

A Study on the Competitiveness of Asian Universities

--Using Different University Rankings as Examples

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Abstract: As globalization accelerates, Asian higher education institutions have gained prominence on the global academic stage. This study examines the competitiveness of Asian universities across teaching quality, research output, and student employability through an analysis of four major global ranking systems. Focused on Tokyo University, Tsinghua University, the National University of Singapore (NUS), and Seoul National University (SNU), the research unveils trends and shifts in these institutions' positions over a decade. Different ranking methodologies are explored, emphasizing the evolution of Asian universities and their contributions to global education. The data analysis shows the remarkable rise of Asian universities across these systems, reflecting enhanced competitiveness, research capabilities, and international standing. Notably, Tsinghua University's scientific research achievements, NUS's exceptional graduate employability, and SNU's comprehensive educational resources exemplify how these universities elevate their global recognition and competitiveness through academic prowess, research excellence, and holistic student development. The study underscores the pivotal role of academic quality, research outcomes, and student employability in shaping the competitive landscape of higher education and propelling these institutions toward global leadership.

Keywords: University rankings, Asian universities, comparative education

1. Introduction

Amidst the rapid pace of globalization and the burgeoning economic prowess of Asian nations, higher education institutions across Asia have captured the spotlight in the international academic landscape. In recent decades, these universities have steadily ascended the ranks of global university standings, sparking considerable interest within academic circles and broader society. This upward trajectory can be attributed to various factors that significantly influence the competitiveness of Asian universities and wield substantial influence over their positioning in global rankings [1]. University rankings play a pivotal role in shaping the competitive landscape of higher education institutions. These rankings, often based on diverse criteria including academic reputation, research output, faculty expertise, and student outcomes, serve as benchmarks for assessing institutional performance [2]. A higher ranking not only enhances a university's prestige but also influences its competitiveness on a global scale.

This study aims to conduct an in-depth exploration of the performance of Asian universities within global competitive ranking systems, focusing on key areas such as teaching quality, research output, and student employability. By comparing assessments from four major renowned ranking systems, this paper seeks to unveil the changes and trends in Asian universities over a decade-long developmental span and their role in the global education sphere. Emphasis will be placed on delineating the similarities and differences in evaluation methodologies among diverse ranking agencies, highlighting advancements in academic standards, research capabilities, and international recognition. Through a detailed analysis of specific cases, the study will delve into the performance of Tokyo University, Tsinghua University, the National University of Singapore, and Seoul National University across various metrics, aiming to provide deeper insights and recommendations for the advancement of higher education in Asia.

2. Case Description

This paper conducted a thorough study on the competitiveness of Asian universities, examining them across four major university ranking systems: CWUR, THE, QS, and ARWU. The assessment covered teaching quality, research output, international engagement, and the overall student experience. Instead of solely focusing on rankings, this paper delved into the underlying factors. This paper aims to broaden the understanding of the Asian higher education landscape. This paper considers that the progress of Asian universities can be examined by the number of top 100 Asian universities in the world over the past decade. In this research endeavor, the methodology hinges upon the symbolic representation of X and Y. When employing the symbol X to denote the average value within the dataset, symbol Y, signifies the disparity in the growth of top-tier Asian universities.

Table 1: Asian Universities of the Top100 University [3-6].

Year	Ranking				X
	Shanghai(ARWU)	QS	THE	CWUR	
2013	3	17	11	8	9.75
2014	3	17	11	13	11
2015	4	17	11	13	11.25
2016	7	19	9	11	11.5
2017	6	20	11	11	12
2018	8	23	11	6	12
2019	9	24	12	10	13.75
2020	11	24	12	9	14
2021	12	26	16	10	16
2022	14	26	16	12	17
2023	16	26	19	11	18
Y	13	9	8	3	

As shown in Table 1, the analysis from the provided data elucidates a nuanced perspective on the evolution of Asian universities across various ranking systems. While the CWUR rankings illustrate a comparatively modest elevation in the standing of Asian universities over the past decade, the trajectories observed in the other three prominent rankings demand a more nuanced assessment. Notably, within the QS and ARWU rankings, Asian universities demonstrate an exponential surge, reflecting a rapid and progression. This surge in rankings not only signifies the academic advancements and research prowess of Asian educational institutions but also underscores their

growing recognition on a global scale. The substantial increase in their representation in these rankings, nearly doubling from an average of 9.75 to 18 universities, portrays a significant amplification in global visibility and acknowledgment of the academic excellence within the Asian educational sphere [3-6].

The consistent upward trend across diverse ranking platforms suggests a transformative shift in the perception of Asian universities, highlighting their enhanced competitiveness, research capabilities, and international standing [7]. This ascent denotes not merely numerical growth but a substantial qualitative upswing, signifying a transition toward a more prominent role and acknowledgment within the global academic milieu.

3. Method

3.1. Research Background

When delving into global university rankings, the allocation of weightage emerges as a focal point of scrutiny [8]. The recent redistribution of weightage signifies not only the refinement of evaluation methods but also a reevaluation of diverse indicators and their impacts [9]. Notably, within the QS rankings, sustainability factors have garnered escalated attention. Research indicates a staggering 80% of students believe universities could do more for the environment. Responding assertively, QS has augmented the weightage of sustainability perspectives to 5%, pioneering its integration into mainstream ranking considerations. Simultaneously, employability has gained substantial prominence in QS assessments, with employer reputation elevated to 15%. This recalibration underscores QS's revised perception of universities, encompassing a more comprehensive incorporation of social responsibility and employment orientation within its evaluation framework [5]. Conversely, THE rankings place greater emphasis on academic reputation and the research environment. Academic reputation holds a significant 30% weightage, while the research environment closely follows at 29%. Moreover, THE has introduced sustainability and international research networks as novel indicators, further reinforcing its focus on global perspectives and sustainable development. This shift signifies THE's amplified concentration on universities' roles in academic fields and global societal progress, integrating diversified and globalized perspectives into its assessment criteria [4]. Meanwhile, ARWU rankings concentrate more on education and research quality, allocating a substantial portion of weightage to education and research indicators. For instance, research quality, reflected in highly cited papers, commands a weightage of 20%, emphasizing the paramount importance of exemplary research. This hallmark emphasizes ARWU's dedication to research standards and academic standing, placing exceptional academic performance at the core of its evaluation [6]. On a different trajectory, the CWUR world university rankings prioritize education and employability as pivotal indicators, commanding a significant 40% and 10% respectively. This emphasis underscores CWUR's commitment to university missions and student employment prospects, placing educational quality and employability at the crux of its overall assessment [3]. These varied ranking methodologies echo diverse institutional perspectives on overall university prowess and influential factors, offering a multifaceted view for evaluating global universities. Each ranking reflects institutions' distinct emphasis on the university's comprehensive strength and influence, ultimately contributing to the advancement and elevation of global higher education.

These four ranking systems (QS, THE, ARWU, and CWUR) collectively underscore the significance of academic quality, research productivity, and student employability. They exhibit a heightened emphasis on these factors in the comprehensive evaluation of universities, manifested through the substantial weightage assigned to these elements within their ranking criteria. Despite

variations in specific metrics and weighting, these ranking systems uniformly emphasize the scrutiny of academic quality, research output, and student employability.

3.2. Research Method

As the Asian University Rankings have continued to rise in recent years, this paper examines four specific schools through a case study to explore the competitiveness of higher education institutions in Asia. This paper takes the University of Tokyo in Japan, Tsinghua University in China, the National University of Singapore (NUS) in Singapore, and Seoul National University (SNU) in South Korea as examples. The performance of each school is analyzed according to the important evaluation criteria with high weighting in each ranking. The results are shown in Table 2 and Table 3.

Table 2: Scores from QS and THE and ARWU.

Universities	AQ (QS)	RO (QS)	SE (QS)	AQ (THE)	RO1 (THE)	RO2 (THE)	AQ (ARWU)	RO1 (ARWU)	RO2 (ARWU)
THU	99.1	98.9	82.2	95.3	93.2	98.1	9.1	44.1	77.6
UTokyo	100	70	99.8	93.9	67.8	94.2	36.6	46.1	63.5
NUS	99.4	93.2	100	78.8	94.0	95.4	0	23.4	60.8
SNU	99	64.9	100	74.2	75.3	74.6	15.7	22.8	62.6

Table 3: Rankings of CWUR.

Universities	AQ(CWUR)	SE(CWUR)	RO(CWUR)
THU	346	56	20
UTokyo	37	6	30
NUS	365	181	37
SNU	299	22	57

3.3. Research Result

Firstly, comparing data from the QS, THE, and ARWU ranking systems reveals variations in how different universities perform across these systems. Tsinghua University demonstrates broad excellence in QS, securing top positions in AQ, RO1, and RO2, showcasing its outstanding performance across multiple indicators. In contrast, UTokyo excels in QS with its highest AQ score, but displays comparatively lower performance in THE and ARWU, likely due to varying emphasis on different academic metrics by these ranking systems. Additionally, while NUS achieves high scores in QS and THE, its AQ score in ARWU is zero, indicating disparate focal points across different ranking systems. Lastly, SNU obtains relatively lower scores in QS and THE but achieves better results in ARWU, potentially reflecting its standout performance in specific academic fields or indicators. Secondly, data from the CWUR ranking system provides another perspective. Tsinghua University's remarkable RO ranking in CWUR underscores its overall superiority within this ranking system. UTokyo and NUS also secure high positions in CWUR, albeit with differing specific metric performances; for instance, UTokyo excels in AQ and SE, while NUS ranks higher in RO. In comparison to previous ranking systems, CWUR might place greater emphasis on certain specific indicators or dimensions, leading to discrepancies in rankings among different universities. Furthermore, SNU's higher AQ and RO rankings in CWUR contrast with its weaker SE performance, potentially indicating strengths and weaknesses in specific academic domains.

In conclusion, these tables reflect the diversity in university evaluations across different ranking systems, highlighting varying academic dimensions and criteria of interest. While Tsinghua

University consistently performs well across multiple ranking systems, other universities exhibit significant disparities in their performances across different ranking methodologies, illustrating the differing approaches and focal points adopted by these systems for university assessments.

4. Index Analysis

Based on the analysis above, it's evident that regardless of the ranking system, excelling in academic quality, research outcomes, and students' employability significantly enhances a university's global prominence. Furthermore, continually improving in these areas bolsters a university's competitiveness. Universities that demonstrate excellence in academic quality and research outcomes tend to garner more attention on the world stage [10]. These accolades not only elevate the institution's reputation but also attract top-tier students and faculty, fostering a vibrant academic community. Moreover, emphasizing students' employability and the practical application of knowledge enhances a university's standing. Graduates equipped with relevant skills and experiences contribute positively to the workforce, further enhancing the institution's reputation and influence. Continuous enhancement of academic prowess, research output, and fostering an environment conducive to student success ensures that universities remain competitive [11]. It's this commitment to advancement and innovation that propels universities forward on the global stage, attracting talent, partnerships, and opportunities, ultimately contributing to their sustained success and recognition.

4.1. Academic Quality

Assessing the academic quality of a university involves a multifaceted exploration encompassing several critical dimensions. This comprehensive evaluation encompasses various facets that collectively define an institution's academic standing. These dimensions include the institution's reputation within scholarly circles, the quality of its teaching methodologies and curriculum design, the impact and depth of its research endeavors, the expertise and contributions of its faculty members, the availability and sophistication of academic resources and facilities, and the extent of its global reach and collaborations. Together, these aspects provide a comprehensive panorama of a university's academic prowess and influence within the academic landscape.

The University of Tokyo exhibits strong academic performance according to rankings, offering diverse, selective programs and engaging a substantial faculty in world-class research, fostering advanced education and healthy competition. Its curriculum is structured into preliminary and specialized phases, allowing flexibility for students to explore varied interests post-admission. This emphasis on broadening options aligns with the university's commitment to granting students autonomy and fostering personal development [12]. Tokyo University's pedagogical approach emphasizes a diverse educational framework and significant selectivity, providing students with a broad spectrum of academic disciplines for individual growth. Extensive faculty involvement in cutting-edge global research contributes significantly to the institution's academic excellence. The university's commitment to robust academic standards has fortified its global standing, evident through its diversified educational paradigms, faculty engagement in groundbreaking research, and a wide array of subject offerings. Prioritizing academic quality, as exemplified by Tokyo University, is essential for universities aspiring to enhance competitiveness.

In the field of higher education, a university's excellence in all aspects not only enhances its academic standing, but also enhances its competitive edge in the global academic landscape [13]. Outstanding universities often receive higher recognition and attract top faculty and students. This recognition triggers a virtuous cycle that increases research efficiency, enriches educational resources, and expands its influence in the academic field. As a result, these institutions become beacons of outstanding talent, continuing the cycle of academic excellence and increased competitiveness.

Fundamentally, academic performance is the cornerstone of a university's competitive strength. It acts as a catalyst, fostering an environment conducive to academic achievement, attracting top talent, consolidating the institution's position globally, and ultimately contributing significantly to its overall competitiveness.

4.2. Research Outcome

The university's research capabilities and accomplishments, particularly evident in national-level research projects, directly influence its international reputation, academic standing, and scholarly influence. This influence is manifested not only in academic exchanges and the impact of scholarly achievements but also in attracting outstanding faculty and students, fostering research team development, academic innovation, and ultimately enhancing the university's overall competitiveness [14].

Take Tsinghua University as an example, Tsinghua University has excelled notably in scientific research, securing 695 projects from the National Natural Science Foundation of China and 66 projects from national key research and development plans. This highlights its prowess in high-level scientific endeavors. Additionally, in humanities and social sciences, the university has initiated 865 projects, amassing around 400 million RMB in funding. It also acquired 13 projects from the National Social Science Fund and 1 project from the Ministry of Education, showcasing its active research initiatives in these areas [15]. These achievements across diverse disciplines underline Tsinghua University's significant research capabilities and substantial investment. Its success spans not just the natural sciences but also encompasses breakthroughs in humanities and social sciences. This robust research directly impacts the university's competitive edge and international influence. Research accomplishments are pivotal in showcasing a university's academic strength and global competitiveness. Tsinghua University's substantial funding and approval for national-level projects underscore its deep engagement and wide-ranging impact in scientific exploration, affirming its leadership in natural sciences and its proactive strides in humanities and social sciences [16].

4.3. Student Employment

While ARWU and THE rankings don't overtly incorporate employment quality metrics, the observable performance of universities in student employability serves as a pivotal determinant of institutional repute. Despite the absence of explicit employment criteria in these rankings, the data presented suggests that the quality of graduates' job placement significantly influences and shapes the overall perception of a university.

For instance, NUS is renowned for its excellent graduate employment rates and employer reputation. Reports indicate that over 90% of NUS graduates secure employment or pursue further studies within six months of graduation. The university maintains strong ties with leading global enterprises that highly value its graduates. NUS not only prioritizes academic education but also offers extensive internship opportunities and practical projects to students, fostering partnerships across various industries for hands-on experience. Additionally, NUS emphasizes holistic development, encouraging active engagement in extracurricular activities and leadership cultivation. Employers widely perceive NUS students to possess comprehensive professional knowledge, practical skills, and problem-solving abilities, making them highly sought-after in the job market.

Similarly, SNU is recognized for its outstanding employment outcomes. As one of South Korea's premier comprehensive universities, SNU attracts students with its rich educational resources, high teaching quality, and expansive campus facilities. This provides students with diverse learning and practical opportunities, enabling them to exhibit exceptional professional performances across

industries upon graduation. SNU graduates are not only favored by domestic and international enterprises and institutions but also garner widespread recognition globally.

Overall, excellent employment performance is an important reflection of the university's comprehensive strength, reflecting its advantages in teaching quality, academic reputation and students' practical ability. The high employment rate and employability of graduates highlight the University's success in developing students and help the University establish a good reputation on the national and international stage [17]. Top universities are often able to provide students with quality education and practical opportunities, producing graduates with a wide range of professional knowledge, problem-solving skills and practical skills. These graduates are highly sought after in the workplace, gaining a good reputation and competitive edge for the university [18]. Therefore, employment performance is one of the important indicators to evaluate the comprehensive competitiveness and academic level of universities.

5. Conclusion

This study provides a comprehensive exploration, shedding light on the intricate relationship between university competitiveness and various performance indicators such as academic quality, research outcomes, and student employability. Across the University of Tokyo, Tsinghua University, the National University of Singapore (NUS), and Seoul National University, the analysis reveals multifaceted strengths, significantly contributing to their global recognition and competitive standing. The research delved into different ranking systems, elucidating the developmental trajectories of Asian universities, showcasing their continual enhancement in competitiveness, research capabilities, and global positioning. This upward trend signifies a qualitative transformation in these institutions, solidifying their prominent status on the global academic stage. Also, the meticulous evaluation of specific universities--highlighting Tsinghua University's robust research, NUS's outstanding graduate employability, and SNU's comprehensive educational resources--illustrates how these institutions enhance their competitiveness through exceptional academic achievements, research outcomes, and holistic student development.

Universities' performances in academic quality, research outcomes, and student employability serve as pivotal determinants of their global competitiveness. Excelling in these domains not only elevates their academic standing but also amplifies their international recognition and influence, establishing their leadership status in the competitive landscape of higher education.

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