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Research Paper

A Comparative Analysis of High-Level Papers Published by Ten Research Institutions in China

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ABSTRACT: *The remarkable growth of high-level papers in China has been observed in recent years. In order to gain a comprehensive understanding of the paper publication landscape in China over the past decade, this study utilizes the Web of Science (WOS) website as a data source. Initially, it investigates the publication status of high-level papers and open access (OA) papers in China, and compares them with the corresponding trends in the United States and globally. Subsequently, focusing on the top ten research institutions with the highest number of published papers in 2022, this research examines their output of published papers, OA papers, and highly cited papers (HCPs) from an institutional perspective. By studying these papers, this investigation offers valuable insights and serves as a reference point for further exploration of the publication landscape in China.*

KEYWORDS: *High-level Papers, Open Access (OA), High Cited Papers (HCP)*

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I. INTRODUCTION

In the past decade, there has been a remarkable exponential growth in high-level papers worldwide. China and the United States have emerged as leading contributors, surpassing other countries in terms of paper output. Of particular significance is China's accelerated rate of paper growth, coupled with a rapid increase in the number of open access (OA) papers. OA papers are publications that are freely accessible to readers and have witnessed substantial development in recent years. Consequently, numerous researchers have undertaken investigations pertaining to OA papers. For instance, Koley and Lala et al. [3] analyzed the impact of India's DST-DBT OA policy, while Buehling et al. [4] examined free access to scientific literature in developing countries. Additionally, Ruiz Pérez and Delgado López Cózar [5] explored the opinions, attitudes, and practices of Spanish researchers regarding OA.

Highly cited papers (HCPs) represent publications falling within the top 1% based on citations, categorized by year and document type. This definition, provided by the Web of Science (WOS) website, serves to identify papers with significant citation counts, generally considered to be of high quality and classified as excellent contributions among high-level papers. The examination of these papers facilitates a more comprehensive evaluation of the pinnacle of high-level papers [6].

Given the lack of comprehensive studies comparing publication information at the institutional level, this study focuses on the top ten Chinese institutions with the highest publication volume for comparative analysis. By examining the publication status, OA paper status, and HCP paper status from the perspective of research institutions rather than solely considering the national perspective, it becomes possible to gain deeper insights into the micro-level publication landscape.

II. METHODS

All data utilized in this study has been sourced from the WOS website (http://www.webofknowledge.com). Papers indexed within the WOS database are generally regarded as high-level publications. The selection of "Document Type" was limited to "Article" and "Review Article," as it is widely acknowledged that these literature types effectively capture the research capabilities of scholars. Additionally, the "Web of Science Index" category was restricted to "Science Citation Index Expanded (SCI-

EXPANDED)" and "Social Sciences Citation Index (SSCI)." These indexing categories hold greater recognition within China, with the former encompassing natural sciences and the latter encompassing social sciences.

For the purpose of analysis, the top 10 Chinese research institutions with the highest publication volume in 2022 were identified. The specific institutions included are as follows: Chinese Academy of Sciences, University of Chinese Academy of Sciences, Zhejiang University, Shanghai Jiao Tong University, Sun Yat Sen University, Tsinghua University, Peking University, Sichuan University, Central South University, and Huazhong University of Science and Technology.

III. RESULTS

3.1 High level papers in China, the United States, and the world

Figure 1 presents an overview of the high-level papers landscape, encompassing Chinese high-level papers, Chinese high-level OA papers, American high-level papers, American high-level OA papers, global high-level papers, and global high-level OA papers. The graph illustrates a significant upward trend in both Chinese high-level papers and high-level OA papers. With the exception of 2022, American high-level papers, American high-level OA papers, global high-level papers, and global high-level OA papers demonstrate a consistent increase over time.

China's high-level papers surpassed those of the United States in 2018, while China's high-level OA papers only surpassed those of the United States in 2022. In 2013, the number of high-level papers in China stood at 218.1 thousand, representing 63.6% of the high-level papers published in the United States during the same period and 16.4% of the global high-level papers. By 2022, the quantity of high-level papers in China had rapidly escalated to 730.9 thousand, accounting for 184.1% of high-level papers published in the United States and 34.4% of the global high-level papers during the same period. This data demonstrates that China's high-level paper growth rate surpasses that of the United States and the rest of the world.

In regard to high-level OA papers, in 2013, China recorded 63.8 thousand publications, constituting 35.2% of the high-level OA papers published in the United States during the same period and 12.3% of the global high-level OA papers. However, by 2022, the number of high-level OA papers in China had experienced a rapid surge to reach 341.3 thousand papers, accounting for 135.4% of high-level papers published in the United States and 28.3% of the global high-level papers during the same period. These findings indicate that China's high-level OA paper growth rate is also remarkably fast when compared to the United States and the rest of the world.

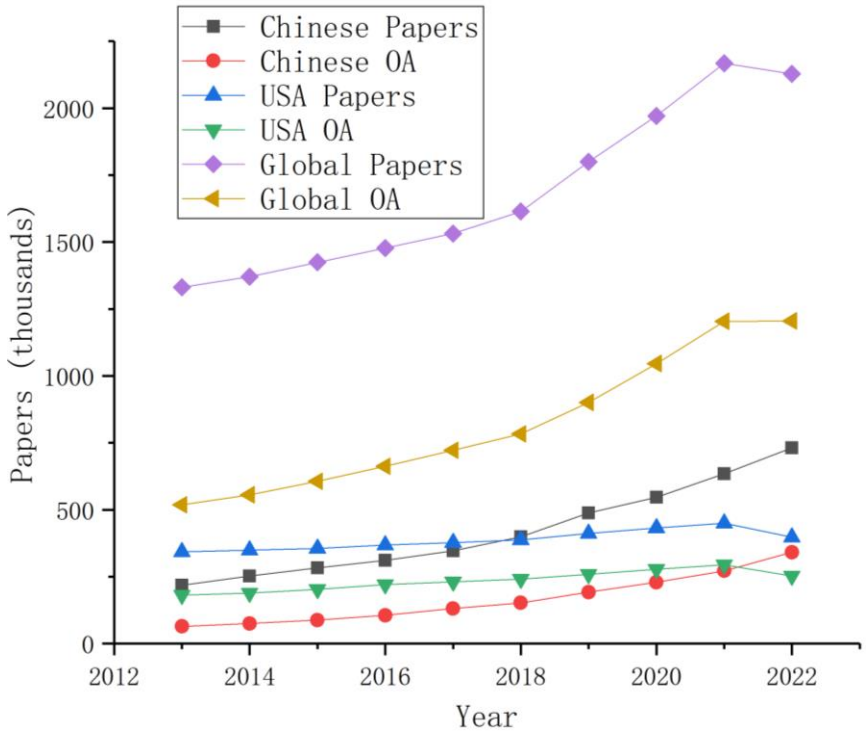

Figure1: high level papers

3.2 Papers of ten Chinese institutions

The publication status of these institutions over the past decade was analyzed and presented in Figure 2. The graph reveals a substantial increase in the number of high-level papers across all institutions, with the Chinese Academy of Sciences leading the way in terms of publications compared to other units. Specifically, the number of papers published by the Chinese Academy of Sciences rose from 34,178 in 2013 to 74,748. Meanwhile, the University of China Academy of Sciences experienced a gradual increase in paper output relative to other universities. Over the past 10 years, the highest growth rate of high-level papers among all units was observed at Central South University (339.9%), while the lowest growth rate was recorded at the China Academy of Sciences (118.7%). On average, these ten institutions exhibited an impressive 10-year growth rate of 216.1% in high-level papers. This data underscores the remarkable growth in high-level publications within these Chinese institutions.

Table 1: Published papers by ten Chinese institutions in the past decade

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Chinese Academy of Sciences	34178	37649	40724	42982	45377	50685	57243	60284	69789	74748
University of Chinese Academy of Sciences	6883	7886	8822	10384	14687	18602	22112	23893	27727	30035
Zhejiang University	7193	8098	8380	9068	9761	11039	13388	15558	18694	20410
Shanghai Jiao Tong University	7117	8040	9059	9804	10768	11702	13989	15936	18921	19831
Sun Yat Sen University	4395	4933	5562	6026	6980	8335	10515	12254	14387	15193
Tsinghua University	6275	6884	7964	8563	9463	10596	11759	12292	13783	15020
Peking University	6425	6871	7501	8147	8579	9466	11044	12102	13594	15012
Sichuan University	4138	4919	5381	5718	6362	7501	9194	10610	12890	14550
Central South University	3201	3668	4447	5014	5880	7221	9537	10877	12391	14081
Huazhong University of Science Technology	4144	4806	5507	6077	6844	7977	9598	11190	12687	13808

3.3 OA papers published by ten Chinese institutions

Table 2 presents the status of OA papers from ten Chinese institutions over the past decade. The data indicates a significant increase in the number of OA papers per unit, with the Chinese Academy of Sciences maintaining its position as the leading institution in terms of published papers. In comparison to 2013, the highest growth rate of OA papers in 2022 was 664.2% at Central South University, while the lowest growth rate was 248.9% at Tsinghua University. On average, there was a growth rate of 405.1%. These results demonstrate that the growth rate of OA papers in these ten Chinese institutions surpasses the overall growth rate of papers.

Table 2: Published OA papers by ten Chinese institutions in the past decade

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Chinese Academy of Sciences	10006	11111	13481	15483	17309	18632	21688	24310	28274	32320
University of Chinese Academy of Sciences	1758	2085	2659	3538	5605	6725	8540	9933	11850	13462
Zhejiang University	2215	2547	2885	3430	4122	4673	5942	7549	9318	10450

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Shanghai Jiao Tong University	2542	2946	3562	4236	5046	5344	6331	7629	9508	10320
Sun Yat Sen University	1717	1915	2530	3006	3564	4224	5328	6641	8075	8802
Tsinghua University	1759	1904	2504	2856	3513	3958	4577	4956	5549	6137
Peking University	2505	2722	3323	3889	4494	4841	5683	6620	7777	8750
Sichuan University	1214	1483	1734	2111	2613	3016	3875	4575	6024	6991
Central South University	906	1168	1428	1806	2363	2843	3887	4799	5855	6924
Huazhong University of Science Technology	1222	1441	1788	2245	2844	3233	3887	5207	6011	6521

To assess the prevalence of OA papers across these ten institutions, Figure 3 illustrates the proportion of OA papers among them over the past decade. The graph reveals a general upward trend in OA papers for most of the institutions, with only a few exceptions. In 2013, the highest, average, and minimum proportions of OA papers were 39.1%, 31.5%, and 25.5%, respectively. However, by 2022, these figures had increased to 58.3%, 49.3%, and 40.9%, respectively. Furthermore, the proportion of OA papers in most institutions exceeds the national average, with Peking University and Sun Yat sen University reporting higher proportions of OA papers, while Tsinghua University and the University of Chinese Academy of Sciences exhibit lower proportions of OA papers.

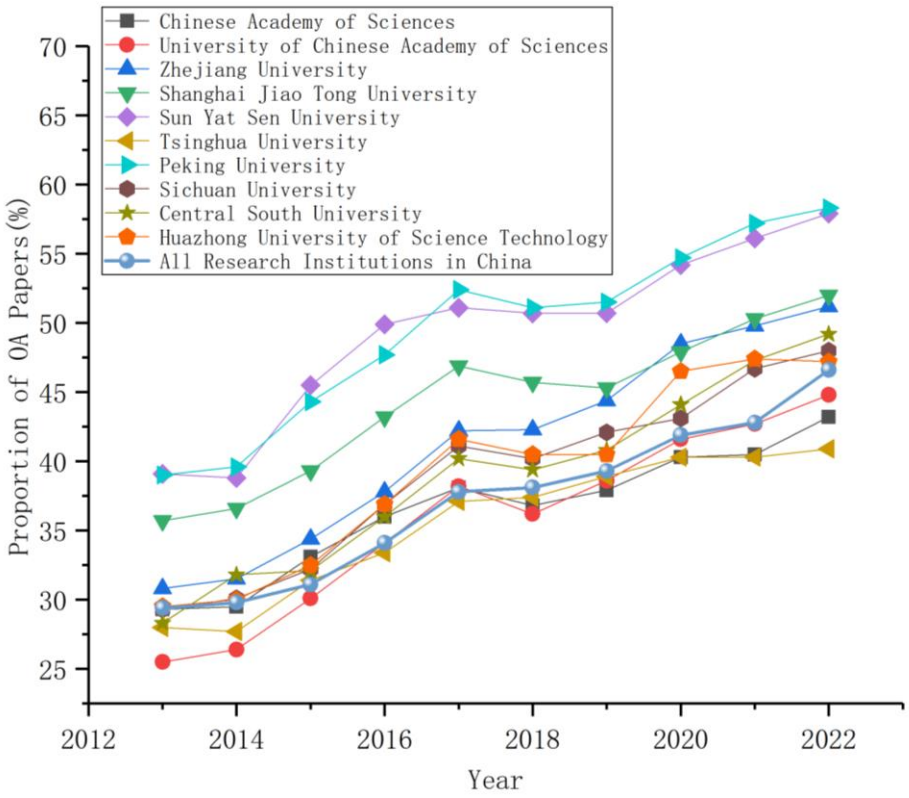

Figure 2: The proportion of OA papers from ten Chinese institutions in the past decade

3.4 HCP papers from ten Chinese institutions

Table 3 provides an overview of HCPs published by ten Chinese institutions over the past decade. The data reveals a general upward trend in HCPs for most units, with only a few exceptions. Notably, the Chinese Academy of Sciences significantly outperforms other institutions in terms of HCPs.

Table 3: Published HCPs by ten Chinese institutions in the past decade

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Chinese Academy of Sciences	228	256	341	340	416	501	616	663	691	690
University of Chinese Academy of Sciences	28	33	44	54	118	152	222	244	272	260
Zhejiang University	39	47	58	62	72	76	134	182	204	190
Shanghai Jiao Tong University	49	37	59	78	92	129	153	173	209	197
Sun Yat Sen University	37	26	49	59	65	92	134	168	156	153
Tsinghua University	57	63	84	116	135	157	180	208	178	178
Peking University	69	81	91	100	121	122	173	224	189	169
Sichuan University	16	13	20	30	28	42	55	107	110	120
Central South University	13	15	18	32	39	55	65	98	113	112
Huazhong University of Science Technology	15	22	30	42	43	72	97	249	135	118

IV. CONCLUSIONS

A comprehensive investigation was undertaken to examine the publication trends within ten Chinese institutions over the course of the past decade. The following findings emerged:

(1) China has experienced a more rapid growth rate in both high-level and OA papers compared to the United States and the global average. In 2013, China accounted for 63.6% of high-level papers published in the United States and 16.4% of those published worldwide. By 2022, these numbers had surged to 184.1% and 34.4%, respectively.

(2) Similarly, in 2013, China's high-level OA papers represented 35.2% of the United States' total and 12.3% of the global count. However, by 2022, these figures had risen remarkably to reach 135.4% and 28.3%, respectively.

(3) The number of high-level papers produced by the ten institutions exhibited a substantial increase, with the Chinese Academy of Sciences leading the way in terms of publications compared to other units. The average growth rate for the ten units over the span of ten years was 216.1%.

(4) The quantity of OA papers across the ten units witnessed a significant surge, with the Chinese Academy of Sciences maintaining a considerable lead in terms of publications. The average growth rate of OA papers from 2013 to 2022 was 405.1%.

(5) The proportion of OA papers among the ten units showed a consistent annual increase. In 2013, the average proportion of OA papers stood at 31.5%, but by 2022, this figure had risen to 49.3%.

(6) With few exceptions, the number of HCP generated by each unit demonstrated an upward trajectory throughout the past decade. Notably, the Chinese Academy of Sciences significantly outperformed other units in terms of HCP output.

REFERENCES

[1]. Ding, Y. Statistical analysis of DOAJ-indexed Chinese open access journals and their charging policies. Chinese Journal of Scientific and Technical Periodicals, 2023. 34 (10): p.1356-1363. doi: 10.11946/cjstp.202305050325.

[2]. China Association for Science and Technology, International Association of Science, Technology and Medical Publishers. China Open Access Publishing Development Report (2022). 2023. Beijing: Science Press.

[3]. Koley M. and K. Lala. Are journal archiving and embargo policies impeding the success of India's open access policy? Learned Publishing, 2022. 35: p. 175-186. doi: 10.1002/leap.1441.

[4]. Buehling, K.M. Geissler and D. Strecker. Free access to scientific literature and its influence on the publishing activity in developing countries: the effect of sci-hub in the field of mathematics. Journal of the Association for Information Science and Technology, 2022. 73(9): p. 1336–1355. doi: 10.1002/asi.24636.

[5]. Ruiz-Pérez, S. and E. Delgado-López-Cózar. Spanish researchers' opinions, attitudes and practices towards open access publishing. El Profesional de la Información, 2017. 26 (4): p. 722-734. doi: 10.3145/epi.2017.jul.16.

[6]. Chowdhury, K.P. Nonparametric functional analysis under joint estimation with applications to identifying highly cited papers, Journal of Informetrics, 2023. 17 (4): 101446. doi: 10.1016/j.joi.2023.101446.

[7]. Huang, J., X. Rui and F. Wang. Monitoring of global OA journals and article processing charges in 2022 and recommendations for China. Chinese Journal of Scientific and Technical Periodicals, 2023. 34 (6): p. 685-691. doi: 10.11946/cjstp.202305160355.