BRIDGING THE DIVIDE: UNVEILING GLOBAL DISPARITIES AND LOCAL CHALLENGES IN ACADEMIC INTERNATIONALIZATION FOR A HOLISTIC APPROACH TO CHANGE

DOCTORAL THESIS

HÁLÓ GERGŐ

DOCTORAL SCHOOL OF SOCIOLOGY AND COMMUNICATION SCIENCE

CORVINUS UNIVERSITY OF BUDAPEST

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Édesapámnak

ELŐSZÓ

PROLOGUE IN HUNGARIAN

Bevallom, a hosszadalmas akadémiai angol szövegalkotás nyomán, nehéz most megtalálnom a megfelelő hangsúlyokat. Mégis úgy döntöttem, hogy ez a munka először magyarul szólaljon meg. Ennek egyszerű oka van: magyaroknak írom. Természetesen itt elsősorban nem a Doktori Iskola vezetőségére vagy a disszertációt bíráló bizottságra gondolok, hanem a disszertáció valódi célközönségére, az olyan pályakezdő társadalomtudósokra, mint én. Az akadémiai tudástermelés itt leírt kritikái, valamint a kritikák hátterén megfogalmazott javaslatok nem titkolt célja ugyanis, hogy kilátást biztosítson a gyakran ellentmondásos narratíváktól hemzsegő hazai akadémia útvesztőjéből. Nem állítom, hogy jogom lenne végső igazságokról kijelentéseket tenni. Az itt leírtak bevallottan mind fragmentumok, empirikus részfelismerések és következtetések. Mindazonáltal merem azt gondolni, ha mindnyájan összeillesztjük ismeretdarabjainkat, felépíthetjük belőle a világot. Ezzel nyújtom minden olvasó megfontolására az én darabkáim.

INTRODUCTION

This dissertation examines the evolving landscape of scholarly research and higher education, driven by globalization and ongoing internationalization efforts. Despite these strides, significant biases persist, favoring economically affluent nations and adhering closely to Anglo-American academic norms, particularly pronounced in the social sciences. The dissertation critically examines these global disparities within the framework of academic internationalization, shedding light on how current processes inadvertently reinforce global inequalities and overlook systemic discrimination faced by peripheral regions. Moreover, the dissertation scrutinizes opaque and informal domestic academic assessment practices that hinder local higher education institutions (HEIs) from fully integrating into the international research community. These practices not only perpetuate global disparities but also exacerbate the unpredictability of career paths for early-career researchers. By addressing these issues simultaneously, the dissertation aims to contribute to a more equitable and inclusive global scholarly landscape, advocating for diverse epistemic traditions and challenging the hegemony of Western-centric academic standards.

Central to the dissertation's argument is the assertion that an inclusive and equitable approach to global knowledge production necessitates addressing both international structural distortions and regional informalities within academic culture. It advocates for a balanced perspective that values diverse epistemic traditions and challenges the hegemony of Western-centric academic standards. Moreover, the study posits that marginalized agents within domestic contexts must actively cultivate international visibility to counteract these structural inequities. By engaging critically with both the shortcomings of internal academic systems and the broader structural challenges within the international academic community, the dissertation aims to contribute to a more equitable and representative global scholarly landscape.

GLOBAL DISPARITIES

A World-Systemic Approach

Pierre Bourdieu's seminal work on the sociology of science, particularly his conceptualization of science as a structured game governed by internalized rules, has significantly influenced academic discourse (Bourdieu, 1988; Bourdieu, 1998; Bourdieu, 2004). His framework underscores how researchers accumulate academic capital, which encompasses institutionalized, embodied, and objectified forms of knowledge and resources, predicting their status within academia (Leung, 2013; Bauder, 2015). That is, academic capital, comprising tangible assets like degrees and publications as well as intangible elements like reputation, perpetuates inequalities within academia (Grenfell, 2008; Astaneh & Masoumi, 2018).

Furthermore, Bourdieu highlights that Academic capital extends beyond individual scholars to encompass institutional accumulation, crucially shaping the reputation and status of higher education institutions (HEIs) and academic publications alike. HEIs' academic capital is reflected in their reputation and the collective scientific output of their scholars, as evidenced by publications in top-tier journals and prestigious awards. Similarly, international journals accrue academic capital through the cumulative impact of their authors' works, measured by citation counts. Likewise, publishing houses amass academic capital through the combined prestige of the periodicals they publish. While this institutionalized view of academic capital is somewhat simplistic, it effectively elucidates how various institutions accumulate and wield academic influence. Moreover, ranking databases and university ranking agencies play a pivotal role in affirming the hierarchical positioning of institutions and publications within academia, further emphasizing the significance of academic capital in shaping scholarly landscapes.

In general, Bourdieu's theory indicates the intricate core-periphery stratification within academia, where elite institutions coexist alongside peripheral ones within the same country. This stratification perpetuates a system in which candidates from lower

socioeconomic backgrounds are systematically excluded from top positions, reinforcing the hegemony of the ruling elite. Despite global efforts to expand higher education access, empirical evidence suggests that enrollment in elite universities has remained largely unchanged, underscoring the persistence of social inequality within academia (Schofer & Meyen, 2005).

Notwithstanding, critiques of Bourdieu's theory of science also emerge regarding its limited scope and national focus, as he primarily analyzed the French academy, neglecting the complexities of international science (Gerhards et al., 2017). In response, scholars have extended Bourdieu's framework to address globalization, introducing concepts like transnational fields and human capital (Gerhards et al., 2017). The notion of transnational academic capital arises from the distinction between national and global academic realms, reflecting power differentials among countries (Wu & Zha, 2018). In the United States and the UK, national and international science overlap, with academic capital from these nations carrying global prestige (Canagarajah, 2002). In contrast, countries like France and Germany maintain parallel national and international scientific spheres, offering scholars distinct career trajectories (Wu & Zha, 2018). Smaller nations like Switzerland prioritize international research, requiring scholars to produce globally recognized work. Conversely, economically disadvantaged countries struggle to engage in international science, perpetuating a center-periphery structure within the global academy (Boatca, 2006). This hierarchical system of transnational academic capital reflects broader world-system dynamics (Wallerstein, 2004), where knowledge production upholds hegemonic power structures: there is a very clear center-periphery structure with semi-peripheral regions and even contested peripheries (Cline, 2000).

In a recent study, Demeter (2019b) delineated a three-dimensional model (see *Figure 1*) that contains both the horizontal center-periphery relations that Wallersteinian world-systemic approaches mostly deal with (Wallerstein, 1974a, 1974b, 1979, 1983, 1991), and the Bourdieusian vertical center-periphery relations.

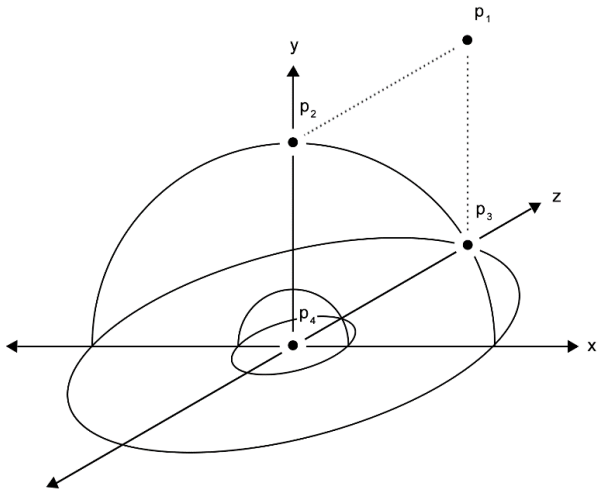

Figure 1. Demeter's (2019b) model of transnational academic capital[1]

That is, at the intersection of horizontal and vertical centrality, prestigious institutions such as the Ivy League universities in the United States and elite establishments like Oxbridge, as well as leading publishing houses in the West dominate, symbolizing – in a Bourdieusian sense – the pinnacle of academic excellence. Conversely, horizontally peripheral yet vertically central positions encompass institutions situated in the Global South that maintain ties with American elite universities, exemplified by institutions like the Central European University in Hungary and the American University in Cairo. In contrast, vertical peripherality paired with horizontal centrality encompasses community colleges in the US, small state schools in the West, and mass education institutions, underscoring disparities regarding underprivileged groups in the global North. Finally, both vertically and horizontally peripheral agents include ordinary Global South HEIs, national publishing houses of non-Western countries and the periodicals of Global South. This hierarchical system reflects broader world-system dynamics, where knowledge production upholds

[1] Where π_{xz} is the plane of geopolitical stratification (Wallerstein's World-systems theory) and $\bar{y}$ is the vector of social stratification (Bourdieusian field theory). Consequently, p_1 is a peripheral, capital-poor, p_2 is a central, capital-rich, p_3 is a peripheral, capital-rich, while p_4 is a central, capital-poor agent within global academic knowledge production.

hegemonic power structures (Wallerstein, 2004). That is, despite science's purported meritocracy (Merton, 1968, 1973), global inequalities persist, underscoring the need for a world-systemic analysis to elucidate patterns of academic capital distribution (Wallerstein, 1991). By incorporating both vertical (social stratification) and horizontal (geopolitical stratification) dimensions into the analysis of global knowledge production, scholars can better understand and address persistent disparities within the international academic landscape.

This integrative framework underscores the intricate interplay between global power dynamics and societal hierarchies in shaping the distribution of academic capital on a transnational scale. Within this context, against the backdrop of career advancement, researchers' mobility emerges as a pivotal aspect of habitus. The movement, often from the Global South to core regions, significantly influences researchers' habits, including publication trends, networking methodologies, and collaborative abilities. The flux of talent from less recognized institutions to established ones in the Global North contributes substantially to the accrual of academic capital. In this regard, mobility assumes a central role within habitus, not only functioning as a critical reservoir of academic capital for individual researchers but also gathering recognition and support from international academic institutions. For scholars originating from the Global South, mobility proves to be a strategic avenue for amassing advanced academic capital, comprising postdoctoral research opportunities, international grant acquisition, and affiliations with institutions in the Global North, thus highlighting the interplay between mobility, academic capital accumulation, and career advancement.

World-Systemic Biases of Academic Knowledge Production

The landscape of academic excellence, particularly within communication and media studies (CMS), reflects a complex interplay between systemic dynamics and individual merit, as evidenced by scholars' attainment of top positions, editorial roles, and publication outputs (Burris, 2004; Cowan & Rossello, 2018; Demeter and Tóth, 2020; Efranmanesh et

al., 2017; Goyanes & de-Marcos, 2020; Lauf, 2005; Tóth, 2018). Extensive research has unveiled systemic inequalities that disproportionately favor scholars from Western regions or elite Western universities, underscoring both horizontal and vertical disparities. Horizontal inequalities reveal that leadership positions and publication outputs are predominantly occupied by Western-educated scholars, while vertical inequalities demonstrate that even within the center, elite credentials from institutions (like Ivy League or Russell Group universities) hold significant sway (Altbach, 2010; Clauset et al., 2015; Cowan & Rossello, 2018). However, access to elite education is not solely determined by individual talent, but also by factors such as social status and race, perpetuating systemic biases that extend beyond education to various aspects of career prospects (Bourdieu, 1996). These systemic biases are further compounded by financial disparities, including higher salaries for Western scholars and unequal distribution of international research funding. Elite journals, indexed in prestigious international databases, tend to favor Western scholars and Western-centric methodologies, exacerbating the marginalization of scholars from non-Western regions or non-elite institutions (Istratii and Hirmer, 2020).

On one hand, in modern science, the "publish or perish" paradigm is remaining steadfast (Erren et al., 2016). Globally, professional success, crucial for tenure and hiring decisions, hinges significantly on publications in esteemed peer-reviewed journals (Zdeněk, 2017). Consequently, high-quality journals wield substantial international influence, with journal editors and reviewers often acting as gatekeepers. These gatekeepers face the challenge of maintaining scientific reputation and visibility, with inclusion in prestigious international databases such as Web of Science (WoS), Scopus, or Medline being a primary goal to enhance a journal's impact and citation rate (Astaneh & Masoumi, 2018). Consequently, there exists intense competition in scientific research to bolster value and visibility, with publishers and editors striving for high-impact factor journals while authors worldwide vie for publication in these esteemed outlets.

However, while science is perceived as highly competitive, it is also envisioned as a field of fairness. Nonetheless, disparities exist due to non-academic factors such as economy, politics, geography, and cultural differences, leading to a division between successful countries with prominent publications and "Matthew countries" lacking visibility (Zanotto et al., 2016). That is, even if authors from developing nations manage to publish in leading

journals, they often receive fewer citations compared to counterparts from developed nations (Bonitz et al., 1997). The Matthew effect has been explored across various fields, highlighting differences in professional practices, organizational forms, values, and beliefs (Martin-Martin et al., 2015). Current research suggests that for authors from developing countries to gain international recognition, they must either immigrate or collaborate with authors from developed nations (Fernandez et al., 2016; Schmoch & Schubert, 2008; Teodorescu & Tudorel, 2011).

The apparent dominance of the United States in CMS can be traced back to historical factors that shaped the discipline's early development. However, the received history of CMS often overlooks contributions from the global South, leading to a biased focus on the Global North, particularly the U.S. and the UK. As Pooley & Park (2013, p. 76), analyzing more than 1,600 articles on the history of CMS, points out:

> "The United States and United Kingdom were tagged more than twice as often as the rest of the world combined. The inequality was far more pronounced in the case of developing countries: the United States and United Kingdom were tagged 14 times as often as the entire global South. Put another way, more than half (55 percent, or 906 entries) of all studies focused on the United States, the United Kingdom, or both countries. If Canada and Australia are included, the total rises to 1,107 entries, or more than 60 percent of the total. And the global South? Less than 4 percent—a mere 65 entries—covered historical topics in the developing world."

Additionally, the establishment of university-based communication education predominantly occurred in American, German, and French universities in the early 20th century, further solidifying the precedence of American and Western European influences in the field (Simonson et al., 2013). Particularly, repressive political regimes in many regions of the global South hindered the development of CMS for decades, creating an "academic gap" between Western and Eastern conceptions of the discipline. State socialism, military dictatorships, and restrictions on free speech and press freedom isolated these regions from the international scientific community, impeding their participation in shaping CMS discourse (Kornai, 1992). Despite efforts to bridge this gap in recent years,

there remains a significant disparity between the scientific contributions of developing countries and those of the West, highlighting ongoing challenges in achieving global equity in CMS research (Lauk, 2015).

Since 1989, studies on publication patterns in CMS have been ongoing. These analyses often focus on citation networks within CMS journals and highlight publication inequalities. One significant study by Lauf (2005) revealed a strong American dominance in CMS journals, attributing it to factors like journal ownership and the English language requirement, which particularly benefit English native speakers. His finding underscores the multifaceted challenges faced by non-English-speaking countries in achieving representation in CMS publications. Subsequent studies, such as that by Delgado and Repiso (2013), corroborated Lauf's observations on national disparities. Their comparison of indexing databases revealed pronounced biases, with Scopus and WoS exhibiting the most skewed publication patterns. Nearly 80% of indexed journals in these databases originated from the United States or the United Kingdom, contrasting with a lower ratio of 54% in Google Scholar.

In a recent study, Demeter (2019a) analyzed all 79 Web of Science (WoS) indexed journals in communication and media studies to investigate main publication patterns. His analysis revealed the emergence of what can be termed "scientific ghettos," where international diversity diminishes. In Q1 and Q2 categories, dominated by prestigious journals, the United States leads, followed by Western European countries like the United Kingdom, Germany, and the Netherlands. However, exceptions like the Spanish journal *Comunicar* primarily feature Spanish authors, with minimal contributions from other countries. Similarly, German journals like Communications and *Journal of Media Psychology* predominantly showcase German articles. The Dutch journal *Tijdschrift voor Communicatiewetenschap*, despite being published in English, largely features Dutch and Belgian authors. Moreover, Asian and African authors often publish in journals specific to their regions, such as the *Asian Journal of Communication and Journal of African Media Studies*, respectively. Even Australian journals like *Media International Australia* tend to focus primarily on Australian authors. The exception to this trend is *Javnost: The Public*, previously a Slovenian journal until acquired by Taylor and Francis (United Kingdom) in 2016. Despite its Eastern European origin, it mirrored the publication patterns of Western

journals, albeit with a higher proportion of Slovenian articles. It functioned more as a Western-focused journal rather than a hub for Eastern Europe. Following its acquisition by Taylor and Francis, it seamlessly transitioned into the Global North, and since 2016, no communication journals from the Global South have been indexed in SSCI. When examining the most prestigious articles published in SSCI Q1-ranked CMS journals in 2016, a significant imbalance in publication patterns becomes apparent. Nearly 60% of these articles are authored by individuals from the four English-speaking countries (the United Kingdom, the United States, Australia, and Canada), with the Global North contributing over 97% overall. Interregional collaboration is rare, and when it occurs, it typically involves authors from Northern countries. In general, it is confirmed that leading journals (published exclusively by the Global North) publish mainly authors from the Global North. Consequently, authors from the Global South often rely on institutions from the Global North to publish their research internationally. This dependency is evident in various aspects, including the ease of publishing from the Global North, strategic collaboration with Western scholars, and reliance on academic frameworks set by the Global North.

There are multiple explanations for these skewed results. On one hand, language plays a pivotal role, given that all SSCI journals in CMS publish exclusively in English, fostering accessibility to the wider academic community and potentially enhancing citation scores. However, this preference poses challenges for nonnative English-speaking authors, impacting the validation and translation of research instruments, particularly in studies focusing on language-related phenomena within CMS (Günther & Domahidi, 2017). Moreover, nonnative English-speaking authors often encounter hurdles in mastering academic English and may require additional time and resources for language editing or translation services, further complicating the publication process, particularly for those from developing countries where such services may be financially prohibitive.

The academic infrastructure and tradition in many parts of the Global South present another key explanation for the disparities in scholarly contributions. Despite undergoing democratic transitions in the 1980s, regions like Eastern Europe share similarities with the Global South in terms of academic development, largely due to decades of oppression under dictatorships (Háló & Demeter, 2023). Restricted access to Western literature and

academic resources hindered their integration into the global academic community, particularly impacting soft sciences where political ideologies and epistemic values are influential (Price, 1965). Even after the transition, many professors in these regions lack English publications, let alone contributions to leading journals, potentially impeding the transmission of internationally recognized knowledge to their students. Price's (1965) estimation of at least three academic generations needed to implement international standards underscores the long-term challenges faced by developing countries in aligning with Western academic norms.

The third explanation for the disparities in CMS research output revolves around the scope of research topics. Much of the research in this field is culture-specific or even country-specific, focusing on issues like political communication or media content analysis. Given the preference for topics of interest to a broad audience of peer researchers, many CMS studies tend to focus on American or Western contexts (Freelon, 2013; Lauf, 2005). Finally, empirical results also indicate an intricate interplay between academic productivity and economic factors. Specifically, a high level of well-being, as indicated by a high per capita GDP, significantly correlate with the publication success of a given country (Demeter, 2019a). These findings, therefore, highlight the importance of economic development and investment in education and research infrastructure to foster a conducive environment for scholarly output.

Editorial boards (EBs) are also pivotal entities in the governance of academic disciplines, serving as gatekeepers of knowledge (Metz et al., 2016) and exerting significant influence on the content that informs theory development, research, and practice. Therefore, the composition of EBs is not merely a reflection of diversity but also a manifestation of world-systemic power dynamics in knowledge production and dissemination (Ganter & Ortega, 2019). In an increasingly standardized and formulaic scientific landscape (Alvesson & Gabriel, 2013), there's a growing call for scientific journals to adopt a more inclusive approach by diversifying the geographical representation within their EBs as this diversity could foster the publication of manuscripts with a broader range of research approaches and perspectives (Baruch, 2001). However, studies in scientometrics reveal a predominant presence of Western regions in the EBs of major journals (Murphy & Zhu, 2012).

The pivotal role of EBs in academic journals extends beyond mere gatekeeping, as they wield significant influence in shaping research output and journal visibility within the global academic system. Scientific prestige, indexed by platforms like Web of Science (WoS) or Scopus, drives editors to prioritize highly cited articles and authors with strong academic reputations, often favoring submissions from established Western scholars due to inherent biases in citation patterns (Canavero et al., 2014; Bonitz et al., 1999). Empirical research by Lauf (2005) and Demeter (2018) underscores the link between EB diversity and the diversity of published articles, revealing that journals with more diverse boards tend to feature a wider range of author affiliations. However, the lack of geographic representation within EBs poses challenges, particularly in accurately assessing submissions from underrepresented regions, potentially hindering the publication of peripheral research.

In a recent study, Goyanes and Demeter (2020) filled a crucial gap in research by investigating the impact of EB geographic diversity on research paper diversity in terms of the authors' country of origin, country of data collection, and research approach with several major implications regarding EBs' diversity influencing the field of CMS. On one hand, their findings revealed a significant dominance of the central core of the world knowledge production system, particularly the United States and Western Europe, in EBs. This dominance underscores the pivotal role of EBs as gatekeepers of knowledge, shaping communication theory, research, and pedagogy according to central Western perspectives. Conversely, the representation of the Global South in EBs is minimal, highlighting their limited influence in challenging or modifying existing communication theories and research approaches. On the other hand, the findings also underscored the significance of geographic diversity in Editorial Boards (EBs) for promoting diversity in research output. That is, journals with EBs comprising members from diverse regions are more likely to publish research papers reflecting diverse authorship and data collection locations (Goyanes & Demeter, 2020). In general, there are two central theoretical implications regarding EBs here: the significant influence of EBs on shaping journals' research output, and the imperative to foster diversity within EBs to cultivate a more pluralistic scientific orientation (Robinson & Dechant, 1997; Goyanes, 2019).

It is important to note that the phenomenon of epistemic hierarchies, evident in both quantitative measures of published papers and research approaches, highlights the dominance of Western theoretical frameworks and methodologies in global knowledge production (Canagarajah, 2002; Demeter, 2019a). Core regions, such as the U.S. and Western Europe, dictate the epistemic ground, often relegating noncore epistemologies to the periphery (Santos, 2018). This dominance perpetuates a form of epistemic monoculture, wherein noncore perspectives are marginalized as proto-science or ethnoscience. Postcolonial research exemplifies this colonization effect, as seen in Japanese scholars' tendency to adopt Western social theory without critical adaptation, resulting in the conceptualization of Japanese issues through Western lenses (Ito, 1990). Similarly, Spanish communication journals diverge from American standards, prioritizing critical interpretation over empirical analysis, rendering Spanish academic papers less publishable in elite international journals (Goyanes et al., 2018). In response to scientific policy trends favoring publication in Journal Citation Report (JCR) journals, the research community is increasingly adopting U.S.-styled empirical research perspectives (Goyanes, 2019).

At the same time, the globalization of social sciences has heightened concerns regarding the perpetuation of hierarchical dynamics between the center and periphery in methodological practice and knowledge production norms (Gobo, 2011). In CSM, research and publishing practices are predominantly shaped by Western agendas, dictating epistemic, methodological, theoretical, and rhetorical norms (Gunaratne, 2010; Waisbord, 2019). Emerging scholars from peripheral regions face increasing pressure to conform to Western-dominated journal norms to attain international recognition (Alvesson et al., 2017). Standardization, empiricism, and internationalization have emerged as fundamental research norms (Murphy & Zhu, 2012), leading to a concentration on Western perspectives and topics, often neglecting local contexts and employing Western research frameworks and methods to explore local research interests (Goyanes, 2019; Gunaratne, 2010).

Therefore, drawing from prior research on epistemic hierarchies, it can be inferred that alongside the core-periphery structure in excellence, publication output patterns, or EB membership, there exists an epistemic core-peripherality, wherein the core dictates theory and international empirical research protocols and methods, while the periphery is expected

to conform to these standards or offer research with less epistemic value (Freelon, 2013). This creates a cumulative disadvantage for the periphery, resulting in less visibility and primarily publishing either epistemically Westernized quantitative articles or qualitative papers with regional significance. In contrast, the core establishes leading epistemic, theoretical, and methodological standards.

In general, the above results, regarding both excellence, publication output patterns, EB memberships, and epistemic hierarchies, reveal a stark reality: core regions in the Global North wield disproportionate influence over the trajectory of academic discourse and the distribution of academic capital. Peripheral voices, particularly from the Global South and lower socioeconomic strata, face systemic barriers to recognition and participation. Despite efforts to decentralize knowledge production, the current system perpetuates Western hegemony, assimilating peripheral talent into Westernized frameworks. Importantly, this exclusionary structure not only stifles diverse perspectives but also limits the free flow of ideas critical to addressing global challenges. In response, a call for transparent and merit-based assessment, peer-review, and career advancement systems emerges, advocating for the removal of biases associated with elite institutions, affiliations, and countries. Encouraging a more inclusive approach, central forces must actively embrace local knowledge and support peripheral scholars in their pursuit of academic recognition.

At the same time, peripheral scholars must also assert their identities, advocating for equitable representation and challenging existing power dynamics within academia. Demeter et al. (2022) outline three paths for academic de-Westernization. The first, isolation, involves a region focusing inward, prioritizing its language and culture but failing to engage meaningfully with global knowledge production. The second, assimilation, sees regional scholars adopting Western norms by publishing, citing, and collaborating predominantly with Western counterparts, reinforcing Western hegemony. In contrast, the Ibero-American model represents a hybrid approach, preserving regional identity while gaining international visibility through strategic agency establishment, journal publication, and citation networks. Strengthening regional identity through collaboration, hosting internationally visible conferences, and publishing regional-focused special issues can enhance visibility. Moreover, increasing publication in top-tier international journals can elevate scholars' visibility and facilitate their inclusion in editorial boards, serving both

international diversity and regional visibility goals. Finally, establishing and managing international journals indexed in global databases can provide a platform for peripheral scholars to maintain their epistemic values and address regional societal issues while gaining international recognition. In essence, only through concerted efforts to dismantle entrenched hierarchies can the academic community realize its potential as a truly inclusive and diverse ecosystem of knowledge production.

LOCAL CHALLENGES

Over the past three decades, a substantial body of research has extensively explored scientific excellence and the trajectory of academic careers within Western contexts (Auriol, 2010; Auriol et al., 2013; Inzelt et al., 2014; Locke et al, 2018; Morrison, et al., 2011; Nogueira et al., 2015; Rudd, 1990). While some studies have taken a broad approach covering various disciplines (Diamond et al., 2014; Hooley et al., 2009), others have specifically examined social sciences (Main et al, 2019; Nuernberg & Thompson, 2011; Purcell et al., 2006; Rudd & Nerad, 2015). These examinations have spanned multiple levels, intricately interconnected, exploring academic career progression, knowledge production, and research excellence (Shmatko et al., 2020).

Despite the prevalence of Western-focused investigations, there's a growing recognition of the need for research projects centered on Central and Eastern European (CEE) contexts (Dobbins & Knill, 2009; Warren et al, 2020; Zgaga, 2018). Scholars acknowledge that CEE scholarship has faced significant challenges, stemming from various factors, notably the constraints imposed during the Soviet era (Karady & Nagy 2018; Warczok & Zarycki 2018). Under Soviet rule, educational practices, such as prioritizing Russian over English, hindered CEE scholars' linguistic proficiency, placing them at a disadvantage in the international academic arena where English predominated (Demeter, 2018). Moreover, Western scholarship was viewed with suspicion, if not outright hostility, during the Cold War, limiting access to international literature, especially in politically sensitive fields like social sciences (Dobbins, 2011). Consequently, CEE scholars predominantly published in

regional journals, further isolating their work from the broader international academic community (Berend, 2009). These historical legacies continue to shape academic landscapes in the CEE region, emphasizing the importance of contextualized analysis in understanding academic development and excellence beyond Western paradigms.

Antonowicz et al. (2017) underscore the heightened emphasis on global competitiveness and excellence in European higher education policy, a trend catalyzed by the Lisbon Strategy's declaration in 2000. Within this evolving discourse of global and European excellence, scientific publications have emerged as pivotal metrics for assessing research quality, albeit diverging significantly from the historical trajectories of many Central and Eastern European (CEE) institutions. Boyadijeva (2017) identifies several factors, including politicization and centralization, intertwined with the post-communist legacy, which has perpetuated an arbitrary institutional divide between research and teaching. In this dichotomy, research predominantly occurs within academies of sciences, while higher education institutions are primarily perceived as teaching entities (Dobbins & Kwiek, 2017).

The chronic underfunding of higher education in the CEE region is starkly evident in statistical data and poses significant impediments to research excellence. Insufficient funding hampers the ability to conduct internationally recognized research due to constraints on mobility and inadequate compensation (Kwiek, 2012). Furthermore, Kwiek contends that these enduring communist and post-communist legacies risk isolating CEE scholarship from the burgeoning European Research Area, jeopardizing its integration and participation in broader research networks and collaborations. Addressing these systemic challenges is imperative for fostering sustainable research ecosystems and ensuring the meaningful engagement of CEE institutions in the global academic landscape.

While ideological closeness and the significance of the communist legacy slowly faded post-transition, Central and Eastern European (CEE) nations continued grappling with economic underdevelopment and chronic underfunding in higher education (Karady & Nagy, 2018; Kwiek, 2014; Warczok & Zarycki, 2018). However, in recent years, many CEE countries have recognized the imperative of enhancing their competitiveness, particularly as they increasingly rely on external funding (Kohoutek, 2009; Wodak &

Fairclough, 2010). Consequently, several CEE nations have adopted research performance indicators akin to those in Western counterparts, emphasizing research activity and publication excellence (Dobbins, 2011; 2015; Froumin & Smolentseva, 2014; Kwiek, 2014). For instance, Popovic, Perkovic, and Matic (2019) conducted a comparative analysis of research evaluation systems in three CEE universities located in Serbia, Montenegro, and Slovenia. Their findings revealed a common requirement across these institutions: mandatory publication in SSCI journals, albeit to varying degrees. Similarly, in Hungary, stringent regulations stipulate that tenured full professors must have a minimum of two articles published in the Q1-Q2 quartiles of either Scopus or the Web of Science SSCI list (Sasvári & Urbanovics, 2019). These standardized criteria reflect a concerted effort to align with international benchmarks and bolster research output and impact in the CEE region.

However, despite concerted efforts by Central and Eastern European (CEE) countries to enhance competitiveness within academia (Dobbins & Kwiek, 2017), the region continues to trail behind developed Western nations in terms of research funding, publication excellence, and scholarly collaborations (Dobos et al., 2020). Luczaj & Mucha (2018) attribute this lag to inadequate infrastructure and low salaries, making CEE countries, including Poland, unattractive for international scholars and thereby limiting the internationalization of the academic field. Furthermore, poor working conditions compounded by low salaries, excessive teaching responsibilities, and insufficient time for research have emerged as critical factors hindering research excellence (Luczaj, 2020).

Upon initial observation, one might assume that the Hungarian system also employs an evaluation mechanism akin to the PRFS (Performance-based research funding systems). However, this is not currently the case.[2] Although the higher education law mandates

[2] The argumentation put forth here is derived from our publication „Félperiféria a tudástermelésben: Globális hátrányok és kitörési lehetőségek közép-kelet európai és hazai szemszögből” (Háló et al., 2022). The English translation of this paper can be found in *Chapter 1.1*.

international excellence even at the level of university lecturers, this criterion lacks a defined framework and does not carry the mandatory weight as required by the PRFS.

The first significant academic milestone applying a centralized criterion system, independent of the university, pertains to university professorship applications—the highest academic position available. The Hungarian Accreditation Committee (MAB) considers prestige indicators used in the PRFS system (Scimago/Scopus quartiles) for qualification, both in the calculation of publication productivity and scientific impact (citations) (Sasvári–Urbanovics, 2019). Nevertheless, this system remains severely limited. Firstly, points awarded for publication excellence in the evaluation of university professors cover only 25% of the performance evaluation (50 points out of 200), and secondly, the MAB's opinion lacks mandatory enforcement. Empirical evidence indicates that a significant proportion of appointed university professors—particularly in fields like social sciences—do not fully meet the publication criteria set by the MAB.

With regards to research funding, there are also seemingly PRFS-compatible domestic initiatives, particularly in relation to OTKA grants, where the use of the tudománymetria.com program has been proposed. The initial version of this program almost perfectly aligned with most PRFS expectations. However, in specific fields like social sciences and humanities, due to lobbying efforts within the research community, prestige factors (i.e., journal rankings on the Scimago index where authors publish) were excluded from the evaluation. Notably, the research community swiftly responded to internationalization efforts. Within a month of tudománymetria.com's launch (November 2020), prestige factors and the international publication criterion were removed from evaluations for researchers within certain committees of the Hungarian Academy of Sciences (previously, the IX. section was involved, but prestige factors were reintroduced there in July 2021). Consequently, in these areas, any publication—whether in a leading international journal or an unpublished manuscript uploaded as a scientific work to the MTMT institutional website—holds equal value in terms of points. However, similar to the MAB's evaluation of university professors, it's empirically evident that the point score calculated by tudománymetria.com lacks any mandatory enforcement; reviewers may choose to consider these points as they see fit.

In the Hungarian context, clear attempts towards internationalization aligned with the PRFS framework are in place. However, significant resistance to these endeavors is evident, particularly among individuals in top positions, and especially in the social sciences and humanities, who might find it challenging to comply with the criteria of a PRFS-based system. As a result, vigorous lobbying against the implementation of PRFS systems persists, and where such systems do exist, they can be easily circumvented, raising doubts about their significance. At the same time, the resistance against PRFS is accompanied by understandable habitus, particularly evident in ideologically charged social sciences, where typically older generations occupy current senior positions. Evidently, due to the isolationist policies of socialism, they had far fewer opportunities to enhance their international visibility. As a result, the abrupt introduction of frameworks linking positions to international excellence would significantly diminish their influence. Perhaps not unrelated to the fear of losing power, narratives emerge and spread widely, questioning the legitimacy of international standards. In the domestic context, a prevalent narrative suggests that Hungarian social scientists should concentrate on Hungarian topics, often deemed unsuitable for international journals. Consequently, international excellence is often sidelined as a significant criterion in research evaluation, with quality criteria, albeit challenging to define, taking precedence. However, there are numerous criticisms that can be made against this argument.

Firstly, if scientific research on national topics couldn't be published internationally, it would imply a limitation affecting all countries, suggesting that only region-specific subjects with significant population or political influence could gain international exposure. However, this doesn't seem to be the case, as numerous countries with small populations achieve notably higher publication outputs than ours, including several from the Eastern European region (as evidenced by Scimago Country Ranking). Secondly, an evaluation system lacking objective criteria, such as scientometrics, may easily veer towards subjectivity, or worse, nepotism, as seen both in social contexts (Böröcz 2000) and within academia (Havas–Fáber 2020). Thirdly, critics of metric-based frameworks have yet to propose a viable qualitative alternative. In principle, individual work could be assessed through expert analysis of their published articles, but this would require significant human resources, a practical challenge even in economically and academically advanced

countries. Fourthly, given that international evaluation systems, encompassing university rankings (THE, QS, ARWU) and funding bodies like the ERC, prioritize researchers' international visibility, these criteria inevitably influence assessments, irrespective of individual countries' or researchers' perspectives. Consequently, unreasonable criticism of international standards and resistance to their implementation may lead to isolation, jeopardizing a country's scientific visibility in the long run. Thus, it's not surprising that reforms toward internationalization eventually need to manifest at the policy level, overcoming understandable personal resistance from some, or even many, researchers, as seen in Spain and partially in Poland.

Notwithstanding, aligned with global trends and the prevailing ranking paradigm worldwide, there has been a notable shift in publication expectations within Hungarian doctoral education. The criteria for advancement through publications have become more stringent, placing a greater emphasis on publication performance to establish academic reputation. While previously it wasn't mandatory for applicants to doctoral programs to have publications in esteemed domestic or international journals, in some instances today, documented scientific or professional achievements not only offer an advantage but are also required in certain programs, where applicants are expected to list their publications. However, these expectations vary across scientific disciplines and even within the same program, mirroring the diversity observed in other appointment structures.

If the primary aim is for the Hungarian higher education system to enter the global publication competition and elevate the Hungarian scientific landscape alongside the esteemed leading universities, then a strategic focus must be placed on the inception of this process. Supporting newcomers in the scientific community is crucial: doctoral programs should be standardized, mentorship initiatives established, and domestic and international partnerships forged to bolster the networking environment. Creating competitive scientific foundations through enhanced publication and research opportunities and securing sustained long-term funding are also imperative steps.

BEYOND EITHER/OR PERSPECTIVES

Considering the above-mentioned global disparities and local challenges, in my dissertation, I intend to formulate a critique of both 1) the central academic internationalization processes that reproduce global disparities and mostly ignore the general discrimination against peripheral and semi-peripheral regions, and 2) the non-transparent and often informal domestic academic assessment processes, that impede the integration into the international research community, hinder the competitiveness of local HEIs, and render the carrier paths of individual, and especially young, researchers unpredictable. The apparent contradiction – that seems to hold in the academic discourse - between these two critical can easily be resolved by assuming that a healthy approach that seeks to counteract both international structural distortions and regional informalities is feasible. In this sense, disadvantaged agents (i.e. domestic ones) must do everything in their power to gain international visibility, put themselves on the map, otherwise their critical voices will not reach international actors. It is not possible to initiate real change by shouting from the sidelines: the ability to create the same quality - or even surpass it - must be demonstrated first. From this perspective, speaking up against global hegemonies is valid from this position alone, and it is the only way to succeed. The shortcomings of our own internal academic system and the structural problems of the international academic system need to be explored simultaneously.

Of course, one might question why diversity is essential for global knowledge production. Here, the dissertation relies on a Mertonian argumentation. Merton's norms of scientific conduct (1968, 1973) — universalism, communalism, disinterestedness, and organized skepticism — underscore the foundational values essential for robust and impartial knowledge production. *Universalism*, the principle that scientific claims should be evaluated based on merit rather than the personal attributes of their proponents, aligns directly with the necessity of inclusivity and diversity in global academic knowledge production. Inclusivity ensures that a wide array of voices and perspectives are represented,

thereby fostering diversity[3], which in turn enriches the collective scientific enterprise by integrating varied viewpoints and methodologies. *Communalism*, which emphasizes the shared ownership of scientific knowledge, is strengthened by diverse and inclusive academic environments where collaboration across different cultures and regions can flourish. *Disinterestedness* and *organized skepticism* are better upheld in a diverse academic landscape, where a multiplicity of perspectives can mitigate biases and foster a more rigorous and objective evaluation of scientific work. Therefore, embedding Mertonian norms within the framework of inclusivity and diversity is not merely idealistic but essential for advancing global scientific knowledge.

Notwithstanding, the development of concrete proposals for reform and the achievement of meaningful change rely heavily on the visibility of the problems outlined. Without clear recognition and acknowledgment of the disparities and challenges facing academia, efforts to address them may falter or remain ineffective. Therefore, it is imperative that scholars work to bring these issues to light through rigorous research, critical analysis, and open dialogue. By shining a spotlight on the inequities present in central academic internationalization processes and domestic academic assessment practices, scholars can gain support for reform and foster a sense of urgency around the need for change. This requires not only identifying and documenting the various manifestations of inequality but also actively challenging the narratives and structures that perpetuate them. In the absence of self-criticism and a willingness to develop on the periphery, it is feared that criticism from the international center that peripheral regions do lower-level scientific work will be justified, further reinforcing this widespread narrative.

By combining these two critical perspectives (i.e., bottom-up and top-down), I argue that – although they often appear in domestic academic discourse as opposing narratives – criticism of global inequalities and urging self-critical renewal are not contradictory notions, rather, they mark two interrelated sides of a single dynamic that helps bring about actual change. Central to this approach is the advocacy for transparency and accountability

[3] Reflecting this tool-goal relation, inclusion and diversity are used interchangeably throughout this dissertation.

in academic assessment practices, both nationally and internationally. This entails advocating for standardized evaluation criteria, transparent promotion and tenure procedures, and enhanced support and resources for scholars from peripheral and semi-peripheral regions. By acknowledging the systemic global disparities perpetuated by central academic internationalization processes and addressing the internal deficiencies of domestic academic assessment, we can lay the foundation for concrete reform proposals that hold the potential to effect real change. My dissertation, most importantly, underscores the necessity of gaining international visibility to challenge existing power structures. While one could be tempted to evoke the Trojan horse metaphor, it's prudent to refrain from such theatrics. However, without putting ourselves on the map and demonstrating our ability to produce quality research, our critical voices risk being drowned out.

INTERSECTING FACTORS: GENDER AND ALTMETRICS

The dissertation primarily focuses on exploring geographical disparities in scholarly communication and academic impact. Central to this investigation are two additional, yet critical facets: gender, which interacts significantly with scholars' geographical affiliations as part of their academic capital, and altmetrics, novel tools for assessing academic impact outside of traditional citation-based metrics. As the findings of the chapters (specifically Chapters 2.1 and 2.2) are situated within this complex framework of geographical disparities, gender biases, and the rise of altmetrics, a short review of these intersecting dimensions is warranted.

First, gender disparities are prevalent in academia, impacting publication rates (Fox, 2005), citation counts (Hunter and Leahey, 2010; Lariviere et al., 2013), and career advancement opportunities (Cameron et al., 2016; van den Besselaar & Sandström, 2017). Key factors contributing to these disparities include differences in household roles and family responsibilities (Fox, 2005; Stack, 2004), career interruptions (Cameron et al., 2016), resource allocation (Duch et al., 2012), peer-review processes (Borsuk et al., 2009), collaborations (Jaidi et al., 2018; Uhly et al., 2015), networking (Abramo et al., 2013), role

stereotypes (Eagly et al., 2020), academic rank (van den Besselaar and Sandström, 2017), work climate (Bronstein and Farnsworth, 1998), dropout rates (Huang et al., 2020), and geographical (Lariviere et al., 2013), institutional (Paswan and Singh, 2020), and disciplinary contexts (Elsevier, 2017, 2024). These disparities not only reflect structural biases within academic institutions but also influence scholarly impact metrics, shaping how research contributions are evaluated and recognized. Research highlights systemic barriers faced by women in science, ranging from funding disparities (Bol et al., 2018) to the unequal impact of prestigious awards (Ma et al., 2019). The gender gap persists in grant applications (Ley & Hamilton, 2008) and in the evaluation of scientific productivity and prominence (Li et al., 2022).

Studies show mixed results regarding citation rates for female-authored publications: some indicate lower rates (Hunter and Leahey, 2010; Lariviere et al., 2013), others higher (Thelwall, 2020a, b; Frandsen et al., 2020; van Arensbergen et al., 2012) or equal rates (Elsevier, 2017; Penas and Willett, 2006; Thelwall and Neville, 2019) compared to male-authored publications. Fields such as economics (Ferber and Brün, 2011), ecology (Cameron et al., 2016), political science (Mitchell et al., 2013), library and information science (Hakanson, 2005), biochemistry, genetics, and molecular biology (Thelwall and Nevill, 2019), sociology (Leahey et al., 2008), and health and natural sciences (Aksnes et al., 2011; Beaudry and Lariviere, 2016) tend to have male-dominated citation rates. In contrast, fields like public administration (Corley and Sabharwal, 2010), international relations (Østby et al., 2013), and economic history (Di Vaio et al., 2012) show more balanced citation rates (Dion et al., 2018; Frandsen et al., 2020). Implicit biases in citation practices contribute to these disparities, where work by women may be cited less frequently or prominently than comparable work by men.

Notwithstanding, gender diversity in scientific teams significantly impacts research outcomes, as evidenced by recent studies. For instance, Yang et al. (2022) demonstrate that gender-diverse teams generate more innovative and influential scientific ideas. Furthermore, efforts to promote gender diversity in science not only enhance equity in peer review processes (Murray et al., 2019) but also lead to better scientific outcomes overall (Nielsen et al., 2017).

Geographical (Kalaitzi et al., 2019; Ramakrishnan et al., 2014; Sebo et al., 2020), institutional (Abramo et al., 2016; van den Besselaar and Sandström, 2017), and economic (Matilda et al., 2020) contexts further influence gender disparities. Inequalities in gender norms embedded within cultural and political contexts likely reinforce and legitimize biased gender systems, adversely affecting the overall representation of women in science. Large cross-country studies highlight significant geographical differences in gender gap in scientific productivity (Lariviere et al., 2013; Holman et al., 2018) and impact (Huang et al., 2020). Countries with lower scientific output tend to be more gender-balanced, while those with higher productivity often skew towards male dominance. For instance, in Portugal and Argentina, 52% of researchers are women. In the USA and UK, it's around 40%, and in India, now the world's third largest research producing country, only 33%. (Elsevier, 2024). These national biases also extend across fields, with women scientists generally specializing in health, life, and social sciences, while men are more prevalent in physical sciences.

At the same time, traditional productivity and citation measures often miss crucial sociological aspects of scientific networks, such as gender differences in academic networking behaviors and motivations (Dion et al., 2018). To address these shortcomings of traditional metrics, various altmetrics (alternative metrics beyond citation-based metrics[4]; e.g., clicks, downloads, views, reads, shares, mentions) are introduced. Unlike citation metrics, altmetrics offer a real-time assessment of research visibility and audience engagement, reflecting broader societal interactions with scholarly outputs. Altmetrics effectively highlight the hidden impact of research, as scientists often read, share, and

[4] '*Altmetrics: A Manifesto'* (Priem et al. 2010), a foundational document outlining the principles and goals of altmetrics, intentionally adopts a broad approach to defining these metrics, emphasizing their role as alternatives to traditional metrics like citations and the h-index. This broad scope allows for diverse and adaptable measures that capture the various forms of scholarly impact. A key principle of the manifesto is that altmetrics should reflect the digital and online engagement of scholars, including significant activities on platforms like Zotero, Mendeley, and Twitter, as well as through scholarly blogs. Additionally, the manifesto highlights that altmetrics should function independently of traditional academic filters such as PubMed or Scopus.

discuss publications without necessarily citing them. Furthermore, as scholars increasingly use social media to communicate, network, and promote their research (Djuricich, 2014; Guerin et al., 2015; Lupton, 2014; McPherson et al., 2015), altmetrics become vital tools for measuring broader social impact (Priem et al., 2010). Although impact and visibility studies remain rare (Halevi, 2019), evidence suggests that altmetric impact is more gender-balanced than traditional metrics like citation counts and publication productivity, indicating serious academic biases (Bar-Ilan & van der Weijden, 2015; Paul-Hus et al., 2015).

As current scientific papers are predominantly published online, there is growing interest in traditional scientometric research regarding usage indicators such as views (Bollen et al., 2009; Perneger, 2004), downloads (Gorraiz et al., 2014; Moed & Halevi, 2016), and bookmarks (Bar-Ilan et al., 2012; Mohammadi & Thelwall, 2014) as potential predictors of future citations. Thelwall (2018) synthesized earlier research indicating a positive correlation between most altmetrics and citation counts, with stronger associations observed for Mendeley reader counts (bookmarks) (0.5–0.8) compared to weaker associations for social media metrics like tweets, Facebook posts, blog citations, Google+, Reddit mentions, and other media citations (0.1–0.3). Studies focusing on Twitter activity have shown that tweets can forecast citation rates (Eysenbach, 2011; Peoples et al., 2016), with articles receiving more citations if they are tweeted about (Vaghjiani et al., 2021). Moreover, Breitzman (2021) demonstrated that early usage within the first six months correlates with a citation index after five years, suggesting that initial usage metrics can identify papers likely to achieve high citations over time.

Notwithstanding, as Torres-Salinas et al. (2024) argue, altmetrics and traditional impact measures serve distinct purposes and should not be seen as interchangeable. For instance, while altmetrics excel in measuring social attention and online visibility, they may not fully capture the scholarly rigor and scientific impact assessed by traditional citation-based metrics. Therefore, integrating both traditional metrics and altmetrics allows for a more comprehensive understanding of research impact, recognizing the interconnected yet distinct dimensions of scholarly influence in today's digital and academic landscapes.

Finally, the intersection of gender and altmetrics represents a novel, yet critical area of inquiry within contemporary scholarly communication: how gender influences digital pathways to scholarly impact, shaping online visibility, public engagement, and the reception of research outputs in digital spaces. For instance, recent analyses on the impact of team gender composition on online visibility and citation rates suggest that diverse research teams may influence how scholarly outputs are recognized and disseminated digitally. In their study, Vásárhelyi and Horvát (2023) indicated that female-female teams in Engineering benefit most from increased online visibility, potentially offsetting gender disparities in citations, whereas in Computer Science, teams with female last authors benefit less from online visibility compared to male-led teams. Social Sciences, being relatively gender-balanced, show that higher online visibility benefits all team compositions equally. Importantly, based on their results, promoting the online visibility of underrepresented scientists, particularly women, could mitigate citation gaps and enhance equity in scholarly recognition. Overall, across disciplines from political science (Meibauer et al., 2023) to life sciences (Dehdarirad, 2020), investigations into early altmetrics reveal potential predictive power for future citations, yet also highlight persistent disparities in how male and female researchers' work is perceived and cited.

These insights underscore the need for inclusive practices in scholarly communication and evaluation, leveraging altmetrics to promote transparency and equity in recognizing academic contributions across genders and regions within the evolving digital landscape. At the same time, intersectional analyses are crucial for understanding how multiple dimensions of identity (or multiple dimensions of one’s academic capital) interact to shape the reception of research outputs in diverse global and digital contexts.

THE COURSE OF THE DISSERTATION

The dissertation focuses on two crucial aspects of academic discourse: firstly, the opaque and informal nature of domestic academic assessment practices, which hinder integration into the international research community and undermine the competitiveness of local

Higher Education Institutions (HEIs). Secondly, it examines the central academic knowledge production processes that contribute to global disparities. To address these issues effectively, the dissertation is divided into two main parts, corresponding to bottom-up and top-down critical perspectives. By structuring the dissertation in this manner, I aim to provide a comprehensive analysis of both local challenges and global disparities in academia, ultimately advocating for transparency and accountability in academic assessment practices at both national and international levels.

Consequently, *Chapter 1* focuses on local challenges and adopts a bottom-up lens to examine regional and domestic academic practices. The articles within this chapter offer a comprehensive analysis of the local dynamics shaping academic knowledge production and assessment practices, shedding light on the barriers hindering internationalization. By navigating these challenges through a bottom-up lens, the section underscores the imperative of fostering meaningful engagement with the international research community.

Chapter 1.1 sets the stage by exploring the concept of the semi-periphery of academic knowledge production[5], where we highlight the global disadvantages and breakthrough opportunities from both a CEE and domestic perspective. Through a critical examination of the central academic internationalization processes and the non-transparent domestic academic assessment practices, the article underscores the need for a comprehensive understanding of the interplay between global disparities and local challenges. It argues that addressing these issues requires a concerted effort to bridge the gap between global aspirations and local realities, fostering a more inclusive and equitable academic landscape that recognizes the unique contributions of CEE scholars.

Building on this foundation, *Chapter 1.2* offers a deep dive into a comparative analysis of international vs. national academic bibliographies[6], with a specific focus on publication

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[5] Háló, G., Rajkó, A., & Demeter, M. (2022). Félperiféria a tudástermelésben.: Globális hátrányok és kitörési lehetőségek közép-kelet európai és hazai szemszögből. Educatio, 31(2), 236–248. https://doi.org/10.1556/2063.31.2022.2.5

[6] Háló, G., & Demeter, M. (2022). International VS National Academic Bibliographies. A Comparative Analysis of Publication and Citation Patterns in Scopus, Google Scholar, and the Hungarian Scientific

and citation patterns in Scopus, Google Scholar, and the Hungarian Scientific Bibliography. Although successful integration into the international research community is pivotal for the academic and scientific advancement of any nation, CEE countries, often classified as semi-peripheral regions in global knowledge production, face significant challenges in achieving this integration (Demeter, 2020). The study aims to shed light on these challenges by analyzing the publication and citation indices of Hungarian social scientists across national and international databases. The relevance of this comparative analysis lies in its potential to inform policy measures that could enhance the international visibility and impact of Hungarian academic research. By highlighting the discrepancies between the Hungarian Scientific Bibliography (MTMT) and global databases like Scopus and Google Scholar, the paper advocates for the adoption of standardized global publication databases in research assessment, echoing the need for transparency and objectivity in academic evaluation. Furthermore, the paper offers valuable insights that could help semi-peripheral academic institutions navigate the complexities of global academic competition and integration (Boyadijeva, 2017; Kwiek, 2012, 2014).

After that, *Chapter 2* examines systemic biases and structural inequalities that pervade global academia, shedding light on the uneven distribution of scholarly impact, visibility, and recognition across different regions and subdisciplines, with a particular focus on geopolitical distributions and inequities.

In *Chapter 2.1*, an examination of the geopolitical biases in scholarly impact within the field of communication research[7] reveals compelling insights. Scientometric research have revealed a significant clustering of high-prestige research output and impact in a few core countries, highlighting systematic geopolitical biases and uneven power dynamics within global academia (Leydesdorf et al., 2014; Archambault et al., 2011). Furthermore, research

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Bibliography. New Review of Academic Librarianship, 0(0), 1–20. https://doi.org/10.1080/13614533.2022.2138475

[7] Tóth, J. J., Háló, G., & Goyanes, M. (2023). Beyond views, productivity, and citations: Measuring geopolitical differences of scientific impact in communication research. Scientometrics, 128(10), 5705–5729. https://doi.org/10.1007/s11192-023-04801-7

has shown that citation counts are higher for scholars in Western countries, particularly the US and UK (Tóth et al., 2023). Notwithstanding, recent advancements in altmetrics offer new ways to measure impact beyond traditional citations, though these too can be subject to biases and manipulation (Priem et al., 2010; Sugimoto et al., 2017). This paper contributes to the ongoing discourse by examining geopolitical differences in scholarly impact within communication research, using a novel approach that includes altmetric measures (views per document in Scopus) alongside traditional citation metrics. The study illuminates a strong dominance of US scholars in terms of citation-based impact, underscoring the pressing need for de-Westernization within the field. Furthermore, the research highlights disparities in altmetric impact measures, particularly among Eastern European and Spanish scholars. Despite comparable levels of online visibility, scholars from these regions tend to receive fewer citations, pointing to underlying systemic biases in scholarly recognition. These findings challenge prevailing notions of academic prestige and raise important questions about the equitable dissemination of scholarly work.

Chapter 2.2. extends the inquiry to gender and geographical inequalities in health-related social sciences research, revealing systemic gender disparities in research productivity and impact levels[8]. Prior research underscores persistent gender disparities across scientific fields (Lariviere et al., 2013; Tahamtan et al., 2016), highlighting male predominance in productivity and citation rates. Moreover, studies indicate variations in gender representation across health science subfields (Holman et al., 2018; Sebo et al., 2020). Geographical disparities also emerge prominently, with research output and impact unevenly distributed across world regions (Kalaitzi et al., 2019; Ramakrishnan et al., 2014), influencing academic visibility and citation patterns. However, gaps persisted in exploring these dynamics comprehensively, particularly concerning interactions between gender and geography on research productivity and impact measures. Through a meticulous

[8] Goyanes, M., Demeter, M., Háló, G., Arcila-Calderón, C., & Gil de Zúñiga, H. (2024). Geographical and gender inequalities in health sciences studies: Testing differences in research productivity, impact and visibility. Online Information Review, ahead-of-print(ahead-of-print). https://doi.org/10.1108/OIR-10-2022-0541

examination of research data from the Scopus database, the study uncovers significant geographical differences in citation-based metrics, indicating varying levels of scholarly recognition across world regions. Moreover, the interaction effect of gender further complicates the relationship between geography and scholarly impact, highlighting the multifaceted nature of inequities in academic knowledge production. These findings underscore the need for targeted interventions to address gender and geographical imbalances and foster a more inclusive and equitable research environment.

In the concluding chapter (*Conclusions and Reflections*), my aim is to bring together the insights gathered from the preceding chapters and promote a holistic understanding that goes beyond simple dichotomies. This final section serves as a reflection on the overarching themes explored throughout the dissertation, providing an opportunity to draw connections between the different perspectives presented and examine the complexities of the issues at hand.

CONTRIBUTIONS OF THE DISSERTATION

The dissertation presents a multifaceted analysis of academic assessment practices, geopolitical biases, and gender disparities in scholarly impact, offering a series of critical contributions.

Comparative Analysis of Domestic Academic Assessment Processes: The dissertation critically examines the shortcomings of domestic academic assessment practices, contrasting them with the structured and transparent systems of Spain's ANECA and Poland's IDUB. It highlights how non-transparent and informal assessment processes in domestic contexts impede integration into the international research community, hinder the competitiveness of local higher education institutions, and create unpredictable career paths for young researchers. This detailed critique is elaborated in *Chapter 1.1*, which underscores the necessity of reforming these practices to align with international standards and enhance the global visibility of local institutions, providing an in-depth comparison,

offering insights into how these systems can be adapted to improve academic assessment practices in other regions, particularly in Hungary.

Interconnected Critique of Global and Domestic Academic Systems: The dissertation argues that addressing global inequalities in academic systems and advocating for self-critical reforms within domestic systems are not contradictory but complementary. This dual approach is essential for achieving substantive changes that address both local and global challenges in academia. *Chapter 1.1* presents a detailed discussion on this theme, proposing balanced reforms that enhance both domestic academic assessment practices and global academic integration strategies.

Geopolitical Biases in Scholarly Impact: The dissertation also advances our understanding of how geographic location influences scholarly impact, specifically within communication studies. It reveals substantial disparities in citation-based metrics among scholars from different regions, highlighting the dominance of US-based scholarship. This theme is explored in *Chapter 2.1*, which integrates critical sociological frameworks into scientometrics and introduces novel altmetrics to study to provide a less biased view of scholarly impact. The empirical analysis using SCOPUS data demonstrates significant differences in citation rates and altmetric indicators across geographical regions, emphasizing the need for more inclusive citation practices.

Database Discrepancies: Chapter 1.2 empirically analyzes the publication and citation indices of 365 Hungarian social scientists across national (MTMT), global (Scopus), and Google Scholar, and explores discrepancies between these databases, emphasizing the underrepresentation of Hungarian research in international academia.

Gender Inequalities in Scholarly Impact: Another crucial contribution is the empirical examination of gender disparities in scholarly productivity. The dissertation identifies systematic gender imbalances, particularly the overrepresentation of male scholars in fields like health policy. *Chapter 2.2* examines this issue, analyzing citation patterns to uncover disparities in research impact between male and female scholars. The study underscores the importance of addressing gender biases through practical measures such as mentorship programs and gender-sensitive evaluation criteria, advocating for citational justice and equitable representation in scholarly metrics.

De-Westernization of CMS: The dissertation contributes to discussions on de-Westernization within communication research. It highlights the dominance of US-based scholarship in citation impact metrics and advocates for more inclusive practices that acknowledge and elevate contributions from non-Western regions.

Novel Altmetrics as Methodological Innovations: Introducing novel altmetrics[9] to study (Scopus view count-based metrics) alongside traditional citation metrics expands the methodological toolkit of critical scientometrics. The combination of altmetrics and traditional metrics helps mitigate several distortions inherent in traditional citation practices, offering a more detailed perspective on scholarly impact and recognition. This interconnected approach underscores the value of diverse metrics in evaluating academic performance and highlights the need for more comprehensive assessment frameworks.

Policy and Practice Implications for Enhancing Research Visibility: The dissertation offers strategic policy recommendations to enhance the international visibility and competitiveness of Central and Eastern European (CEE) research. It advocates for the adoption of standardized global publication databases in research assessment protocols and calls for transparency and fairness in academic evaluation systems. *Chapter 1.2* provides empirical insights into the publication and citation indices of Hungarian social scientists, comparing their international publication patterns with those of neighboring countries. This

[9] It should be noted that the altmetrics applied in the dissertation (e.g., Scopus view count-based metrics) are not traditional altmetrics as per the *'Altmetrics: A Manifesto'* (Priem et al., 2010). As mentioned earlier, the Altmetrics Manifesto is deliberately broad in its conceptualization of altmetrics, mostly emphasizing their role as alternatives to traditional metrics and their independence of traditional academic filters (e.g., Scopus, PubMed). In this context, Scopus view counts occupy an intermediary position between the manifesto's vision of altmetrics and traditional metrics. On one hand, Scopus view counts provide a faster indicator of impact than citation counts and the h-index, capturing a broader scope of engagement by measuring the number of times an article is viewed. This can reflect a wider array of academic and possibly public interest in the work. However, they also inherit the biases inherent to the Scopus database, such as selective filtering and sampling biases. Thus, while Scopus view counts offer some advantages over traditional metrics, they do not fully align with the more inclusive and web-centric ethos of altmetrics as envisioned in the Altmetrics Manifesto.

chapter emphasizes the need for critical reflection and reform in assessment practices to address systemic challenges faced by peripheral regions in global academic knowledge production.

Overall, the dissertation emphasizes the necessity of self-critical renewal within domestic academic systems to challenge global hegemonies and ensure diverse voices and perspectives are recognized and valued in international academia. By proposing concrete reforms, introducing novel methodological tools, and providing empirical evidence, the dissertation contributes to ongoing debates on enhancing the visibility, impact, and equity of scholarly work in a global context.

At the same time, I wish to highlight the dissertation's resonance with communication science and emphasize its aptness for inclusion within a doctoral program dedicated to communication research. Three essential facets distinctly illustrate its seamless integration within this academic domain. Firstly, it addresses timely and pertinent topics intrinsic to the field, notably by dissecting local challenges within the production of social scientific knowledge. This emphasis aligns closely with the thematic focus of the program, reinforcing its relevance within the scholarly landscape. Secondly, the dissertation's interdisciplinary approach, exemplified through meticulous comparative analyses, mirrors both the ethos of the program and the broader field's commitment to embracing diverse perspectives and methodologies. This characteristic resonates with the evolving nature of communication research, as evidenced by scholarly discourse (Waisbord, 2019). Lastly, the dissertation's spotlight on global disparities in academic research and advocacy for effective science communication seamlessly align with the program's overarching objectives of knowledge dissemination and societal impact. Essentially, the dissertation's topical relevance, interdisciplinary approach, and focus on science communication underscore its potential to make significant contributions to ongoing scholarly endeavors within the field.

NOTES ON THE FORMAT

Writing an article-based dissertation poses certain challenges in maintaining a cohesive format across diverse publications. To ensure both consistency within the body of this dissertation and alignment with the original articles, I have implemented the following measures.

In preserving the integrity of the original publications, I have retained the original capitalization styles, including the use of italics, bold, underlining, and other formatting conventions. To maintain coherence and uniformity, the titles of chapters and subchapters mirror those of the original articles. Additionally, tables and figures are named identically to their counterparts in the original publications and are positioned within the text similarly. When referencing these tables and figures, it is imperative to cite the original sources to uphold academic integrity and enable readers to locate the original material. This practice ensures that proper credit is given to the original co-authors and allows for a clear understanding of the context in which the data or visual information was originally presented. At the same time, in accordance with the scholarly standards upheld by the original journals, the referencing style employed throughout the upcoming chapters replicates that of the original articles. By adhering to the referencing conventions of each respective journal, I aim to honor their editorial guidelines and academic conventions. Throughout the chapters, editorial annotations, labeled as "Editorial comment for the dissertation" in footnotes, provide amendments made subsequent to publication. This distinct labeling helps differentiate them from original footnotes.

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1.

LOCAL CHALLENGES: NAVIGATING DOMESTIC ACADEMIC ASSESSMENT THROUGH A BOTTOM-UP LENS

1.1. Semi-Periphery of Academic Knowledge Production. Global Disadvantages and Breakthrough Opportunities from a CEE and Domestic Perspective[10]

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Abstract

In this study, we formulate a critique of both 1) the central academic internationalization processes that reproduce global disparities and mostly ignore the general discrimination against peripheral and semi-peripheral regions, and 2) the non-transparent and often informal domestic academic assessment processes (contrasted to the good practices of the Spanish ANECA and the Polish IDUB), that impede the integration into the international research community, hinder the competitiveness of local HEIs, and render the carrier paths of individual, and especially young, researchers unpredictable. By combining these two critical perspectives, we argue that – although they often appear in domestic academic

[10] *(Editorial comment for the dissertation)*. The article provided here is a translation by ChatGPT, edited and reviewed by the author. The author declares that the content of the original article and its English translation are fully identical.

discourse as opposing narratives – criticism of global inequalities and urging self-critical renewal are not contradictory notions, rather, they mark two interrelated sides of a single dynamic that helps bring about actual change.

Keywords: academic knowledge production, internationalization, global disparities, research assessment, quality assurance, CEE, Hungary

Introduction

The increasingly rapid internationalization of academic research is the result of a multifaceted process, encompassing economic, political, and communicational factors, along with narrower scientific components. Critics of the globalization of academia argue that this process, akin to the workings of the neoliberal economic model, exacerbates geopolitical disparities and perpetuates inequalities in soft power dynamics. Within the global system of knowledge production, this phenomenon not only strengthens central regions that reap the benefits of academia - which include economic and power gains - but also creates partially exploited semi-peripheral regions and fully exploited peripheral regions (Demeter 2020; Wallerstein 1991).

The rapid and continuous evolution of modern communication technologies has been instrumental in driving the globalization of the scientific community. Before the widespread adoption of online communication, bridging distances required substantial financial resources. However, the digital age has significantly reduced this barrier. Consequently, both the internationalization of knowledge production and the dissemination of scientific findings have become much easier than before the advent of the internet, though geopolitical differences still wield significant influence (Cummings–Heeks–Huysman 2003). Thousands of professional journals are now available for publishing scientific results, almost all accessible digitally. Additionally, scientific databases such as Scimago/Scopus and Web of Science categorically include journals with similar profiles, simplifying the search for internationally recognized publication platforms in specific fields. The majority of indexed journals are owned by a handful of global publishing companies, which standardize journal websites (Demeter–Istratii 2020). Consequently,

authors can gain a clear understanding of a journal's expectations and assess the relevance of their research by perusing previously published articles in line with the journal's profile.

Whether we approach the globalization of academic research and higher education with enthusiasm or a critical eye, it's undeniable that internationalization is a reality we must acknowledge. Adapting to the resulting competitive landscape becomes necessary in some form. In many Western European countries, international publication is a requirement for higher positions in academia and research. This is closely tied to the fact that prestigious international university rankings, like QS, THE, or ARWU, prioritize the international publications of university staff (Ianos–Petrisor 2020; Oancea 2019). Besides the English Research Excellence Framework (REF), one of the most significant frameworks for assessing international excellence is the Spanish ANECA, which places considerable emphasis on publishing international articles in evaluating university lecturers and researchers for career advancement. Similarly, in recent years, the Polish higher education and research program, IDUB, has become a notable factor in this regard.

Research Excellence, International Trends, and Successful Programs: ANECA and IDUB

In the wake of the turn of the millennium, the strides made towards the European Higher Education Area – championed by education ministries within the framework of the Bologna Process in 1999 – called for extensive overhauls in the higher education structures, practices, cultures, and the educational policies governing them in participating countries. This new political paradigm in higher education governance placed a significant emphasis on quality assurance and incentive-based mechanisms (Dobbins–Knill 2014; Olsen 2007). Consequently, standards aimed at assessing the quality of teaching, research, and other higher education activities have, to varying extents, been integrated into the systems of most European countries (Blackmur 2007). Regulatory procedures appear to follow a logic grounded in incentives and performance evaluation. In this transformation, quality assurance agencies play a pivotal role. In the following sections, we will investigate the quality assurance systems of the Spanish ANECA and the Polish IDUB, as well as the strategies for their regional implementation, with the hope that these endeavors can serve as benchmarks for domestic quality assurance practices.

The Spanish National Agency for Quality Assessment and Accreditation (ANECA)

The implementation of the Bologna Process brought about fundamental reforms in the Spanish education system (Hernández-Pina 2014). It introduced a completely new system of higher education, designed to ensure high standards and continuous improvement through various advisory, evaluation, authentication, and accreditation processes. As part of these reforms, the Spanish National Agency for Quality Assessment and Accreditation (ANECA) was established in 2002. ANECA is responsible for overseeing numerous evaluation, authentication, and accreditation processes, among other duties.

These include the PEP and ACADEMIA procedures, which assess compliance with mandatory requirements – including those stipulated by law – for applicants to university teaching positions. PEP focuses on non-civil servant positions (such as contractual lecturers), while ACADEMIA evaluates civil servant teaching positions and the habilitation processes. The CNEI procedure evaluates the research activities and productivity of university staff and determines additional remuneration supplements in accordance with relevant regulations. Teaching and research evaluations place particular emphasis on publication performance, especially the number of articles with impact factors. For appointed professors (*catedratico*), a comprehensive evaluation of scientific output quality (*sexenio*) is conducted every six years, with advancement in payment categories determined by external *sexenio* evaluation (unlike the Hungarian system, for example, where age often plays a role). The professorial appointment itself is also subject to external, positive evaluation by ANECA, not falling within the university's jurisdiction. To submit *sexenio*, the most significant publication of the six years must be provided, making publication activity (especially of articles with impact factors) the most important criterion for promotion.

Not every relevant entity greeted ANECA's programs with open arms. García-Juanatey and colleagues remind us that initial resistance to ANECA's initiatives was evident on two fronts (García-Juanatey–Jordana–Sancho 2019). On one side, existing regional quality control agencies felt their authority threatened by the establishment of the state organization, while on the other side, universities – citing conflicts with principles of autonomy – formed strong opposition to ANECA (Alonso-Martínez 2008). The latter

voices grew particularly loud following the 2007 reforms in accreditation procedures for higher education programs and professors, when ANECA's criteria system became mandatory in these areas (Sebrek 2020).

Despite initial resistance, which was gradually overcome as the organization established successful dialogues based on cooperation and innovation with both universities and regional quality control agencies relatively early on (García-Juanatey–Jordana–Sancho 2019), ANECA's programs significantly and visibly enhanced the country's international academic visibility. Moreno-Pulido and colleagues analyzed the number of Spanish social science journals indexed in the Journal Citation Reports (JCR) databases in light of ANECA's reforms (Moreno-Pulido et al. 2013). Their study revealed a marked increase in the visibility of regional journals.

Masip (2014) examined the international visibility of Spanish communication researchers and found very similar trends to those mentioned above. His bibliometric analysis focused on the publication patterns of Spanish authors in communication science journals indexed in the international Social Sciences Citation Index (SSCI) database, revealing a significant increase in publication performance in just five years. While Spanish communication researchers published 48 articles in SSCI journals between 1994 and 2005, this number rose to 82 in the four years between 2006 and 2010. This growth coincides with the introduction of ANECA, whose criteria system clearly favors publication in SSCI-indexed, impact factor journals. These results confirm that the application of international quality criteria in the evaluation processes of higher education and research – of course, with due consideration of regional academic culture and legal context – leads to the motivation, competitiveness, and enhancement of the international visibility of the region's scientific activities.

IDUB. The Polish "Excellence Initiative - Research University" program

In the first decade following the turn of the millennium, the Polish higher education system faced challenges such as non-competitive research funding, a heavily collegial and less efficient governance structure, and a complex system of academic degrees and positions. These factors led to a general underfunding of scientific research and an undervaluation of its mission (Kwiek 2021). In response, reforms were introduced that included various

quantitative and research-oriented indicators, as well as funding and evaluation procedures aligned with international quality standards. Poland shifted its approach "from the privatization of research as a mission to its deprivatization, and from deinstitutonalization towards reinstitutonalization within universities" (Kwiek 2021: 36).

The initial wave of reforms, implemented during Barbara Kudrycka's tenure as Minister (2009–2011), streamlined funding allocation by establishing the National Science Centre (NCN). This organization directly tied funding to international research evaluation and productivity metrics, encouraging competitiveness enhancement. Notably, the NCN, with its governing bodies elected internally within academia, operated independently from the state. This setup allowed it to grant greater autonomy to individual institutions while also imposing higher standards of accountability on researchers (Dobbins–Knill 2014).

The second wave of reforms (2016–2018; implementation until 2022) – spearheaded by Jarosław Gowin, the Minister of Education, with a focus on internationalizing Polish research endeavors and prominently featuring the differentiation of the higher education system into research- and teaching-oriented institutions. Consequently, university structures are currently undergoing reshaping based on a newly defined list of research disciplines. New doctoral schools are being established within institutions exhibiting notable scientific performance. Moreover, a new research evaluation system, slated to take effect in 2022, is being developed with a direct consideration of international quality criteria. Additionally, the "*Excellence Initiative – Research University*" (*„Inicjatywa doskonałości – uczelnia badawcza”*; IDUB) research incentive program has been introduced (Ministry of Education and Science, 2019).

The national program of IDUB, spanning from 2020 to 2026, aligns with efforts to structurally differentiate research and teaching orientations. Its primary aim is to provide financial support to Polish universities capable of competing effectively with Europe's and the world's leading academic research centers under the designation of "research university" (Research in Poland, n.d.). In 2019, within the framework of the Ministry of Higher Education's program, support was awarded to ten research-intensive institutions. With a total funding framework for IDUB over seven years amounting to approximately 1 billion USD (Kwiek 2021), decisions are made based on submitted institutional strategies

and development plans. This enables winning institutions to receive substantial financial assistance[12] to enhance their international academic visibility. The evaluation of applications was conducted by an internationally and disciplinarily diversified group of experts recognized in the fields of science and higher education (Research in Poland, n.d.).

It is evident that the criteria systems, quality assurance, and research incentive processes employed by ANECA and IDUB, both of which closely adhere to international quality criteria and indicators, are capable of effectively enhancing the international visibility of regional research, measurable on international databases, at both individual and institutional as well as national levels. Therefore, while maintaining the necessary sensitivity to regional implementation in direct cultural, economic, and political contexts, they can serve as good practices for the development of quality assurance and funding procedures in domestic higher education. In summary, we outline some common criteria of performance-based research funding systems (PRFS), such as ANECA and IDUB, to better illustrate parallels and differences with the domestic system (Hicks 2012; Kulczycki 2017).

- The evaluation focuses on research outcomes, not on the researchers' degrees or teaching practices.
- It involves ex-post evaluation, meaning only completed and published research is assessed; future research plans and promises are not taken into account.
- Only the research output is evaluated (published publications and their scientometric characteristics), and factors such as the number of PhD students are not considered.
- The consequences of evaluations should affect both promotions and state support; the consequences are not optional.
- They must be at the national level and cannot be applied to university or institutional self-assessments.

[12] Beyond the winning institutions, IDUB also incentivizes an additional ten Polish universities (IDUB's second ten) with lesser support to promote internationalization (Research in Poland, n.d.).

In these evaluation systems, particularly in the natural sciences but also in the social sciences, scientific output and its measurable impact carry greater weight than other factors such as the quality of degrees, membership in scientific organizations, conference invitations, or efforts in science communication. Assessing research performance heavily emphasizes published works, with international journal articles being deemed more significant than domestic ones. Moreover, articles published in indexed journals, especially those in the highest-ranking journals (Q1 quartile), receive the most points. These systems assign minimal points for contributions to book chapters and edited volumes (Kulczycki 2017).

Hungarian university and research concepts: internationalization and/or isolation?

Upon initial observation, one might assume that the Hungarian system also employs an evaluation mechanism akin to the PRFS. However, this is not currently the case. Although the higher education law mandates international excellence even at the level of university lecturers, this criterion lacks a defined framework and does not carry the mandatory weight as required by the PRFS. The first significant academic milestone applying a centralized criterion system, independent of the university, pertains to university professorship applications—the highest academic position available. The Hungarian Accreditation Committee (MAB) considers prestige indicators used in the PRFS system (Scimago/Scopus quartiles) for qualification, both in the calculation of publication productivity and scientific impact (citations). Nevertheless, this system remains severely limited. Firstly, points awarded for publication excellence in the evaluation of university professors cover only 25% of the performance evaluation (50 points out of 200), and secondly, the MAB's opinion lacks mandatory enforcement. Empirical evidence indicates that a significant proportion of appointed university professors—particularly in fields like social sciences—do not fully meet the publication criteria set by the MAB (Sasvári–Urbanovics 2019). With regards to research funding, there are also seemingly PRFS-compatible domestic initiatives, particularly in relation to OTKA grants, where the use of the tudománymetria.com program has been proposed. The initial version of this program almost perfectly aligned with most PRFS expectations. However, in specific fields like social sciences and humanities, due to lobbying efforts within the research community,

prestige factors (i.e., journal rankings on the Scimago index where authors publish) were excluded from the evaluation. Notably, the research community swiftly responded to internationalization efforts. Within a month of tudománymetria.com's launch (November 2020), prestige factors and the international publication criterion were removed from evaluations for researchers within certain committees of the Hungarian Academy of Sciences (previously, the IX. section was involved, but prestige factors were reintroduced there in July 2021). Consequently, in these areas, any publication—whether in a leading international journal or an unpublished manuscript uploaded as a scientific work to the MTMT institutional website—holds equal value in terms of points. However, similar to the MAB's evaluation of university professors, it's empirically evident that the point score calculated by tudománymetria.com lacks any mandatory enforcement; reviewers may choose to consider these points as they see fit.

In the Hungarian context, we can see clear attempts towards internationalization aligned with the PRFS framework. However, significant resistance to these endeavors is evident, particularly because individuals in top positions, especially in the social sciences and humanities, might find it challenging to comply with the criteria of a PRFS-based system. As a result, there's vigorous lobbying against the implementation of PRFS systems, and where such systems do exist, they can be easily circumvented, raising doubts about their significance.

The resistance against PRFS is accompanied by understandable characteristics, particularly evident in ideologically charged social sciences, where older generations currently occupy senior positions. Due to the isolationist policies of socialism, they had far fewer opportunities to enhance their international visibility. Consequently, the introduction of frameworks linking positions to international excellence would significantly diminish their influence. Perhaps not unrelated to the fear of losing power, narratives emerge and spread widely, questioning the legitimacy of international standards.

In the domestic context, a prevalent narrative suggests that Hungarian social scientists should concentrate on Hungarian topics, often deemed unsuitable for international journals. Consequently, international excellence is often sidelined as a significant criterion in

research evaluation, with quality criteria, albeit challenging to define, taking precedence. However, there are numerous criticisms that can be made against this argument.

Firstly, if scientific research on national topics couldn't be published internationally, it would imply a limitation affecting all countries, suggesting that only region-specific subjects with significant population or political influence could gain international exposure. However, this doesn't seem to be the case, as numerous countries with small populations achieve notably higher publication outputs than ours, including several from the Eastern European region (as evidenced by Scimago Country Ranking). Secondly, an evaluation system lacking objective criteria, such as scientometrics, may easily veer towards subjectivity, or worse, nepotism, as seen both in social contexts (Böröcz 2000) and within academia (Havas–Fáber 2020). Thirdly, critics of metric-based frameworks have yet to propose a viable qualitative alternative. In principle, individual work could be assessed through expert analysis of their published articles, but this would require significant human resources, a practical challenge even in economically and academically advanced countries. Fourthly, given that international evaluation systems, encompassing university rankings (THE, QS, ARWU) and funding bodies like the ERC, prioritize researchers' international visibility, these criteria inevitably influence assessments, irrespective of individual countries' or researchers' perspectives. Consequently, unreasonable criticism of international standards and resistance to their implementation may lead to isolation, jeopardizing a country's scientific visibility in the long run. Thus, it's not surprising that reforms toward internationalization eventually need to manifest at the policy level, overcoming understandable personal resistance from some, or even many, researchers, as seen in Spain and partially in Poland.

Placing blind trust in citation metrics entails several inherent risks, as numerous distorting factors challenge their status as genuine indicators of scientific prowess. In an ideal scenario, each scientific publication would gather attention solely based on its intrinsic merit (Wu–Wolfram 2011). However, in reality, factors such as the author's institutional affiliation, departmental size, publication activity within the institution, and consequently, the likelihood of colleagues citing each other's work, alongside the institution's reputation and geopolitical standing, often play a more significant role. Not to mention phenomena

like the "Matthew Effect," where accumulated prestige disproportionately inflates citations beyond the article's scientific merit, or the "Matilda Effect," which biases the evaluation of scientific performance based on the researcher's gender, typically to the detriment of women across all measured domains (Knobloch–Westerwick 2013).

Scientific career paths and their criteria

Studies examining the conditions of academic career paths in Hungary primarily examine the structure and opportunities for university lecturers, but they often overlook the criteria and professional accomplishments expected in early-stage research careers. In Hungary's scientific landscape, often referred to as the "multi-level formalized pyramid model" (Sasvári–Urbanics 2021), the initial crucial level is obtaining a PhD or its equivalent, such as a DLA in the arts. However, many young aspiring researchers find themselves caught in the "early career trap," a phenomenon seen across various life domains. This means that to access prestigious research and publishing opportunities, they must already demonstrate significant research and publishing achievements early on, akin to the unrealistic professional experience expectations placed on beginners by employers. Lacking a robust mentoring system and tailored opportunities for them, the scientific career prospects for young individuals remain uncertain.

The university career progression in the multi-level formalized model can be classified into three types (Kochen–Himmel 2000), distinguished mainly by the level of advancement expectations and where emphasis is placed within the process. The first model, characterized by a lack of regulation, essentially lacks a defined career advancement system (such as in Israel or Italy). In the second model, attaining full professorship requires relatively few steps, with primary emphasis placed on the PhD thesis and research and publishing performance. This model is prevalent across most European countries (e.g., the Netherlands, Poland, Sweden, and the United Kingdom). The third type entails a comprehensive, multi-level formalized advancement system, where habilitation holds significant importance, and teaching experience is also valued alongside research and publishing activities. Countries like Austria, the Czech Republic, Finland, Germany, and Hungary fall into this category (Sasvári–Bakacsi–Urbanics 2021).

The Swedish system, often regarded as ideal, falls into the second category, prioritizing PhD education and encouraging performance during this phase through the establishment of more stringent requirements (Lindahl–Colliander–Danell 2020). However, it goes beyond mere "expectations" by providing the institutional and financial frameworks necessary for young scholars to access research and publication opportunities during their doctoral studies. Central to Sweden's excellence programs is the identification of the most promising young researchers, with substantial resources allocated to support their professional development (Hallonsten–Hugander 2014). What sets Swedish doctoral education apart is its guarantee of employment by the university for at least 4 years, enabling students to participate in research projects and teams (Hendrik 2020). Furthermore, publishing in preferred journals is not only expected during doctoral studies but increasingly considered a criterion (Mason 2018), with the publication records of doctoral candidates factoring into the selection processes of the job market.

Aligned with global trends and the prevailing ranking paradigm worldwide, there has been a notable shift in publication expectations within Hungarian doctoral education. The criteria for advancement through publications have become more stringent, placing a greater emphasis on publication performance to establish academic reputation. While previously it wasn't mandatory for applicants to doctoral programs to have publications in esteemed domestic or international journals, in some instances today, documented scientific or professional achievements not only offer an advantage[13] but are also required in certain programs[14], where applicants are expected to list their publications. However, these expectations vary across scientific disciplines and even within the same program, mirroring the diversity observed in other appointment structures.

If the primary aim is for the Hungarian higher education system to enter the global publication competition and elevate the Hungarian scientific landscape alongside the esteemed leading universities, then a strategic focus must be placed on the inception of this process. Supporting newcomers in the scientific community is crucial: doctoral programs

[13] https://mmtdi.sze.hu/downloadmanager/details/id/36929/m/1584 [Downloaded: 2022. 03. 22.]

[14] https://www.btk.elte.hu/phd/felveteli [Downloaded: 2022. 03. 22.]

should be standardized, mentorship initiatives established, and domestic and international partnerships forged to bolster the networking environment. Creating competitive scientific foundations through enhanced publication and research opportunities and securing sustained long-term funding are also imperative steps.

Internationalization Deficit vs. Global Inequalities

The university ranking industry, which has emerged only in the past couple of decades, has swiftly become a dominant paradigm globally, despite numerous negative implications and distortions highlighted by social researchers (Érdi 2020). Besides imposing a foreign, market-driven managerial perspective on science, education, and knowledge production, it reinforces social exclusion and deepens existing inequalities (Demeter 2020). The pervasive pressure for compliance and the extensive series of educational policy measures and reforms seen worldwide underscore the dominance of the ranking paradigm. However, these reforms, while introducing modern quality assurance systems and incentivizing research performance, also entail sacrifices and trade-offs. The relatively successful experiences in Poland and Spain exemplify these positive outcomes, yet they also highlight the inevitable losers in such transformative processes.

In this study, we critically examined the centralization of academic internationalization, which perpetuates global inequalities without adequately addressing the disadvantages faced by certain geographical regions. Additionally, we scrutinized domestic academic evaluation systems, contrasting them with the "good practices" observed in Spain and Poland. We highlighted how these systems, characterized by instability, opacity, and an overreliance on informalities, obstruct the seamless integration of scholars into the international research community, impede the global competitiveness of higher education institutions, and introduce unpredictability into the career trajectories of individual researchers. However, the apparent contradiction between these two critical perspectives can be reconciled by adopting a balanced approach. We argue that disadvantaged actors, particularly those within domestic academia, must actively pursue international visibility to ensure that their critical voices are heard on the global stage. Mere sideline commentary is insufficient; demonstrating excellence and surpassing existing benchmarks are essential steps toward initiating meaningful change. Effective critique of global hegemonies can

only stem from such a position of demonstrated capability and visibility. It is imperative to address the shortcomings of both our internal academic systems and the structural flaws within the international academic community. By proposing concrete reforms in both directions, we can leverage domestic and international criticisms as dual forces for change. Without self-criticism and a willingness to evolve, there is a risk that international criticism will validate narratives portraying peripheral regions as engaging in inferior scientific work, thus perpetuating existing inequalities. In summary, advocating against global inequalities while simultaneously urging self-critical renewal represents complementary facets of a dynamic process essential for effecting real change.

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1.2. International vs. National Academic Bibliographies. A Comparative Analysis of Publication and Citation Patterns in Scopus, Google Scholar, and the Hungarian Scientific Bibliography

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Abstract

Following academic globalization, successful integration into the international research community is a fundamental interest for all participating countries. The success of these internationalization processes, however, are often under scrutiny, and the results are rarely unequivocal. This holds true for Central and Eastern Europe, which usually is described as a semiperipheral region of global knowledge production. Analyzing the publication and citation indices of 365 Hungarian social scientists in one national (Hungarian Scientific Bibliography) and two global (Scopus, Google Scholar) databases, we explicate the current international impact of Hungarian academic research while exploring pivotal factors behind the major differences between databases. Our results indicate that Hungarian scholars lag behind their peers in neighboring countries, necessitating effective policy measures. To this end, the analysis recommends the use of standardized global publication

databases instead of national datasets, while still acknowledging the shortcomings of the latter in research assessment protocols.

Keywords: Internationalization; research assessment; research policy; scientometrics; social science

Introduction

The increasing internationalization of academic research is generated by a complex set of economic, political, and policy factors as well as by scientific components in a narrower sense. Scholars argue that the globalization of academia seems to share the dynamics of the globalization process of economy that has been extensively criticized by, among others, dependency theorists and world-system researchers (Demeter, 2019b; Wallerstein, 1974a, 1974b, 1979, 1983, 1991). Compared to the North American and Western European regions, the academic internationalization of other world regions, including Central and Eastern Europe (CEE) is often less successful, or even controversial (Demeter, 2017). In fact, at all levels of academic knowledge production—including publication output, citations, usage, theorization, and editorial board membership—there is a significant underrepresentation of non-Western regions (Demeter, 2017, 2018a, 2018b). Furthermore, these disproportionalities seem far more intensive in social sciences and humanities (SSH) compared to the natural sciences, where cultural and epistemic differences play a somewhat less significant role (Demeter, 2019a).

Although recently internationalization appears to be a strategic goal within the CEE, there is substantial resistance from within the academic field, where especially those holding higher academic positions are trying to maintain the "good old ways" (Havas & Faber, 2020). It is clear, that the members of older academic generations (Kwiek, 2017) who currently hold senior positions had far fewer opportunities to increase their international visibility, and thus the introduction of frameworks linking positions to international excellence would greatly reduce their influence. Narratives questioning the legitimacy of international standards are therefore inevitably emerging and spreading. One such narrative is that national researchers should favor national topics with national societal relevance,

and the results, especially in the case of relatively small and peripheral countries such as Hungary, cannot be published in international journals. Therefore, it is argued that international excellence should not be a significant factor of research assessment. However, despite the personal resistance of some— or even a larger number of—researchers, the results of several internationalization programs such as the Spanish (Fernandez-Quijada & Masip-Masip, 2013) or Chinese (Xu, 2020) academic reforms indicate not only that internationalization strategies have increased the international visibility and thus the scientific influence of these countries, but that researchers themselves ultimately identified with both the purpose and the means of these reforms.

Within this article, we provide an analysis of the publication and citation indices of 365 Hungarian social scientists as they appear in one national (Hungarian Scientific Bibliography) and two international (Scopus, Google Scholar) databases. The aim is to explicate the current international impact of Hungarian academic research whilst exploring correlations between different databases to serve as basis for future policy making. First, we give a brief overview of the current internationalization processes within the CEE and Hungary, as well as the idiosyncratic database MTMT (Hungarian Scientific Bibliography), that serves as the basis for domestic research assessment. Second, we formulate our research questions and describe our methodology. Third, we provide a detailed description with regard to our result. Finally, we formulate conclusions and recommendations for local policymaking and researchers, propagating a dual critique that attacks both the market-like logic of the university ranking paradigm that reproduces global inequalities in academia, as well as the local academic assessment protocols that lack transparency, objectivity, and promote informalities. Limitations of the study are also mentioned in the concluding sections.

Internationalization of academic publication in CEE

Following the aforementioned academic globalization, policymakers in many CEE countries voted in favor of internationalization, and the process of CEE transformation is of great interest even outside the region. In 2017, one of the leading journals of higher education, the European Educational Research Journal, published a special issue about studies on research and higher education reforms in CEE. The transformation is interpreted

in a broader European context by Antonowicz, Kohoutek, Pinheiro, and Hladchenko (2017) and traced back to the Lisbon Strategy, in which increasing research excellence and the quality of higher education is a key policy aspect. In the emerging discourse of research excellence, scientific publications increasingly appear as dominant criteria. However, excellence measured via output has been problematic for the academic environment of CEE from the outset. As Boyadijeva (2017) states, the privileged role of personal relationships in the region, the political entanglement, and the larger gap (compared to the Western world) between research being conducted mainly at institutes and teaching happening at universities are all part of the post-communist heritage. The underfunding of the region is particularly pronounced, and so scholars argue that international-level science should be underpinned by international funding (Dobbins & Kwiek, 2017; Kwiek, 2012). Researchers are also warning that the aforementioned issues—if not addressed urgently—could completely detach the Eastern European region from the growing European research array (Karady & Nagy, 2018; Kwiek, 2014; Warczok & Zarycki, 2018). For that reason, many countries in the region are beginning to realize the need to become more competitive within the international academic field, which can serve not only to increase the attractiveness of the country's scientific and higher education institutions, but as a prerequisite for successful external funding as well (Kohoutek, 2009; Wodak & Fairclough, 2010). Whether we approach the globalization of academic research with hopeful enthusiasm or critically, there is no point in denying the mere fact of internationalization and so the need of adjusting to an increased competition it brings forward. In Western European countries, international publication (that is, internationally visible and indexed publication) is already a highly propagated requirement in university research positions. This, most likely, stems from the prevailing university ranking paradigm; including the fact that the most renowned international university rankings (i.e., QS, THE, ARWU)—as well as the most influential international research funds' allocation protocols—pay special attention toward internationally indexed output of the staff when evaluating institutions (Ianos¸ & Petris¸or, 2020; Oancea, 2019). For that, CEE countries—alongside other peripheral and semi-peripheral regions with less funded research economies—are necessitated to adjust to international trends of research assessment in order to stay

competitive, despite the apparent systematic shortcomings of these dynamics (Demeter, 2017; 2020; Gadd, 2020).

Consequently, to increase competitiveness, research assessment factors like those applied in Western regions appear in these countries, typically as requirements for publication excellence measures (e.g., number of publications, research productivity, place and citation count of publications, research performance; Dobbins, 2011; 2015; Froumin & Smolentseva, 2014; Kwiek, 2014). Analyzing research assessment reforms in three CEE countries (Serbia, Montenegro, and Slovenia), Popovic, Pekovic, and Matic (2019) indicated that, albeit to varying extents, publication in journals on Web of Science's SSCI list has become mandatory in all of them. Similar trends seem to be emerging in Hungary, where several universities reward—or even directly require—publication in Scopus-indexed international journals, and international criteria of excellence have appeared in both university career models (Sasvari & Urbanovics, 2019) and in the assessment protocols of scholarly funding allocations (Gyorffy, Herman, & Szabo, 2020).

The Hungarian Scientific Bibliography

The idiosyncratic database, the Hungarian Scientific Bibliography (MTMT) that is primarily used for official research assessment, is of limited use when assessing international excellence. One of the most prominent shortcomings of MTMT is that data is uploaded by the authors without an external audit. This brings about least two problems. First, authors may enter the data incorrectly and so the database—that now contains incorrect information—will inevitably distort the output of the assessment. Second, although frequent updating is mandatory, authors may neglect their MTMT profiles, rendering the information incomplete. There are numerous possible alternatives to MTMT. These are typically Scopus, The Web of Science, or Google Scholar (GS), where author profiles are not fully manually edited, and thus provide more reliable data. The practice of Hungarian universities and grant allocators to use MTMT data in assessment and decision-making is certainly debatable, as it implicitly promotes a system that is relatively independent of international visibility. Notwithstanding, the fact that international excellence criteria progressively appear in the discourse and the concrete implementations related to academic progress (Beracs et al., 2017) indicates that, within the world-system

of scientific globalization, Hungary is taking steps toward international participation rather than toward isolation.

Research questions and Methodology

Focusing on the fields of social sciences and humanities (SSH), we aim to scrutinize the international visibility indicators of the members of the Hungarian research community who are able to devote a large part of their work to research. To this end, we formulate the following research questions:

> *Research Question 1 (RQ1): How does the international visibility of Hungarian SSH scientists appear in terms of the proportion of international publications to the total publication output, and citations visible at the international level?*
>
> *Research Question 2 (RQ2): How do international publication patterns of Hungarian SSH scientists compare with other countries' output in the region?*

Furthermore, considering major differences between scientific databases, and the assumed misrepresentation of international visibility in MTMT, we formulate an additional research question:

> *Research Question 3 (RQ3): How do the publication and citation patterns of Hungarian SSH scientists correlate between different publication databases (i.e., MTMT, Scopus, and GS)?*

Dataset

Data was drawn from the database of Toth and Demeter (2021) containing the list of employees of the most relevant academic (ELKH) and governmental research institutes from 2019 in social sciences and humanities. A further check revealed that several researchers had relocated to other institutes since 2019. However, as we did not examine the output of individual academic institutes, but of researchers in specific disciplines, these changes hold no significance for our inquiry. It is noteworthy that differentiating between researchers and academics in general is especially important in the Hungarian context. In Hungary, as in many other CEE countries, research is traditionally conducted in academic research institutes, while the research expectations of university lecturers are significantly

lower. Therefore, it can be assumed that the publication patterns found among members of research institutes reflect the output of the most successful researchers (with the most research time), whereas the publication output of university staff is probably lower.

Overall, we analyzed researchers in a total of six institutions at ELKH with a focus on fields as linguistics, history, law, art history, political science, and sociology (see *Appendix A* for detailed coding protocol). Given the predominantly research-oriented profile of these academics, we assume that their scientific output provides the patterns of the research elites of these areas (MTA, 2019). We initially planned to compare measures from three databases: MTMT, Scopus, and GS; however, we could only use the latter to a limited extent.

The maintenance and regular updating of one's MTMT profile is mandatory for all Hungarian researchers and academics, therefore we used these profiles for all researchers. According to our methodological decision, we have accepted the input data as author's input, recognizing that such data do not necessarily refer to reality, but to the representation recorded by authors.

Unlike MTMT, records in Scopus can generally be considered objective and to represent visibility regardless of author manipulation. Data cleansing was done in the case of Scopus only when an unverifiably large number of authors were associated with one—usually very common—name and the identity of the original researcher could not be clearly established (n = 3). In some cases (n = 4), also in cases of common names, the profiles of several authors were incorrectly conjugated, as could be easily ascertained from the occurrence of disciplinary anomalies (e.g., an art historian who is also assigned articles related to cancer research or solid-state physics). After data cleansing, 365 of the original 372-person sample remained.

Unlike MTMT and Scopus, there is no theoretical grounds on which to reasonably assume the existence of any given researcher's GS profile, as the creation of such is neither mandatory (as for MTMT) nor automatic (as for Scopus). GS is, in many ways, mixed: the profile must be created by the researcher (who can even add manual entries), but the assignment of citations is automatized. Nevertheless, it uses far more sources than Scopus does, collecting them in virtually any language and from any outlet (e.g., books, journal

articles, book chapters, conference publications, dissertation, etc.) that can be found digitalized on the Internet. However, due to its optional nature, only a part of the sample (*n* = 113) had a GS profile. For that reason, correlations between records on the three databases could only be supplemented on a smaller sample, maintaining that measures of the smaller sample are not necessarily representative of the whole.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Number of MTMT documents	.199	365	.000	.669	365	.000
Number of MTMT citations	.266	365	.000	.593	365	.000
MTMT H-index	.118	365	.000	.827	365	.000
Number of Scopus documents	.257	365	.000	.647	365	.000
Number of Scopus citations	.377	365	.000	.325	365	.000
Scopus H-index	.267	365	.000	.698	365	.000

[a]Lilliefors significance correction. MTMT = the Hungarian Scientific Bibliography.

Table 1. Normality test of variables in the entire sample.

We also examined how Hungarian, Russian, Polish, Czech, Slovenian, Croatian, and Romanian researchers perform on the European TOP 500 SciVal[16] list of the given fields. In each field, a certain number of publications is required to be included on the list. Therefore, the number of researchers on the list from the same country is instructive in a comparative manner.

Analysis and results

International visibility of Hungarian SSH research

The normality test for distribution clearly indicates that for variables based on data from both the MTMT and Scopus, hypotheses of normal distribution should be rejected (Table 1). Due to the non-normal distribution, we report median values instead of the means, as the latter tend to indicate distorted results in such cases (Table 2).

[16] *(Editorial comment for the dissertation).* The *"European TOP 500 SciVal list"* refers to the top 500 authors affiliated with European institutions in a given field, based on scholarly output as recorded in the SciVal/Scopus database.

The results show, albeit to a varying extent, severely low proportions of Scopus-indexed international publications in all disciplines examined. In this regard, with 99% of their total output being virtually invisible in Scopus, and with the median of Scopus citations—and thus the median of H-indices—converging to zero, the fields of history and art history seem to perform the worst. To make the publication outputs easily comparable, Table 2 also indicates normalized values for 100 researchers (what output the given discipline would have for 100 researchers). The data shows that although historians and art historians publish quite a lot, they do it almost exclusively in outlets invisible to Scopus. For instance, historians in general publish more than twice as much as linguists, but the number of their internationally visible publications is less than half that of linguists.

	Linguistics	History	Law	Art history	Political science	Sociology	Aggregated
n	105	101	48	27	39	45	365
Number of MTMT publications	6,097	12,812	6,688	3,681	3,497	5,795	38,570
Normalized (n = 100)	5,806	12,685	13,983	13,633	8,966	12,877	10,567
Median of MTMT publications	33	100	80	75	67	112	75
Median of MTMT citations	100	192	132	59	132	248	152
Median of MTMT H-index	5	7	6	4	6	9	6
Number of Scopus publications	494	190	211	55	272	351	1,573
Normalized (n = 100)	470	188	440	204	697	780	431
Median of Scopus publications	2	1	3	1	6	6	2
**SciVal TOP 10	45	12	14	NA	29	29	26
Median of Scopus citations	1	0	1	0	10	12	1
**SciVal TOP 10	411	5	15	NA	244	244	184
Median of Scopus H-index	1	0	1	0	2	2	1
**SciVal TOP 10	12	2	2	NA	8	8	6
Scopus visibility rate (%)	8	1	3	1	8	6	4
Scopus citation rate (%)	16	1	3	1	11	16	6

MTMT = the Hungarian Scientific Bibliography.

Table 2. Descriptive statistical results.

Legal researchers, political scientists, and sociologists perform the best in terms of international output. However, medians are relatively high only in the cases of the latter two, which means that a few top-performing researchers in law increase the output of the entire field, whilst among political scientists and sociologists, a larger proportion of authors are regularly publishing in international outlets. Similar trends are seen in the case of linguistics, where—despite the large number of documents—Scopus medians are relatively low, indicating extremely unequal publication patterns. Notwithstanding, data on the top performing Hungarian authors (SciVal TOP 10) also indicate that these low values cannot be explained by the notion that Hungarian authors working at Hungarian institutes are by default unable to publish in places visible to Scopus. In fact, the publication output of the top performing Hungarian authors working in Hungary are several times higher than the median values of the sample examined, both in terms of scientific output and citations. Therefore, publishing in internationally acknowledged, Scopus-indexed outlets is clearly possible for Hungarian social scientists and humanities researchers, just as it is also possible to create a context for being regularly cited—which requires, of course, visible publications.

Due to the power function distribution of variables, the examination of distribution curves is also instructive, as it indicates that—especially in Scopus—the visibility of a discipline is owed almost exclusively to the work of a few researchers in the field (Figure 1).

Distributions show that the field is far from homogeneous, as a small group of authors generate most publications and citations. Distributions are most imbalanced in the data of Scopus, where most of the authors have zero or minimal output. Of the total sample (n = 365), 209 researchers (57%) have at most two Scopus-indexed items, of which 107 (29%) have no visible work listed in Scopus. However, there are significant differences between the disciplines examined: among historians, the proportion of researchers with no more than two items visible in Scopus is 76%, and almost half of the authors in total (49%) have no output in Scopus at all. Only art historians seem to perform worse, where the proportion of those with no more than two Scopus items is 85%, notwithstanding, the proportion of completely invisible researchers among them is only 33%. Political scientists perform the

best here as well: the proportion of those with no more than two items is 31 and 33%, while only 10 and 2% of authors are invisible.

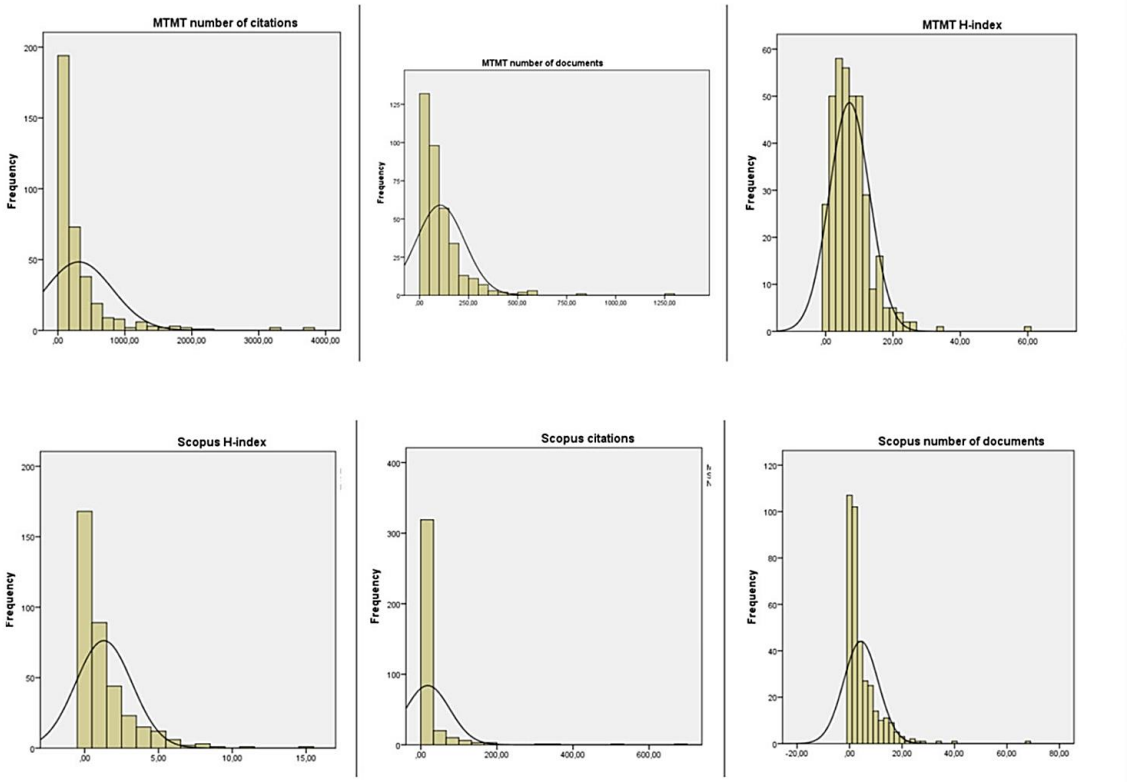

Figure 1. The correlation of data between Google Scholar,
the Hungarian Scientific Bibliography (MTMT), and Scopus.[17]

However, the most radical disproportion is shown not in the number of Scopus items, but in the number of Scopus citations: almost half of the total sample (46%) was never cited in Scopus items, and the proportion of those with no more than two citations is close to 60%. The differences between disciplines are also distinctive here: 70% of historians in the sample have no Scopus citations at all, and the proportion of authors cited no more than twice is 80%. The same proportions are 43 and 59% for linguists, 44 and 65% for legal

[17] *(Editorial comment for the dissertation).* The published title of *Figure 1*, "The correlation of data between Google Scholar, the Hungarian Scientific Bibliography (MTMT), and Scopus," is misleading here. The figure shows the frequency distribution of MTMT and Scopus variables (citations, documents, and H-index), not correlation. This should be considered for accuracy in future work.

researchers, 79 and 85% for art historians, 15 and 31% for political scientists, and 11 and 18% for sociologists. Accordingly, the distribution of Scopus H-indices is extremely imbalanced: more than 70% of the researchers examined have an H-index of no more than 1, and the proportion of authors with H-indices higher than 5 is only 2%.

Regional comparison

As a comparative test of the region, we measured the performance of Hungarian authors against that of researchers from Hungary's neighboring countries in the same disciplines. As in Scopus/SciVal, fields of political science and sociology are categorized as one, values obtained here were interpreted for both disciplines. In the case of art history, which lacks a suitable Scopus category, the comparison could not be made (Table 3).

SciVal 2018–2021	Linguistics	History	Law	Political Science + Sociology
Europe Top 500	Min. 8	Min. 6	Min. 6	Min. 9
Russia	39	233	18	27
Poland	28	5	8	9
Czech Republic	11	4	10	9
Slovenia	10	13	4	1
Croatia	0	5	2	4
Romania	0	23	0	0
Hungary	6	0	1	2

Table 3. International publication output of the best performing researchers in a regional comparison.

able 3 indicates that researchers from countries neighboring Hungary are more likely to be included on SciVal's Top 500 European list based on their productivity visible in Scopus and, thus, internationally. In Hungary, for instance, there is no historian whose performance is sufficient enough to be included, while such researchers are found in all the other countries examined. For example, in Romania, 23 historians write enough international articles to be among the 500 most productive researchers, and even in Slovenia—a relatively small country compared to Hungary—13 historians excel in productivity at a European level. The argument that national topics cannot be published internationally is, therefore, unconvincing, because if Polish, Czech, Slovenian, Croatian, and Romanian researchers—not to mention Russians, of course—succeed in doing so, it is certainly, with

the right habitus, a possibility for Hungarian authors as well. According to Table 3, Hungarian researchers lag behind their Russian, Polish, Czech, and Slovenian colleagues in most of the fields of study, and since the measurements refer to the individual research level, the size of the foreign research institutions is not an important factor here. Based on this, it is reasonable to assume that the habitus of not only the best European researchers in general, but also of the authors in the region is more oriented towards internationally visible publication than that of their Hungarian colleagues, and so there is certainly room for improvement.

Correlations between different scientific databases

In addition to the differences between records of the databases examined (i.e., descriptive statistical analysis), we investigated correlations between the two complete databases (MTMT and Scopus) for the measured variables (Table 4). Correlations were also calculated within the subsample that had a GS profile (Table 5). Since our variables were not normally distributed, nonparametric tests were performed in both cases (Spearman's Rho).

	Linguistics	History	Law	Art history	Political science	Sociology	Aggregated
n	105	101	48	27	39	45	365
Document count	.633**	.258**	.397**	.457**	.455**	.370*	.377**
Citation count	.590**	.293**	.293**	.575**	.322**	Not significant	.316**
H-index	.596**	.318*	.298**	.574**	.320**	Not significant	.319**

MTMT = the Hungarian Scientific Bibliography. **Correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level.

Table 4. The correlation of data between Scopus and MTMT.

Tables 1 and 2 show a positive correlation between Scopus and MTMT data for the total sample, however, the correlation is weak for both the number of documents, the number of citations, and the H-index, as Spearman rho values below 0.4 are weak for both positive and negative correlations (Prion & Haerling, 2014). Differences between disciplines are, once again, significant: the correlation coefficients are the highest in linguistics and lowest in history, but there is no significant correlation between MTMT and Scopus data for

sociologists in terms of citation or H-index. The partial sample—including records of GS—indicates that MTMT data correlate more strongly with GS than Scopus for all three variables: coefficients reveal a moderate positive correlation of document count, and strong positive correlations of citation count and H-index between the two databases. Overall, GS and MTMT tend to present a similar picture—at least for researchers who have created a Scholar profile for themselves— whereas Scopus data cannot be reliably inferred from records of MTMT or vice versa.

Discussion and recommendations

Based on our results, we can say that, for Hungarian scholars, the representation of the analyzed SSH fields in international, indexed, transparently recorded, and accessible (e.g., for assessment systems and university rankings) publications is very low. In general, notwithstanding disciplinary differences, the vast majority (96%) of publications are invisible in Scopus and thus are lost to international assessment systems. Therefore, only 4%— in some fields, as little as 1%—of the published articles are included in the international representation of the Hungarian scientific output. Accordingly, the proportion of international citations to Hungarian research is negligible, as lower visibility generates a lower scientific impact. Our research also indicates that this cannot be explained by general assumptions that national science is unpublishable in international outlets of Anglo-Saxon traditions. We showed that both the most successful Hungarian researchers and the internationally visible authors of the countries neighboring Hungary can generate significant Scopus visibility, and so we conclude that the low international scientific output of Hungary is primarily due to a specific domestic habitus unfavorable toward international visibility (Sasvari, Bakacsi, & Urbanovics, 2021), and not, or at least not significantly, to the often-voiced impossibility of conditions.

Spearman's rho		MTMT publication count	MTMT publication count	MTMT H-index	Scopus publication count	Scopus citation count	Scopus H-index	Google Scholar citation count	Google Scholar H-index
MTMT publication count	Correlation Coefficient	1,000	.725**	.687**	.289**	.244**	.240*	.462**	.446**
	Sig. (2-tailed)		.000	.000	.002	.009	.011	.000	.000
	N	113	113	113	113	113	113	113	113

Spearman's rho		MTMT publication count	MTMT publication count	MTMT H-index	Scopus publication count	Scopus citation count	Scopus H-index	Google Scholar citation count	Google Scholar H-index
MTMT citation count	Correlation Coefficient	.725**	1,000	.916**	.472**	.451**	.462**	.700**	.696**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	113	113	113	113	113	113	113	113
MTMT H-index	Correlation Coefficient	.687**	.916**	1,000	.485**	.461**	.469**	.658**	.679**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	113	113	113	113	113	113	113	113
Scopus publication count	Correlation Coefficient	.289**	.472**	.485**	1,000	.905**	.881**	.678**	.706**
	Sig. (2-tailed)	.002	.000	.000		.000	.000	.000	.000
	N	113	113	113	113	113	113	113	113
Scopus citation count	Correlation Coefficient	.244**	.451**	.461**	.905**	1,000	.977**	.703**	.735**
	Sig. (2-tailed)	.009	.000	.000	.000		.000	.000	.000
	N	113	113	113	113	113	113	113	113
Scopus H-index	Correlation Coefficient	.240*	.462**	.469**	.881**	.977**	1,000	.706**	.744**
	Sig. (2-tailed)	.011	.000	.000	.000	.000		.000	.000
	N	113	113	113	113	113	113	113	113
Google Scholar citation count	Correlation Coefficient	.462**	.700**	.658**	.678**	.703**	.706**	1,000	.956**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	113	113	113	113	113	113	113	113
Goodle Scholar H-index	Correlation Coefficient	.446**	.696**	.679**	.706**	.735**	.744**	.956**	1,000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	113	113	113	113	113	113	113	113

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 5. The correlation of data between Google Scholar, MTMT, and Scopus.

Our research also offers results worth considering about MTMT (and more generally, any idiosyncratic national publication database) and its applications in research assessment, as well as in academic promotion protocols. The data indicates that a high proportion of researchers with MTMT profiles that show immense productivity are virtually invisible in Scopus. It is at least questionable if the institutional application of MTMT by default supports a habitus that promotes the easy way instead of international excellence. Notwithstanding, the strong correlation between GS and MTMT data indicates that the creation of GS profiles could be propagated even via policy measures, as they include not only international but also Hungarian research and citations, whilst in the case of records not being submitted directly by the authors, there is a lower possibility of human error in data collection. However, as making a GS profile is not automatic and individual researchers—or their institutions—must register, an official and mandatory requirement for scholars to make GS profiles may raise considerable questions regarding scientific integrity.

Finally, the fact that for many researchers there are significant differences between the citations in MTMT and on GS (at times, a difference of hundreds or even thousands) raises serious questions. Of these, the easier to understand cases are when the number of Scholar citations exceeds the number of MTMT citations (in these cases, the author obviously does not maintain the MTMT profile up-to-date and so citations are left out). The opposite case, however, when the number of MTMT citations exceed the number of citations seen by Scholar by hundreds or even thousands, is more difficult to interpret, because GS, in principle, notices all citations that appear online in any form. Thus, MTMT overcitation can only occur if recorded citations come from publications that cannot be found online at all. This, of course, raises questions about how hundreds and thousands of these citations can be acquired, and how these records could be verified at all. It is no coincidence that in international practice, researchers increasingly indicate their number of citations via links to their research profile on online, automated platforms (i.e., GS, Scopus/SciVal, Publons, Mendeley, Semantic Scholar, IMpactU, etc.), for data within these systems are transparent, easily verifiable, and suitable for benchmarking. In the case of MTMT—and most likely many other national databases—these conditions are not sufficiently met due to the author-reliant data entry protocol.

Based on our results, and in line with the relevant literature discussing the improvement of higher education institutions' competitiveness (Aguinis, Yu, & Tosun, 2021; Walsh, 2011), we propose that—in the case of countries with national bibliographic databases—clear frameworks should be introduced in research planning, research funding, and research assessment, highlighting the importance of enhancing international visibility, therefore, whilst taking disciplinary differences and domestic particularities in account, being largely in line with the international practices to achieve a better international position. Furthermore, we propagate the use of standardized global publication databases instead of national datasets for research assessment protocols. This, of course, also requires that higher standards be applied for Scopus articles and citations compared to those of local database entries (e.g., MTMT; Sasvari & Urbanovics, 2021). Such incentives may encourage researchers to publish articles visible in Scopus, as they can not only achieve higher scores in assessment, but also bypass possible errors resulting from manual data entry. These recommendations are, of course, only beneficial if they are applied in a transparent, fair, and competitive way at all levels of the scientific field, including academic job applications, promotions, appointments to key positions, research grants, or scholarships. The development of predictable frameworks and confidence in their correct and transparent application may promote an academic habitus, which can significantly increase the visibility of CEE social sciences, elevating the international competitiveness of domestic higher education institutions.

Limitations and the future of CEE research

As mentioned in the beginning, CEE countries—alongside other peripheral and semi-peripheral regions with less funded research economies—are necessitated to adjust to international trends of research assessment promoted by international university rankings and research funds in order to keep their heads above water, despite the apparent systematic shortcomings of these dynamics (Ianos¸ & Petrisor, 2020; Oancea, 2019). For most of the methodological decisions of our current study were based on this prevailing market-like perspective, we feel obligated to address the weaknesses of current academic research assessment protocols along with the associated limitations of this analysis.

On one hand, there are particular shortcomings regarding the coverage of international databases such as Scopus. These limitations are especially problematic in the more culturally contextualized fields of arts, humanities, and social sciences (e.g., fields of this study; Art History and History), as compared to STEM. Furthermore, in many of these fields, book chapters and monographs are still very dominant publication outlets and, therefore, conceptualizing publication output merely based on high-JIF (Journal Impact Factor) publications most probably hinders adequate assessment. After that, these aspects not only question the prevailing assessment dynamics, but also limit our analysis, as, for instance, correlation measures between MTMT and Scopus could also be easily hindered. A similar argument can be raised with regards to h-index, for although it is less and less viewed as an appropriate or meaningful research evaluation metric, it is still propagated in international databases such as Scopus. Therefore, the inclusion of h-index as a variable in our analysis is more attributed to this latter, while at the same time we acknowledge and emphasize the limitations and skewed nature of this measure in research assessment protocols.

Within this study, we conceptualized visibility along the market-like perspective of the university ranking paradigm based on high-JIF publications to raise awareness of CEE's current underrepresentation in global academia. However, it is at least questionable, whether the protocols employed by these rankings are adequate, are based on meritocratic values, and, therefore, should be propagated at all (Gadd, 2020). Most recently, these dynamics are being criticized along the line of the San Francisco Declaration on Research Assessment (DORA, 2012), an initiative that recognizes the need to improve the ways researchers and the outputs of scholarly research are being evaluated and calls for placing less emphasis on publication metrics and becoming more inclusive of non-article outputs. Gadd (2021) highlights fundamental critiques stated in the DORA regarding journal metrics and university rankings, including problems with construction of these rankings (e.g., they use poor proxies for evaluating the quality of education, most often overlook societal impact of universities, and the data sources they use are typically biased towards the global North), as well as the validity and their academic impact. The truth, as she notes (Gadd, 2021), is that "that the 'top' universities are mainly top at being old, large, wealthy, English-speaking, researchfocussed and based in the global north" (p. 2). Similar concerns

regarding systematic disparities are also raised by peripheral scholars with regards to alternative business models that are supposed to serve their interests. For instance, OA (Open Access) publishing, although a promising tool when considering citation advantage, seem not to by-pass the apparent systematic problems of global academic knowledge production regarding geopolitical inequalities (Demeter, 2019c; Demeter & Istratii, 2020).

Taking all this into consideration, we argue—from a CEE perspective— that we need to be critical both toward the central academic dynamics motivated by the university ranking paradigm that result in the constant reproduction of global inequalities, as well as those local academic assessment protocols that lack transparency, objectivity, promote informalities, and, therefore, hinder the integration into the international research community, the international competitiveness of local HEIs, and render the career path of individual, especially young, researchers unpredictable. We argue that criticism of global inequalities and urging self-critical renewal together mark two sides of a single dynamic that promotes development. Conceptualizing excellence and visibility along the lines of university rankings and high-JIF publications are apparently problematic. However, in order for peripheral scholars to be able to raise their concerns in a meaningful way, they need to make an impact; we need to be at least visible from a central perspective to propagate actual change.

Disclosure statement

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Appendix A

The following variables were used for the analyses:

<*name*> the name of the researcher

<*discipline*> 1 = linguistics; 2 = history; 3 = law; 4 = art history; 5 = political science; 6 = sociology. The basis for determining the discipline is the institute to which the researcher was affiliated (we did not investigate the objectively undecidable question of

whether x is actually a historian, but only whether x worked at the Institute of History of the Hungarian Academy of Sciences at the time of data collection).

<*number of MTMT documents*> Collected from the MTMT database, counting only scientific publications (i.e., journal articles, books, edited books, book excerpts, abstracts, conference papers, and other scientific papers).

<*number of MTMT citations*> Collected from the MTMT database, counting only citations of scientific publications, including self-citations, as those are not separated in Scopus or Google Scholar either.

<*MTMT H-index*> Collected from the MTMT database and, in line with the aforementioned, factoring in only the citations to scientific publications.

<*Number of Scopus documents*> Collected from the Scopus database for the entire oeuvre, counting all indexed documents (i.e., journal articles, book chapters, books, conference articles, book reviews, etc.).

<*Number of Scopus citations*> Collected from the Scopus database for the entire oeuvre.

<*Scopus H-index*> Collected from the Scopus database for the entire oeuvre.

<*Number of Google Scholar citations*> Collected from the Google Scholar database for the entire oeuvre.

<*Google Scholar H-index*> Collected from Google Scholar database for the entire oeuvre. Google Scholar does not count documents, so no data concerning document count has been collected here.

<*Scopus visibility rate*> The ratio of the total publication record to the record also visible in Scopus.

<*Scopus citation rate*> The ratio of the total citation record to the record also visible in Scopus. Scopus measures were applied on two different samples to aid international comparison.

<top 10 sample> Data (Scopus article count, Scopus citation count, Scopus H-index) of the authors with the most publications in Scopus in the examined fields and within the most recent period (2018–2021) according to SciVal.

<regional sample> We examined how Hungarian, Russian, Polish, Czech, Slovenian, Croatian, and Romanian researchers perform on the European TOP 500 SciVal list of the given fields. In each field, a certain number of publications must be met to be included on the list, so we examined how many researchers of each country meet these preconditions. We believe this method to be more suitable for comparing the habitus of researchers than both institutional-level (as the number of researchers at different institutions may radically vary) and expenditure-level measurements (since it is impossible to know how expenditures are being distributed among research units and researchers). At an individual-level comparison, we measure (and compare) only the best performing researchers, regardless of the size of the institution they work for.

2. GLOBAL DISPARITIES: UNVEILING INEQUITIES IN ACADEMIC KNOWLEDGE PRODUCTION FROM A TOP-DOWN PERSPECTIVE

2.1. Beyond Views, Productivity, and Citations: Measuring Geopolitical Differences of Scientific Impact in Communication Research

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Abstract

Scientometric analyses applying critical sociological frameworks have previously shown that high-prestige research output—with regards to both quantity and impact—is typically clustered in a few core countries and world regions, indicating uneven power relations and systematic biases within global academia. Although citation count is a common formula in these analyses, only a handful of studies investigated altmetrics (impact measures beyond citation-based metrics) in communication science. In this paper, we explore geopolitical biases of impact amongst the most productive scholars in the field of communication from 11 countries and 3 world regions. Drawing on SCOPUS data, we test three formulas that measure scholarly performance (citations per document; views per document; and citations per view) to investigate how geographical location affects the impact of scholars. Our results indicate a strong US-dominance with regard to citation-based impact, emphasizing

a further need for de-Westernization within the field. Moreover, the analysis of altmetric formulas revealed that research published by Eastern European and Spanish scholars, although accessed similarly or even more often than American or Western European publications, is less cited than those. Country-level comparisons are also discussed.

Keywords: Scientometrics; Geopolitical biases; Matthew-effect; Altmetrics; Citation count; View count; Communication

Introduction

Early key quantitative research findings of spatial scientometrics, a relatively young field drawing both from traditional scientometrics and geography of science (Frenken et al., 2009) showed that high-prestige research output—results published in journals covered by the Science Citation Index (SCI)—is highly clustered in a few core countries both with regards to quantity and impact (Frame et al., 1977; Narin & Carpenter, 1975). Subsequent investigations into the spatial aspect of scientific knowledge production continued focusing on national differences in science production (Csomós, 2019), while critical social scientific studies contributed to the discussion, reflecting on the uneven power relations and biases in global academia (Demeter, 2019a, 2020; Goyanes & Demeter, 2020; Háló & Demeter, 2022).

In this paper, we continue exploring the intersection of scientometrics and critical sociology through an empirical analysis of geopolitical differences amongst the most productive scholars in communication studies. Over the past century, communication has become an important and emerging area of scientific inquiry in global academia due to major social and technological changes (Marinho & Mariño, 2018). Communication science is generally understood as the study of how people use messages to create meanings within and across various contexts, channels, and media (Craig, 2008), however, the field is still facing challenges in defining its comprehensive identity due to its multidisciplinary foundations as well as the rapidly evolving media and socio-technological environment (Nordenstreng, 2004, 2007; Waisbord, 2019). As the paper at hand applies scientometric means to conceptualize the field, for the purpose of this study, communication science is

to be understood as a category of SCOPUS; the major scientometric databases that provide data for the presented analyses.

The study contributes to the field by being the first analysis to measure geopolitical biases among the most productive scholars in communication studies through SCOPUS view counts. Besides testing the more traditional citations per document formula, we also measure scholarly performance through views per document and citations per view and examine how geographical location (derived from a scholar's institutional affiliation) affects the impact of scholars ranked top 500 by SciVal in Communication. Comparing researchers from 11 countries and 3 world regions, we investigate if there are statistically significant differences between the frequency of their publications being accessed as well as cited.

Scientific excellence through the lenses of country-level metrics

Country-level scientometric analyses, as well as its variants focusing on geographic regions (Bornmann & Waltmann, 2011; Godin & Ippersiel, 1996) or organizations (universities, clinics, hospitals, public and private research institutions as centers of knowledge production in a metropolitan region; Matthiessen & Schwartz, 1999; Matthiessen et al., 2010; van Noorden, 2010) remained widely popular in scientometrics over the years. Focusing on the quantities and impact of academic knowledge production, subsequent country-level research can be grouped into two major categories based on the source of data they draw on. The first group deals with interactions occurring within scientific platforms, measuring the acknowledgment and further use of results among members of the scientific community, while the second aims to measure impact outside the peer-reviewed corpus and look at activities in various social and other digital media sources via alternative metrics (altmetrics as commonly referred to; Priem et al., 2010; Repiso et al., 2019; Wasike, 2021).

A major traditional indicator for the former—besides the number of published papers— is citation count, a metric considered to indicate the influence, perceived quality, and, ultimately, academic/social value of published research. Research on the spatial distribution of received citations gained a considerable impetus by showing the applicability of Merton's classical concept of the Matthew effect (a cumulative advantage

in science) at the country level: Bonitz et al. (1997). On the one hand, it was found that papers authored by US, UK, and another few European core country affiliations received more citations than what could have been expected based on the impact factor of the journal they were published in.

On the other hand, authors affiliated with any other country received fewer citations than expected.[19] The authors coined this systemic discrepancy in expected citations as the 'Matthew Effect for Countries' (MEC), showing that the accumulation of citations is radically uneven between nations. Later results with a global (Pan et al., 2012; Perc, 2014; Schmoch & Schubert, 2008; Zanotto et al., 2016) or a European (Makkonen & Mitze, 2016) focus confirmed that the regional distribution of global science is more of a question of presence versus absence than the competition in a field of weaker and stronger but roughly comparable players. Since both quantity and impact are concentrated in traditional Western countries, and other players' partial success can be directly linked to their westernizing efforts (Demeter et al., 2022a, 2022b; Háló, 2022), critical approaches to these inequalities are often discussed in terms of de-Westernization in communication/media research (Curran & Park, 2000; Gunaratne, 2005; Thussu, 2009; Waisbord & Mellado, 2014; Wang, 2011).

Similar trends arise on the individual level. Individual success of an academic is closely tied to editing (Goyanes & de-Marcos, 2020) and publishing in top-tier journals (Efran-manesh et al., 2017), as well as affiliations with top-tier universities (Cowan & Rossello, 2018). As research on both native-English (Collyer, 2014) and European (Fumasoli et al., 2015) countries has shown, scholars educated at elite Western universities are favored in all of these segments of academic life (Demeter & Toth, 2020). Recent results on the systemic conditions of academic excellence in Communication studies conclude that besides personal traits, being excellent requires "following the research conventions, interests and values of a research community and conducting "sound research" based on

[19] The rise of network science and associated concepts like preferential attachment (Price, 1976; Barabási-Albert; 1999) also resulted in observations of the Matthew efect in scientifc collaborations and career longevity (Matjaz, 2014).

tacit rules of the scientific craft, which were acquired at elite universities." (Goyanes & Demeter, 2021, p. 76).

The majority of elite universities being Western, it is not surprising that highly cited individual authors are similarly concentrated in specific geographical areas. Data could be refined even further to expose smaller geographical centers within countries. In one of the earliest country-level citation assessments, Batty (2003) studied 1222 top scientists from ISI's Highly Cited database, covering twelve scientific fields. They found that 815 of these are from the US and 100 are from the UK (the third being Germany with 62, followed by European countries, as well as Japan and Australia in the first 10 places). Also, when looking closer at their institutional concentration, the top 20 institutions among these affiliations (in terms of the number and percentage of scientists cited), which housed nearly 30% of the 1222 highly cited scientists, were from the US (18) or the UK (2). These do not necessarily mirror the domestic efficiency of US education investments, as foreign-born and foreign-educated high-performing scientists systematically migrate to the US due to its high GDP and large Research and Development (R&D) spending (Corley & Sabharwal, 2007; Franzoni et al., 2014; Hunter et al., 2009; Stephan & Levin, 2001). This elite brain drain is another country-level example of cumulative advantage in academia. Economic wealth correlates with scientific production in the case of European countries too (Almeida et al., 2009; Lee et al., 2011). Drawing on the ISI Thomson National Science Indicators on Diskette database (NSIOD-2003), Horta and Veloso (2007) concluded that high-income countries of the EU are generally more successful in amassing publications than lowincome ones, and their research output is of the highest impact. However, even including the UK (which is no longer part of the EU), the total international visibility and impact of EU research are still lower than that of the US (Horta & Veloso, 2007).

Regarding the share of publications, citations received, and the average number of citations received per paper, the dominance of the US and the UK is still evident. Counting all publications in English in the ISI Web of Science (WoS) database (Science Citation Index Expanded, Social Sciences Citation Index, and the Arts & Humanities Citation Index) for the period 2003–2010, the analysis of Pan et al. (2012) showed that the US produced around 28.12% of WoS-indexed publications (UK: 6.51 percent) and received 38.22% of

all WoS citations (UK: 7.45%) For perspective, the same indicators are 23.65% (WoS publications%) and 26.03% (WoS citations%) for the Western European region and 3.49% and 1.76% for the Eastern European region.

The average number of citations per paper is around 10 for US and UK papers, while it varies between 6 and 12 for countries in Western Europe. However, among Eastern European countries, Hungary had the highest average citations per paper (7.31), and Romania had the lowest (3.30). In general, high-income European countries thus seem to be more efficient[20] than lower-income European countries, and their output is of higher impact.

A trend towards more highly cited publications among European countries – even at the cost of quantity in terms of published papers—was indicated by Leydesdorf et al. (2014) among 28 EU nations. Applying integer counting to allocate publications, his analysis allowed for the assumption that, ceteris paribus, 10% of a nation's internationally co-authored publications can be expected to be within the top 10% of the most highly cited publications, while mutatis mutandis, 1% of these publications to be amongst the top-1%. It is noteworthy that not all European countries were found to pull their weight equally: while Western European countries managed to contribute according to or above expectations to both the top 1% and top 10% most highly cited publications, among the countries from the Eastern European region, only Latvia and Estonia scored above expectations in the top 1% and top 10%. All other Eastern European countries performed below expectations in both sets (Leydesdorf et al., 2014).

Furthermore, an epistemic vulnerability of all non-US science was shown by empirical data by Bornmann et al. (2018). The authors calculated that—in addition to the US dominating the top 1% highest cited publications by a 24% share—44% of all references in the top 1%

[20] *(Editorial comment for the dissertation)*. The term "efficient" is potentially misleading in this context as it deviates from its typical usage related to resource optimization. The intended interpretation focuses on the efficiency in translating publications into citations rather than resource management efficiency. For a thorough evaluation of efficiency in resource utilization and research impact, further in-depth analyses are prompted.

of publications are made to US-authored outputs. This means that US research is the main source of both US and non-US top research from which prolific researchers worldwide draw their knowledge base. The US also has higher-than-expected citations compared to its already high publication volume, and only a few Western European countries show similar patterns (Netherlands: 1.70% share and 2.47% presence in the reference list of top 1% articles; Switzerland: 1.12% and 1.77%; UK: 5.57% and 7.79%; Sweden: 1.15% and 1.49%). Eastern European countries that managed to produce at least 1% of the top 1% highly cited articles all show the opposite tendency; their accumulated knowledge is being used less than expected in top research compared to their publication volume (Bornmann et al., 2018).

Further differences between relative comparative advantages and disadvantages in major disciplines have been shown by Harzing and Giroud (2014). Looking at the share of a country's papers in social sciences relative to all papers between 1994 and 2012, the US, the UK, the Netherlands, and Norway have a medium comparative advantage in this field, while France, Italy, Hungary, Poland, Russia, and Ukraine have a medium comparative disadvantage, and Austria, Germany, Switzerland, Finland, Ireland, Belgium, Sweden, and Denmark have a low comparative disadvantage. Regarding communication research, a seminal study by Lauf (2005) found that communication journals indexed in WoS, as well as the most high-ranking players of this already meticulously screened and selective group are not only mostly US-published, but their gatekeeping processes and content are also heavily dominated by the US. Facing the data, Lauf proposed measures pointing towards a possible international diversification of communication studies by publishing more results coming from so-far underrepresented regions and accepting major regional or national journals into WoS.

Some measures of Thomson Reuters (TR) implemented at this time resonated to the later proposition as the company started to examine more than 10,000 non-US and nonUK journals in 2007, which mainly published research from a particular region or country and covered non-mainstream topics of mostly regional relevance, a portion of them finding ways into the main Thomson Reuters indices like SCI (Science Citation Index), SSCI (Social Science Citation Index), and A&HCI (Arts & Humanities Citation Index). Although

these measures had a positive effect on the coverage of Eastern European contributions (Leydesdorf & Wagner, 2009), they left top-ranked journals unaffected due to the lack of implementation of the so-called pillar stone impact criteria during the vetting process (Aman, 2015). Though citation analysis may have been applied in some cases, the importance of a regional journal was not measured by its citation impact. Instead, its inclusion was decided by the specificity of its content that could enrich the source materials already visible to a broader international community of researchers (Testa, 2009). This led to the inclusion of low-impact, quasi-invisible Eastern-European Communication journals into WoS's main databases (Tóth, 2018). It can even be said that, in a sense, TR deepened existing inequalities in the representation of scholars of the "West and the Rest" (Ferguson, 2012) by inflating the number of lower-impact journals in WoS with regional ones, making the bottom more available while the top continued to be as closed as ever for the "Rest".

Nevertheless, the regional expansion of WoS during this period and the slow internationalization of some leading communication journals' editorial boards resulted in the shrinking of the dominance of the US (and the UK) in communication studies. Comparing two five-year periods (1998–2002 and 2013–2017), Demeter (2018c) showed that many journals had increased the number of their non-US editorial staff, while the ratio of articles produced by US-affiliated authors have decreased from 66 to 50 percent, a major share flowing toward Western European and developed Asian countries. However, Eastern European countries, in comparison, only have around 1% of the world's total WoS publication output in communication science (Demeter, 2018c).

In the soft sciences, cultural and epistemic differences across geographical regions have a strong role and influence on what literature are considered relevant and important, and what will eventually be cited and canonized in a particular field (Tóth & Demeter, 2021). Though this study focuses mainly on the science production and recognition of three global regions (Western and Eastern Europe, and the U.S.), additional insights can be gained by considering how other regions fare in global comparisons.

Based on Lauf (2005) and Demeter's (2019b) research, we know that in the field of communication, the list of top 40 countries with the highest share in high-prestige publication output remained, with little variance in order, the same in the past 50 years.

With the U.S. leading the ranks, the rest of the list is comprised of 21 European and 18 non-European countries. Among these 18 non-European countries, only 6 have 1% or higher share in the total publication output. These best performers (China, Taiwan, South Korea, Canada, Australia and New Zealand) all have high GDP and the last three also share language and cultural ties through colonial British-American history. The above economic and cultural factors are heavily present in the remaining top-40 countries as well, with the addition of a third cluster comprising of countries with a Hispanic colonial heritage. The African continent's visibility is very low compared to other world regions -not counting South Africa, the overwhelming majority of research by African scholars remain invisible to the international community (Chasi & Rodny-Gumede, 2018), which contributes largely to the "suffocating whiteness of communication studies" originally understood in the frames of racial neoliberalization (Calvente et al., 2020).

To sum up, despite the weakening of the US and the UK's dominance, and the rapidly rising share of China from high-prestige publication outputs, the MEC is still accurately applicable in Communication Studies to show geopolitical inequalities. Most of the field's research output of international prestige and recognition is produced by a handful of developed nations, and the contribution of large regions of the world remains invisible (Demeter, 2018a, 2018b; Goyanes et al., 2022). Based on these results, we expect the following:

H1. There are statistically significant differences in received citations per documents between geographical regions.

To test if the difference exists between the most productive scholars across countries, the corresponding sub-hypothesis will be:

H1a. There are statistically significant differences between citation per document within the most productive scholars across countries.

View counts from SCOPUS—a so far neglected metric

Similar to the majority of scientometric research, the largest and most comprehensive journal-level analyses of national diversity in the field of communication studies (see Demeter's more recent (Demeter, 2019b) and Lauf's earlier results (Lauf, 2005) used Web

of Science data. The MEC was also originally shown by (now Clarivate, then) Thomson Reuters data. However, scientometric analysis of Communication Studies also often considers Elsevier's SCOPUS (e.g., Demeter, 2017, 2018a, 2018b, 2018c; Tóth, 2018; Trabadela-Robles et al., 2020). The general argument for using SCOPUS is that Elsevier's product represents soft science fields better, indexes more non-article publication type-items, and has more non-English content (Archambault et al., 2006; Li et al., 2014). Both are important for fields where—compared to hard sciences – regional language articles, monographs, chapters, and conference papers have more relevance in disseminating research results. Even though potential biases stemming from geographical deficiencies in WoS's journal coverage (over-representation of English-speaking countries, especially in the Social Science Citation and Arts & Humanities Citation Indexes) were mitigated by the introduction of the Emerging Sources Citation Index (ESCI) in 2015, it leaves the national distribution of top journals unaffected, as ESCI journals do not have impact factor and are not ranked by JCR (Journal Citation Reports).

While there is flexibility indicated with regard to the source of data, scientometric research rarely considers testing article-level variables accessible from scientific abstracting and indexing services for visibility and impact other than publications and citations. When in need of other metrics, they turn to sources outside the confines of abstracting and indexing services. These altmetrics date back to the *Altmetrics Manifesto* (Priem et al., 2010) and aim to cover research impact outside the peer-reviewed corpus and work not only with "citations" coming from the digital public space – mentions and backlinks pointing to the original research from social media networks, wikis, (micro)blogs and various other sources—but also to emphasize website analytics like the number of views and downloads as impact metrics.

In the digital era, when scientific papers are mostly also published online in some form, it is only natural that usage indicators like the number of views (Bollen et al.,; 2009; Perneger, 2004), downloads (Gorraiz et al., 2014; Moed & Halevi, 2016) and bookmarks (Bar-Ilan et al., 2012; Mohammadi & Thelwall, 2014) are attracting interest in traditional scientometric research as possible forecasters for future citations. Reviewing previous studies, Thelwall (2018) summarized that a positive correlation exists between most

altmetric and citation count; the association being stronger (0.5–0.8) at Mendeley reader counts (bookmarks) and weaker (0.1–0.3) at Tweets, Facebook wall posts, blog citations, Google+citations, Reddit citations, and other media mentions. Studies focusing on Twitter exposure found that tweets predict citation rates (Eysenbach, 2011; Peoples et al., 2016), and tweeted articles receive more citations versus those with no tweets (Vaghjiani et al., 2021). Recently, Breitzman (2021) showed that usage in the first six months correlates with a citation index after five years; therefore, these early usage counts can be used to identify papers early that will likely be highly cited, given enough time for other researchers to use them.

Notwithstanding, only a handful of studies analyzed altmetrics in communication science (Torres-Salinas et al., 2013; Repiso et al., 2019; Wasike, 2021; Özkent, 2022) so our knowledge is limited. However, a strong correlation between Mendeley readers/tweets received and WoS citations was found by Repiso et al. (2019), and at least two recent studies (Wasike, 2021; Özkent, 2022) indicated a positive correlation between exposure to social media and article citations in the case of articles in top communication-based journals.

In an environment where strategic altmetrics manipulation (Thelwall, 2021; Zimmermann, 2013), as well as potential national (Kemp, 2022; Singh, 2020; Thelwall & Kousha, 2015) and age (Mohammadi et al., 2015; Sugimoto et al., 2017) biases are already making the application of these measures increasingly complex for research evaluation, any reliable metrics less susceptible for manipulation should be welcomed. It seems that view count measures integrated into abstracting and indexing databases have a few advantages over altmetrics. View counts represent actual instances of a given document being visited within the database, calculated from the sum of abstract views and full-text link clicks, while some altmetrics, most importantly Mendeley bookmarks are referring to potential and not actual readers (Delgado-López-Cózar & Martín-Martín, 2016). Views from a scientifc database like SCOPUS are also more likely to be generated by a scholarly audience and more difficult to inflate through digital marketing because of access costs. In comparison, even relatively hard-to-inflate altmetrics generated by a scholarly audience such as Mendeley views can be cost-efficiently tweaked by spamming multiple new profiles to bookmark the

very same paper. Other social media mentions, links, and clicks are even easier to adjust and manipulate. Another advantage of accessing articles from a scientific database is that on these platforms, there is no additional context driving the perception of its importance besides traditional article-level metrics: no popularizing summaries and less opportunity to embed the results into cultural or political issues or offer value-laden contextualizations. The number of views can be influenced by a default algorithmic ordering for relevance or recentness or by the author's name, but not by network effects influential within social media.

To sum up, internal view counts are better suited to measure interest from the scientific community towards an article; raised by the research itself, compared to meticulously designed situations consciously created to drive attention toward a specific content in digital space. The view count metric in SCOPUS is considered internal because it shows how many times an article has been viewed in SCOPUS from the results screen and thus cannot be directly influenced by traffic from anywhere outside the database. With that said, no studies so far have exploited the potential of using this metric for analysis. Therefore, we intend to fill this gap and offer our contribution to the literature by comparing countries and their respective geographical regions based on how many views their indexed documents get while also analyzing how the number of views reflects on received citations. We anticipate the followings:

H2. There are statistically significant differences between views per document between geographical regions.

To test if the difference exists between the most productive scholars across countries, the corresponding sub-hypothesis will be:

H2a. There are statistically significant differences between views per document within the most productive scholars across countries.

H3. There are statistically significant differences between received citations per view between the examined geographical regions.

To test if the difference exists between the most productive scholars across countries, the corresponding sub-hypothesis will be:

H3a. There are statistically significant differences between citation per view within the most productive scholars across countries.

The importance of this study, underpinned by the three hypotheses above, lies in measuring the impact conceptualized through the number of published papers, number of citations, and number of views. While citations per document is a common formula in Matthew-effect analyses (e.g., Pan et al., 2012; Perc, 2014; Schmoch & Schubert, 2008; Zanotto et al., 2016), this will be the first study to measure geopolitical biases among the most productive scholars in communication studies via applying views per document and citations per view measures through SCOPUS data. These formulas make it possible to measure research impact normalized to the number of published papers, the number of citations, and the number of views. It is important to note, therefore, while the number of overall papers tends to raise the number of overall citations when we assess the means for citations per paper, an increase in citations cannot be explained by an increase in publications alone.

Methods

Sample and applied measures

In this paper, we empirically analyzed geopolitical biases among the most productive scholars in communication. We applied three formulas (citations per document, views per document, and citations per view) to measure scholarly performance amongst the top-performing scholars in 11 countries (the UK, France, Germany, Italy, Spain, Poland, Hungary, Russia, Romania, Ukraine, and the US) and 3 corresponding world regions (Western Europe, Eastern Europe, and the US). The reasons for selecting these countries have to do with their broad impact in the literature of communication and because they fairly represent the diversity of communication research in different geographical areas. In addition, their inner connections and cultural bonds enabled us to recode these countries in

bigger geographical regions with similar background. The sample was drawn from the SciVal TOP 500[21] list in Communication for the period between 2017 and 2020.

First, we assessed individual-level publication count, citation count, and view count metrics based on SciVal data for the TOP performing 500 scholars (2017–2020) in the 11 analyzed countries. Second, applying these measures, the three main indicators of our study (I1: citations per document; I2: views per document; I3: citations per view) were formulated as dependent variables. Finally, for H1-H3, country-level affiliation of the scholars (SciVal) served as the independent variable, while in the case of H1a-H3a, the independent variable was the aggregated region-level scholarly affiliation (WE: UK, France, Germany, Italy, Spain; EE: Poland, Hungary, Russia, Romania, Ukraine; US: US).

It is important to note that the US appears both as a country- and a region-level affiliation in the analysis. On the one hand, this can be explained by the sheer size of the US academic population renders the country comparable for analysis to specific European regions. On the other hand, and more importantly, our analysis – being based on individual-level non-additive indicators – allows for comparisons to be made between different sample sizes (WE: 2500; EE: 2082; US: 500). In fact, the analysis design even enables performance differences of countries and regions to be investigated and contrasted to each other at the same time. The above argument – very importantly – also allows for countries that do not have 500 top-performing scholars listed in SciVal to enter the analysis. These occurrences indicate that between 2017 and 2020, the number of scholars in these countries publishing at least one Scopus-indexed was below 500 (i.e., Hungary: 409; Romania: 251; Ukraine: 423). Descriptive statistics of the countries under analysis and their corresponding values for our three dependent variables are reported in Table 1.

Analysis strategy

Our study posed three hypotheses and three corresponding sub-hypotheses. A preliminary analysis of our three dependent variables (I1-I3) suggested that they were positively

[21] *(Editorial comment for the dissertation).* The *"SciVal TOP 500 list"* refers to the top 500 authors in communication science based on scholarly output as recorded in the SciVal/Scopus database.

skewed amongst researchers. A follow-up analysis further indicated that they do not ft a normal distribution across countries and geographical regions (Shapiro–Wilk test; p=0.000). Accordingly, we ran the non-parametric equivalent of a one-way ANOVA (i.e., the Kruskall-Wallis H test, also commonly known as one-way ANOVA on ranks). For H1a, H2a, and H3a, we considered the three impact measures (i.e., citations per document, views per document, citations per view) as dependent variables and the country of the most productive scholars as the independent variable. Similarly, for testing H1, H2, and H3, we considered geographical location (US, Western Europe, and Eastern Europe) as the independent variable and citations per document, views per document, and citations per view as the dependent variables. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons.

Dependent variable	Country	Mean	Standard Deviation
Citations per document	UK	4.546	0.300
	France	2.406	0.194
	Germany	3.957	0.249
	Italy	2.937	0.175
	Spain	2.211	0.103
	Poland	1.498	0.132
	Hungary	1.928	0.176
	Russia	1.397	0.143
	Romania	3.452	0.665
	Ukraine	3.851	0.345
	US	4.787	0.200
Views per document	UK	17.558	0.593
	France	12.383	0.905
	Germany	14.499	0.609
	Italy	18.199	0.941
	Spain	23.016	0.824
	Poland	14.523	0.703
	Hungary	10.435	0.489
	Russia	21.488	1.156
	Romania	16.978	2.284
	Ukraine	23.279	0.754
	US	17.550	0.407
Citations per view	UK	0.245	0.014
	France	0.278	0.023
	Germany	0.301	0.014
	Italy	0.182	0.010
	Spain	0.126	0.006
	Poland	0.121	0.017
	Hungary	0.167	0.014

Dependent variable	Country	Mean	Standard Deviation
	Russia	0.058	0.004
	Romania	0.233	0.117
	Ukraine	0.174	0.015
	US	0.277	0.016

Table 1. Descriptive statistics of the three dependent variables across countries under analysis

Results

H1 stated that there are statistically significant differences between citations per document across geographical regions. A Kruskal–Wallis test was implemented for Western Europe (*n*=2,500), Eastern Europe (*n*=2082), and the United States (*n*=500). Distributions of I1 scores were similar for all geographical regions, as assessed by visual inspection of a boxplot. Medians for I1 scores were significantly different between countries, $\chi 2$ (2)=685.303, *p*=0.000. The post hoc analysis for citations per document revealed statistically significant differences between Easter Europe (*Mdn*=1.000) and Western Europe (*Mdn*=1.7500) (p=0.000), between Eastern Europe and the United States (3.8571) (*p*=0.000), and between Western Europe and the United States (*p*=0.000). Pairwise comparisons are graphically represented in Fig. 1. H1 was supported.

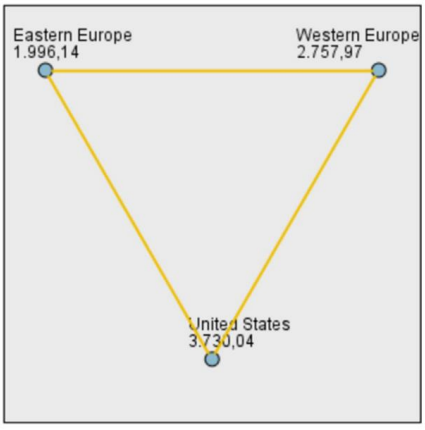

Fig. 1. Pairwise Comparison between geographical regions I1 (citations per document). Each node shows the sample average of I1. Orange lines represent statistically significant associations, while black lines represent non-significant ones

H2 stated that there are statistically significant differences between views per document across geographical regions. Distributions of I2 scores were similar for all geographical regions, as assessed by visual inspection of a boxplot. Medians for I2 scores were statistically significantly different between countries, $\chi 2$ (2)=84.853, p=0.000. The post hoc analysis for views per document revealed statistically significant differences between Eastern Europe (*Mdn*=12.0000), the United States (*Mdn*=16.5714) (p=0.000), and between Western Europe (*Mdn*=12.3333) and the United States (p=0.000), but not between Eastern Europe and Western Europe (p=0.356). Pairwise comparisons are graphically represented in Fig. 2. H2 was supported.

H3 stated that there are statistically significant differences between citations per view across geographical regions. Distributions of I3 scores were similar for all geographical regions, as assessed by visual inspection of a boxplot. Medians for I3 scores were statistically significantly different between countries, $\chi 2$ (2)=706.822, p=0.000. The post hoc analysis for citations per view revealed statistically significant differences between Eastern Europe (*Mdn*=0.0345) and Western Europe (*Mdn*=0.1304) (p=0.000), between Eastern Europe and the United States (*Mdn*=0.2304) (p=0.000), and between Western Europe and the United States (p=0.000). Pairwise comparisons are graphically represented in Fig. 3. H3 was supported.

H1a stated that there are statistically significant differences between citations per document across country-level affiliations of the most cited scholars. A Kruskal–Wallis test was implemented for the United Kingdom (n=500), France (n=500), Germany (n=500), Italy (n=500), Spain (n=500), Poland (n=500), Hungary (n=408), Russia (n=500), Romania (n=251), and the United States (n=500). Distributions of I1 scores were similar for all countries, as assessed by visual inspection of a boxplot. Medians for I1 scores were statistically significantly different between countries, $\chi 2$ (10)=845.423, p=0.000. The post hoc analysis for citations per document is reported in Table 2 and graphically represented in Fig. 4.

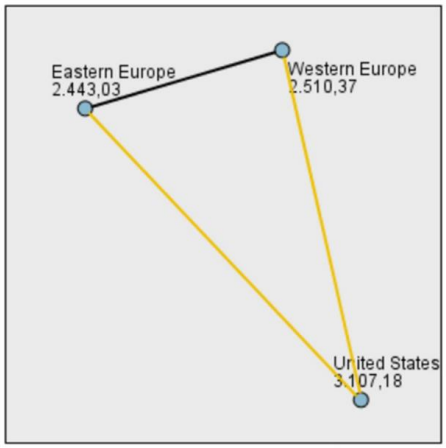

Fig. 2. Pairwise Comparison between geographical regions I2 (views per document). Each node shows the sample average of I2. Orange lines represent statistically significant associations, while black lines represent non-significant ones

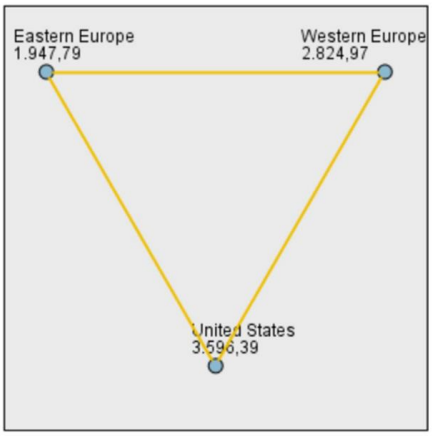

Fig. 3 Pairwise Comparison between geographical regions I3 (citations per view). Each node shows the sample average of I3. Orange lines represent statistically significant associations, while black lines represent non-significant ones

H2a stated that there are statistically significant differences between views per document across country-level affiliations of the most cited scholars. Distributions of I2 scores were similar for all countries, as assessed by visual inspection of a boxplot. Medians for I2 scores were statistically significantly different between countries, $\chi 2$ (10)=734.375, p=0.000. The post hoc analysis for views per document is reported in Table 3 and graphically represented in Fig. 5.

Country	Pairwise comparison	p value
Russia (Md*n*=0.5000)	Poland (Md*n*=.0000)	1.000 n.s
	Romania (Md*n*=0.9000)	1.000 n.s
	Hungary (Md*n*=1.0000)	1.000 n.s
	France (Md*n*=1.0000)	.000
	Ukraine (Md*n*=1.0000)	.000
	Spain (Md*n*=1.667)	.000
	Italy (Md*n*=1.7083)	.000
	Germany (Md*n*=2.2250)	.000
	United Kingdom (Md*n*=2.4500)	.000
	United States (Md*n*=3.8571)	.000
Poland	Romania	1.000 n.s
	Hungary	1.000 n.s
	France	.000
	Ukraine	.000
	Spain	.000
	Italy	.000
	Germany	.000
	United Kingdom	.000
	United States	.000
Romania	Hungary	1.000 n.s
	France	.153 n.s
	Ukraine	.001
	Spain	.000
	Italy	.000
	Germany	.000
	United Kingdom	.000
	United States	.000
Hungary	France	.417 n.s
	Ukraine	.002
	Spain	.000
	Italy	.000
	Germany	.000
	United Kingdom	.000
	United States	.000
France	Ukraine	1.000 n.s
	Spain	.001
	Italy	.000
	Germany	.000
	United Kingdom	.000
	United States	.000
Ukraine	Spain	.753 n.s
	Italy	.429 n.s
	Germany	.000
	United Kingdom	.000
	United States	.000
Spain	Italy	.838 n.s

Country	Pairwise comparison	p value
	Germany	.027
	United Kingdom	.000
	United States	.000
Italy	Germany	.058 n.s
	United Kingdom	.000
	United States	.000
Germany	United Kingdom	1.00 n.s
	United States	.000
United Kingdom	United States	.000

Adjusted signifcant values. Medians in brackets. n.s=non-signifcant

Table 2. Differences between countries in I1 (citations per document)

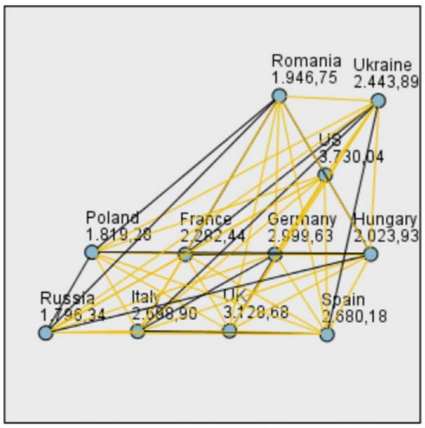

Fig. 4. Pairwise Comparison between countries for I1 (citations per document). Each node shows the sample average of I1. Orange lines represent statistically significant associations, while black lines represent non-significant ones

H3a stated that there are statistically significant differences between citations per view across country-level affiliations of the most cited scholars. Distributions of I3 scores were similar for all countries, as assessed by visual inspection of a boxplot. Medians for I3 scores were statistically significantly different between countries $\chi 2$ (10)=877.709, p=0.000. The post hoc analysis for citations per view is reported in Table 4 and graphically represented in Fig. 6.

Country	Pairwise comparison	p value
Hungary (Mdn=0.5000)	France (Mdn=7.0000)	1.000 n.s
	Romania (Mdn=7.667)	1.000 n.s
	Poland (Mdn=10.0000)	.000

Country	Pairwise comparison	p value
	Germany (Md*n*=10.5000)	.000
	Italy (Md*n*=13.5000)	.000
	United Kingdom (Md*n*=14.5500)	.000
	Russia (Md*n*=14.0000)	.000
	United States (Md*n*=16.5712) Spain (Md*n*=19.1667)	.000
	Ukraine (Md*n*=20.000)	.000
France	Romania	1.000 n.s
	Poland	.000
	Germany	.000
	Italy	.000
	United Kingdom	.000
	Russia	.000
	United States	.000
	Spain	.000
	Ukraine	.000
Romania	Poland	.120 n.s
	Germany	.009
	Italy	.000
	United Kingdom	.000
	Russia	.000
	United States	.000
	Spain	.000
	Ukraine	.000
Poland	Germany	1.000 n.s
	Italy	.000
	United Kingdom	.000
	Russia	.000
	United States	.000
	Spain	.000
	Ukraine	.000
Germany	Italy	.005
	United Kingdom	.000
	Russia	.000
	United States	.000
	Spain	.000
	Ukraine	.000
Italy	United Kingdom	1.000 n.s
	Russia	1.000 n.s
	United States	.000
	Spain	.000
	Ukraine	.000
United Kingdom	Russia	1.000 n.s
	United States	.004
	Spain	.000
	Ukraine	.000

Country	Pairwise comparison	p value
Russia	United States	.021
	Spain	.000
	Ukraine	.000
United States	Spain	1.000 n.s
	Ukraine	.067 n.s
Spain	Ukraine	1.000 n.s

Adjusted signifcant values. Medians in brackets. n.s=non-signifcant

Table 3. Differences between countries in I2 (views per document)

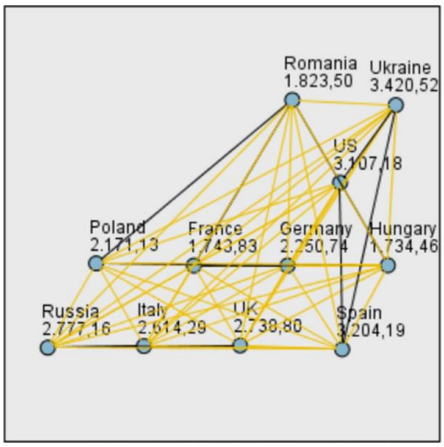

Fig. 5. Pairwise Comparison between countries for I2 (views per document). Each node shows the sample average of I2. Orange lines represent statistically significant associations, while black lines represent non-significant ones

Country	Pairwise comparison	p value
Russia (Md*n*=0.0158)	Poland (Md*n*=0.0000)	1.000
	Romania (Md*n*=0.0370)	.007
	Hungary (Md*n*=0.0370)	.000
	Ukraine (Md*n*=0.0526)	.000
	Spain (Md*n*=0.0000)	.000
	Italy(Md*n*=0.0833)	.000
	France (Md*n*=0.1270)	.000
	United Kingdom (Md*n*=0.1667)	.000
	Germany (Md*n*=0.2105)	.000
	United States (Md*n*=0.2304)	.000
Poland	Romania	.000
	Hungary	1.000 n.s
	Ukraine	1.000 n.s
	Spain	.029
	Italy	.000

Country	Pairwise comparison	p value
	France	.000
	United Kingdom	.000
	Germany	.000
	United States	.000
Hungary	Ukraine	1.000
	Spain	.542 n.s
	Italy	.000
	France	.000
	United Kingdom	.000
	Germany	.000
	United States	.000
Ukraine	Spain	.616 n.s
	Italy	.000
	France	.000
	United Kingdom	.000
	Germany	.000
	United States	.000
Spain	Italy	1.000 n.s
	France	.604 n.s
	United Kingdom	.000
	Germany	.000
	United States	.000
Italy	France	1.000 n.s
	United Kingdom	.000
	Germany	.000
	United States	.000
France	United Kingdom	.000
	Germany	.000
	United States	.000
United Kingdom	Germany	1.000 n.s
	United States	.000
Germany	United States	.018

Adjusted signifcant values. Medians in brackets. n.s=non-signifcant

Table 4. Differences between countries in I3 (citations per view)

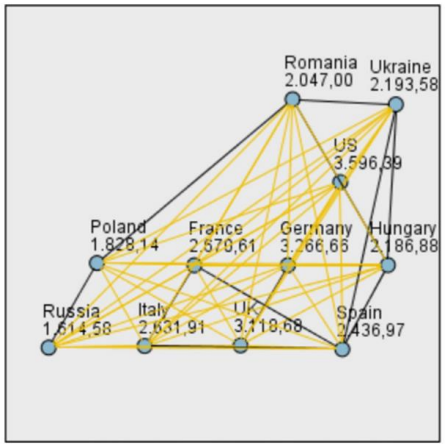

Fig. 6. Pairwise Comparison between countries for I3 (citations per view). Each node shows the sample average of I3. Orange lines represent statistically significant associations, while black lines represent non-significant ones

Discussion

Prior to this research, the scholarly community already had a good picture of the geopolitically unequal distribution of scientific impact in Communication Studies, as shown through numerous analyses of the numbers and distribution of published documents and received citations (Demeter, 2017, 2019b; Lauf, 2005). In line and in broad agreement with studies comparing groups of knowledge-producing agents via citations per document from the past two decades, our results confirm that a statistically significant difference exists between the citations of top scholars in Communication studies from the United States, Western Europe, and Eastern Europe. Our findings provide three interrelated contributions within this line of inquiry.

First, through a new empirical analysis, this study shows that the top US scholars are the most highly cited, followed by their Western and Eastern European peers, while country-level comparisons revealed that the top US scholars have by far the highest impact per document. Adding to our understanding of a significant Americanization of the field discussed in other studies (Chakravartty et al., 2018; Demeter et al., 2022a, 2022b; Gunaratne, 2010; Waisbord & Mellado, 2014), our results direct the attention toward the need of a further de-Westernization in communication studies.

In Western and Eastern Europe, we found insufficient evidence that the impact of scholars is significantly different based on their region. The impact of top-performing scholars from Romania and Hungary is not that different from those of France (in our sample, the country with the weakest median citation value from the Western European region). While having a similar impact as their French colleagues, we also found insufficient evidence for top Ukrainian performers being that far behind their Spanish and Italian counterparts. Ukraine, with one of the highest median citation values among Eastern European countries, also differs from other members of the Eastern European region analyzed here. Germany and the UK – top impact countries from the Western European region – are similar to each other, but while data from the UK shows very strong evidence for them being different from every other country in their respective region, the evidence for Germany being different from Spain or Italy is weak.

Second, the number of citations and published papers are common measures of spatial scientometrics and have a long tradition of measuring performance in Communication studies, including the more recent ones of those of the top-performing scholars (Demeter et al., 2022c; Goyanes, 2022). Our study, while making use of these more common metrics, also focused on so far unaddressed metrics, views received to articles written by top-performing scholars within a major abstracting and indexing service, compared to the number of publications and citations they have. Focusing on this metric enabled us to suggest a description of inequalities less distorted by self-marketing (either from the part of the author, their institution, or the journal they published in) or extra epistemic values embedded in (or to be harvested from) the published research. We aimed at mitigating the effects of an increased digital presence to visibility, trying to tie this metric more tightly to its appeal for an actual scientific community using SCOPUS. For the number of internal view counts to increase, the paper has to be visited through the SCOPUS interface as a result of browsing or searching the database, an activity typically performed by researchers and, to a lesser extent, librarians and science administrators. To summarize, this metric is coming from the activity of a more tightly targeted audience; therefore, future analyses using this metric can potentially describe geopolitical biases inside academia with a better relevant resolution than traditional altmetrics.

The question remains that how these newly developed formulas would fair in different research areas. This paper only used them for analyzing communication studies, and their measures may be weaker for other fields with different characteristics. It can be argued that the new metrics would work better with research areas where the consensus of the scientific community is stronger on excellent publications being generally indexed in SCOPUS (or Web of Science if examining "usage counts" instead of "view counts") and that a researcher should aim at publishing mainly in indexed and highly ranked venues. Since coverage for book-oriented disciplines in the two main indexing database is weaker compared to article-oriented disciplines, and it takes significantly more time to produce and publish a book than a journal article or conference paper, it is not expected that the new metrics would work as well with research fields where monographs are significantly more important for a researcher than with those where journal articles or conference proceedings are. This is something to consider in the future when one would want to use these metrics in their

analyses of the humanities (and even then; for example analytical philosophy or archaeology could be a better ft than classical literature or history). There are also major differences in the ease of access to SCOPUS around the globe, some linked to financial constraints, some to research cultures or current events (see f.e. the shrinking access to full-text international journals in Russia). Interest from a scientific community without the financial or institutional background necessary for SCOPUS subscription will not necessarily manifest in view counts when researchers browse Sci-Hub or similar shadow libraries instead. Overall, it is plausible that the newly introduced metrics could work better or worst with areas of different publication characteristics than communication studies, and applicability would be influenced by access characteristics of different world regions to commercial abstracting and indexing databases. However, tools for accurately weighing these factors when including the "citation per view" indicator in the analysis are yet to be developed and tested.

Third, looking at the view count calculated from SCOPUS for articles written by SCIVAL Top 500 communication scholars in the U.S., our analysis revealed statistically significant differences between Eastern Europe and the United States and between Western Europe and the United States. Notwithstanding, we found no significant difference between Eastern and Western Europe in the case of views per publication. It is immediately apparent that based on these internal view counts, Eastern European communication research is more accessed than used. If we compare the countries ranked by citations per view and citations per document side by side, both columns show approximately the same relative order, while the highest median values for views per article belong to Ukraine and Spain. The latter, same as Poland and Russia, is especially weak in converting views to actual citations. For reasons currently unknown, research published by Eastern European and Spanish scholars is less cited but visited more than or similar to those published by American or Western European scholars. These results are especially concerning as they indicate a strong Western bias in citation practices within the academic sphere. One possible explanation is that—although reading inclusively— scholars prefer to cite their peers of the same diaspore, and as there is an apparent overrepresentation of Western scholars in international publishing (Demeter, 2017, 2018a, 2020), this inevitably leads to a biased over-citation of the same groups of authors in top journals. Furthermore, as the

quality of references—that is, the journal these were originally published in – is indicative of the quality of the citing paper, non-Western scholars are also called forth to prioritize these sources to be able to publish in leading journals. Further investigations into the socio-cultural factors behind these dynamics of Western scholars' over-citation are therefore prompted.

Future research may explore geographical or institutional diversity in the source of view counts, which would be useful to refine our results further. Some countries like the U.S. give more weight to metrics drawn from Web of Science, while others like Poland and Hungary rely more on SCOPUS in their performance evaluations and promotion policies in Communication Studies. This may not only create large differences in what type of journal indexing researchers prioritize when sending papers for publication—constituting a limitation of this study in itself -, but may also affect Scopus view counts coming from specific countries. However, this data is proprietary to ELSEVIER and currently not accessible to the authors. The data could be used to show differences between regions and countries in SCOPUS access, and use and control our results for regional overrepresentations in view counts.

A qualitative analysis should also investigate how academics who published SCOPUS-indexed articles use the database in different regions and what decision-making patterns they follow when citing an article found in the database.

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2.2. Geographical and Gender Inequalities in Health Sciences Studies: Testing Differences in Research Productivity, Impact, and Visibility

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Abstract

Purpose

Gender and geographical imbalance in production and impact levels is a pressing issue in global knowledge production. Within Health Sciences, while some studies found stark gender and geographical biases and inequalities, others found little empirical evidence of this marginalization. The purpose of the study is to clear the ambiguity concerning the topic.

Design/methodology/approach

Based on a comprehensive and systematic analysis of Health Sciences research data downloaded from the Scival (Scopus/Scimago) database from 2017 to 2020 (n = 7,990), this study first compares gender representation in research productivity, as well as differences in terms of citation per document, citations per document view and view per

[22]

document scores according to geographical location. Additionally, the study clarifies whether there is a geographic bias in productivity and impact measures (i.e. citation per document, citations per document view and view per document) moderated by gender.

Findings

Results indicate that gender inequalities in productivity are systematic at the overall disciplinary, as well as the subfield levels. Findings also suggest statistically significant geographical differences in citation per document, citations per document view, and view per document scores, and interaction effect of gender over the relation between geography and (1) the number of citations per view and (2) the number of views per document.

Originality/value

This study contributes to scientometric studies in health sciences by providing insightful findings about the geographical and gender bias in productivity and impact across world regions.

Keywords: Health science, Research productivity, Research impact, Gender inequalities, Geographical inequalities, Gender bias, Geographical bias

Introduction

Following Merton's (1968, 1973) norm of universalism, a growing number of studies have emphasized the need for a diverse science, especially in terms of gender (e.g. Lariviere et al., 2013; Tahamtan et el., 2016) and geographical (Kalaitzi et al., 2019; Ramakrishnan et al., 2014) representation. Despite laudable efforts along the years, empirical and anecdotal evidence suggests that such inequalities are still rampant. On the one hand, scholars' productivity (e.g. Nkenke et al., 2015; Paik et al., 2014; Zhang et al., 2017), impact (e.g. Hunter and Leahey, 2010; Lariviere et al., 2013) and editorial representation (Goyanes and Demeter, 2020) seem to be skewed toward a male predominance in most scientific fields. On the other hand, authors from the Global South are consistently neglected from international social sciences, as most fields are framed under the Anglo-American culture of knowledge production (Demeter, 2020). In this context, examining potential gender and

geographic imbalances in research productivity, impact and visibility is essential to understand systemic bias in research.

Framed within the long-lasting tradition of research inequalities in science (Bronstein and Farnsworth, 1998; Paswan and Singh, 2020), this study addresses two fundamental gaps in the literature. First, prior studies examining gender imbalances in sciences have mainly focused on hard sciences and medicine (Halevi, 2019), thus neglecting both social sciences in general (e.g. Evans and Bucy, 2010; Hancock et al., 2013) and social scientific disciplines within health sciences in particular (e.g. Chan and Torgler, 2020; Sebo et al., 2020a). However, research has extensively suggested that gender disparities may even vary within (sub)fields (Dion et al., 2018), thus remaining unclear to what extent health sciences subdisciplines endure gender bias in research production among the most prolific scholars. Similarly, most prior studies on gender and geographical differences have typically examined general patterns of academic disciplines within a subset of journals (e.g. Holman et al., 2018; Sebo et al., 2020a), thus neglecting the crucial role the most productive scholars play in shaping research fields.

Accordingly, in this study we explore gender and geographical inequities in health sciences among the most prolific scholars, considering four different subfields – health professions, health policy, health social science of health and public health, accounting for differences in three dependent variables, namely the number of citations per document, citations per view and views per document. Analyzing gender and geographical disparities in Health Sciences is instructive, as inequalities in research may lead to skewed academic knowledge production dynamics. A wealth of voices propagating universalism (Merton, 1968, 1973) increases the feasibility of a more inclusive epistemic field, as well as a more meritocratic – and therefore, better – science, whether such works contribute to a better policymaking (health policy), communication (public health) or professional practices (health professions).

Based on a comprehensive systematic analysis of health science research data downloaded from the Scival (Scopus/Scimago) database from 2017 to 2020 (n = 7,990), the aim of this paper is to (1) examine the gender representation among the most productive scholars, (2) explore the geographical (i.e. world regions) differences in terms of the number of citations

per document, citations per view and views per document and (3) explore the potential interaction effect of gender over the relation between geography and the number of citations per document, citations per view and views per document. The paper is structured as follows. First, we assess the related literature and formulate our hypotheses and research questions accordingly. Second, we provide a detailed description of our data collection and data analysis. Third, in the results section, we present our findings concerning systematic gender and geographical inequalities at both the disciplinary and the subfield levels. In the end, theoretical and practical implications are discussed.

Literature review

Gender inequalities are widely examined in science (e.g. Lariviere et al., 2013; Tahamtan et al., 2016), and a legion of studies typically observed that, in line with Merton's (1968, 1973) norm of universalism, the wealth of voices and methods involved in research increases the feasibility of a healthier knowledge production (Elwood, 2010; Matilda et al., 2020; Krauss, 2015). A biased science, with a tendency toward social homogeneity and epistemic uniformity, thus accommodates serious shortcomings, such as neglecting the intellectual contributions of half [the] population (Lariviere et al., 2013) or forming dominant central geographical terrains of research (Goyanes and Demeter, 2020).

According to extant research, several inter-related factors are key to understand the complex nature of academic inequalities, including differences in household roles and family responsibilities (Fox, 2005; Stack, 2004), career absences (Cameron et al., 2016), resource allocation (Duch et al., 2012), peer-review (Borsuk et al., 2009), collaborations (Jaidi et al., 2018; Uhly et al., 2015), networking (Abramo et al., 2013), role stereotypes (Eagly et al., 2020), academic rank (van den Besselaar and Sandström, 2017), work climate (Bronstein and Farnsworth, 1998), dropout probability (Huang et al., 2020), and geographical (Lariviere et al., 2013), institutional (Paswan and Singh, 2020) and disciplinary contexts (Elsevier, 2017).

All in all, scientometric studies primarily assume that productivity is to be conceptualized based on publication output (Puuska, 2010; Huang et al., 2020) and suggest that an increase in female authors indicates an overall increase in female participation in science (e.g. Holman et al., 2018). However, research on productivity has been predominantly

conducted in male-oriented fields–medical disciplines, in particular (e.g. Nkenke et al., 2015; Paik et al., 2014; Sharkey et al., 2016; Waljee, 2016; Yun et al., 2015; Zhang et al., 2017), thus neglecting the broad spectrum of subfields in social sciences. In this study, we take on this research gap to examine non-medical fields of health sciences more broadly. The choice of health sciences is important for several reasons. On one hand, health sciences encompass a wide range of interrelated subfields, from medicine and biology to public health and healthcare management. By examining health sciences, researchers can capture a diverse and multidisciplinary research landscape. Furthermore, historically speaking, many scientometric studies have focused on male-oriented fields, such as medicine and engineering, neglecting other areas of science where female participation may be higher. By including health sciences, which have a more balanced gender representation, researchers can promote inclusivity and diversity in their analyses. Notwithstanding, understanding the productivity and gender dynamics within health sciences can have important policy implications. For example, it can inform policies aimed at promoting gender equity in scientific research and academia. It can also help institutions and organizations develop strategies to support and encourage female participation in science and research. Finally, health sciences frequently involve collaboration between researchers from various disciplines, including biology, psychology, sociology and more. Examining gender and geographical disparities in health sciences, therefore, can shed light on the dynamics of interdisciplinary research and collaboration, which are increasingly important in addressing complex health-related challenges.

Gender balance in health sciences

In a broad sense, health sciences comprise fields and subfields of medicine, primary health care and health-related soft sciences. While medical fields tend to accommodate higher male dominance (Holman et al., 2018), non-medical health disciplines (Sebo et al., 2020a) are generally associated with “care” (Lariviere, 2013), such as nursing, midwifery and palliative care (Holman et al., 2018), are more female-oriented. Furthermore, while among gender-related studies, medicine is arguably one of the most examined fields, social scientific fields – both in general (e.g. Evans and Bucy, 2010; Hancock et al., 2013) and in health-related settings in particular – are especially scarce, and so do are those fields

relevant to this study (i.e. *health professions; health policy; social science of health; public, environmental, and occupational health*). In what remains, we review the most salient findings on gender representation in health-related disciplines.

Holman et al. (2018), who used computational methods, found that in fields of *health services* (with a female proportion in authors of approx. 0.49), *health services research* (∼0.54), *primary health care* (∼0.48) or *public health* (∼0.5), are fairly balanced compared to those of *orthopedics* (∼0.18), *urology* (∼0.21), *neurosurgery* (∼0.23) or *medicine* (∼0.38). Although *environmental health* (∼0.39) is predominantly male-biased, other social health-related journals, such as *Health and Social Work* (∼0.73), *Journal of Interpersonal Violence* (∼0.66), *Journal of Evidence-based Social Work* (∼0.77), *Social Work* (∼0.68), *Sociology of Health and Illness* (∼0.64) and *Social Science and Medicine* (∼0.54), are apparently female-biased.

Sebo et al. (2020a), who measured the prevalence of female first authorship in top-tier biomedical journals (including healthcare and general medicine), found a significant gender imbalance between the fields of primary healthcare and general internal medicine. While the overall proportion of female first authors was relatively balanced in the whole sample (48%), primary healthcare seems female-biased (63%), especially when compared to the male dominance of internal medicine (33%). Arguably, these results cannot be directly translated into other subfields of public health, such as environmental health, occupational health or health policies (explored in our study). However, considering other studies with similar findings (e.g. Lariviere et al., 2013; Elsevier, 2017), results may point to a clear gender pattern: hard medical sciences tend to be male-oriented, while soft scientific fields of health sciences are more balanced or even female-oriented.

As contrasted with general trends within different disciplines, a number of studies found that, among the most prolific scholars, male dominance is typical, regardless of the analyzed discipline (Demeter and Toth, 2020). Chan and Torgler (2020), for example, explored the publication patterns of the top 1.5% of most cited scholars between 1960 and 2017 across different countries and disciplines and found that only around 12% were women. Based on this evidence, we hypothesize that:

H1. There are significantly more male authors than female authors among the most productive scholars in (a) Health Professions, (b) Health Policy, (c) Health – Social Sciences, (d) Public Health: Environmental and Occupational Health and (e) the pooled sample.

Gender disparities of impact and performance

Another area ripe for bibliometric research on gender imbalances focuses on impact and performance which typically examines the number of citations in relation to the number of publications. In general, extant research has suggested lower (Hunter and Leahey, 2010; Lariviere et al., 2013), higher (Thelwall, 2020a, b; Frandsen et al., 2020; van Arensbergen et al., 2012) or seemingly equal (Elsevier, 2017; Penas and Willett, 2006; Thelwall and Neville, 2019) citation rates for female-authored publications compared to those of male-authored ones. Economics (Ferber and Brün, 2011), ecology (Cameron et al., 2016), political science (Mitchell et al., 2013), library and information science (Hakanson, 2005), biochemistry, genetics and molecular biology (Thelwall and Nevill, 2019), sociology (Leahey et al., 2008), health and natural sciences (Aksnes et al., 2011; Beaudry and Lariviere, 2016) are fields where citation rates appear skewed toward a male predominance. However, the fields of public administration (Corley and Sabharwal, 2010), international relations (Østby et al., 2013) and economic history (Di Vaio et al., 2012) seem to be more balanced (Dion et al., 2018; Frandsen et al., 2020).

More importantly for our study, Chan and Torgler (2020) examined the most cited scientists in 21 fields across 43 countries and found that, compared with the general proportion of females in science, women are underrepresented by 28.52% points. Although the gender gap seems to be narrower in the fields of *public health and services* (where the proportion of female scientists among top scientists is 36%) or *social sciences* (23%) than in the fields of *mathematics* and *statistics* (6.3%) or *engineering* (7.2%), it is nonetheless significant.

Notwithstanding, productivity (Nygaard and Bahgat, 2018) and citation measures are often under scrutiny for missing crucial sociological aspects of scientific networks (Dion et al., 2018) – for instance, gender differences in academic networking behaviors and motivations. To mend these shortcomings of traditional metrics, then, various altmetrics of impact and visibility (e.g. engagement through clicks, downloads, views, reads, shares,

mentions) should be introduced. Altmetrics are effective tools in explicating some of the more hidden impact one might have within academia, for it is not uncommon among scientists to read, share and discuss certain publications but not cite them after all. Moreover, as scholars learn to adopt social media as an instrument to communicate, network and promote their research (Djuricich, 2014; Guerin et al., 2015; Lupton, 2014; McPherson et al., 2015; Stewart, 2015), altmetrics become effective tools for measuring an even wider social impact. However, impact and visibility studies are, as of yet, rare (Halevi, 2019). Nevertheless, there is initial evidence that impact measured through altmetrics is more gender balanced than performance (i.e. citation count) or productivity (i.e. publication count) indicating serious academic biases (e.g. Bar-Ilan and van der Weijden, 2015; Paul-Hus et al., 2015). Furthermore, to the best of our knowledge, no previous study examined gender disparities within health-related social sciences.

Based on the inconclusive findings of the relevant literature on citations, and considering the lack of altmetric evidence, our first research question scrutinizes possible gender inequalities by three indices related to scholarly performance.

RQ1. Is there a statistically significant difference between genders considering (1) the number of citations per document, (2) the number of citations per view and (3) the number of views per document in the fields of (a) Health Professions, (b) Health Policy, (c) Health – Social Sciences, (d) Public Health: Environmental and Occupational Health and (e) the pooled sample?

Geographical differences

Apart from the disciplinary context, geographical (Kalaitzi et al., 2019; Ramakrishnan et al., 2014; Sebo et al., 2020a), institutional (Abramo et al., 2016; van den Besselaar and Sandström, 2017) and economic differences (Matilda et al., 2020) also seem to play a major role in the extent and nature of gender disparities in science. Presumably, inequalities in gender norms embedded in the cultural and the political domain strengthen and legitimize skewed gender systems that negatively affect the general female representation in science. Large sample cross-country studies of scientific productivity (Lariviere et al., 2013; Holman et al., 2018) and impact (Huang et al., 2020) indicate significant geographical differences in the gender gap: countries with a generally lower scientific output tend to be

more gender-balanced or even female-biased, while countries of higher scientific productivity are typically skewed toward male dominance.

According to Elsevier's (2017) analysis, after a general increase in the proportion of female authors worldwide since the period from 1996 to 2000, between 2011 and 2015, Brazil (49%) and Portugal (49%) were the most gender-balanced, while the United States (40%), the European Union (40%), the United Kingdom (40%), Canada (42%), Australia (44%), France (40%), Denmark (41%), Chile (38%), Mexico (38%) and Japan (20%) were the most male-biased regions. These national biases broadly translated to each field with women scientists, in general, more likely to specialize in health, life, and social sciences, while male scholars were more likely to be found in the physical sciences. In the fields of medicine, nursing and psychology, for example, women represented at least 40% of researchers across the majority of countries in the study, except Japan, where – somewhat reflecting the general gender ratio among scholars – men outnumbered women by a greater extent. Elsevier's analysis, however, is not without limitations as it adopts heavy clustering for computational purposes – in cases of both countries (e.g. European countries clustered as one (EU28) of 12 geographies) and disciplines (e.g. 27 subject areas). In fact, reflecting on the latter, data on gender and geographical differences on non-medical health sciences are generally extremely limited.

One of the very few studies (Matilda et al., 2020), which focused on *addiction journal* publishing, suggests that 92.1% of author affiliations (and 96.6% of editorial board affiliation) are situated in high-income regions of the world with the United States (51%, 53%) being by far the most represented country. This US-based majority is underpinned both by better science-making resources available (Crew, 2019) and by the predominance of the English-speaking world in quality academic publishing. However, only about half of the journals in the pooled sample were closely related to fields relevant to our study. All things considered, and to the best of our knowledge, only limited data on productivity (Chan and Torgler, 2020; Holman et al., 2018; Sebo et al., 2020a) and performance (Chan and Torgler, 2020) are available, whilst no studies consider altmetric impact for the fields of non-medical health-related sciences (i.e. *health professions, health policy, social science of health; public, environmental and occupational health*). Moreover, the comparative

analysis of gender disparities – being highly affected by both disciplinary and geographical variances – is highly needed to understand the potential differences across disciplines and subdisciplines. Accordingly, our last two research questions investigate the possible relations between research performance, gender and geography within our analyzed health science disciplines and the pooled sample.

RQ2. Is there a statistically significant difference between geographic regions considering (1) the number of citations per document, (2) the number of citations per view and 3) the number of views per document in the fields of (a) Health Professions, (b) Health Policy, (c) Health–Social Sciences, (d) Public Health: Environmental and Occupational Health and (e) the pooled sample?

RQ3. Does gender influence the relationship between geography and (1) the number of citations per document, (2) the number of citations per view and (3) the number of views per document in Health Sciences (two-way interaction)?

Data collection and data analysis

Data collection

Based on Scopus and Scimago's categorization scheme, we identified four disciplines related to health sciences. Three of these disciplines have close ties to social sciences, namely "health – social science," "health policy" and "public health, environmental and occupational health." The fourth discipline, "general health professions," has a more general focus. To compile a list of the most productive scholars (n = 7,990) across various geographical regions and disciplines, we used SciVal, a platform that utilizes Scopus data. Specifically, we focused on scholars who published the highest number of papers between 2017 and 2020 in outlets categorized by Scopus under their corresponding scholarly field and subfield. For instance, if a scholar is listed with a publication output of 15 in the field of "health policy," it indicates that this scholar authored 15 papers between 2017 and 2020 in journals, book chapters or conference proceedings indexed by Scopus under the category of "health policy". The dataset obtained from SciVal includes all Scopus-indexed outlets, such as journals, book chapters and conference proceedings, encompassing various types of publications like articles, reviews and editorials.

When calculating the publication output (i.e. the number of papers), citations and view counts, SciVal generates individual-level data for each co-author. Consequently, our data calculates the total number of papers authored by a specific author, without taking into account the presence of co-authors or their respective order. This same comprehensive counting method is applied to citations and views. Finally, our analysis focused on four distinct global regions: Asia, North America, South America and Europe. While other world regions were available for consideration, they were excluded from the study due to an insufficient number of scholars in each discipline to achieve a balanced design (i.e. a minimum of 500 scholars with at least one Scopus-indexed paper published between 2017 and 2020).

Measurements and data analysis

Gender: We categorized the authors as either Male (1) or Female (2) through a combination of automated and manual methods. First, we conducted an automatic analysis to detect the gender based on the first name of each author using the open-source tool Wiki-Gendersort, which was trained using the first names of Wikipedia (Berube et al., 2020). Names written in the Latin alphabet from Asian languages were initially researched in their native languages. Following this, manual Google searches were conducted to ascertain the gender of the authors. This manual process involved examining photographs or other online evidence. In order to check author name disambiguation, we initially relied on the unique author-IDs provided by Scival and manually checked possible coincides in names by alphabetically listing names and last names and comparing similarities (in the case of doubts the analysts conducted a Google search again). This method successfully predicted the gender in 7,164 out of the total 7,990 cases, resulting in 826 cases where gender classification was not possible. Among these unclassified cases, there were instances of unisex names (182 cases), cases with initials (242 cases) and cases where the gender remained unknown (402 cases). Second, we conducted a manual analysis of the remaining 826 cases by looking at the scholarly profiles of the authors on the Internet. The human coders labeled 694 new cases and 132 were left as missing values. In sum, 7,858 cases (out of 7,990) had a correct gender assignment.

Geography: geographical data for each author was provided by SciVal. The scholars' geographical locations are determined based on their current affiliations, rather than their nationality or citizenship. Just like in Scopus, SciVal collects the geographical location of all the co-authors, without respect to author order. Thus, for each author, his/her geography appears in all the papers he/she (co)authored.

Citation per document: the total number of published documents (2017_2020) and the total number of citations (2017_2020) were exported from SciVal for all authors. Then, we calculated the average citation per document values for each scholar (M = 5.12, SD = 7.77). Citation data is restricted to the analyzed time frame, thus adjusting similar conditions for all authors within the data.

Views per document: the total number of published documents (2017_2020) and the total number of document views (2017_2020) were exported from SciVal for all authors. Then, we calculated the average views per document values (M = 18.31, SD = 11.92). Usage data is restricted to the analyzed time frame, thus adjusting similar conditions for all authors within the data.

Citations per view: the total number of citations (2017_2020) and the total number of document views (2017_2020) were exported from SciVal for all authors. Then, we calculated the average citation per view values (M = 0.27, SD = 0.33). Usage and citation data are restricted to the analyzed time frame, thus adjusting similar conditions for all authors within the data.

Also, views and citation data for each scholar were taken from Scival, accounting for the total views and citations, regardless of the year of publication and subfield of study. In order to minimalize the effect of these limitations, we constrained our analysis to a given time frame. Consequently, our analysis only considered those papers, views and citations that were produced during the research window under study (2017_2020), thus adjusting similar conditions to all scholars in the sample.

Data analysis

We conducted different techniques for data analysis. For testing H1 we ran a $\chi 2$ Goodness-of-fit test by selecting each sub-discipline and then collapsing them all in the pooled

sample. Prior studies have neglected the gender representation among the most productive scholars, so we assumed equal gender proportions, thus hypothesizing that there is an equal likelihood of the categories (male/female) occurring. For running a $\chi 2$ Goodness-of-fit test data need to meet the expected frequency assumption, which was the case. For answering RQ1 we ran the non-parametric alternative of the one-sample t-test, namely the Mann–Whitney U for each sub-discipline and the pooled sample. We conducted the non-parametric alternative of the one-sample *t*-test because data were non-normally distributed (Hart, 2001). Distributions of the number of citations per document, the number of citations per view and the number of views per document across subfields were similar, as assessed by visual inspection. For answering RQ2 we implemented the Kruskal–Wallis *H* test, aka one-way ANOVA on ranks. We conducted the non-parametric alternative to the one-way ANOVA, as the assumption of data normality was violated (Kruskal and Wallis, 1952). Finally, for testing RQ3 we ran a bootstrap two-way ANOVA (1,000 bootstrap samples, bias-corrected and accelerated). We ran a bootstrap two-way ANOVA, as the assumption of data normality was violated and thus coefficient effects accounted for robust standard errors based on bootstrapping.

Results

The first hypothesis tests gender proportions in health sciences and its sub-disciplines (see Table 1). The $\chi 2$ Goodness-of-fit test showed that male scholars are over-represented across sub-disciplines and in the field (i.e. pooled sample). In other words, there was statistically significant differences in the number of male scholars among the most productive scholars. Accordingly, as reflected in Table 1, H1a, H1b, H1c, H1d and H1e were supported.

For testing differences (RQ1) in (a) the number of citations per document, (b) the number of citations per view, and (c) the number of views per document depending on gender in (a) Health Professions, (b) Health Policy, (c) Health - Social Sciences, (d) Public Health: Environmental and Occupational Health and (e) in the pooled sample, we ran a MannWhitney U test. Distributions of our three dependent variables were similar for males and females across sub-disciplines and in the pooled sample. For (a) health professions there was no statistically significant gender differences in none of the dependent variables.

In (b) Health Policy, male scores for (a) citations per document U = 425461, z = -3.596, p = 0.000, and (b) citations per view U = 413867, z = -4.527, p = 0.000, were significantly higher than females. However, for (c) the number of views per document gender differences were not statistically significant. In (c) Health–Social Sciences, male scores for (b) citations per view were significantly higher than females, U = 443362, z = -2.101, p = 0.036. However, for (a) citations per document and (c) views per document gender differences were not statistically significant. For (d) Public Health: Environmental and Occupational Health, male scores for (a) citations per document U = 427325.50, z = -2.190, p = 0.029, and (b) citations per view, U = 425108, z = -2.373, p = 0.018, were significantly higher than females. However, for (c) views per document gender differences were not statistically significant. Finally, (e) in the pooled sample (i.e. the field), male scores for (a) citations per document, U = 7250757, z = -2.530, p = 0.011, and (b) citations per view, U = 7146327.50, z = -3.584, p = 0.000, were significantly higher than females, while gender differences in (c) views per document were not statistically significant.

	Male	Female	Expected	Residual	*χ2(df)*	*p*
a) Health Professions	1165	825	995	±170	58.09(1)	0.000
b) Health Policy	1180	797	988.50	±191.5	74.19(1)	0.000
c) Health-Social Sci.	1094	858	976	±118	28.53(1)	0.000
d) Public Health	1149	790	969.50	±179.5	66.46(1)	0.000
e) Pooled Sample	4588	3270	3929	±659	221.06(1)	0.000

Source(s): Table by authors

Table 1. Differences between the number of male and female scholars in each discipline

For testing differences (RQ2) in (a) the number of citations per document, (b) the number of citations per view and (c) the number of views per document depending on geography in (a) Health Professions, (b) Health Policy, (c) Health - Social Sciences, (d) Public Health: Environmental and Occupational Health and (e) the pooled sample, we ran a Kruskal–Wallis H test. Distributions of our three dependent variables were similar for geographies across sub-disciplines and in the pooled sample. In (a) Health Professions, medians for (a) the number of citations per document, $H(3)$ = 43.702, p = 0.000, (b) the number of citations

per view, $H(3) = 43.702$, $p = 0.000$ and (c) the number of views per document, $H(3) = 51.903$, $p = 0.000$, were statistically significantly different between geographical locations. In Table 2 we report pairwise comparisons using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted *p*-values are presented.

The post hoc analysis revealed statistically significant differences in (a) the number of citations per document between South America and Europe, South America and North America, Asia and Europe, and Asia and North America, but not between South America and Asia, and Europe and North America. As for (b) the number of citations per view, the post hoc analysis revealed statistically significant differences between South America and Europe, South America and North America, Asia and Europe, and Asia and North America, but not between South America and Asia and Europe and North America. Finally, for (c) the number of views per document the post hoc analysis revealed statistically significant differences between South America and Europe, but not in any other group combination.

In (b) Health Policy, medians for (a) the number of citations per document, $H(3) = 354.098$, $p = 0.000$, (b) the number of citations per view, $H(3) = 387.288$, $p = 0.000$ and (c) the number of views per document, $H(3) = 120.604$, $p = 0.000$, were statistically significantly different between geographical locations. The post hoc analysis showed statistically significant differences in (a) the number of citations per document: all pairwise comparisons were statistically significant except from Europe and North America (Table 2). In (b) the number of citations per view, the post hoc analysis revealed that all pairwise comparisons were statistically significant, while for (c) the number of views per document all comparisons except South America and North America were statistically significant.

In (c) Health–Social Sciences, medians for (a) the number of citations per document, $H(3) = 463.542$, $p = 0.000$, (b) the number of citations per view, $H(3) = 502.114$, $p = 0.000$ and (c) the number of views per document, $H(3) = 58.072$, $p = 0.000$, were statistically significantly different between geographical locations. The post hoc analysis revealed statistically significant differences in (a) the number of citations per document: all pairwise comparisons were statistically significant except from Asia and Europe (Table 2). In (b) the number of citations per view, the post hoc analysis revealed that all pairwise comparisons were statistically significant except from Asia and Europe, while for (c) the

number of views per document all comparisons except Europe and North America were statistically significant.

		Health Professions	Health Policy	Health-Social Sciences	Public Health	Pooled sample
	Pairwise comparisons	*p*	*p*	*p*	*p*	*p*
Citations per document	South America - Asia	0.388	0.000	0.000	0.000	0.000
	South America - Europe	0.000	0.000	0.000	0.000	0.000
	South America - North America	0.000	0.000	0.000	0.000	0.000
	Asia - Europe	0.007	0.006	1.000	0.002	0.000
	Asia - North America	0.001	0.005	0.000	0.000	0.000
	Europe - North America	1.000	1.000	0.000	0.000	0.000
Citations per view	South America - Asia	0.071	0.000	0.000	1.000	0.000
	South America - Europe	0.000	0.000	0.000	0.000	0.000
	South America - North America	0.000	0.000	0.000	0.000	0.000
	Asia - Europe	0.005	0.000	0.243	0.000	0.000
	Asia - North America	0.001	0.000	0.000	0.000	0.000
	Europe - North America	1.000	0.000	0.000	0.000	0.000
Views per document	South America - Asia	1.000	0.000	0.000	0.000	0.000
	South America - Europe	0.007	0.000	0.000	0.000	0.000

		Health Professions	Health Policy	Health-Social Sciences	Public Health	Pooled sample
	Pairwise comparisons	*p*	*p*	*p*	*p*	*p*
	South America - North America	1.000	1.000	0.000	1.000	0.106
	Asia - Europe	1.000	0.001	0.005	1.000	0.093
	Asia - North America	0.345	0.000	0.003	0.004	0.000
	Europe - North America	0.126	0.000	1.000	0.002	0.043

Source(s): Table by authors

Table 2. Pairwise comparisons of geography in health professions, health policy, health-social sciences, public health and the field of health sciences (i.e. the pooled sample)

In (d) Public Health, medians for (a) the number of citations per document, $H(3) = 169.638$, $p = 0.000$, (b) the number of citations per view, $H(3) = 224.376$, $p = 0.000$ and (c) the number of views per document, $H(3) = 34.365$, $p = 0.000$, were statistically significantly different between geographical locations. The post hoc analysis showed statistically significant differences in (a) the number of citations per document: all pairwise comparisons were statistically significant (Table 2). In (b) the number of citations per view, the post hoc analysis revealed that all pairwise comparisons were statistically significant except from South America and Asia, while for (c) the number of views per document all comparisons except South America and North America, and Asia and Europe, were statistically significant.

In (e) Health Sciences (i.e. the pooled sample), medians for (a) the number of citations per document, $H(3) = 169.638$, $p = 0.000$, (b) the number of citations per view, $H(3) = 224.376$, $p = 0.000$ and (c) the number of views per document, $H(3) = 34.365$, $p = 0.000$, were statistically significantly different between geographical locations. The post hoc analysis showed statistically significant differences in (a) the number of citations per document: all pairwise comparisons were statistically significant (Table 2). In (b) the number of citations per view, the post hoc analysis demonstrated that all pairwise comparisons were

statistically significant, while for (c) the number of views per document all comparisons except were statistically significant except two: South America and North America, and Asia and Europe.

For testing the interaction effect between geography and gender over (a) the number of citations per document, (b) the number of citations per view and (c) the number of views per document in Health Sciences (RQ3), we implemented a bootstrap ANOVA (1,000 bootstrapped samples, bias-corrected and accelerated [BcA]. Table 3 reports the estimated marginal means for the interactions and their corresponding confidence intervals. There was no statistically significant interaction between gender and level of geography for (a) the number of citations per document $F(3, 7{,}850) = 1.613$, $p = 0.184$, partial $\eta^2 = 0.001$. There was a statistically significant interaction for both (b) the number of citations per view, $F(3, 7{,}850) = 4.762$, $p = 0.003$, partial $\eta^2 = 0.002$, and (c) the number of views per document, $F(3, 7{,}850) = 17.393$, $p = 0.000$, partial $\eta^2 = 0.007$.

A follow-up analysis of simple main effects was conducted. For (b) the number of citations per view, there was a statistically significant difference in mean scores between males and females who were from Asia, $F(1, 7{,}850) = 8.025$, $p < 0.005$, partial $\eta^2 = 0.001$, and North America, $F(1, 7{,}850) = 4.530$, $p < 0.05$, partial $\eta^2 = 0.001$. For males and females from Asia, mean scores for the number of citations per view were 0.043 points, 95% Bootstrapped CI [0.013 – 0.072] higher for males than females. However, for North American scholars, mean scores for the number of citations per view were 0.031 points 95% Bootstrapped CI [0.002 – 0.060] higher for females than for males.

Metrics	Region	Gender	Mean	BCa 95% CI
Citations per document	Asia	Male	4.68 (0.23)	4.27–5.18
		Female	4.47 (0.14)	4.18–4.77
	Europe	Male	5.87 (0.24)	5.41–6.37
		Female	5.90 (0.29)	5.36–6.52
	North America	Male	6.67 (0.27)	6.15–7.24
		Female	7.13 (0.33)	6.47–7.85
	South America	Male	3.44 (0.19)	3.10–3.86
		Female	2.84 (0.14)	2.57–3.14
Citations per view	Asia	Male	0.24 (0.00)	0.23–0.26
		Female	0.20 (0.00)	0.19–0.21
	Europe	Male	0.29 (0.01)	0.27–0.32
		Female	0.31 (0.01)	0.29–0.34

Metrics	Region	Gender	Mean	BCa 95% CI
	North America	Male	0.36 (0.01)	0.34–0.38
		Female	0.39 (0.01)	0.36–0.42
	South America	Male	0.17 (0.00)	0.16–0.19
		Female	0.17 (0.00)	0.15–0.18
Views per document	Asia	Male	18.39 (0.33)	17.73–19.06
		Female	21.15 (0.48)	20.26–22.08
	Europe	Male	18.28 (0.33)	17.59–18.96
		Female	18.43 (0.41)	17.63–19.16
	North America	Male	16.89 (0.27)	16.35–17.40
		Female	16.96 (0.29)	16.38–17.55
	South America	Male	19.69 (0.49)	18.77–20.74
		Female	16.93 (0.41)	16.11–17.79

Note(s): Standard errors in brackets, bootstrap results are based on 1,000 bootstrap samples, bias corrected and accelerated. Source(s): Table by authors

Table 3. Bootstrap for the estimated marginal means of the interaction between geographical location and gender for (a) the number of citations per document (b) the number of citations per view and (c) the number of views per document in health sciences

For (c) the number of views per document there was a statistically significant difference in mean scores between males and females who were from Asia, $F(1, 7{,}850) = 25.374$, $p < 0.001$, partial $\eta^2 = 0.003$, and South America $F(1, 7{,}850) = 26.712$, $p < 0.001$, partial $\eta^2 = 0.003$. For males and females in Asia, mean scores for the number of views per document were 2.754 points 95% Bootstrapped CI [1.643–3.847] higher for females than for males. However, for South America, mean scores for the number of views per document were 2.760 points 95% Bootstrapped CI [1.575–3.902] higher for males than for females.

Discussion

Although there is a growing literature examining gender bias across sciences and world regions (Lariviere et al., 2013; Tahamtan et al., 2016), limited research has focused on healthrelated disciplines (Yun et al., 2015; Zhang et al., 2017). Indeed, we have scarce and even controversial evidence on the underrepresentation of female scholars on both the level of production and impact: in some cases, gender inequalities were justified (Thelwall, 2020a, b; Frandsen et al., 2020; van Arensbergen et al., 2012), while in other cases, authors did not find statistical differences (Penas and Willett, 2006; Thelwall and Neville, 2019).

In this study, our aim was to present a more complex picture on possible gender and geographical bias within health-related disciplines by measuring several aspects of production and impact that were not examined previously.

First, we measured the share of female scholars among the most productive scholars (RQ1). Second, we explored the presumed effects of gender and geographical location through three different scientometric indices (RQ2–3). While former studies have analyzed scholarly impact by measuring just citation per document values (Thelwall, 2020a, b), our study introduced two additional measurements: citations per view and view per document scores. Finally, since there is no comparative cross-country literature on gender inequalities within health sciences, we also investigated if geographical bias in productivity and performance are moderated by gender. In line with these investigations, we offer three contributions to the ongoing literature of gender and geographical bias in general (Lariviere et al., 2013; Tahamtan et al., 2016) and in health sciences (Yun et al., 2015; Zhang et al., 2017) in particular.

Our first contribution shows that gender inequalities in terms of productivity are systematic at both the disciplinal and field level (RQ1). As also shown by extant research (Frandsen et al., 2020; van Arensbergen et al., 2012), we found a considerable male overrepresentation in the field of health sciences, being health policy the most unbalanced. This finding suggests that disciplines connected to policymaking and social power are more gendered than politically less involved ones. This assumption is also reinforced by the fact that the second most severe male overrepresentation is in public health, a discipline also strongly associated with policy making. Health-social sciences, was the most balanced, yet highly male-oriented, which fully aligns with former studies on fewer gender inequalities in soft versus hard disciplines, even within fields (Sebo et al., 2020a).

Our second contribution lies in the clarification of gender effects at both the levels of impact and visibility (RQ2). While there are considerable differences between the analyzed subfields, the general trend is that female scholars have both less average citation per document and citation per view values, while there are no statistically significant differences between male and female scholars regarding the views per number of documents. These findings clearly show that the male advantage in citations is not

explained by higher visibility, since female scholars' articles are just as viewed as those of their male counterparts. In sum, female scholars are under-cited with respect to their male peers despite a similar number of views. Accordingly, female scholars in health sciences are typically viewed, yet not cited. Similar results were indicated by a recent study conducted by Zhang and Sivertsen (2021) on Norwegian academic publications. The novelty of their findings is that the relation between citation impact and view counts is related to the aims of the research, and that there is a clear gender difference here. Specifically, female researchers more often value and engage in research aiming for societal progress, which in general is less valued by academics, and therefore they receive fewer citations. Male researchers, on the contrary, tend to engage in research aimed at scientific progress, and thus earn more citations. This translates well to our analysis as well, as this trend was not only found in the pooled sample but also in public health and health policy, where, as discussed above, we found the strongest male overrepresentation in productivity. Accordingly, we found double evidence: within health sciences, disciplines with stronger ties to policy making are more gendered than other subfields, while in more socially aimed subfields generally pondered as female-oriented (Holman et al., 2018; Lariviere, 2013), such as health profession and health-social sciences, gender bias in research impact was not significant.

Our third contribution sheds light on geographical differences in gender balance within health sciences (RQ3). Our general finding is that the more peripheral world regions are in a similar situation as female scholars. Just like female scholars, Asian and South American authors are equally viewed, but less cited than their North American and European peers. Specifically, scholars from North America and Western Europe have higher citation per document and citation per view values than their Asian and South American peers, while there is no significant disadvantage in the views per document values–Asian scholars are even more viewed than the North American and European researchers. In fact, in two of four disciplines–health policy, and health-social science–Asian authors have significantly higher view per document values than either North American or European scholars, while in public health, Asian and European authors share the first place.

However, both indices that are related to citations and thus to research impact are lower in the case of peripheral scholars, thus our results assume the existence of a considerable Matthew effect (Merton, 1968, 1973) in health sciences as well. These findings are important, as no study in the past included view count measures in the scientometric analysis of non-medical health sciences. Therefore, although we had partial knowledge of the geographical distribution of productivity (Chan and Torgler, 2020; Holman et al., 2018; Matilda et al., 2020; Sebo et al., 2020a) and performance (Chan and Torgler, 2020), systematic disparities regarding citation cultures remained mostly overlooked.

Our findings, therefore, are further enforcing recent movements of citational justice gaining voice across disciplines. Over the last couple of decades, researchers (Dworkin et al., 2020; Milard and Tanguy, 2018) and some journals (Postle and Fulvio, 2021) have made significant efforts to identify and mitigate citation biases. As Dani Bassett, a researcher of citation imbalances in physics, in a recent interview (Kwon, 2022, para. 20) pointed out, "one of the exciting things about citational justice is that every researcher has an opportunity to contribute." Understanding individual-level citation patterns and, even more importantly, citation habits and attitudes, are crucial in order for us to reach a balanced academic. Consequently, future qualitative studies on citation habits and citation cultures (that is also, regional academic cultures regarding citations) are heavily prompted.

When we introduce gender, we find the interaction between geography and gender only in the citation per view and the view per document indices. Our findings are, however, rather inconclusive, as there are no general rules to explain the differences in gender gap across world regions. For citations per view, the gender bias is significantly different in Asia and North America: male scholars are overcited in the first, while female researchers are overcited in the second. However, while gender inequalities for the benefit of male scholars are the highest in Asia in terms of the view per document indices, we found that female scholars overscored in South America. In other instances, gender bias was not significantly different across our analyzed world regions.

At the same time, due to the novelty of the measures applied in this analysis regarding document view counts (citation per view, view per document), it is difficult to draw meaningful conclusions as the conversing literature is extremely limited. On the one hand,

our findings on gender biases in Asia with regards to the citations per view and view per document measures go seemingly hand in hand with previous analysis indicating a general male overrepresentation, and therefore a significant gender bias in Asian countries (e.g. Japan; Elsevier, 2017). On the other hand, the same logic, which connects representational bias to citation and view count biases, fails in the case of South America, as the view per document indices seem to be the most balanced regardless to severe inequalities in gender representation in the region (e.g. Chile; Elsevier, 2017). Our findings therefore propagate cross-country analyses over regional comparisons, as both the production and citation culture, as well as economic and research-political environment of different countries, can highly vary and heavily skew conclusions regarding regional aggregations. Without these high-resolution future analyses complementing our present findings, meaningful conclusions regarding the moderation effect of geographics on gender-based citation and document view biases can hardly be drawn.

Implications and future studies

Our analysis of gender bias and geographical disparities in health-related research yields significant implications for theory, practice and policy within the academic landscape.

Implications for theory

(1.) Gender Inequalities in Productivity: As revealed in this study, gender inequalities in scholarly productivity are not random but systematic, affecting various healthrelated disciplines and fields. This finding underscores the need for further theoretical exploration. The academic community should strive to develop comprehensive theoretical models to elucidate the underlying factors driving these disparities, particularly in disciplines with pronounced gender imbalances.

(2.) Impact and Visibility: The observed phenomenon of male scholars receiving more citations than their female counterparts, despite comparable visibility metrics, poses intriguing theoretical questions. Future research should aim to unravel the complexities of citation patterns and the influencing factors behind these disparities in research impact. As mentioned above, future qualitative studies specifically examining citation habits and citation cultures (that is also, regional academic cultures regarding citations) are heavily prompted.

(3.) Geographical Variations in Citation Culture: Geographical variations in research impact, particularly the higher citation rates of North American and Western European scholars, call for theoretical examination. Scholars should further examine the cultural, contextual and institutional dimensions that contribute to distinct citation cultures across regions.

Implications for practice

(1) Addressing Gender Bias: The empirical evidence of gender inequalities in scholarly productivity underscores the urgency of implementing practical measures. Academic institutions and funding bodies should proactively embrace practices such as mentorship programs, diversity initiatives, and the use of gender-sensitive evaluation criteria to combat gender bias within health-related disciplines.

(2) Promoting Citational Justice: Based on our results, the imperative of citational justice is evident. Scholars and journals should continue their efforts to identify and rectify citation biases (Dworkin et al., 2020; Milard and Tanguy, 2018; Postle and Fulvio, 2021). Encouraging researchers to conscientiously recognize and cite the contributions of scholars from underrepresented regions and genders is a practical step toward rectifying disparities in research impact.

Implications for policy

(1) Policymaking and Gendered Disciplines: Policymakers must acknowledge the gender imbalances present in disciplines closely linked to policymaking and social power within health-related research. Gender-sensitive policies and initiatives should be developed to foster diversity and inclusivity in these influential fields.

(2) Encouraging Global Research Collaboration: Policymakers and funding agencies should actively encourage and facilitate international collaboration in health-related research. Such collaborations can serve as a catalyst for mitigating geographical disparities in research impact, providing visibility and recognition to scholars from regions historically underrepresented.

(3) Region-Specific Policies: Policymakers should recognize the importance of crafting interventions tailored to the unique challenges and contexts of different

regions. Region-specific policies and initiatives can effectively address gender bias and geographical disparities, ultimately contributing to a more equitable research landscape.

In conclusion, further research, guided by these implications, is warranted to advance our understanding and drive meaningful change in the field.

Limitations

Several limitations of this study are noteworthy. First, data for the most prolific scholars was downloaded from Scopus. Accordingly, results may be subject to change if considered more exclusive rankings, such as the Web of Science. Second, for creating the list of the most productive scholars, Scopus only consider journals indexed in specific fields (in our case health sciences). Therefore, prestigious scholars may not be considered if their productivity is relatively diverse and have been published in journals not indexed in this field. Third and finally, the study did not consider the journal SJR impact factor, which may affect scholars' impact. For instance, scholars with gender and geographical differences may have a different academic impact depending on the journal ranking position. Accordingly, future studies may either control for the impact factor or test the moderating effect in both the relationship of gender and geographical location over our three dependent variables. Furthermore, for the purposes of our analysis, and in order to draw conclusions with regards to global academic trends of gender and geographical disparities, we examined world regions (Asia, North America, South America and Europe) instead of country-level data. Notwithstanding, different countries in the same geographical region may have considerable differences with regards to gender, whilst some regions might be heavily dominated by a few countries, skewing the results of our analysis. More detailed, country-level comparative analyses of the examined measures are therefore prompted. Finally, the study used a statistical significance test to analyze and answer the hypothesis and research questions. However, there are some caveats to these tests when examining research assessments, such as the utility of standard errors and confidence intervals for inferential purposes. With that said, the study provides robust empirical findings that shed light on the geographical and gender inequalities in research productivity, impact and visibility in Health Sciences.

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CONCLUSIONS AND RECOMMENDATIONS

Throughout the dissertation, I examined contemporary academia, critiquing non-transparent domestic academic assessment practices hindering integration into the international research community and perpetuating global disparities in knowledge production processes. Despite often appearing contradictory in contemporary domestic scholarly discourse, these critical viewpoints are interrelated. Addressing both internal regional deficiencies and structural power issues within academia is essential for effecting real change. The development of concrete reform proposals hinges on the visibility of these issues. Scholars must diligently bring disparities and challenges to light through rigorous research and critical analysis. By identifying manifestations of inequality and challenging perpetuating narratives, support for reform can be galvanized. Combining both bottom-up and top-down perspectives, advocating for transparency and accountability in academic assessment practices is central. This entails standardizing evaluation criteria, promoting transparent procedures, and providing enhanced support for scholars from peripheral regions. Acknowledging global disparities and addressing local deficiencies lays the foundation for tangible reform proposals.

First, in *Chapter 1*, we provided[23] a comprehensive exploration of the intricacies surrounding scientific career trajectories, internationalization deficits, and the unique

[23] Háló, G., Rajkó, A., & Demeter, M. (2022). Félperiféria a tudástermelésben.: Globális hátrányok és kitörési lehetőségek közép-kelet európai és hazai szemszögből. Educatio, 31(2), 236–248. https://doi.org/10.1556/2063.31.2022.2.5

challenges encountered by scholars of Central and Eastern European (CEE) countries, with a particular focus on Hungary.

In *Chapter 1.1*, we explored the complex pathways of scientific career advancement in Hungary, uncovering the significant challenges encountered by early-career researchers as they embark on their academic journey. The chapter provides several key contributions to academic assessment and reform. It analyzes domestic academic assessment processes, contrasting non-transparent and informal practices with Spain's ANECA and Poland's IDUB, highlighting how the former hinder international integration and competitiveness. The chapter argues that critiquing global academic inequalities while advocating for self-critical domestic reforms are complementary approaches necessary for substantive change. It proposes balanced reforms to enhance international visibility and competitiveness, using Spain and Poland as benchmarks for effective quality assurance. The chapter introduces performance-based research funding systems (PRFS) and explores their potential application in Hungary, addressing resistance within the academic community. It highlights the challenges faced by early-career researchers in Hungary and recommends mentorship, standardized doctoral programs, and supportive institutional frameworks. Strategic recommendations for Hungarian higher education institutions are provided, emphasizing collaborations, improved research infrastructure, and alignment with international standards. Finally, the chapter calls for self-critical renewal within domestic academic systems to challenge global hegemonies and ensure diverse voices are valued in international academia. A balanced approach is needed, where disadvantaged actors actively seek international visibility while simultaneously advocating for reform within domestic academic evaluation systems.

In Chapter 1.2, our scope[24] expanded to address the broader implications of internationalization deficits and resulting global inequities within academia, contextualized

[24] Háló, G., & Demeter, M. (2022). International VS National Academic Bibliographies. A Comparative Analysis of Publication and Citation Patterns in Scopus, Google Scholar, and the Hungarian Scientific Bibliography. New Review of Academic Librarianship, 0(0), 1–20. https://doi.org/10.1080/13614533.2022.2138475

against university rankings and research assessment systems. Our findings indicate a significant underrepresentation of Hungarian scholars in international, indexed publications essential for global assessments and rankings. Specifically, we observed that 96% of publications across various Social Sciences and Humanities (SSH) fields in Hungary are absent from Scopus, severely limiting international visibility and impact. Even within this small proportion that is visible, international citations remain minimal, contrary to assumptions that Hungarian research is inherently unpublishable in Anglo-Saxon outlets. Our research highlights that successful Hungarian researchers and their counterparts in neighboring countries demonstrate the capability to achieve substantial visibility in Scopus, suggesting that the low international output of Hungarian research is primarily due to domestic factors that inhibit international visibility (Sasvári et al., 2021), rather than inherent publishing limitations.

Chapter 1.2 contributes to scholarly discourse by proposing policy recommendations to integrate standardized global publication databases into research assessments, advocating for transparency and fairness in academic evaluations. It underscores the systemic challenges faced by Central and Eastern European (CEE) regions in global knowledge production, urging critical reflection and reform in assessment practices. Through empirical analysis involving 365 Hungarian social scientists across national (MTMT), global (Scopus), and Google Scholar databases, the chapter offers insights into Hungary's international visibility and impact. Comparative analysis with neighboring countries reveals disparities in publication patterns, signaling areas where Hungary's research visibility can be enhanced. Furthermore, the chapter explores discrepancies between national and global databases, highlighting the underrepresentation of Hungarian research in international assessments due to reliance on national datasets.

Together, *Chapter 1* serves as an exploration of the structural and systemic dynamics underpinning contemporary academia in Hungary and the broader CEE region. It underscores the imperativeness of addressing disparities and championing greater equity and diversity in academic scholarship through targeted interventions and strategic initiatives. Drawing upon the insights gleaned from *Chapter 1*, as well as related

complementary findings of ours[25,26,27], and with the explicit aim of serving Central and Eastern European (CEE) and Hungarian scholars, the following recommendations can be proposed from a bottom-up organizing perspective[28]:

1. *Enhance International Visibility*: Actively seek opportunities for international collaboration, publication, and participation in global academic events to increase visibility and recognition on an international scale. Furthermore, utilize platforms such as Google Scholar and international databases for research dissemination to reach a wider audience and enhance citation impact.
2. *Advocate for Transparent Evaluation Systems*: Advocate for the implementation of transparent and standardized metrics for research assessment to ensure fair evaluation of scholars from all regions. Push for alignment of national evaluation systems with global standards to promote international competitiveness and recognition.
3. *Strengthen Regional Identity and Collaboration*: Collaborate with peers and institutions to organize internationally visible conferences and workshops focused on regional topics, fostering collaboration and knowledge exchange within the CEE region. Publish special issues in international journals that highlight research from

[25] Háló, G. (2022). A review of online communication research in Hungary. Online Media and Global Communication, 1(2), 410–436. https://doi.org/10.1515/omgc-2022-0026

[26] Háló, G., & Demeter, M. (2023). Central and Eastern Europe in Journalism Studies: The Three-Faced Disadvantage of Underrepresentation, Isolation, and Westernization. In The Routledge Companion to Journalism in the Global South. Routledge.

[27] Demeter, M., Háló, G., & Rajkó, A. (2023). The Capital-Labor Problem in Academic Knowledge Production. Revista de la Asociación Española de Investigación de la Comunicación, 10(20), Article 20. https://doi.org/10.24137/raeic.10.20.1

[28] The phrase "bottom-up organizing perspective", here, suggests that the recommendations are formulated with a focus on peripheral grassroots efforts and initiatives, rather than central top-down changes. It implies that the proposed actions are aimed at empowering individuals and peripheral institutions within the global academic community to effect change from within.

the CEE region, highlighting its unique perspectives and contributions to the global academic discourse.

4. *Establish and Manage International Journals*: Work with academic institutions to establish and manage international journals indexed in global scientific databases, providing a platform for CEE scholars to address specific societal issues while achieving international visibility. Encourage involvement in the editorial process of international journals to ensure representation and recognition of scholars from the CEE region.
5. *Adapt and Innovate in Academic Globalization*: Embrace academic globalization by adapting research methodologies, publishing strategies, and theoretical frameworks to meet international standards while maintaining cultural sensitivity and regional identity. Foster innovation in research and scholarship by exploring interdisciplinary approaches and engaging with emerging trends in academia.
6. *Promote Mentorship and Collaboration*: Establish mentorship programs to support early-career researchers in navigating the academic landscape and building international networks. Encourage collaboration between scholars from different regions and disciplines to promote knowledge exchange and innovation in research.

Second, *Chapter 2* offered a comprehensive exploration of various facets within academic research, publication, and the broader academic landscape. Each article provided unique insights that, when woven together, contributed to a holistic understanding of contemporary academic practices and challenges.

In *Chapter 2.1*, we examined[29] the unequal distribution of scholarly impact in Communication Studies, focusing on disparities among scholars from different regions. Building on existing research highlighting geopolitical inequalities in citation patterns (Demeter, 2017, 2019b; Lauf, 2005), this study underscores significant differences in citation rates among scholars from the United States, Western Europe, and Eastern Europe.

[29] Tóth, J. J., Háló, G., & Goyanes, M. (2023). Beyond views, productivity, and citations: Measuring geopolitical differences of scientific impact in communication research. Scientometrics, 128(10), 5705–5729. https://doi.org/10.1007/s11192-023-04801-7

Our findings confirm that U.S. scholars are consistently the most highly cited, followed by their counterparts in Western and Eastern Europe, reflecting a pronounced Americanization of the field discussed in prior literature (Chakravartty et al., 2018; Demeter et al., 2022a, 2022b; Gunaratne, 2010; Waisbord & Mellado, 2014). While disparities in impact are evident across these regions, our analysis reveals more comparable citation impacts within Western and Eastern Europe, with countries like Romania, Hungary, Ukraine, Spain, and Italy showing similar median citation values. Notably, Ukraine stands out with notably high citation values among Eastern European countries, suggesting unique regional dynamics. Introducing novel metrics such as views received by articles indexed in SCOPUS, our study provides insights into scholarly visibility less influenced by traditional academic filters or journal prestige. This approach reveals that while Eastern European and Spanish scholars receive significant views on their research, these views do not always translate into citations at rates comparable to American or Western European scholars, indicating potential biases in citation practices favoring Western scholarship. Future research should further explore these dynamics across diverse regions and disciplines to deepen our understanding of global scholarly communication practices and their implications for knowledge dissemination and evaluation.

Chapter 2.1 contributes to understanding geopolitical biases in scholarly impact within communication studies, analyzing scholars from 11 countries across three regions to highlight significant disparities in citation-based impact. It integrates altmetrics like views per document and citations per view (based on SCOPUS view counts) alongside traditional citation metrics, offering a detailed view of scholarly impact less prone to biases. Furthermore, the chapter innovates by using SCOPUS data to empirically demonstrate geographical disparities in citation and view counts, underscoring the need for policies promoting diversity and equity in scholarly communication practices.

Chapter 2.2. scrutinized[30] gender bias and geographical disparities in health-related research, offering implications for theory, practice, and policy in academia. This study

[30] Goyanes, M., Demeter, M., Háló, G., Arcila-Calderón, C., & Gil de Zúñiga, H. (2024). Geographical and gender inequalities in health sciences studies: Testing differences in research productivity, impact and

significantly contributes to the discourse on gender and geographical biases within health-related disciplines, addressing gaps in existing literature focused predominantly on other scientific domains (Lariviere et al., 2013; Tahamtan et al., 2016). Our research provides a detailed understanding of these biases by examining multiple facets of scholarly production and impact that have not been comprehensively explored before. Firstly, we highlight systematic gender inequalities in productivity across health sciences, with male scholars overrepresented, particularly in fields linked to health policy and public health, consistent with previous studies (Frandsen et al., 2020; van Arensbergen et al., 2012). While health-social sciences exhibit a more balanced gender representation, they still lean towards male dominance, reflecting broader trends in soft versus hard disciplines (Sebo et al., 2020). Secondly, our study introduces novel scientometric indices—citations per view and views per document—to assess scholarly impact and visibility. Our analysis reveals that despite similar visibility, female scholars in health sciences receive significantly fewer citations compared to their male counterparts, indicating a clear gender bias in citation practices. This discrepancy suggests that gendered patterns in scholarly impact are not merely a function of visibility but reflect deeper biases within academic citation cultures. One possible explanation, following an argumentation by Zhang & Sivertsen (2021), is that female researchers more frequently prioritize research aimed at societal progress, a pursuit that is typically undervalued within academic citation practices, resulting in fewer citations despite comparable levels of article views. In contrast, male researchers often focus on research geared towards scientific advancement, which aligns more closely with traditional academic values and thus tends to receive higher citation counts. Additionally, our investigation into geographical differences reveals that scholars from North America and Western Europe tend to have higher citation impact indices than their counterparts from Asia and South America, mirroring patterns observed in gender disparities. However, the views per document indices show Asian scholars receiving higher visibility, suggesting complex interactions between geography and scholarly impact. Overall, our study highlights the need for continued efforts to address gender and geographical biases in

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visibility. Online Information Review, ahead-of-print(ahead-of-print). https://doi.org/10.1108/OIR-10-2022-0541

citation practices within health sciences, emphasizing the importance of citational justice and equitable recognition of scholarly contributions across diverse contexts and disciplines.

Overall, articles of *Chapter 2* collectively highlighted the need for greater inclusivity, diversity, and equity in academic research and publication practices, and together, provided a foundation for further research and action aimed at promoting diversity and inclusion in academia. Additionally, our findings emphasize the intertwined nature of internationalization and 'Westernization' in academic research, prompting reflection on the balance between scientific globalism and nationalism.

Drawing upon the insights gleaned from *Chapter 1*, as well as related complementary findings of ours[31,32], the following recommendations can be proposed:

1. *Promote Diversity and Inclusion in Scholarly Discourse*: Advocate for the representation of scholars from all regions, particularly underrepresented areas, to address biases in citation practices and academic visibility. Encourage the use of altmetrics alongside traditional citation metrics to provide a more balanced view of scholarly impact.
2. *Enhance Global Research Collaboration*: Foster international research collaborations to mitigate geographical disparities in citation rates and scholarly impact. Promote inclusive practices that recognize and amplify research contributions from scholars in peripheral regions.
3. *Address Geopolitical Biases in Academic Evaluation*: Integrate critical sociological frameworks into scientometrics to examine and address uneven power relations and biases in global academia. Conduct qualitative studies on citation habits and

[31] Christián, L., Háló, G., & Demeter, M. (2022). Twenty Years of Law Journal Publishing: A Comparative Analysis of International Publication Trends. Publishing Research Quarterly 38, 1-17. https://doi.org/10.1007/s12109-021-09854-1

[32] Demeter, M., Háló, G., & Rajkó, A. (2023). The Capital-Labor Problem in Academic Knowledge Production. Revista de la Asociación Española de Investigación de la Comunicación, 10(20), Article 20. https://doi.org/10.24137/raeic.10.20.1

cultures across different academic contexts to better understand and address research impact dynamics.

4. *Encourage De-Westernization in Academic Fields*: Support efforts to de-Westernize fields like communication studies by recognizing and promoting diverse perspectives and contributions from non-Western regions. Address the dominance of US-based scholarship in citation impact metrics by promoting more inclusive citation practices
5. *Promote Citational Justice and Equity*: Implement policies and practices that promote citational justice, ensuring that citation practices are fair and inclusive. Encourage journals and academic institutions to adopt guidelines that promote equitable representation of scholars from diverse regions and backgrounds
6. *Policy Interventions for Gender and Geographical Disparities*: Advocate for region-specific interventions tailored to mitigate gender and geographical disparities in academic research. Develop and enforce gender-sensitive evaluation criteria in academic assessments, especially in fields connected to policymaking and social power. Establish mentorship programs and diversity initiatives to support female scholars and address gender biases in scholarly productivity and impact.

As introduced earlier, navigating modern academia necessitates a comprehensive approach incorporating grassroots initiatives and institutional directives to effectively address challenges and foster positive transformation. *Chapter 1* emphasizes grassroots efforts, promoting international visibility within academic circles through transparent evaluation systems, regional collaboration, and global engagement. These initiatives empower scholars and cultivate inclusivity, amplifying diverse voices. In contrast, *Chapter 2* outlines institutional recommendations for policymakers, academic institutions, and funding agencies to enact structural changes. These include recognizing and supporting scholars from underrepresented regions, fostering international collaboration, and advocating for gender-sensitive evaluation systems. Together, these approaches create an environment conducive to the advancement of all scholars, irrespective of background or location.

Integrating bottom-up and top-down approaches enables academia to collaboratively foster a more inclusive, equitable, and globally competitive landscape. Embracing both

individual initiative and institutional support is vital for driving meaningful and lasting change, ensuring academia embraces diverse voices and perspectives, enriching global scholarly discourse. Importantly, this dissertation underscores the necessity of gaining international visibility to challenge existing power structures. Without putting ourselves on the map and demonstrating our ability to produce quality research, our critical voices risk being drowned out.

LIMITATIONS AND FUTURE RESEARCH

While this dissertation contributes valuable insights into the complexities of contemporary academia, there are several limitations that warrant acknowledgment and opportunities for future research to expand upon these findings.

First, this study predominantly employs quantitative scientometric analyses to explore disparities in scholarly impact across genders and geographical regions. While these methods provide valuable quantitative insights, future research should complement them with qualitative methodologies. Qualitative approaches could address the lived experiences of scholars, offering perspectives on how intersecting identities such as race, ethnicity, and socio-economic status influence scholarly visibility and impact. Understanding the institutional and cultural factors that shape citation practices through qualitative research can provide a richer understanding of inequalities in academia.

Second, the dissertation primarily describes patterns of inequality in scholarly impact without extensively exploring causal relationships or dynamic aspects over time. Future research could adopt longitudinal studies and mixed-methods approaches to investigate how changes in academic policies, funding structures, and cultural norms contribute to disparities in citation rates and academic visibility.

Third, while the study provides a broad overview of inequalities in academic impact across disciplines such as Communication Studies and health-related research, future research should conduct more focused analyses within specific subdisciplines. This approach would

further illuminate variations in citation practices and scholarly impact, offering deeper insights into how disciplinary norms and publishing practices contribute to disparities in academic visibility.

Fourth, future analyses could benefit from incorporating more comprehensive control variables (e.g., impact factor, international embeddedness, team size, funding sources) to deepen our understanding of the specific contributions of gender and geographical location to disparities in citation rates.

Fifth, while Chapters 2.1. and 2.2. introduce novel altmetrics such as citations per view and views per document to complement traditional citation metrics, further analysis could explore their potential to assess impact. These metrics offer insights into scholarly visibility beyond traditional filters and journal prestige biases. Understanding these dynamics could also inform policies that promote inclusivity and equity in academic evaluation practices.

Finally, while the dissertation examines disparities in scholarly impact among scholars across different regions and genders, it predominantly focuses on established researchers and top scholars. Future research should also explore the unique challenges faced by early-career researchers and scholars from marginalized groups. Investigating the pathways and support structures that facilitate or hinder their scholarly impact could inform targeted interventions to promote inclusivity and equity in academia.

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APPENDIX

STATEMENT OF AUTHORSHIP

I the undersigned (**name**): Háló Gergő

PhD candidate of the **Doctoral School**: Doctoral School of Sociology and communication Science, **Program/Specialization (field of science)**: Communication Science Doctoral Program

hereby declare that **the PhD dissertation** I submitted to the Doctoral Office of the Corvinus University of Budapest

at the **date**: 2024.06.25.

with the **title**: *Bridging the Divide: Unveiling Global Disparities and Local Challenges in Academic Internationalization for a Holistic Approach to Change*

having 212 **pages**,

is the result of my research and the whole of my dissertation is my own, independent intellectual property using only the indicated sources.

Clearly, by indicating the source, I have marked all the parts, including my own previous work, that I have taken from another source, literally or in the same sense, but reworded. I also declare that I have not previously submitted my doctoral dissertation to another institution, it has not been rejected, I have not had an unsuccessful doctoral defence within two years.

Regarding the **form and structure** of my doctoral dissertation, it is (please underline the right one):

- an **article-based dissertation**

- a **non-article-based** dissertation

Date: 2024.06.25.

DECLARATION OF PERMISSION FOR USE BY CO-AUTHORS

Chapter 1.1.[33]

Title: *Félperiféria a tudástermelésben. Globális hátrányok és kitörési lehetőségek közép-kelet európai és hazai szemszögből.*

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Chapter 1.2.[34]

Title: *International VS National Academic Bibliographies. A Comparative Analysis of Publication and Citation Patterns in Scopus, Google Scholar, and the Hungarian Scientific Bibliography.*

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Article 2.1.[35]

Title: *Beyond views, productivity, and citations: Measuring geopolitical differences of scientific impact in communication research.*

Co-Author(s): Tóth János József, Manuel Goyanes

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[33] Háló, G., Rajkó, A., & Demeter, M. (2022). Félperiféria a tudástermelésben.: Globális hátrányok és kitörési lehetőségek közép-kelet európai és hazai szemszögből. Educatio, 31(2), 236–248.

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Article 2.2.[36]

Title: *Geographical and gender inequalities in health sciences studies: Testing differences in research productivity, impact and visibility.*

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[36] Goyanes, M., Demeter, M., Háló, G., Arcila-Calderón, C., & Gil de Zúñiga, H. (2024). Geographical and gender inequalities in health sciences studies: Testing differences in research productivity, impact and visibility. Online Information Review, ahead-of-print(ahead-of-print). https://doi.org/10.1108/OIR-10-2022-0541

The co-authors hereby grant permission for the co-authored papers to be included in the dissertation, acknowledging that the doctoral student's contribution was decisive in the part concerned.

Place and Date:

Madrid, 17 February 2024

Carlos Arcila-Calderón

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Budapest, 19 February 2024

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THE AUTHOR'S RELEVANT PUBLICATION LIST

Christián, L., Háló, G. & Demeter, M. Twenty Years of Law Journal Publishing: A Comparative Analysis of International Publication Trends. Pub Res Q 38, 1–17 (2022). https://doi.org/10.1007/s12109-021-09854-1

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