

Bibliometric Analysis of Research on China's Agricultural Supply-Side Reform

-Based on CNKI Journal Paper Data (2015-2019)

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Abstract—Based on 4263 journal literatures collected by CNKI from 2015 to 2019 as data sources, this paper discusses the research progress of agricultural supply-side reform from aspects of literature quantity, discipline distribution, keyword analysis, abstract content analysis and so on by using quantitative visualization analysis and content analysis. The results showed that: (1) After China put forward agricultural supply-side reform, scholars immediately paid attention to it, and the heat of research fluctuated. (2) With the development of agricultural reform, the research of agricultural supply-side reform has entered a mature stage, involving social sciences, natural sciences and other research fields. (3) Agricultural supply-side reform has stepped from theoretical research to practical research.

Keywords—China's agricultural supply-side reform; research progress; bibliometric analysis

I. INTRODUCTION

On November 10, 2015, at the 11th meeting of the Central Leading Group on Finance and Economics, General Secretary Xi Jinping put forward the economic policy of supply-side reform, aiming at adjusting the economic structure, realizing the optimal allocation of factors and improving the quality of economic growth. Under the economic background of supply-side reform, at the Central Working Conference on Rural Areas in December 2015, leaders first proposed the pioneering "agricultural supply-side reform" based on agricultural conditions, pointing out that "efforts should be made to strengthen the agricultural supply-side reform, improve the quality and efficiency of the agricultural supply system, make the supply of agricultural products sufficient in quantity, meet the needs of consumers in variety and quality, and truly form an effective supply of agricultural products with reasonable structure and strong guarantee".

Xi Jinping's report at the 19th National Congress of the Communist Party of China (CPC) also clearly pointed out that the modernization of China's agriculture should be promoted through the agricultural supply-side reform. It can be seen that summarizing the research progress of agricultural supply-side reform has important theoretical and practical significance for grasping the structure of agricultural industry, the contradiction of agricultural products market and the

development of agricultural modernization in China.

This paper takes the periodical literature about "agricultural supply-side reform" included in CNKI as sample, using bibliometric method and content analysis method, to systematically combs the research progress of China's agricultural supply-side reform from the aspects of literature quantity, subject distribution, keyword analysis and abstract content analysis.

In what follows, Sect. 2 describes data sets and research designs used in research. Section 3 analyse the research status. Section 4 discusse the conclusions.

II. RESEARCH DESIGN

A. Data source

The literature sample of this paper comes from China National Knowledge Infrastructure (CNKI), an authoritative database in China. First, We selected "advanced retrieval" and made "academic journals" as retrieval objects on CNKI. Next, we entered "Agricultural Supply-Side Structural Reform" in "Theme One" and "Agricultural Supply-Side Reform" with "or" relationship in "Theme Two". Then, we set the time from November 2015 to August 19, 2019 and Selected "all journals" type. Last, through comparative screening, we received 4263 samples of literature.

B. Data Analysis Methods

Bibliometrics is a quantitative analysis method based on collecting literature data, analyzing the trend and influence of literature research, and judging the development direction and current situation of the relevant research. It is a quantitative analysis method, which takes various external characteristics of literature as the research object and uses mathematical and statistical methods to describe, evaluate and predict the current situation and development trend of science and technology. Its main feature is that the output information is quantified.

In addition, this paper also uses content analysis method to quantify the abstract content of Journal papers. It is a systematic, objective and quantitative description research method, mainly focusing on the analysis of information content. It is suitable for the quantitative study of all

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documents that can be recorded and preserved. Content analysis has been widely used and achieved remarkable results.

Bibliometrics and content analysis are the quantitative analysis method. The difference between them is that bibliometrics takes the external characteristics of information as its research object, while content analysis takes the internal characteristics of information as its research object. The two methods complement each other and can dig valuable information in depth. In this paper, the graphics come from CNKI metrological visualization analysis and ROST software.

III. ANALYSIS OF RESEARCH STATUS

A. Analysis of Literature Output

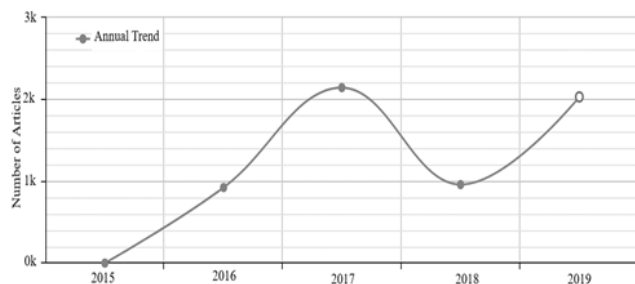


Fig. 1. Annual trend in the number of publications.

From the time and quantity of publication of agricultural supply-side reform literature (Fig.1), the number of publications fluctuated, reaching a peak of 2135 articles in 2017.

Since the initiative was put forward in December 2015, there has been a growing trend until 2017. After the 19th National Congress of CPC, scholars have gradually shifted their focus to Rural Revitalization, poverty alleviation etc.. In 2018, there were only 957 articles.

2019 is the key year for China to win the victory and build a well-off society in an all-round way. The agricultural supply-side reform has attracted the attention of scholars again. CNKI expects that the total number of articles published in 2019 will reach 2023 articles, only next to that in 2017. As for the development stage of literatures, promoting agricultural supply-side reform has policy advantages, and the thematic research has entered a mature stage.

B. Analysis of Discipline Distribution

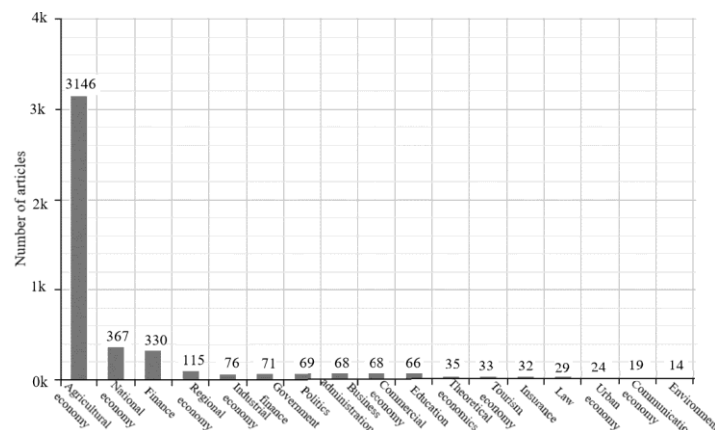


Fig. 2. Statistics of subject distribution.

Among the 4,263 literatures retrieved in this study, the top 15 disciplines (fig.2) mainly focus on economics, political science, education, management and law. Research level mainly concentrates on social science, natural science and other disciplines such as economic information, popular culture, higher education. Specifically, social science includes industry guidance (1683 articles), basic research (1423 articles), policy research (448 articles). Natural science contains engineering technology and industry technology guidance (22 articles each), basic and applied basic research (20 articles).

It can be seen that the research on agricultural supply-side reform mainly focuses on the industry guidance, basic research and policy research in the fields of economics, management, politics and education in social sciences.

C. Analysis of Key Words in Literature

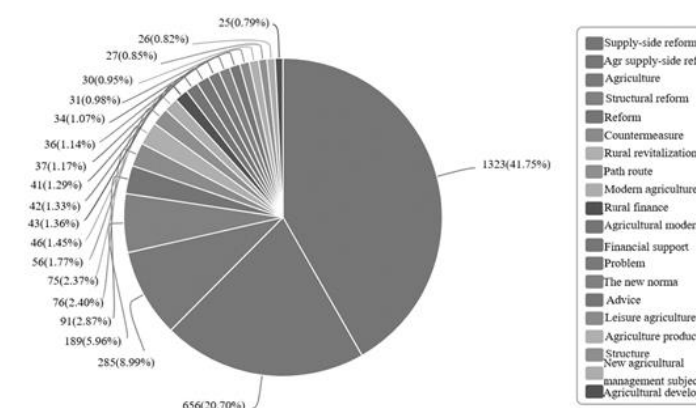


Fig. 3. Statistics of literature keywords.

The key words in the literature can reflect the focus and direction of the research on agricultural supply-side reform. Fig. 3 shows the quantitative statistics of the key words in the top 20 papers. Based on the analysis of relevant literatures, it

shows that the research results of agricultural supply-side reform mainly include the following three aspects:

A number of previous researches study the theoretical connotation and main content of agricultural supply-side reform. Agricultural supply-side reform is an agricultural reform integrated with the new development concept [1]. From the perspective of the supply of agricultural products, it improves the quality of supply and comprehensive benefits of agricultural products by optimizing and restructuring various agricultural production factors. Its essence is to continuously improve the agricultural supply system, maximize the use of agricultural resources, improve the quality and competitiveness of agricultural products, finally promote farmers' income. Specifically, the main contents are to optimize the structure of agricultural industry, to destock, to promote the integration of three industries, and to realize the large-scale development of agriculture[2].

There are three main points in agricultural supply-side reform: first, to form a new agricultural management subject through the reform of land system; second, to improve the quality and efficiency of agricultural development and increase farmers' income through the adjustment of agricultural structure; and third, to improve the level of agricultural modernization through the reform of grain system[3].

Some researches focus on the problems, paths and policy suggestions of agricultural supply-side reform. On the one hand, from the international perspective, the study points out that China is facing three challenges: the imbalance of total amount and structure caused by "non-essential" imports, the barrier of import price difference to agricultural development and farmers' income, the influence of international market fluctuations on domestic market stability, etc.. It also puts forward some policy suggestions on the establishment of agricultural products regulation system, policy support system, agricultural testing and early warning system and agricultural trade and investment system in China [4].

On the other hand, in China, agricultural supply-side reform has such problems as grain storage and storage, high production costs, and backward agricultural informatization. Combined with the background of "Internet +", reasonable solutions to these problems are can be done, such as improving the rural Internet infrastructure, cultivating new Internet farmers, exploring new modes of agricultural electricity providers, and building new agricultural retail chain [5].

Some scholars pay attention to the specific measures of agricultural supply-side reform. From rural finance, financial support, new agricultural management subject, etc., we can see that China has made great efforts to support agricultural reform and development, to cultivate new agricultural management subject and to improve the quality of supply-side reform. For instance, scholars emphasize that rural financial innovation provides financial demand for promoting agricultural supply-side reform[6]. Agricultural mechanization can effectively improve the level of agricultural supply[7], reconstruct new agricultural management subject, improve

farmers' enthusiasm[8], and also can promote the quality and efficiency of agricultural supply-side reform.

D. Content Analysis of Literature Abstracts

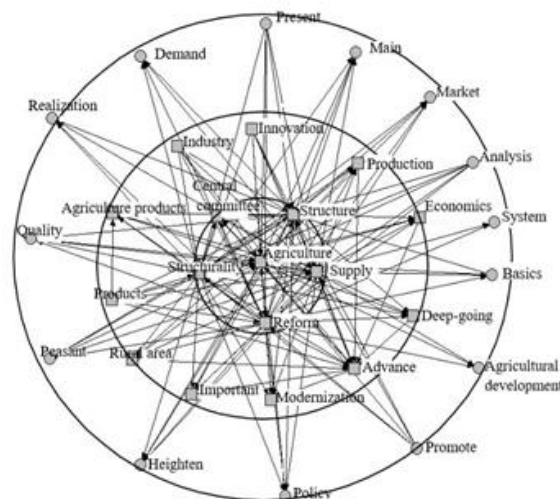


Fig. 4. Semantic structure network of literature abstracts.

The abstract covers the main viewpoints and the key discussion of a paper. The ROST analysis software is used to dig the valuable information of the text systematically, which can find out the key points of researches about agricultural supply-side reform. The nearer the nodes are arranged in the network graph, the more core they are in the whole relational network. From Fig. 4, the abstracts of sample journals form a three-tier network structure with "agriculture" as the core.

The first level is the core level (the innermost level). The researches at this level focus on the theoretical level, discussing the main content and theoretical connotation of agricultural supply-side reform, which is the specific response of scholars for the call of the central government to further promote agricultural supply-side reform.

The second level is the sub-core level (the inner level). Semantic structure network shows that the process of promoting the focus of agricultural supply-side reform needs innovation to drive the upgrading of product structure. It is necessary to promote the circulation of high-quality agricultural products in the market, optimize the mode of agricultural production, and promote green and efficient ecological production, so as to develop agricultural modernization.

The third level (outermost layer) points out that the focus of agricultural supply-side reform is farmers' income, the quality of agricultural products supply, supply system, market system, policy support, agricultural development and so on. Researches have shifted from theoretical level to practical level, such as activating the market, factors and subjects, fully implementing the five tasks of capacity removal, inventory removal, leverage removal, cost reduction, shortage repair. Market transformation and upgrading continuously promote

the quality and benefit of economic operation. The reform has shown a steady, progressive and stable development trend.

IV. CONCLUSION

Agricultural supply-side reform is an innovative measure based on China's practice. In the critical period of economic transformation, it adapts to China's national conditions and points out the reform direction of sustainable agricultural development. Based on the quantitative analysis of these literatures on agricultural supply-side reform, the following conclusions are drawn:

(1) After agricultural supply-side reform was put forward, scholars paid close attention to it and research heat shows fluctuations. In the early stage, there are rich theoretical researches, literatures mostly focus on the level of policy interpretation, which has strong policy orientation. In the latter stage, many scholars use empirical methods to study the achievements of agricultural supply-side reform. The research methods tend to be diversified.

(2) Agricultural supply-side reform research has entered a mature stage with the advancement of agricultural reform in China. Research fields include social sciences, natural sciences and other fields, mainly focusing on industry guidance, basic research and policy research in economics, management, politics and so on of social sciences.

(3) The research on agricultural supply-side reform has stepped from theoretical research to practical research. From the perspective of practice, scholars follow the current situation, existing problems. And they propose specific solutions to these problems, with going deep into the current development of green agriculture and people's actual demand for high-quality agricultural products. All of that are conducive to the sustainable development of agriculture in China under the constraints of resources and environment.

China's agricultural supply-side reform adheres to the general tone of steady and progressive work. On the basis of ensuring grain production, China maintains a bumper harvest, actively promotes the transformation of agriculture as well from pursuing quantitative growth to high-quality development. New breakthroughs have been made in China's agricultural development. The theoretical research has been relatively mature. The next main goal is to deepen agricultural supply-side reform in key areas. The reform should be pay attention to combining theory with practice according to local conditions. It is crucial that study the scientific connotation, internal mechanism, driving mechanism, path selection and precise policy follow-up of sustainable agricultural reform under the guidance of green development.

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