Research on the Evaluation of Agricultural Supply Chain Finance Development Level and Influencing Factors in the Perspective of Green Economy

--Taking Anhui Province as an Example

Jiaxuan Lu*, Hangyu Cao

College of Business Administration, Anhui University of Finance and Economics, Bengbu 233000, China

*huikongshi2002@126.com

Abstract

As a big agricultural country, agriculture is the foundation of our livelihood and has an important position and role in the construction of the national economy and meeting the people's growing demand for a better life. Since China made its commitment to the "dual carbon" goal to the world in 2020, it has set off a green and low-carbon industrial transformation and upgrading movement in various fields. For agriculture, it is imperative to transform it green. This paper will focus on the development level of green agriculture supply chain finance in Anhui Province, and establish an evaluation system from the four dimensions of resource utilization, ecological protection, output performance and economic development, combined with relevant literature. Subsequently, SPSS software was used for data analysis, and the benefits were evaluated by entropy weight method. Based on the cluster analysis method, the development differentiation of each region was analyzed; Using step-by-step analysis, the influencing factors of green agriculture were studied. Finally, according to the above analysis results, the level of agricultural supply chain finance green development in Anhui Province is objectively evaluated, and countermeasures and suggestions are given to solve the problems.

Keywords

"Dual carbon" goals, green agriculture, benefit evaluation, SPSS data analysis.

1. Introduction

1.1. Research background and significance

China's economy has been growing rapidly since the reform and opening up, and it has been accompanied by many efficiency and quality problems of economic and social development. We will accelerate the modernization of China's rural areas, with the focus on building a modern agricultural industrial system, product system and marketing system. Anhui province promotes and constructs the construction of the "three major systems" of modern and efficient agricultural products, and focuses on improving the overall management level and competitiveness of agricultural quality and efficiency in Anhui province. The paper takes the green agricultural economy as the scientific research goal, according to the green development research, discusses the current agricultural green and efficient production way.

The shackles of the development of agricultural supply chain finance industry in Anhui Province are mainly manifested in the difficulty of controlling credit risk and information asymmetry. On the one hand, it is difficult for financial institutions and core enterprises in supply chain to control the credit risk of MSMEs in agricultural supply chain, and spontaneously refuse to avoid risks; on the other hand, MSMEs and SMEs have huge information difference compared with core enterprises and financial institutions, mainly reflected in the lack of professional talents, insufficient interpretation of relevant policies, etc.

1.2. Literature Review

1.2.1. Concept of green agricultural development

To implement the important instructions of General Secretary Xi Jinping on further promoting the development of green agriculture and rural areas, and unswervingly promote the establishment of a new socialist scientific Outlook on Development (Guo Lei, 2022). Accelerating the reform of green agricultural products; promoting the green development of China as an important strategic objective of the reform of the rural system and economy (Wang Zelong, 2021); taking the reform of agricultural system and institutional management innovation as the main force of the reform, taking a road of modern agricultural science and technology with efficient resource utilization, environment friendly and resource saving (Zhang Yuxiang, 2022).

1.2.2. Development status of green agriculture in Anhui Province

To further implement and implement the party central committee under the State Council on big data rural development strategy, realize agricultural big data technology in the revitalization of the traditional rural upgrade and in the development of modern digital agriculture in the process of data multiplication effect (li zhou, 2022), follow the government demand for the guide, task, big agricultural data analysis technology can assign our province big agriculture rural government data management technology and support the construction of the service system, to accelerate the big agriculture in Anhui province rural data big agricultural data center construction (Fang Wenhong, etc., 2022).

1.2.3. The research status of agriculture and supply chain finance

For agricultural supply chain finance research started late, in 2009, scholars Schipmann and Qaim for less developed areas, especially in agriculture as the main economic source of countries and regions, should be through the way of supply chain finance, increase financing channels, increase income, this is a good imagination, for the popularization of supply chain finance in agriculture and promotion has played an important role. But the study is relatively abstract general, did not put forward specific implementation methods and problem analysis, Christin (2014) to supplement, through the study of developing countries agricultural supply chain finance implementation case, to prove the implementation of supply chain finance can effectively broaden the financing channels of agricultural micro, small and medium enterprises, promote the development of local agriculture.

However, the domestic research on this field started relatively late, mainly with example study as the main form of research. Zhou Minyuan (2011) pointed out through the research and judgment of Wuliming Town of Zhaodong City that the high-end industrial chain credit mode of "company + cooperative + farmers + bank + government + science and technology" should be vigorously promoted to promote the development of rural modernization and rural revitalization. Zeng Linlin et al. (2018) proved that the agricultural supply chain finance model of "rural bank + e-commerce platform" could improve the rural financial supply situation through the construction of the income model.

1.2.4. Literature review

Foreign scholars on the development of China's agricultural supply chain financial theory research although started relatively early in our country, to carry out a large number of diversity of theoretical research, but its on the research area more focus on the relevant national agriculture and agriculture area, content selection more focus on the content of

agricultural technology modernization, the stage of development characteristics and the main evaluation indicators, etc. In the existing published literature review on the development of agricultural supply chain finance industry, the distribution of regional distribution is analyzed in the eastern agricultural region of China and in the central region of China. In its research content and composition form, we can say that the current Chinese scholars on the agricultural supply chain finance development theory of the main research is still based on the agricultural supply chain finance industry development actual case of the problem, using the comprehensive quality evaluation method, and build the evaluation index system. From the perspective of green economy, a complete scientific theoretical system has not been completely formed in China.

2. Index Selection and system construction

2.1. Selection of evaluation system of green agricultural supply chain finance in Anhui Province

2.1.1. Resource utilization indicators

Resource utilization is an important indicator to measure the green development of agriculture in a region, including water resources, green environmental protection resources, forest land resources, etc. Here, three specific indicators of effective irrigation area, grain crop sown area and tap water penetration rate are selected to evaluate the resource utilization efficiency of agriculture in Anhui Province.

2.1.2. Ecological protection indicators

Ecological environment protection work basic essence should realize the rural economic development environment and rural resources environment benefits of organic harmony and realize the unity of rural economic development benefits and environmental quality benefits, strengthen environmental protection for the development of rural economic production activities important resource base and security, promote the sustainable development of rural economy in our country. Here, the four indexes of pesticide use, agricultural fertilizer use, plastic film covering area and agricultural plastic film use were selected to evaluate the ecological protection degree of agricultural green development in Anhui Province.

2.1.3. Output performance indicators

Output efficiency is the direct goal of green agricultural development, emphasizing both the quantity and quality of output. Here, the four indexes of grain output per unit area, the total output of grain crops, forest tending area, and the total output value of agriculture, forestry, animal husbandry and fishery are selected to evaluate the quantity, quality and efficiency of agricultural green output in Anhui Province.

2.1.4. Economic development indicators

The ultimate goal of green agricultural development is to help the rural revitalization strategy and improve the living standards of farmers. Here, the average salary of rural employees, the total income of rural residents and the consumption level of farmers are selected to evaluate the economic development of rural areas in Anhui Province.

	Level 1 indicators	Level 2 indicators	Unit	Attribute
Agricultural Anhui	Resource	Effective irrigation area	A thousand hectares	+
Province	utilization	The area sown to food crops	Hectare	+
agricultural		Tap water penetration rate	%	+

1Table 1 Evaluation index system of agricultural green development level in Anhui Province

ISSN: 1813-4890

green development		Pesticide use	Ten thousand tons	-	
index system		The use of the amount of	Ten thousand	_	
	Ecological	agricultural chemical fertilizer	tons		
	protection	Cover area of plastic film	A thousand	_	
		dover area of plastic film	hectares		
		Usage of agricultural plastic	Ten thousand		
		film	tons	-	
	Output performance	Grain yield per unit area	Hectare / kg	+	
		Total grain gron output	Ten thousand		
		iotal grain crop output	tons	т	
		Forest tending area	Hectare	+	
		Total output value of			
		agriculture, forestry, animal	Wan Yuan	+	
-		husbandry and fishery			
	Economic	Average wage of rural	Vuon		
		employed workers	Tuall	Ŧ	
		Gross income of rural	Vuon		
	uevelopilient	residents	Iuali	+	
		Farmers' consumption level	Yuan	+	

2.2. Measurement of the development level of green agricultural supply chain finance in Anhui Province

2.2.1. Index weight design of evaluation system of green agricultural supply chain finance in Anhui Province

This paper mainly adopts the objective evaluation of index entropy method to judge index weight, index weight evaluation is an important basis of regional agricultural green agricultural supply chain financial development index, entropy method is more classical effective close to the objective evaluation of empowerment index weight way, can directly use the index entropy method to determine the relative discrete degree, the degree of discrete, the greater the weight of the comprehensive objective evaluation results, the weight change is greater.

2.2.2. Data collection and data processing

By referring to China National Rural Statistical Yearbook, Anhui Provincial Statistical Yearbook, Anhui Provincial Rural Statistical Yearbook and Anhui Provincial National Statistical Bulletin, this paper obtains the source data needed for various indicators of green and high-quality agricultural development in Anhui province in 2013-2020.

Due to the variety of collected index data, strong correlation of some data and the same index attributes, we combined the collected data with classes. At the same time, because the index name is long, we coded for each specific index. as shown in Table 2.

Table I mach encounnel						
Secondary indicators						
effective irrigation area						
The area sown to food crops						
Tap water penetration rate						
Pesticide use						
The use of the amount of agricultural chemical fertilizer						
Cover area of plastic film						

Index encoding2	2	Fable
	_	

A7	Usage of agricultural plastic film
A8	Grain yield per unit area
A9	Total grain crop output
A10	Forest tending area
A11	Total output value of agriculture, forestry, animal husbandry and fishery
A12	Average wage of rural employed workers
A13	Gross income of rural residents
A14	Farmers' consumption level

3. Dynamic Evaluation and Analysis

3.1. Data handling

The relevant index data of Anhui Province from 2013 to 2020 is standardized, and the relevant indicators are obtained according to the steps of entropy method (see appendix). Finally, the comprehensive evaluation value is obtained according to the weighted linear method. The results are shown in Table 3.

3 Table 3 Comprehensive evaluation of the value of each index								
Two								
stage	2013	2014	2015	2016	2017	2018	2019	2020
metric								
A1	0.0000	0.0056	0.0203	0.0283	0.0428	0.0499	0.0590	0.0650
A2	0.0000	0.0010	0.0022	0.0055	0.0049	0.1979	0.1895	0.1902
A3	0.0000	0.0096	0.0226	0.0327	0.0478	0.0489	0.0505	0.0513
A4	0.0000	0.0078	0.0140	0.0249	0.0379	0.0486	0.0607	0.0710
A5	0.0692	0.0836	0.0740	0.0864	0.0885	0.0990	0.0000	0.0273
A6	0.0402	0.0343	0.0265	0.0306	0.0279	0.0270	0.0000	0.0018
A7	0.0034	0.0000	0.0030	0.0162	0.0255	0.0333	0.0488	0.0579
A8	0.0000	0.0223	0.0358	0.0154	0.0276	0.0261	0.0344	0.0266
A9	0.0061	0.0000	0.0619	0.0814	0.0798	0.0597	0.0460	0.0615
A10	0.0000	0.0063	0.0112	0.0188	0.0239	0.0262	0.0413	0.0572
A11	0.0000	0.0125	0.0238	0.0127	0.0181	0.0670	0.0713	0.0681
A12	0.0000	0.0121	0.0178	0.0213	0.0239	0.0258	0.0193	0.0457
A13	0.0000	0.0108	0.0174	0.0264	0.0339	0.0421	0.0495	0.0540
A14	0.0000	0.0089	0.0159	0.0256	0.0379	0.0569	0.0720	0.0723
Total	0.1190	0.2149	0.3464	0.4262	0.5202	0.8084	0.7428	0.8500
score								

3.2. Analysis of the development level

By integrating the comprehensive evaluation value of each dimension, understand the development level of each dimension, and thus analyze the impact of the development of each dimension on the overall development level of agricultural green supply chain finance in Anhui Province. As shown in Table 4.

4Table 4 Development level of all dimensions of agricultural green in Anhui Province

110,510 1 2 010				
A particular	Resource	Ecological	Output	Economic
year	utilization	protection	performance	development
2013	0.0000	0.1128	0.0061	0.0000
2014	0.0163	0.1257	0.0411	0.0318
2015	0.0451	0.1175	0.1327	0.0512

International Journal o	,	Volume 11 Issue 5, 2024		
ISSN: 1813-4890				
2016	0.0665	0.1581	0.1283	0.0733
2017	0.0955	0.1797	0.1494	0.0957
2018	0.2967	0.2079	0.1791	0.1248
2019	0.2990	0.1095	0.1930	0.1414
2020	0.3065	0.1581	0.2135	0.1720

In the dimension of "resource utilization", the level of agricultural resource utilization in anhui province presents a trend of gradual increase and then more stable, the level of resource utilization from 0 in 2013 to 0.3065 in 2020, an increase of 0.3065, which is a substantial increase and then remain stable, indicating that in recent years, rural resources in Anhui province have been effectively utilized. First, from the development of each specific indicator of "resource utilization", the sowing area of grain crops in Anhui Province from 2010 to 2017 was not significant, and the per capita level of arable land was not improved under the background of urbanization as the rural population continued to flow to the towns and cities, and it surged from 2018 and remained stable in the later period. Secondly, the rate of piped water penetration has been rising and remained stable. Third, the effective irrigated area is steadily rising. This shows that Anhui Province is gradually shifting to a resource-saving production method and reducing ineffective irrigation.

In the dimension of "ecological protection", the level of agro-ecological protection in Anhui Province shows a trend of small change, rapid increase, then rapid decline and increase. Among them, it showed a linear and rapid growth between 2015 and 2018, and after reaching the highest in 2018, it experienced a period of rapid decline, and then rebounded to 0.1581 in 2020. Among the indicators of ecological protection, the ones we selected are all negative indicators, so the index is about as high as the surface of ecological protection is worse, and in general, the level of agro-ecological protection in Anhui Province is in a better situation for future development.

In the dimension of "output performance", the level of agricultural output performance in Anhui Province shows a steady upward trend. The level of agricultural output performance in Anhui Province has developed rapidly in the past eight years; it began to grow significantly in 2013, and the period of 2014-2015 was the fastest growth period in the eight-year period. After 2016, the output performance has shown a linear and rapid growth, and the development trend is good. The overall level of agricultural output performance in Anhui Province is developing steadily, and the future development situation is good.

In the dimension of "economic development", the level of rural economic development in Anhui Province shows a linear upward trend. The level of rural economic development in Anhui Province has risen from 0 in 2013 to 0.1720 in 2020, indicating that the level of rural economic development in Anhui Province has developed well during the past eight years, which shows that Anhui Province has paid more attention to the living conditions of farmers, and that the living standards of rural residents are steadily rising.

4. Analysis of Development Differences

4.1. Hierarchical cluster analysis

In this study, the systematic clustering method is used for the comparative analysis of regional scores. The specific calculation principle is to divide the *a* samples into several classes roughly according to the size of the similarity, calculate the size of the similarity measure of the *a* (*a*-1)/2 samples, combine the first two samples that are very small in the similarity measure into a new one, and the rest of the samples into a new one, calculate the length of the distance between the newly composed class samples and the remaining *a*-2 class samples, and repeat the operation for many times in a circular manner. In any one of the classification steps of the combined analysis, the first two samples with the shortest distance line in the classification

system must be combined as the last one, and then continue to carry out the cycle of statistics to further reduce the samples, with the purpose of making each of the samples involved in the combined statistical analysis belong to the same category. In this study, the score data of 16 municipalities were selected to calculate the 2020 data to prevent the influence of subjective factors and lack of data support and other issues. According to the calculation formula, the analysis module in SPSS was used to select classification items and cluster the development status of each city in Anhui Province.

4.2. Analysis of the difference of the development level of agricultural green supply chain finance in each city



1Figure 1 Cluster lineage diagram of development speed in Anhui Province from 2013 to 2020 According to the cluster pedigree diagram, we classify them to obtain three types of regions with different development levels of agricultural green supply chain finance in Anhui province. Based on the pedigree plot results, the following Table 5: Table 5 Analysis of the three-class regions

Class	Area
Higher level of development areas	Hefei, Wuhu, Ma'anshan
Medium-level development areas	Bozhou, Chuzhou, Fuyang, Suzhou, Lu'an
Low-level development	Tongling, Chizhou, Huangshan, Huaibei, China
areas	Huainan, Anqing, Bengbu, Xuancheng

First of all, the cities with high development level of agricultural green supply chain finance in Anhui province include Hefei, Wuhu and Ma'anshan. The comprehensive score of Hefei and Wuhu is high, while the comprehensive score of Ma'anshan is low. The comprehensive scores of ecological protection index Hefei and Wuhu are the second and third in the province, while the comprehensive score of Ma'anshan is low. The output performance indicators of Hefei, Wuhu and Ma'anshan are at the middle level. Economic development index Ma'anshan, Hefei and Wuhu scored higher comprehensive indexes. Hefei and recent control pesticide fertilizer usage, stable and increase the total output of food crops and afforestation area, strengthen agricultural scientific research and technology research, so the high level development area should continue to control green agriculture, the construction of green development projects, focus on improving the ecological environment, save agricultural resources.

Secondly, the development level of agricultural green supply chain finance is among the medium 5 cities, and in terms of resource utilization indicators, Bozhou, Chuzhou and Fuyang are ranked high in comprehensive scores. In terms of ecological protection indicators, Lu'an city has the highest comprehensive score, and Suzhou city has the lowest score. In terms of output performance indicators, Fuyang, Zhaozhou and Chuzhou all ranked the highest. In terms of economic development index, Chuzhou city has a higher comprehensive score, and Fuyang city has the lowest score. In the output performance, grain output per unit area and grain output are the foundation of agricultural production, so these five cities should pay attention to the green development of agriculture. Bozhou city also needs to pay attention to economic development, and Suzhou should pay attention to ecological protection and resource utilization. Finally, eight cities, including Tongling, have a low development level of agricultural green supply chain finance. In terms of comprehensive index, Tongling, Huaibei and Huangshan all have the lowest comprehensive scores in the province. Therefore, Tongling, Huaibei and Huangshan should pay attention to various development, not only in ecological protection and resource utilization and other aspects, to keep up with high-level areas, reduce the use of pesticides, and actively practice ecological protection policies.

5. Empirical Analysis of Factors Influencing

Measurement model design and variable selection 5.1.

The regression model analysis method is mainly used to study the interdependence among multiple random variable models, and the analysis research method of gradual regression is more applicable to how to construct the optimal and most appropriate random regression analysis model, so as to deeply analyze and study the interdependence between various variable models.

According to the results of gradual analysis, the explanatory variables selected in this paper are: total income of rural residents, sown area of grain crops and mulch film area. Select the following three variables:

1. Rural residents total income: reflects the average income level of farmers in a region, reflects the living standards of farmers, agricultural development lies in farmers, and farmers care more about whether the living standards, only improve living standards, farmers will wholeheartedly adhere to the green agricultural development, will implement this measure.

2. Area sown in food crops: The sown area of crops refers to the actual cultivated area of the actual or transplanted certified grain crop varieties planted by farmers, which is generally expressed by the number of urban mu or urban hectares. It can accurately reflect the scale of agricultural production and operation, the rational use of land resources, the amount of labor of various agricultural production operations, the input amount of the means of production and the total output.

3. Mulch area: Mulch area refers to the actual area of the surface, which is a negative index. The mulch covering area can reflect the protection effect of a province in the environment and the environmental awareness of local farmers.

5.2. Empirical analysis of the factors influencing the development level of agricultural green supply chain finance

The SPSS 23.0 is used to eliminate the multicollinearity of the explanatory variables, and the regression model is established for the explanatory variables, as shown in the following table below.

	Table 6 Ana	lysis of variar	nce5	
Quadratic	Quadratic Free degree Mean			Conspicuousnoss
sum	The degree	square	1	conspicuousness

ISSN: 1813-4890

Regression	0.530		3	0.177	256.4	418	0.000
Residual	0.003		4	0.001			
Amount to	0.532		7				
		Tabl	e 7 Summar	y of the mo	dels6		
R	R R square				ustment, uare	R Err	or in the standard estimation
0.997		0.99	95	0.9	991		0.0262367
Table 8 Regression coefficients7							
	·	coeffi	cients	coeffic	ient		·
		В	Standard error	Bet	a	t	conspicuousness
Constant	-1.	379	0.330			-4.186	0.014
Gross income Rural resident	of 5.76	6E-5	0.000	0.78	81	11.719	0.000
The area sown food crops	to 2.66	50E-7	0.000	0.33	81	4.804	0.009
Cover area of plastic film	f -0.	002	0.001	-0.16	60	-3.681	0.021

So the final regression model of the text is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \delta$$

The results of Table 5-2 show that the correlation discrimination coefficient R=0.997, the determination coefficient R square =0.995, and the adjusted determination coefficient R square =0.991, indicating that the height fitting rate of this model is also very good, that is, the three explanatory variables selected by the model have 99.1% to the level of agricultural green development in China, etc., which is higher than the height fitting standard. As can be seen from the ANOVA in Table 5-3, the model passed the significance test and the model was valid (F=256.418; P=0.000).

According to the regression coefficient in Table 5-3, the P values of the three explanatory variables were less than 0.05, which was significant.

In summary, the gradual regression analysis model of agricultural green development level evaluation and influencing factors in Jilin Province can be obtained is as follows:

$$Y = -1.379 + 5.766 * 10^{-5} X_1 + 2.660 * 10^{-7} X_2 - 0.002 X_3$$

Through gradual regression analysis, this paper established a model in Anhui province agricultural green supply chain financial development level reflects the consistency, namely the green agricultural development level in Anhui province, promote resource utilization, ecological protection, output performance, economic development, the four indicators, the four indicators also promoted the agricultural supply chain finance green development level in Anhui province. The three explanatory variables of the total income of rural residents, the sown area of grain crops and the covered area of plastic film are the most significant. Therefore, improving the total income of rural residents, increasing the sown area of grain crops, and controlling the covered area of plastic film have a significant impact on the agricultural development in Anhui Province. The development of agricultural green supply chain finance in Anhui province is still in the primary stage. It pays attention to the overall improvement of the

quality and efficiency level of China's rural economic development, improves the survival and development environment of the majority of farmers, and attaches importance to the protection, construction and management of China's rural ecology.

6. Conclusion

6.1. Research conclusion

In this paper on the basis of the research and establishment of agricultural supply chain financial development level evaluation index system, through the entropy method to calculate the index weight, the calculation of agricultural modernization development and each dimension evaluation value, using the system clustering method of cities between regional differences and according to the municipal agricultural supply chain financial development level, gradually regression analysis from resource utilization, ecological protection, output performance, economic development of agricultural green supply chain financial development factors, the results show that.

Observing the overall development status of green agricultural supply chain finance in Anhui Province from multiple angles.Continuous optimization of industrial structure in Anhui province, under the premise of basic support industry, agricultural pollution overall present good development trend, the development of modern ecological agriculture industrialization agricultural sustainable development achieved initial results, stable development of food production capacity, improve the existing agricultural system and policy, reasonable guide the rural population change, establish rural revitalization and new urbanization two-wheel drive mechanism. Anhui province still has limitations in the rural labor force reserve, strengthening the introduction and training of rural talents to provide labor security, so that the income gap between urban and rural areas gradually decreases, rural areas are livable and working, and farmers live a rich life.

Anhui province has achieved remarkable agricultural development effects, and the ecological environment and resource utilization work have achieved considerable results. This paper comprehensively reflects the level of agricultural green development in resource utilization, ecological protection, output performance and economic development, with the considerable development of agricultural resource utilization and output performance, rural resources are effectively utilized, and gradually turn to the production mode of resource saving; Although the fluctuation of agricultural ecological protection level is large, the development situation is good. Anhui Province attaches great importance to the living conditions of farmers, improves the quality of living standards of residents' income, implements the work of agricultural ecological environment and resource utilization in place, and effectively improves the level of green agricultural development.

The development level of green agricultural supply chain finance in Anhui Province. Anhui high level of agricultural development includes Hefei, Wuhu and Maanshan. From resource utilization, ecological protection, output performance, economic development of four dimensions, Hefei cities strictly control existing pesticide fertilizer utilization in accordance with the law, stable and improve the level of grain output this year and new afforestation area, to promote degraded farmland land reduction mass transfer efficiency activities, increase promote agricultural major scientific research and technological breakthroughs. The development and utilization of resources in Bozhou, Chuzhou and Anhui districts at the middle level of development is steadily improving. In the eight areas with low level of economic development, including Tongling City, the economy of Huangshan City is lower than the average development level of Anhui. The amount of pesticides and fertilizers decreases relatively, and the grain output does not increase significantly, which seriously affects the overall level of agricultural green agricultural development.

The income of rural residents, the sown area of grain crops and the mulching area are the main influencing factors. Through the gradual regression analysis method, the total income of rural residents, the sown area of grain crops and the area of mulching film are the main factors affecting the level of agricultural green development. We will increase the total income of rural residents, increase the sown area of grain crops, control the area covered by plastic film to increase the yield of farmers, and improve the agricultural ecological environment. The green development of agriculture in Anhui province is still in the primary stage, and it has become an urgent need to pay attention to the protection and governance of agricultural ecological environment and lay a solid environmental foundation for agricultural production.

6.2. Development proposal

Improve the industrial system of agricultural green supply chain finance and pay attention to the coordinated development among regions. According to the characteristics of regional geographical environment, the economic plan for the development of agricultural green supply chain finance in line with regional characteristics should be scientifically and reasonably formulated, and the emerging industrial chain of green and circular development of modern agriculture should be established and improved. Based on the new historical stage of socialist development, we will adhere to the new development strategic concept of development, form a new strategic layout of rural development, and comprehensively deepen the supply-side structural reform in China's rural areas. Increase investment in the development of rural green production, speed up the progress of rural science and technology to the development of rural green economy production and the development of science and technology investment, optimize and adjust the layout of green product development of traditional agricultural technology investment structure, in the system of the traditional green agriculture new model of science and technology development experience on the basis of further research summary and summary of modern green agriculture theory, the green resources to develop reasonable use, realize the comprehensive sustainable development of green agricultural resources in our country. Use the invested funds to further accelerate the promotion of agricultural technology innovation, and realize management innovation and technology innovation, so that it can be better applied to agricultural development.

Vigorously train talents in agricultural science and technology to meet the requirements of agricultural modernizatio.We will vigorously introduce agricultural science and technology personnel. One of the important constraints of the development of green agricultural supply chain finance in Anhui province is the lack of agricultural science and technology talents and the insufficient investment in science and technology. Agricultural technology is one of the main driving forces to promote the growth of agricultural factor production. We should further increase investment in science and technology, expand investment in agricultural technology, and pay attention to research on agricultural application, so that agricultural scientific research results can be applied to the actual agricultural process faster and better to increase agricultural production and farmers' income. Each prefecture-level cities should strengthen the communication between different scientific research subjects, so as to form the prefecture-level cities with high value technological innovation ability and the prefecture-level cities with low value driving innovation ability, and finally realize the improvement of the province's scientific and technological ability and balanced growth of agricultural economy.

Adjust the agricultural industrial structure and strengthen the governance of the large agricultural environmen.We will establish a mechanism for preventing and controlling agricultural pollution and accelerate the green transformation of agriculture. Reduce the use of pesticides, agricultural fertilizers and the use of agricultural films, and promote the use of organic fertilizer. We will improve the utilization level of agricultural waste resources, strictly control the assessment and prevention of agricultural pollution sources, and improve the

recycling of agricultural waste. Intensify environmental law enforcement supervision, fundamentally effective control of rural industry, living emissions pollutants and its direct impact on the local rural production safety environment, strengthen the source of rural environmental pollution prevention and control, supervision, rectification, explore adjust measures to local conditions and according to the rural development range of regional environment characteristics, build the most suitable local green rural economic development model.

Acknowledgments

This paper is supported by Anhui University of Finance and Economics Undergraduate Research and Innovation Fund project. (Grant No:XSKY23133)

References

- [1]Vasant P J ,Dey B S ,Mahesh V C .An integrated approach for modeling critical success factors for supply chain finance ecosystem[J].Journal of Modelling in Management,2024,19(4).
- [2]Nichapa P ,Mark S ,Meng J .Governance requirements in supply chain finance: the need for a dual-layered semipermeable boundary[J].International Journal of Physical Distribution & Management,2024,54(3).
- [3]Patrick V .Sustainable board governance and sustainable supply chain reporting: European evidence[J].Journal of Strategy and Management,2024,17(2).
- [4]Hamidoğlu A ,Weber W G .A novel Nash-based low-carbon implementation in agricultural supply chain management[J].Journal of Cleaner Production,2024,449.
- [5]Fan Z ,Sun Z .Study on the Benefit Distribution Mechanism in a Mixed Dual-Channel Agricultural Supply Chain under Variable Supply Conditions[J].Frontiers in Economics and Managemen, 2024,5(3).
- [6] Liu Yangjin, Han Wen, Ni Yunhai. Exploration on the influence of Agricultural supply chain finance on rural economic development [J]. Guangdong Silkulture, 2024,58 (02): 94-96.
- [7] Li Chunhua, Hu Yujie. Research on the Innovation and Development of Agricultural Supply Chain Finance under the Background of Rural Revitalization [J]. China Logistics and Purchasing, 2023(24):43-44.DOI:10.16079/j.cnki.issn1671-6663.2023.24.008.
- [8] Zheng Yi. The innovative development of agricultural supply chain finance in the reform of rural production mode [J]. Agricultural economy, 2022 (01): 115-117.
- [9] Luo Ying. Agricultural Bank of China Supply chain financial products and case study [D]. Southwest Jiaotong University, 2017.