

A Comparison of Scimago Institutional Ranking and profile of Scopus-Indexed Publications of Sri Lankan Universities

T. Janen¹ and R. Balasubramani²

Abstract

This study aims to explore the SCImago Institutional Ranking (SIR) 2022 to gain insight into the profile of Sri Lankan universities. Additionally, the study aims to investigate whether there was consistency between Scopus profiles and SIR. Furthermore, the research delves into various factors that impact the research ranking of an academic institution as defined by SCImago, which goes beyond just the number of publications. The data for the study were retrieved from SIR (2022) and Scopus database (2022) and were systematically analyzed. The author chose the following options to extract the data for overall ranking, Universities as a sector, Sri Lanka as the country and 2022 as the year based on all subject areas. The study found that the number of Sri Lankan universities eligible for the SCImago ranking has gradually increased from 2013 to 2022. According to SIR, the University of Colombo is the top-ranked academic institution in Sri Lanka, followed by Rajarata University of Sri Lanka and the University of Jaffna. Out of the fourteen universities in Sri Lanka, eight were ranked by SIR, with six being in the Q1

¹ Senior Assistant Librarian, University of Jaffna, Sri Lanka

Email: jthivya@eng.jfn.ac.lk  <http://orcid.org/0000-0003-0308-0889>

² Associate Professor, Bharathidasan University, India

Email: lisbala@gmail.com  <http://orcid.org/0000-0002-0465-0655>



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(first cluster) and two in the Q2 (second cluster). Interestingly, the Rajarata University of Sri Lanka was ranked 1st in SIR 2022 for its research performance among Sri Lankan universities with their 105 publications indexed in Scopus. Analysis of data shows that there is no relationship between the Scopus profile and the SIR. It is also suggesting that having a high number of articles in the Scopus database does not necessarily guarantee a high rank in SIR. The SIR not only depends on the number of publications but also on other factors related to the quality of the publications. Therefore, universities cannot assume their SIR position by considering only the quantity of Scopus indexed publications. SIR mainly considers the quality of the publications to measure the institutional research performance. The SCImago ranking evaluates the institutional whole performance through three of its indicators, and research performance is measured only through Scopus indexed publication. Sri Lankan publications in local and international journals which are not indexed in Scopus and conference papers were not counted for research performance. The findings of this study will facilitate the institutions to compare their position with other institutions, standardize their research practices, improve the international collaboration to uphold the academic benchmark, regulate their research publications and promote their visibility and finally support government bodies and policymakers regarding fund allocations and strategic planning.

Keywords: SCImago Institutional Ranking, Scopus database, Sri Lankan Universities, International Ranking Systems.

Introduction

Due to the rise of the information economy and rising international competitiveness among higher education institutions, university ranking systems are now crucial. There are many international ranking systems in practice. University ranking systems are used for different purposes by various stakeholders. Around seventeen international university ranking systems have been developed by multiple institutions, policymakers, governmental organizations, news media etc. (Alma et al., 2016). The following four ranking systems are popular among Sri Lankan Universities (Wijetunge, 2021), which are the Times Higher Education (THE) ranking, Quacquerelli Symonds (QS) ranking, SCImago Institutions (SCI) ranking and University Ranking by Academic Performance (URAP). Times Higher Education (THE) Ranking system was developed by times education institution in 2004 based on teaching, research, citations, international outlook and industries income. Quacquerelli Symonds (QS) Ranking system was developed by Quacquerelli Symonds Ltd during 2004 based on “academic reputation, employer reputation, citations per faculty, faculty/student ratio, international / faculty ratio and international student ratio”. SCImago Institutions (SCI) Ranking system was developed by SCImago Lab during 2009 based on research, innovation, and societal impact. University Ranking by Academic Performance (URAP) was introduced by Informatics Institute of the Middle East Technical University, Turkey, in 2010 based on the number of articles, citations, total documents, article impact total, citation impact total, and international collaboration.

International ranking systems utilize a specific set of indicators and allocate varying levels of weightage for each indicator. Research-based indicators dominate among the ranking systems without considering the

regional and national factors to propose comparability at an international level ([Benito et al., 2020](#)). SCImago ranking system includes institutional rankings (SIR) and journal rankings (SJR). The institutional ranking is a web-based metric and size-independent ([Altbach, 2012](#)).

SCImago ranking measures the institution's research and academic-related performance using three different indicators based on its research performance (50%), innovation outputs (30%) and societal impact (20%). The composite score is calculated using three indicators and set from 0 to 100. The inclusion criteria for an institution to be included in the SCImago ranking is that an institution must have a minimum of 100 publications featured in the SCOPUS database for the particular year. Different sources of information are used to measure various indicators such as research, Innovation and societal performance. These are SCOPUS database, PATSTAT database, Altmetric from PlumX metrics and Mendeley respectively ([Scimago Institutional Ranking, 2022](#)). Popularity of university rankings has been increasing among higher education institutions because it is a form of accountability. The government and the user community are highly concerned about the quality of higher education. It can be used as one of the tools to assess the university's performance. The second reason is that higher education institutions use this ranking to achieve prestige and funding and attract students. Nowadays, it has created a competition among universities ([Jarocka, 2015](#)).

The University Grants Commission (UGC) was established in Sri Lanka in 1978 by the Universities Act No 16 of 1978. The UGC is involved in coordinating and planning university education, allocating funds to Higher Educational Institutions (HEIs), maintaining academic standards, regulating HEIs and admitting students to HEIs. Seventeen universities, two campuses and sixteen institutes have been established under the purview of the

University Grants Commission, Sri Lanka. Other than this, six other universities were established under the act of the Parliament of Sri Lanka and maintained by different ministries (UGC, 2022). University Grant Commission of Sri Lanka started to concentrate on the position of Sri Lankan universities in international ranking systems. This study aims to answer the following research questions;

Research Questions

1. How Sri Lankan universities performed in SCImago institutional ranking from 2013 to 2022?
2. What was the SCImago Institutional Ranking profile of Sri Lankan universities in 2022?
3. Is there any consistency between the Scopus profiles of Sri Lankan universities and the SCImago Institutional Rankings?

Literature Review

University Grants Commission of Sri Lanka took several initiatives to promote research at state universities in Sri Lanka to improve its position in the international ranking (Wijetunge, 2021). Higher education institutions, particularly universities, assessed their quality, effectiveness and research performance through several ranking systems.

The student selection of universities for their studies depends on the ranking position of an institution. Institutional ranking depends on the image and reputation of higher education institutions and the students selection. Researchers consider institutional ranking as an important social identity and portray it as an important and tangible resource that may significantly contribute to an organization's performance and survival (Nguyen & LeBlanc, 2001).

Higher education institutions can develop strategies to improve their global image and to be included in a global ranking list without doing much. These ranking provide added advantage to the academic institutions by evaluating their education system and positioning them among other institutions. It also helps to act on resource allocation and to improve their position (Alma et al., 2016). Jarocka, 2015 stated that transparency provided by the institutional ranking is helpful in the management of universities. Ranking mainly influences university policies and strategies on resource allocation. Ranking acts like a fashion platform where universities can compare and develop strategies to improve their ranking. University ranking systems are valuable for students, researchers, and funding agencies because they provide information to assess universities' performance and decision-making. University ranking systems can be used from different points of view based on their levels, scopes, focus and target groups, such as institutional, national, educational and subject-based (Benito et al., 2020). The study titled “Global ranking framework & indicators of higher educational institutions: A comparative study” examines the performance of Indian institutes in the popular international ranking system and their place in listed ranks. Specifically, it focuses on four popular international ranking systems: QS World University Ranking, Times Higher Education World University Ranking (THE), Academic Ranking of World Universities (ARWU), and Webometrics Ranking. The findings reveal that Indian institutions have secured positions in various global rankings, with the Webometrics Ranking featuring the most Indian institutes (4381). Among the Indian institutions, IISc Bengaluru holds the top rank in both ARWU and THE world rankings as an Indian institute. In contrast, IIT Bombay is ranked 1st as an Indian institute in the QS world and Webometrics rankings (Chowdhury & Rahman, 2021).

Reddy et al., 2016 provide a comparative analysis of the educational performance metrics of Indian and Chinese universities based on world university rankings and high-impact research. The study also discusses the higher education system of both countries, government initiatives for academic research, and relevant educational statistics and the number of citations, citable documents, H-index, and cites per document in three categories to compare academic-related metrics of India and Chinese universities.

Methodology

The author carried out a desk study through a bibliometric analysis. Data were retrieved from SCImago ranking system (2022) and Scopus database (2022). The author chose the following options to extract the data for overall ranking, Universities as a sector, Sri Lanka as the country and 2022 as the year based on all subject areas. All data were analyzed and structured systematically. In SCImago 2022 ranking, eight Sri Lankan Universities have been ranked, and performances of those universities were analyzed in this study based on SIR and Scopus performance.

Result and Discussion

Table 1 depicts the Sri Lankan Universities' ranking from the SCImago database released in April 2022. SCImago ranking list is published annually, using its combined indicator to measure the institutional performance by considering their research (50%), innovation (30%), and societal impact (20%). The performance score is established in a scale between 0 to 100 and the institution need to publish at least 100 Scopus-indexed papers during last year of the selected period.

Table 1

The SCImago Institutional Ranking of Sri Lankan Universities 2022

Institution	Overall Ranking		Research Ranking		Innovation Ranking		Societal Ranking	
	SL	World	SL	World	SL	World	SL	World
UOC (University of Colombo)	1	676	3	410	3	409	1	240
RAU (Rajarata university of Sri Lanka)	2	689	1	409	8	433	5	247
UOJ (University of Jaffna)	3	690	7	444	1	380	6	248
UOK (University of Kelaniya)	4	691	2	409	6	419	4	245
SJP (University of Sri Jayewardenepura)	5	692	4	416	5	414	4	245
UOP (University of Peradeniya)	6	694	5	425	4	410	2	242
UOR (Ruhuna University)	7	727	6	435	7	432	3	244
UOM (University of Moratuwa)	8	734	8	468	2	404	4	245

The University of Colombo (UOC) is the best in SCImago overall ranking and is followed by Rajarata University (RAU), the University of Jaffna (UOJ), and the University of Kelaniya (UOK). UOC ranked 3rd for its research performance and Innovation and 1st for its societal ranking. Rajarata

University was included in SCImago institutional ranking in 2022. It could reach the 2nd place in overall ranking among Sri Lankan Universities, 1st in its research performance, 8th in Innovation, and 5th in societal impact ranking. University of Jaffna was included in SCImago institutional ranking from 2021 onwards, during its second year, it reached the 3rd place in the overall ranking, 7th place in research ranking, 1st place in innovation ranking, and 6th place in societal impact ranking. Sri Lankan universities reached the world's overall ranking of 600 to 700 and were placed between 400 and 470 in the world research ranking.

Figure 1

Year-wise SCImago Institutional Ranking of Sri Lankan Universities

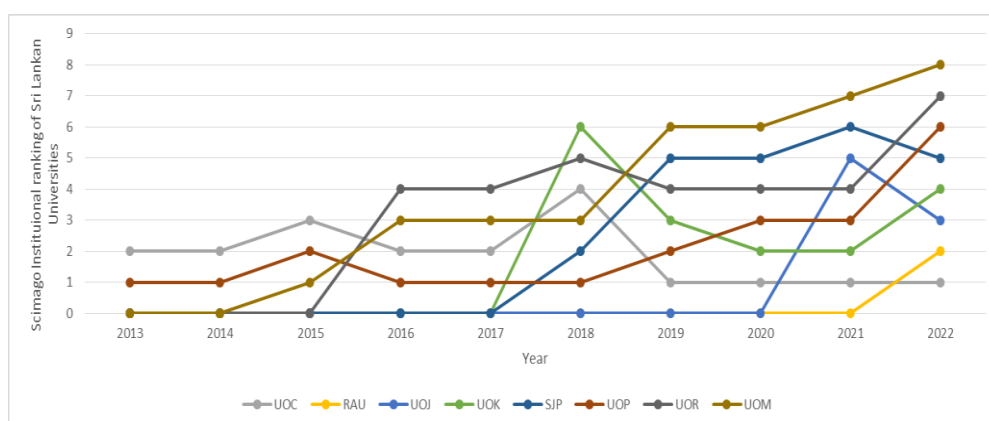


Figure 1 shows SCImago institutional rankings of Sri Lankan universities from 2013 to 2022. During 2013 and 2014, the University of Peradeniya and the University of Colombo were included, and their world rankings were 660 and 698, respectively. The University of Moratuwa was included in 2015 and ranked first among UOC and UOP. Sri Lankan universities have improved their performances, therefore the number of

universities included in the SCImago ranking has been increased. In 2022, eight universities were ranked among the fourteen universities in Sri Lanka.

Table 2

Subject-Wise Ranking of Sri Lankan Universities

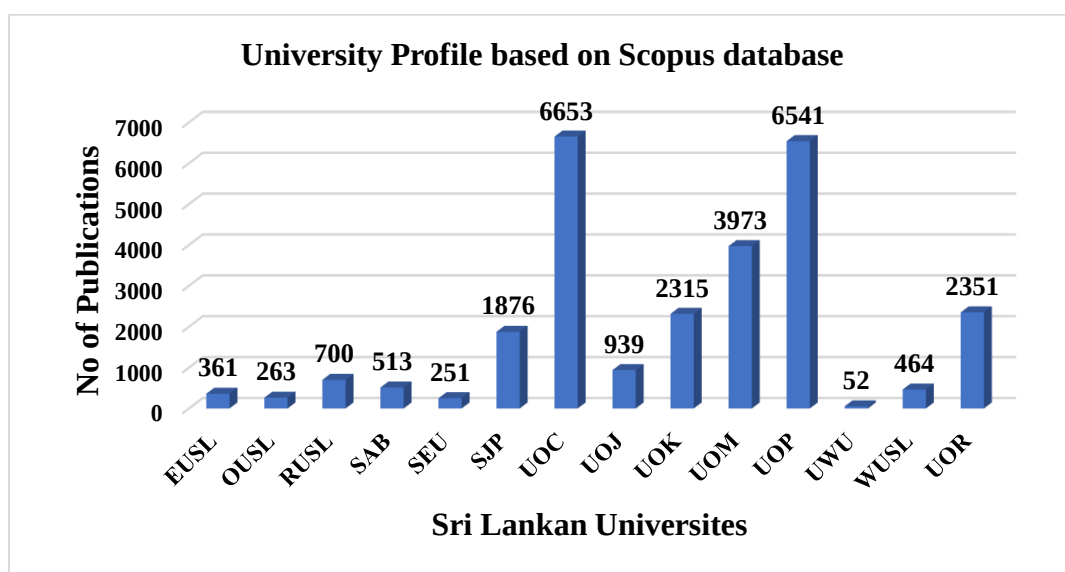
Scopus Subject areas	Universities Position		
	1st	2nd	3rd
Agricultural and Biological Sciences	UOR	UOC	UOP
Arts & Humanities	-	-	-
Biochemistry, Genetics and Molecular Biology	UOC	SJP	UOK
Business Management and Accounting	UOM	UOK	UOC
Chemistry	UOC	UOP	-
Computer Science	UOM	UOP	SJP
Economics, Econometrics and Finance	UOC	-	-
Energy	SJP	UOP	UOM
Engineering	UOM	UOP	UOK
Environmental Science	UOC	SJP	RAU
Medicine	UOC	UOK	UOP
Social Science	UOM	UOC	UOP

Table 2 shows the universities those ranked as top three among Sri Lankan universities based on their output subject-wise. It also depicts UOC's dominance in performance in “Biochemistry, Genetics and Molecular Biology”, “Chemistry”, “Economics, Econometrics and Finance”, “Environmental Science”, and “Medicine”. Meanwhile, UOM is number one in “Business Management and Accounting”, “Computer Science”, and “Engineering and Social Science”. SJP performs its best in “Energy”, is ranked second in “Biochemistry, Genetics and Molecular biology”, and

“Environmental Science”, and ranked third in “computer science”. UOK excelling in “Business Management and Accounting” and “Medicine” reached 2nd place in those subjects and reached 3rd place in “Biochemistry, Genetics and Molecular Biology” and “Engineering”. None of the universities was ranked for arts and humanities subjects.

Figure 2

Scopus Profile of Sri Lankan Universities

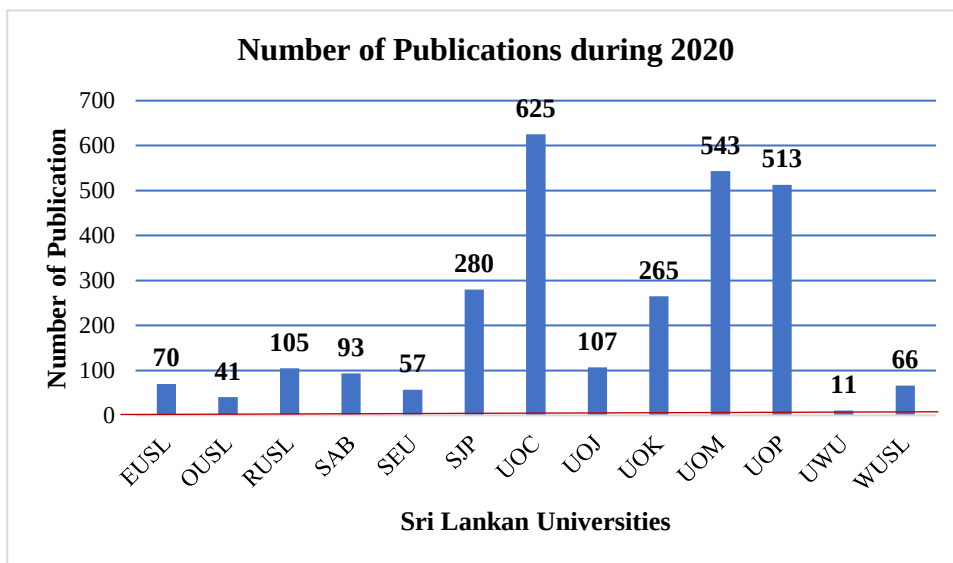


Universities were ranked by different ranking systems using various indicators. Almost all the ranking systems were allocated more weightage for their research contribution. Ranking systems measure the university's research productivity by publication number, citations received, etc. To rank institutions, SCImago calculates results based on a five-year period that ends two years before the current ranking edition (SCImago). For example, if the ranking is for 2022, the results would be from 2016-2020. Institutions must have published at least 100 works in the SCOPUS database during the last year of the selected period to be included in the ranking.

Figure 2 shows the number of articles published in Scopus -indexed journals up to 2021. University of Colombo had the highest number (6653) and the University of Peradeniya had the next highest number (6541) of publications in Scopus-indexed journals. The University of Colombo has nine faculties, two schools and campuses and 7 institutes as academic entities offering different degree programs and courses. Also, the University of Peradeniya has nine faculties and three institutes. These two universities covered almost all the disciplines of degree programs. The University of Moratuwa has 3973 publications, followed by the University of Kelaniya (2315) and the University of Sri Jayewardenepura 1876 publications. Among thirteen universities under Si Lankan University Grants Commission, five universities have more than 1000 publications in Scopus indexed Journals up to 2021.

Figure 3

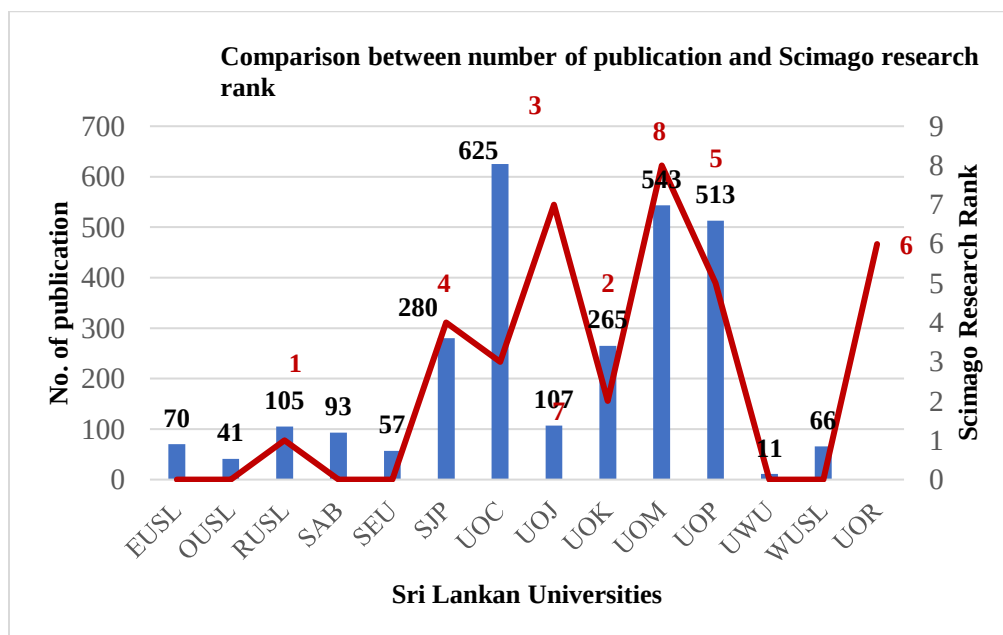
Publications of Sri Lankan Universities indexed in Scopus During 2020



To become eligible for SCImago institutional ranking, the particular institution should have at least 100 publications indexed in the SCOPUS database during past few years of the selected time period. For 2022 SCImago ranking, eight Sri Lankan universities were included based on their performance in research, innovation and societal impact. The Rajarata University of Sri Lanka was ranked number one in SCImago research with 105 publications in Scopus (Figure 3). Meanwhile, UOC ranked number three with its 625 publications in Scopus, the highest number of publications among Sri Lankan universities in 2020. The number of articles published in Scopus-indexed journals for the year 2020 by each university is compared with the SCImago research ranking in Figure 4.

Figure 4

Comparison between the Number of Publications and SCImago Research Ranking



The Rajarata University of Sri Lanka was ranked first with its 105 publications, whereas the University of Jaffna with 107 publications ranked 7th in SCImago research ranking. The University of Colombo has published 625 articles (highest among SL universities), followed by UOM, with 543 publications, and UOP with 513 publications, though UOC is positioned at 3rd place, UOM at 8th place, and UOP at 5th place in the SCImago research ranking.

It shows that research ranks are not only based on the number of publications in Scopus. SCImago research rank is also influenced by scientific leadership, excellence in leadership output, high-quality publications, normalized impact, own journals, output in not own journals, international collaboration, academic excellence, scientific talent pool and open access output, and also the final score will be normalized with that of the institutions having different sizes.

The SCImago ranking evaluates the overall performance of institutions through its three indicators, it uses only Scopus indexed publications to measure the research performance. However, Sri Lankan researchers publish their research findings in local and international journals, which are not indexed in Scopus, and in national and international conference papers which are not counted under research performance.

Conclusions

This study explores SCImago Institutional Rankings 2022 to examine Sri Lankan universities' profiles and allows self-evaluation. The Rajarata University of Sri Lanka was ranked first in SCImago ranking in 2022 for its research performance among Sri Lankan Universities. The number of universities eligible for the SCImago ranking gradually increased from 2013 to 2022. The University of Colombo is the best among Sri Lankan universities

in SIR, followed by RAU and UOJ. Eight universities were included in SIR out of fourteen universities in Sri Lanka, six were in Q1 (first cluster) and two were in Q2 (second cluster). Sri Lankan universities were assessed under twelve broad subject divisions where UOC's performance was dominant in "Biochemistry, Genetics and Molecular biology," "Chemistry," "Economics, Econometrics and Finance," "Environmental Science" and "Medicine" and second in "Agriculture and Biological Science" and "Social Science". On the other hand, there is no relationship between an institution's Scopus profile and its ranking in the SIR. Having a high number of publications in the Scopus database does not guarantee a high ranking in the SIR. Conversely, institutions with a moderate number of publications in Scopus can still rank high in the SIR since the SIR considers factors such as innovation and societal impact, which also contribute to the overall ranking. SCImago ranking system also assesses institutions based on their research, innovation, and societal impact separately that would reflect institution's scientific, economic and social characteristics. Although there are many systems for ranking higher education institutions, SIR standouts for its ability to present quantitative and qualitative indicators of scientific output. Besides the total number of published papers, several indicators are concerned with quality dimensions of published papers, such as, international collaboration, scientific leadership and quality of the publications. Additionally, each ranking indicator is normalized with the size of institutions, which enables the comparison between institutions of different sizes. The SIR aims to provide a useful metric tool for institutions, policy makers, and research managers to analyze, evaluate and improve their activities, outputs, and outcomes. The outcomes of this study will present a constructive discussion on the overall higher education landscape of Sri Lankan universities for their stakeholders.

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