

Bibliometric Analysis of the 20th Anniversary of the Journal of South China Agricultural University (Social Science Edition)

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Keywords: Journal of South China Agricultural University; Social Science Edition; Rural Revitalization; Grassroots Governance ; Social Network Analysis; Knowledge Map

Abstract: The complex network and social network analysis method is used to analysis the critical data of “Journal of South China Agricultural University:Social Science Edition” from beginning to December 31, 2021.The Analysis shows the trend characteristics of journal in the aspects of main keywords, column, highly cited literature, the author and institution, subject, and research hot spots for the last 20 years, whose goal is to provide new perspectives and suggestions for the development of scientific research in China. The result shows that “Journal of South China Agricultural University:Social Science Edition” has been closely following the national development strategy since its establishment 20 years ago ,whose content focuses on the latest research results in the field of agriculture, rural areas and farmers,and in the past 20 years, there have been four stages named Farmers , Rural Areas and Agriculture, Rural revitalization Strategy.

1. Introduction

The report of the 16th National Congress of the Communist Party of China (held on November 8, 2002) introduced the strategic guiding principle of "comprehensive coordination of urban and rural economic and social development." This elevated the longstanding and stagnated "three rural" (san nong) issues—concerning agriculture, rural areas, and farmers—to the national macroeconomic level. This move marked a significant historical transition in China's rural reform, which now centered on adjusting the relationship in national income distribution. Given this context, the Journal of South China Agricultural University (Social Science Edition) was born. Its mission is to collect the latest academic achievements in the "three rural" field and to aim for high-quality scholarly output that "leads in innovation, showcases high-level research, supports the growth of excellent academic talents."

This paper studies the Journal of South China Agricultural University (Social Science Edition) from a bibliometric perspective. By combining the journal's 20-year history with the evolution of China's "three rural" reforms, and utilizing tools like CiteSpace, Gephi, and complex network community discovery algorithms, we analyze the journal's publication volume, highly cited papers, authors and institutions, themes, and evolution of hot topics. The goal is to offer new perspectives and suggestions for China's development of scientific research collaboration[1-3].

2. Overall Analysis of the Journal of South China Agricultural University (Social Science Edition)

2.1 Journal Publication Volume and Keyword Analysis under China's "Three Rural" Policy

In 2002, the 16th National Congress officially established the "San Nong" (Three Rural) issues, emphasizing them as a focal point in their agenda. The journal "Journal of South China Agricultural University (Social Sciences Edition)" was born. Table 1 displays the publication volume of the journal over the past twenty years, major events related to China's "Three Rural" policies, and the evolution of keywords over the journal's two decades. Table 1 further analyzes the monthly publication volume.

From the analysis of Table 1 regarding the volume of articles in the journal, we can determine

that from 2002-2003 it was a biannual publication, and from 2004-2015 it was a quarterly journal. Specifically, for the years 2004-2005, the quarterly issues were published in March, June, September, and December. Meanwhile, from 2006-2015, the quarterly issues were published in January, April, July, and October. Starting its publication in 2002, the number of articles increased annually, reaching its peak in 2006 with 153 articles published that year. From 2007-2015, the number of articles decreased year by year. By 2016, it changed from a quarterly to a bimonthly journal, stabilizing the annual publication volume at around 70 articles. Based on this trend, it is projected that if the journal continues its bimonthly publication schedule, the annual volume will remain around 70 articles[4-5].

In conjunction with China's "Three Rural" policies and the journal's 20-year keyword trends, these two decades are divided into four five-year phases:

The first phase (2002-2006) focuses on "farmers" within the Three Rural issues, emphasizing increasing farmers' incomes.

The second phase (2007-2011) focuses on "rural areas," aiming to improve the living conditions of farmers.

The third phase (2012-2016) centers on "agriculture," prioritizing the advancement of agricultural modernization.

The fourth phase (2017-2021) marks a new stage in the Three Rural issues, implementing the strategy of rural revitalization.

In summary, over the past twenty years since its inception, the "Journal of South China Agricultural University (Social Sciences Edition)" has closely followed the national development strategy. Its primary research content and national policies are consistent, ranging from promoting the increase in farmers' income, improving the lives of farmers, elevating the level of agricultural modernization, to the strategy of rural revitalization[6-7].

Table 1: Journal's Annual and Monthly Publication Volume.

	01	03	04	05	06	07	8	09	10	11	12	total
2002		15						16				31
2003				25					25		30	80
2004		25			26			25			25	101
2005		27			27			27			27	108
2006	26		25			29			23		50	153
2007	26		26			27			25			104
2008	25		26			25			24			100
2009	25		25			24			22			96
2010	22		23			24			21			90
2011	20		20			22			20			82
2012	20		20			20			18			78
2013	20		20			20			20			80
2014	17			19		18				16		70
2015	16			17		16			16		16	81
2016		14		14		14		14		13		69
2017	14	14	13			13		12		12	14	92
2018		12		13		12		13		12		62
2019	13	12		12	12			12		12		73
2020	12	12		12		12		12		11		71
2021	12	11		12		13		13		13		74
total	268	142	198	124	65	289	0	144	214	89	162	1695

2.2 Analysis of Column Distribution

Starting from 2011, the Journal of South China Agricultural University (Social Science Edition) began to feature six main columns, namely "Sustainable Agricultural Development," "Issues

Concerning Farmers," "Economics and Management," "Urban and Rural Society," "Tradition and Modernity," and "Literary and Historical Studies"[1]. The annual publication volume and proportion of each column are shown in Figure 1.

From Figure 1, it can be observed that the yearly publication volume for the columns "Sustainable Agricultural Development," "Issues Concerning Farmers," and "Economics and Management" remain relatively consistent, accounting for 20% - 30% of the total articles published each year. The "Urban and Rural Society" column saw a noticeable increase in publication volume starting from 2018, which is closely linked to the introduction of the "Agricultural Supply-Side Structural Reform" policy presented in the 2017 No.1 Document. By 2021, the publication volume of "Sustainable Agricultural Development," "Issues Concerning Farmers," "Economics and Management," and "Urban and Rural Society" each made up between 20% - 30% of the total articles. In contrast, the columns "Tradition and Modernity" and "Literary and Historical Studies" saw a yearly decrease in their publication volume, dropping to zero by 2019 and maintaining that number in the subsequent two years. This suggests that the journal's research focus is increasingly centering on the "three rural" issues[8-11].

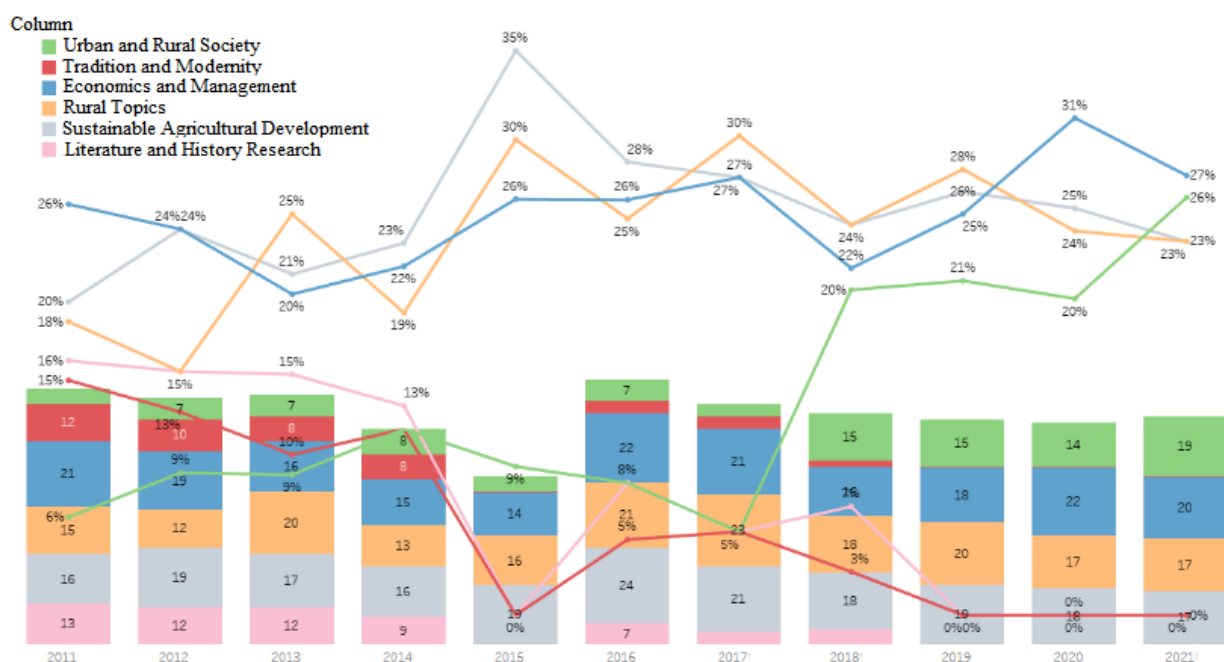


Figure 1: Annual Publication Volume and Proportion by Column

3. Analysis of Article Publishing Institutions

3.1 Analysis by Province of Publishing Institutions

The publication volume of institutions can be classified into two categories. The first is the total publication volume, where if an article's affiliation contains the name of a particular institution, it is considered as published by that institution. The second is the collaborative publication volume, which is the number of articles co-published by two or more institutions, that is, the affiliation of the article contains names of at least two different institutions[12-13].

Regarding the provinces of the publishing institutions, we can understand their distribution from a geographical perspective. This section analyzes from both the province and specific address dimensions. The articles published in the Journal of South China Agricultural University (Social Science Edition) from 2002-2021 were statistically broken down by their publishing institution and province. Visualization of the obtained province publication volume and institution publication volume can be seen in Figure 2. In the figure, the darker the color of the province, the greater the number of articles; the darker and larger the node, the more articles an institution has published[14-15].

From a national perspective, only Tibet Autonomous Region, Hong Kong Special Administrative Region, and Taiwan Province have a publication volume of 0. The darker the color indicates more articles, with Guangdong Province being the darkest, having the highest publication volume of 1076 articles. This is followed by Jiangsu Province with 258 articles, Hubei Province with 218 articles, Beijing with 199 articles, and Shaanxi Province with 188 articles[16].

From an institutional perspective, South China Agricultural University has the highest publication volume with 792 articles. This is followed by Nanjing Agricultural University with 95 articles, Northwest University of Political Science and Law with 82 articles, Northwest Agriculture and Forestry University with 73 articles, and China Agricultural University with 71 articles. Among the top five institutions in terms of publication volume, four are agricultural universities. This confirms the focus of the Journal of South China Agricultural University (Social Science Edition) on "three rural issues", and the primary publishing institutions are predominantly agricultural universities.

From a macro perspective, comparing Figure 2, which showcases the publication volume of institutions, with Figure 3 that displays the distribution of universities in China (from the Gaode map), it can be deduced that the distribution of publication volume is closely related to the distribution of universities. This distribution also aligns with the Hu Huanyong Line (also known as the "Heihe-Tengchong Line"), which starts from Heihe in Heilongjiang and stretches southwest to Tengchong in Yunnan[17-18].



Figure 2: Publication Volume by Province and Institution



Figure 3: Distribution of Universities in China (Gaode Map)

3.2 Institutional Collaboration Analysis

The articles published in the "Journal of South China Agricultural University (Social Science Edition)" from 2002-2021 were statistically analyzed for institutional collaboration, both in total and across four distinct phases. Institutions are represented as nodes, with an edge established between two institutions if they've co-authored an article; the weight of the edge indicates the volume of collaborative articles, forming an institutional collaboration network[19-20]. Using community detection algorithms in complex networks, the collaborative network is divided into communities, and visualized using Gephi. The results are presented in Figures 4 and 5.

In Figure 4, which shows the collaboration network across four phases, it's evident that as the phases progress, there's an increase in both nodes and edges. This suggests that while the publication volume in the journal remains relatively constant, institutional collaborations are becoming more frequent. By analyzing the color-coded communities and comparing the first phase (2002-2006) to the second phase (2007-2011), it's observed that from initially having two primary communities (pink and green), a blue community emerges. Within the green and pink communities, the number of authors has noticeably increased compared to the first phase. By contrasting the second and third phases, the number of communities grows significantly, from three to seven. Comparing the third and fourth phases, there's an addition of one community, with the number of

institutions consistently growing. It's evident that the number of authors and connections within each community are gradually increasing, underscoring growing collaborations among institutions[21-22].

Figure 5 displays the collaboration network for the entire period (2002-2021) and primarily divides it into eight communities. These include:

The light green community comprising institutions like Northwest University of Political Science and Law, the Chinese Academy of Sciences, and Central South University.

The purple community formed by South China Agricultural University, Guangdong University of Foreign Studies, and Jinan University.

The blue community with institutions like Nanjing University of Finance and Economics, Nanjing University, and Chinese Academy of Social Sciences.

The orange community including Central China Normal University, Jilin University, and Peking University.

The brown community consisting of Nanjing Agricultural University, Chongqing University, and Jiangxi Agricultural University.

The pink community with Fudan University, Yulin Normal University, and Xiamen University.

The gray community made up of Liaoning University, Northwest Agriculture and Forestry University, and others[23-24].

The dark green community formed by Central China Agricultural University and Zhongnan University of Economics and Law. Among these, the communities led by Northwest University of Political Science and Law and South China Agricultural University (light green and purple communities) are the largest. Observing the geographical distribution of the institutions reveals that universities from the same region tend to collaborate more frequently, while those geographically distant from each other collaborate less[25].

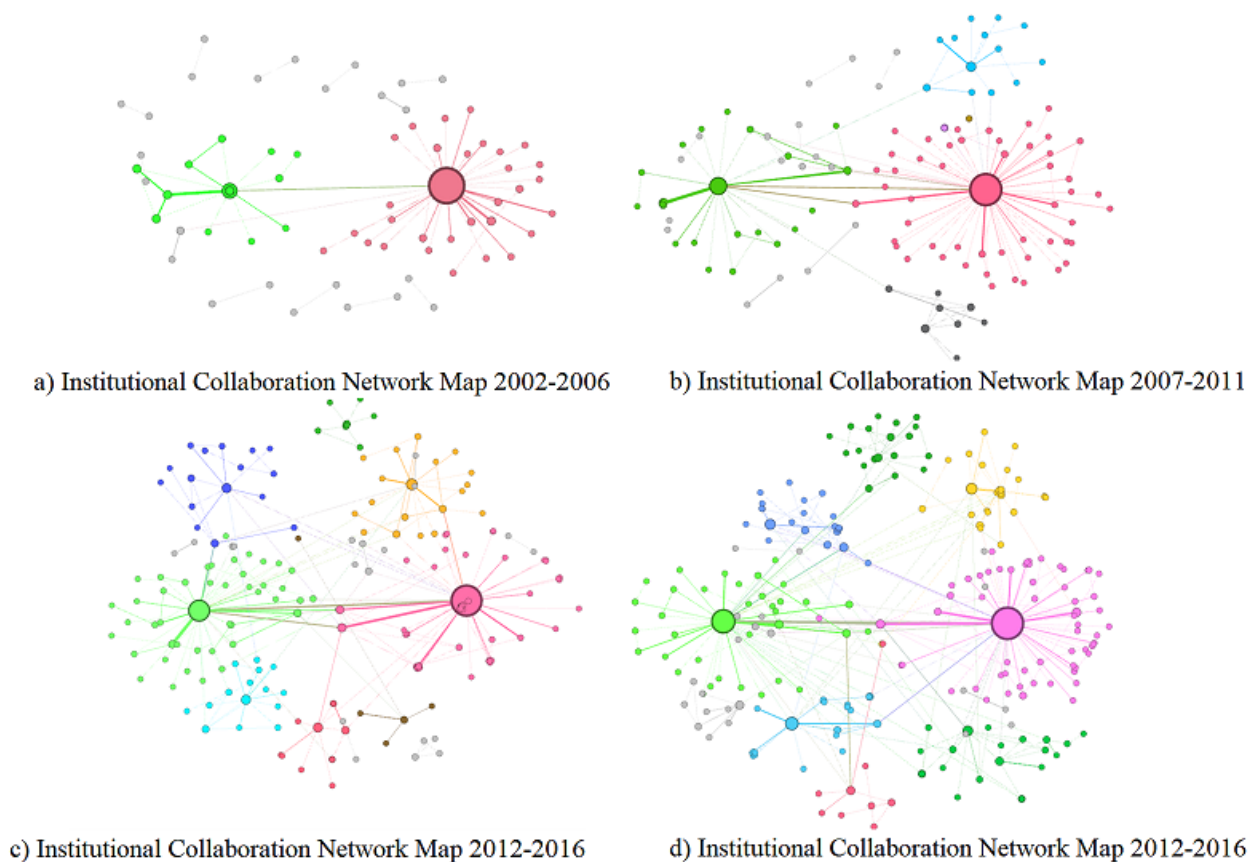


Figure 4: Four-Phase Institutional Collaboration Network

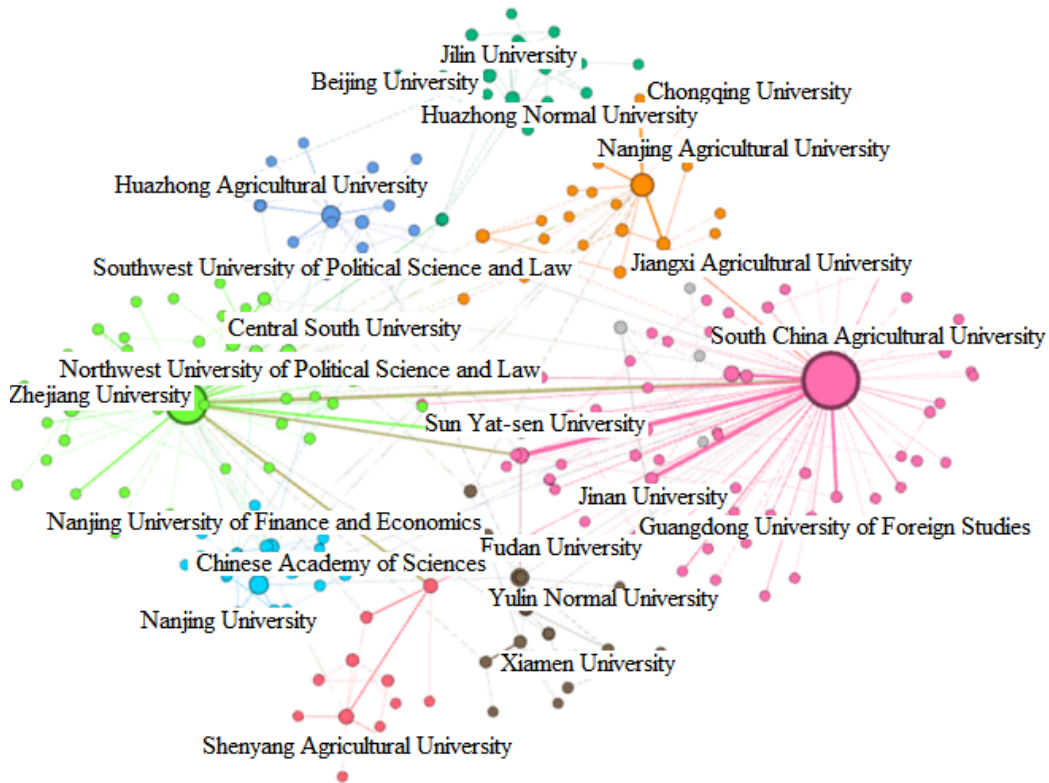


Figure 5: Institutional Collaboration Network (2002-2021)

4. Topic Analysis

4.1 Main Topic Analysis

Keywords offer a concise summary of the main themes of a paper and are pivotal for search purposes. Analyzing the keywords of literature helps to unearth research themes and hotspots in the related field [19].

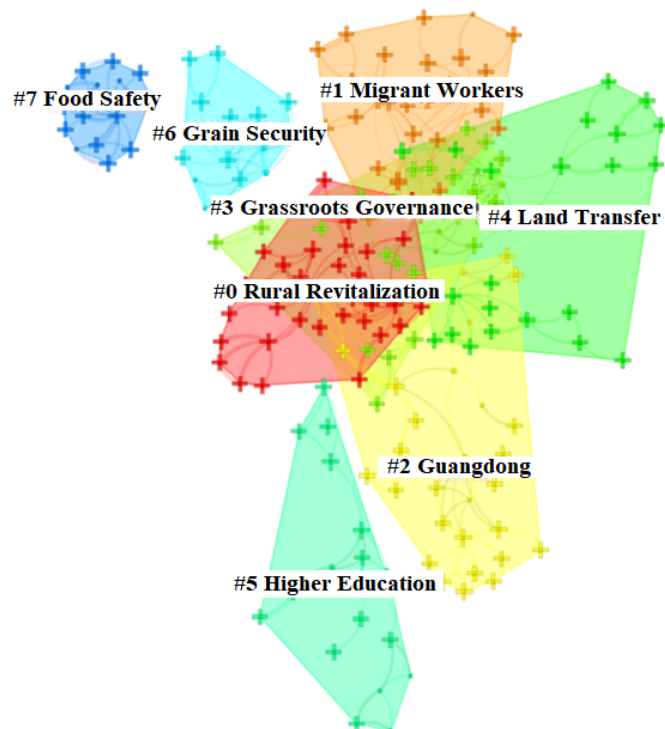


Figure 6: Keyword Analysis

Keywords from the past 20 years of literature were statistically analyzed for co-occurrence. The more frequently a keyword appears, the larger its corresponding node is displayed in the diagram. From Figure 6, terms such as "migrant workers", "food safety", "rural revitalization", and "targeted poverty alleviation" appear frequently. Additionally, "grassroots governance", "social capital", and "influencing factors" are also commonly recurring keywords. The diagram forms a multi-centric co-occurrence relationship structure centered around these high-frequency keywords. The more outward and redder a dot, the more it represents a recent research hotspot. "Rural revitalization", proposed in the 19th National Congress, is a typical representative. This figure, to some extent, reflects the research themes of this journal.

4.2 Keyword Clustering Analysis

Keywords from the literature were clustered, and the main 8 clusters were selected, representing the eight primary research contents of the journal. A smaller cluster number indicates a larger number of nodes it encompasses, as shown in Figure 6. Table 2 lists the main keywords for the eight research hotspots. It can be seen from Table 2 that all the themes of the eight clusters relate to the "three rural" (agriculture, rural areas, and farmers) issues, primarily involving various aspects of people's livelihood. Among them, "rural revitalization" has the most nodes, followed by "migrant workers", "Guangdong", and "grassroots governance".

Table 2: Main keywords contained in the clusters

Cluster Number	Cluster Theme	Main Keywords
#0	Rural Revitalization	Rural Revitalization, Rural Governance, Villager Autonomy, Digital Economy, Inclusive Finance
#1	Migrant Workers	Migrant Workers, Human Capital, Social Capital, New Rural, New Type Farmers
#2	Guangdong	Guangdong, Rural, SMEs, System Innovation
#3	Grassroots Governance	Grassroots Governance, Precision Poverty Alleviation, Villager Autonomy, Digital Rural, Digital Divide
#4	Land Transfer	Land Transfer, Family Farm, Technological Progress, Enterprise Growth
#5	Higher Education	Higher Education, Social Security, Economic Growth, Relative Poverty, Harmonious Society
#6	Grain Security	Grain Security, Grain Production, Urbanization, Transaction Costs, Water Resources
#7	Food Safety	Food Safety, Food Enterprises, Supply Chain

5. Conclusion

The journal "Journal of South China Agricultural University (Social Sciences Edition)" compiles the latest academic research findings in the "Three Rural" domain, closely following the national development strategy since its inception twenty years ago. Over the course of these two decades, the focus has progressed through four phases, centered around the "Three Rural" issues: "Farmer Issues," "Rural Area Issues," "Agricultural Issues," and "Rural Revitalization Strategy." The annual publication volume peaked in 2006 and started to decline, stabilizing at about 70 articles per year from 2011. The journal's articles are primarily concentrated in four columns: "Sustainable Agricultural Development," "Farmer Issues," "Economics and Management," and "Urban and Rural Life." Collaboration between the authors' institutions has been increasing, but overall cooperation remains relatively limited. The spatial distribution of the author institutions aligns with the Hu Huanyong Line. Reviewing the journal's 20-year history, Guangdong, migrant workers, food safety, land transfer, grain security, grassroots governance, higher education, and rural revitalization

emerge as the top eight research topics. Ongoing breakout research themes include grain production, targeted poverty alleviation, rural governance, rural revitalization, and grassroots governance. 2021 marked the beginning of the "14th Five-Year Plan." Securing the foundation of agriculture and safeguarding the "Three Rural" basics are the keystone for responding to the current situation and laying out new strategies. Looking ahead, comprehensive rural revitalization, wherein agriculture is strong, rural areas are beautiful, and farmers are wealthy, remains the unremitting pursuit of scholars.

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