six prestigious journals. In particular, the distribution of country affiliations is investigated from a novel longitudinal perspective of more than two decades (1996–2018). Global change in the academic community is reflected in the changing distribution of country affiliations over time. The diminishing influence of American researchers is marked by a corresponding increase in research from other regions, especially Continental Europe and East Asia. Elite journals have been variously described as "core" (Bayer 1983), "key" (Hutchinson and Lovell 2004), and "leading" (Tight 2014), with first, second, and third tiers in this informal "pecking order" (Bayer 1983: 103) or "caste system" (Bray and Major 2011).

The present research focuses on the higher strata of global higher education journals. In total, 6334 articles published in six elite journals during the period 1996–2018 were studied in

the context of 21,442 articles from 41 core journals. Two research questions are addressed from cross-sectional and longitudinal perspectives: (1) How is the global higher education research community stratified in terms of the intensity of engagement in publishing in elite journals? (2) How is the geography of country affiliations changing in elite journals? After outlining the theoretical background, the paper describes the data sources and methodology. Empirical results are then reported, followed by a discussion and conclusions.

Theoretical background: elite journals and knowledge production

Two substantial strands of research help to explain the powerful grip of elite journals on individual academics (Fochler et al. 2016; Lindahl 2018), institutions (Mouritzen and Opstrup 2020), and national systems (Franzoni et al. 2011).

(1) *The prestige maximization model of higher education institutions*. Within the broader theories of academic capitalism and resource dependence (Slaughter and Leslie 1997; Cantwell and Kauppinen 2014), this model links publication in prestigious journals to salary and reward systems.

(2) *Principal-agent theory* explains how publishing in prestigious journals aligns the interests of individual academics (as agents) with those of their institutions and research-sponsoring organizations, including national governments (as principals) (Kivistö 2008; Braun and Guston 2003; and van der Meulen 1998).

The prestige maximization model of higher education institutions and elite journals

According to this model, research-intensive universities, as well as their departments and individual academics, act largely as "prestige maximizers" (Melguizo and Strober 2007: 634; Taylor et al. 2016), striving constantly to maximize their prestige (Shibayama and Baba 2015: 937). Just as companies are "profit maximizers," universities predominantly seek prestige at the intersection of the monetary and prestige economies. While the monetary economy provides the necessary finances, disciplinary and professional communities "confer social and cultural capital in the prestige economy" (Blackmore and Kandiko 2011: 405). Prestige can also be used to leverage resources, principally through research grants, and institutions, departments, and individual academics modify their behaviors—including publishing patterns—to that end, competing for external resources in quasi-markets (Taylor et al. 2016).

In these competitive quasi-markets, publication in elite journals has become increasingly important, especially following the development and codification of research evaluation systems in Europe (Whitley and Gläser 2007; van Dalen and Henkens 2005). However, not all journals are equal, with an "overriding preference for those engaging in activities that contribute to high status among universities" (Slaughter and Leslie 1997: 116). While institutions and individuals pursue a wide array of external resources (and, analogously, journals), not all contribute equally to prestige (Rosinger et al. 2016: 28–29; Taylor et al. 2016: 106–107), and there is a clear institutional preference for elite journals and highly competitive research grants.

The model highlights individual prestige generation through publications, research grants, patents, and awards as critical resources for research-intensive universities (rather than for national higher education systems). In this "competitive status economy" (Marginson 2014:

107), research is a powerful source of differentiation and rank ordering, and prestige is a major driver of what Slaughter and Leslie (1997) called "academic capitalism" in the Anglo-Saxon countries and which is now a global phenomenon (Cantwell and Kauppinen 2014). Across Europe, in "reputational work organizations" such as universities (Whitley 2000: 25), the credibility cycle that enables European scientists to progress within their field (Latour and Woolgar 1986: 201–208) involves the conversion of prestigious articles into recognition, leading to individual competitive grant-based funding, which is further converted into new data, arguments, and articles (see the role of international research collaboration in the credibility cycle, Kwiek 2020a: 3-4; the role of "internationalists" contrasted with "locals" in research in Kwiek 2020b; and the increasing internationalization of research across 11 European systems in Kwiek 2015 and 2018a). Publication in elite journals and funding from prestigious agencies are crucial components of this credibility cycle (which refers to all academic cohorts; see Cruz-Castro and Sanz-Menéndes 2010, who study the relationship between performance and rewards for early career researchers). Publication in top-tier journals increases European scientists' chances of securing an academic position, moving up the career ladder more rapidly, attracting external funding, and becoming part of the well-networked global scientific elite. The prestige economy valorizes external research resources and favors publication in top journals, leading to segmentation within universities, separating high- and low-resource departments and shaping careers accordingly (Rosinger et al. 2016).

This model views prestige principally as a rival good, based on relative rather than absolute measures—a zero-sum game, in which "what winners win, losers lose" (Hirsch 1976: 52)—as academia is increasingly driven by government policies that deliberately emphasize "prestige, at all levels from the national system to the individual" (Blackmore 2016: 1). Like individual academics, universities compete in prestige markets grounded in the traditional ethos of academic work, where publication is highly valued. In particular, the model posits a strong link between individual and institutional prestige: "In maximizing their individual prestige, faculty members simultaneously maximize the prestige of their departments and institutions" (Melguizo and Strober 2007: 635).

It follows that, in research-intensive universities, individuals who help to enhance their institution's prestige may be rewarded with higher remuneration, often through sophisticated systems of performance-based incentives or cash bonuses (as Bak and Kim 2019 show for South Korea; Andersen and Pallesen 2008, Opstrup 2017, and Mouritzen and Opstrup 2020 for Denmark; and Franzoni et al. 2011 for 11 countries, including China, Germany, Spain, and Turkey; Kwiek 2018b: 6-7 shows an overlap of "top performers" and "academic top earners" across 10 European systems). The reason for this is that more publications in prestigious outlets and more prestigious research grants elevate institutional prestige. The theory of departmental prestige proposed by Burris (2004) refers predominantly to a large US system—with a long list of prestigious sociology departments across the country—and possible mobility between them. The model explicitly assumes purposeful behavior on the part of all actors in pursuit of their own self-interest and prestige. In particular, it assumes the existence of competitive markets in higher education (Melguizo and Strober 2007: 635; Ylijoki et al. 2011).

The theory of academic capitalism posits that Anglo-Saxon research-intensive universities reorient themselves to win this game (Taylor et al. 2016); research commonly takes priority over instruction, and the increase in public research funding further consolidates the prestige economy (Rosinger et al. 2016; Kandiko Howson et al. 2018). Across the world, national, institutional, and departmental policies, as well as research assessment exercises, prioritize publication in prestigious journals. As prestige maximizers, universities (and individual academics) must compete for

critical resources, and according to the theory of academic capitalism, publication in elite journals is a key dimension of this competition (Slaughter and Leslie 1997: 114).

Principal-agent theory and elite journals

In the present context, principal-agent theory illuminates the use of prestige-related metrics for academic journal stratification in national and institutional research evaluation systems (Whitley and Gläser 2007). These metrics are increasingly used by governments and their agencies, national funding bodies, and academic institutions. While the theory has previously been used primarily in studies of corporations (Pratt and Zeckhauser 1985), it has also been applied to the higher education (Kivistö 2008) and science sectors (Braun and Guston 2003; van der Meulen 1998). In the relationship between the research-intensive university as agent and the state and its agencies as principal, publication in prestigious journals is a key indicator of institutional productivity and a critical element in the competition for research funding, including additional funding through an array of the various "excellence initiatives" across the globe, from China to Russia to Poland.

The principal-agent literature deals specifically with the social relationship of delegation. This involves an exchange of resources between actors, in which the agent accepts the principal's resources and undertakes to further the interests of the principal (Braun and Guston 2003). In the present case, the agents are research-intensive universities and their individual scientists, and the principals are governments and national funding bodies, representing the interests of both the state and the academic community at large. Once the principal delegates authority by engaging the agent to perform certain tasks on the principal's behalf, it often has difficulty in controlling the agent, whose goals may differ from those of the principal. For instance, scientists may choose to publish in low-quality journals, or they may engage excessively in consulting.

In such relationships, informational asymmetries between principals and agents are accompanied by goal conflicts (Kivistö 2008). The theory assumes that each party acts out of self-interest, giving rise to the so-called agency problem when interests conflict. Where agents engage in self-serving behaviors, principals develop mechanisms for monitoring agents' actions or for rewarding them when they conform to certain requirements. As an outsider, it is almost impossible for the principal to understand the agent's products (Braun and Guston 2003: 303–304)—in this case, scientific publications—or to assess their impact on the science community and the wider society. According to the model, the principal must utilize "an array of oversight, compensatory, and punitive initiatives to ensure the agent acts in the principal's best interest" (Lane and Kivistö 2008: 145).

In the present context, the principal must ensure that academics produce high-quality research. From this perspective, journal research quality would generally need to be verified, except in the case of top-tier journals. In other words, as principals always look for the least costly and most efficient ways of supervising agents, it is easier to equate prestigious journals with high-quality research. The metric of publication in top-tier journals enables principals at all levels (national, institutional, departmental) to defend their distribution of rewards, both in academic progression systems and in competitive public funding for research.

As a "screening device" in principals' relationships with agents, top-tier publications serve as a common performance metric across all disciplines (Gomez-Mejia and Balkin 1992: 925). According to Gomez-Mejia and Balkin (1992: 947), "a principal merely has to count publications that can be assumed to be of high quality. In contrast, if total publications are used, the principal must assess the publications' quality, which requires reading and understanding

them—a more costly and uncertain process." Additionally, publishing in top-tier journals enjoys extensive normative consensus within the academic community as a performance metric that reduces intra-professional conflicts. The traditional logic of meritocracy in science means it is accepted that, in the prestige publication game, some scientists necessarily win while others lose. Publication in their discipline's best journals is, for many academic researchers, "the equivalent of making the big leagues in sports or performing at Carnegie Hall in the arts. While many scholars aspire to publish in the best journals, however, only some realize the aspiration" (Fender et al. 2005: 93).

Because social stratification and competition (apart from collaboration) are major drivers of university research, measuring—and, crucially, comparing—performance at various levels has always been part of the academic ethos (Kwiek 2019b; see my recent monograph on the six major dimensions of social stratification in global science, Kwiek 2019a: academic performance stratification, academic salary stratification, academic power stratification, international research stratification, academic role stratification, and academic age stratification). The metric of publication in top journals makes it easier for both principals and (somewhat paradoxically) agents in the ongoing struggle for scientific recognition and academic reputation (Marginson 2014). For individual scientists and their institutions, publication in top journals equates to success. As Heckman and Moktan explained, the top five (T5) journals in economics set a "professional standard," and "faculty meetings about hiring, promotion, tenure, and prize committee discussions assess candidates by the number of T5 articles they have published or have in the pipeline and the rapidity with which they were generated" (2018: 4). Most excellence initiatives across the globe channel additional research funding to selected universities, affirming the value of publication in top journals to principals across institutions and disciplines while the value of other publications remains unproven.

In exploring the increasing role of top-tier journals in academic knowledge production, agency theory offers a useful way of understanding the appeal of these journals, both to principals (in terms of cost-effectiveness, intuitive fairness, and simplification of research funding) and to agents, whose academic success is underwritten by publication in top journals. As opposed to a close reading of all published papers for departmental or national-level peer review of individual or institutional output and performance, the number of top-tier publications needs little monitoring or quality assessment (Heckman and Moktan 2018).

Data sources and methodology

In focusing on prestigious "generic" rather than "topic-specific" higher education journals (Tight 2018), an important methodological question of the present study is how these should be selected. Of the two available options—a list based on subjective perceptions of prestige (i.e., peer review) or a list based on objective bibliometric criteria (i.e., citations)—the latter is favored here. Following recent proposals by Tight (2018), Horta (2018), Horta and Jung (2014), Budd and Magnuson (2010), and others, the following journal selection procedure was adopted here. First, in order to define core journals, a list was compiled of all journals in the Scopus database whose titles included the terms "higher education" or "tertiary education" (see Horta 2018; Jung and Horta 2013), and their major bibliometric parameters were analyzed. Scopus is the largest global abstract and citation database of peer-reviewed scientific journals, books, and conference proceedings, indexing 38,060 academic journals (April 2020).

Scopus provides the best overview of the structure of world science, including most of the journals in the Thomson Reuters Web of Science (Moya et al. 2007; Sugimoto and Larivière 2018; Baas et al. 2020). Traditionally, the "best" or most prestigious journals in a given field have been defined as the most read or most cited, and the metrics used here capture these criteria. For the present purposes, elite journals were selected and analyzed in the wider context of 41 core journals that focus exclusively (rather than merely "regularly" or "occasionally") (Tight 2018) on higher education research. The selected elite journals are all top-ranked in the list of 41 and are among the highest-ranking "generic" journals in higher education (see the full list in Table 6, Electronic Supplementary Data). The analyses were performed using R software, and the ggplot2 package was used for the visualizations.

The data were retrieved from Scopus during the period of August 10–15, 2019. The total number of articles was 21,442 (including 6334 from the six journals), and the total number of citations in 2009–2018 was 356,465 (including 187,108 citations of articles from the six journals). The retrieved documents were restricted in terms of publication stage (final publication stage only) and publication type (articles only). The metadata for each article included the author ID, document ID, institutional and country affiliation, and all references. In the next step, the metadata were retrieved for all citations to all selected articles. Scopus assigns a unique individual identification number to each document and to each person identified as an author in the document's byline.

A total of 27,878 unique authors were found in the analyzed documents (and the combination of all authors and articles showed 43,575 results). Different country affiliations for the same person may indicate parallel employment or mobility over time during the period studied. In the data set, 1397 (or 5.2%) authors with individual ID had more than one affiliation, representing 3225 affiliations in total. These were removed from the analyses of country affiliation. As Scopus merges and aggregates data for a single individual even if his or her name is written differently—for example, "Ziskin, M.", "Ziskin, Mary B.", and "Ziskin, M.B." have the same Scopus ID—the final list included 26,888 unique authors. Despite systematic efforts by Elsevier to create a global set of unique authors (who have their own Scopus author profiles), there may still be an undefined difference between the number of unique author profiles and the number of real-life individual scientists. However, author profiles are generated using a combination of algorithms and manual curation. Baas et al. (2020: 379) describe the ongoing procedures regarding authorship assessment in Scopus: "the end-to-end accuracy is measured continuously by several metrics. Moreover, regular spot checks are run on aspects of author profiles, such as canonical names or affiliations." Publications in author profiles have an average precision (i.e., ratio of publications correctly assigned to the author) of 98.1%, and the average recall, or the ratio of publications captured, is 94.4%. It is assumed in this study that the Scopus database fits research purposes well, following van den Besselaar and Sandström's (2016) idea that different projects require different levels of data cleaning and disambiguation.

The six elite journals selected for analysis were *Higher Education* (HE), *Studies in Higher Education* (SHE), *Higher Education Research and Development* (HERD), the *Journal of Higher Education* (JHE), *Research in Higher Education* (ResHE), and the *Review of Higher Education* (RevHE). Importantly, all have appeared in previous research of this kind; as the top three American journals, JHE, ResHE, and RevHE have been extensively studied in recent decades (Silverman 1987; Hutchinson and Lovell 2004; Budd and Magnuson 2010). The list used here, based on sophisticated bibliometric measures of citation numbers and citation-driven prestige in a global data set, is identical to those used in previous studies (e.g., Tight 2014). The publication-

counting method used in this research was the whole counting (rather than fractional counting) method used in bibliometrics, whereby multi-authored articles are counted by the author's country affiliation. Consequently, an article with two authors with different country affiliations is counted under two country affiliations. The total number of country affiliations studied here is 11,688.

Results

For the 1996–2018 period studied, the total number of articles published in the six journals was 6334, and the two biggest producers, HE and SHE, accounted for more than half of this number (see Table 1). Over the past two decades, the number of papers published annually in the six journals increased almost threefold, from 100 to 150 per year in 1996–2000, to 400–470 per year in 2014–2018; the total number of citations was 187,708. Three journals accounted for 71.31% of all citations: HE (c. 53,000), SHE (c. 43,500), and ResHE (c. 37,500). The gap between the three most highly cited journals and the remaining three has continued to widen (Fig. 1). However, as CiteScore 2018 shows, the six journals achieved similar citation rates per article.[1] In 2018, HE had the highest CiteScore. The citation gap therefore seems related to the increasing number of publications rather than to a steep hierarchy among the six top journals. Specifically, three citation-related parameters were considered for the reference year of 2018 (Table 1): number of citations to articles published in 1996–2018; journal citation impact (as measured by CiteScore); and journal rank or percentile in the field of education (a field of 1038 journals). Both CiteScore and journal rank expressed in percentiles are simple and transparent measures that address the criticisms of the impact factor by not discriminating by document type (Baas et al. 2020).

The changing role of the six journals over time is apparent in the changing percentages of citations they attract and the number of documents published compared to the remaining journals. Between 1996 and 2018, their share of citations fell substantially (from 69.18% to 49.40%), with a slightly decreasing share of documents (from 31.79% to 27.52%). The changes were even more marked in the case of the big three; while their share of citations fell by 46.84%, their share of articles decreased by 28.88%. The distribution of citations over time, especially in the last decade, indicates a growing absolute gap between the increasingly cited top two (HE and SHE) and the remaining top journals (with HERD catching up fast).

However, the Herfindahl–Hirschman index (HHI) reveals the diminishing role of elite journals as citation producers in the field of higher education research. This measure of market concentration, which is used in antitrust analysis and competition law (Laine 1995), is calculated by summing the squares of market share of all firms in a particular market, ranging from 0 for a highly competitive market to 100 for a pure monopoly. In the present case, the HHI refers to the concentration of journals and their citations for the sample of 41 core journals and their citations. The changing HHI reflects changes in the concentration of citations to articles from core journals. Taking each journal as a separate entity, the analysis indicates that citation concentration has declined substantially over the past quarter of a century (from an HHI of 16 to below 10; see Fig. 2). If the six elite journals are treated as a single entity, the concentration decreases even further (from 50 to 30). These changes confirm that the citation-

[1] Elsevier's journal impact indicator, named CiteScore, is easy to understand and interpret, and it is praised for tackling one of the most discussed issues with the impact factor—the discrimination by document type; a CiteScore of 4 means that articles published in a given journal over the three previous years have received four citations on average in the current year; Sugimoto and Larivière 2018: 100.

Table 1 Cross-sectional analysis: six elite journals (selected Scopus metrics, 2018)

Journal	CiteScore (2018)	Citations (2018)	Citations (total 1996–2018)	Articles (2018)	Articles (total 1996–2018)	Highest percentile and rank in education field (2018)
HE	3.42	6759	53,038	122	1946	95.0% (43/1038)
SHE	3.28	6239	43,358	155	1465	95.0% (52/1038)
HERD	2.58	2985	18,293	99	1039	91.0% (93/1038)
JHE	3.04	2792	23,590	24	529	93.0% (70/1038)
ResHE	2.97	3821	37,450	44	1018	93.0% (72/1038)
RevHE	2.28	1361	11,979	25	337	86.0% (138/1038)
Total	–	23,957	187,708	469	6334	–

based market of higher education journals is becoming less concentrated and that the role of the six journals in this market is in decline. However, while the major journals' monopoly of citations has weakened substantially (Larivière and Gingras 2010), their impact is strong in terms of academic career progression, promotion, and salary.

The global higher education research community: full-timers and part-timers in elite and core journals

This section briefly analyzes the stratification of the global higher education research community as measured by articles published in the six elite and 41 core journals for the period 1996–2018, based on all publications being either individually authored or co-authored. Based on Scopus data, 8226 academics (co)-authored at least one paper in the six elite journals during that period. The number of full-timers (defined here arbitrarily as those who authored or co-authored at least five papers in elite journals) was 274 (or 3.33% of all authors with individual Scopus author IDs) (see Table 2). The total number of academics associated with the 21,442 articles in the 41 core journals is 26,888, of whom 878 (3.27%) were full-timers. Most of those who contributed to the six elite journals (6485 or 78.81%) published one article—in other words, they were part-timers—while full-timers account for about one in thirty. Across the 41 core journals, 21,389 (79.55%) published a single article. The productivity distribution of

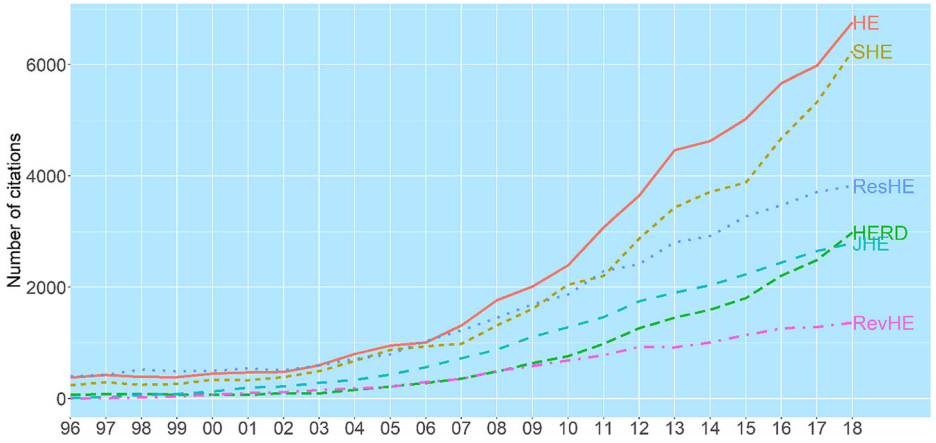

Fig. 1 Longitudinal analysis: number of citations received to articles published by journal and year (Scopus data set 1996–2018)

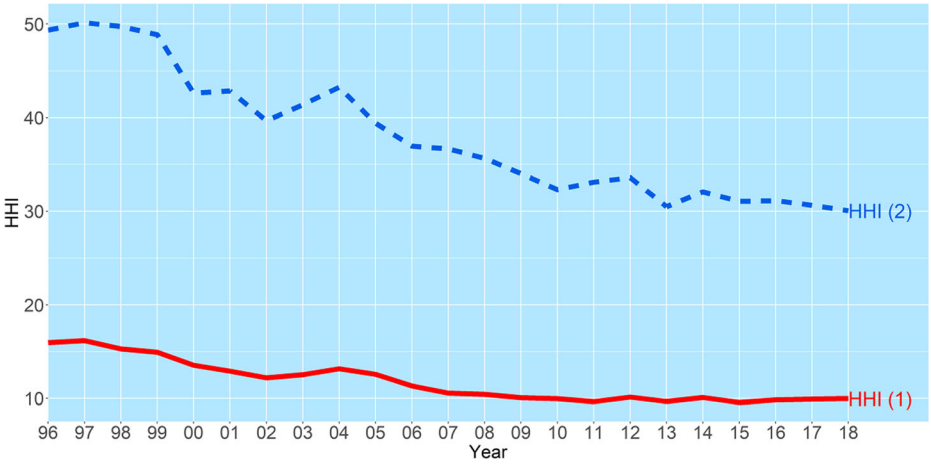

Fig. 2 Herfindahl–Hirschman Index (HHI) 1996–2018: citation concentration in higher education research journals. HHI (1) refers to each journal as a separate entity (41 entities); HHI (2) refers to six elite journals as a single entity (36 entities)

authors in both journal collections is highly skewed, with a long tail on the right indicating extreme inequality (Fig. 3).

Analysis of country affiliations shows that, of the authors who published in elite journals (Fig. 4), full-timers came from three clusters of countries: the US (40.3%), other Anglo-Saxon countries (34.3%), and major Continental European systems (16.4%; in descending order of number of articles: Netherlands, Spain, Finland, Germany, Sweden, Norway, Portugal, Belgium, Italy, and Denmark). In the cluster of all other countries, full-timers accounted for 5.0%. The share of part-timers compared with full-timers was much lower for the US, higher for other Anglo-Saxon countries, and similar for major Continental European systems. For the 41 core journals (Fig. 5)—which we regard here as the (Scopus-indexed) global higher education research community—the picture mirrors the elite segment, with the exception of the US, where full-timers decreased by one-fourth (to 30.2%), and other Anglo-Saxon countries, where the share of full-timers increased by one-fourth (to 43.5%). For the cluster of East Asian, major Continental European, and all other countries, the shares for the two journal sets were roughly similar. The power of the higher education research community outside of the traditional contributing clusters of countries

Table 2 Productivity of individual authors (based on Scopus author IDs) in terms of contributions to elite and core higher education journals (1996–2018 combined) (frequency and percent)

	41 core journals		Six elite journals	
	N	%	*N*	%
1	21,389	79.5	6485	78.8
2	3164	11.8	997	12.2
3	974	3.6	305	3.7
4	476	1.8	165	2.0
5–9	693	2.6	208	2.5
10–19	160	0.6	59	0.7
20 and more	25	0.1	7	0.1
Total	26,888	100	8226	100

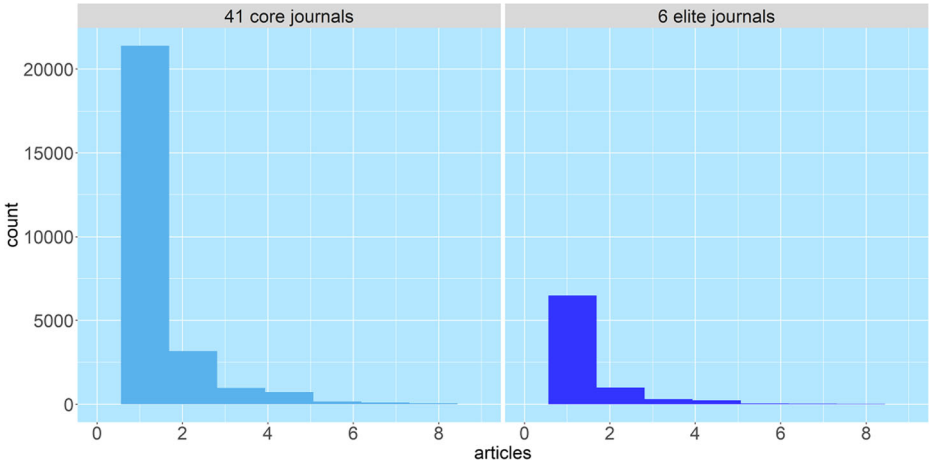

Fig. 3 Skewed distribution of productivity of individual authors (based on Scopus author IDs) in terms of contributions to core and elite higher education journals (1996–2018 combined)

(66 countries clustered as "others") is similar in both sets of journals, and the share of part-timers is twice as high as the share of full-timers.

The changing geography of country affiliations of authors in the six elite journals

Based on authors' country affiliations, this section explores the following question: How "international" are the six global elite higher education journals, and how have their country profiles changed over time?

Cross-sectional analysis

Knowledge production in these journals is geographically concentrated (see Fig. 6), with a skewed distribution across 91 contributing countries for the period 1996–2018. The top ten

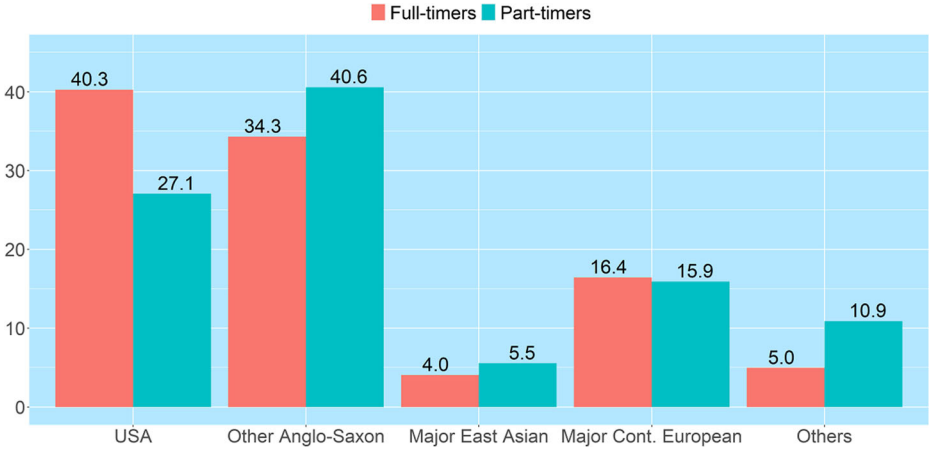

Fig. 4 Full-timers (at least five papers published) and part-timers (one paper published) in six elite journals (full counting method, 1996–2018) by cluster of countries, $N = 8226$ (%)

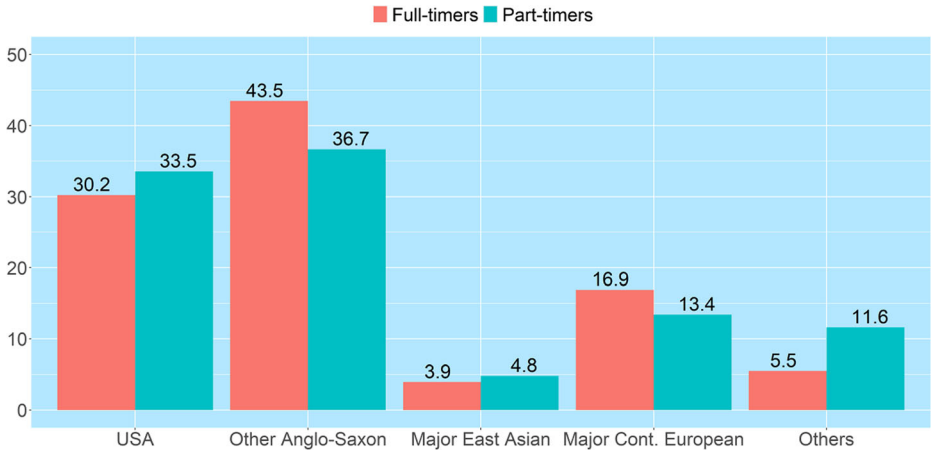

Fig. 5 Full-timers (at least five papers published) and part-timers (one paper published) in 41 core journals (full counting method 1996–2018) by cluster of countries, $N = 26{,}888$ (%)

countries in the data set accounted for 81.80% of all affiliations, and the top 25 countries accounted for 95.2%. During the same period, the remaining 66 countries accounted for a mere 4.8% of affiliations.

The geography of elite higher education research highlights the distinction between the US, other Anglo-Saxon countries, and the rest of the world. The hegemonic position of the three largest contributors to elite higher education research (the US, Australia, and the UK) is startling, as they account for 63.1% of all affiliations. The remaining three (Canada, Ireland, and New Zealand) account for 6.9%, and other English-speaking countries such as South Africa, Hong Kong, and Singapore account for a further 4.6%. In total, then, these countries account for about three-quarters of all affiliations (74.6%, Fig. 6). In the period studied, there were 11,688 affiliations, of which 11,131 or 95.2% belong to the top 25 counties, while the remaining 557 or 4.8% belong to 66 other countries. Tight (2014) looked at first-author countries for 273 articles published in 2010 and (Tight 2012) at 567 articles published in

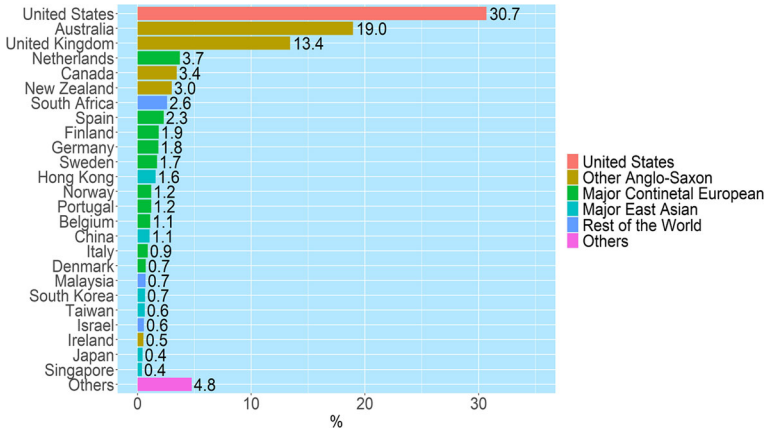

Fig. 6 Cross-sectional analysis: the top 25 affiliations of authors of articles published in six elite journals by country (combined Scopus data, 1996–2018) for 91 countries (undefined affiliations removed from analysis)

2010 and 388 articles published in 2000; in contrast, the present study examines all affiliations (11,688) of all authors of the 6334 articles published in the period 1996–2018.

Table 3 shows that while two journals (RevHE and JHE) accounted for 1.6–2% of non-Anglo-Saxon affiliations (i.e., both the US and "other Anglo-Saxon countries" in our classification) in the period 1996–2018, ResHE accounted for considerably more (9.3%). For JHE and RevHE, the share of US author affiliations was about 95–97%, while this figure was lower for ResHE (85.4%). In this sense, JHE, ResHE, and RevHE are clearly national or domestic journals (in this case, American). The three other top six journals (HE, SHE, and HERD) differ sharply in terms of their non-Anglo-Saxon affiliations, ranging from 19% to 54%. For HE alone, more than half of its authors (54.2%) had non-Anglo-Saxon affiliations; for SHE, non-Anglo-Saxon authors accounted for 36.7%, and for HERD they accounted for 18.9%. HE had a slightly higher share (13.7%) of US affiliations. Along with this novel analysis of the entire period 1996–2018, the longitudinal analysis below illuminates journal profile changes over the longer term, regardless of changing editors-in-chief or editorial board composition.

Aside from Anglo-Saxon affiliations, two world regions figured prominently in elite journals, accounting for about 21.8% of affiliations in 1996–2018: major Continental European countries (16.7%) and East Asia (including China, Hong Kong, Japan, South Korea, Malaysia, Singapore, and Taiwan) (5.1%). The contribution of all other countries in the study period was notable (8.2%).

To assess the changing concentration of authors' country affiliations in 41 journals over time, it is again useful to refer to the HHI index. A fall of almost half (from 22.1 to 11.7) clearly indicates gradual de-concentration over the period 1996–2018 (Fig. 7); in other words, the previous monopoly of major contributing countries has weakened substantially.

Longitudinal analysis

To the best of our knowledge, no previous study has examined changing authorship affiliation patterns in all six elite journals (or any one of them) in detail over time. Regarding the global expansion of elite higher education research, it is of interest to examine the changing role of major Continental European and East Asian countries, as well as the cluster of "other" countries, and to ask whether the threefold increase in publication numbers in the six elite journals (from 154 in 1996 to 469 in 2018) is driven by newcomers to the field "catching up fast" (Tight 2014: 16) or by the traditionally dominant US and other Anglo-Saxon countries.

Table 3 Cross-sectional analysis: major affiliations of authors in articles published in the six elite journals by country, country cluster, and journal (combined Scopus data for 1996–2018).

Cluster	HE		SHE		HERD		JHE		RedHE		RevHE		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
USA	456	13.7	224	7.5	97	4.3	836	94.7	1428	85.4	546	96.8	3587	30.7
Other A.-S.	1066	32.1	1666	55.8	1740	76.8	29	3.3	89	5.3	9	1.6	4599	39.3
Major C. E.	1001	30.2	648	21.7	202	8.9	11	1.2	87	5.2	0	0.0	1949	16.7
East Asian	279	8.4	186	6.2	88	3.9	3	0.3	32	1.9	4	0.7	592	5.1
Other	517	15.6	259	8.7	140	6.2	4	0.5	36	2.2	5	0.9	961	8.2
Total	3319	100	2983	100	2267	100	883	100	1672	100	564	100	11,688	100

Note: Other A.-S. means Other Anglo-Saxon; Major C. E. means Major Continental European

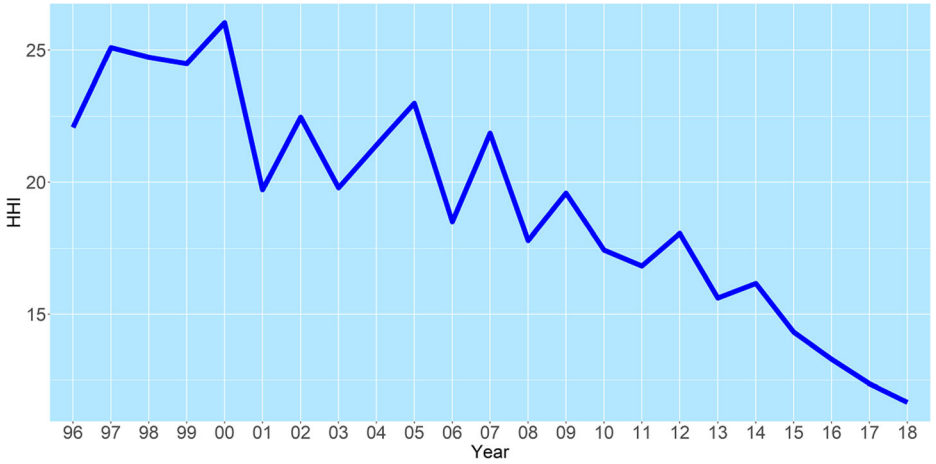

Fig. 7 Herfindahl–Hirschman Index (HHI): concentration of authors' country affiliations by country (41 journals, 125 affiliations) by year

Changing authorship patterns in three subsequent periods (1996–2003, 2004–2011, and 2012–2018) were analyzed in detail in terms of changing percentages and changing numbers of author affiliations. With regard to the percentages, Table 5 in the Electronic Supplementary Data shows that the share of US affiliations has decreased significantly, the share of other Anglo-Saxon affiliations has been stable, and the share of major Continental European, major East Asian, and all "other" affiliations has increased substantially. Thus, in the new geography of elite higher education, relative newcomers are gaining at the expense of the traditionally dominant US. Indeed, the single biggest affiliation loser is the US, with 42.5% of affiliations in 1996–2003 falling to 26.9% in 2012–2018. This reflects both the increasing share of non-American affiliations and the increasing yearly volume of HE and SHE publications, in which US academics tend not to publish massively (Fig. 8). Australia made the greatest gains, with 19.3% of all affiliations in 2012–2018, up from 15.3% in 1996–2003. The biggest affiliation winner is Continental Europe, where affiliations almost doubled (from 9.7% to 18.3%), with very high visibility in HE and SHE (Fig. 8). The share of major East Asian affiliations also increased substantially (from 3.9% to 5.9%), principally in HE and SHE (Fig. 10). An interesting finding is the steady increase in "other" affiliations beyond the four major global clusters (from 5.6% to 9.5%), with HE again dominant (Figs. 8 and 9). Newcomers in this category include such countries as Chile, Turkey, Iran, Switzerland, Poland, India, Mexico, Austria, Brazil, and Estonia.

In terms of changing numbers of author affiliations over time, the data on elite journals are even more telling, reflecting both changing national engagement in global higher education research and changing international collaboration patterns in the field. The declining role of the US is the result of faster expansion in all other clusters. Between the first and third periods, the number of articles with US affiliations increased by a factor of 3 (see Table 4, the last column, "six journals"). However, Australia increased its production by a factor of 6, major Continental European systems increased by a factor of 9, East Asia increased by a factor of 7, and the cluster of all other countries increased by a factor of 8. In the third period studied (2012–2018), there were about 1800 US affiliations, 1200 Continental European affiliations, 400 East Asian affiliations, and 650 affiliations from "others." In the first period, the US accounted for 641 affiliations, compared to 146, 59, and 85, respectively, for the others. The difference is in

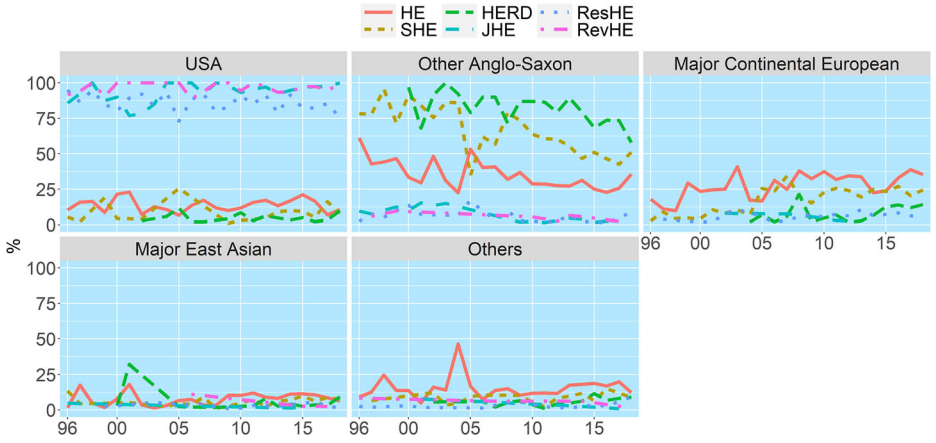

Fig. 8 Longitudinal analysis: percentage of author affiliations for five major clusters of countries over time across the top six journals (Scopus data 1996–2018 by year, cluster, and journal); 91 country affiliations (%)

growth from marginal levels. In fact, the growth between the two periods was phenomenal in European countries such as Portugal (from 0 to 110 affiliations), Belgium (from 2 to 90), Denmark (from 1 to 72), Spain (from 13 to 178), and Germany (from 6 to 168). These globally invisible countries became visible almost exclusively through HE and SHE (see Table 4), with the only exception being Spain and Belgium, which were also present in HERD, and Germany, which was also present in ResHE. Unsurprisingly, in view of the official aims and scopes of the three American journals, collaborative papers with authors from the cluster of Continental Europe do not exist (RevHE) or are marginal (JHE) in the period studied. The only American journal open to transatlantic collaboration is ResHE. The same rule applies to American scholars collaborating with scholars with East Asian and "other" affiliations. As major publishing homes for East Asian and "other" newcomers to global elite higher education research, HE and SHE are almost equally open.

In the three non-American elite journals (HE, SHE, HERD), the share of American affiliations has been low and generally decreasing, while the share of other Anglo-Saxon

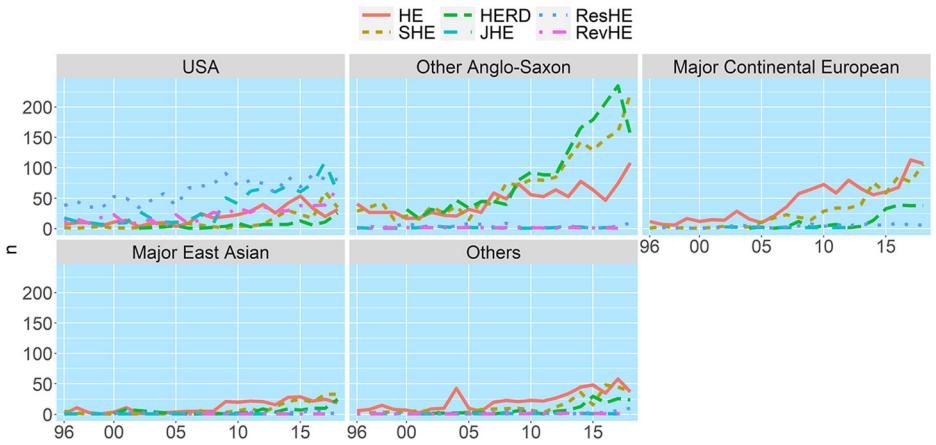

Fig. 9 Longitudinal analysis: number of author affiliations for six elite journals (Scopus data 1996–2018); 91 country affiliations by journal frequency

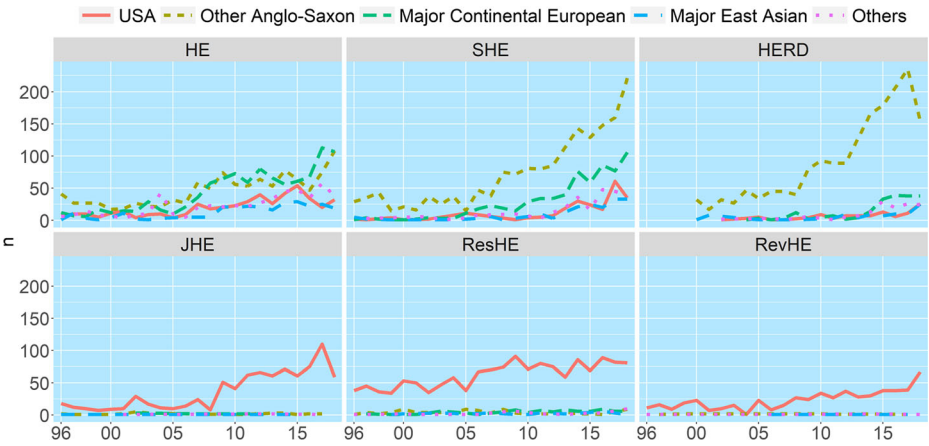

Fig. 10 Longitudinal analysis: number of author affiliations for six elite journals (Scopus data 1996–2018); 91 country affiliations by cluster of countries (frequency)

affiliations has been moderate and decreasing (HE) or high and decreasing (SHE and HERD) (Fig. 8). In East Asia, the field is growing in China, South Korea, Malaysia, and Hong Kong (although the latter has also seen decreasing growth), while Japan continues to play a marginal role in the six elite journals.

Discussion and conclusions

The unprecedented growth of higher education research in elite journals and core journals can be explained by several factors. First, mass-scale growth of higher education, leading to what Cantwell et al. (2018) recently termed "high participation systems of higher education," made higher education research and policy more nationally relevant and thus more fundable. Second, international research collaboration, especially intra-European (often funded within subsequent European Union programs for research), became a dominant feature of academic publishing (with as many as 2.2 million internationally collaborative articles published in Europe and 1.4 million in the US in the past decade; Kwiek 2020a: 16-17). International collaboration in higher education research grows along with policy needs and new global data infrastructures, leading to new international comparative research. Finally, the pressure to publish in top journals described in the first sections of this paper applies equally to the global higher education community. The prestige economy of higher education journals is strong in the countries with stringent research evaluation systems, which, especially in research-intensive universities, affect academic promotion and access to resources (as shown in Whitley and Gläser 2007; Sutherland 2018; Shibayama and Baba 2015).

Viewed through a proxy of publications in 41 core journals over the past two decades, the global higher education research community comprises no more than 27,000 individual academics (with at least one publication indexed in Scopus). However, the scale of their participation in the field through publication remains highly skewed. Analysis of elite and core journals demonstrates that, for the vast majority of researchers in the field, higher education is not their prime research interest. Alternatively, they may not regard (elite and core) higher education journals as their prime locus. They might also have their manuscripts continuously

Table 4 Longitudinal analysis: changing numbers of affiliations over time. Country affiliations of authors of articles published in the six elite journals (Scopus data for 1996–2018); 91 countries by 6-year period by journal (frequency)

	HE			HERD			JHE			ResHE			RevHE			SHE			Six journals		
	1996–2003	2004–2011	2012–2018	1996–2003	2004–2018	2012–2018	1996–2003	2012–2018	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018
Australia	88	160	204	80	356	731	5	0	5	3	4	14	1	1	0	54	147	363	231	668	1317
Canada	33	68	66	5	14	74	9	3	5	14	34	7	1	1	4	8	22	34	70	142	190
Ireland	0	12	10	0	1	8	0	0	0	0	0	1	0	0	0	0	4	25	0	17	44
New Zealand	2	10	29	8	47	189	0	0	0	0	0	0	1	0	0	2	32	32	13	89	250
United Kingdom	83	121	180	15	55	157	1	0	1	7	1	4	0	0	0	157	240	546	263	417	888
Subtotal other Anglo-S	206	371	489	108	473	1159	15	3	11	24	39	26	3	2	4	221	445	1000	577	1333	2689
United States	70	138	248	1	26	70	112	221	503	338	549	541	110	159	277	10	21	193	641	1114	1832
Belgium	2	15	26	0	4	20	0	0	0	0	4	6	0	0	0	0	16	38	2	39	90
Denmark	1	10	40	0	0	9	0	1	0	0	0	0	0	0	0	0	1	23	1	12	72
Finland	22	37	45	0	0	17	0	0	0	1	0	0	0	0	0	6	28	61	29	65	123
Germany	5	29	89	0	0	7	0	0	0	1	4	21	0	0	0	0	7	51	6	40	168
Greece	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	5	6
Italy	2	27	41	0	0	0	0	2	0	0	0	1	0	0	0	0	7	24	2	36	66
Netherlands	50	86	101	0	8	37	3	0	2	5	11	14	0	0	0	5	29	85	63	134	239
Norway	16	27	45	0	1	4	0	0	0	0	3	1	0	0	0	4	15	25	20	46	75
Portugal	0	22	54	0	0	8	0	0	0	0	0	1	0	0	0	0	9	47	0	31	110
Spain	7	54	74	0	0	35	0	3	0	6	6	2	0	0	0	0	15	67	13	78	178
Sweden	7	28	32	0	21	31	0	0	0	0	0	0	0	0	0	3	23	55	10	72	118
Subtotal Cont. Europe	112	338	551	0	34	168	3	6	2	13	28	46	0	0	0	18	152	478	146	558	1245
China	2	6	50	0	1	24	0	0	1	0	0	2	0	0	3	0	1	33	2	8	113
Hong Kong	13	29	33	9	3	26	0	0	0	3	8	4	0	0	0	9	23	25	34	63	88
Japan	16	8	12	0	1	3	0	0	0	2	0	0	0	0	0	0	0	9	18	9	24
Malaysia	1	10	16	0	0	2	0	0	0	0	0	2	0	0	0	0	4	47	1	14	67
South Korea	0	16	29	0	0	5	1	0	1	0	2	5	0	1	0	0	1	16	1	20	56
Taiwan	2	16	20	0	0	14	0	0	0	1	0	3	0	0	0	0	0	18	3	16	55
Subtotal East Asian	34	85	160	9	5	74	1	0	2	6	10	16	0	1	3	9	29	148	59	130	403
	66	167	284	2	14	124	1	0	3	5	14	17	1	1	3	10	24	215	85	230	646

Table 4 (continued)

	HE			HERD			JHE			ResHE			RevHE			SHE			Six journals		
	1996–2003	2004–2011	2012–2018	1996–2003	2004–2018	2012–2018	1996–2003	2012–2018	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018	1996–2003	2004–2011	2012–2018
Subtotal																					
Others																					
Total	488	1099	1732	120	552	1595	132	230	521	386	640	646	114	163	287	268	681	2034	1508	3365	6815

rejected in the journals studied. Based on individual Scopus IDs, we conclude that of the 26,888 academics publishing in core journals, 878 (about 3.3%) have authored or co-authored at least five articles in the past quarter of a century, including 274 (of 8226) in elite journals (about 3.3%). These constitute the publishing core of the global higher education research community. Based on the total author count, eight in ten academics in the field remain on the publishing periphery, having authored or co-authored a single article in elite (78.8%) or core journals (79.6%).

About three-quarters (73.5% in elite and 70.0% in core journals) of these full-timers come from Anglo-Saxon systems, including the US. Part-timers fall into a similar pattern. As expected, Anglo-Saxon dominance is stronger in elite journals, which tend to be longer-established. The omnipresence of part-timers with a single publication might contribute to the status of higher education research as a lower-citation field (compared with more disciplinarily confined areas of social science). Publication-driven scholarly conversation may be hindered by the omnipresence of infrequent contributors, and the ensuing low engagement with theory (Clegg 2012) may also contribute to perceptions of the field as fragile (Jung and Horta 2013) and immature (Tight 2014).

The authorship patterns for the past two decades reported here may have serious implications for the future of higher education research and its global and national communities. From a long-term perspective, the global higher education research community seems highly stratified; few scholars publish intensively in elite and core journals, and many publish just once. This might indicate that most authors are policy-oriented practitioners, administrators, or focused on teaching, supporting Tight's description of the field as an "a-theoretical community of practice" and Santos and Horta's (2018) view that the field is populated by "part-timers," who do not necessarily see themselves as fully located within higher education studies and differ fundamentally from frequent contributors to higher education journals. However, higher education researchers may publish consistently (and may be consistently cited) beyond the field's elite and core journals—for example, in lower-tier non-indexed higher education journals or in other fields. They may have published in their national language in both types of journals as well as in books in that language or in English.

If part-timers are producing most of the published research, with full-timers (or, in Tight's (2018) terms, "regular" authors) accounting for only a tiny proportion, it may prove difficult to advance the level of scholarly conversation. The present findings align with Jung and Horta's (2013) conclusions regarding the composition of the higher education community in Asia, where 66% of the 244 institutions engaged in higher education research published only one article between 1980 and 2012, and just 15% published two articles. They characterized this Asian situation as "few institutions on the shoulders of fewer scholars" (2013: 411–412)—in some cases single scholars, which seems to fit the global picture analyzed here.

The present findings confirm that only two international elite journals (HE and SHE) have attracted an increasing share of non-Anglo-Saxon authors (especially Europeans) over time. HERD remains a largely Anglo-Saxon journal, with a small share of author affiliations from the rest of the world. Consequently, while the cluster of six traditional elite journals remains stable, major bibliometric characteristics confirm that only two can be regarded as international in terms of authorship affiliations beyond the Anglo-Saxon world. One interesting question for future research is whether these trends reflect editors' and reviewers' policies or an aggregation of authors' decisions about where to send their manuscripts. This issue could be explored through a combination of bibliometric studies, surveys, and interviews.

The present research has several limitations. First, the analysis did not include books and book chapters but rather focused on refereed journal articles as "the gold standard" in higher education research (Tight 2018). While books and book chapters are clearly important for reputational standing in the social sciences, reliable global comparative data on book authorship and citation patterns are not currently available. Second, despite the widespread use of national languages in higher education research, the higher education journals studied are exclusively English-language journals, and the list does not extend to the English-language journals outside the Scopus database. While a more wide-ranging list could be compiled, relevant detailed longitudinal bibliometric data (especially for citations) are not available. A parallel study might thus explore the Web of Science database and its indexation system, although coverage of the social sciences is higher in Scopus (Sugimoto and Larivière 2018; Moya et al. 2007; Baas et al. 2020). Third, although some generalizations are possible about the global higher education research community based on the data on the selected journals, our findings might be substantially different if we were to examine less prestigious and non-indexed journals. Fourth, there are many ways in which higher education research influences the various stakeholders (Silverman 1988) beyond citations, which were used as a proxy measure of the impact in this research. However, citations provide "a glimpse of indebtedness" and situate "the present enunciation within the entirety of the conversation" (Budd and Magnuson 2010: 303) occurring—in this case—in higher education literature. Finally, this research is quantitative in nature and could be accompanied by a wide array of qualitative data pertaining to what causes prestigious journals to be perceived as prestigious, the real impact of publishing in elite journals on academic careers and on obtaining research funding, cross-generational and cross-national differences in approaches to elite journals, and so on.

In today's highly competitive global science arena, the intimate links between top-tier journal publication and both individual and institutional success (Marginson 2014; Rosinger et al. 2016) are better understood in the double theoretical context of the prestige maximization model and principal-agent theory. These two research strands position publishing as a prestige-generating tool and as a useful if simplified index for principals (governments, research councils, and university leaders) to evaluate research conducted by their agents (academics and research-intensive universities). These two perspectives serve to enhance understanding of the growing importance of top journals in global higher education research—despite the de-concentration in technical terms of pure citations indicated by the declining HHI over time.

In 1996–2018, the bulk of global higher education research published in elite journals was produced in Anglo-Saxon countries (70.0%), Continental Europe (16.7%), and East Asia (5.1%). These are the major participants in the global research conversation, with gradually increasing participation from other world regions (8.2%, from 66 countries). The changing distribution of country affiliations over the study period is indicative of wider processes affecting the global community. The dynamics of change point to the relative weakening of the field in the US and its relative strengthening in Continental Europe, East Asia, and elsewhere. While the three elite journals (JHE, ResHE, and RevHE) remain strongly American in terms of authorship patterns, the global profile of two non-American elite journals (HE and SHE) reflects the global increase in non-Anglo-Saxon authorship affiliations.

The implications of our findings are significant at a practical level: Should academics from non-Anglo-Saxon countries be submitting manuscripts to elite American journals, which published merely 1.6–2.0% (or even 9.3% in the case of ResHE) of papers with such affiliations in 1996–2018? From the point of view of resource allocation theory (according to which major academic resources are time and energy), these investments may be ill-

directed. At the same time, a lack of knowledge about journal standing has clear implications for faculty, as publications "influence promotion and tenure decisions, faculty status, and salary increases" (Bray and Major 2011: 480).

Publishing channels (especially top journals) and competitive external research funding (dependent on publication in top journals) increasingly determine institutional and departmental funding in research-intensive universities: "No output, no funding" (Stephan 2012: 149). High-publishing academics generate substantial research funding while low-publishing academics attract little funding. Therefore, new researchers in the field of higher education "need to publish more (and more internationally), collaborate more (and more internationally), and raise more research funding" (Santos and Horta 2018: 675). In other words, seeking prestige through publishing in top journals is more important than ever before, especially for younger cohorts in our field. Given the increasing links between academic success, publishing channels, and competitive research funding, the role of elite journals in higher education in this new prestige economy can be reasonably expected to grow in the future.

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