A Bibliometric Analysis of the Research on University Ranking in China

—Based on the Perspective of Master's and Doctoral Dissertations

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Abstract

This paper takes the master's and doctoral dissertations on university ranking of China in CNKI database as the research object, and uses the methods of statistical analysis of literature and content analysis to explore the current situation of the research on university ranking in China from the aspects of the number of papers published per year, the frequency of the degree-granting units, the frequency of tutor' guidance, the cited frequency of literatures, the frequency of disciplines and majors, and the frequency of keywords. The results show that: Scholars' interest in university ranking is growing; a group of influential and high-level university research teams are forming; but the field of research is still limited and needs to be further expanded; and the research on university ranking needs more support from funding projects.

Keywords

Research on University Ranking, Master's and Doctoral Dissertations,
Bibliometric Analysis, Statistical Analysis

1. Introduction

In November 2015, the State Council of China issued the "Overall Plan for Coordinating and Promoting the Construction of World-Class Universities and First-Class Disciplines" (The State Council, 2016), which opened the prelude of China's "double first-class" construction. The most intuitive representation of what is "world-class" is a variety of university rankings. In recent years, the popularity of "first-class" as a discourse practice in the field of higher education is closely related to the popularity of university rankings. On the one hand, in order to confirm the real existence of "first-class", various rankings have been

spawned; on the other hand, the popularity of ranking makes "first-class" more popular as a way of discourse (Wang, 2019). At the same time, the university rankings have a counter-effect on higher education itself and become a reference tool for formulating university strategic plans and policies (Cheng & Liu, 2008). In Chinese academic circles, the research on university ranking has made some achievements, but there is no research on the quantitative analysis of master's and doctoral dissertations in university ranking. By using the methods of statistical analysis of literature and content analysis, this paper makes a quantitative analysis of the master and doctoral dissertations on university ranking, so as to reveal the research status and development trend in this field from multiple perspectives. It is of great significance to perfect the evaluation of Chinese universities and promote the construction of "double-first-class" universities in China.

2. Literature Review and Research Design

2.1. Literature Review

In the course of discipline development, summarizing and analyzing the existing research results is the only way for researchers to understand the context of discipline development, explore the law of discipline development and improve the theoretical system of discipline (Zhang et al., 2019). With the advancement of the research on university ranking in China, there have been some summary research results in recent years. Li Wenbing (2007) combed the literatures of China's university rankings and found that relevant research mainly focused on the comparison of different university rankings, the ontology of university rankings, doubts about China's university rankings, and suggestions for rationalization of rankings. Wang Shanshan (2010) divided China's university ranking research into four stages: the budding period, the development period, the prosperity period, and the contending period. She refined the academic research topics into six aspects: ontology research, axiology research, comparative research of rankings, research on ranking evaluation subjects, research on ranking principles and strategies, and criticism and defense of rankings. Yang Jiebing and Liu Shiqing (2016) used the method of bibliometric analysis to analyze the literatures on Chinese university rankings published in core journals collected by CNKI during the period 2003-2013. Sun Chengmengxue (2017) took the literatures related to university ranking from 1994 to 2017 collected by CNKI as samples, and adopted the method of content analysis to analyze the research on university ranking in China from five aspects: research trend, keywords, the sources of literatures, institutions and contents. The above studies have made a phased summary of the research on China's university ranking, and also provided convenience for the follow-up research on this topic. However, these studies also have some problems, including: single research methods, mainly text analysis, less use of other methods; small sample selection, it is difficult to fully reflect the research status; lack of research tools, etc.

2.2. Research Design

2.2.1. Research Purpose

Through combing the relevant master's and doctoral dissertations on university ranking research in China, then reveals the research status and development trends of Chinese university ranking from multiple angles.

2.2.2. Research Methods

Bibliometric analysis is a cross scientific research method that uses mathematical and statistical methods to quantitatively analyze all knowledge carriers. Bibliometric analysis can not only analyze the external characteristics of literature, but also enable researchers to accurately and scientifically grasp the research hotspots and directions of a specific field, and overcome the bias of subjective analysis (Wu & Kong, 2010). In this study, bibliometric method is used to analyze the master's and doctoral dissertations on university ranking in China from the following dimensions: the number of papers published per year, the frequency of the degree-granting units, the frequency of tutor's guidance, the cited frequency of literatures, the frequency of disciplines and majors, and the frequency of keywords.

2.2.3. Data Source

Under CNKI's advanced search status, select the master's and doctoral dissertations database and search with the title "university ranking". The start time is not limited, and the deadline is set to 2019 (Figure 1). Through the above search conditions, a total of 46 documents were obtained, including 4 doctoral dissertations and 42 master's dissertations. The retrieval time was August 3, 2020. According to the above search conditions, it is found that the first degree dissertation on university ranking in CNKI database is "Research on University Ranking

Figure 1. Screenshot of CNKI search interface.

and Quantitative Evaluation of Scientific Research", which from Central South University in 2003, so the time span of this study is 2003-2019.

3. Bibliometric Analysis of the Research on University Ranking

3.1. The Number of Papers Published per Year

According to the classification and statistics of 46 literatures, the figure of the number of papers published each year on university ranking is obtained (Figure 2). As can be seen from the figure, the average number of papers published each year is 2.7. The number of papers published is 1 in 2003, 2005, 2006 and 2011. The number of papers published is 2 only in 2009, 3 in 2010, 2014 and 2016, and 4 in 2008, 2013, 2015, 2018 and 2019. There are no master's and doctoral dissertations in 2004 and 2006. The largest number of dissertations was 6 in 2017. From 2003 to 2007, a total of 3 papers were published. During this period, China's university ranking was still in its infancy. After 2008, the number of related master's and doctoral dissertations in the field of university ranking gradually increased, and more and more scholars began to pay attention to the research of university ranking.

3.2. The Frequency of the Degree-Granting Units

By classifying the sample literatures according to the degree-granting units, the statistical table of degree granting units of master's and doctoral dissertations in university ranking is obtained (Table 1). From 2003 to 2019, there are 35 universities' dissertations related to university ranking. Among them, Shanghai Jiao Tong University, Hunan University, Southwest University and Hunan Normal University each have 3 papers, 12 in total, accounting for 26.1% of the total. Guangxi Normal University, Nanjing Normal University and Northwest Normal University each have two papers, a total of 6, accounting for about 13% of the total. The other 28 degree-granting units have only one article, a total of 28 papers, accounting for 60.9% of the total.
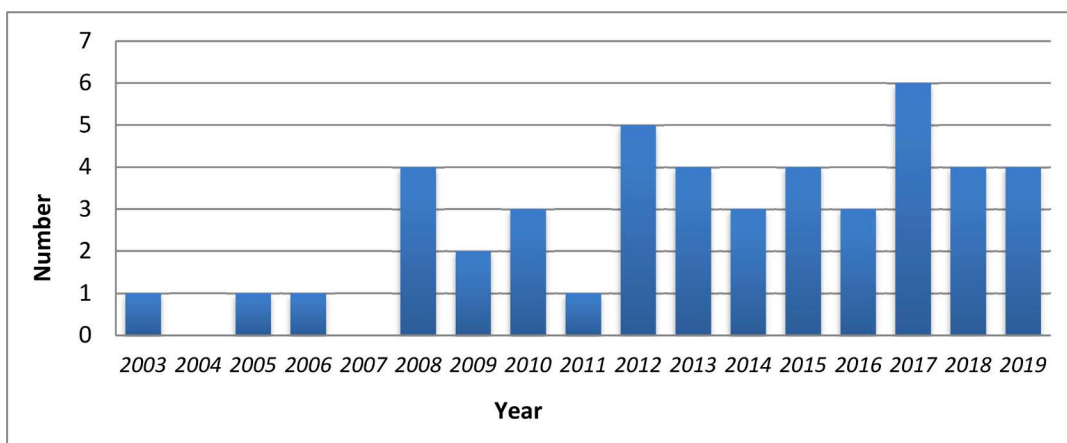

Figure 2. Number of papers published each year.

Table 1. Frequency of the degree-granting units.

Degree Granting Unit	Frequency	Degree Granting Unit	Frequency
Shanghai Jiao Tong University	3	South China University of Technology	1
Hunan University	3	Shenzhen University	1
Southwest University	3	Jiangxi Normal University	1
Hunan Normal University	3	Zhejiang Normal University	1
Guangxi Normal University	2	Fujian Agriculture and Forestry University	1
Nanjing Normal University	2	Wuhan University of Technology	1
Northwest Normal University	2	Huazhong University of Science and Technology	1
Capital University of Economics and Business	1	Nanjing University of information Technology	1
Shanghai Normal University	1	Shanghai International Studies University	1
Zhejiang University	1	Nankai University	1
Guangxi University	1	Changsha University of Technology	1
Jiangxi University of Finance and Economics	1	South-Central University for Nationalities	1
Jiangxi Agricultural University	1	China University of Geosciences	1
Jilin University	1	Lanzhou University	1
Harbin University of Technology	1	Southeast University	1
Dalian University of Technology	1	Tianjin University	1
Chongqing Normal University	1	Central South University	1
Tianjin University of Technology and Education	1		

3.3. The Frequency of Tutor's Guidance

A total of 40 tutors are involved in 46 dissertations. On average, each teacher directed 1.15 dissertations. From this point of view, the number of tutors is relatively abundant. Among them, Yu Xiaobo and Gao Xiaoqing have the most guidance times, and both of them have three times of guidance. The second is Mr. Liu Niancai, whose guidance times are two. It can be seen from the above that there are 3 teachers who have given guidance twice or more, accounting for 7.5% of the total. There are 37 tutors, whose guidance time is 1, accounting for 92.5% of the total. The detailed statistics of tutor's guidance are shown in Table 2.

3.4. The Cited Frequency of Literatures

The 46 literatures are sorted according to the cited frequency from high to low, and the top 10 cited frequency are sorted into Table 3. The most frequently cited dissertation "Research on Indicators and Impact of University Ranking" from Shanghai Jiao Tong University in 2010 was cited 59 times, secondly, the master's dissertation "National University Rankings Comparative Study of Index System" from Changsha University of Science and Technology in 2010, which was cited 27 times, followed by the master's degree dissertation "National University Rankings Comparative Study of Index System—Such as Wu Shulian List, Wangda List,

and Zhongping List" from Hunan Normal University in 2014, with the cited frequency of 22. The detailed statistics of citation frequency (top 10) are shown in Table 3.

3.5. The Frequency of Disciplines and Majors

The 46 literatures are found to involve 17 majors. For example, management science and engineering, education economics and management, higher education,

Table 2. Frequency of tutor's guidance.

Name	Frequency	Name	Frequency	Name	Frequency
Yu Xiaobo	3	Hao Mingjun	1	Hu Chuansheng	1
Gao Xiaoqing	3	Cao Ye	1	Cheng Jin Kuan	1
Liu Niancai	2	Zhang Zhengang	1	Zhang Xuemei	1
Zhang Junjian	1	Cao Lihua	1	Zhou Hong	1
Tu Yangjun	1	Wang Jianhua	1	Yan Guangfen	1
Jia Tao	1	Zhang Yizhong	1	Cai Baolai	1
Ke Wenjin	1	Yang Tianping	1	Cao Hongxia	1
Liu Xiaomin	1	He Maoxun	1	An Xin	1
Chen Shijian	1	Cai Xuexiong	1	Zhang Jingao	1
Lu Xufeng	1	Cheng Ying	1	Luo Yun	1
Zhu Ping	1	Chen Xia	1	Zheng Jia Mao	1
Luo Liangqing	1	Dai Dewei	1	Zhou Zhigang	1
He Yisong	1	Lai Xiaochen	1	Liu Li	1
Zhang Zhongjia	1				

Table 3. Cited frequency of literatures (top 10).

Title	Author	Year	Cited Frequency
Research on Indicators and Impact of University Rankings	Xie Yalan	2010	59
National University Rankings Comparative Study of Index System	Chen Huaifang	2010	27
System—Such as Wu Shulian List, Wangda List, and Zhongping List	Ruan Dongling	2014	22
Comparative Study on Chinese and American University Rankings Index System	Shen Mingming	2009	16
Research on University Ranking	Wang Guoping	2008	15
The Comparative Study on the Index System of University Ranking of Typical Media in China, the United States and Britain	Ji Jingjing	2009	14
Analysis and Inspiration on Comparative of Universities Ranking between US and China	Guo Yanming	2008	14
Study of Symbolic Capital in Social Evaluation in Higher Education: Taking Chinese University Rankings as an Example	Wang Tun	2010	12
A Study on Features and Trends of University Ranking Indicator Systems at Home and Abroad	Ren Yongcan	2014	12
The Comparative Research on the Index System of World Representative College Ranking of the USNWR,THES and ARWU	Wang Shan	2013	11

sociology, applied statistics, information science, English language and literature, etc. The detailed statistics of the frequency of disciplines and majors are shown in Figure 3. The 46 literatures are found to involve 8 disciplines, which are pedagogy, management, sociology, economics, mathematics, engineering, literature, and politics. Detailed statistics are shown in Figure 4. Among them, the highest frequency is education, followed by management.

3.6. The Frequency of Keyword

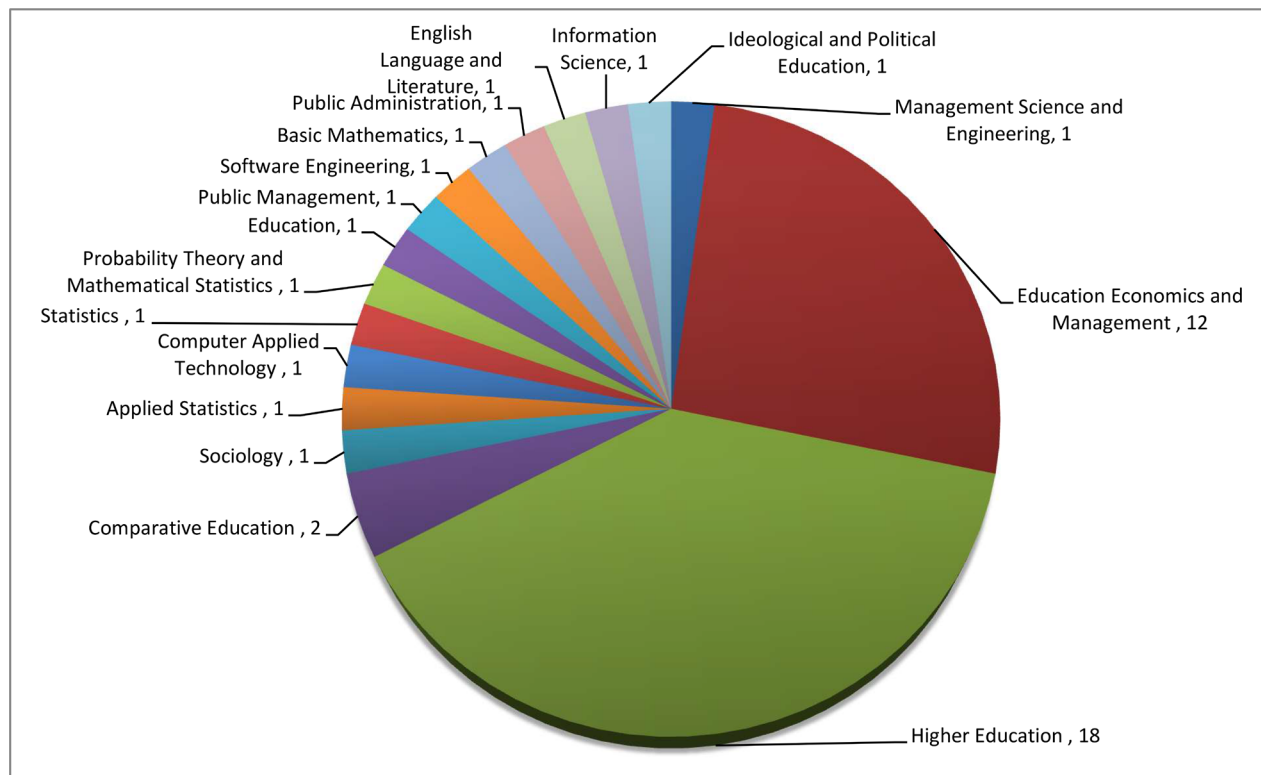Key words are the high generalization of the core content of the paper, and play
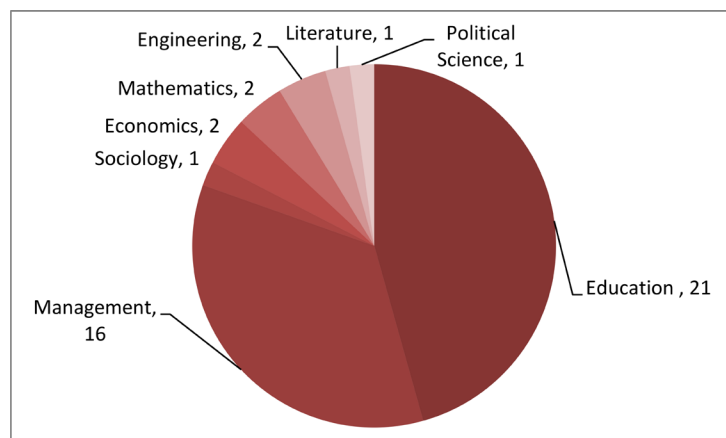

Figure 3. Classification of majors.

Figure 4. Classification of disciplines.

an important and key role in revealing and describing the subject content of the literature (Chen, 2011). A total of 93 keywords are obtained from 46 literatures. Among them, there are 2 with the frequency of 10 or above, accounting for 2.2% of the total keywords. There are 15 keywords whose frequency is greater than or equal to 2, accounting for 16.1% of the total and 76 keywords with frequency of 1, accounting for 81.7% of the total. The highest frequency is "university ranking", which is 39, "index system" followed, which is 18. The information is shown in Table 4.

4. Conclusion

Through the statistical analysis and content analysis of the master and doctoral dissertations on university ranking in the CNKI database, the following conclusions can be drawn:

1) Scholars' research interest in university ranking is increasing. From 2003 to 2019, the number of dissertations in university ranking has shown an overall growth trend, and the quality and depth of dissertations has also been continuously improved.

2) A group of influential and high-level university scientific research teams are forming. Shanghai Jiao Tong University, Southwest University, Hunan University, Hunan Normal University and other universities have formed high-level and high-output research teams for university ranking. Some tutors even take university ranking or higher education evaluation as their research directions. It is conducive to the in-depth study of university ranking.

Table 4. Frequency of keyword (≥2).

Number	Keyword	Frequency
1	University Ranking	39
2	Index System	18
3	Comparative study	7
4	Comparison	7
5	Credibility	4
6	World University Ranking	3
7	Evaluation Indicator	2
8	Value Orientation	2
9	United States	2
10	China	2
11	Ranking Index System	2
12	University Evaluation	2
13	World-Class University	2
14	Evaluation Index System	2
15	Ranking Change	2

3) The field of research is still limited and needs to be further expanded. The dissertations on university ranking have shown a trend of diversification, but most of the research is still focused on the index system of university ranking. The research on the application behavior of university ranking and the standardization of university ranking market is still relatively lacking, which needs the continuous follow-up by relevant researchers.

4) The research needs more support from fund projects. Among the 46 dissertations, only one doctoral dissertation has been funded by the National Education Planning Fund. With fund support, researchers can do detailed field surveys to ensure the accuracy and comprehensiveness of research data, thereby improving the scientificity of research conclusions. Therefore, to a certain extent, it can also guarantee the quality of dissertations. So, various fund projects rarely support the dissertations of university ranking research, which should be paid attention to by the relevant departments.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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