THE INFLUENCE OF THE AGRICULTURAL INDUSTRY CHAIN ON REGIONAL SPECIAL AGRICULTURAL PRODUCTS A STUDY ON THE MODERATION ROLE OF THE GOVERNMENT FROM THE PERSPECTIVE OF AGRICULTURAL RESOURCE AREAS*

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Abstract

Engage in agricultural planting, agricultural products or agronomic processing in the northeastern region, Inner Mongolia and areas along the Great Wall, the Huanghuaihai region, the Loess Plateau region, the northwest arid region, the plain hilly region in the middle and lower reaches of the Yangtze River, the hilly and mountainous region in the south of the Yangtze River, the southeast region, the southwest region and the Qinghai-Tibet Plateau region With the samples of food processing professionals, the questionnaire survey method was used to investigate the various dimensions of agricultural industry chain optimization, government support and the actual situation of the competitiveness of regional agricultural products. The moderating role of government support in the relationship between the optimization of the agricultural industry chain and the competitiveness of regional characteristic agricultural products is tested. The data is analyzed by SPSS26 and Mplus8.3 software, and it is concluded that the regions where the growth area conditions have a significant impact on the characteristic agricultural products are: the Huanghuaihai region, the northwest arid region and the Qinghai-Tibet Plateau region; the current situation of the agricultural industry has a great influence on the competitiveness of the characteristic agricultural products. Significantly affected areas are: Northeast China, Huanghuaihai District, Northwest arid area, Jiangnan hilly area, and southwest area; areas where processing industry status has a significant impact on the competitiveness of characteristic agricultural products are: Inner Mongolia and areas along the Great Wall, Northwest arid area, Jiangnan Hilly area, southwest area; the areas where infrastructure conditions have a significant impact on the competitiveness of characteristic agricultural products are: northeast area, northwest arid area; in all 10 areas, the level of marketing management cannot significantly affect the competitiveness of characteristic agricultural products. The moderating effect of government support also shows regional differences. The regions where government support has a moderating effect on the competitiveness of characteristic agricultural products by the growing regional conditions include: Northeast China, Inner Mongolia and the regions along the Great Wall, the middle and lower reaches of the Yangtze River, the hilly region of the south of the Yangtze River, the southeast region, and the Qinghai-Tibet Plateau. The areas where government support has a moderating effect in the impact of the current situation of the agricultural industry on the competitiveness of characteristic agricultural products are: Northeast China, Loess Plateau, Jiangnan Hilly, Southeast, and Southwest. The areas where government support has a moderating effect on the status quo of the processing industry affecting the competitiveness of characteristic agricultural products are: Inner Mongolia and areas along the Great Wall. Government support does not play a moderating role in the influence of infrastructure

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conditions and marketing management level on the competitiveness of characteristic agricultural products in any region. The research conclusions of this paper will play a very important role in the optimization of the agricultural industry chain, the formulation of agricultural support policies by the government, and the enhancement of the competitiveness of characteristic agricultural products by enterprises.

Keywords : Optimization of agricultural industry chain; Government support; Regional characteristic agricultural products competitiveness； Agricultural resource area

Introduction

The phenomenon of difficulty in selling agricultural products in my country has occurred frequently in recent years. In addition to the asymmetric market information, the main reasons for the oversupply of agricultural products in my country are the blind expansion of production scale and the homogenization of regional industries. The development of agricultural products industry with regional characteristics is very important to promote the high-quality development of agricultural products industry. For the research of regional characteristic agricultural products, most of the academic circles in our country are currently discussing how to develop regional characteristic agricultural products and enhance their competitiveness. Based on this, in order to explore how to improve the competitiveness of regional characteristic agricultural products, this paper conducts research on the moderating role of government support in the relationship between the optimization of the agricultural industry chain and the competitiveness of regional characteristic agricultural products.

1. Literature review and research hypothesis

Define and summarize the definition of agricultural products. Agricultural products refer to animals, plants, microorganisms and their products obtained from agricultural production activities, mainly primary products derived from agriculture, forestry, animal husbandry and fishery, excluding processed fishery, animal husbandry and animal husbandry. industry and plantation products. In addition to sorting out the previous scholars' research theories related to the competitiveness of regional agricultural products, it is also necessary to sort out the relevant research results, and then consolidate the theoretical foundation of this paper.

1.1 Literature review

1.1.1 Featured agricultural products and their competitiveness

1.1.1.1 Featured Agricultural Products

Characteristic agricultural products are unique agricultural products in the region. The main purpose of processing characteristic agricultural products is to transform the unique famous and high-quality agricultural products in the development region into characteristic commodities. In an increasingly fierce market competition environment, maintaining differentiation is the key to building a lasting competitive advantage (Xiong Yan, 2011). Characteristic agricultural products refer to the unique agricultural output products developed from the agricultural resources exclusively held in a specific area under the specific natural and geographical environment conditions and according to the unique agricultural product processing technology. Specialty agricultural products include not only the variety characteristics in the regional distribution, but also the special and deep-processed agricultural products (Zhong Min, 2012). This is mainly manifested in: on the one hand, for some special

products with specific flavors, functions or can only be produced in specific ecological environments and specific seasons, they are special and excellent; on the other hand, some agricultural products are not unique in themselves. Any features, but after intensive processing will greatly increase its value, and show obvious features and advantages in the market.

1.1.1.2 Competitiveness of agricultural products

In my country, until the turn of the century, in the face of the huge impact and challenges brought by the international market, the theoretical and agricultural circles began to pay attention to the competitiveness of agriculture and agricultural products. In recent years, experts and scholars have carried out in-depth and comprehensive research on the competitiveness of agricultural products from the two dimensions of basic theoretical research and empirical research, and launched rich and creative research results.The representative achievements in the definition of the scientific connotation of the competitiveness of agricultural products in the basic theoretical research are as follows: the competitiveness of agricultural products is the ability of a country's agricultural products to participate in the international market competition and to continuously obtain profits. The price of agricultural products, marketing and the degree of satisfying consumers' needs are manifested in many aspects, and run through the production, processing, sales and various links of agricultural products (Wan Junmin, 2008). Yang Li (2011) of the Rural Economic Research Center of the Ministry of Agriculture summarized the definition of agricultural product competitiveness by domestic scholars in recent years into four aspects: the perspective of international market, the perspective of domestic market, the perspective of competitive potential, and the perspective of key components of competitiveness.In the empirical research on the competitiveness of agricultural products, fruitful results. Wang Yongliu (2009) constructed a three-level conceptual framework of the performance, potential, and realization of the international competitiveness of agricultural products, and proposed corresponding evaluation indicators. He believed that the dominant indicators reflecting the performance of the international competitiveness of agricultural products were market share and profitability, and the reference indicators of profitability were Efficiency, the leading indicators that reflect the potential of agricultural products' international competitiveness are cost and quality, using the constant market share model (CMS) to conduct an empirical study on the international competitiveness of agricultural products in China and the United States; Li Zhen (2010) based on cost advantage theory, resource allocation theory and The competitive advantage theory establishes the analytical framework, and conducts an empirical study on the international competitiveness of the main advantageous agricultural products in Sichuan Province.

1.1.2 Agricultural industry chain

The agricultural industry chain was born in the United States in the 1950s, and has been fully developed and perfected in the world. It has played an important role in the industrialization and marketization of agricultural products in the world. With the gradual establishment of the market economy and the acceleration of the pace of agricultural modernization in my country, the issue of the agricultural industry chain has received more and more attention.

The agricultural industrial chain is proposed on the basis of the concept of industrial chain. Foreign scholars started their research in the field of agricultural industry chain earlier, and gave a clearer discussion on the connotation of agricultural industry level (Yu Wenquan, Sun Weijiang, Wu Guozhang, Zhao Lihong, 2011; Cui Chunxiao, Zou Songqi, Zhang Zhixin, 2013). For example, Mighell (1963) put forward the industrial development path of “vertical

coordination" of agriculture on the basis of the industrial chain, arguing that the agricultural industrial chain refers to a series of activities including raw material production, processing, storage, transportation, sales and other activities (Li Zhen, 2015). In China, the concept of agricultural industry chain was first put forward by Bo Guohua (1996), who believed that the agricultural industry chain is the rational allocation of resources and agricultural products relying on the market and focusing on production factors such as capital, land, and labor. In general, the agricultural industrial chain is the specific application of the industrial chain in the agricultural field. It involves many links such as the production, processing, transportation, and sales of agricultural products, including pre-production, production, and post-production departments, organizations, and affiliated companies. An organic whole formed by the value chain, information chain, logistics chain, and organization (Lei Ying, 2014).

1.1.3 Government Support

The government support studied in this paper mainly refers to the local government through creating a good regional environment, formulating regional planning, improving laws and regulations, providing financial support, publicizing regional advantages, building a public marketing platform, formulating and developing top-level design, organizing and undertaking large-scale commercial Such forms as exhibitions and festivals play an important leading and supporting role in the development of regional characteristic agricultural products.

1.1.4 Agricultural Resource Area

The advantages of comparison between regions determine the basic form of social production in space, and there is a material basis for regional division of labor, which is the product of the combination of the productive elements of the region and the directionality of the region. Under the influence of the market economy, with the continuous changes of the times and the economy, the regional division of labor has developed in a step-like manner. In the economic relationship between different regions, which region is in which position is determined by the ladder-like position of the regional division of labor.

There are significant differences and imbalances in the regional characteristic agricultural products industry. Therefore, this study refers to Xu Erqi (2021) on the basis of agricultural resource factors, agricultural environmental issues and agricultural planting structure. level area. The zoning method adopts the dominant factor development based on the integration of agricultural resources and environmental elements. The divisions are as follows: Level 1 area: mainly based on climatic conditions and tectonic structure. It mainly includes: 1) basic tectonic pattern; 2) agricultural resource endowment, that is, agricultural production potential, which mainly involves water and heat conditions and matching relationship, including the distribution of cultivated land and the level of agricultural production input; the second-level area: based on the factors of cultivated land resources and the environment Main problem. Mainly include: 1) arable land resource factors, including arable land composition, resource matching and limiting factors; 2) arable land environmental quality, including the quality of land elements and major degradation and pollution issues; 3) medium landform types, including mountains, hills, plains and other factors combination. The first-level areas are mainly named according to their physical and geographical locations, including the Northeast, Inner Mongolia and the areas along the Great Wall, the Huang-huai sea Area, the Loess Plateau, the Northwest arid area, the middle and lower reaches of the Yangtze River, the plain and hilly areas, the Jiangnan hills and mountains, the southeast area, the southwest area, and the southwest area. Qinghai-Tibet Plateau, etc.

Research Objective

The research typically aims to explore the influence of the agricultural industry chain on regional special agricultural products.

Research hypothesis

According to the industrial cluster superiority theory of agricultural product competitiveness (industrial cluster superiority theory) that is, the relationship between industrial competitive advantage and the industrial environment of a specific area is very close, and the enterprises in a specific industry and a specific area environment pay attention to the choice of industrial environment and geographic space location, which makes enterprises. The following inferences can be made as follows: the growth area conditions in the agricultural industry chain, the current situation of the agricultural industry, the current situation of the processing industry, and the infrastructure conditions can change the competitiveness of agricultural products; the marketing theory based on the competitiveness of agricultural products can push the wheel and the agricultural products. The level of marketing in the industrial chain can change the competitiveness of agricultural products. Therefore, this study proposes that H1 and H1a-H1e, that is, the agricultural industry chain and its constituent dimensions have a positive effect on the competitiveness of characteristic agricultural products.

H1: The agricultural industry chain has a positive effect on the competitiveness of the characteristic agricultural product industry;

H1a: Growth area conditions have a positive effect on the competitiveness of characteristic agricultural product industries;

H1b: The status quo of the agricultural industry has a positive effect on the competitiveness of the characteristic agricultural product industry;

H1c: The status quo of the processing industry has a positive effect on the competitiveness of the characteristic agricultural product industry;

H1d: Infrastructure conditions have a positive effect on the competitiveness of characteristic agricultural products industry;

H1e: The level of marketing management has a positive effect on the competitiveness of the characteristic agricultural product industry.

Combined with the operation mode of the agricultural product industry chain and the theory of advantages of industrial clusters, the optimization of the agricultural industry chain will affect the competitiveness of regional agricultural products. Advantages, building a public marketing platform, formulating and developing top-level design, organizing and hosting large-scale trade fairs and festivals, etc.) played a certain role in fueling the flames. Therefore, this study puts forward the hypothesis H2 and H2a-H2e, that is, government support plays a moderating role in the improvement of the competitiveness of regional agricultural products affected by the optimization of agricultural product industry chain.

H2: The greater the government support, the more obvious the role of the agricultural industry chain in promoting the competitiveness of the characteristic agricultural product industry;

H2a: Government support plays a positive regulating role in the relationship between growing regional conditions and the competitiveness of characteristic agricultural product industries;

H2b: Government support plays a positive regulating role in the relationship between the status quo of the agricultural industry and the competitiveness of the characteristic agricultural product industry;

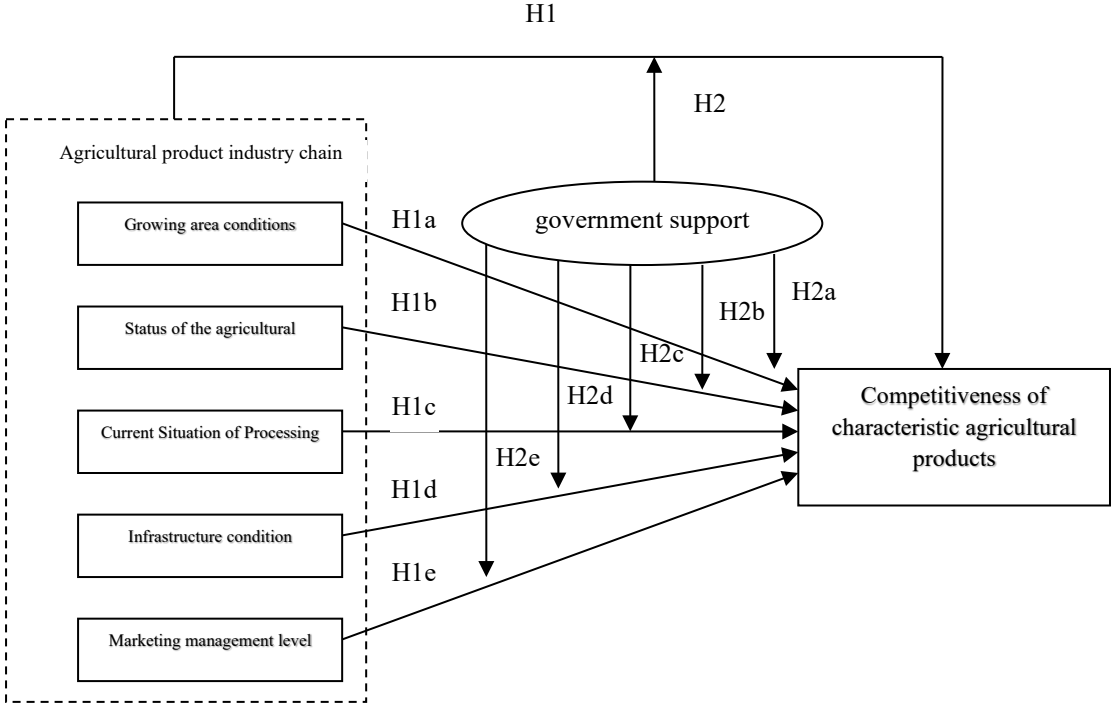
H2c: Government support plays a positive regulating role in the relationship between the status quo of the processing industry and the competitiveness of the characteristic agricultural product industry;

H2d: Government support plays a positive regulating role in the relationship between infrastructure conditions and the competitiveness of characteristic agricultural product industries;

H2e: Government support plays a positive regulating role in the relationship between the level of marketing management and the competitiveness of the characteristic agricultural products industry.

Due to my country's vast territory, this study analyzes the moderating effect of government support in specific regions according to China's existing agricultural resources and environmental divisions. Therefore, this study puts forward hypothesis H3, that is, there is a regional imbalance in the influence of government support on the competitiveness of regional characteristic agricultural products in the optimization of the agricultural product industry chain.

H3: The moderating effect of government support has regional differences.



Research methods

This research mainly adopts the research method combining theoretical discussion and empirical analysis. The specific research methods used in this paper are as follows:

2.1 Literature analysis method

By collecting and reading relevant literature, especially relevant papers published at home and abroad in recent years (Guan Pingping, 2018), the literature on agricultural industry chain, regional characteristic agricultural products, industrial competitiveness, management, marketing, economics, etc. Sort out, summarize, summarize, and refine the key concepts and measurement indicators involved in this research.

2.2 Theoretical elaboration method

On the basis of elaborating and analyzing the theoretical basis of agricultural product competitiveness, the research on agricultural industry chain and the research on regional characteristic agricultural products, the factors affecting the competitiveness of regional characteristic agricultural products are found out from the angle of agricultural industry chain optimization. And the research summary, research limitations and research prospects are described and analyzed.

2.3 Field investigation method

The investigation of this paper mainly adopts: on-the-spot investigation and interviews and soliciting expert opinions, and through face-to-face interviews and interviews with managers and department heads of agricultural enterprises, production bases, agricultural committee cadres, cooperatives, associations and other units engaged in characteristic agricultural products-related industries, the consultation and improvement of Opinions and suggestions on the competitiveness of regional agricultural products. On the basis of literature reading and interviews, a questionnaire for this research was designed, and the questionnaire was revised and improved by consulting the opinions of relevant experts and scholars, and the opinions of marketing experts on this research questionnaire.

2.4 Questionnaire survey method

Based on a large number of literature analysis, actual research and interviews, and reference to experts' opinions, the items of the promotion scale of agricultural products affecting regional characteristics are sorted out and designed from the perspective of agricultural industry chain optimization. Construct a scale of factors affecting the development of regional brands of agricultural products: growth area condition scale, agricultural industry status scale, processing industry status scale, infrastructure condition scale, marketing management level scale, government support scale, etc. Design questionnaires, fill in questionnaires for field research, and obtain data.

2.5 Empirical research method

According to the literature research review and related theoretical exploration, research hypotheses are put forward, and the influencing factors model of the competitiveness improvement of regional characteristic agricultural products from the perspective of agricultural industry chain is constructed. Statistical software SPSS21 is used to carry out statistical empirical analysis on the collected questionnaire data, and the reliability and stability of the scale and model are tested through reliability and validity, and descriptive statistics and correlation analysis are performed on the data to explore the relationship between variables The basic role relationship; the regression method is used to verify whether the hypothesis proposed in this study is valid, and the correctness and effectiveness of the proposed model are

verified, and through the empirical results of the data, it provides strong data support for improving the competitiveness of regional characteristic agricultural products.

Questionnaire design and data analysis

This questionnaire is designed according to the analysis index system of characteristic agricultural product competitiveness constructed in the above literature research and the government support scale determined by the research on the development of regional brands of agricultural products (Zhang Tradition, 2015). There are 43 items in total, inconsistent, incompatible, somewhat incompatible, in agreement, somewhat in agreement, very agreeable, and extremely agreeable.

3.1 Questionnaire Design

The questionnaire includes 8 aspects: personal basic information, growth area conditions, agricultural industry status quo, processing industry status quo, infrastructure conditions, marketing management level, government support and the competitiveness of regional agricultural products. Except for basic personal information, the other questions are all using the Likert 7-point scale method. The specific variables and variable descriptions in each scale are shown in Table 1:

3.2 Sample and data analysis

3.2.1 Sample Features

In this study, online questionnaires were used to invite the Zone1:Northeast, Zone2:Inner Mongolia and areas along the Great Wall, Zone3:the Huanghuaihai Region, Zone4: the Loess Plateau, Zone5: the Northwest arid region, Zone6:the plain and hilly regions of the middle and lower reaches of the Yangtze River, Zone7:the hilly and mountainous regions of the south of the Yangtze River, Zone8:the southeast region, Zone9:the southwest region, and Zone10:the Qinghai-Tibet Plateau. Persons engaged in agricultural planting, agricultural products or agronomic processing and food processing professionals filled in, and collected a total of 2,000 valid questionnaires.

3.2.2 Data Analysis

3.2.2.1 Reliability Analysis

The scale analysis in this paper mainly uses Cronbach's alpha coefficient to judge the overall reliability of the scale, and the software uses SPSS26.It can be seen from Table 3 that the reliability coefficient value is 0.912, which is greater than 0.7, indicating that the reliability of the 39 indicators in the study is of high quality.

3.2.2.2 Confirmatory factor analysis

A confirmatory factor analysis model with 39 items was constructed. The model fitting index is shown in the table below. The results show that the confirmatory factor analysis model fits well, indicating that the scale has good construct validity.

Table1 Model Fit

	$\chi 2/df$	GFI	IFI	CFI	TLI	RMSEA
Model Fit	1.156	0.914	0.962	0.961	0.958	0.036
Ideal Fit	<5	>0.9	>0.9	>0.9	>0.9	<0.08

Table2 Factor loadings、CR and AVE

Factor	Item	Estimate	S.E.	C.R.	P	STDYX	CR	AVE
Status of the agricultural industry	XB1	1				0.715	0.909	0.555
	XB2	1.058	0.132	8.045	<.001	0.767		
	XB3	0.976	0.127	7.699	<.001	0.733		
	XB4	1.113	0.134	8.280	<.001	0.789		
	XB5	1.050	0.140	7.520	<.001	0.716		
	XB6	1.037	0.136	7.632	<.001	0.727		
	XB7	1.263	0.163	7.748	<.001	0.738		
	XB8	0.948	0.117	8.107	<.001	0.773		
Government Support	WA1	1				0.731	0.915	0.605
	WA2	0.831	0.099	8.350	<.001	0.773		
	WA3	1.140	0.136	8.402	<.001	0.778		
	WA4	1.134	0.131	8.629	<.001	0.798		
	WA5	0.998	0.115	8.692	<.001	0.803		
	WA6	1.070	0.125	8.576	<.001	0.793		
	WA7	0.962	0.116	8.278	<.001	0.767		
Status of the processing industry	XC1	1				0.810	0.906	0.616
	XC2	0.930	0.105	8.829	<.001	0.738		
	XC3	0.779	0.083	9.399	<.001	0.774		
	XC4	0.844	0.091	9.295	<.001	0.767		
	XC5	0.990	0.100	9.871	<.001	0.803		
	XC6	1.018	0.101	10.068	<.001	0.815		
Marketing management level	XE1	1				0.771	0.899	0.597
	XE2	0.741	0.084	8.802	<.001	0.773		
	XE3	0.866	0.101	8.575	<.001	0.755		
	XE4	0.901	0.095	9.478	<.001	0.823		
	XE5	0.886	0.098	9.066	<.001	0.792		
	XE6	0.833	0.103	8.086	<.001	0.718		
Growing area conditions	XA1	1				0.703	0.877	0.588
	XA2	1.575	0.185	8.532	<.001	0.851		

	XA3	1.175	0.147	7.969	<.001	0.788		
	XA4	1.585	0.216	7.328	<.001	0.720		
	XA5	1.221	0.158	7.738	<.001	0.763		
Competitiveness of characteristic agricultural products	YA1	1				0.771	0.857	0.601
	YA2	0.923	0.115	7.999	<.001	0.735		
	YA3	0.962	0.123	7.843	<.001	0.722		
	YA4	1.291	0.139	9.312	<.001	0.864		
Infrastructure condition	XD1	1				0.756	0.840	0.637
	XD2	1.220	0.143	8.532	<.001	0.805		
	XD3	1.486	0.170	8.761	<.001	0.831		

Confirmatory factor analysis, the standardized load of the items in the table below and the standardized path coefficient map, the standardized path coefficients of all item loads on the factors are greater than 0.60, the CR is greater than 0.7, and the AVE is greater than 0.5. The results show that the factors of the questionnaire used in this study have good convergent and discriminant validity.

3.2.2.2 Moderating effect test

According to the 10 divisions of China's agricultural resources and environment, this study uses mplus8.3 to construct a multi-group model of 10 group moderating effects, with the growth area condition A, agricultural industry status B, processing industry status C, and infrastructure condition D respectively. , the marketing management level E is the independent variable; the government support W is the moderating variable, and the competitiveness of regional characteristic agricultural products is the dependent variable. The effects of each independent variable, moderating variable and the product term of the independent variable and the moderating variable on the dependent variable were investigated separately, in order to test the moderating effect of government support on the competitiveness of characteristic agricultural products in different agricultural resource and environmental zones.

(1) Analysis of the moderating effect of government support in Northeast China

The status quo of the agricultural industry has a significant positive impact on the competitiveness of characteristic agricultural products ($\beta = 0.118$, $p = 0.012<0.05$), and H1b has been verified; infrastructure conditions significantly and positively affect the competitiveness of characteristic agricultural products ($\beta = 0.169$, $p = 0.019<0.05$), H1d is validated. The results also showed that government support played a positive moderating role in the relationship between growing regional conditions affecting the competitiveness of characteristic agricultural products ($\beta = 0.150$, $p = 0.046 < 0.05$), that is, as the intensity of government support increased, the growing regional conditions increased. Improvement will increase the competitiveness of characteristic agricultural products, and H2a has been verified; government support has played a positive moderating role in the impact of agricultural industry status The increase of agricultural industry status will increase the competitiveness of characteristic agricultural products, and H2b has been verified.

(2) Analysis of the moderating effect of government support in Inner Mongolia and areas along the Great Wall

The status of processing industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.151, p = 0.05), therefore, H1c is verified. . The results showed that government support played a positive moderating role in the relationship between growing regional conditions affecting the competitiveness of characteristic agricultural products (β = 0.156, p = 0.056). The results were marginally significant, that is, as the intensity of government support increased, growing regional conditions The improvement will increase the competitiveness of characteristic agricultural products. Therefore, H2a is validated. Government support played a positive moderating role in the influence of the current situation of the processing industry on the competitiveness of characteristic agricultural products (β = 0.137, p = 0.065). The result was marginally significant, that is, with the increase of government support, the status of the processing industry would improve. Increase the competitiveness of specialty agricultural products. Hence, H2d is validated.

(3) Analysis of the moderating effect of government support in Huanghuaihai District

Growth area conditions significantly and positively affected the competitiveness of specialty agricultural products (β = 0.216, p = 0.004 < 0.01). Therefore, H1a was validated. The status of agricultural industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.173, p = 0.028 < 0.05). Therefore, H1b is verified. The results show that the government support in Huanghuaihai District does not play a role in regulating the competitiveness of characteristic agricultural products in terms of growth area conditions, agricultural industry status quo, processing industry status quo, infrastructure conditions, and marketing management level.

(4) Analysis of the moderating effect of government support in the 7 regions of the Loess Plateau

The status quo of agricultural industry, processing industry, infrastructure conditions, and marketing management level have no significant influence on the competitiveness of characteristic agricultural products. However, the results show that the status quo of the agricultural industry has played a positive moderating role in the relationship between the growth area conditions and the competitiveness of characteristic agricultural products (β = 0.174, p = 0.027 < 0.05), that is, with the strength of government support and the increase in the status of agricultural industry The improvement will increase the competitiveness of characteristic agricultural products. Therefore, H2a is validated.

(5) Analysis of the moderating effect of government support in the arid region of Northwest China

The growth area conditions have a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.303, p < 0.001), that is, with the improvement of the growth area conditions in the arid regions of Northwest China, the competitiveness of characteristic agricultural products will be enhanced. Therefore, H1a is validated. The status quo of the agricultural industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.190, p=0.006 <0.01), that is, with the improvement of the agricultural industry status in the arid regions of Northwest China, the competitiveness of characteristic agricultural products will be enhanced. Therefore, H1b is validated. The status quo of the processing industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.142, p=0.043 < 0.05), that is, with the improvement

of the current situation of the processing industry in the arid regions of Northwest China, the competitiveness of its characteristic agricultural products will be enhanced. Therefore, the H1c is validated. The level of marketing management has a significant positive impact on the competitiveness of characteristic agricultural products ($\beta = 0.141$, $p = 0.052$), and the result is marginally significant. Hence, H1e is validated. That is to say, with the improvement of the marketing management level in the northwest arid region, the competitiveness of its characteristic agricultural products will be enhanced. The results show that in the arid area of northwest China, government support does not play a role in regulating the competitiveness of characteristic agricultural products in terms of growth area conditions, agricultural industry status, processing industry status, infrastructure conditions, and marketing management level.

(6) Analysis of the moderating effect of government support in the middle and lower reaches of the Yangtze River

The status quo of the agricultural industry in the middle and lower reaches of the Yangtze River, the status quo of the processing industry, the infrastructure conditions, and the level of marketing management have no significant influence on the competitiveness of characteristic agricultural products. However, the results showed that government support played a positive moderating role in the relationship between growing regional conditions affecting the competitiveness of characteristic agricultural products ($\beta = 0.175$, $p = 0.016 < 0.05$), that is, as the intensity of government support in the middle and lower reaches of the Yangtze River increased agricultural The improvement of industrial status will increase the competitiveness of characteristic agricultural products. Therefore, H2a is validated.

(7) Analysis of Moderating Effect of Government Support in Jiangnan Hilly Region

The status quo of the agricultural industry in the hilly areas of the south of the Yangtze River significantly and positively affects the competitiveness of characteristic agricultural products ($\beta = 0.193$, $p = 0.008 < 0.01$). Therefore, H1b is verified. The status of processing industry has a significant positive impact on the competitiveness of characteristic agricultural products ($\beta = 0.141$, $p = 0.0056$), and the result is marginally significant. Therefore, H1c is verified. The results showed that government support played a positive moderating role in the relationship between the status of agricultural industry and the competitiveness of characteristic agricultural products ($\beta = 0.144$, $p = 0.070$). Improvement will increase the competitiveness of specialty agricultural products. Hence, H2c is validated. Government support has played a positive moderating role in the influence of the current situation of the processing industry on the competitiveness of characteristic agricultural products ($\beta = 0.106$, $p = 0.096$). The result is marginally significant, that is, with the increase of government support, the improvement of the status of the processing industry will increase. Increase the competitiveness of specialty agricultural products. Hence, H2d is validated.

(8) Analysis of the Moderating Effect of Government Support in Southeast District

The status quo of agricultural industry, processing industry, infrastructure conditions, and marketing management level in the southeast area have no significant influence on the competitiveness of characteristic agricultural products. However, the results showed that government support played a positive moderating role in the relationship between growing regional conditions affecting the competitiveness of characteristic agricultural products ($\beta = 0.174$, $p = 0.020 < 0.05$), that is, with the intensity of government support in the southeast area and the status quo of agricultural industry The improvement will increase the competitiveness of characteristic agricultural products. Therefore, H2a is validated. Government support played a positive moderating role in the relationship between the status of the agricultural industry and

the competitiveness of characteristic agricultural products (β = 0.162, p = 0.041 < 0.05), that is, with the strength of government support in the southeast area and the improvement of the status of agricultural industry, it will increase Competitiveness of characteristic agricultural products. Therefore, H2b is validated.

(9) Analysis of the moderating effect of government support in Southwest China

The status of agricultural industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.244, p = 0.001 < 0.01). Therefore, H1b is verified. The status of processing industry has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.141, p = 0.059), and the result is marginally significant. Therefore, H1c is verified. The results show that government support has played a positive moderating role in the influence of the current situation of the agricultural industry on the competitiveness of characteristic agricultural products (β = 0.210, p = 0.011<0.05). The improvement of the situation will increase the competitiveness of characteristic agricultural products. Hence, H2c is validated.

(10) Analysis of the moderating effect of government support in the Qinghai-Tibet Plateau

Growth area conditions significantly and positively affect the competitiveness of characteristic agricultural products (β = 0.361, p < 0.001), that is, the improvement of growth area conditions in the Qinghai-Tibet Plateau will enhance the competitiveness of characteristic agricultural products; therefore, H1a is verified. Government support has a significant positive impact on the competitiveness of characteristic agricultural products (β = 0.123, p < 0.001), that is, the increase in government support in the growing areas of the Qinghai-Tibet Plateau will directly improve the competitiveness of characteristic agricultural products; The influence of the competitiveness of agricultural products played a positive moderating role (β = 0.210, p = 0.007 < 0.01), that is, with the increase of government support, the improvement of regional conditions in the Qinghai-Tibet Plateau can increase the competitiveness of characteristic agricultural products. Therefore, H2a is validated.

(11) Analysis of the influence of independent variables in each region

It can be seen from the above analysis that the influence of growth area conditions, agricultural industry status quo, processing industry status quo, infrastructure conditions, and marketing management level on the competitiveness of characteristic agricultural products varies according to different regions. The specific performance is that the areas where the growth area conditions have a significant impact on the characteristic agricultural products are: Huanghuaihai District, the northwest arid area and the Qinghai-Tibet Plateau area; the areas where the current situation of the agricultural industry has a significant impact on the competitiveness of characteristic agricultural products are: Northeast China, Huanghuaihai District , Northwest arid area, Jiangnan hilly area, and southwest area; areas where the status quo of the processing industry has a significant impact on the competitiveness of characteristic agricultural products are: Inner Mongolia and areas along the Great Wall, northwest arid area, Jiangnan hilly area, and southwest area; infrastructure conditions have a significant impact on characteristic agricultural products. The regions with significant competitiveness are: Northeast region, Northwest arid region; in all 10 regions, the level of marketing management cannot significantly affect the competitiveness of characteristic agricultural products. See Table3 for details.

Table3 Significance of Independent variables on dependent variable in each zone

	Zone1	Zone2	Zone3	Zone4	Zone5	Zone6	Zone7	Zone8	Zone9	Zone10
Growing area conditions	N	N	Sig	N	Sig	N	N	N	N	Sig
Status of the agricultural industry	Sig	N	Sig	N	Sig	N	Sig	N	Sig	N
Current Situation of Processing Industry	N	Sig	N	`	Sig	N	Sig	N	Sig	N
Infrastructure condition	Sig	N	N	N	Sig	N	N	N	N	N
Marketing management level	N	N	N	N	N	N	N	N	N	N

(12) Analysis of the influence of the adjustment effect of each region

From the above analysis, we can see that the moderating effect of government support also shows regional differences. The regions where government support has a moderating effect on the competitiveness of characteristic agricultural products by the growing regional conditions include: Northeast China, Inner Mongolia and the regions along the Great Wall, the middle and lower reaches of the Yangtze River, the hilly region of the south of the Yangtze River, the southeast region, and the Qinghai-Tibet Plateau. The areas where government support has a moderating effect on the current situation of the agricultural industry affecting the competitiveness of characteristic agricultural products are: Northeast China, Loess Plateau, Jiangnan Hills, Southeast, and Southwest. The areas where government support has a moderating effect on the current situation of the processing industry affecting the competitiveness of characteristic agricultural products are: Inner Mongolia and the areas along the Great Wall. Government support does not play a moderating role in the influence of infrastructure conditions and marketing management level on the competitiveness of characteristic agricultural products in any region. Therefore, H3 is validated. Table4 for details.

Table 4 Significance of moderation in each zone

	Zone1	Zone2	Zone3	Zone4	Zone5	Zone6	Zone7	Zone8	Zone9	Zone10
Growing area conditions	Sig	Sig	N	N	N	Sig	Sig	Sig	N	Sig
Status of the agricultural industry	Sig	N	N	Sig	N	N	Sig	Sig	Sig	N
Current Situation of Processing Industry	N	Sig	N	N	N	N	N	N	N	N
Infrastructure condition	N	N	N	N	N	N	N	N	N	N
Marketing management level	N	N	N	N	N	N	N	N	N	N

Conclusions and Implications

1. Conclusion

On the basis of the previous discussion, this paper takes the five dimensions of agricultural industry chain optimization as independent variables, the competitiveness of regional agricultural products industry as a dependent variable, and government support as a moderator variable to construct a theory that agricultural industry chain optimization can improve the competitiveness of regional agricultural products industry. Model. And through the questionnaire survey of people engaged in agricultural planting, agricultural products or agronomic processing and food processing in Sichuan Province and Shandong Province, the

first-hand data required for the empirical analysis of this paper are obtained, and the data is tested and analyzed by SPSS21 software. The research conclusions are as follows:

The influence of growth area conditions, agricultural industry status, processing industry status, infrastructure conditions, and marketing management level on the competitiveness of characteristic agricultural products varies from region to region. The specific performance is that the areas where the growth area conditions have a significant impact on the characteristic agricultural products are: Huanghuaihai District, the northwest arid area and the Qinghai-Tibet Plateau area; the areas where the current situation of the agricultural industry has a significant impact on the competitiveness of characteristic agricultural products are: Northeast China, Huanghuaihai District , Northwest arid area, Jiangnan hilly area, and southwest area; areas where the status quo of the processing industry has a significant impact on the competitiveness of characteristic agricultural products are: Inner Mongolia and areas along the Great Wall, northwest arid area, Jiangnan hilly area, and southwest area; infrastructure conditions have a significant impact on characteristic agricultural products. The regions with significant competitiveness are: Northeast region, Northwest arid region; in all 10 regions, the level of marketing management cannot significantly affect the competitiveness of characteristic agricultural products. The moderating effect of government support also shows regional differences. The regions where government support has a moderating effect on the competitiveness of characteristic agricultural products by the growing regional conditions include: Northeast China, Inner Mongolia and the regions along the Great Wall, the middle and lower reaches of the Yangtze River, the hilly region of the south of the Yangtze River, the southeast region, and the Qinghai-Tibet Plateau. The areas where government support has a moderating effect in the impact of the current situation of the agricultural industry on the competitiveness of characteristic agricultural products are: Northeast China, Loess Plateau, Jiangnan Hilly, Southeast, and Southwest. The areas where government support has a moderating effect on the status quo of the processing industry affecting the competitiveness of characteristic agricultural products are: Inner Mongolia and areas along the Great Wall. Government support does not play a moderating role in the influence of infrastructure conditions and marketing management level on the competitiveness of characteristic agricultural products in any region.

2. Revelation

Promoting the optimization of the agricultural industry chain is a necessary condition for the sustainable and high-quality development of a regional characteristic agricultural product industry. Only in this way can the competitiveness of regional characteristic agricultural products be enhanced. The research results of this paper show that in order to enhance the competitiveness of regional agricultural products, it is necessary to promote the optimization of the agricultural industry chain, and rationally adjust the optimization projects through government support. The research implications of this paper are as follows:

Government departments need to support them in terms of the growth area conditions and the current situation of the agricultural industry, formulate the layout and development plan of the agricultural industry, provide preferential policies such as taxation, subsidies, credit and land use for the development of the characteristic agricultural product industry, and develop, cultivate and regulate the characteristic agricultural product market. System construction, and actively guide and promote the safety management of characteristic agricultural products and the certification of high-quality agricultural products, actively carry out agricultural technical

education and training, and establish a relatively complete market management mechanism for characteristic agricultural products.

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