Analysis of Research Hotspots in Chinese University Think Tanks in Recent Years: Postprint

Authors: Zhong Zhenshan, Gong Wenxia, Hu Wusheng, Gong Wenxia

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Abstract

[Purpose/Significance] This study analyzes research hotspots of university think tanks in China to provide references for subsequent research in this field. [Method/Process] This paper examines 245 journal articles on university think tank research collected by CNKI (China National Knowledge Infrastructure) from 2010 to 2016, utilizing data analysis software such as BICOMB and SPSS to analyze research hotspots and existing problems from the perspectives of temporal distribution, source journals and knowledge base, distribution of core authors and research institutions, and high-frequency keyword co-occurrence. [Results/Conclusions] Future research on university think tanks can be improved in the following three aspects: promoting the implementation of research findings, establishing core research teams, and innovating comparative research objects.

Full Text

Preamble

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Analysis of Research Hotspots on University Think Tanks in China in Recent Years
Zhong Zhenshan[1], Gong Wenxia[2], Hu Wusheng[3]

Abstract

[Purpose/Significance] This paper analyzes research hotspots on university think tanks in China to provide references for subsequent research. **[Method/Process]** Using 245 journal articles on university think tanks published between 2010-2016 from CNKI as samples, this study employs data analysis software such as BICOMB and SPSS to analyze the temporal distribution of publications, journal sources and knowledge base, distribution

of core authors and research institutions, and co-occurrence of high-frequency keywords. [**Result/Conclusion**] Future research on university think tanks can be improved in three aspects: promoting the implementation of research outcomes, establishing core research teams, and innovating comparative studies of university think tanks.

Keywords: university think tanks; BICOMB; research hotspots
Classification Number: G311

1 Introduction

University think tanks are professional consulting institutions that rely on university disciplinary and scholarly resources, orient themselves toward national development, conduct both basic and applied research, carry out interdisciplinary collaborative research on major practical issues, provide think tank outcomes to the government, and cultivate think tank talent. The Party and government attach great importance to the development of university think tanks. On May 30, 2013, Vice Premier Liu Yandong emphasized at the "Symposium on Prospering and Developing University Philosophy and Social Sciences and Promoting the Construction of New-Type Think Tanks with Chinese Characteristics" that "we should give full play to the unique advantages of universities and contribute to building new-type think tanks with Chinese characteristics." On February 10, 2014, the Ministry of Education issued the "Plan for Promoting the Construction of New-Type University Think Tanks with Chinese Characteristics" (Jiao She Ke [2014] No. 1), which pointed out that "university think tanks should perform functions such as strategic research, policy advice, and talent cultivation to better serve national economic and social development." On October 29, 2015, the "13th Five-Year Plan" adopted by the Fifth Plenary Session of the 18th CPC Central Committee proposed "implementing the philosophy and social sciences innovation project, building new-type think tanks with Chinese characteristics, and constructing a batch of national technology innovation centers relying on enterprises, universities, and research institutes to form several innovative cities and regional innovation centers with strong driving force." This undoubtedly puts forward new requirements for university think tanks. On March 5, 2017, the Fifth Session of the 12th National People' s Congress emphasized "accelerating the construction of new-type think tanks with Chinese characteristics," making the construction of university think tanks imperative. Recently, research on university think tanks in China has received widespread social attention, with research outcomes continuously emerging. Sorting out and summarizing these research results, grasping the current domestic research status, hotspots, and frontiers of university think tanks, and reflecting on existing problems and difficulties in the research are of great significance for providing theoretical and practical references for building university think tanks.

Domestic researchers have already sorted out the research status of university think tanks in China from different perspectives and using different methods. Yu Fengyuan et al. conducted qualitative and quantitative analysis of the re-

search progress on university think tanks in China from January 1, 2010, to June 30, 2016, pointing out "narrow research field of vision, prominent research homogenization, and other shortcomings, and reflecting that the research methods adopted are limited to bibliometric analysis" [1]. Tang Guoyuan et al. used bibliometric methods and CiteSpace III tools to analyze Chinese think tank research literature from 1961–2015 in terms of literature growth trends, journal distribution, institutional distribution, authors, highly cited literature, and research content [2]. Tie Xi used bibliometric analysis methods to analyze the characteristics of university think tank research, pointing out that "the academic journals publishing university think tank outcomes are relatively scattered, systematic research works are few, innovative content is limited, and the overall research level needs to be further improved" [3]. Overall, there are few domestic studies using BICOMB word frequency analysis software and SPSS multivariate statistical software to conduct visual analysis of university think tank research literature. To more scientifically and comprehensively reflect the research status of domestic university think tanks over the years, this paper conducts visual analysis of relevant journal literature from 2010–2016 from the perspectives of literature quantity and annual distribution, journal sources and knowledge base, distribution of highly cited authors and institutions, and keyword co-occurrence.

2.1 Data Sources

This paper uses CNKI journal literature as the data source. Using the advanced search function with "university think tank OR university think tank" as the theme, the time period was set to 2010–2016, with other options as default settings. The search was conducted on October 18, 2017, retrieving 383 initial documents. After eliminating irrelevant literature such as prefaces, meeting minutes, and interviews, 245 valid documents were obtained. Additionally, keywords were standardized, resulting in 886 valid keywords.

Author Introductions: Zhong Zhenshan, Professor at the School of Marxism, Nanchang University, Doctoral Supervisor, Deputy Director of the Institute of Jiangxi Development Studies at Nanchang University, E-mail: 615515295@qq.com; Gong Wenxia (ORCID: 0000-0002-0560-0940), 2015 Master' s student at the School of Physical Education and Education Science, Nanchang University, E-mail: 1639412829@qq.com; Hu Wusheng, Teaching Assistant at Nanchang Normal University, E-mail: 1149257251@qq.com.

2.2 Research Tools

This study employs BICOMB word frequency analysis software, SPSS multivariate statistical software, EXCEL, and other tools to conduct quantitative statistics and co-occurrence analysis on the research samples. BICOMB is a bibliographic co-occurrence analysis system jointly developed by Cui Lei of China Medical University and Shenyang Hongsheng Computer Technology Co., Ltd., which can accurately extract and generate matrices from CNKI bibliographic

literature and provide intuitive descriptions of literature content. Using these tools, this paper conducts visual analysis of the development status and research hotspots of university think tanks in China from 2010–2016.

3.1 Annual Distribution of Journal Literature

To understand the publication status of research outcomes on university think tanks in China, we conducted a statistical analysis of 245 journal articles published from 2010–2016. Following the chronological order of publication, we plotted the literature quantity and annual distribution, as shown in Figure 1 [Figure 1: see original paper].

Figure 1 Literature Quantity and Annual Distribution (2010-2016)

As shown in Figure 1, the annual distribution trend of university think tank research aligns with government expectations. Since May 2013, Party and state leaders including General Secretary Xi Jinping, Premier Li Keqiang, and Vice Premier Liu Yandong have delivered a series of important speeches emphasizing "strengthening the construction of new-type think tanks with Chinese characteristics and establishing a sound decision-making consultation system," marking the formal inclusion of Chinese think tank construction on the agenda. The "Plan for Promoting the Construction of New-Type University Think Tanks with Chinese Characteristics" released in February 2014 more explicitly proposed "strengthening the construction and research of university think tanks" [4], leading to a surge in research outcomes that year. Currently, 2016 saw the largest number of research outcomes with 143 articles, accounting for 58.4% of the total journal articles. A total of 245 journal articles were published from 2010–2016, with an annual average of 35 articles, indicating that research on university think tanks in China possesses a certain theoretical level.

3.2.1 Distribution of Publishing Journals

Analyzing the source journals of literature can reflect the distribution of research outcomes. Using BICOMB software to conduct journal frequency statistics on 245 journal articles, we found that the literature sources involved 245 journals. Among them, *China University Science & Technology* and *Higher Education Management* published the most articles, each reaching 10 articles. Setting frequency 3 as high frequency, we ultimately identified 14 high-frequency journals, as shown in Figure 2. These high-frequency journals constitute the most important dissemination carriers for university think tank research outcomes in China. As shown in Table 1 , there are 6 higher education journals, accounting for 42.9%, indicating that higher education journals have become important dissemination channels for university think tank research outcomes, with the highest enthusiasm and attention from the higher education community. In terms of publication frequency, 7 of these high-frequency journals are monthly, and 4 are bimonthly, suggesting to some extent that the dissemination platforms for university think tank research outcomes in China are mostly monthly and

bimonthly journals. Geographically, these high-frequency journals are mostly concentrated in Beijing, Hubei, and Heilongjiang, totaling 8 journals and accounting for 57.1%. Regarding impact factors, the average composite impact factor of these high-frequency journals is 0.83, and the average comprehensive impact factor is 0.56. Compared with other similar journals, these journals have relatively high influence, and the published papers possess high academic value, providing significant reference for university think tank research in China.

Figure 2 Distribution of Published Articles in High-Frequency Periodicals (Frequency 3)

Table 1 Characterization of High-Frequency Periodicals

3.2.2 Knowledge Base

Article citation frequency can serve as an important indicator of the academic value of research outcomes. By sorting these 245 documents according to citation frequency, we determined that the h-index of the research field is 17. The h-index also characterizes the relative academic status of the vast majority of researchers in this field [5]. As shown in Table 2 , Xu Xiaohu et al.' s "Basic Issues in Chinese Think Tank Research" has the highest influence with 76 citations; followed by Qin Huimin' s "Research on Related Issues and Countermeasures of University Think Tank Construction in China" with 52 citations; and Wen Shaobao' s "The Logical Starting Point, Difficulties, and Strategies of University Think Tank Services for Government Decision-Making —From the Perspective of National Governance Modernization" with 36 citations. These articles conducted theoretical explorations and practical attempts on university think tank construction and service transformation of national governance, constituting the focus and foundation of university think tank research in China. However, analyzing the content of these 17 highly cited documents reveals that current researchers in the field of university think tanks exhibit a certain degree of research "homogenization." Qin Huimin discussed university think tank construction strategies from the perspectives of creating a social environment, building diverse relationship networks, improving operational systems and mechanisms, and enhancing overall service capacity. Yang Jing mainly proposed three university think tank construction strategies under the concept of collaborative innovation, including institutional collaboration, organizational collaboration, and human resource collaboration. Du Jingyuan proposed building university think tanks from five perspectives: adhering to the direction of socialism with Chinese characteristics, emphasizing the application of research auxiliary systems, focusing on long-term strategic issues, establishing training platforms, and innovating talent cultivation mechanisms. Scholars including Du Baogui, Gu Yanfeng, Li Ling, and Lu Xuemei have all proposed their own countermeasures and suggestions for university think tank construction. It can be found that domestic university think tank research mainly focuses on the current situation and strategies of university think tank construction, with convergent research priorities that require further expansion of research objects, content,

and perspectives.

Table 2 List of Highly Cited Literature

3.2.3 Author Analysis and Institutional Distribution

(1) Core Author Analysis

As pioneers of research, academic research teams are prerequisites for in-depth development of research fields, with core authors being the backbone of these teams. To examine author publication patterns, we imported 245 documents into BICOMB software for analysis. The maximum number of publications was 4, and the highest citation frequency was 76. According to the Price calculation formula, authors with 2 publications and citation frequency 7 were identified as core authors, ultimately determining 18 core authors (with 2 publications), as shown in Table 3 . These 18 core authors published a total of 42 articles, accounting for 17.1% of the total literature. According to Price' s Law, when core authors' publications account for about 20% of the total literature, a core author group in the discipline is considered formed. Therefore, this field has not yet formed a core author group. To understand the cooperation situation of the research team, according to BICOMB statistics, 245 documents involved 391 authors. Analyzing the co-authorship of journal articles revealed that 106 documents had two or more authors, with a co-authorship rate of 43.3%. Overall, the co-authorship rate of journal literature on university think tanks in China is relatively high, with frequent author exchanges and relatively high cooperation awareness.

Table 3 List of Core Authors (Publications 2)

(2) Institutional Distribution

To analyze the distribution of core institutions researching university think tanks in China, we used BICOMB software to identify 301 research institutions in 245 documents, with an average of 0.81 articles per institution, indicating cooperation and exchange among different institutions during publication. Exporting the statistical results to EXCEL and applying Price' s Law, institutions with 3 publications were identified as core research institutions, totaling 33, as shown in Figure 3 [Figure 3: see original paper]. Analysis shows that these core institutions are mainly distributed in East China (Zhejiang, Jiangsu, Shanghai, Fujian, Anhui), North China (Beijing, Hebei, Inner Mongolia, Shanxi, Tianjin), Northeast China (Liaoning, Jilin), and parts of Central, Southwest, Northwest, and South China, while Guangxi, Ningxia, and Tibet have no distribution. Regarding institutional attributes, research institutions include normal universities such as Xinjiang Normal University, South China Normal University, West China Normal University, and Beijing Normal University; finance and economics universities such as Capital University of Economics and Business, Zhejiang University of Finance and Economics, and Southwestern University of Finance and Economics; and comprehensive universities such as Soochow University,

Fudan University, and Wuhan University. This indicates that normal and finance/economics universities are currently the main forces in university think tank research in China, playing a positive role in promoting the construction and development of university think tanks. However, it should also be noted that ordinary universities and vocational colleges have relatively low participation and influence in this field, indicating that their research capacity and level in this area are still relatively weak, a phenomenon that requires attention.

Figure 3 Quantity of Articles in Core Institutions (Quantity 3)

3.2.4 Keyword Statistical Analysis

(1) High-Frequency Keyword Frequency Statistics

Word frequency refers to the frequency of words, i.e., the number of times words appear in a given language material [6]. Keywords are highly refined expressions of literature themes. Analyzing keyword frequency and selecting high-frequency keywords can reveal research hotspots in the field. Since different authors use different expressions for the same or similar concepts, the extracted keywords need to be standardized. Using BICOMB to conduct word frequency statistics on the keywords of these 245 documents, the initial statistics yielded 5,886 raw keywords, which were then standardized (e.g., "university think tank" and "university think tank" were uniformly corrected to "university think tank"). The high-frequency threshold is determined according to the Price calculation formula: m 0.749(nmax 1/2) (where m is the high-frequency threshold and nmax represents the maximum citation frequency of keywords in the interval) [7]. The results show that the highest keyword frequency is 125; therefore, 20 keywords with frequency 9 were identified as high-frequency keywords, as shown in Table 4 . As shown in Table 4, the cumulative frequency of these 10 high-frequency keywords is 446, accounting for 50.3% of the total frequency (586), indicating that research hotspots on university think tanks in China are relatively concentrated, mainly including think tank research, construction path research, university research, think tank construction research, and new-type university think tank research.

Table 4 List of High-Frequency Keywords (Frequency 9)

(2) High-Frequency Keyword Co-occurrence Analysis

High-frequency keyword statistics can only reflect the total number of times individual keywords appear in the sample literature but cannot reflect the relationships between keywords. Using BICOMB to conduct co-occurrence analysis on 20 high-frequency keywords, we generated a word-article matrix and imported it into SPSS to convert it into a similarity matrix, as shown in Table 5 . The coefficient ranges from 0 to 1, representing the distance between two keywords. The closer the coefficient is to 0, the smaller the similarity coefficient and the lower the similarity between the two keywords; conversely, the closer to 1, the higher the similarity.

Table 5 Similarity Matrix of High-Frequency Keywords (Partial Data)

As shown in Table 5, the order of keywords from near to far relative to "university think tank" is: think tank (0.850), construction path (0.654), decision-making consultation (0.624), university (0.611), United States (0.608), think tank construction (0.606), new-type think tank (0.594), development status (0.587), university think tank construction (0.581), think tank evaluation (0.571), university library (0.569), existing problems and local universities (both 0.568), influence (0.542), development dilemma (0.539), talent cultivation (0.535), collaborative innovation (0.533), operational mechanism (0.527), and new-type university think tank (0.524). This indicates that domestic university think tank research groups have high concern for the relationship between university think tanks and universities, how to construct them, and American think tanks. Simultaneously, there is high enthusiasm for researching the functions of university think tanks and their relationships with think tanks. While exploring domestic university think tank research fields, there is also some involvement with Western think tanks. However, while increasing reference to American university think tanks, research on other Western university think tanks is relatively limited.

4 Research Conclusions

Through statistical analysis of journal literature on university think tanks in China from 2010–2016, this paper roughly sorted out the current research status, reflected research hotspots, and identified several aspects for future improvement. The research conclusions are as follows:

First, university think tanks are an emerging research field in China. Since 2014, there has been a strong growth trend, but the volume of research literature is still relatively small, requiring increased research efforts to achieve dual expansion of theoretical and practical research on university think tanks.

Second, research hotspots mainly concentrate on university think tank construction, think tank talent cultivation, and first-class American university think tanks. There are few research outcomes on individual domestic university think tanks, low attention to other Western high-end university think tanks, narrow research perspectives, and low relevance of research outcomes.

Third, the core author group is crucial for in-depth development of a research field. China' s university think tank research community has not yet formed a stable core author group, and the research team needs strengthening.

Fourth, the role of ordinary universities in expanding research perspectives on university think tanks cannot be ignored. Currently, domestic university think tank research is mostly concentrated in developed cities and key universities such as 985 and 211 Project institutions, with relatively low participation from ordinary universities. Both the quantity and quality of research outcomes need improvement.

Fifth, current researchers mainly conduct qualitative research on the connotation, functions, and roles of university think tanks from theoretical perspectives, requiring innovation in research tools and methods.

5 Conclusion

In response to the above research conclusions, future university think tank research can be improved from the following three aspects:

First, promote the implementation of university think tank research outcomes. The transformation and dissemination of research outcomes are the ultimate manifestation of university think tank influence. Currently, university think tank research outcomes are growing rapidly, but the number of consultation reports actually transformed into national policies and submitted to government units at all levels is relatively small. According to statistics, by 2016, China' s humanities and social sciences fields had published approximately 150,000 monographs and 1.58 million papers, but only slightly more than 60,000 were transformed into public policy recommendations, with a conversion rate of only 3.47%. Most research outcomes can only be shelved [8]. Wen Xin and Wang Huiming proposed three countermeasures based on the perspective of think tank outcome transformation: establishing democratic and scientific decision-making thinking, stimulating university think tank participation in local governance, and promoting university think tank participation in regional collaborative innovation. Shen Guolin and Li Cong proposed creating a Chinese characteristic "revolving door" system, reforming academic evaluation standards, innovating university knowledge production systems and mechanisms, and strengthening government promotion from the perspective of building a positive interaction between knowledge production and social practice. Zhang Hongbao proposed transforming from extensive expansion to intensive growth from the perspective of university think tank knowledge supply paradigm transformation. Overall, the influence of university think tank research outcomes on policy formulation in China still needs improvement, requiring continuous exploration by think tank researchers.

Second, establish core research teams for university think tanks. The above analysis reveals that China has not yet formed a core author group in the field of university think tank research. Most scholars' cooperation and exchanges are limited to the same university or research direction, with relatively little inter-university and cross-directional collaboration. As a special research field spanning education, political science, sociology, and anthropology, university think tanks have obvious complexity in research content and objects. Some scholars have conducted relevant research on this issue. Li Yanjie and Jiang Hong proposed establishing a project-led alliance management model and a "Chinese-style revolving door" system with Chinese characteristics to realize the transformation of think tank researchers between universities and various social resources. Chen Qinping and Chen Weixiong emphasized breaking disciplinary and inter-university barriers and conducting international exchanges and cooperation to

build a scientifically sound connection network. Wu Huijuan proposed building "university think tank alliances," "regional think tank alliances," and conducting international cooperation and exchanges from the perspective of incentives to achieve long-term stable cooperative relationships among universities, governments, and enterprises for joint policy consultation. In summary, conducting university think tank research requires concentrating the wisdom and strategies of multiple forces and building a research team that matches the characteristics of university think tank research.

Third, innovate comparative research objects for university think tanks. When conducting comparative research on university think tanks, domestic researchers usually focus on top American university think tanks as the main analysis objects, with relatively little research on university think tanks in other Western countries. Chen Yingxia and Liu Hao analyzed the employment model and organizational methods of first-class American university think tanks using the Hoover Institution at Stanford University as an example. Ye Linjing analyzed the management model, staffing mechanism, and dissemination mechanism of the Belfer Center for Science and International Affairs. He Zhenhai analyzed the history and path of think tank construction at Harvard Kennedy School. Guan Hui' s article "Enlightenment of Indian Think Tank Construction on China' s University Think Tanks" published in November 2016 analyzed the development status and characteristics of Indian think tanks and their enlightenment for China's university think tank construction. Chen Mengran and Yang Yaofang discussed the current situation and path of local university think tank construction in Jiangxi Province under the background of the "Belt and Road"initiative. Li Huiru pointed out problems such as lack of think tank awareness and capacity, imperfect evaluation mechanisms, and insufficient overall collaborative innovation capabilities in university think tanks in Inner Mongolia Autonomous Region. Dai Lijun and Yan Jianyong proposed positioning and development path suggestions for finance and economics university think tanks through analysis of the basic positioning, disciplinary layout, and research strength of 26 major finance and economics universities nationwide. Zhang Siwen and Zhu Mintian analyzed existing problems and solutions in the financing models of domestic traditional Chinese medicine university think tanks. It can be found that domestic researchers' enthusiasm for studying university think tanks in countries other than the United States is increasing, and research outcomes on comparative studies of regional and various types of university think tanks in China are emerging. However, the number of relevant research documents is still relatively small. Researchers should focus on strengthening the expansion of comparative objects and fields when conducting comparative studies of university think tanks.

5 Conclusion

This study mainly conducted a brief analysis of the current research status and hotspots of domestic university think tanks from 2010–2016 to provide certain

references for future research. Based on the comprehensive research conclusions, it is foreseeable that future research in this field should focus on promoting the implementation of university think tank research outcomes, establishing core research teams for university think tanks, and innovating comparative research objects for university think tanks to boost the realization of university think tanks' policy consultation functions. However, the research methods adopted in this study make it difficult to conduct text analysis of literature content, and there is a lack of analysis of policy documents on university think tanks issued by the government and the construction status of university think tanks in specific countries and institutions. Future research could consider these aspects.

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Author Contributions:

Zhong Zhenshan: Overall guidance of the paper framework, proposed writing and revision suggestions;

Gong Wenxia: Collected relevant data and wrote the paper;

Hu Wusheng: Analyzed relevant data.

Note: Figure translations are in progress. See original paper for figures.