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MAPPING RESEARCH PRODUCTIVITY IN SRI LANKAN UNIVERSITIES: DISCIPLINARY TRENDS, CITATION IMPACT, AND INNOVATION INSIGHTS (2019–2024)

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Abstract

Research and innovation are crucial drivers of economic growth and global competitiveness. Sri Lanka, despite its potential, allocates only 0.1% of its GDP (approx. Rs. 25.3 billion) to research and development (R&D) in 2022, raising questions about the effectiveness and impact of these investments. Research and Development spending was highest in the Business Enterprise sector (41.59%), followed by Higher Education (28.26%), Government Research Institutes (27.22%), and Private Non-Profit Organizations (2.93%). Higher Education Institutions (HEIs) play a pivotal role in advancing scientific knowledge, yet there is limited comprehensive analysis of their research productivity, citation impact, and innovation contributions. Evaluating the research productivity of HEIs is crucial to measuring the impact of funding and guiding future growth. This assessment offers key insights to optimize research output and development strategies. To evaluate the research productivity, citation impact, and innovation output of Sri Lankan universities from 2019 to 2024. Specifically, it seeks to, (1) Analyze Research Productivity: assess the volume and distribution of scholarly publications across different disciplines in Sri Lankan universities. (2) Evaluate Citation Impact: Examine citation patterns, Field-Weighted Citation Impact (FWCI), and the prominence of Sri Lankan research in global scholarly discourse. (3). Assess Institutional Performance: compare research output and citation impact among universities to identify leading institutions and contributors. (4) Examine International and National Collaboration: investigate collaboration patterns and their influence on research quality and impact, and (5) Analyze Patent Contributions: Explore the relationship between academic research and its commercial potential through

patent analysis. By addressing these objectives, the study provides insights into the effectiveness of research funding, areas of strength, and future directions for research and development in Sri Lanka. The study utilizes data from the SciVal database (2019 to 2024) to assess publication trends, citation metrics (FWCI, h-index, citation counts), international collaboration rates, and patent contributions. A scientometric and bibliometric analysis was employed to quantify the research productivity, citation impact and scholarly outputs from Sri Lankan universities in this study. Sri Lankan researchers published 23,581 scholarly works during the study period, involving 25,341 authors and 265,835 citations, with an average FWCI of 1.39. Computer Science led with 22.7% of publications, followed by Mathematics (6.5%) and Physics and Chemistry (4.2%). In the top 1% of global research topics, Sri Lanka excelled in pAbstract physics with 338 Abstracts, a FWCI of 2.51, and a worldwide prominence percentile of 99.21. Half of the publications involved international collaboration, and 11.3% were among the top 10% most cited globally. High-quality journals featured 24% of the research, with top-tier journals identified by CiteScore. The University of Peradeniya led with 3,855 publications, followed by the University of Colombo with 3,822. Rajarata University showed the highest FWCI (8.13), despite fewer publications. Dr. (Mrs.) N. M. Wickramage from the University of Ruhuna emerged as a top author with 485 publications, 14,573 citations, and an h-index of 125. International collaboration was notably high, with Eastern University leading at 78.8% and the University of Ruhuna at 66.5%. Sri Lankan researchers secured 344 patents, with 169 scholarly outputs cited in patents. The study reveals the growing research productivity, citation impact, and innovation contributions of Sri Lankan universities from 2019 to 2024. Notable strides have been made despite limited R&D funding. The results underscore the importance of international collaboration in enhancing research quality, with institutions such as the University of Peradeniya and the University of Colombo emerging as leaders in publication output. Sri Lanka's strong performance in high-impact fields, such as pAbstract physics, exemplifies the global recognition of its scholarly contributions. Additionally, Rajarata University's remarkable FWCI, despite fewer publications, highlights the potential for targeted research excellence. Patent analysis reveals a clear connection between academic research and commercial innovation, signaling opportunities for economic growth through research and development. To optimize future research strategies, it is crucial for Sri Lanka to increase its R&D funding, strengthen collaborations, and foster an environment conducive to high-quality, impactful research. By doing so, Sri Lanka can unlock its full potential as a key player in

global scientific and technological innovation, contributing significantly to both national development and global competitiveness.

Keywords: Research productivity, Citation Impact, Innovation output, International Collaboration, Patent contributions, Scientometric analysis.