




Trends and Production Dynamics in University Rankings Research: A Bibliometric Analysis for Higher Education Policy

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Abstract: The globalisation of higher education has amplified demand for institutional rankings, influencing student decisions and shaping institutional strategies. Although substantial attention has been devoted to the methodology and validity of the indicators and metrics used in rankings, there is less understanding of how these rankings intersect with national and institutional policy objectives. The predominance of publication-based metrics has incentivised behaviours focused on maximising visibility and citation counts, raising concerns regarding the authenticity of scholarly impact. This paper explores current trends, influences, and debates surrounding university rankings, highlighting the pressures they exert on researchers, institutions, and policymakers. Employing a bibliometric approach, the authors analysed and mapped the evolution of the ranking discourse, identifying consistent themes and shifts in focus over time. A bibliometric analysis of 419 journal articles traced and analysed four decades of research on university rankings, spanning from the late 1980s to 2025. The study found that research on university rankings has expanded significantly in scale and complexity, increasingly addressing global trends and policy shifts. In the discussion, these findings are interpreted in light of ongoing debates regarding the balance between global benchmarking pressures

and local transformation and equity priorities. The paper recommends policy reforms that strike a balance between worldwide visibility and local relevance, thereby contributing to discussions on equitable academic development in diverse higher education contexts.

Keywords: University rankings, bibliometric analysis, higher education, research trends, production dynamics.

1. Introduction

Over the past four decades, the globalisation of higher education has resulted in increased participation in the sector. With this rise in enrolment, there is a growing demand for rankings, driven by escalating costs and prospective students, along with their guardians, seeking value for money (Pavlov & Katsamakos, 2023). Consequently, the importance of university rankings has become significantly amplified, with prospective students relying heavily on these rankings to inform their choices of institutions. Administrators and industry leaders concur that global competition is intensifying for top students, funding, and researchers (Hazelkorn, 2013). Several factors influence students' decisions when selecting a higher education institution, with an institution's ranking being a major draw for enrolment (Buckner, 2017). This finding is further supported by Ishak, Ali, Tajuddin, and Shamsudin (2021), who discovered that most students consider an institution's ranking before deciding whether to enrol.

This underscores the importance of institutional ranking as a crucial factor in students' decision-making processes. While substantial research has been conducted on rankings, particularly concerning the metrics and weights used to develop them, there appears to be considerably less exploration of how these international ranking metrics and indicators intersect with institutional policy and objectives (Kochetkov, 2024). Higher education institutions are unique, possessing

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different goals and agendas. However, despite the evolution of institutional missions and policy priorities, ranking agencies continue to evaluate universities using the same metrics and indicators (Selten et al., 2020). Given that rankings exert considerable influence on higher education institutions' decision-making (Hosier & Hoolash, 2017), it is essential to understand how these institutions identify and navigate the gaps between international recognition and local impact.

A growing body of research has emerged on university rankings. Most of the existing literature focuses on the methodological soundness of ranking systems and examines ranking methodologies at the indicator level, enabling higher education institutions to optimise their performance within these systems. While the literature includes a variety of bibliometric analyses that have broadly examined the evolution of trends and themes in higher education research over time, less attention has been paid to how the research on university rankings has evolved. In particular, there is a limited body of work that traces and explores the conceptual and theoretical development of research on university rankings. As a result, there remains a need for a comprehensive bibliometric analysis to map how the research on university rankings has developed and how its thematic focus has shifted over time. A bibliometric approach is well-suited to addressing this gap because it enables the identification of publication trends and thematic developments in rankings research, including the analysis of how these trends and themes have evolved over time.

Considering the Western dominance of ranking systems, it is worthwhile to explore the development of rankings research in the socio-economic context of South Africa. This is important because the current ranking methodologies do not take the socio-economic developmental context into consideration. Hence, the blanket application of ranking indicators might enhance the global standing of South African higher education institutions, but they are not reliable metrics for determining whether these institutions meet national developmental priorities. Therefore, this study aims to explore the conceptual and thematic structure of the research conducted on university rankings by using bibliometric analysis to identify gaps and insights relevant to higher education policy. While the analysis is conducted at a global level, its interpretation aims to generate insights relevant to the South African higher education context.

1.1 Background

Over the years, the emergence of global rankings has reshaped the definition of academic success. The incentivisation of metrics, including citation rates and publication counts, has significantly transformed institutional strategies and governance within higher education (Kochetkov, 2024; Rhein & Nanni, 2023; Sheeja, Mathews, & Cherukodan, 2018). As Mthombeni (2024) has noted, the "publish or perish" mentality has become the prevailing approach to academic advancement, placing substantial emphasis on research publications as the primary indicator of scholarly achievement. Nonetheless, concerns are arising regarding the reliability of these metrics in evaluating research performance. Evidence from the existing literature indicates that higher education institutions (HEIs) facing performance pressures often engage in behaviours aimed at maximising metrics (Bhattacharjee, 2011; Moosa, 2024; Biagioli et al., 2019). Such behaviours include clustering publications, submitting articles to high-visibility journals with minimal editorial barriers, prolific authorship, and inflating multi-affiliations (Hladchenko, 2025; Hottenrott et al., 2021; Meho, 2025; Oravec, 2017; Teixeira da Silva & Dobránszki, 2016). It should, however, be noted that while not all these practices are unethical, they do call into question the extent to which they genuinely reflect scholarly impact and performance.

Global rankings and market forces have been particularly influential in shaping government policies, which, in turn, have played a significant role in the development of HEIs and in the behaviour of academics. Given that global rankings measure, among other factors, the quality of an institution's academic research, government policymakers and university administrators have been paying close attention to the metrics they provide. However, improved performance in ranking tables does not

necessarily indicate an enhancement in an institution's teaching, learning, or academic research quality (Lee, Schneijderberg, Kim, & Steinhardt, 2021). Scholars such as Dill (2009), Usher & Savino (2009), and Marginson (2009) have noted that the results of these ranking evaluations do not adequately reflect actual academic development. Nevertheless, scholars and institutions have largely succumbed to the pressures generated by global rankings. Studies conducted by Butler (2003), Gläser & Laudel (2005), Laudel & Gläser (2014), Musselin (2013), Van Noorden (2010), and Woelert & McKenzie (2018) have pointed out that academics have become responsive to requirements for reputation and funding set by governments, funding agencies, and the research community at large. This is further reinforced by Lee et al. (2021), who noted that the increasing number of publications can be directly linked to academics publishing in research areas chosen to meet universities' promotion and appointment criteria. In essence, the drive for global recognition may unintentionally perpetuate Eurocentric knowledge dominance and compromise the integrity of local research. As such, understanding these dynamics is crucial for developing policies that foster an inclusive and equitable academic environment and align global competitiveness with indigenous knowledge.

1.1.1 Research objective

While interest in university rankings has grown, particularly as higher education has become more globalised, a significant gap remains in understanding the effects these global rankings have on the global knowledge economy. This study aims to fill that gap by mapping and analysing global research on university rankings. The objective is to uncover how the discourse on rankings has evolved, identifying both consistent themes and shifts in focus over time. The main question guiding the research is:

- What are the main themes in current research on university rankings, and how have they changed over time?

2. Literature Review

The growing prominence of university rankings within global higher education has created a large interdisciplinary body of scholarship. This section reviews the policies and methodologies of ranking agencies and examines how rankings shape institutional behaviour and higher education systems. The literature review commences by introducing the reader to bibliometrics. Thereafter, it discusses the global higher education landscape, focusing on the structural, economic, and policy dynamics that have enabled the proliferation and influence of university rankings in the sector. The literature review concludes by discussing the different ranking methodologies, focusing on their indicators, the weighting assigned to those indicators, and the underlying methodological assumptions. This deep dive into the ranking methodologies establishes the foundation for analysing the trends and production dynamics in university rankings research.

2.1 Bibliometrics

The global knowledge economy generates millions of journal articles and books annually. The rapid advancement of knowledge across various fields and disciplines has led to an increased adoption of bibliometrics as a tool for consolidating scientific findings within other research areas (Öztürk, Kocavan, & Kanbach, 2024). Bibliometrics is a research approach utilised to analyse large datasets of journal publications to map the evolution of knowledge in a specific field or discipline (Donthu et al., 2021). Consequently, it constitutes a statistical inquiry into research outputs, employing the metadata of published journal articles or books to analyse and discern the relationships between different studies and their theoretical and conceptual propositions.

Bibliometrics was pioneered in psychology when, in the early 1900s, psychologists endeavoured to track the development of the field by counting publications and psychological concepts (Godin, 2006). Nonetheless, it was Derek de Solla Price and Eugene Garfield who systematically advanced the field of bibliometrics through their work on the growth of scientific research and the Science

Citation Index (Godin, 2006). The central premise in bibliometrics is that all knowledge produced in a specific field or discipline is encapsulated in published research studies (Ninkov, Frank, & Maggio, 2021). Bibliometrics is categorised into two main types: evaluative and relational. Evaluative bibliometrics focuses on research performance, employing metadata such as citations, abstracts, and keywords to ascertain the volume of research conducted in a specific field or discipline, as well as the influence of that research on shaping discourse (Ninkov, Frank, & Maggio, 2021). In parallel, relational bibliometrics emphasises the interconnections among the ideas, concepts, and theories articulated by various scholars within a field, thereby allowing researchers to trace the development of theoretical and conceptual propositions back to specific research papers or books (Ninkov, Frank, & Maggio, 2021).

Bibliometric analysis is conducted employing several methods: citation analysis, co-authorship analysis, and keyword co-occurrence mapping (Passas, 2024). Citation analysis utilises the frequency of author citations as an indicator of research impact within a specific field. Co-authorship analysis delineates the network of collaboration among authors, institutions, universities, and countries, thereby enabling the identification of collaborative patterns in knowledge production within a domain. Keyword co-occurrence mapping employs keywords to determine the frequency and interconnections of keywords across publications in a given field, allowing researchers to identify and visualise the dominant research themes. Bibliometric analyses are frequently conducted using specialised bibliometric software such as CiteSpace, Bibliometrix, and VOSViewer. This software facilitates the generation of network maps that reveal thematic clusters, scholarly collaborations, and the evolution of research themes over time.

Bibliometrics represents a systematic approach to analysing articles or books for the explicit purpose of identifying patterns within the literature. This process commences with the researcher establishing the research objectives, the aims of the bibliometric analysis, and the guiding questions (Passas, 2024). Subsequently, the researcher utilises these parameters to retrieve relevant literature from databases such as Scopus and Elsevier. The retrieved data typically comprises hundreds or thousands of publications; therefore, it is necessary to clean the dataset to remove duplicates. After this, the researcher selects the appropriate bibliometric analysis method (Passas, 2024), which may involve citation analysis, co-authorship analysis, or keyword co-occurrence analysis. The dataset is then uploaded to bibliometric software such as VOSviewer or Biblioshiny to analyse patterns and interconnections. The findings are presented through visualised network maps, including thematic maps, citation chronologies, alluvial diagrams, and Sankey charts. These visualised network maps are interpreted by the researcher, who subsequently outlines and explains the findings of the bibliometric analysis within the context of the research questions. Finally, the researcher may offer recommendations and suggest areas for future research that align with the identified themes (Passas, 2024).

2.2 Global higher education landscape: An overview

Globally, the landscape of Higher Education has progressively homogenised due to the global aspirations of universities (Schildermans & Tröhler, 2024). The transformation in universities' perception of their roles can be traced to the period following the Second World War, during which they increasingly transitioned from viewing themselves solely as local or national institutions responsible for advancing human and scientific knowledge to adopting the identity of global universities (Schildermans & Tröhler, 2024). This shift has been structurally supported by globalisation and the proliferation of the internet, resulting in universities increasingly regarding themselves as part of a global knowledge community that produces graduates and scientific knowledge in service of the global knowledge economy and the global public good. This phenomenon is evident in the competition among universities to attract students, driven by their aspirations to enhance their status in global rankings, increase the number of international

collaborations, proliferate research and study-abroad programmes, and normalise online lectures and fully remote universities (Schildermans & Tröhler, 2024).

The globalisation of Higher Education has benefited universities in the Global North disproportionately compared to those in the Global South (Badat, 2010). This disparity arises from the fact that university ranking systems represent the only standardised and cross-comparable measures of performance within the globalised system (Schildermans & Tröhler, 2024). Ranking systems, such as the Times Higher Education Rankings, reinforce the privileged position of Western universities by aligning their criteria for a "world-class university" with the structures, resources, and research outputs characteristic of these institutions. The globalised Higher Education sector, therefore, is divided between the "haves" and the "have-nots," with Western-derived ranking systems functioning as capital for each university within the knowledge economy (Bayanbayeva, 2025). However, not all actors within the globalised Higher Education system occupy an equal position. Elite Western institutions, such as Harvard and Oxford, consistently rank among the top 100 universities, establishing themselves as the de facto gold standard in higher education. Consequently, other institutions often endeavour to replicate the strategies employed by these exceptionally well-resourced universities to enhance their own performance and competitiveness within the global knowledge economy, thereby engaging in the 'rankings game.' As a result, universities in the Global South are positioned as perpetual followers within a hierarchy that reflects both global economic and political power (Ndofirepi, 2017). This dynamic undermines the socio-economic developmental roles that universities in the Global South play within their own economies and perpetuates their dependence on the North-South transfer of knowledge.

Beyond the inequalities between the global North and South, the international higher education sector has experienced significant structural reformations since the early 2000s. Over the past two decades, higher education has transitioned from being perceived as a public good accessible to a relatively small, privileged segment of society to a massified system characterised by expanded participation (Marginson, 2016). This transformation is evidenced by the growth in global student enrolments from approximately 100 million in 2000 to around 264 million in 2023, alongside an increase in the worldwide enrolment rate from 19 per cent to 43 per cent (UNESCO, 2022). Consequently, universities are under increased pressure to ensure that the quality of teaching and learning is not compromised by funding and capacity constraints within a massified higher education system (Lemoine et al., 2018; UNESCO, 2022).

The institutions that encounter the most significant pressure in this context are located in East and South Asia, which collectively account for more than half of global student enrolments. However, it is important to note that this increase is largely driven by population size rather than a move towards universal access. Alarming, Africa continues to demonstrate the lowest enrolment rates (UNESCO, 2022). Nevertheless, African universities cannot ignore the reality that the global higher education sector has become increasingly differentiated and stratified due to heightened competition for student enrolments. This issue stems from a small number of universities within the top 100 rankings, solidifying their positions by intensifying their research outputs. In contrast, the majority of institutions outside the top 100 primarily concentrate on teaching and learning, yet they find themselves competing in a rankings regime that favours research intensity (Zarifa et al., 2025). This has resulted in the stratification of the global higher education sector, wherein the majority of universities aspire to achieve the same research-intensive status as the top 100, despite facing limited resources and structural constraints.

2.3 University rankings methodologies

Ranking agencies assess higher education institutions (HEIs) using varying metrics and weights (Gadd, 2021). Currently, there are six operational ranking agencies worldwide that provide annual rankings, namely the Times Higher Education World University Rankings (THEWUR), Quacquarelli

Symonds World University Rankings (QS WUR), Academic Ranking of World Universities (ARWU), Round University Ranking (RUR), U.S. News & World Report's Best Global Universities Ranking, and the Global University Ranking.

2.3.1 Times higher education world university rankings

The Times Higher Education World University Rankings (THEWUR) employs five major indicators to evaluate institutional performance: (1) the Teaching–Learning Environment, (2) Research Output, (3) Citations, (4) International Outlook, and (5) Knowledge Transfer and Industry Income. Each indicator comprises several weighted elements. The Teaching–Learning Environment is assessed through a reputational survey (15%), the staff-to-student ratio (4.5%), and the ratio of doctorates awarded to academic staff (6%), collectively representing 30% of the total score. Research Output also accounts for 30% of the ranking and includes a research reputation survey (18%), research income (6%), and research productivity (6%). A further 30% is allocated to research influence, measured using indicators parallel to those used for Research Output.

International Outlook contributes 7.5% to the overall score, based on the proportions of international students (2.5%) and international staff (2.5%), as well as the extent of international collaboration (2.5%). The final component, Knowledge Transfer and Industry Income, is measured through consultation-based industry income (2.5%) and institutional income (2.25%). Although THEWUR presents its methodology as “robust, sophisticated and transparent,” scholars such as Hazelkorn (2015) and Daraio & Bonaccorsi (2016) argue that the framework remains insufficiently comprehensive for assessing the diverse missions of higher education institutions. Consistent with this critique, this study contends that THEWUR's methodology offers a selective and limited representation of institutional performance. Its reliance on a narrow range of metrics tends to obscure variations in educational quality, social contribution, and contextual relevance, thereby reproducing structural inequalities within global higher education.

2.3.2 QS world university rankings (QS WUR)

The QS rankings encompass both regional and global league tables, each employing distinct and independent weighting systems and evaluative criteria (Wang & Shih, 2023). Among these, the QS World University Rankings (QS WUR) provides a global comparative framework designed to guide educational choices, support career development, and facilitate international mobility (QS, 2025). The methodology incorporates several key dimensions of university performance, including institutional partnerships, student experience, faculty credentials, and research activity (Ebzeeva, 2023).

QS assessments draw upon extensive datasets, combining bibliometric information from over 16 million academic publications with reputational surveys completed by between 100,000 and 151,000 academics and employers worldwide (QS, 2025). Half of the total score (50%) is allocated to the Research and Discovery dimension. Within this category, academic reputation carries the most significant weight (30%), followed by citations per faculty (20%), highlighting the strong influence of perceived scholarly prestige and citation-based metrics on institutional placement within the QS framework (Daraio, Bonaccorsi & Simar, 2015).

Employability and Outcomes comprise 20% of the overall ranking and are driven primarily by employer reputation (15%), which reflects perceptions of graduate preparedness. This is supplemented by employment outcomes (5%), intended to capture graduates' labour market success. An additional 15% is dedicated to Global Engagement, assessed through indicators such as the international faculty ratio (5%), which reflects the value QS places on institutional diversity and global academic mobility.

Taken together, QSWUR integrates qualitative reputational measures with quantitative performance indicators to produce a composite measure of institutional visibility and global influence, reflecting

both perceived prestige and measurable research and institutional performance (QS, 2025). However, the methodology has been widely critiqued for its limited transparency and heavy reliance on reputational surveys, which may reinforce existing hierarchies rather than reflect substantive variations in institutional quality or mission (Kaycheng, 2015). Although QSWUR presents itself as a multidimensional, globally inclusive evaluation system, its underlying structure continues to place a strong emphasis on research reputation and international visibility. Consequently, it tends to privilege universities with long-established global prestige and substantial research infrastructure, offering comparatively fewer opportunities for institutions with strong teaching mandates or locally focused missions to improve their standing.

2.3.3 Academic ranking of world universities (ARWU)

The ARWU ranking, established in 2003, is the oldest of its kind. According to Aithal & Kumar (2020), it was initially produced by Shanghai University and later by the Shanghai Ranking Consultancy, and it emphasises university academic and research achievements. Alongside THEWUR and QSWUR, ARWU is regarded as one of the three most notable and widely referenced university rankings (Marszai, 2015). The methodology employed by the ARWU differs from those used by THEWUR and QS. For global university assessment, ARWU uses six weighted indicators to evaluate universities' international performance, emphasising academic research and achievement (Cheng & Liu, 2014).

The ranking methodology incorporates indicators such as the Alumni Award, which considers the number of university alumni who have received Nobel Prizes and Fields Medals, contributing 10% to the total score. The second indicator, the Staff Award, which allocates 20%, is based on the number of current faculty and staff who have been recipients of these prestigious international awards. The third indicator, Highly Cited Researchers, records the presence of highly cited researchers, as recognised by Clarivate Analytics, and accounts for an additional 20% of the score, reflecting academic influence on a global scale. The fourth indicator, Papers Published in Nature and Science, evaluates research excellence by counting articles published in these leading scientific journals, constituting 20% of the overall score. The fifth indicator, Papers Indexed, contributes the next 20% weight, based on the total number of papers indexed in the Science Citation Index-Expanded (SCIE) and the Social Science Citation Index (SSCI), thereby assessing overall research output (Aithal & Kumar, 2020).

Finally, 10% of the ranking is determined by the Per Capita Academic Performance, which assesses an institution's academic performance per faculty member, normalising overall achievement by the size of the academic staff. This ranking methodology, like others, has attracted both praise and criticism. Marszal (2015) commends ARWU for its neutrality and methodological rigour, while Bahram (2016) contends that it tends to favour larger institutions due to its failure to account for their relative sizes.

The Academic Ranking of World Universities is widely recognised for its strong emphasis on research performance, with particular attention given to scientific publications, citation impact, and prestigious academic awards. This narrow focus results in a ranking that is relatively stable and methodologically consistent over time. However, it also means that the framework captures only a limited range of university activities, providing little insight into teaching quality, student experience, or broader social contributions. For many institutions, particularly those operating in teaching-oriented or resource-constrained environments, ARWU thus functions less as an attainable benchmark and more as a symbolic reference point that consolidates existing global hierarchies.

2.3.4 Comparing global ranking systems

Collectively, THEWUR, QSWUR, and ARWU construct differing yet overlapping understandings of what it means for a university to be “excellent.” THEWUR adopts a broad, multidimensional framework that encompasses research performance, the teaching environment, international outlook, and industry engagement. However, its outcomes are still strongly shaped by reputational indicators that tend to favour already prominent institutions. QSWUR similarly spans several dimensions, including employability and global engagement, but assigns substantial weight to academic and employer reputation, thereby amplifying the visibility of long-established universities. In contrast, ARWU advances a narrowly defined, research-centred model of excellence that privileges scientific output, citation impact, and elite academic awards, while largely overlooking teaching quality, equity, and broader social contributions.

Despite these methodological differences, all three rankings converge in their tendency to reward research-intensive universities with abundant resources and longstanding global recognition. In doing so, they do more than measure performance; they help shape the horizons of what is valued in higher education, reinforcing a stratified global landscape in which certain institutions, disciplines, and forms of knowledge are consistently elevated over others. From a humanistic perspective, these ranking regimes invite critical reflection on whose achievements count, which educational purposes are marginalised, and how the ideals of the global knowledge economy are translated into hierarchies that structure opportunities for both institutions and individuals.

2.4 University rankings and knowledge economy

The rankings regime serves as a cross-comparable measurement of an institution's reputation and status within the knowledge economy. This has created a “relational landscape” (Hazelkorn, 2007) in which institutions across different countries continually compare and benchmark their research output and scholarly excellence. Rankings act as a catalyst for competition within the sector by serving as metrics of excellence and quality (Hazelkorn, 2013). Their popularity stems from their ability to condense complex datasets into a single score. However, there remains a debate regarding the extent to which they accurately reflect the quality of education. The primary strength of rankings lies in their role as indicators of reputation and status, which significantly influence student applications and consequently result in higher enrolments. The advantage for institutions participating in these rankings is that their standings can ultimately shape funding and hiring decisions (Hazelkorn, 2013).

Consequently, higher education institutions (HEIs) worldwide are adapting their strategies and planning to ensure they improve their rankings. They achieve this by updating policies to align with ranking indicators, providing financial incentives for impactful publications, and internationalising their student cohorts by offering courses in English (McKenna, 2024). Schildermans and Tröhler (2024) assert that in this era of rapid globalisation, universities should recalibrate their strategic focus to engage effectively with the global knowledge economy through rankings while also remaining attentive to their local economic development roles (Umoren & Adeleke, 2025).

While university rankings are often interpreted as instruments of neoliberal capitalism and the global knowledge economy, they also shape competition and signal institutional performance. In this article, rankings are understood not as neutral measurements nor as purely market-driven tools, but rather as reflections of contemporary higher education priorities. This is due to the fact that rankings have commodified knowledge production and influenced how resources are allocated within the sector. Therefore, the critical issue is not whether rankings are beneficial or detrimental to the sector, but rather how they are utilised. To this end, Dill (2009) posits that rankings function as credible signals indicating institutional strengths and weaknesses, thereby enabling institutions to adjust their strategic positioning to ensure the development and retention of their research capacity in order to remain competitive.

3. Methodology

This study utilises a bibliometric methodology to investigate thematic and conceptual trends in research pertaining to university rankings, with particular emphasis on the implications for higher education policy. Bibliometric analysis enables the systematic exploration of scholarly output, thereby facilitating the identification of patterns, dominant themes, and conceptual developments over time.

3.1 Data source, search strategy, and rationale

The data for the bibliometric analysis was retrieved from the Scopus database. Scopus was chosen because it includes multidisciplinary publications, adheres to rigorous indexing standards, and offers cross-compatibility with bibliometric tools like Biblioshiny (Maka, 2025). Its rigorous indexing standards make it easier to conduct citation and co-authorship analyses. Literature relevant to university rankings were identified using a Boolean search strategy. The following targeted search string was used: "university rankings" OR "Times Higher Education" OR "ShanghaiRanking" OR "QS Rankings" OR "global rankings" OR "higher education rankings." The search string was applied to article titles, abstracts, and keywords to ensure the retrieval of relevant publications.

3.2 Screening and inclusion criteria

The initial search yielded 3,444 records. To improve the relevance of the dataset, the search was narrowed to titles only, which reduced the number of records to 751. Additional filtering criteria were then applied:

- Publication stage: Only final publications.
- Language: Articles published in English.
- Publication date range: 1987-2025.
- Source type: Journal articles.
- Document type: Article.

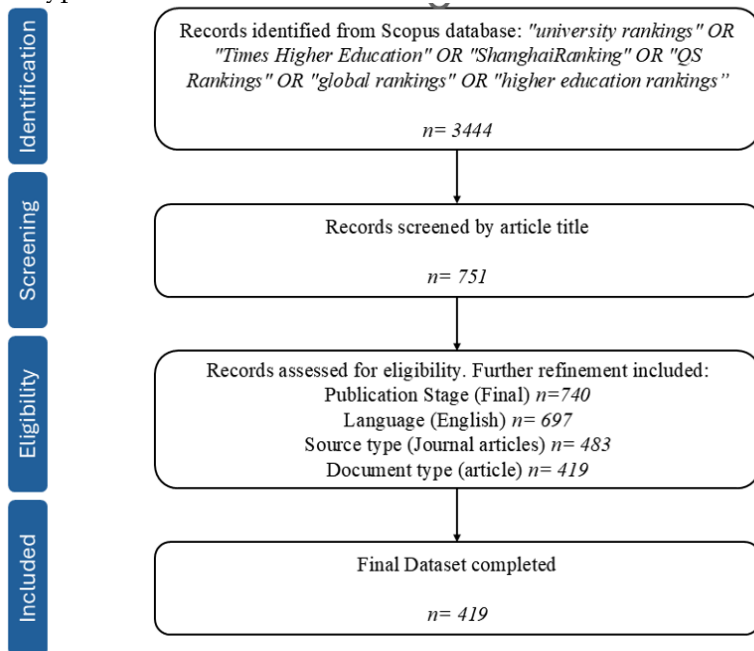


Figure 1: PRISMA flow for the selection process of the articles for bibliometric analysis

Figure 1 above presents the retrieval and filtering of the dataset relevant to rankings. It first shows the initial identification of articles using the aforementioned Boolean search string, resulting in the

identification of 3,444 records that capture a broad scope of literature related to university rankings. This was followed by title-based screening, which reduced the dataset to 751 records by excluding irrelevant studies. The remaining records were then screened according to the eligibility criteria: Only final publications, articles published in English, journal articles, and document types were included. The final dataset comprised 419 documents that were analysed.

3.3 Data analysis and tools

The final dataset was exported in both BibTeX and CSV formats to ensure cross-compatibility with bibliometric analysis tools. The study employed R Studio, utilising the bibliometrix package and its web interface, Biblioshiny, for analysis. These tools facilitate the systematic analysis and visualisation of bibliometric data. The analysis encompassed both performance analysis and science mapping techniques. Descriptive statistics were employed to examine publication output, as well as publication and citation trends, thereby providing an overview of the development of the field. Science mapping techniques were applied to investigate the conceptual structure of the literature, including co-occurrence networks to identify relationships between key terms and thematic mapping to assess the development and relevance of research themes. Furthermore, thematic evolution analysis was conducted to trace the thematic development over time, enabling the identification of shifts in scholarly focus and emerging research trends within the domain of university rankings research.

3.4 Ethical Consideration

This study did not involve human or animal subjects; therefore, no ethical clearance was required. All data analysed were derived from publicly accessible bibliographic records indexed in the Scopus database. No confidential, personal, or sensitive information was collected or analysed.

4. Results and Discussions

This section presents and discusses the main findings of the bibliometric analysis, offering a structured overview of trends, patterns, and dynamics in university rankings research. It begins by outlining the scope and characteristics of the dataset, including publication growth, document types, and disciplinary distribution. The discussion then examines key thematic clusters and dominant research strands identified through keyword co-occurrence and citation analyses, before turning to patterns of scholarly influence, collaboration, and geographic concentration. Taken together, these findings are interpreted in relation to broader debates on global higher education, research evaluation, and the role of rankings, with particular attention to their implications for institutional strategy and policy.

4.1 Descriptive overview of the dataset

The bibliometric dataset in Table 1 spans research published between 1987 and 2025, reflecting nearly four decades of scholarly engagement with university rankings. A total of 419 journal articles were selected from 245 distinct sources, indicating a wide distribution of research across various academic platforms. The annual growth rate of 9.89% suggests a consistent increase in scholarly output, reflecting the growing prominence of university rankings as both a research topic and a policy-relevant instrument in higher education. The average age of the documents is approximately 8 years, suggesting that the field is both established and actively evolving, with a strong presence of relatively recent contributions. On average, each document received 26.64 citations, indicating moderate academic impact and suggesting that the field has gained traction within the broader higher education research landscape.

The dataset includes 765 Keywords Plus and 1,092 Author's Keywords, providing a rich vocabulary for thematic and conceptual analysis. This diversity in keyword usage reflects the multidimensional nature of university rankings research, encompassing themes such as performance metrics, policy

implications, and internationalisation. A total of 839 authors contributed to the dataset, of whom 114 produced single-authored documents. In total, 142 documents were single-authored, suggesting that some authors contributed more than one solo publication. The average number of co-authors per document is 2.35, indicating moderate collaboration levels. Notably, 18.38% of the documents involved international co-authorship, underscoring the global interest and cross-border collaboration in this research domain. All 419 documents in the final dataset are classified as journal articles, ensuring a high level of academic rigour and peer-reviewed credibility. This indicates that there is global engagement on university rankings; however, the modest level of international co-authorship suggests that research on university rankings is shaped by regional or national perspectives. Overall, research on university rankings is expanding, collaboration is increasing, and scholarly interest is growing, but uneven levels of international research collaboration persist.

Table 1: Overview of the dataset

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1987:2025
Sources (Journals, Books, etc.)	245
Documents	419
Annual Growth Rate %	9,89
Document Average Age	7,98
Average citations per doc	26,64
DOCUMENT CONTENTS	
Keywords Plus (ID)	765
Author's Keywords (DE)	1092
AUTHORS	
Authors	839
Authors of single-authored docs	114
AUTHORS COLLABORATION	
Single-authored docs	142
Co-Authors per Doc	2,35
International co-authorships %	18,38
DOCUMENT TYPE	
article	419

4.2 Production dynamics in university rankings research

This section examines the production dynamics of research on university rankings by analysing annual scientific output, source production, and citation impact from 1987 to 2025. This allows researchers to assess the development and growth of university rankings research over time, including the extent to which it has gained visibility and publication traction among scholars in higher education studies.

4.2.1 Annual scientific production

Figure 2 presents the annual scientific production on university rankings research from 1987 to 2025, revealing a clear upward trajectory in scholarly engagement over nearly four decades. The analysis shows that research activity was minimal during the early years, with several periods of zero publications, specifically in 1990, 1991, 1992, 1996, 1997, 2004, and 2006. Occasional spikes occurred during this phase, such as in 1998, when four articles were published, but overall output remained low. A noticeable growth phase began in 2007, marked by 9 publications, and continued through 2013, when 27 articles were published. This surge coincided with the global expansion of ranking systems such as QS and Times Higher Education, reflecting their growing influence on higher education discourse. The most dramatic increase occurred between 2020 and 2025, where annual outputs consistently exceeded 25 articles, culminating in a peak of 36 publications in 2025.

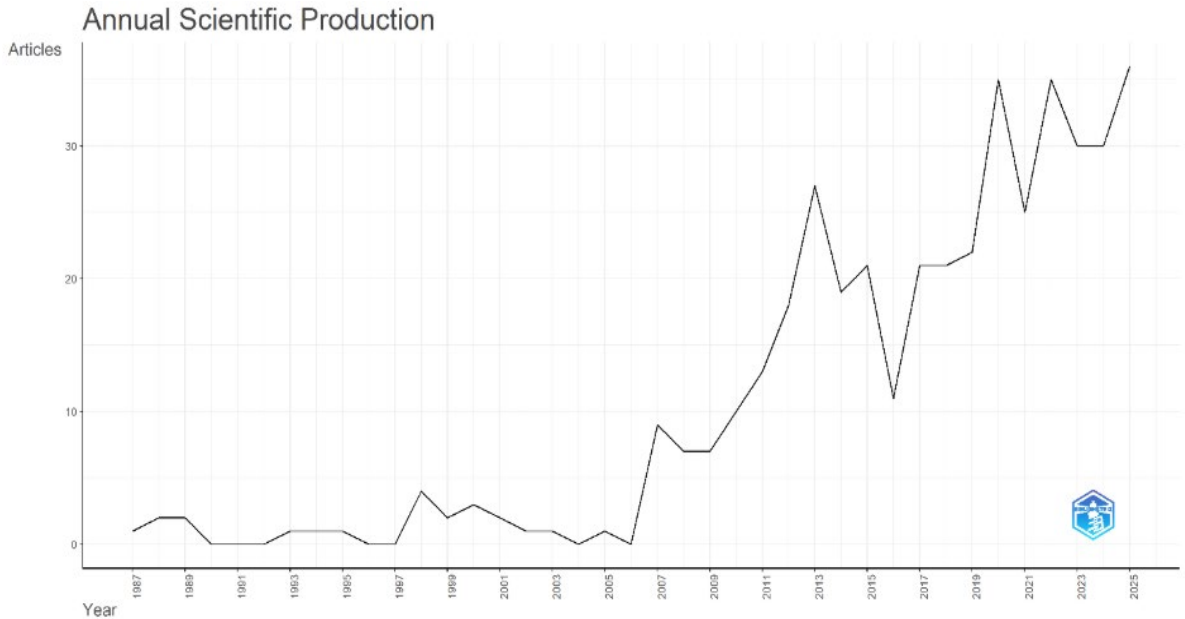


Figure 2: Annual scientific production on university rankings research (1987–2025)

Throughout the entire timespan, the average number of articles published per year was 10.74, indicating a steady growth trend, despite initial fluctuations. Several interrelated factors likely elucidate the recent increase in scholarly output within this field. First, the intensified globalisation of higher education has heightened competition among universities for international students, research funding, and academic prestige, prompting sustained academic and policy interest in comparative performance and ranking systems (Marginson, 2025). Second, policy pressures from governments and funding agencies have increasingly linked institutional evaluation and resource allocation to performance indicators associated with global rankings, further reinforcing the significance of rankings research in higher education governance debates. Finally, technological advancements, particularly the expansion of large bibliographic databases and the development of specialised analytical tools, have enabled more sophisticated and large-scale bibliometric analyses, thereby lowering barriers to entry and facilitating longitudinal and comparative studies (Ghani et al., 2022; Maral, 2024). Collectively, these structural, policy, and technological dynamics account for both the growing volume of publications and the increasing methodological sophistication observed in recent years.

Moreover, the COVID-19 pandemic accelerated digitalisation in higher education, expediting the transition to online and blended learning environments and creating new forms of global comparison and institutional benchmarking (Mospan, 2023; Pinheiro et al., 2023). International research also highlights how pandemic-related digitalisation intersected with internationalisation pressures,

further elevating the relevance of comparative metrics and rankings as universities navigate an increasingly interconnected and competitive landscape (Marginson, 2022).

4.2.2 Sources' production over time

Figure 3 illustrates the longitudinal contribution of key journals to research on university rankings between 1987 and 2025. The data reveal that in the early years (1987–2006), no publications from the selected sources were recorded, indicating negligible engagement with the topic during this period. A turning point occurred in 2007 when the *Journal of Higher Education Policy and Management* published two articles, marking the first visible activity among these sources. This was followed by incremental growth across multiple journals. From 2008 to 2013, production expanded steadily, with *Scientometrics* emerging as a leading contributor, increasing from 1 article in 2008 to 7 in 2013. Concurrently, *Higher Education* and the *Journal of Higher Education Policy and Management* maintained moderate outputs, while the *European Journal of Education* began contributing from 2014 onward. By 2014–2018, the trend intensified: *Scientometrics* surged to 17 articles in 2018, while *Higher Education* and *Journal of Higher Education Policy and Management* stabilised at eight articles each.

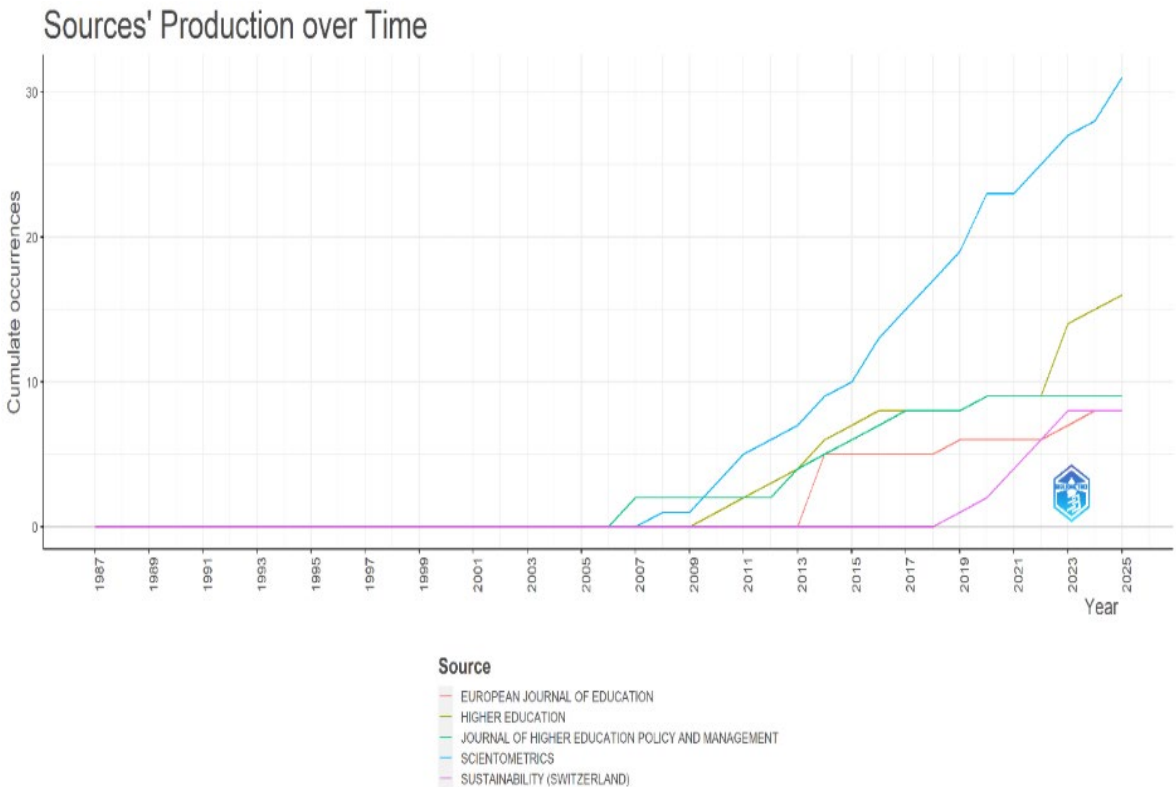


Figure 3: Sources' production over time on university rankings research (1987–2025)

The *European Journal of Education* consistently produced five to six articles annually during this phase. The most notable growth occurred between 2019 and 2025, reflecting the diversification of sources and heightened scholarly interest. *Scientometrics* dominated with 31 articles in 2025, while *Higher Education* rose to 16 articles. The *Journal of Higher Education Policy and Management* published 9 articles annually from 2019 onward, and the *European Journal of Education* increased to 8 articles by 2024. Additionally, *Sustainability (Switzerland)* entered the discourse in 2019 and expanded rapidly, reaching eight articles by 2023 and sustaining this output through 2025. This pattern underscores the increasing interdisciplinarity of university rankings research, with sustainability-oriented

perspectives gaining traction alongside traditional higher education and policy-focused journals (Leal et al., 2025). The data suggest that *Scientometrics* has become the dominant platform for bibliometric and ranking-related studies, while other journals contribute to policy, governance, and educational implications.

The surge observed from the mid-2010s onwards, and accelerating after 2020, aligns with globalisation trends, policy pressures, and the growing integration of sustainability considerations into higher education discourse. This pattern coincides with research conducted by Umar et al. (2024), which shows the increased attention to sustainability-oriented perspectives within higher education, especially following the adoption of the Sustainable Development Goals, as well as heightened scholarly output in related areas such as leadership and institutional response to major global disruptions, including the COVID-19 pandemic.

4.2.3 Top 10 globally cited documents

The analysis of citation impact illuminates the most influential contributions to the discourse on university rankings. Table 2 enumerates the top 10 most-cited documents globally, collectively moulding the conceptual and methodological underpinnings of this research domain. The most cited paper is Hanson (2011), published in *Climatic Change*, with 590 citations and an average of 39.33 citations per year, showcasing its enduring pertinence in connecting climate change with global education dynamics. Following closely is Marginson (2007) in the *Journal of Studies in International Education*, with 464 citations, emphasising the importance of internationalisation in higher education rankings. Other highly cited works include Aguillo (2010) in *Scientometrics* (254 citations), which advanced bibliometric approaches to ranking analysis, and Jöns (2013) in *Geoforum* (243 citations), which highlighted the spatial and mobility facets of academic competitiveness. Policy-focused contributions such as Saisana (2011) in *Research Policy* (222 citations) and Amsler (2012) in the *British Journal of Sociology of Education* (204 citations) further demonstrate the confluence of rankings with governance and social equity.

Marginson is notably featured multiple times in the list, including in the *Journal of Higher Education Policy and Management* (195 citations) and the *European Journal of Education* (192 citations), reinforcing his pivotal role in shaping global ranking discourse. The normalised citation scores and citations per year indicate that these documents not only hold historical significance but also sustain contemporary relevance. Their thematic diversity, ranging from bibliometric methodologies to policy implications and sustainability, mirrors the multifaceted nature of university rankings research. These influential works offer crucial reference points for comprehending global trends and situating higher education within the broader knowledge economy.

Table 2: Top 10 most globally cited documents in university rankings research (1987–2025)

Papers	DOIs	Total Citations	TC per Year	Normalized TC
Hanson S. E., 2011, <i>Clim. Chang.</i>	10.1007/s10584-010-9977-4	590	39,33	5,55
Marginson S, 2007, <i>J. Stud. Int. Educ.</i>	10.1177/1028315307303544	464	24,42	3,86
Aguillo I. F. , 2010, <i>Scientometrics</i>	10.1007/s11192-010-0190-z	254	15,88	4,44
Jöns H., 2013, <i>Geoforum</i>	10.1016/j.geoforum.2012.12.014	243	18,69	6,01
saisana M, 2011, <i>Res. Policy</i>	10.1016/j.respol.2010.09.003	222	14,80	2,09
Amsler S. S., 2012, <i>Br. J. Sociol. Educ.</i>	10.1080/01425692.2011.649835	204	14,57	4,74
Pusser B., 2013, <i>J. High. Educ.</i>	10.1353/jhe.2013.0022	201	15,46	4,97
Kovačič Lukman R, 2010, <i>J. Clean. Prod.</i>	10.1016/j.jclepro.2009.09.015	196	12,25	3,43

Marginson S., 2007, J. High. Educ. Policy Manag.	10.1080/13600800701351660	195	10,26	1,62
Marginson S., 2014, Eur. J. Educ.	10.1111/ejed.12061	192	16,00	5,70

4.3 Conceptual structure

This section shifts the focus of the bibliometric analysis from the production dynamics of university rankings research to its conceptual and thematic structure. It examines how key research topics have emerged and developed over time through keyword co-occurrence mapping. The section begins by analysing trending topics to identify shifts in thematic focus. The themes are then mapped to determine the development of core research areas within university rankings research and how this thematic focus has evolved from 1987 to 2025.

4.3.1 Trend topics

Figure 4 illustrates the evolution of key research topics in university rankings over time, based on frequency and median year of occurrence. Early themes such as “information analysis” and “research” emerged between 2007 and 2013, reflecting initial efforts to understand ranking methodologies and their implications for academic performance. Around the same period, topics such as “China” and “societies and institutions” emerged, signalling a growing interest in regional perspectives and institutional dynamics. From 2012 onward, broader themes such as “education”, “higher education”, and “ranking” gained prominence, with “higher education” and “ranking” becoming dominant clusters by 2020. These terms indicate a shift towards systemic analyses of rankings and their influence on governance and quality assurance.

Between 2013 and 2021, topics like “student”, “university sector”, and “academic performance” emerged, highlighting concerns about student decision-making and institutional competitiveness. This suggests an expansion of the discourse to include how rankings are used and perceived within higher education institutions, especially regarding institutional positioning and student recruitment and enrolment decisions. Recent years (2020–2025) have seen a marked shift towards multidimensional themes, including “sustainable development”, “sustainability”, and “higher education”, reflecting the integration of global challenges into higher education discourse. Terms such as “decision making”, “university ranking”, and “benchmarking” also gained traction, underscoring the role of rankings in shaping strategic planning and policy frameworks. The emergence of these themes indicates a gradual broadening of the field, with rankings increasingly examined in relation to institutional policies and strategic direction.

The presence of “article” and “human” as trending terms from 2023 to 2025 suggests an increasing focus on bibliometric analysis and human-centred approaches to evaluating academic impact. Overall, the thematic trajectory demonstrates a progression from technical and methodological concerns to broader policy-oriented and sustainability-driven debates. This evolution aligns with global trends and has significant implications for higher education, where balancing global competitiveness with local priorities remains a critical challenge. Scholars argue that globalisation has transformed higher education systems and governance, compelling universities to engage with transnational metrics and competitive pressures while simultaneously negotiating national and local imperatives (Marginson, 2022).

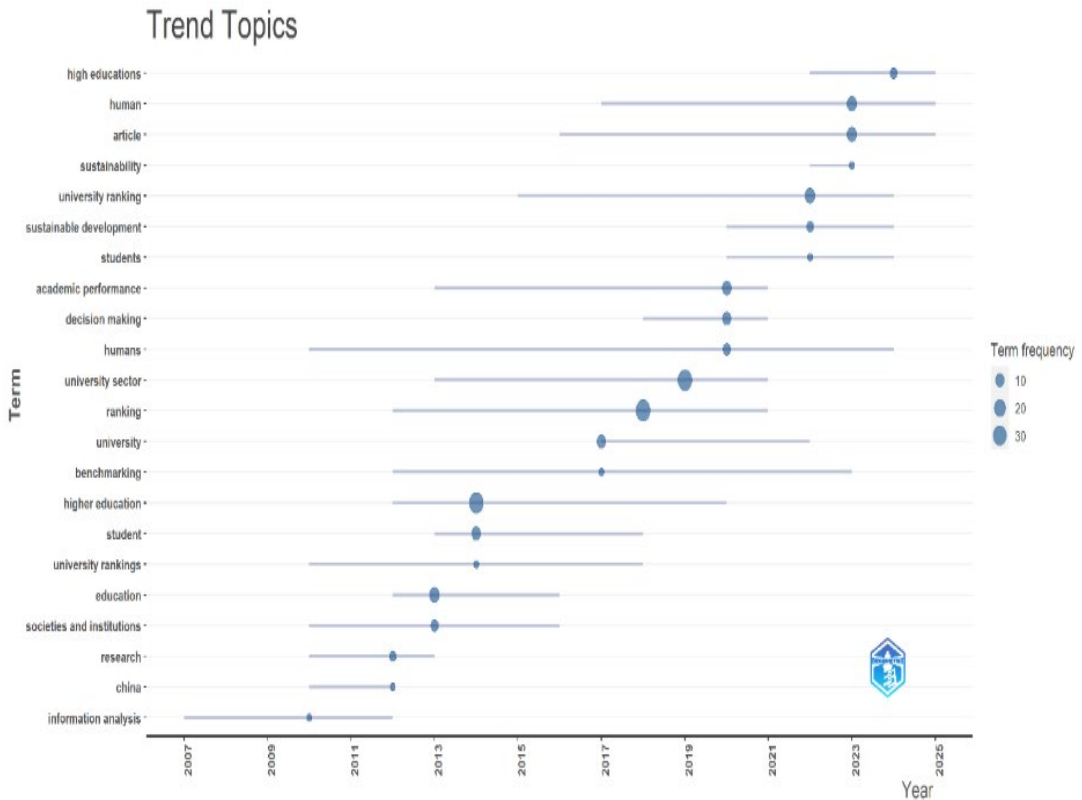


Figure 4: Trend topics in university rankings research across time periods (1987–2025)

4.3.2 Thematic map

The thematic map in Figure 5 positions research themes according to their centrality (relevance within the field) and density (development level), dividing them into four quadrants: Motor Themes, Basic Themes, Niche Themes, and Emerging or Declining Themes. This classification enables an assessment of both the importance of themes within the field and the extent to which they have been conceptually developed.

Motor Themes (High Centrality, High Density): This quadrant contains well-developed, highly relevant themes that drive the field. Key themes include "ranking," "university sector," and "higher education," which dominate the discourse on institutional performance and governance. Other related terms, such as "higher education", "international cooperation" and "data analytics," also appear here, indicating their strategic importance in shaping global competitiveness. The concentration of these themes within this quadrant suggests that the field is anchored around system-level analyses of rankings and their role in higher education.

Basic Themes (High Centrality, Low Density): These themes are fundamental but less developed. Examples include "decision making," "decision makers," and "learning systems," which are essential for understanding how rankings influence strategic planning but require further conceptual refinement. Their position indicates that, while these themes are recognised as important, they remain theoretically and empirically underdeveloped.

Niche Themes (Low Centrality, High Density): Specialised and well-developed themes with limited influence on the broader research domain. Terms such as "citation analysis," "methodology/approach," and "database" reflect substantial methodological depth, particularly in

bibliometric studies. This suggests that the methodological work in the field is relatively mature but remains isolated from broader conceptual and policy debates.

Emerging or Declining Themes (Low Centrality, Low Density): This quadrant includes themes that are either new or losing relevance. Examples include "uncertainty analysis," "commerce," and "current United Kingdom," suggesting areas of limited or shifting interest. These themes may represent either emerging lines of inquiry that could gain research traction or areas that are becoming less central to rankings research.

Overall, the thematic map elucidates a dynamic research landscape wherein core themes consistently centre on institutional performance and governance. Conversely, emerging themes address global challenges such as sustainability and inclusivity. The distribution of themes across quadrants suggests that, although the field has established robust core areas of research, there remains potential for integration among methodological, conceptual, and policy-oriented work. For higher education policy, these findings emphasise the necessity of reconciling global benchmarking pressures with local priorities aimed at transformation and equity.

These findings carry significant implications for higher education policy, highlighting the imperative to integrate global benchmarking pressures with local priorities for transformation and equity. Scholarship on regionalised global university rankings indicates that the adoption of global benchmarking mechanisms can create tensions between global expectations and locally defined educational missions, particularly in contexts where national systems strive to maintain cultural relevance and contextual quality frameworks alongside aspirations for international visibility (Darwin & Barahona, 2024). Practitioners and policy advisors similarly contend that global comparisons should not overshadow pressing local priorities, including equity, diversity, and relevance, suggesting that effective policy frameworks must purposefully balance these often-competing demands (Wright et al., 2025).

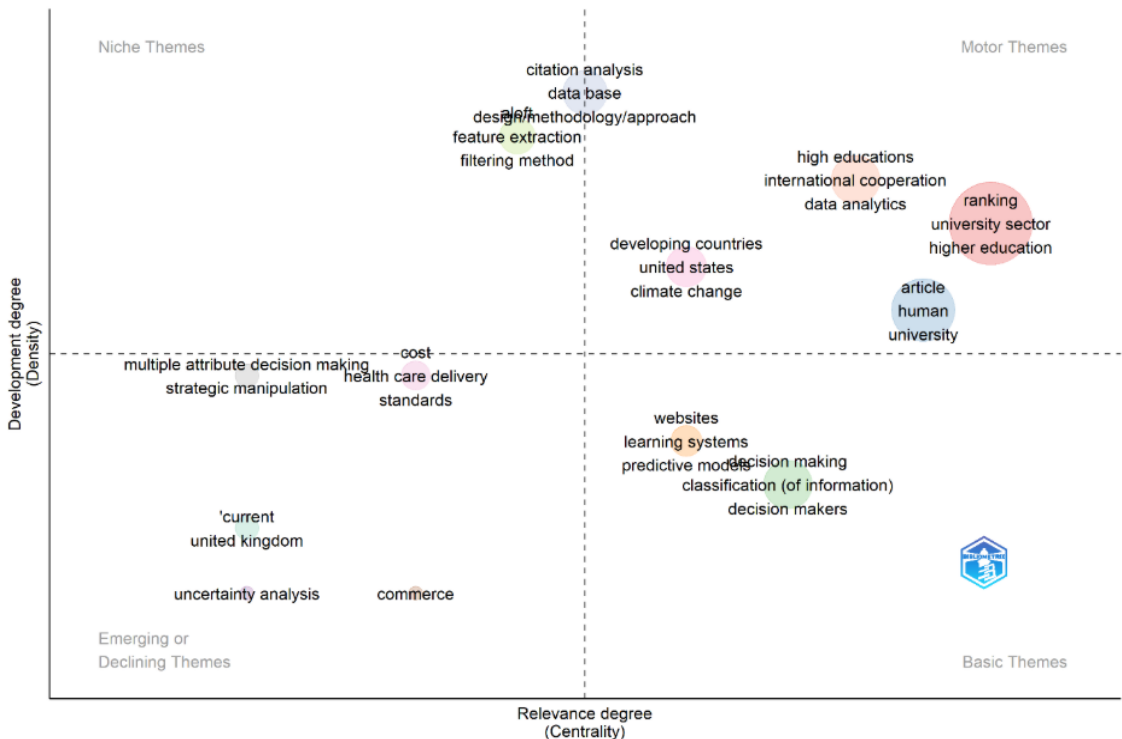


Figure 5: Thematic map of university rankings research showing strategic positioning of themes (1987–2025)

5. Limitations and Future Research Implications

While this paper provides valuable insights into the main themes in research and how they have evolved, the authors acknowledge that the methodology employed in this study utilised bibliometric analysis, which primarily relies on existing literature, secondary data, and bibliometric mapping using select databases. This approach may have omitted unpublished or non-English studies, and the results depend on the coverage and accuracy of the chosen databases. Additionally, given that rankings are subject to frequent revisions by ranking agencies, the fluidity of ranking criteria can limit the longitudinal applicability of the findings, complicating comparative or time-series analysis. Finally, the study does not directly incorporate the perspectives of key stakeholders such as employers, students, and faculty. The authors believe that understanding how these groups interpret and respond to rankings would enhance the policy relevance. In conclusion, these concerns have been acknowledged and recognised as additional considerations for future work.

Future research could compare the impact of rankings across different national higher education systems, especially in emerging economies, to reveal specific contextual drivers and consequences. Additionally, as ranking systems evolve, tracking their effects on institutional behaviour, funding, access, and equity over extended periods will provide deeper insights. Finally, the authors believe that further studies should explore how rankings influence the decision-making processes of a broader range of stakeholders, particularly students and policymakers.

6. Conclusions and Recommendations

This paper examines the evolution of research on university rankings by analysing 419 journal articles published between the late 1980s and 2025. The bibliometric findings confirm that scholarly attention to university rankings has expanded substantially, increasing from virtually no publications in the late 1980s to an average of 10.74 articles per year, culminating in a peak of 36 publications in 2025. This upward trajectory reflects the growing prominence of rankings as influential instruments within global higher education systems. A clear thematic shift has occurred over the four decades of research examined. Early studies primarily focused on the methodological and technical aspects of ranking systems, including indicator design, weighting mechanisms, and the quantification of institutional performance. However, as rankings became deeply embedded in higher education governance, scholarship increasingly turned toward analysing their broader policy implications, particularly their influence on institutional behaviour, governance patterns, resource allocation, and internationalisation strategies. Recent research themes have broadened the scope of the debate, incorporating perspectives on sustainability, social responsibility, and equity. These trends signal an emerging recognition that rankings function not merely as measurement tools but as sociotechnical devices that shape priorities, reinforce hierarchies, and influence how institutions position themselves within the global knowledge economy.

The growth and diversification of research on university rankings mirror broader transformations in higher education itself. As universities navigate an increasingly competitive and globalised environment, they face the challenge of achieving excellence, typically defined through research-intensive performance metrics, while simultaneously pursuing equity, access, and contextual relevance. The findings of this study suggest that effective engagement with ranking systems requires a nuanced understanding of both their utility and their limitations.

The findings of this study have distinct implications for key stakeholders in higher education:

- For higher education institutions: Rankings should be critically engaged with rather than treated as representative measures of institutional performance. There is a risk that the gamification of rankings results in institutional strategies that are overtly driven by indicator optimisation. Hence, higher education institutions should approach rankings as a single input into the institutional planning and strategy-setting processes.

- For policymakers: The adoption and integration of rankings into the governance processes of higher education institutions need to be managed. This is due to the increasing influence that rankings have on decision-making and institutional evaluations of success. The risk is that rankings could shape the higher education sector's priorities in ways misaligned with national development priorities.
- For researchers: The findings highlight the need for more integrated research that bridges the methodological, conceptual, and policy dimensions of rankings research. Future research should move beyond descriptive and methodological analysis to more explicitly examine how rankings shape higher education institutions.

7. Declarations

Author Contributions: Conceptualisation (L.M. & O.A.O.); Literature review (O.A.O. & C.S.); methodology (L.M.); software (L.M.); validation (N/A); formal analysis (L.M.); investigation (L.M.); data curation (L.M.); drafting and preparation (O.A.O. & C.S.); review and editing (O.A.O. & L.M.); supervision (N/A); project administration (O.A.O.); funding acquisition (N/A). All authors have read and approved the published version of the article.

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